Environmental Visage

SUPPORTING DOCUMENTATION FOR AN APPLICATION TO VARY ENVIRONMENTAL PERMIT REFERENCE EPR/ZP3439RM

KNOWSLEY WASTE FACILITY; MULBERRY WASTE LIMITED

1. Form A Responses

This application is for a Permit variation only. However, for completeness, information on Company Directors and their dates of birth is provided below. This data should be redacted prior to inclusion of this documentation on the public register.

Surname	Forename(s)	Date of Birth
Evans	Paul John	[redacted]
Isaji	Hassanali	[redacted]
Isaji	Shenaz	[redacted]
Khan	Abrar Hussain	[redacted]

2. Form C2 Responses

Q 2d Treating Batteries

Batteries arrive at site in unsorted collection containers and / or in containers of a single battery type. Batteries are stored within site buildings, principally although not exclusively Building 3, prior to manual sorting and segregation.

Additionally, batteries arrive within WEEE and are manually removed, sorted and stored in containers of mixed batteries prior to removal from site for further processing and recycling. WEEE sorting is undertaken within the process building which includes no drainage points.

Buildings 2 and 3 provide covered storage for wastes, preventing or minimising the potential for inclement weather to impact on the storage area. Any rainwater run-off from these buildings or the yard is directed to the site drainage system which can be isolated from the public sewer in the event of an incident or emergency, effectively sealing the system. The penstock is manually activated, but can be closed as required.

Form C2 Table 1 Changes to Existing Activities at the Knowsley Waste Facility

Schedule 1 Reference	Current Description of Installation Activity	Proposed Changes
S. 2.2 A(1) (c) – producing, melting or recovering (whether by chemical means or by electrolysis or by the use of heat) Cd or Hg or any alloy containing more than 0.05 % w/w of either metals or both in aggregate.	Activity is not included	Inclusion of a new installation activity onto the Permit: Retort for recovering Mercury
S. 5.3 A(1) (a)(ii) – disposal or recovery of hazardous waste > 10 T / day by physico-chemical treatment	Activity shall be limited to: • The crushing of fluorescent tubes; • The crushing or shredding of metal containers; • The shredding of oil filters. Hazardous waste accepted for disposal will not exceed 10 T / day. Combined total of all waste accepted shall not exceed 221,700 T / annum	Activity shall be limited to: • The crushing of fluorescent tubes and sorting of the waste fractions in the Multec system (or equivalent) for subsequent recycling; • The shredding of flat panel displays / screens and sorting of the waste fractions in the Multec system (or equivalent) for subsequent recycling; • The shredding of other WEEE waste in a WEEE shredder. Combined total of all waste accepted shall not exceed 210,000 T / annum
S. 5.3 A(1) (a)(ii) – disposal or recovery of hazardous waste > 10 T / day by physico-chemical treatment	Activity is not included	Inclusion of a new installation activity onto the Permit: Materials sorter - mechanical sorting of waste
S. 5.3 A(1) (a)(iv) – disposal or recovery of hazardous waste > 10 T / day involving repackaging	Hazardous waste accepted for disposal will not exceed 10 T / day. Combined total of all waste accepted shall not exceed 221,700 T / annum	Including sorting, separation and bulking Combined total of all waste accepted shall not exceed 210,000 T / annum
S. 5.6 A(1) (a) – Temporary storage of hazardous waste with a capacity exceeding 50 T	Wastes shall be stored for no longer than 180 days. Maximum quantity of oil and oily water shall not exceed 750 T. Maximum quantity of hazardous waste stored pending recovery shall not exceed 375 T. Combined total of all waste accepted shall not exceed 221,700 T / annum	Reduction in the potential waste oil storage from 750 to 25 T at any one time Increase in potential maximum storage of hazardous waste to the total site storage capacity (575 T total) Combined total of all waste accepted shall not exceed 210,000 T / annum

Waste Operations	Current Description of the Waste Operation	Proposed Changes
Manual and mechanical sorting, separation and repackaging of non-hazardous wastes	Maximum quantity of waste that can be stored at any one time is 40 T	Reference will be made to the inclusion of the materials sorter (mechanical sorting of waste) which uses new plant to undertake the operations already Permitted Increase in potential maximum storage of non-hazardous waste to the total site storage capacity (575 T total) Combined total of all waste accepted shall not exceed 210,000 T / annum
Shredding of metal waste including WEEE and ELVs and their components for recovery	Wastes shall be stored for no longer than 180 days. Maximum quantity of waste that can be stored at any one time is 40 T	Change description to: Maximum quantity of waste that can be treated in any one day is 120 T
Non-hazardous waste storage	Wastes shall be stored for no longer than 180 days.	Include the potential maximum storage of non-hazardous waste to the total site storage capacity (575 T total)

Directly Associated Activity (DAA)	Description of the DAA	Limitations of the Activity	Proposed Changes
Utilities and services	Operation of systems for supply of utilities and services such as electricity, gas and water	Utilities and services within the installation boundary	Addition of a 275 kVa diesel fired generator (< 300 kW thermal input). Operational for up to 3,000 hours per annum currently advised to Environment Agency (in Reg. 61 Notice response) but unlimited operating hours going forward (8,760 h / yr).
Effluent and surface water discharge	Discharge of surface water and effluent to sewer via an interceptor	From collection of surface water, waste-water from oil recycling and container wash waters, to discharge off-site	No change

There are no mining waste operations or groundwater activities undertaken at the installation.

Section 3 Your Ability as an Operator

Although the application concerns a waste installation / waste activity Permit, this is the current use of the site and the operator is not changing. Section 3 has been completed regarding the suitability of Mulberry Waste Limited to operate their installation, however the Environment Agency already holds data on the historical Company prosecution, and technical competence, and hence no further documentation has been provided here, except where previous submissions require updating.

Q 3a Relevant Offences

Mulberry Waste Limited was involved in a prosecution case in 2013 (for an offence in September 2009) although the principal offences were committed by third parties, acting as Greenwood Environmental North East Limited. Subsequently, a Concern Letter, your ref: DC/BU5526ISV005/PCP, was sent by Dolores Clegg of the Environment Agency, and confirmed that there would be no revocation either of Mulberry Waste Limited's Environmental Permit, or of their Carrier Registration.

Q 3b Technical Ability

The Company employs several staff who are certified technically competent managers, and their current certificates are included in Appendix A. Competent staff are as follows:

Title	First Name	Last Name	Phone	Mobile	E-mail
Mr	David	Ashford	01772 454129	07481 235135	Dave@mulberrygroup.uk
Mr	Paul	Evans	01772 454129	07974 577248	Paul@mulberrygroup.uk
Mr	Hassanali	Isaji	01772 454129	07974 751882	Hassan.isaji@mulberrygroup.uk
Mr	Abrar	Khan	01772 454129	07966 371393	Abrar.khan@mulberrygroup.uk

The competent staff detailed above also provide technically competent management at the following sites:

Permit Number	Site Address	Postcode
EPR/BU5526IS	117 – 118 Clydesdale Place, Moss Side Industrial Estate, Lancashire	PR26 7QS
EPR/FP3738JM	1 – 3 Peregrine Place, Comet Road, Lancashire	PR25 3EY
EPR/YP3735SS	17 Commerce Way, Trafford Park, Lancashire	M17 1HW
EPR/GP3339BE	11 Ormside Way, Holmethorpe, Redhill, Surrey	RH1 2LW
EPR/XP3834YT	Blaydon Transfer Station, Factory Road, Tyne and Wear	NE21 5SD
PPC/A/1016835	Bredisholm Refinery, Tannochside, Uddingston	G71 5PN

Q 3d Management Systems

Mulberry Waste Limited operates environmental (ISO 14001), quality (ISO 9001), and occupational health and safety (ISO 45001) management systems which are certified (Certificate Numbers 197474, 197020, and 199632 respectively) and are independently audited by The British Assessment Bureau on a regular basis. The systems cover the Company waste management, treatment and recycling services and will be updated to reflect the proposed expanded operations at the Knowsley site.

The use of such management systems ensures that the potential impact of the Company operations on the environment has been considered and systems and procedures have been implemented to minimise the risk of their occurrence or effect.

The EMS includes an environmental policy, a register of relevant legislation, a commitment to implement the best practicable environmental options and maintain a duty of care, and to work to regulatory requirements as a minimum, whilst aiming for continual improvement in the Company's environmental performance. The EMS includes a fully auditable system of records and procedures, and the results of all audits are discussed and reviewed with senior management.

The Company has recently incorporated a 'System or Process Change Assessment Check Sheet' as a fundamental part of the considerations made for any project. The aim of the check sheet is to ensure that the positive and negative impacts of any project and the resultant actions and activities that may be required are identified and managed early in the change process, thereby minimising the potential for important issues to be missed, and better managing the project development and transition phase for site activities.

All staff are trained appropriately for their needs and environmental training is undertaken as part of the ISO 14001 system. Staff are generally trained through a system of 'buddying-up' whereby they receive on the job training, although any additional training requirements would be organised as necessary. The skills and competencies for any role within the Company are set out by the relevant Departmental Head and the Human Resources team, and information on the requirements is held within personnel files and on training records.

The Company has three staff holding Certificates of Technical Competence who are involved in the management of the Knowsley Waste Facility. Any works to be undertaken by contractors at the site would be subject to the provision of satisfactory risk assessments and method statements, and would be undertaken under the Company Permit to Work system. Mulberry Waste Limited staff may also undertake an additional assessment of potential risks of contractor activities, where they were properly trained and able to do so.

Q 5a Site Plans

See Appendix B for updated site plans showing:

- The site location and the location of nearby receptors;
- The site layout and emission points;
- The site drainage plan

No additional land is required to be scoped into the installation boundary through the proposed Permit variation.

It is noted that the site includes comprehensive, concrete surfacing with no areas of un-made or pervious ground. All site drainage passes through the site interceptor which includes a manually operated penstock valve for the control of releases in the event of an emergency. All site drainage ultimately passes to sewer.

Q 5c Non-Technical Summary

This application has been prepared in order to update the information held on the site process plant, many of which required replacement after a significant site fire.

The currently Permitted site operations include the crushing and shredding of fluorescent tubes, metal containers and oil filters; the shredding of non-hazardous Waste Electrical and Electronic Equipment (WEEE), End of Life Vehicles (ELVs) and their components; the physical treatment of non-hazardous wastes, including manual and mechanical sorting, separation and repackaging; the storage and re-packaging of both hazardous and non-hazardous wastes, including waste oil and oil water; and directly associated activities including the supply and use of utilities and effluent and surface water discharge.

The fluorescent tube crusher has been replaced by the Multec process which can treat fluorescent tubes and lamps but which can also process flat panel displays (screens) in a dedicated part of the system. Previously, tubes and lamps were crushed in a system based on, but modified from, the Wiser 'Tube-Eater' process. Whereas the original Tube-Eater was designed to crush fluorescent tubes and capture all of the crushed material within a single collection drum, whilst a Carbon absorption system and particle and Mercury HEPA filter abated emissions to air, the adapted system also separated out the crushed material fractions into glass, Mercury (Phosphor dust) and Aluminium.

The Multec system also crushes tubes and lamps, and separates out the resultant materials into three size fractions of glass, end caps and Mercury (Phosphor dust), while abating discharges to atmosphere using a cyclone, a bag-filter, an activated Carbon filter and a HEPA filter.

In addition to the lamp crushing process, the Multec includes a separate shredder designed to process flat panel displays. The Mercury vapour and dust are abated in the air treatment system and the Multec separates the hazardous and non-hazardous materials from the shredded screens. The materials are initially sorted into ferrous and non-ferrous fractions, before the non-ferrous materials are passed through a stand-alone materials sorter. A new replacement shredder will also be installed at the site, specifically to shred other WEEE, and again, the outputs from the shredder can subsequently be sorted. The new shredder will handle both hazardous and non-hazardous WEEE wastes, whereas currently, WEEE shredding activities are limited to non-hazardous wastes.

The eMax materials sorter uses in-flight detection over an illuminated reference to allow the sorting of opaque, transparent and black materials including further checking and separation of ferrous and non-ferrous metals and stainless-steel, wires, printed circuit boards and durable plastics such as Acrylonitrile Butadiene Styrene (ABS), High Impact Polystyrene Sheets (HIPS), PolyCarbonate (PC), and PolyMethyl MethAcrylate (PMMA).

As the materials sorting unit is separate from the Multec and shredder processes, it can process materials which do not require passing through these systems first, and hence, any other appropriate and acceptable wastes to the site can be processed through the eMax. The crushing, shredding and sorting systems combine to facilitate the safe destruction of the WEEE and enable the recovery for recycling of the component materials.

The generator is required to provide an additional and stable electricity supply to both the Multec and the new shredder system and hence will be operational when either of the two systems are in use.

A retort will also be installed at the site for the recovery of Mercury. The retort heats Mercury bearing wastes including the Phosphor powder separated out by the Multec system, causing it to release the Mercury in vapour form which is then condensed into a sealed container in the form of 99.99 % pure Mercury for re-use.

Finally, the list of wastes and recovery / disposal codes for each activity are reviewed and updated within this variation application to ensure that the revised site Permit fully reflects the nature of the wastes and the site operations.

Q5e Fire Prevention Plan

A new fire prevention plan has been prepared in line with the Environment Agency's current guidance. The plan supports this submission and is included as Appendix C.

Q 6 Environmental Risk Assessment

An Environmental Risk Assessment for the Knowsley Waste Facility is included below. This is an existing assessment (last updated in February 2022), which has been expanded to consider any revision to the potential risk as a result of the amended and additional operations now proposed for the site.

As the site scheduled operations will also now incorporate a point source discharge to atmosphere from the Mercury retort, as well as emissions from the directly associated activities, the Environment Agency's risk assessment methodology has also been applied and is included as an Access file 'H1 MW Knowsley 2022' within the application submission.

Storage:

The site receives a wide variety of waste types for storage and transfer, with some wastes undergoing processing / treatment and some being repacked or bulked. The majority of the waste types entering the site are stored pending processing / treatment.

Crushing / Shredding:

Waste fluorescent tubes and flat panel screens are crushed, separately, in a proprietary unit with the resultant separated material fractions being stored prior to on-ward transfer. The Phosphor powder collected from the process will be further processed in the site retort in order to extract and capture the Mercury from this and other Mercury bearing wastes.

Other hazardous and non-hazardous WEEE waste is processed through a separate shredder. A materials sorter ensures the thorough segregation of various material types from the processes.

Manual WEEE treatment, repacking and consolidating for offsite transfer:

Some hazardous waste types may be re-packaged or bulked prior to off-site transfer for recycling, including:

- Mercury bearing wastes (dental amalgams, thermometers etc.), although the Mercury may be recovered on site by processing in the retort;
- WEEE, categories 1- 12 and 14;
- Waste oils and oily water, stored in tanks (1 and / or 2) or small containers to a maximum of 25 T.

Gas discharge lamps will be fully processed through the Multec system. In the event that any crushed lamps are not treated to remove the Mercury content, they will be stored in a gas-tight sealed drum or gas-tight sealed heavy-duty impermeable plastic bag resistant to punctures. Any bag that becomes damaged must immediately be placed inside a secondary sealed container.

Other repackaging, bulking and storage:

- Antifreeze / coolant is pumped into a dedicated bulk storage tank (Tank 1 and / or 2).
- Other liquid wastes such as brake fluids and liquid paint wastes may be decanted into 205 litre drums. Drums may be palletised for storage.
- Absorbent rags and granules are transferred into IBC's.
- Aerosols are transferred into IBCs and then stored in a secure cage, or in a vented waste safe.
- Metal wastes, including brake pads will be transferred to a metal skip.

The site will include two 12 m^3 tanks located in the yard, which are fully bunded and will store waste oil, Methyl Ethylene Glycol (antifreeze) or non-hazardous aqueous waste. Waste types will not be mixed within the tanks.

Although not currently installed at the site, the tanks to be used will undergo appropriate, independent assessment by a suitably qualified third-party engineer, to confirm that they are fit for purpose and are fully compliant with CIRIA guidance. Any necessary maintenance of pre-used tanks will be undertaken prior to their use.

The tanks will be dedicated to the storage of one type of waste material or the other at any one time and would be cleaned out between transfers of different material types. The tanks can each hold 12 m^3 of liquid wastes. Making an allowance for differing densities and the potential storage of smaller containers of such waste at the site (e.g. drums or IBCs), it is estimated that the site might store up to 25 tonnes of such waste at any one time. Assuming that both tanks may be completely filled and emptied each day, which is likely a significant over-estimate, the site may transfer up to 9,125 tonnes, or approximately 10,250 m^3 of waste oil or waste antifreeze each year.

Emissions to air include tank breather vents, which are located at the top of the tanks. These vents prevent the pressurisation of the tanks during material transfer and are open to atmosphere. There is no abatement of emissions from these tanks. Discharge points to air across the site are as follows therefore:

Emission Point No.	Source	Emission Point No.	Source
A1	Mercury retort	A3	Tank 1 breather vent
A2	Generator	A4	Tank 2 breather vent

The Multec system includes comprehensive and dedicated abatement to minimise the release of Mercury and dusts to the environment. However, the filtration system is sufficiently robust as to discharge into the workplace environment, and the release from the air treatment system is therefore not included here as a discharge point to atmosphere.

Small amounts of non-hazardous wastes may also be re-packaged or bulked prior to off-site transfer for recycling, including:

- Cardboard;
- Plastic packaging;
- Washed and pre shredded / treated plastic;
- Scrap metals for recycling.

When a bulk load arrives at the site, a sample is taken from the tanker and is analysed in the on-site laboratory.

Oil / oily water will be tested for:

- Water concentration
- Suspended solids
- Odour
- Flash point
- Colour

Non-hazardous effluents will be tested for:

- pH
- Odour
- Colour
- Compatibility with existing materials on-site

Further testing may involve

- COD
- Anionic surfactants
- Cationic surfactants

If the site can accept the load, it is off-loaded into the dedicated tank for that waste type. If further testing is required, the sample is sent to the laboratory at Mulberry's Leyland site where a more detailed analysis can be carried out.

Sewer:

Discharges to sewer are of surface water and waste-water from oil and aqueous waste handling, storage and treatment, and from container washing. All discharges pass through a three-stage interceptor prior to release, and any process water is tested to ensure the suitability of discharge before being sent to drain where this is within the consent limit, or being contained for collection and off-site disposal where the release might otherwise exceed the consented limit. The drainage system was largely replaced in 2011 and is detailed in the drainage plan in Appendix B. A CCTV survey or other appropriate inspection of the drainage system will be carried out in the future as and when it is deemed necessary, with a minimum frequency of every 10 years.

The table over page details the risk assessment associated with the processes and potential discharges.

Within the risk assessments:

- A low overall risk is one which is either unlikely to occur or is unlikely to have any substantiated impact either due to the nature of the risk or the control measures which are in place.
- A medium overall risk could occur and the potential consequences may be realised. However, the nature of the risk and / or the control measures in place mean that the resultant impact should be identified and adequately managed, and therefore its extent can be minimised.
- A high overall risk is one which will likely occur and significant impact(s) will likely be realised because the nature of the potential consequences and the inability of the control measures in place to mitigate against these suggest a high probability of occurrence and exposure to the hazard.

Potential Emissions to Air

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Incoming bulk effluents	Vapour release to air from tanker manway Release to air through vaporised spillage Vapour displacement during tank filling	Local atmosphere, site workers and neighbouring premises	Short term release from tanker manway on opening hatches. Potential exposure of tanker operator in particular, although site workers and local neighbours more generally, may result in health impacts or nuisance Short term potential exposure of site workers in particular and local neighbours more generally, until spillage is cleared away, may result in health impacts or nuisance Tank headspace will be displaced at height at the pump rate, during the filling operation	Strict waste pre-acceptance, acceptance and control measures are in place, and include the use of PPE where the potential for exposure remains Spillages will be dealt with immediately using appropriate containment and spill kits thereby limiting potential for vaporisation.	Control measures are in place to minimise the potential for unacceptable deliveries, unacceptable waste types and releases during receipt, handling and storage. Hence although the potential for exposure exists, the probability and impact of such is minimised	Low
Incoming containerised wastes	Vapour releases from containers during acceptance checks, or where these remain open to atmosphere Release to air through vaporised spillage	Local atmosphere, site workers and neighbouring premises	Potential exposure of site workers in particular and local neighbours more generally, may result in health impacts or nuisance Short term potential exposure of site workers in particular and local neighbours more generally, until spillage is cleared away, may result in health impacts or nuisance	Containers are checked to ensure content is suitable for acceptance, however training and operational procedures ensure that this is undertaken without unnecessary delay, the containers are sound, and are subsequently closed. PPE is used where the potential for exposure remains and COSHH assessments are in place to control exposure to staff Spillages will be dealt with immediately using appropriate containment and spill kits thereby limiting potential for vaporisation. Strict waste pre-acceptance, acceptance and control measures are in place	Control measures are in place to minimise the potential for unacceptable deliveries, unacceptable waste types and releases during receipt, handling and storage. Hence although the potential for exposure exists, the probability and impact of such is minimised	Low

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Shredding / crushing operation	Vapour and dust releases from shredding crushing operations	Site workers and neighbouring premises	Potential exposure of site workers in particular and local neighbours more generally, may result in nuisance during the operation of the shredder unit. Release of mercury and dusts to the surrounding area and environment	Training and operational procedures ensure that only accepted wastes are processed, and the shredder unit internal scrubbing units are designed and intended for the expected hazardous material, they are to be maintained and operational at all times the equipment is running PPE is used as required as stipulated in the COSHH assessment. Dust and Mercury monitoring will be carried out as stipulated in the COSHH assessment and permit conditions to ensure the air cleaning equipment is in working condition	Acceptance, training and operational procedures, and the shredder plant infrastructure minimise the potential for exposure to vapours or odours	Low
	Noise and vibration	Site workers and neighbouring premises	Hearing damage or loss Noise nuisance affecting neighbours	The shredder operation is located within a building Operation between 06:00 and 18:00 weekdays and occasional 07:00 – 11:00 on weekends, with industrial neighbours Occupational monitoring across processing areas will be undertaken and the use of hearing PPE, will be strictly enforced where needed	Probability of exposure is low due to most site operations not being inherently noisy	Low

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Site noise – vehicle movements, motors, generator, compressor, audible alarms, container handling	Noise and vibration	Site workers and neighbouring premises	The processes are not inherently noisy but where plant is not appropriately maintained or insufficient care is taken when undertaking operations such as waste movements or handling containers, operations may cause noise nuisance	Operation between 06:00 and 18:00 weekdays and occasional 07:00 – 11:00 on weekends, with industrial neighbours Preventative maintenance, training, and operational procedures ensure that the potential for noise nuisance from yard operations is kept to a minimum. Operations with the potential to create noise (e.g. shredding) are located within site buildings	As the majority of site processes are not inherently noisy, and those which have some potential to create noise are located within site buildings, the probability of exposure and nuisance is limited	Low
Dust or litter created by general site operations	Dust or litter created by site operations and escaping the site boundary, either on the wind, or tracked out onto the roadway	Local property, infrastructure or parked vehicles	Litter may increase the risks associated with fires and have the potential to be blown off the permitted site.	The wastes accepted will generally not give rise to excessive amounts of litter Daily site checks monitor levels of litter Material that may be considered to have the potential to create dust (GDL) or litter, will be stored in covered containers. They will only be opened for checking when within a site building. Training and operational procedures promote good housekeeping across the site	The wastes that may give rise to dust generation are stored in containers and are only opened when the potential for exposure and nuisance is limited	Low

Potential Emissions to Water

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Contaminated liquids discharged to sewer	Contaminated surface run-off / washings discharging to sewer	Waste-water treatment works and potentially on to surface water	Surface water contamination or damage to the waste-water treatment works	Training and operational procedures ensure control of the process. Containers to only be opened within the buildings. Any spillages outside the buildings to be cleaned up immediate as per the spillage procedure.	With control measures, spillage procedures, and sturdy waste containers the potential for accidental discharges exists, but the probability of such is minimised.	Low
Spillages of incoming or outgoing wastes on roadways	Damaged infrastructure or via drainage system	Land and / or ground water beneath the roadway and drains, or direct to surface water or waste-water treatment works	Land, ground water or surface water contamination, or damage to the waste-water treatment works	The roadway in the immediate vicinity of the site is in reasonable condition and Mulberry Waste Limited would report any significant damage to Knowsley Metropolitan Borough Council highways department Site is manned by trained operatives during receipt or dispatch of materials who would endeavour to block drains in the event of a spill which might affect them	Drivers and site staff are fully trained in spillage control Emergency response procedures and staff training will minimise the probability of exposure	Low

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Spillage of wastes within site boundary	Damaged infrastructure or via drainage system	Land and / or ground water beneath the site and drains, or waste-water treatment works	Land or ground water contamination, or damage to the waste-water treatment works	The site yard and flooring throughout the storage and process buildings is formed of impermeable concrete and is in good condition with sealed joints Regular checks and maintenance across the site would address maintenance issues as necessary Training and operational procedures ensure control of the process, and good housekeeping measures Spillage procedures and staff training ensures that any brakeage is cleared up promptly and negates any release from site	Spillages may occur during the storage, handling and processing of waste, however the infrastructure and management practices in place minimise the probability of environmental exposure	Low
Material leaving the permitted area Contamination of soils / groundwater	Wind swept material blown off site Flooding leading to overflow of site containment	Groundwater table, soils and into the food chain	Damage to the ecosystem and food pathways Potential for bioaccumulation (Mercury)	Operational controls include maintaining covered waste storage. No containers to be opened outside of the main building Spills / Incidents to be cleaned up as soon as possible. Any incidents that involve material leaving the permitted area are to be communicated with the Senior management team and EA, and are to be investigated thoroughly Site drainage system to be maintained and inspected routinely. It is to be cleaned as and when needed	With closed and covered containers which are only opened when the potential for exposure is limited, as well as spill control procedures, the risk associated with loss of containment is low Drains are maintained and assessed so blockages leading to loss of tertiary containment are also considered low	Low

Accident Risk Assessment

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Waste receipt, off-loading, checking and storage and transfer	Spillages / breakages	Yard , drains Release to air Local atmosphere, site workers, neighbouring premises, and parked vehicles	Debris around the site or tracked out onto the roadway, residues washed to drains. Dust nuisance or health implications for staff and / or neighbours	The site yard and flooring throughout the storage and process buildings is formed of impermeable concrete and is in good condition with sealed joints Training and operational procedures ensure control of the process, and good housekeeping measures. Staff have FLT licences Spillage procedures and staff training ensures that any breakage is cleared up promptly and negates any release from site	Spillages of solids (GDL's) are generally easy to control and will be dealt with promptly. There are also minimal quantities of contaminants able to escape. Accident Management Plan and supporting procedures provide details of actions to be taken in the event of an emergency Hence the potential for any significant impact outside of the site boundary is minimal, and regular site inspections would ensure that any spills are identified and managed	Low
Waste receipt, off-loading, sorting, storage, and transfer	Smouldering or burning wastes – air pathway	Smoke and fumes to air Disposal of burned wastes	Smoke and fumes may cause health impacts or nuisance	Strict waste pre-acceptance, acceptance and control measures are in place, and smouldering or burning wastes would not be accepted at the site Staff are trained in the use of fire extinguishers, and action would be taken immediately by staff to cool / extinguish any fire Incoming wastes are visually inspected, and regular inspections of all waste are undertaken by trained staff Although many are combustible, the wastes accepted on site require a high energy activation to set alight	No flammable materials are stored on site and the potential for fire is very low with the risk of fire spread equally low. However, training and management practices reduce and minimise the probability of occurrence and environmental exposure Accident Management Plan and supporting procedures provide details of actions to be taken in the event of an emergency, and any appropriate clean up measures	Low

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Utilities	Misconnection – potentially resulting in fire, flood or pollution of systems or environment	Plant (e.g. generator), yard, sewer, surface water, or air (fumes from any fire)	Air, including potential nuisance or health impacts, land, ground or surface water contamination, or damage to the waste-water treatment works	Plant manufactured, adapted as required and installed by appropriately qualified persons. Routine electrical inspections and PAT testing Drainage drawings available and updated as required Penstock will be closed off in the event of any fire on site	Although the potential for misconnections to occur does exist, project planning and the use of appropriately qualified persons minimises the possibility of occurrence Training and management practices and accident management planning minimise the impact of any effect.	Low
	Fire – from electrical installations, stationary or mobile plant – release to air	Fumes released to air	Smoke and fumes may cause health impacts or nuisance If fire is associated with plant, spillage may also occur	Regular maintenance and PAT testing minimise the potential for electrical or plant fires Training and operational procedures ensure that any fire will be dealt with promptly and appropriately to minimise the consequences All electrical equipment is installed by qualified and competent electricians	Limited probability of exposure due to appropriate installation, operation and maintenance practices Accident Management Plan and supporting procedures provide details of actions to be taken in the event of an emergency, and ensure appropriate clean up	Low

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Utilities	Power outage – release from uncontrolled processes	Air, yard / flooring	With the exception of mobile plant, all equipment would stop. There are no safety critical processes on site Operational delays would be incurred due to a lack of waste acceptance	Incoming deliveries would be delayed or diverted as required Backup power is available via onsite generator	Limited potential for exposure as operational conditions and management practices ensure that processes would fail to safe Power outages are not regularly experienced	Low
	Flooding	Yard / flooring and site or road drainage	Flooding could occur either from the incoming mains water supply, or due to a blockage in the effluent system Yard or site buildings may become unusable Operational delays would be incurred due to a lack of waste acceptance	As required, tanks and tankers would be used to collect and contain excess water / effluent Incoming deliveries would be delayed or diverted as required	Accident Management Plan and supporting procedures provide details of actions to be taken in the event of an emergency, and ensure appropriate clean up	Low

Source	Pathway	Receptor	Potential Consequences	Management and Control	Probability of Exposure	Overall Risk
Unauthorised access	Vandalism / damage to plant and equipment	Air, yard / flooring	Damage to building and plant Land or surface or ground water contamination Possible release to sewer	Site is fully fenced and gated, with gates only open during full operational periods The Company also employs CCTV around the site All keys removed from equipment when staff are not on site	Limited possibility of unauthorised access to the site due to appropriate security measures. Site design contains spillages and significant release could only be enabled through significant actions	Low
Climate Change Impacts	Heavy rainfall / flooding	Yard or site buildings may become unusable	Damage to building and plant Land or surface or ground water contamination Delays to processing and operations while site is cleaned and dried out as necessary	The site is in an area with a low probability of flooding The site is generally higher than the surrounding areas and road. The chance of water coming onto site is very limited. As required, tanks and tankers would be used to collect and contain excess water / effluent to other sites within the group	Accident Management Plan and supporting procedures provide details of actions to be taken in the event of an emergency, and ensure appropriate clean up	Low
	Temperature effects resulting in increased vaporisation of wastes or freezing of equipment	Air, yard / flooring	Release of vapours into air with potential increase in nuisance or health impacts. Damage of plant or equipment resulting in a spillage	Training and operational procedures ensure control of such impacts as much as reasonably possible	Limited current potential, although further considerations will be made as necessary should the situation change Accident Management Plan and supporting procedures provide details of actions to be taken in the event of an emergency, and ensure appropriate clean up	Low

3. Form C3 Responses

Q1 What is to be Varied?

Table 1a Types of Activities at the Knowsley Waste Facility; Mulberry Waste Limited

Schedule 1 / Activity Reference	Description	Capacity	Annex I and II Codes	Hazardous Waste Capacity	Non-Hazardous Waste Capacity
Activity 1: S. 2.2 A(1) (c)	Producing, melting or recovering (whether by chemical means or by electrolysis or by the use of heat) Cd or Hg or any alloy containing more than 0.05 % w/w of either metals or both in aggregate. The use of a retort to recover Mercury from waste.	Maximum capacity of 1.36 T / batch or day Annual capacity shall not exceed 500 T	R4: Recycling / reclamation of metals and metal compounds	1.36 tonnes / day processing Up to 140 tonnes / day storage	
Activity 2: S. 5.3 A(1) (a)(ii) *Current A1*	The disposal or recovery of hazardous waste > 10 T / day by physico-chemical treatment – crushing or shredding	Hazardous waste accepted for disposal will not exceed 10 T / day Combined total of all waste accepted shall not exceed 210,000 T / yr	R3: Recycling / reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R4: Recycling / reclamation of metals and metal compounds R5 Recycling / reclamation of other inorganic compounds	Multec = 46 tonnes / day Shredder = 120 tonnes / day	
Activity 3: S. 5.3 A(1) (a)(ii)	The disposal or recovery of hazardous waste > 10 T / day by physico-chemical treatment – mechanical sorting	Hazardous waste accepted for disposal will not exceed 10 T / day Combined total of all waste accepted shall not exceed 210,000 T / yr	R4: Recycling / reclamation of metals and metal compounds R5 Recycling / reclamation of other inorganic compounds R13: storage of waste pending any R1 – R12 operation D15: Storage pending off-site disposal	24 tonnes / day	

Schedule 1 / Activity Reference	Description	Capacity	Annex I and II Codes	Hazardous Waste Capacity	Non-Hazardous Waste Capacity
Activity 4: S. 5.3 A(1) (a)(iv) *Current A2*	The disposal or recovery of hazardous waste > 10 T / day involving repackaging – including sorting, separation and bulking	Hazardous waste accepted for disposal will not exceed 10 T / day Combined total of all waste accepted shall not exceed 210,000 T / yr	R12: Exchange of wastes for submission to any of the operation numbered R1 – R11 R13: storage of waste pending any R1 – R12 operation D14: Repackaging prior to submission to any operations numbered D1 to D13 D15: Storage pending off-site disposal	575 tonnes Within the overall site total (575 T)	
Activity 5: S. 5.6 A(1) (a) *Current A3*	The temporary storage of hazardous waste with a capacity exceeding 50 T	Maximum quantity of oil and oily water shall not exceed 25 T Maximum quantity of hazardous waste stored pending recovery shall not exceed 575 T Combined total of all waste accepted shall not exceed 210,000 T / yr	R13: storage of waste pending any R1 – R12 operation D15: Storage pending off-site disposal	575 tonnes Within the overall site total (575 T)	
Activity 6: Manual and mechanical sorting, separation and repackaging of non-hazardous wastes *Current A6*	Manual and mechanical sorting and repackaging	Maximum quantity of waste that can be treated in any one day is 40 T Combined total of all waste accepted shall not exceed 210,000 T / yr	R3: Recycling / reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R4: Recycling / reclamation of metals and metal compounds R13: storage of waste pending any R1 – R12 operation D15: Storage pending off-site disposal		575 tonnes Within the overall site total (575 T)

Schedule 1 / Activity Reference	Description	Capacity	Annex I and II Codes	Hazardous Waste Capacity	Non-Hazardous Waste Capacity
Activity 7: Shredding of metal waste including WEEE and ELVs and their components for recovery *Current A7*	Shredding	Maximum quantity of waste that can be treated in any one day is 120 T Combined total of all waste accepted shall not exceed 210,000 T / yr	R3: Recycling / reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R4: Recycling / reclamation of metals and metal compounds R13: storage of waste pending any R1 – R12 operation		Shredder = 120 tonnes / day
Activity 8: Non-hazardous waste storage *Current A8*	Storage	Combined total of all waste accepted shall not exceed 210,000 T / yr	R13: storage of waste pending any R1 – R12 operation D15: Storage pending off-site disposal		575 tonnes Within the overall site total (575 T)
Directly Associated Activities		**Description and Application**			
Activity 9: Utilities and services *Current A4*		Incoming mains water and energy supplies, and the use of a 275 kVa diesel fired generator providing energy to the Multec and shredder plant as required			
Activity 10: Effluent discharge *Current A5*		As per the terms of the Trade Effluent Consent Receipt of potentially oily effluent and run-off from all site processes			
Total Storage Capacity (T)		575 tonnes			
Annual Throughput (T / annum)		210,000 tonnes per annum			

Important Note:

Site storage is specified (and marked on the site plans) as likely capacities based on the current market availability and future estimates. However, in reality, any area of the site can be used to store any waste, subject to the availability of suitable infrastructure. That is, for example, WEEE waste will always be stored within a building or protected from the elements and aerosols will always be stored securely either within a cage, or in a vented waste safe. The overall storage capacity and annual throughput will remain within the maximum values stated above, although any one or combination of waste types may make up the total storage of the site at any one time.

Table 1b List of Wastes

The list of wastes for each activity are detailed below in tables aligned with and expanded from the S2 tables within the existing Permit. Where new wastes are requested, these have been highlighted in yellow for ease of review.

Table S2.2 Permitted waste types and quantities for activity A1 - use of a retort to recover Mercury from waste.	
Maximum quantity	**500 tonnes per year**
Waste code	**Description**
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 07	**wastes from natural gas purification and transportation**
05 07 01*	wastes containing mercury
06	**Wastes from inorganic chemical processes**
06 04	**metal-containing wastes other than those mentioned in 06 03**
06 04 04*	wastes containing mercury
06 07	**wastes from the MFSU of halogens and halogen chemical processes**
06 07 03*	barium sulphate sludge containing mercury
10	**Wastes from thermal processes**
10 14	**waste from crematoria**
10 14 01*	waste from gas cleaning containing mercury
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 08*	components containing mercury
16 03	**off-specification batches and unused products**
16 03 07*	Metallic mercury
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 09	**other construction and demolition wastes**
17 09 01*	construction and demolition wastes containing mercury
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 21*	fluorescent tubes and other mercury-containing waste

Table S2.3 Permitted waste types and quantities for activity A2 - recovery or disposal of hazardous waste by physico-chemical treatment (crushing or shredding)	
Maximum quantity	**43,800 tonnes per year**
Waste code	**Description**
09	**Wastes from the photographic industry**
09 01	**Wastes from the photographic industry**
09 01 11*	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 10*	packaging containing residues of or contaminated by dangerous substances
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 07*	oil filters
16 01 08*	components containing mercury
16 02	**wastes from electrical and electronic equipment**
16 02 13*	discarded equipment containing hazardous components (2) other than those mentioned in 16 02 09 to 16 02 12
16 02 15*	hazardous components removed from discarded equipment
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 21*	fluorescent tubes and other mercury-containing waste
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

Table S2.4 Permitted waste types and quantities for activity A3 and A4 – sorting and repackaging of hazardous waste prior to the submission to any other recovery and disposal activities	
Maximum quantity	**210,000 tonnes per year**
Waste code	**Description**
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 07	**wastes from natural gas purification and transportation**
05 07 01*	wastes containing mercury
06	**Wastes from inorganic chemical processes**
06 04	**metal-containing wastes other than those mentioned in 06 03**
06 04 04*	wastes containing mercury
06 07	**wastes from the MFSU of halogens and halogen chemical processes**
06 07 03*	barium sulphate sludge containing mercury
06 13	**wastes from inorganic chemical processes not otherwise specified**
06 12 02*	Spent activated carbon (except 06 07 02)
08	**Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks**

08 01	**wastes from MFSU and removal of paint and varnish**
08 01 11*	waste paint and varnish containing organic solvents or other dangerous substances
08 01 17*	wastes from paint or varnish removal containing organic solvents or other dangerous substances
08 01 19*	aqueous suspensions containing paint or varnish containing organic solvents or other dangerous substances
08 01 21*	waste paint or varnish remover
09	**Wastes from the photographic industry**
09 01	**wastes from the photographic industry**
09 01 11*	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03
10	**Wastes from thermal processes**
10 14	**waste from crematoria**
10 14 01*	waste from gas cleaning containing mercury
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 10*	packaging containing residues of or contaminated by dangerous substances
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 07*	oil filters
16 01 08*	components containing mercury
16 01 13*	brake fluids
16 01 14*	antifreeze fluids containing dangerous substances
16 01 21*	hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14
16 02	**wastes from electrical and electronic equipment**
16 02 09*	Transformers and capacitors containing PCB's
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC
16 02 13*	discarded equipment containing hazardous components (2) other than those mentioned in 16 02 09 to 16 02 12
16 02 15*	hazardous components removed from discarded equipment
16 03	**off-specification batches and unused products**
16 03 07*	Metallic mercury
16 05	**gases in pressure containers and discarded chemicals**
16 05 04*	gases in pressure containers (including halons) containing dangerous substances
16 06	**batteries and accumulators**
16 06 01*	lead batteries
16 06 02*	Ni-Cd batteries
16 06 03*	mercury-containing batteries
16 06 06*	separately collected electrolyte from batteries and accumulators

17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 04	**metals (including their alloys)**
17 04 09*	metal waste contaminated with dangerous substances
17 09	**other construction and demolition wastes**
17 09 01*	construction and demolition wastes containing mercury
18	**Wastes from human or animal health care and / or related research** (except kitchen and restaurant wastes not arising from immediate health care)
18 01	**wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 10*	amalgam waste from dental care
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**wastes from physico/chemical treatments including dechromatation, decyanidation, neutralization)**
19 02 11*	Other wastes containing hazardous substances
19 10	**wastes from shredding of metal-containing wastes**
19 10 03*	Fluff-light fraction and dust containing hazardous substances
19 10 05*	other fractions containing dangerous substances
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletizing) not otherwise specified**
19 12 11*	Other wastes (including mixtures of material) from mechanical treatment of wastes containing hazardous substances
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 21*	fluorescent tubes and other mercury-containing waste
20 01 23*	discarded equipment containing chlorofluorocarbons
20 01 33*	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

Table S2.5 Permitted waste types and quantities for activity A5 - temporary storage of hazardous waste	
Maximum quantity	**210,000 tonnes per year**
Waste code	**Description**
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	**wastes from petroleum refining**
05 01 05*	oil spills
05 01 06*	oily sludges from maintenance operations of the plant or equipment
05 07	**wastes from natural gas purification and transportation**
05 07 01*	wastes containing mercury
06	**Wastes from inorganic chemical processes**
06 04	**metal-containing wastes other than those mentioned in 06 03**
06 04 04*	wastes containing mercury
06 07	**wastes from the MFSU of halogens and halogen chemical processes**
06 07 03*	barium sulphate sludge containing mercury
06 13	**wastes from inorganic chemical processes not otherwise specified**
06 12 02*	Spent activated carbon (except 06 07 02)
07	**Wastes from organic chemical processes**
07 07	wastes from the MFSU of fine chemicals and chemical products not otherwise specified
07 07 08*	other still bottoms and reaction residues
08	**Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks**
08 01	**wastes from MFSU and removal of paint and varnish**
08 01 11*	waste paint and varnish containing organic solvents or other dangerous substances
08 01 17*	wastes from paint or varnish removal containing organic solvents or other dangerous substances
08 01 19*	aqueous suspensions containing paint or varnish containing organic solvents or other dangerous substances
08 01 21*	waste paint or varnish remover
08 03	**wastes from MFSU of printing inks**
08 03 19*	disperse oil
09	**Wastes from the photographic industry**
09 01	**wastes from the photographic industry**
09 01 11*	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03
10	**Wastes from thermal processes**
10 14	**waste from crematoria**
10 14 01*	waste from gas cleaning containing mercury
12	**Wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 06*	mineral-based machining oils containing halogens (except emulsions and solutions)

12 01 07*	mineral-based machining oils free of halogens (except emulsions and solutions)
12 01 08*	machining emulsions and solutions containing halogens
12 01 09*	machining emulsions and solutions free of halogens
12 01 10*	synthetic machining oils
12 01 14*	machining sludges containing dangerous substances
12 01 18*	metal sludge (grinding, honing and lapping sludge) containing oil
12 01 19*	readily biodegradable machining oil
13	**Oil wastes and wastes of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)**
13 01	**waste hydraulic oils**
13 01 04*	chlorinated emulsions
13 01 05*	non-chlorinated emulsions
13 01 09*	mineral-based chlorinated hydraulic oils
13 01 10*	mineral based non-chlorinated hydraulic oils
13 01 11*	synthetic hydraulic oils
13 01 12*	readily biodegradable hydraulic oils
13 01 13*	other hydraulic oils
13 02	**waste engine, gear and lubricating oils**
13 02 04*	mineral-based chlorinated engine, gear and lubricating oils
13 02 05*	mineral-based non-chlorinated engine, gear and lubricating oils
13 02 06*	synthetic engine, gear and lubricating oils
13 02 07*	readily biodegradable engine, gear and lubricating oils
13 02 08*	other engine, gear and lubricating oils
13 03	**waste insulating and heat transmission oils**
13 03 06*	mineral-based chlorinated insulating and heat transmission oils other than those mentioned in 13 03 01
13 03 07*	mineral-based non-chlorinated insulating and heat transmission oils
13 03 08*	synthetic insulating and heat transmission oils
13 03 09*	readily biodegradable insulating and heat transmission oils
13 03 10*	other insulating and heat transmission oils
13 04	**bilge oils**
13 04 01*	bilge oils from inland navigation
13 04 02*	bilge oils from jetty sewers
13 04 03*	bilge oils from other navigation
13 05	**oil/water separator contents**
13 05 01*	solids from grit chambers and oil/water separators
13 05 02*	sludges from oil/water separators
13 05 03*	interceptor sludges
13 05 06*	oil from oil/water separators
13 05 07*	oily water from oil/water separators
13 05 08*	mixtures of wastes from grit chambers and oil/water separators
13 07	**wastes of liquid fuels**

13 07 01*	fuel oil and diesel
13 07 02*	petrol
13 07 03*	other fuels (including mixtures)
13 08	**oil wastes not otherwise specified**
13 08 01*	desalter sludges or emulsions
13 08 02*	other emulsions
13 08 99*	Mixtures of waste oils which fall under chapter 13 only (excluding the following – mixtures of chlorinated and non-chlorinated wastes together and mixtures of PCB contaminated waste with uncontaminated waste)
14	**Waste organic solvents, refrigerants and propellants (except 07 and 08)**
14 06	**waste organic solvents, refrigerants and foam/aerosol propellants**
14 06 03*	other solvents and solvent mixtures
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 10*	packaging containing residues of or contaminated by dangerous substances
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 02*	absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 07*	oil filters
16 01 08*	components containing mercury
16 01 13*	brake fluids
16 01 14*	antifreeze fluids containing dangerous substances
16 01 21*	hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14
16 02	**wastes from electrical and electronic equipment**
16 02 09*	Transformers and capacitors containing PCB's
16 02 11*	discarded equipment containing chlorofluorocarbons, HCFC, HFC
16 02 13*	discarded equipment containing hazardous components other than those mentioned in 16 02 09 to 16 02 12
16 02 15*	hazardous components removed from discarded equipment
16 03	**off-specification batches and unused products**
16 03 07*	Metallic mercury
16 05	**gases in pressure containers and discarded chemicals**
16 05 04*	gases in pressure containers (including halons) containing dangerous substances
16 06	**batteries and accumulators**
16 06 01*	lead batteries
16 06 02*	Ni-Cd batteries
16 06 03*	mercury-containing batteries
16 06 06*	separately collected electrolyte from batteries and accumulators

16 07	**wastes from transport tank, storage tank and barrel cleaning (except 05 and 13)**
16 07 08*	wastes containing oil
16 10	**aqueous liquid wastes destined for off-site treatment**
16 10 01*	aqueous liquid wastes containing dangerous substances
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 04	**metals (including their alloys)**
17 04 09*	metal waste contaminated with dangerous substances
17 09	**other construction and demolition wastes**
17 09 01*	construction and demolition wastes containing mercury
18	**Wastes from human or animal health care and / or related research (except kitchen and restaurant wastes not arising from immediate health care)**
18 01	**wastes from natal care, diagnosis, treatment or prevention of disease in humans**
18 01 10*	amalgam waste from dental care
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 07*	oil and concentrates from separation
19 02 11*	Other wastes containing hazardous substances
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 10*	grease and oil mixture from oil/water separation other than those mentioned in 19 08 09
19 10	**wastes from shredding of metal-containing wastes**
19 10 03*	Fluff-light fraction and dust containing hazardous substances
19 10 05*	other fractions containing dangerous substances
19 11	**wastes from oil regeneration**
19 11 03*	aqueous liquid wastes
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12 11*	other wastes (including mixtures of materials) from mechanical treatment of waste containing dangerous substances
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 21*	fluorescent tubes and other mercury-containing waste
20 01 23*	discarded equipment containing chlorofluorocarbons
20 01 26*	oil and fat other than those mentioned in 20 01 25
20 01 33*	batteries and accumulators included in 16 06 01, 16 06 02 or 16 06 03 and unsorted batteries and accumulators containing these batteries
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components

Table S2.6 Permitted waste types and quantities for activities A6 - non-hazardous waste operations (sorting and repackaging)	
Maximum quantity	**210,000 tonnes per year**
Waste code	**Description**
02	**Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing**
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting andfishing**
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
04	**Wastes from the leather, fur and textile industries**
04 01	**wastes from the leather and fur industry**
04 01 01	fleshings and lime split wastes
04 01 02	liming waste
04 02	**wastes from the textile industry**
04 02	**wastes from the textile industry**
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 21	wastes from unprocessed textile fibres
04 02 22	wastes from processed textile fibres
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**

05 01	**wastes from petroleum refining**
05 01 17	bitumen
05 06	**wastes from the pyrolytic treatment of coal**
05 06 04	waste from cooling columns
05 07	**wastes from natural gas purification and transportation**
05 07 02	wastes containing sulphur
06	**Wastes from inorganic chemical processes**
06 03	**wastes from the MFSU of salts and their solutions and metallic oxides**
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	metallic oxides other than those mentioned in 06 03 15
06 09	**wastes from the MSFU of phosphorous chemicals and phosphorous chemical processes**
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
06 11	**wastes from the manufacture of inorganic pigments and opacificiers**
06 11 01	calcium-based reaction wastes from titanium dioxide production
06 13	**wastes from inorganic chemical processes not otherwise specified**
06 13 03	carbon black
07	**Wastes from organic chemical processes**
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 13	waste plastic
07 05	**wastes from the MFSU of pharmaceuticals**
07 05 14	solid wastes other than those mentioned in 07 05 13
07	**Wastes from organic chemical processes**
07 07	**wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 12	sludges from on-site effluent treatment other than those mentioned in 07 07 11
09	**Wastes from the photographic industry**
09 01	**wastes from the photographic industry**
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
10	**Wastes from thermal processes**
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18

10 01 24	sands from fluidised beds
10 01 25	wastes from fuel storage and preparation of coal-fired power plants
10 01 26	wastes from cooling-water treatment
10 02	**wastes from the iron and steel industry**
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02 12	wastes from cooling-water treatment other than those mentioned in 10 02 11
10 02 15	other sludges and filter cakes
10 03	**wastes from aluminium thermal metallurgy**
10 03 02	anode scraps
10 03 05	waste alumina
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in 10 03 17
10 03 20	flue-gas dust other than those mentioned in 10 03 19
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 30	wastes from treatment of salt slags and black drosses other than those mentioned in 10 03 29
10 05	**wastes from zinc thermal metallurgy**
10 05 01	slags from primary and secondary production
10 05 11	dross and skimmings other than those mentioned in 10 05 10
10 06	**wastes from copper thermal metallurgy**
10 06 01	slags from primary and secondary production
10 07	**wastes from silver, gold and platinum thermal metallurgy**
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 05	sludges and filter cakes from gas treatment
10 08	**wastes from other non-ferrous thermal metallurgy**
10 08 04	particulates and dust
10 08 09	other slags
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in 10 08 12
10 08 14	anode scrap
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 09	**wastes from casting of ferrous pieces**

10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than those mentioned in 10 09 07
10 09 14	waste binders other than those mentioned in 10 09 13
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
10 10	**wastes from casting of non-ferrous pieces**
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than those mentioned in 10 10 07
10 10 14	waste binders other than those mentioned in 10 10 13
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15
10 11	**wastes from manufacture of glass and glass products**
10 11 03	waste glass-based fibrous materials
10 11 10	waste preparation mixture before thermal processing, other than those mentioned in 10 11 09
10 11 12	waste glass other than those mentioned in 10 11 11
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 11 17
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 01	waste preparation mixture before thermal processing
10 12 05	sludges and filter cakes from gas treatment
10 12 06	discarded moulds
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 13	**wastes from manufacture of cement, lime and plaster and articles and products made from them**
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 07	sludges and filter cakes from gas treatment
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	wastes from cement-based composite materials other than those mentioned in 10 13 09 and 10 13 10
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12

10 13 14	waste concrete and concrete sludge
11	**Wastes from chemical surface treatment and coating of metals and othermaterials; non-ferrous hydro-metallurgy**
11 02	**wastes from non-ferrous hydrometallurgical processes**
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 11 02 05
11 05	**wastes from hot galvanising processes**
11 05 01	hard zinc
12	**Wastes from shaping and physical and mechanical surface treatment ofmetals and plastics**
12 01	**wastes from shaping and physical and mechanical surface treatment of metals and plastics**
12 01 01	ferrous metal filings and turnings
12 01 03	non-ferrous metal filings and turnings
12 01 05	plastics shavings and turnings
12 01 13	welding wastes
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 01 20
15	**Waste packaging, absorbents, wiping cloths, filter materials and protectiveclothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 12	brake pads other than those mentioned in 16 01 11
16 01 17	ferrous metal
16 01 18	non-ferrous metal
16 01 19	plastic

16 01 20	glass
16 01 22	components not otherwise specified
16 01 99	wastes not otherwise specified
16 02	**wastes from electrical and electronic equipment**
16 02 10	Discarded equipment containing or contaminated by PCB's other than noose mentioned in 16 02 09
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 1602 15
16 03	**off-specification batches and unused products**
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
16 05	**gases in pressure containers and discarded chemicals**
16 05 05	gases in pressure containers other than those mentioned in 16 05 04
16 06	**batteries and accumulators**
16 06 04	alkaline batteries (except 16 06 03)
16 06 05	other batteries and accumulators
16 08	**spent catalysts**
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)
16 11	**waste linings and refractories**
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
17	**Construction and demolition wastes (including excavated soil fromcontaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 02	glass
17 02 03	Plastic

17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	metals (including their alloys)
17 04 01	copper, bronze, brass
17 04 02	aluminium
17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 06	**insulation materials and asbestos-containing construction materials**
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 08	**gypsum-based construction material**
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption andwater for industrial use**
19 01	**wastes from incineration or pyrolysis of waste**
19 01 02	ferrous materials removed from bottom ash
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 03	**stabilised/solidified wastes**
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 04	**vitrified waste and wastes from vitrification**
19 04 01	vitrified waste
19 06	**wastes from anaerobic treatment of waste**

19 06 04	digestate from anaerobic treatment of municipal waste
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 01	screenings
19 08 02	waste from desanding
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 01	solid waste from primary filtration and screenings
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 04	spent activated carbon
19 09 05	saturated or spent ion exchange resins
19 09 06	solutions and sludges from regeneration of ion exchangers
19 10	**wastes from shredding of metal-containing wastes**
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 06	other fractions other than those mentioned in 19 10 05
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12	**wastes from the mechanical treatment of waste (for example sorting,crushing, compacting, pelletising) not otherwise specified**
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles
19 12 09	minerals (for example sand, stones)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment ofwastes other than those mentioned in 19 12 11
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
20	**Municipal wastes (household waste and similar commercial, industrial andinstitutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 02	glass

20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 30	detergents other than those mentioned in 20 01 29
20 01 32	medicines other than those mentioned in 20 01 31
20 01 34	batteries and accumulators other than those mentioned in 20 01 33
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 0121, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	Plastics
20 01 40	metals
20 01 41	wastes from chimney sweeping
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
20 03	**other municipal wastes**
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
20 03 07	bulky waste

Table S2.7 Permitted waste types and quantities for activity A7 - recovery or disposal of non-hazardous waste by physico-chemical treatment (crushing or shredding)	
Maximum quantity	**43,800 tonnes per year**
Waste code	**Description**
09	**Wastes from the photographic industry**
09 01	**Wastes from the photographic industry**
09 01 10	single-use cameras without batteries
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
16	**Wastes not otherwise specified in the list**
16 02	**wastes from electrical and electronic equipment**
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35

Table S2.7 Permitted waste types and quantities for activities A8 non-hazardous waste storage for all non-hazardous waste operations	
Maximum quantity	**210,000 tonnes per year**
Waste code	**Description**
01	**Wastes resulting from exploration, mining, quarrying, and physical and chemical treatment of minerals**
01 05	**drilling muds and other drilling wastes**
01 05 04	freshwater drilling muds and wastes
01 05 07	barite-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
01 05 08	chloride-containing drilling muds and wastes other than those mentioned in 01 05 05 and 01 05 06
02	Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing
02 01	**wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing**
02 01 01	sludges from washing and cleaning
02 01 03	plant-tissue waste
02 01 04	waste plastics (except packaging)
02 01 07	wastes from forestry
02 02	**wastes from the preparation and processing of meat, fish and other foods of animal origin**
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment
02 03	**wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation**
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	wastes from preserving agents
02 03 03	wastes from solvent extraction
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 04	**wastes from sugar processing**
02 04 01	soil from cleaning and washing beet
02 04 02	off-specification calcium carbonate
02 04 03	sludges from on-site effluent treatment
02 05	**wastes from the dairy products industry**
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
02 06	**wastes from the baking and confectionery industry**
02 06 01	materials unsuitable for consumption or processing

02 06 02	wastes from preserving agents
02 06 03	sludges from on-site effluent treatment
02 07	**wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)**
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 03	wastes from chemical treatment
02 07 04	materials unsuitable for consumption or processing
02 07 05	sludges from on-site effluent treatment
03	**Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard**
03 01	**wastes from wood processing and the production of panels and furniture**
03 01 01	waste bark and cork
03 03	**wastes from pulp, paper and cardboard production and processing**
03 03 01	waste bark and wood
03 03 02	green liquor sludge (from recovery of cooking liquor)
03 03 05	de-inking sludges from paper recycling
03 03 07	mechanically separated rejects from pulping of waste paper and cardboard
03 03 08	wastes from sorting of paper and cardboard destined for recycling
03 03 09	lime mud waste
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
04	**Wastes from the leather, fur and textile industries**
04 01	**wastes from the leather and fur industry**
04 01 01	fleshings and lime split wastes
04 01 02	liming waste
04 01 04	tanning liquor containing chromium
04 01 05	tanning liquor free of chromium
04 01 06	sludges, in particular from on-site effluent treatment containing chromium
04 01 07	sludges, in particular from on-site effluent treatment free of chromium
04 01 08	waste tanned leather (blue sheetings, shavings, cuttings, buffing dust) containing chromium
04 01 09	wastes from dressing and finishing
04 02	**wastes from the textile industry**
04 02 09	wastes from composite materials (impregnated textile, elastomer, plastomer)
04 02 10	organic matter from natural products (for example grease, wax)
04 02 15	wastes from finishing other than those mentioned in 04 02 14
04 02 17	dyestuffs and pigments other than those mentioned in 04 02 16
04 02 20	sludges from on-site effluent treatment other than those mentioned in 04 02 19
04 02 21	wastes from unprocessed textile fibres

04 02 22	wastes from processed textile fibres
05	**Wastes from petroleum refining, natural gas purification and pyrolytic treatment of coal**
05 01	wastes from petroleum refining
05 01 10	sludges from on-site effluent treatment other than those mentioned in 05 01 09
05 01 13	boiler feedwater sludges
05 01 14	wastes from cooling columns
05 01 16	sulphur-containing wastes from petroleum desulphurisation
05 01 17	bitumen
05 06	**wastes from the pyrolytic treatment of coal**
05 06 04	waste from cooling columns
05 07	**wastes from natural gas purification and transportation**
05 07 02	wastes containing sulphur
06	**Wastes from inorganic chemical processes**
06 03	**wastes from the MFSU of salts and their solutions and metallic oxides**
06 03 14	solid salts and solutions other than those mentioned in 06 03 11 and 06 03 13
06 03 16	metallic oxides other than those mentioned in 06 03 15
06 05	**sludges from on-site effluent treatment**
06 05 03	sludges from on-site effluent treatment other than those mentioned in 06 05 02
06 06	**wastes from the MFSU of sulphur chemicals, sulphur chemical processes and desulphurisation processes**
06 06 03	wastes containing sulphides other than those mentioned in 06 06 02
06 09	**wastes from the MSFU of phosphorous chemicals and phosphorouschemical processes**
06 09 02	phosphorous slag
06 09 04	calcium-based reaction wastes other than those mentioned in 06 09 03
06 11	**wastes from the manufacture of inorganic pigments and opacificiers**
06 11 01	calcium-based reaction wastes from titanium dioxide production
06 13	**wastes from inorganic chemical processes not otherwise specified**
06 13 03	carbon black
07	Wastes from organic chemical processes
07 01	**wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals**
07 01 12	sludges from on-site effluent treatment other than those mentioned in 07 01 11
07 02	**wastes from the MFSU of plastics, synthetic rubber and man-made fibres**
07 02 12	sludges from on-site effluent treatment other than those mentioned in 07 02 11
07 02 13	waste plastic
07 02 15	wastes from additives other than those mentioned in 07 02 14
07 02 17	waste containing silicones other than those mentioned in 07 02 16
07 03	**wastes from the MFSU of organic dyes and pigments (except 06 11)**

07 03 12	sludges from on-site effluent treatment other than those mentioned in 07 03 11
07 04	**wastes from the MFSU of organic plant protection products (except 02 01 08 and 02 01 09), wood preserving agents (except 03 02) and other biocides**
07 04 12	sludges from on-site effluent treatment other than those mentioned in 07 04 11
07 05	**wastes from the MFSU of pharmaceuticals**
07 05 12	sludges from on-site effluent treatment other than those mentioned in 07 05 11
07 05 14	solid wastes other than those mentioned in 07 05 13
07 06	**wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics**
07 06 12	sludges from on-site effluent treatment other than those mentioned in 07 06 11
07 07	**wastes from the MFSU of fine chemicals and chemical products not otherwise specified**
07 07 12	sludges from on-site effluent treatment other than those mentioned in 07 07 11
08	**Wastes from the manufacture, formulation, supply and use (MFSU) of coatings (paints, varnishes and vitreous enamels), adhesives, sealants and printing inks**
08 01	**wastes from MFSU and removal of paint and varnish**
08 01 12	waste paint and varnish other than those mentioned in 08 01 11
08 01 14	sludges from paint or varnish other than those mentioned in 08 01 13
08 01 16	aqueous sludges containing paint or varnish other than those mentioned in 08 01 15
08 01 18	wastes from paint or varnish removal other than those mentioned in 08 01 17
08 01 20	aqueous suspensions containing paint or varnish other than those mentioned in 08 01 19
08 02	**wastes from MFSU of other coatings (including ceramic materials)**
08 02 02	aqueous sludges containing ceramic materials
08 02 03	aqueous suspensions containing ceramic materials
08 03	**wastes from MFSU of printing inks**
08 03 07	aqueous sludges containing ink
08 03 08	aqueous liquid waste containing ink
08 03 13	waste ink other than those mentioned in 08 03 12
08 03 15	ink sludges other than those mentioned in 08 03 14
08 03 18	waste printing toner other than those mentioned in 08 03 17
08 04	**wastes from MFSU of adhesives and sealants (including water proofing products)**
08 04 10	waste adhesives and sealants other than those mentioned in 08 04 09
08 04 12	adhesive and sealant sludges other than those mentioned in 08 04 11
08 04 14	aqueous sludges containing adhesives or sealants other than those mentioned in 0804 13
08 04 16	aqueous liquid waste containing adhesives or sealants other than those mentionedin 08 04 15
09	**Wastes from the photographic industry**

09 01	**wastes from the photographic industry**
09 01 07	photographic film and paper containing silver or silver compounds
09 01 08	photographic film and paper free of silver or silver compounds
09 01 10	single-use cameras without batteries
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
10	**Wastes from thermal processes**
10 01	**wastes from power stations and other combustion plants (except 19)**
10 01 05	calcium-based reaction wastes from flue-gas desulphurisation in solid form
10 01 07	calcium-based reaction wastes from flue-gas desulphurisation in sludge form
10 01 19	wastes from gas cleaning other than those mentioned in 10 01 05, 10 01 07 and 10 01 18
10 01 21	sludges from on-site effluent treatment other than those mentioned in 10 01 20
10 01 23	aqueous sludges from boiler cleansing other than those mentioned in 10 01 22
10 01 24	sands from fluidised beds
10 01 25	wastes from fuel storage and preparation of coal-fired power plants
10 01 26	wastes from cooling-water treatment
10 02	**wastes from the iron and steel industry**
10 02 01	wastes from the processing of slag
10 02 02	unprocessed slag
10 02 08	solid wastes from gas treatment other than those mentioned in 10 02 07
10 02 10	mill scales
10 02 12	wastes from cooling-water treatment other than those mentioned in 10 02 11
10 02 14	sludges and filter cakes from gas treatment other than those mentioned in 10 02 13
10 20 15	other sludges and filter cakes
10 03	**wastes from aluminium thermal metallurgy**
10 03 02	anode scraps
10 03 05	waste alumina
10 03 16	skimmings other than those mentioned in 10 03 15
10 03 18	carbon-containing wastes from anode manufacture other than those mentioned in10 03 17
10 03 20	flue-gas dust other than those mentioned in 10 03 19
10 03 24	solid wastes from gas treatment other than those mentioned in 10 03 23
10 03 26	sludges and filter cakes from gas treatment other than those mentioned in 10 03 25
10 03 28	wastes from cooling-water treatment other than those mentioned in 10 03 27
10 03 30	wastes from treatment of salt slags and black drosses other than those mentionedin 10 03 29
10 04	**wastes from lead thermal metallurgy**
10 04 10	wastes from cooling-water treatment other than those mentioned in 10 04 09
10 05	**wastes from zinc thermal metallurgy**

10 05 01	slags from primary and secondary production
10 05 09	wastes from cooling-water treatment other than those mentioned in 10 05 08
10 05 11	dross and skimmings other than those mentioned in 10 05 10
10 06	**wastes from copper thermal metallurgy**
10 06 01	
10 06 10	wastes from cooling-water treatment other than those mentioned in 10 06 09
10 07	**wastes from silver, gold and platinum thermal metallurgy**
10 07 01	slags from primary and secondary production
10 07 02	dross and skimmings from primary and secondary production
10 07 03	solid wastes from gas treatment
10 07 05	sludges and filter cakes from gas treatment
10 07 08	wastes from cooling-water treatment other than those mentioned in 10 07 07
10 08	**wastes from other non-ferrous thermal metallurgy**
10 08 04	particulates and dust
10 08 09	other slags
10 08 11	dross and skimmings other than those mentioned in 10 08 10
10 08 13	carbon-containing wastes from anode manufacture other than those mentioned in10 08 12
10 08 14	anode scrap
10 08 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 10 08 17
10 08 20	wastes from cooling-water treatment other than those mentioned in 10 08 19
10 09	**wastes from casting of ferrous pieces**
10 09 03	furnace slag
10 09 06	casting cores and moulds which have not undergone pouring other than those mentioned in 10 09 05
10 09 08	casting cores and moulds which have undergone pouring other than thosementioned in 10 09 07
10 09 14	waste binders other than those mentioned in 10 09 13
10 09 16	waste crack-indicating agent other than those mentioned in 10 09 15
10 10	**wastes from casting of non-ferrous pieces**
10 10 03	furnace slag
10 10 06	casting cores and moulds which have not undergone pouring, other than those mentioned in 10 10 05
10 10 08	casting cores and moulds which have undergone pouring, other than thosementioned in 10 10 07
10 10 14	waste binders other than those mentioned in 10 10 13
10 10 16	waste crack-indicating agent other than those mentioned in 10 10 15
10 11	**wastes from manufacture of glass and glass products**
10 11 03	waste glass-based fibrous materials

10 11 10	waste preparation mixture before thermal processing, other than those mentioned in10 11 09
10 11 12	waste glass other than those mentioned in 10 11 11
10 11 14	glass-polishing and -grinding sludge other than those mentioned in 10 11 13
10 11 16	solid wastes from flue-gas treatment other than those mentioned in 10 11 15
10 11 18	sludges and filter cakes from flue-gas treatment other than those mentioned in 1011 17
10 11 20	solid wastes from on-site effluent treatment other than those mentioned in 10 11 19
10 12	**wastes from manufacture of ceramic goods, bricks, tiles and construction products**
10 12 01	waste preparation mixture before thermal processing
10 12 05	sludges and filter cakes from gas treatment
10 12 06	discarded moulds
10 12 08	waste ceramics, bricks, tiles and construction products (after thermal processing)
10 12 10	solid wastes from gas treatment other than those mentioned in 10 12 09
10 12 12	wastes from glazing other than those mentioned in 10 12 11
10 12 13	sludge from on-site effluent treatment
10 13	**wastes from manufacture of cement, lime and plaster and articles andproducts made from them**
10 13 01	waste preparation mixture before thermal processing
10 13 04	wastes from calcination and hydration of lime
10 13 07	sludges and filter cakes from gas treatment
10 13 10	wastes from asbestos-cement manufacture other than those mentioned in 10 13 09
10 13 11	wastes from cement-based composite materials other than those mentioned in 1013 09 and 10 13 10
10 13 13	solid wastes from gas treatment other than those mentioned in 10 13 12
10 13 14	waste concrete and concrete sludge
11	**Wastes from chemical surface treatment and coating of metals and other materials; non-ferrous hydro-metallurgy**
11 01	**wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)**
11 01 10	sludges and filter cakes other than those mentioned in 11 01 09
11 01 12	aqueous rinsing liquids other than those mentioned in 11 01 11
11 01 14	degreasing wastes other than those mentioned in 11 01 13
11 02	**wastes from non-ferrous hydrometallurgical processes**
11 02 03	wastes from the production of anodes for aqueous electrolytical processes
11 02 06	wastes from copper hydrometallurgical processes other than those mentioned in 1102 05
11 05	**wastes from hot galvanising processes**
11 05 01	hard zinc
12	**Wastes from shaping and physical and mechanical surface treatment ofmetals**

	and plastics
12 01	**wastes from shaping and physical and mechanical surface treatment ofmetals and plastics**
12 01 01	ferrous metal filings and turnings
12 01 03	non-ferrous metal filings and turnings
12 01 05	plastics shavings and turnings
12 01 13	welding wastes
12 01 15	machining sludges other than those mentioned in 12 01 14
12 01 17	waste blasting material other than those mentioned in 12 01 16
12 01 21	spent grinding bodies and grinding materials other than those mentioned in 12 0120
15	**Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified**
15 01	**packaging (including separately collected municipal packaging waste)**
15 01 01	paper and cardboard packaging
15 01 02	plastic packaging
15 01 03	wooden packaging
15 01 04	metallic packaging
15 01 05	composite packaging
15 01 06	mixed packaging
15 01 07	glass packaging
15 01 09	textile packaging
15 02	**absorbents, filter materials, wiping cloths and protective clothing**
15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than thosementioned in 15 02 02
16	**Wastes not otherwise specified in the list**
16 01	**end-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13, 14, 16 06 and 16 08)**
16 01 12	brake pads other than those mentioned in 16 01 11
16 01 15	antifreeze fluids other than those mentioned in 16 01 14
16 01 17	ferrous metal
16 01 18	non-ferrous metal
16 01 19	plastic
16 01 20	glass
16 01 22	components not otherwise specified
16 01 99	wastes not otherwise specified
16 02	**wastes from electrical and electronic equipment**
16 02 10	Discarded equipment containing or contaminated by PCB's other than noose mentioned in 16 02 09
16 02 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15

16 03	**off-specification batches and unused products**
16 03 04	inorganic wastes other than those mentioned in 16 03 03
16 03 06	organic wastes other than those mentioned in 16 03 05
16 05	**gases in pressure containers and discarded chemicals**
16 05 05	gases in pressure containers other than those mentioned in 16 05 04
16 06	**batteries and accumulators**
16 06 04	alkaline batteries (except 16 06 03)
16 06 05	other batteries and accumulators
16 08	**spent catalysts**
16 08 01	spent catalysts containing gold, silver, rhenium, rhodium, palladium, iridium or platinum (except 16 08 07)
16 08 03	spent catalysts containing transition metals or transition metal compounds not otherwise specified
16 10	**aqueous liquid wastes destined for off-site treatment**
16 10 04	aqueous concentrates other than those mentioned in 16 10 03
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01
16 08 04	spent fluid catalytic cracking catalysts (except 16 08 07)
16 11	**waste linings and refractories**
16 11 02	carbon-based linings and refractories from metallurgical processes others than those mentioned in 16 11 01
16 11 04	other linings and refractories from metallurgical processes other than those mentioned in 16 11 03
16 11 06	linings and refractories from non-metallurgical processes others than those mentioned in 16 11 05
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 01	**concrete, bricks, tiles and ceramics**
17 01 01	concrete
17 01 02	bricks
17 01 03	tiles and ceramics
17 01 07	mixtures of concrete, bricks, tiles and ceramics other than those mentioned in 17 01 06
17 02	**wood, glass and plastic**
17 02 01	wood
17 02 02	glass
17 02 03	Plastic
17 03	**bituminous mixtures, coal tar and tarred products**
17 03 02	bituminous mixtures other than those mentioned in 17 03 01
17 04	metals (including their alloys)
17 04 01	copper, bronze, brass
17 04 02	aluminium

17 04 03	lead
17 04 04	zinc
17 04 05	iron and steel
17 04 06	tin
17 04 07	mixed metals
17 04 11	cables other than those mentioned in 17 04 10
17 05	**soil (including excavated soil from contaminated sites), stones and dredging spoil**
17 05 04	soil and stones other than those mentioned in 17 05 03
17 05 06	dredging spoil other than those mentioned in 17 05 05
17 05 08	track ballast other than those mentioned in 17 05 07
17 06	**insulation materials and asbestos-containing construction materials**
17 06 04	insulation materials other than those mentioned in 17 06 01 and 17 06 03
17 08	**gypsum-based construction material**
17 08 02	gypsum-based construction materials other than those mentioned in 17 08 01
17 09	**other construction and demolition wastes**
17 09 04	mixed construction and demolition wastes other than those mentioned in 17 09 01, 17 09 02 and 17 09 03
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use**
19 01	**wastes from incineration or pyrolysis of waste**
19 01 02	ferrous materials removed from bottom ash
19 01 18	pyrolysis wastes other than those mentioned in 19 01 17
19 01 19	sands from fluidised beds
19 02	**wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)**
19 02 03	premixed wastes composed only of non-hazardous wastes
19 02 06	sludges from physico/chemical treatment other than those mentioned in 19 02 05
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09
19 03	**stabilised/solidified wastes**
19 03 05	stabilised wastes other than those mentioned in 19 03 04
19 03 07	solidified wastes other than those mentioned in 19 03 06
19 04	**vitrified waste and wastes from vitrification**
19 04 01	vitrified waste
19 04 04	aqueous liquid wastes from vitrified waste tempering
19 06	**wastes from anaerobic treatment of waste**
19 06 03	liquor from anaerobic treatment of municipal waste
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste

19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 07	**landfill leachate**
19 07 03	landfill leachate other than those mentioned in 19 07 02
19 08	**wastes from waste water treatment plants not otherwise specified**
19 08 01	screenings
19 08 02	waste from desanding
19 08 05	sludges from treatment of urban waste water
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
19 08 14	sludges from other treatment of industrial waste water other than those mentioned in19 08 13
19 09	**wastes from the preparation of water intended for human consumption or water for industrial use**
19 09 01	solid waste from primary filtration and screenings
19 09 02	sludges from water clarification
19 09 03	sludges from decarbonation
19 09 04	spent activated carbon
19 09 05	saturated or spent ion exchange resins
19 09 06	solutions and sludges from regeneration of ion exchangers
19 10	**wastes from shredding of metal-containing wastes**
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 06	other fractions other than those mentioned in 19 10 05
19 11	**wastes from oil regeneration**
19 11 06	sludges from on-site effluent treatment other than those mentioned in 19 11 05
19 12	**wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified**
19 12	wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber
19 12 05	glass
19 12 07	wood other than that mentioned in 19 12 06
19 12 08	textiles

19 12 09	minerals (for example sand, stones)
19 12 12	other wastes (including mixtures of materials) from mechanical treatment of wastes other than those mentioned in 19 12 11
19 13	**wastes from soil and groundwater remediation**
19 13 02	solid wastes from soil remediation other than those mentioned in 19 13 01
19 13 04	sludges from soil remediation other than those mentioned in 19 13 03
19 13 06	sludges from groundwater remediation other than those mentioned in 19 13 05
19 13 08	aqueous liquid wastes and aqueous concentrates from groundwater remediation other than those mentioned in 19 13 07
20	**Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions**
20 01	**separately collected fractions (except 15 01)**
20 01 01	paper and cardboard
20 01 02	glass
20 01 10	clothes
20 01 11	textiles
20 01 25	edible oil and fat
20 01 28	paint, inks, adhesives and resins other than those mentioned in 20 01 27
20 01 30	detergents other than those mentioned in 20 01 29
20 01 32	medicines other than those mentioned in 20 01 31
20 01 34	batteries and accumulators other than those mentioned in 20 01 33
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	Plastics
20 01 40	metals
20 01 41	wastes from chimney sweeping
20 02	**garden and park wastes (including cemetery waste)**
20 02 01	biodegradable waste
20 02 02	soil and stones
20 02 03	other non-biodegradable wastes
20 03	**other municipal wastes**
20 03 03	street-cleaning residues
20 03 04	septic tank sludge
20 03 07	bulky waste

Table 2 Emissions Releases: Knowsley Waste Facility

Point Source Releases to Air				
Emission Point (ref. and location)	**Source**	**Parameter**	**Quantity**	**Units**
A1 – Roof of main process building	Retort	Mercury	0.015	mg m^{-3}
A2 – Exhaust vent on top of generator	Diesel powered generator#	Oxides of Nitrogen	< 400	mg m^{-3}
		Carbon Monoxide	52	
		Particulate Matter	20.5	
		Sulphur Dioxide	5	
		Hydrocarbons (VOCs)	0.52	
A3 and A4 – Tank tops (T1 and T2)	Tank vents*	Hydrocarbons (VOCs)	505	mg m^{-3}
Point Source Releases to Sewer (as per the terms of Trade Effluent Consent: 693T04269LPN1)				
Emission Point (ref. and location)	**Source**	**Parameter**	**Quantity**	**Units**
S1 – Point of connection to foul sewer in Stockpit Road	Waste water derived from oil and aqueous waste handling, storage and treatment, container washing and contaminated surface water	Flow	250	m^3 day^{-1}
		Max Flow	5	l s^{-1}
		1,2 Dichlorobenzene	10	mg l^{-1}
		1,2 Dichloroethane	300	µg l^{-1}
		Ammonia	16	kg day^{-1}
		Ammonia	250	mg l^{-1}
		Anionic detergents	1,000	mg l^{-1}
		Arsenic	20	µg l^{-1}
		Cadmium	20	µg l^{-1}
		Carbon Tetrachloride	10	µg l^{-1}
		COD	250	kg day^{-1}
		Chloroform	100	µg l^{-1}
		Chloride	1,000	mg l^{-1}
		Chromium	2,500	µg l^{-1}
		Copper	3,000	µg l^{-1}
		Cyanides	1	mg l^{-1}
		Dichloromethane	3,200	µg l^{-1}
		Ethanol	1,000	mg l^{-1}
		Lead	2,500	µg l^{-1}
		Mercury	10	µg l^{-1}
		Methane	0.14	mg l^{-1}
		Methanol	1,000	mg l^{-1}
		Nickel	2,500	µg l^{-1}
		Nitrate	50	mg l^{-1}
		Non-ionic detergents	1,000	mg l^{-1}
		Phenol	10	mg l^{-1}
		Separable grease and oil	100	mg l^{-1}
		Settled COD	2,500	mg l^{-1}
		Sulphates (as SO_4)	1,000	mg l^{-1}
		Sulphides, Hydrosulphides, Polysulphides, subs. producing H_2S on acidification	1	mg l^{-1}
		Tetrachloroethene	320	µg l^{-1}
		Total Phosphorous	50	mg l^{-1}
		Total suspended solids	1,000	mg l^{-1}
		Toxic metals individual / sum	10,000	µg l^{-1}
		Tributyltin	0.1	µg l^{-1}
		Trichloroethene	1,200	µg l^{-1}
		Max. Temperature	43.3	^oC
		pH range	6 - 10	-

Emissions calculated from NAEI emission factors and estimated fuel use / flow at release conditions
* Tank vents are simple breather vents to prevent tanks from pressurising.
There are no discharges to water course, ground water or land.

Although some of the discharge concentrations of pollutants to atmosphere appear to be high, the annual mass release will depend on the period of operation and volume of material movements, and therefore will not necessarily result in significant levels of contribution to local pollution.

For example, and assuming that the generator operates continually throughout the course of the year, the overall mass release of Oxides of Nitrogen would be approximately 12.5 tonnes per year. Putting this into context, the reporting threshold for Oxides of Nitrogen in the Pollution Inventory Reporting system is 100 tonnes.

Similarly, the suggested Hydrocarbon release from the tank vents relates specifically to the movement of waste oils and data gathered during testing in 2008. As a release only occurs due to displacement, multiplying the reported concentration by the potential maximum volume of oil or oily water to be received at the site provides an estimated maximum release of hydrocarbons from all of the tanks. In this case, and with a maximum proposed throughput of 9,125 tonnes per year (10,250 m^3), the total Hydrocarbon release over the course of a year from the tank breather vents would be 0.005 tonnes. This level of Hydrocarbon emission has reduced significantly from the existing Permit, simply due to the reduced bulk liquid storage capacity at the site.

Q 3 Technical Standards

A detailed description of the site activities follows:

The Knowsley Waste Facility can accept a large number of different waste types for storage, treatment and transfer. Waste types include, although are not limited to, solids, sludges and aqueous wastes from a wide range of industries and treatment processes; oil and oily waters; waste packaging; construction and demolition wastes; Waste Electrical and Electronic Equipment (WEEE) and End of Life Vehicle (ELV) wastes.

Key procedures from the site operations are summarised below, with the current procedures provided for information in Appendix D.

Pre-acceptance

Mulberry Waste Limited works to a comprehensive pre-acceptance system (procedure MK-DOC-071-2022), which complies fully with the appropriate measures specified for the wastes received. The use of pre-acceptance checks ensures that only wastes that are suitable for the site are accepted, there is sufficient storage and treatment capacity at the site when the waste arrives, and the Operator avoids unnecessarily accumulating waste.

At the initial enquiry stage, Mulberry Waste collects the following data regarding incoming wastes:

- details of the waste producer including organisation name, address and contact details, and hazardous waste premises code where required;
- the source and provenance of the waste;
- where the holder of the waste is not the producer, details of the waste holder including their organisation name, address and contact details;
- full description of the waste including its age, composition, physical form and quantity, including information on any variability of the waste production process and the waste;
- the List of Waste code;
- the type of packaging that the waste is stored in and any potential contamination;
- any hazardous properties or incompatibilities, including the potential for fire, explosion, self-heating, self-reactivity or reactivity to moisture or air, or presence of any Persistent Organic Pollutants (POPs) or regulated chemicals;
- any odour or risk of dust;
- the potential for any radioactive source or contamination;
- details of any treatment already undertaken, with reference to Annex VII of the WEEE Directive;
- any potential risks to process safety, occupational safety and the environment.

If waste is identified as including POPs it must be described as POPs waste, or evidence of the assessment demonstrating that it is not must be provided from the waste producer. Prior to acceptance, customers are required to complete a relevant POP / BFR declaration form (Mulberry Forms QD-T-018 (WEEE); QD-T-019 (gas discharge lamps); QD-T-025 (gas discharge lamps from household recycling sites); or Mulberry ATF End of Life Battery Presentation Declaration Control Form).

From the initial data obtained during an enquiry, the Technically Competent Person identifies a treatment route and provides an indicative quote prior to full technical pre-acceptance assessment. Where any of the relevant information is unclear from the initial data, the information is forwarded to a Company Director or the Compliance Team to be technically assessed. As required, Mulberry Waste will contact the customer for further information and, as necessary, will obtain and analyse a representative sample of the waste prior to approving any contract. Where a sample provided by a customer is relied upon rather than Mulberry Waste's own sample, this will be recorded and confirmed as appropriate.

Additional information is obtained for batteries, gas discharge lamps and any aqueous chemical waste, with written confirmation also being required from the client which includes:

Batteries

Photographs;
Battery type and quantity per type;
Batteries are confirmed as being secure in the container;
Batteries are dry and are not coated with another substance, and the container does not contain water;
Battery cases are undamaged;
Battery lead wires have been removed;
Batteries have been protected from short-circuit;
There are no traces of dangerous alkalis or acids in the batteries;
The year of manufacture (i.e. pre-2009), or the known presence of POPs or BFRs.

Gas Discharge Lamps

Photographs;
Lamp type and quantity per type;
Condition of the waste and packaging;
Substances the waste may have been in contact with.
The year of manufacture (i.e. pre-2009), or the known presence of POPs or BFRs.

Chemical / Aqueous Waste

When booking-in a delivery of chemical / aqueous waste, the Company requires a completed Customer Own Analysis Form (MW101.A). Where this cannot be provided, Mulberry requests a pre-acceptance sample for testing internally to standard methods, and this should be accompanied by a completed Chain of Custody Form (MW101.D). The Chain of Custody Form includes a requirement for information on sampling techniques and the representative nature of the sample, and the internal laboratory at the Knowsley site is equipped to identify a wide range of hazardous characteristics and properties of the wastes. The laboratory at the Mulberry Waste Leyland site is used for pre-acceptance testing if deemed necessary.

Any internal analysis is assigned a unique sample reference number and, once reported to the Operations Department and the Technical Manager, the results of analysis are entered into the dedicated Job Pack. The completion of the booking-in process confirms that the waste to be delivered is acceptable to the site, and deliveries are pre-arranged to ensure that the site will have the capacity and the relevant processing and handling capability ready for its arrival.

The Technical Manager completes the Technical Assessment as to the acceptability or otherwise of the waste, and all records are stored for at least three years.

Other Wastes

Pre-acceptance sampling and analysis is not required for the following waste streams, for which an MSDS is accepted as sufficient information:

- Oils from low-risk sources;
- Contaminated clothing, packaging and rags (the contamination of the waste is specified but the waste does not need to be analysed);
- Aerosols and gas cylinders (pure product chemicals);
- “Articles” (e.g. batteries, lighting tubes and Waste Electrical and Electrical Equipment);
- Oil / water interceptor waste, where the interceptor has not been affected by a spillage; and
- Emergencies - such wastes are fully characterised on arrival on site and remain in quarantine until the characterisation has been completed.

Completing and Reviewing Pre-Acceptance

Once all relevant pre-acceptance checks have been made for any load, the Job and Waste Pre-Acceptance procedure is complete with the Summary Job Details and any Notes / Instruction to Production being completed on the Job Pack.

A Booking-In Request form (MK-DOC-074-2022) is completed and is logging onto the electronic waste tracking system at least the day before the scheduled delivery, generating a Booking-In Sheet.

Pre-acceptance information will be reassessed if the:

- waste changes;
- process giving rise to the waste changes;
- waste received does not conform to the pre-acceptance information.

In all cases, pre-acceptance information will be reviewed and updated on an annual basis.

The site is not open to the public and incoming wastes are generally transferred by Mulberry Waste Group’s own drivers. Any other waste deliveries, e.g. by third-party waste management companies would be strictly by prior arrangement only.

Acceptance

Following completion of the pre-acceptance process, the Operations Department collates the following paperwork for each delivery:

- Booking-In Sheet
- Customer POP / BFR Declaration (Mulberry Forms QD-T-018; QD-T-019; QD-T-025; or Mulberry ATF End of Life Battery Presentation Declaration Control Form)
- Vehicle Off Loading Sheet
- PPE Form
- Waste Analysis Sheet (where relevant)
- Sample Submission Sheet (where relevant)
- Customer Own Analysis Form (where provided)

Waste materials are received at the site under the supervision of a Technically Competent Person. A unique Batch Control Number is assigned from the Batch Control Log, and the following details are completed:

- The waste producer;
- Containers received;
- Transfer / Consignment note numbers;
- Delivery vehicle registration;
- Time and date of receipt and confirmation of who is completing the Log.

Loads are visually inspected prior to, and during the off-loading of the waste into the reception area, and wastes may be rejected where they cannot be treated at site or are not included on the Environmental Permit.

Materials which are not accompanied with a valid weighbridge ticket, are either accepted to site on their measured volume, when off-loading bulk liquid wastes, or are weighed in using calibrated scales in the case of palletised materials. All details of incoming wastes, volumes and / or weights are recorded

Labels are generated for all containers and are applied prior to storage.

Other than pure chemicals and laboratory smalls, all aqueous wastes are sampled and undergo verification and compliance testing. A representative sample of all bulk loads is taken by the delivery driver and is analysed in the site laboratory. These visual and physical checks ensure that the waste received is as required and is supported by appropriate and accurate paper-work.

All records are retained in the Job Pack. The Job Pack is supported by the electronic waste tracking system, which tracks the movement of waste from acceptance through treatment and removal off site.

Although not required to be analysed at the pre-acceptance stage, acceptance analysis is required for:

- Oils from low-risk sources;
- Oil / water interceptor waste, where the interceptor has not been affected by a spillage; and
- Emergencies - such wastes are fully characterised on arrival on site and remain in quarantine until the characterisation has been completed.

Mulberry Waste Limited works to comprehensive waste acceptance procedures detailing the requirements on staff when receiving wastes at the site. Requirements for WEEE waste are detailed separately and are provided in the *'Booking and Receiving Material Training Pack_WEEE PreAcceptance and Acceptance Procedures'*. Combined however, the WEEE procedures and the pre-acceptance, acceptance, booking-in and waste storage procedures for other wastes, include all relevant procedures for receipt, checking and completion of paperwork, inspection and unloading of wastes, and labelling and storage of received containers, which comply with the requirements of the Best Available Techniques Conclusions (BAT-C) and the appropriate measures for the site operations.

Where wastes are not able to be accepted at the site, for example in the event of an emergency, the Site Manager will consider the requirement to divert expected waste deliveries and collections from the site, and will contact other local facilities to identify any spare capacity they may have to receive wastes which must be diverted. Customers will be contacted in an attempt to divert deliveries before their arrival. Diverted wastes will usually be sent to Mulberry Waste Clydesdale Place transfer station.

Waste Storage

Once received, the waste is stored in dedicated areas as follows:

Building Reference	Waste Types	No. of Containers
Existing	WEEE	22
	Mercury Bearing Wastes	
1	WEEE	96
2 (Battery Store)	Mixed Waste Batteries	192
2 (WEEE Store)	WEEE	64
3 (Quarantine)	Quarantine / Fire Quarantine Bat	54
3 Other (Compatible) storage	Other Site Storage; WEEE; Aqueous Wastes etc.	144

As noted in Table 1a, any area of the site can be used to store any waste, subject to the availability of suitable infrastructure. That is, for example, WEEE waste will always be stored within a building or protected from the elements and aerosols will always be stored securely either within a cage, or in a vented waste safe. Only compatible wastes will be stored close to one another. The overall storage capacity and annual throughput of the site will remain within the maximum values stated, although any one or combination of waste types may make up the total storage of the site at any one time, depending on the market forces and business needs at that point.

Mixed waste oils arrive at the site in a tanker and are off-loaded into one or two dedicated storage tanks (Tanks 1 or 2). There is no processing of the oil at the site, and when a bulk load is available, the oil is drawn from the tank into a tanker and is removed from site for processing at another facility. This activity is regulated under Schedule 1 Part 2 Section 5.6 A(1) (a) (i) of the Environmental Permitting Regulations. Smaller containers of waste oil, such as drums or IBCs may also be stored at the site prior to transfer.

Waste antifreeze / coolant may also be stored in one of the two bulk tanks, depending on availability, being pumped from its container into the dedicated storage tank. Similarly to waste oil and oily water, waste antifreeze will be stored until a bulk load is available for removal to a third party site for re-processing. Waste antifreeze may also be stored in drums or IBCs where bulk storage is not available or justified.

Other liquid and solid wastes enter the facility for storage and transfer. Some may be re-packaged, and others are treated on site prior to dispatch.

Other liquid wastes such as brake fluids and liquid paint wastes may be decanted into 205 litre drums, although this will usually be done at customer premises before arriving at the Knowsley Waste Facility. Drums may be palletised for storage, and wastes are sent for third party recovery.

Aerosols are also transferred from their incoming containers into IBCs or vented waste safes. Where IBCs are used, these are then also stored in a secure cage prior to transfer from site, to ensure that the aerosols are well ventilated but cannot become missiles in the event of a fire.

The reception and storage areas are sized and located appropriately and avoid double handling once the waste has been assigned to a storage area. Storage areas are clearly marked, and the Waste Storage Procedure (MW103-1) includes details of the maximum storage capacity in each area and across the site in total. However, due to the large number of wastes that are acceptable at the site, storage areas remain flexible, with pre-acceptance and acceptance procedures considering the requirements and servicing of each load. All storage is managed in compliance with HSG 51 and 71.

Waste containers are inspected daily to ensure continued integrity, and ready access is available to all storage bays. Wastes will be stored at site for a maximum of 180 days.

Wastes are stored following appropriate procedures for waste types as follows:

- Solid wastes likely to produce polluting or contaminating run-off are stored on impermeable pavement with sealed drainage to on site interceptors to prevent run-off to adjacent surface water systems.
- Liquid or sludge wastes are stored within liquid retaining covered containers on impermeable pavement with sealed drainage.
- Combustible wastes are stored on impermeable pavement with sealed drainage and with access to firefighting equipment.
- Light wastes liable to give rise to litter are received in sealed containers and stored only on impermeable pavement with sealed drainage.

The site is not located in the immediate vicinity of any watercourses and is on an industrial estate such that it does not have any particularly sensitive perimeters. The site is fenced and gated, and remains locked when not operational.

A detailed fire risk assessment has been prepared for the site and dedicated fire monitoring systems are installed, facilitating the continuous observation of the facility. Full details of the monitoring methods are provided in the Fire Prevention Plan (Appendix C) but in summary, the site fire alarm system has automatic detection throughout the site process and storage buildings and is monitored, along with the site CCTV infrastructure, including two thermal imaging cameras, by a third-party (ADT) 24 hours per day. All service requirements and call out cover are included in the contract.

Waste Sorting and Treatment

Incoming WEEE is weighed on calibrated scales and is moved into the process building for sorting, processing and storage. Undertaking WEEE processing internally minimises the potential for fugitive emissions. Sorted WEEE which is not further processed on site will be sent to other licenced facilities for evaluation for re-use where possible, or for treatment.

WEEE is manually sorted as follows:

With the exception of display screens (Category 11) and gas discharge lamps and LED light sources (Category 13), leads are removed; removable batteries are extracted; toner cartridges, or the ink from toners which are themselves WEEE, are removed; and lamps and bulbs are removed from lighting equipment and the remaining articles are repackaged before storage prior to further on-site treatment, or for sending onto other Approved Authorised Treatment Facilities (AATF's) for further processing.

The original incoming storage containers are emptied and are thoroughly swept prior to storage, before again being sent out to clients for use. All WEEE is stored in containers which are designed and constructed to be sufficiently rigid and strong, so they do not distort or flex when being moved. All will be lidded or stored internally or under a weatherproof shelter and all areas across the site are served by an impermeable surface with a drainage system that can be isolated from the main sewer in the event of an emergency.

From the sorting operations, bags of clean hard plastics and cardboard can be baled, compacted, or otherwise stored, before being sent for third-party recycling, while general waste is stored and is sent for further separation and segregation at a commercial materials recovery facility (MRF).

Plastics are assessed for the potential presence of POPs through consideration of the age of the WEEE, with manufacture before 2009 indicating a high potential for POPs contamination. Where there is any doubt as to the presence or otherwise of POPs in the plastic material the material will either be sampled and analysed prior to further treatment on site, or will be sent for disposal by thermal treatment (for example energy from waste). Where there is uncertainty as to the presence or level of POPs in any materials, they will be assumed to be POPs waste.

All waste is sent to waste management providers who are appropriately licensed for the materials sent, e.g. packaging, WEEE and / or potential POPs waste.

Removeable batteries are extracted from the WEEE and are stored prior to dispatch to a Mulberry Waste Group sorting facility or an Approved Authorised Treatment Facility / Approved Battery Treatment Operator. Batteries are stored on site as mixed batteries in battery boxes or other suitable containers.

Prior to any further processing, Mulberry Waste Limited will ensure that capacitors; ink and non-WEEE toner cartridges; external electrical cables; printed circuit boards if greater than 10 square centimetres in area; removable batteries; and any material which may be contaminated with POPs is removed and segregated from the WEEE. Further processing is then facilitated at the site where economically viable to maximise the recycling and recovery of materials, or materials are sent off-site for alternative third-party treatment and recovery.

Category 11 WEEE (display screens) are sorted as above, with leads removed before being stored in containers prior to treatment.

Category 13 WEEE (gas discharge lamps and LED light sources) have any packaging and other contaminants removed from the original storage container, and are segregated and stored in batches based on lamp type prior to treatment. All lamps up to 1 m in length are stored in plastic pallet, leak-proof and weather-proof, heavy-duty distribution and storage containers with top loading access.

Category 11 and 13 WEEE is batch processed in the Multec system as detailed below.

Multec

The Multec system is a dual lamp and screen process plant.

Segregated Category 13 WEEE, excluding Sodium based lamp types which are removed prior to processing, is manually fed along a conveyor into a rotating drum with a 4 m^3 capacity. Lamp types are processed separately in batches in order to ensure thorough final segregation. Whilst the captured Phosphor powder and glass from each batch is effectively stored in the same dedicated containers once processing is complete, some lamp end caps are plastic while others are Aluminium or ferrous. Although the ferrous fraction would be separated, the operator ensures a better product by batch processing lamps by type, thereby avoiding mixing plastics and Aluminium etc. and hence it is standard procedure to process in batches of lamp type.

The unit operates under negative pressure, drawing air and any dust / Phosphor powder created by the crushing of the lamps into the unit and ultimately through the air treatment system comprising two cyclones, a bag-filter, an activated Carbon filter and a final HEPA (High Efficiency Particulate Air) filter.

The two cyclones and the bag-filter each release into individual, gas-tight storage containers, although there is no difference in the nature of the captured powder, aside perhaps for the size fraction of the powder captured by the cyclones and the bag filter.

The operators determine when the crushing and cleaning process is complete, through a visual assessment of the air above the lamps in the drum. The glass effectively cleans itself through friction during the rotating drum process, and the released Phosphor powder can be seen as a cloud above the bed of lamps. The presence or otherwise of this cloud determines whether Phosphor is still present or the material fractions are clean. A rough estimate of the operational period is 2 – 2.5 hours to process 2 tonnes of lamps. However, the operator would always visually assess each load to ensure that the material is fully clean before discharging.

Occupational health monitoring on the manual feed plinth and around the process and treated waste stores confirms the low potential for the escape of dust from the process and therefore occupational exposure. The capacity of the Multec lamp process is up to 1,000 tonnes per year, and the rotating drum and trommel system results in three different glass size fractions from the process, and segregated metal / plastic ends. The Phosphor lamp powder which includes the Mercury fraction is captured in the cyclone and bag-filter and all material fractions are stored in segregated and, as necessary, sealed containers. Again, occupational health monitoring around the storage area, and analysis of the separate material fractions has demonstrated very low levels of contamination.

Category 11 WEEE (display screens) are also manually fed into the Multec system, albeit from a separate plinth. The processing standard for the recycling of flat panel displays is defined under CENELEC EN 50625-2-2 – Treatment requirements for WEEE containing CRTs and flat panel displays; TS 50625-3-3 – Specification for de-pollution - WEEE containing CRTs and flat panel displays, and the Multec system works to these standards. Additionally, and in compliance with TS 50625-3-3, Mulberry Waste Limited will monitor the depollution activities of the Multec unit, including through written procedures for the operation and maintenance of the equipment which state the range of any acceptable parameters and the frequency of monitoring and reporting of these parameters. The emissions to air and the efficiency of the air filtration unit will be monitored on a regular basis, with a target Mercury filtration efficiency of 95 %. Occupational health monitoring of the ambient air around the process will also be undertaken.

The feed area includes a protective curtain over the entry point in order that operators are protected from any debris that may become loose during the feed process and might otherwise act as a projectile. Again, negative pressure draws air and pollutants into the system rather than allowing them to escape, and monitoring on the manual feed plinth confirms the low potential for the escape of dust from the process and therefore occupational exposure.

Ferrous and non-ferrous materials are separated using drum magnets before the non-ferrous metals, plastics and glass enter the trommel for further sorting. The glass fractions are removed in three sizes, with additional magnetic rollers on the trommel discharges to ensure that all of the ferrous fraction has been removed. Once the glass and ferrous fractions have been sorted, the remaining plastics etc. are tipped into a final collection container. The Multec therefore includes the following discharges: three powder drums, each serving one of the two cyclones or the bag-filter discharge; one ferrous container; three glass fraction containers; and one non-ferrous container. All materials will be stored in appropriate containers and will be retained securely prior to further treatment or removal from site. Phosphor powders will be further processed within the site retort to recover Mercury from the powder, where economically viable.

Samples of recovered materials will be sent to UKAS accredited laboratories to ensure that the resulting recyclates have been decontaminated to well below approved Environment Agency levels.

Sodium based (SO_x and SONs) lamps are not treated in the Multec as these would require the Sodium fraction to be washed out and, as a dry treatment unit, there is no part of the Multec system that can facilitate that. As such, Sodium based lamps are segregated and forwarded for onward treatment at a suitable, third-party facility.

The flat panel display screens (FPDs) are shredded in the system and the Mercury dust is captured in the cyclone and bag-filter. On exiting the bag-filter, the exhaust gases from both the tube / lamp crusher and the flat panel display screen shredder passes through both an activated Carbon filter and a High Efficiency Particulate Air (HEPA) filter and all material fractions are stored in segregated and, as necessary, sealed containers. Operational and maintenance procedures, including visual inspections and leak detection will ensure that abatement equipment is correctly installed, operated, monitored and maintained, with repairs facilitated at the earliest practicable time from detection. Where repairs are critical to operational safety or abatement systems, plant will not be operated before any such required repairs are actioned.

Although the Environment Agency promotes the removal of cold-cathode fluorescent lamps (CCFLs); liquid crystal displays (LCDs); printed circuit boards (PCBs) greater than 10 square centimetres in area; and capacitors amongst others, the use of the Multec process ensures that in shredding the pre-sorted materials:

- there is no fugitive release of Mercury;
- all releases from the process are channelled and abated to capture dust and Mercury vapour; and
- recycled outputs are not more contaminated by Mercury than those produced by manual treatment.

The pre-sorting of WEEE prior to processing will ensure that no plastics containing POPs (including Brominated flame retardants), external electrical cables, or batteries are fed through the Multec system.

Although both lamps and screens can physically be processed at the same time, only one side (e.g. lamp processing) or the other (screen processing) is discharged at any one time in order to ensure that the material fractions remain separate.

Lamps will not be manually processed other than for initial sorting and loading into the Multec, which provides a dedicated crushing operation designed and built specifically for that purpose, and which contains the Mercury vapours, dusts and powders which are generated by the treatment process. Operators are required to undertake thorough housekeeping and maintain high levels of cleanliness and tidiness around the processing plant. Any broken or crushed lamp material will be cleared away immediately using appropriate equipment, to retain Mercury vapour and dust. Any used filters and all spill materials that cannot be recycled will be stored in gas-tight, leakproof containers, labelled as Mercury containing waste and will be disposed of appropriately.

Examples of monitoring results from the technology provider are presented in Appendix E and provide details of the Mercury concentrations around the plant and in the processed, segregated materials. This is supported by in-house measurements undertaken during the site commissioning trials, the results of which are also presented in Appendix E, with summaries below. When operational, monitoring around the lamp-feeder and materials storage containers of the Multec plant during commissioning at the Knowsley Waste Facility ranged from 0.02 µg m^{-3} – 0.06 µg m^{-3} during testing, and 0.01 – 0.06 µg m^{-3} when the line was not operational.

Mercury emissions from the filter release point as measured by the technology provider from one of their installations in France were 0.3 µg m^{-3} or 0.0014 g h^{-1}. Occupational exposure monitoring around their Swiss installation, reported exposure levels of 3 – 7 µg m^{-3}. Details of the proposed monitoring to be undertaken during day-to-day operations are provided in response to Question 4.

The following percentage contribution of each segregated fraction to the total recovered materials are expected from the Multec system:

Nature of Material and Anticipated Level of Contamination	
Lamp Processing	
> 2 ppm Mercury contamination	
Cyclone and filter	5 %
Magnetic fraction	2 %
< 2 ppm Mercury contamination	
Glass fraction	91 %
End caps	2 %
Screen Processing	
> 0.5 ppm Mercury contamination	
Cyclone and filter	3 %
Trommel fine fraction	4 %
< 0.5 ppm Mercury contamination	
Non-ferrous materials	56 %
Magnetic fraction	37 %

From initial treatment and separation, the plastics from the process, or from the other site shredder can then be passed through a materials sorter in order to further segregate the mixed materials.

Other Site Shredder

The site operations will also include a separate shredder for all other small WEEE (Categories 2 – 10), which has first been manually sorted. Items for removal which will not be shredded include any WEEE or component containing a fluid; any components containing Mercury such as fluorescent lamps, which will instead pass through the Multec process; any WEEE containing any CRT display or a FPD of greater than 100 square centimetres in area, which will instead pass through the Multec process; any WEEE containing asbestos or refractory ceramic fibres, or components containing radioactive substances, such as ionization smoke detectors; any WEEE containing CFCs, HCFCs, HFCs or hydrocarbon gases, such as small refrigeration equipment, portable air conditioners and dehumidifiers; all external batteries (including powerpacks) and internal batteries designed to be accessible by the user; and any non-WEEE items that may contain fluids or hazardous substances, such as petrol lawnmowers or gas cylinders.

Batches will be run according to waste type / Category, in order to ensure good separation of the resultant material fractions.

Each batch is fed into a hopper and the material is deposited onto a conveyor belt. The material first passes through a three-shaft roller crusher and is then conveyed into a hammer mill with 18 hammers. The system is completely sealed, although the crusher can be operated separately if required, with the resultant material being extracted from the process prior to entering the mill. The shredder is located within the enclosed process building.

All of the rotors operate at low speeds and no significant fire-risk is anticipated. As such there are no specific fire control measures currently built into the shredder, and similarly, the low potential for dust creation results in no extraction requirement. However, Mulberry Waste Limited will continually assess the need for fire, emissions and noise control, and would retrofit any safety or abatement measures accordingly as required.

The roller crusher is powered by a 110 kW motor and has a capacity of up to 10 tonnes per hour. The hammer mill is also operated by a 110 kW motor, although has a maximum capacity of 5 tonnes per hour, and this is the limiting factor of materials passing through both elements of the shredder with the feed to the crusher being set accordingly. Both motors include variable speed drives.

Once processed, the shredder separates ferrous and non-ferrous materials using a band magnet. The non-ferrous fraction then passes through an eddy current to separate mixed plastics and packaging from the heavier non-ferrous metals fraction, resulting in three separate fractions leaving the shredder. These will be visually inspected before being transferred from site for recycling and / or further treatment, although further separation of the mixed fraction could be facilitated in the on-site materials sorter.

The shredder is yet to be installed and commissioned at the site. As such, procedures and maintenance plans have not yet been prepared but will be prior to the use of the equipment, and will consider the control and management requirements of each individual element of the shredder system.

eMax Materials Sorter

The eMax materials sorter uses in-flight detection over an illuminated reference to allow the sorting of opaque, transparent and black materials including further checking and separation of ferrous and non-ferrous metals and stainless-steel, wires, printed circuit boards and durable plastics such as Acrylonitrile Butadiene Styrene (ABS), High Impact Polystyrene Sheets (HIPS), PolyCarbonate (PC), and PolyMethyl MethAcrylate (PMMA).

A single materials sorter will be installed at the site and will progressively sort materials as required as follows:

First Pass:

When mixed materials are initially fed through the sorter, the resultant material fractions are ferrous, non-ferrous and mixed (printed circuit boards (PCBs) and durable plastics).

Second Pass (as required):
As required, the mixed fraction can be re-passed through the system to separate the PCBs, PMMA and mixed plastics.

Third Pass (as required):
Finally, and again as required, the mixed plastics can be re-passed through the system to separate the ABS, HIPS and PC.

The requirement to undertake multiple passes through the materials sorter will be determined by market forces. The sorted materials are stored in separate containers prior to transfer off-site for recycling.

As the materials sorting unit is separate from the Multec and shredder processes, it can process materials which do not require passing through these systems first, and hence, any other appropriate and acceptable wastes to the site can be processed through the eMax.

Retort

A retort will also be installed at the site for the recovery of Mercury from the Phosphor powder and any other Mercury bearing wastes. The retort heats the Mercury based wastes causing them to release the Mercury in vapour form, which is then condensed into a sealed container in the form of 99.99 % pure Mercury for re-use.

The maximum capacity of the retort for any single load is 100 litres, which is equivalent to 1.36 tonnes.

The process is completely automatic once the Mercury waste is loaded and the relevant programme is selected. The in-built PLC monitors and controls the entire process and ensures that its efficiency is optimised. The unit's digital display provides instantaneous process information including the temperature and pressure of each treatment step. A process flow-diagram for the Mercury retort is provided in Appendix F.

In summary, the plant comprises a Dome, where the Mercury waste is charged and will be heated to 500 – 675 ^{o}C at reduced pressure and in the presence of Nitrogen to vaporise the Mercury. The vapours subsequently pass through an After Combustion Chamber (ACC) which is heated to between 800 and 825 ^{o}C and is supplied with a mixture of Oxygen and compressed air. This ensures the oxidation of organic vapours and any particulate from the charged materials, whilst additional Nitrogen is added to the Dome to ensure that no gaseous Oxygen can enter the chamber. This second, combustion phase progresses for at least two hours.

Once the combustion phase is complete, the system is ventilated, with a mixture of Oxygen and compressed air being constantly supplied to the combustion chamber for two hours. During this time, both the Dome and the ACC continue to be heated. After two hours, the cooling phase begins and is facilitated by stopping the heating process and flushing air into the orifice between the outer and inner skin of the Dome. When the temperature in the Dome reaches 300 ^{o}C, the system pressure is regulated to 750 mbar, and the PLC notes that the process is finished when the pre-set final temperature is reached, and the vacuum pump is stopped.

On entering the high efficiency condenser and cold trap the Mercury is recovered and passes into a sealed receiver. The application of a negative vacuum system ensures that no Mercury vapour can leak from the system, and each of the process vessels which have any possibility of containing Mercury are continuously maintained under a partial vacuum.

The retort includes five set programmes for use as follows:

1) Waste comprising light contamination without Mercury amalgam / oxides; e.g. end caps from fluorescent lamps.
2) Waste comprising light contamination with small amounts of Mercury amalgam / oxides; e.g. crushed fluorescent lamps, Mercury lamps etc.
3) The waste material may contain Mercury amalgam / oxides e.g. fluorescent powder.

4) Wastes which contain large amounts of Mercury amalgam / oxides; e.g. tooth amalgam, Mercury button cell batteries etc.
5) An 'open' programme which allows for tailor made settings for specific waste processing, the parameters of which are determined by initial analysis.

The processing times and temperatures vary with the programme setting, and the flow of air and Oxygen to the ACC and Nitrogen to the Dome are set relative to the programme being run.

The exhaust air passes through a hot air filter and a dual bed activated Carbon column prior to release, thereby minimising Mercury and other pollutant releases, and this has been independently verified by an MCERTS certified test body at Enlightened Lamp Recycling (ELR), a sister Company of Mulberry Waste Limited which also operates a Mercury retort. The process is monitored at all stages via a Direct Digital Control system which allows remote monitoring and control of all aspects of the operation of the retort on a 24-hour, seven-day week basis, and additional extractive testing can be undertaken from the discharge point to confirm the levels of Mercury in the discharge.

Emitted levels of Mercury will be below 0.015 mg m^{-3} from the retort discharge stack. Third party extractive sampling and analysis will be undertaken on a six-monthly basis, to standard EN 13211, in order to confirm the Mercury concentration in the release. Three consecutive samples of at least 30 minutes duration will be drawn and the results will detail the individual reported values and the average of the three tests.

The retort also includes a number of safety systems and safe shut-down mechanisms which will automatically be activated in the event of an incident. High or low priority alarms may be activated, with high priority incidents changing the status of the operation and potentially resulting in the process being stopped as necessary. Low priority incidents are for information only with no immediate change required, but with actions necessary before the next process can be run. Should the Knowsley Waste Facility retort not be available at any time, the Mercury bearing wastes would be sent to either of the sister sites at Mercury Recycling in Trafford Park, or to the ELR site in Redhill, Surrey as required to facilitate the recovery of the metal. Both of these sites are Permitted facilities (EPR/YP3735SS and EPR/GP3339BE respectively).

All other processes at the Knowsley Waste Facility are as previously advised and, in summary, include:

Aqueous Waste Bulk Storage and Repackaging

Mixed waste oils and other aqueous wastes arrive at the site in tankers and are off-loaded into dedicated storage tanks. There is no mixing of material types or processing of the wastes at the site, and when a bulk load is available, the oil or other aqueous waste is drawn from the tank into a tanker and is removed from site for processing at another facility. This activity is regulated under Schedule 1 Part 2 Section 5.6 A(1) (a) (i) of the Environmental Permitting Regulations.

Other liquid and solid wastes enter the facility for storage and transfer. Some may be re-packaged prior to dispatch. This includes incoming waste antifreeze / coolant, which may be pumped from its container into a dedicated storage tank, where it is stored until a bulk load is available for removal to a third-party site for re-processing. Note, this activity has been confirmed by the Environment Agency to represent re-packaging rather than a blending or mixing activity, as there will be no physical change to the characteristics of the waste being stored.

Other Waste Handling and Storage

Other liquid wastes such as brake fluids and liquid paint wastes may be decanted into 205 litre drums, although this will usually be done at customer premises before arriving at the Knowsley Waste Facility. Drums may be palletised for storage, and wastes are sent for third party recovery.

Absorbent rags and granules are transferred from their incoming containers into IBC's for storage prior to transfer to an energy from waste facility.

Aerosols are also transferred from their incoming containers into IBCs, however these are then stored in a secure cage prior to transfer from site, to ensure that the aerosols are well ventilated but cannot become missiles in the event of a fire.

Brake pads and other metal wastes will be transferred to a metal skip.

A process flow diagram of all of the site operations at the Knowsley Waste Facility is provided over page, with individual diagrams of the key process plant operations provided in Appendix G.

Other Operational Issues

The WEEE waste tracking system will record:

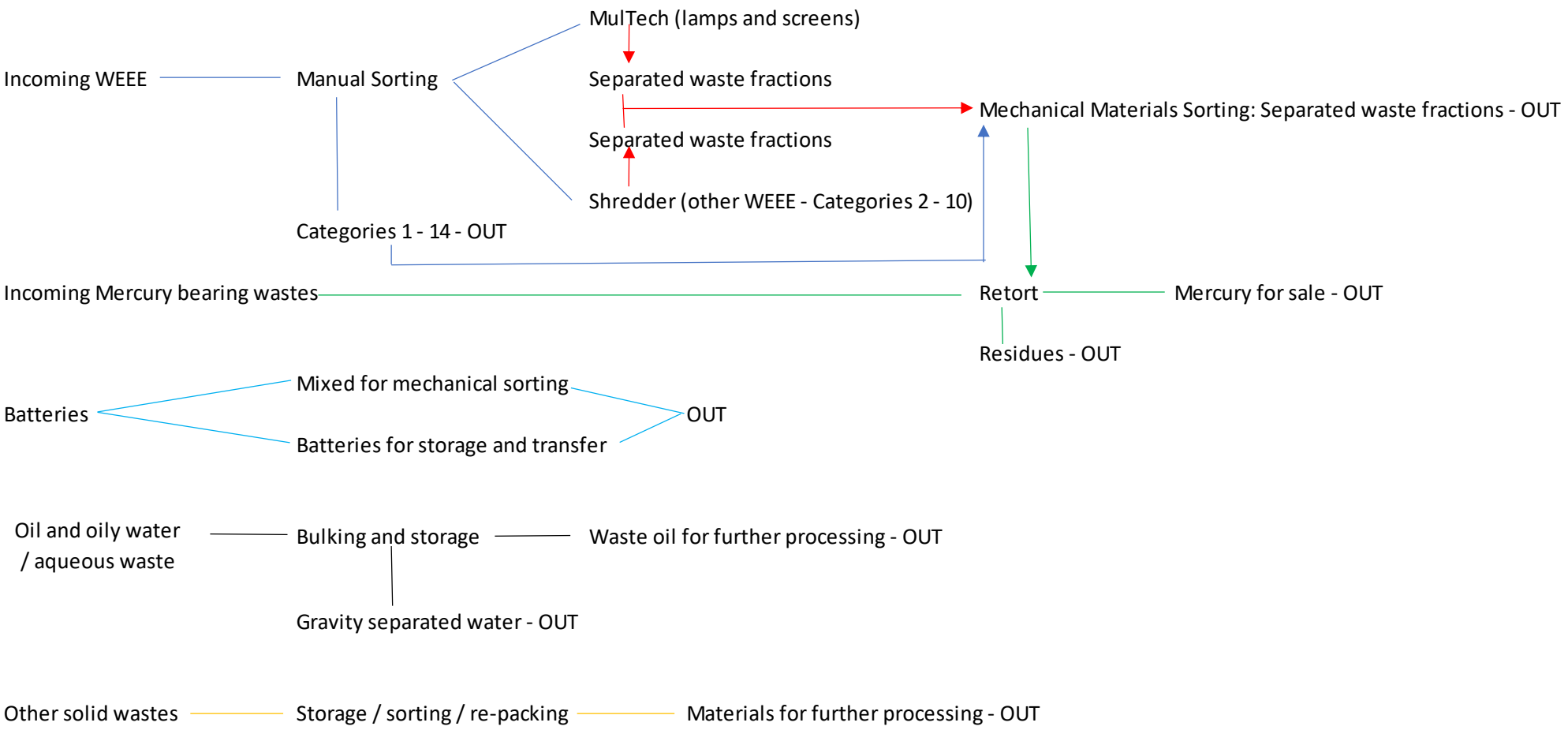
- that the WEEE has been treated or consigned to another WEEE treatment facility;
- what WEEE has been prepared for reuse or has been consigned to a preparing for reuse operator;
- what the treatment residues, treated components and fractions are.

Once per year, Mulberry Waste Limited will prepare a mass balance calculation for each WEEE stream treated, in order to determine and record the mass of each individual output fraction derived from a given mass of input material. The batch size will be large enough to ensure that a representative sample of typical input materials is assessed.

Mulberry Waste Limited regularly check and maintain all site process equipment and, as necessary, will replace any part of the treatment plant and any associated equipment including seals and filters to ensure they remain fit for purpose.

Maintenance procedures are prepared for each item of equipment prior to use, and are initially based on the manufacturers recommendations and suggested ‘Spares’ list. However, maintenance plans would be amended or developed as appropriate throughout the operational life of the plant. Evidence of the site maintenance procedures and the replacement parts used will be maintained for at least 2 years.

Knowsley Waste Facility Process Flow Diagram



Q 3a1 Document References

Documentation for site operations and processes across the Mulberry Waste Group is updated on a regular basis to record changes in site operations and practices. In the case of the Knowsley Waste Facility, many of the site process plant have required replacement after a significant site fire, and therefore, operational procedures and control measures have been amended over the years since the last Permit variation. As such, the information contained within this documentation supersedes that previously provided for the site operations.

Q 3c Types and Amounts of Raw Materials Used at the Knowsley Waste Facility

Description of raw material and composition	Maximum amount stored at any one time	Annual throughput / usage	Description of use
Activated Carbon	1 tonne	To be assessed following 6 months of operation	Mercury abatement from Multec
Bag-filters	Ordered as required (5-year expected life-span)	To be assessed following 6 months of operation	Particulate abatement from Multec
Other filters (HEPA)	Ordered as required (5-year expected life-span)	To be confirmed	Particulate abatement from Multec
Detergents (by type)	To be confirmed	To be confirmed	General site use
Oils (by type)	To be confirmed	To be confirmed	General site use
Fuels (DERV)	1,340	2,000 litres	1 x FLT
Water (annual usage)	-	24,000 litres, although will be assessed following 6 months of operation	Water is not a specific process requirement

Q 4 Monitoring

Monitoring is undertaken at the site as follows:

Occupational Monitoring	Pollutant	Monitoring Method	Frequency	Procedure
Various locations around the Multec and retort operational areas	Mercury	ION Shawcity MVI monitor / Nippon EMP-2 monitor or equivalent	Daily when Multec and / or retort are in use	MK-E-010 and MK-E-013
Point Source Emissions	**Pollutant**	**Monitoring Method**	**Frequency**	**Procedure**
A1 - Retort	Mercury	EN 13211	Six-monthly	Third-party MCERTS
A2 - Generator	NO_x	None	None	N/A
	CO			
	Particulate			
	Hydrocarbons / VOCs			
A3 and A4 Tank Breather Vents	Hydrocarbons / VOCs	None	None	N/A

Mercury monitoring is undertaken within the main process building, around the Multec plant and the retort. Operators manually feed the Multec which is operated under negative pressure, and the release of cleaned air from the process, vents into the work-place, with no discharge directly to the external environment. The retort is manually charged prior to the activation of the process programme.

The ION Shawcity MVI monitor is therefore used daily, whenever these processes are operational, to confirm that workplace exposure levels to Mercury are suitably low. The MVI is a hand-held device, monitoring Mercury in the range of either 0 – 200 µg m^{-3} with a resolution of 0.1 µg m^{-3}, or 0 – 2,000 µg m^{-3} with a resolution of 1 µg m^{-3}.

The monitor draws a sample of air into a glass sampling cell where an ultra-violet light source is absorbed by the sample. Photodiode detectors are used to measure the intensity of the radiation passing through the sample chamber, as the presence of Mercury vapour will reduce the radiation energy reaching the photodiode detectors, in proportion to the vapour concentration. The optical system is designed specifically to detect Mercury in the ultra-violet region of 254 nonometres (nm). The change in radiation energy is then converted into an electrical signal and is conditioned to provide a linear reading in µg m^{-3}.

The MVI includes an automatic, audible alarm which is triggered when pre-set conditions are met. The alarm is therefore activated if:

- A Mercury vapour level greater than 20 µg m^{-3} is recorded (i.e. the long-term (8-hour) occupational exposure level);
- A negative reading from – 20 to – 25 or lower is recorded;
- The battery is low.

The audible alarm is inhibited during the first 5 minutes of operation in order to enable stabilisation of the monitor and samples.

Mulberry Waste Limited maintain procedures MK-E-010 and MK-E-013 which detail the method and requirements for the monitoring of Mercury levels around the plant. The MVI is checked before use and actions are specified where the readings are reported as 1 µg m^{-3}, 2 µg m^{-3} for a single day, 2 µg m^{-3} for more than one successive day, 3 – 4 µg m^{-3}, and more than 4 µg m^{-3}. Actions for results above 3 µg m^{-3} include stopping of the process in order that a detailed assessment and investigation can be made into the elevated readings. With regular monitoring and a long-term occupational exposure limit of 20 µg m^{-3}, ceasing operations at 3 µg m^{-3} will minimise any potential for the exposure limit to be exceeded.

Where the MVI meter is not available, for example when undergoing calibration or repair, an equivalent, alternative monitor will be used, such as although not limited to, the Nippon EMP-2 model which uses cold vapour atomic absorption to determine levels of gaseous, elemental Mercury. The EMP-2 has a measurement range of 0 – 999.9 µg m^{-3} and a resolution of 1 µg m^{-3} (one minute mode) or 0.1 µg m^{-3} (static mode).

Six-monthly monitoring for Mercury is also undertaken from the point source emission of the retort process, and appropriate and accessible sample ports will be included in the vertical discharge stack to facilitate measurements. The sample location will be designed to meet BS EN 15259 clause 6.2 and 6.3, and will include sample ports which are large enough for monitoring equipment and are positioned in accordance with section 6 and appendix A of BS EN 15259.

Access adjacent to the ports will be suitably sized to provide sufficient working area, support and clearance for a sample team to work safely with their equipment throughout the duration of the test, and the sample ports will be located at least 5 hydraulic diameters from the stack exit, at least 2 hydraulic diameters upstream from any bend or obstruction, and at least 5 hydraulic diameters downstream from any bend or obstruction, at a point where the cross sectional area is constant.

Monitoring will be facilitated by an independent third-party, to MCERTS standards, applying the EN 13211 methodology. The results of the monitoring will be provided to the Environment Agency once received after each campaign.

Other Emissions

The diesel generator at the site is rated at less than 300 kW_{th} input. No suitable sample point is included at the release point, which comprises an exhaust release vent at roof level, and therefore no monitoring is proposed.

Tank breather vents will release displaced air when being filled and, depending on the nature of the waste being stored, may release pollutants during these short operational periods. In the case of waste oil and oily water storage, levels of hydrocarbons (Volatile Organic Compounds) can be released. However, historical monitoring of such emissions suggests that the potential for these releases to have any significant effect are minimal where no processing of oil is undertaken, and no further assessment or monitoring is proposed. It is noted that the storage of aqueous wastes and waste oils and / or oily waters is already included within the Permitted activities and the only change proposed by this Permit variation is for a reduction in the overall storage capacity which, in turn, reduces potential emissions.

In addition to the monitoring of fugitive and point source emissions to air, samples will be taken of the processed materials in order to regularly confirm the levels of contamination in the material. These samples are analysed by a third-party laboratory. Following procedure MK-S-006, a composite sample is produced from each material storage container at least once per month, with small amounts of material being drawn from around the container to ensure a good mix of the material in each sample. The samples are labelled and sent for third-party analysis, at least monthly, although where stable and suitably low results are demonstrated during the first year of operation, reduced, six-monthly sampling and analysis will be proposed.

Mercury contamination will be checked against the limit value of 10 mg kg^{-1} in glass and plastic from lamps, and 100 mg kg^{-1} in the metal fraction from lamp processing. Phosphor powders will also be tested for assessment against the limit value of 200 mg kg^{-1} total Mercury. Other recyclates from screen processing will be sampled and tested for Mercury against a limit value of 1 mg kg^{-1}. Analysis will be undertaken by an independent accredited laboratory, using recognised analysis methods. Initial testing frequency will be at least once per month, although this may be proposed to reduce to six-monthly sampling where suitably low results can be demonstrated during the first year of operations. All samples will be representative and will be stored in appropriate containers for transporting the sample materials.

The physically finest non-metallic fraction of recyclates from the processing of small mixed WEEE will be sampled at least once every 6 months and will be tested for Mercury with a limit value of 1 mg kg^{-1} and Cadmium with a limit value of 100 mg kg^{-1}. Quarterly samples will also be analysed for POPs and the presence of Brominated flame retardents.

Where monitoring results suggest elevated levels of Mercury contamination within the materials fractions, the materials will be further treated to reduce concentrations to within the limit values. Additionally, process plant will be checked for any maintenance issues and fully serviced as required. Materials which report elevated levels of other pollutants will be sent for appropriate third-party treatment or disposal.

All analysis reports will be sent to the Environment Agency. Where any analysis suggests an exceedance of the limit values, Mulberry Waste Limited will also send a report summarising:

- the actions to be taken to improve performance in order to achieve the standards given, including any additional sampling and testing; and
- the dates that these actions will be completed by, including the dates for any additional sampling and testing

Analysis of the material fractions produced during the Multec commissioning trials confirmed the Mercury contamination levels in the residues for recycling. The glass fractions usually contained the highest concentration of Mercury of each of the tested solids. However, the highest concentration of Mercury was reported as 1.56 mg kg^{-1} Mercury in the large glass fraction from lamp processing, which is well within the anticipated limit value of 10 mg kg^{-1}.

On an annual basis, Mulberry Waste Limited will review and report the quantity of:

- water, energy and raw materials used;
- residues and waste water produced at the Knowsley Waste Facility.

Q6 Resource Efficiency and Climate Change

Q6a Basic Energy Efficiency Measures

Mulberry Waste Limited aim to undertake their operations efficiently, and work to operating, maintenance and housekeeping procedures for all site plant and processes, including motors and drives, the operation of the site generator, lubrication of moving parts to avoid high friction losses, and other maintenance relevant to the energy efficient operation of the installation.

The site generator is a 275 kVa diesel fired unit, which is currently Permitted to be operational for up to 3,000 hours per annum. The generator set is located within a sound attenuated enclosure, and is used to provide additional and stable energy to both the Multec plant and the shredder. As a result, it will be operational when either of these two processes are in use and, in order not to limit potential processing activities, is required to be available for use at any time (8,760 hours per year). All other plant will be powered from the mains electricity supply to the site.

Q6b Changes to the Energy Use of the Activities

The site has not been operational since a significant fire at the site in November 2016 which destroyed the process operations on site at the time and resulted in the site buildings being replaced. As such, the new processes will effectively result in 100 % increase in the process energy requirements at the site which currently undertakes waste storage only, with the associated requirement for mobile plant to unload, load and transfer materials from delivery vehicles.

A new process building has been erected at the site and new office buildings are modular in construction. Further processing and storage buildings are proposed at the site. The replacement of the previously aging buildings at the site with new, insulated, modular offices which can be heated, lit and replaced as required, will result in improved and continued energy efficiencies at the site, and the replacement of the processing plant with new, state-of-the-art treatment facilities will ensure overall improvements in energy efficiency from the levels experienced when the site was previously processing.

Information on the key energy uses at the site are as follows:

Plant	Energy Requirement (kWhr)	Maximum Operational Hours	Total Energy Use (MW per annum)
Generator (power to Multec and Shredder)	< 300	8,760	2,628
Multec	120	8,760	1,051.2 (from generator)
Shredder	240	8,760	2,102.4 (from generator)
Materials Sorter	30	8,760	262.8
Retort	43	8,760	376.7
Office use	15	8,760	131.4
TOTAL	448 kWhrs with the generator providing electricity for the Multec and Shredder plant		3,924.5 MW Generator provides up to 2,628 MW

Operational hours are assumed to be continuous in order to provide a worst-case assessment with no limitation on the operational period. However, and despite a proposed maximum of 24-hour, 365-day operation, it is unlikely that all plant will operate continually, and all will require maintenance during the course of each year, resulting in a reduction in the energy use of the site overall.

Diesel is also used to power the site fork-lift trucks.

6c Describe Specific Measures for Improving Energy Efficiency

General good practice with regards to energy efficiency is promoted throughout the business, although there are no specific procedures for minimising energy consumption within the Company. The efficiency of new equipment would be considered prior to purchasing any new plant, and Mulberry Waste Limited promotes the use of state-of-the-art technologies, which are maintained appropriately and to a high standard.

Newly purchased plant including the Multec, the shredder and the materials sorter are required to include variable speed drives and inverters where possible and practicable.

Basic low-cost energy efficiency measures have been employed where appropriate (e.g. insulation, closing doors, avoidance of unnecessary discharge of hot air or water etc), and the Company considers energy efficiency within the terms of its Environmental Management System. Additionally, lights and equipment are switched off when not in use.

The site has little scope for considering combined heat and power or the production of energy from waste at site, as the energy uses are principally electrical, with limited requirement for hot water or steam. Processes are managed as batch operations and pumping requiring power, with plant and pumps switched off when not in use.

6d Explain and Justify the Raw Materials Used

The principal raw materials of the site processes are wastes, with other raw materials use being limited to abatement (activated Carbon, filters etc) and cleaning chemicals, water and fuels or plant fluids and lubricants. General good practice with regards to resource efficiency is promoted throughout the business, however there are no specific procedures for minimising water or raw materials consumption, as these are fundamental requirements for the operation and management of the processes.

6e Describe How you Avoid Producing Waste

As a waste management facility, the main aim of the Knowsley Waste Facility is to prepare and / or treat various waste streams to promote recycling or recovery where possible. In treating wastes such that they can be more efficiently recycled, the whole ethos of the Mulberry Waste Limited process is based on resource efficiency and complies with the requirements of Council Directive 2008/98/EC.

The Company also operates an Environmental Management System which is certified to ISO14001 and identifies and assesses the potential environmental risks and hazards from the Company activities. Company and site procedures are produced with full consideration of the Environmental Management System, best available techniques as identified in the European BAT Reference Document, the BAT-Conclusions, the UK appropriate measured guidance and best practices, and thereby attempt to minimise the environmental impact of all site processes.

APPENDIX A
CERTIFICATES OF TECHNICAL COMPETENCE

CIWM

Continuing Competence Certificate

This certificate confirms that

David Ashford

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 19/10/2022

TSH	Transfer - Hazardous Waste
TMH	Treatment - Hazardous Waste
WEEE	Waste Electrical and Electronic Equipment

Expiry Date: 19/10/2024

Verification date: 17/10/2022

Authorised:

Professional Services Director

Learner ID: 25146

Certificate No.: 5209531

Date of Issue: 19/10/2022

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

Scan code on reverse to authenticate that this is a genuine paper

CIWM

Continuing Competence Certificate

This certificate confirms that

Paul Evans

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 17/01/2022

TSH	Transfer - Hazardous Waste
TSNH	Transfer - Non Hazardous Waste
TMNH	Treatment - Non Hazardous Waste

Expiry Date: 17/01/2024

Verification date: 12/01/2022

Authorised:

Professional Services Director

Learner ID: 10910

Certificate No.: 5191010

Date of Issue: 17/01/2022

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

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CIWM

Continuing Competence Certificate

This certificate confirms that

Hassanali Isaji

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 17/01/2022

TSH	Transfer - Hazardous Waste
TSNH	Transfer - Non Hazardous Waste
TMH	Treatment - Hazardous Waste

Expiry Date: 17/01/2024

Verification date: 12/01/2022

Authorised:

Professional Services Director

Learner ID: 917

Certificate No.: 5191011

Date of Issue: 17/01/2022

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

Scan code on reverse to authenticate that this is a genuine paper

CIWM

Continuing Competence Certificate

This certificate confirms that

Abrar Khan

Has met the relevant requirements of the Continuing Competence scheme for the following award(s) which will remain current for two years from 17/01/2022

TSH	Transfer - Hazardous Waste
TMH	Treatment - Hazardous Waste
TMNH	Treatment - Non Hazardous Waste

Expiry Date: 17/01/2024

Verification date: 12/01/2022

Authorised:

Professional Services Director

Learner ID: 14821

Certificate No.: 5191009

Date of Issue: 17/01/2022

CIWM Chief Executive Officer

The Chartered Institution of Wastes Management

Scan code on reverse to authenticate that this is a genuine paper

APPENDIX B
SITE PLANS

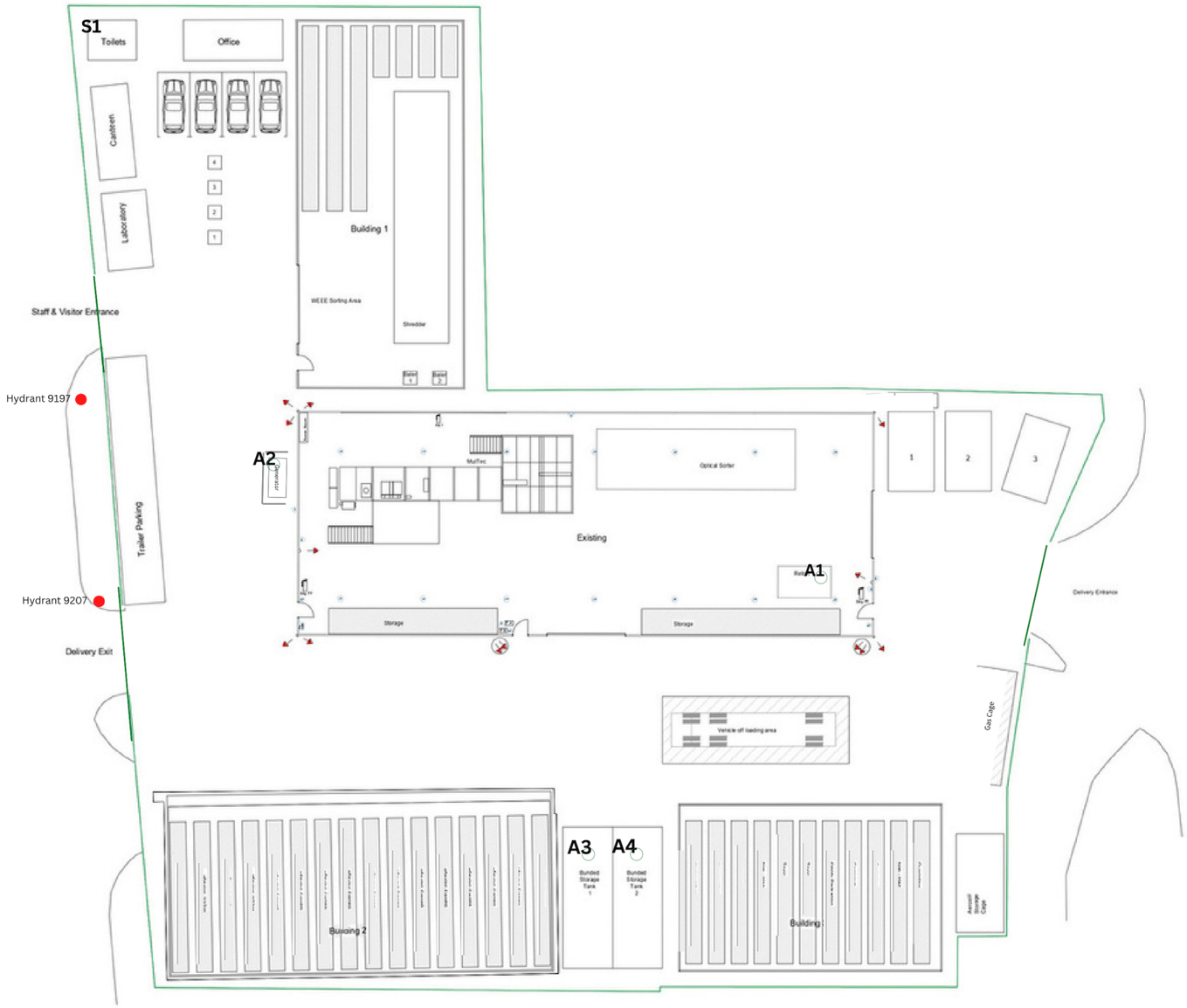
Site Location Plans

Imagery from Google Earth (2021). Red circle locates the Knowsley Industrial Park
See detailed location over page for site position

Imagery from Google Earth (2021). Red star locates the Mulberry Waste Limited; Knowsley Waste Facility.

Sensitive Receptors

Imagery from Google Earth (2021). Red star locates the Mulberry Waste Limited; Knowsley Waste Facility. Green triangles locate COMAH sites. There are no residential or sensitive environmental or ecological receptors in the immediate vicinity of the Knowsley Waste Facility.



Key:

Point Sources of Emissions

S1: Discharge to foul drain

A1: Retort

A2: Site Generator main exhaust

A3: 12m3 Self bunded storage tank for Oil

A4: 12m3 Self bunded storgae tank for Glycol / Coolent

Key:

Fire Extinguisher

- 6KF Foam (6kg F)
- 6KF Foam & 6KG Powder (6kg FP)
- 2KG Co^2 (2kg Co^2)
- FB — Fire Blanket
- CCTV Camera
- Thermal Camera & Overview Camera
- F.A — First aid Station
- Fire Alarm Panel - Conforming to BS 5839
- HD — Heat Detector with integral Sounder Base connected to Alarm installation
- BG — Break glass call point connected to alarm installation
- S — Sounder Beacon
- Power Room — 1) Electricity Supply 60KW incoming 2) 32mm² water supply incoming
- 1 — General waste skip
- 2 — Metal Skip
- 3 — WEEE skip
- 4 — Penstop Valve
- 3 — Interceptor
- 2 — Interceptor
- 1 — Interceptor
- Fire Hydrants
- Spill Kits
- Fire Hose Quarantine Bay
- Muster / Assembly Point

0m 1m 2m 3m 4m 5m

Rev	Date	Amendment

Client
MULBERRY WASTE LTD

Project
Stockpit Road Knowsley Park Liverpool L33 7TQ

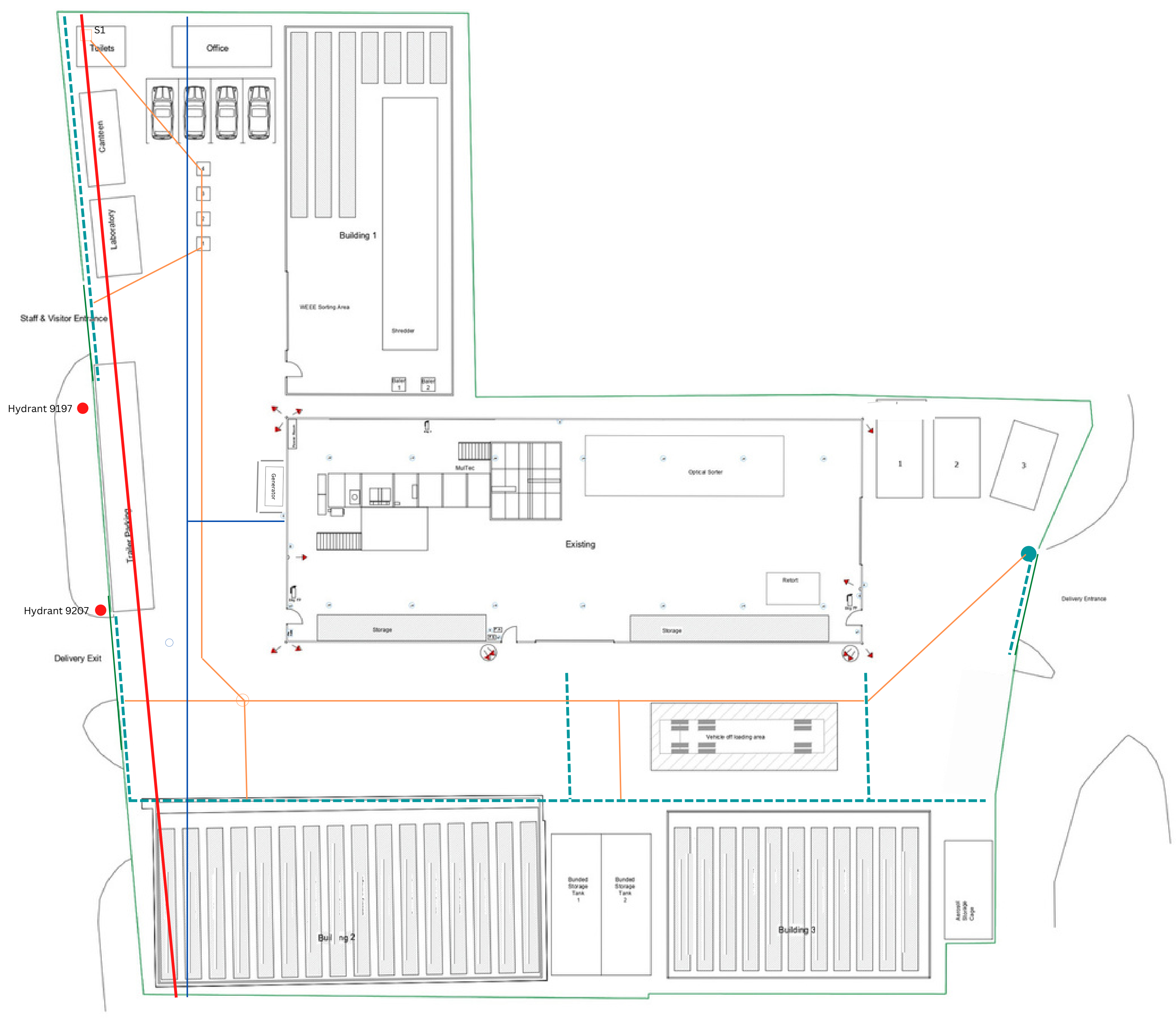
Title
Planning

Drawing
Site Plan

Scale **NTS @ A1** Date **Sept 2022**

Drawing No.
P2B_2022_2459A Drg 01

Plans2Build Ltd
Architectural Services
Mark Ashcroft
01704880415 07971106464
plans2build@outlook.com



Key:

- Aco drains
- Sump 900 x 900 x 900cm
- Site Drains to Main Foul Drain
- Site Drains Surface water, Roof Catchment
- Main Foul Drain
- S1 Emissions Point to Sewer

Key:

Fire Extinguisher

- 6kg F — 6KF Foam
- 6kg FP — 6KF Foam & 6KG Powder
- 2kg Co² — 2KG Co²
- FB — Fire Blanket
- CCTV Camera
- Thermal Camera & Overview Camera
- F.A — First aid Station
- Fire Alarm Panel - Conforming to BS 5839
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- Power Room — 1) Electricity Supply 60KW incoming 2) 32mm² water supply incoming
- 1 — General waste skip
- 2 — Metal Skip
- 3 — WEEE skip
- 4 — Penstop Valve
- 3 — Interceptor
- 2 — Interceptor
- 1 — Interceptor
- Fire Hydrants

Rev Date Amendment

Client
MULBERRY WASTE LTD

Project
Stockpit Road Knowsley Park Liverpool L33 7TQ

Title
Planning

Drawing
Site Plan

Scale: **NTS @ A1** Date: **Sept 2022**

Drawing No
P2B_2022_2459A Drg 01

Plans2Build Ltd
Architectural Services

Mark Ashcroft
01704880415 07971106464
plans2build@outlook.com

APPENDIX C
FIRE PREVENTION PLAN

Environmental Visage

FIRE PREVENTION PLAN
KNOWSLEY WASTE FACILITY

MULBERRY WASTE LIMITED
STOCKPIT ROAD
KNOWSLEY INDUSTRIAL PARK
MERSEYSIDE, L33 7TQ

Report Issue No: 1
Report Date: October 2022
Report Author: Amanda Owen

Registered in England and Wales no. 4907297. Registered office: c/o SLS Accountants, 78 Draycott, Cam, Glos, GL11 5DH

Executive Summary

The Mulberry Waste Limited, Knowsley Waste Facility is situated on a large industrial estate, the Knowsley Industrial Park, in Merseyside. The estate is more than 200 hectares in area and is located to the north of Knowsley village, and east of Kirkby. The estate is home to many light industrial units, as well as some larger works such as the Baker Hughes chemicals site, also situated on Stockpit Road.

The centre of the site is positioned at approximate national grid reference SJ 43540 98760.

The facility can receive up to 210,000 tonnes of waste per annum and has a total storage capacity of approximately 575 tonnes, comprising aqueous wastes including waste oils, Waste Electrical and Electronic Equipment (WEEE) including batteries, End of Life Vehicle (ELV) waste, and other workshop and garage services wastes.

This is the Fire Prevention Plan for the Mulberry Waste Limited, Knowsley Waste Facility. It is a living document and will be updated as required.

Contents

Issue and Revision Record

Issue	Date	Author	Review / Authorise	Description
DRAFT	10/08/2022	A. Owen		Draft for comment
Second DRAFT	02/09/2022	A. Owen		Draft with SW comments
Third DRAFT	19/10/2022	A. Owen		Final Draft
1	26/10/2022	A. Owen	ENVISAGE	Issue 1

1. Introduction

The Mulberry Waste Limited, Knowsley Waste Facility is situated on a large industrial estate, the Knowsley Industrial Park, in Merseyside. The estate is more than 200 hectares in area and is located to the north of Knowsley village, and east of Kirkby. The estate is home to many light industrial units, as well as some larger works such as the Baker Hughes chemicals site, also situated on Stockpit Road.

The centre of the site is positioned at approximate national grid reference SJ 43540 98760, and the general site location can be seen in Figure 1.

The facility can receive up to 210,000 tonnes of waste per annum and has a total storage capacity of approximately 575 tonnes, comprising aqueous wastes including waste oils, Waste Electrical and Electronic Equipment (WEEE) including batteries, End of Life Vehicle (ELV) waste, and other workshop and garage services wastes. No stockpile of waste (incoming or treated materials) will exceed 4 m in height.

Incoming wastes are received in the yard before being stored in dedicated storage facilities such as skips, tanks, cages or buildings. The existing building and proposed building 1 are used for processing waste (shredding, crushing, sorting and the recovery of Mercury) as well as the sorting and storage of WEEE and Mercury based materials. Proposed buildings 2 and 3 are effectively covered and fire-walled storage bays for the storage of containerised wastes, located over impervious concrete hardstanding, which enable the appropriate segregation and storage of waste materials and ensure that no incompatible wastes are stored near each other.

Yard run-off flows to a dedicated drainage system which is served by an interceptor prior to discharge and can be sealed in an emergency using a penstock valve, thereby preventing the release of spillages from site to the foul drainage system. All site buildings are new and include concreted impermeable flooring with no drainage. As such, there will be no release to sewer from the process areas in the existing building or proposed building 1, and any spillages within these areas will be contained, collected, swept, vacuumed or absorbed, before appropriate disposal.

This plan has been written to address the requirements of the Environment Agency Fire Prevention Plan guidance (published on the GOV.UK website and last updated 11 January 2021) in that it considers the details of the site activities, location and infrastructure. It considers the likelihood of a fire happening and how to reduce the likelihood of such an event occurring; minimising the spread of the fire both within the site and to neighbouring sites, and how to manage the response to any fire such that it can be extinguished within 4 hours.

All staff and contractors will be briefed on the requirements of this plan to ensure that they are aware of the potential for such incidents, and their responsibilities in managing the risk, both to prevent fire occurring, and in the event of a fire breaking out at the site.

Where it is safe and practical during any fire incident, Mulberry Waste Limited will show the Fire and Rescue Service this fire prevention plan.

2. Fire – Potential Sources and Causes

The Mulberry Waste Limited, Knowsley Waste Facility can receive various types of waste, some of which are combustible. The wastes that the site can receive or store which may be a source of fire include:

- Paper or cardboard – confidential shredded paper and packaging for recycling;
- Plastics - drums bottles, and IBCs;
- Rags and textiles – only from on-site use for cleaning down equipment. Maximum storage of 1 x 205 litre drum;
- WEEE – all categories;
- Unsorted and sorted batteries.

These combustible wastes may be separate or part of a mixed waste or load. The site plans in Figures 2 - 5 show the layout of the site and the main storage areas. Any wastes can be stored in any of the storage areas, providing incompatible wastes are separated. All storage will be in compliance with guidance note HSG 71.

The potential causes of fire at the site include:

- Self-combustion;
- Hot loads deposited at the site;
- Hot exhausts, and hot processed waste;
- Sparks from loading equipment or treatment processes;
- Plant or equipment failure;
- Hot works (e.g. welding or cutting);
- Naked lights;
- Discarded smoking materials;
- Open burning (on or adjacent the site);
- Industrial heaters;
- Electrical faults;
- Damaged or exposed electrical cables;
- Poor housekeeping;
- Neighbouring site activities;
- Arson or vandalism;
- Human error or negligence;
- Natural causes (e.g. lightning strike).

Due to the nature of the wastes which are acceptable at the site, there is the potential for a fire to be caused by the following:

- Incompatible wastes;
- Reactions between incompatible materials.
- Physically damaged batteries or other WEEE
- Short circuiting of batteries or other WEEE
- Exposing batteries or other WEEE to excessive heat.

Strict procedures are in place to ensure incompatible wastes are not stored near to each other such that adverse reactions may occur and all ignition sources including the site generator are kept at least 6 m from combustible materials where possible.

This Fire Prevention Plan identifies the site operational controls of potential causes of fire.

The Company strictly enforces the following rules:

- No form of open burning or fires of any kind are permitted on the site.
- The site is a 'No smoking' facility except in designated smoking areas which are off-site.
- For all Hot Works (e.g. cutting or welding), a Hot Works Permit is required to ensure that risks are appropriately considered and controlled.
- Any fire at the site will be regarded as an emergency and immediate action will be taken.
- All outbreaks of fire will be notified to the Environment Agency.

Site rules and requirements are advised to staff and contractors through the induction procedure. Site staff receive regular on-site training and fire awareness and extinguisher refresher training. The site is signposted with safety rules and requirements at entrances, and all staff, contractors and visitors must sign into the site on arrival.

3. Site Location and Sensitive Receptors

Although not a residential area, nor an area where sensitive ecological features are present, the Knowsley Industrial Park includes some important sites which would be considered to be sensitive receptors in the event of an emergency. A number of COMAH sites (Control of Major Accident Hazards) are present on the industrial estate, including neighbouring Baker Hughes. A list of local COMAH sites is provided in Table 1 over page.

Table 1 - Sensitive Receptors in the Vicinity of the Mulberry Waste Limited; Knowsley Waste Facility

Name	Approximate Distance from Site	General Direction
Baker Hughes, Knowsley Industrial Park North, Kirkby Lower tier COMAH site	50 m	West
Bowker Group, Knowsley Industrial Park, Kirkby Upper tier COMAH site	510 m	South
Syntor Fine Chemicals Limited, Knowsley Industrial Park, Kirkby - Lower tier COMAH site	610 m	North, north-east

There are no residential properties within 1 km of the site.

A plan locating the sensitive receptors can be found in Figure 6.

4. Summary of the Risks

Mulberry Waste Limited will do all that is reasonably practicable to prevent a fire, however, the Company cannot eliminate all the risks.

Table 2 over page summarises the assessment of fire risk at the site and the measures in place to prevent, detect, suppress, mitigate and contain fires. The remainder of this Fire Prevention Plan provides the detail to support this summary.

In Table 2, the following key applies:

Unlikely to occur: Fundamental principles of operation ensure that the potential for the issue to occur is once per year or less, or the site incorporates active measures to control risks which could otherwise be present. Hence the potential for a fire to be caused at site is very low;

Possibility of occurrence: Site activities result in this potential cause of fire being present on a regular basis (once per month or more);

Likely to occur: Site activities result in this potential cause of fire being present at the site constantly, or almost constantly.

Table 2 - Fire Risk Assessment Summary

Item	Potential Cause of Fire	Likelihood (Uncontrolled)	Control Measures	Likelihood (Controlled)
Receipt and storage of combustible waste	Incompatible wastes / reactive wastes	Possibility of occurrence	Acceptable wastes to the site include combustible wastes, but there are strict procedures to ensure that incompatible wastes do not come into contact with one another, and to prevent adverse reactions. Unacceptable or unpermitted wastes are rejected at reception and returned if safe to do so.	Unlikely to occur
	Hot loads	Possibility of occurrence	Information on unacceptable waste types is provided to customers. Loads are assessed prior to tipping or storage where possible and are rejected or quarantined where unacceptable or where hot loads are identified. The acceptance of hot loads on a regular basis is not considered likely.	Unlikely to occur
	Self-combustion	Possibility of occurrence	Wastes are stored for specified maximum periods and are inspected daily.	Unlikely to occur
Treatment of combustible waste	Heating of materials / sparks from treatment or equipment	Likely to occur	Treated materials can be hot when processed and sparks from loading plant or hot materials from the treatment processes might lead to smouldering in the containers of treated, segregated wastes. The main processing and storage areas are appropriately segregated. The site is manned from 08:00 – 17:00 Monday to Friday and staff are trained in fire-fighting. Fire extinguishers and hoses are on hand to douse any smouldering waste and a quarantine area is available for smouldering / ignited materials as necessary to prevent the spread of fire. The site fire alarm system has automatic heat detection throughout the building and is monitored 24-hours per day. The CCTV system is also continuously monitored and can be accessed remotely by managers. CCTV includes 2 thermal cameras which cover the yard off-load area and assess changes in temperature.	Possibility of occurrence
	Hot exhausts	Likely to occur	Mobile plant are stored away from waste treatment or storage operations when not in use, and vehicle checks are undertaken during a dedicated cleaning, cool-down and maintenance period at the end of every day.	Unlikely to occur
	Plant or equipment failure	Possibility of occurrence	Regular plant and equipment maintenance is undertaken (in line with the manufacturer's recommendations). Daily equipment checks would identify any leaks or issues. All processes are manned. PAT and fixed wiring inspections are undertaken as per standards.	Unlikely to occur
High temperature waste treatments	Hot materials discharge	Likely to occur	The retort programmes and process include a cooling function and will always, under normal operating conditions be allowed to complete the cycle. The manufacturer's instructions will be followed and appropriate PPE will be worn. In the event of an emergency / abnormal shut-down, the manufacturer's instructions will be followed, appropriate PPE will be worn, and abated ventilation will be provided where necessary.	Possibility of occurrence

Item	Potential Cause of Fire	Likelihood (Uncontrolled)	Control Measures	Likelihood (Controlled)
Other site operations	Hot work (welding or cutting)	Possibility of occurrence	Staff induction and training, contractor inductions, and Hot Work Permit issued by safety representatives. Dedicated areas used for hot work are away from site where possible. The site procedure has been audited and passed by insurers and falls under audits to ISO 45001 standards.	Unlikely to occur
	Naked lights	Unlikely to occur	Naked lights are not allowed at site unless covered by a Hot Work Permit.	Unlikely to occur
	Electrical faults or damaged equipment	Possibility of occurrence	In house electrician is NICEIC qualified / certified and all equipment on site is checked and suitable for purpose. Fixed wire inspection carried out 5-yearly. PAT annually for appliances.	Unlikely to occur
	Open burning	Unlikely to occur	No fires are allowed at site. Rules identified in staff induction and training, and contractor inductions.	Unlikely to occur
	Smoking on site	Unlikely to occur	Smoking is not allowed. There is a dedicated area off the site away from waste treatment or storage operations. Rules identified in staff induction and training, and contractor inductions.	Unlikely to occur
	Fuel storage	Possibility of occurrence	Site has a 1,340 litre self-bunded diesel fuel storage tank with 240 v electric pump. Staff are trained in fuel delivery procedures and a spillage response plan will be activated during any fuel spills. Site has spill kits for use and contaminated materials will be disposed of appropriately. Tank will be locked when not in use. Fuel deliveries will only happen when there are no waste operations in the vicinity.	Unlikely to occur
	Chemical storage (product)	Possibility of occurrence	A lockable chemicals cupboard or chest will be installed at the site for the safe storage of chemical products.	Unlikely to occur
	Metals skip	Unlikely to occur	The metals stored within the skip are clean metals only (e.g. IBC cages) for recycling. Hence, they are not combustible.	Unlikely to occur
Third Parties	Arson or vandalism	Unlikely to occur	Site is located on an industrial estate away from residential areas. It has a number of security measures including fencing on all sides, locked gates out of hours and 24-hour CCTV and heat detection.	Unlikely to occur

5. Waste Quantities and Storage

The site can receive a maximum of 210,000 tonnes of waste per year for storage, treatment, recovery and disposal. No waste which consists solely or mainly of dusts, powders or loose fibres will be accepted at the site. The site has a total storage capacity of approximately 575 tonnes.

All treatment and most waste storage is undertaken within the site building, with wastes stored on the yard in skips, cages or in self-bunded tanks. All mechanical waste processing is undertaken within the site buildings, and no wastes are stored for longer than 6 months.

Table 3 – Overview of Quantities and Storage Locations of Incoming and Processed Waste

Waste Type		Form	Location	Protection Measures	Maximum Receipt of Waste	Maximum Storage (Tonnes)	Maximum Storage Duration
Incoming Waste	Mercury bearing wastes	Solid wastes which include powder from on-site processing	Sealed containers stored within 'Existing Building'	Impermeable surface - no drainage. All materials will be retained in appropriate, sealed containers. Containers will be stacked 2 high at max. and will be accessible for inspection and to enable fire-fighting as required.	500 T / annum	140 tonnes Within the overall site total (575 T)	6 months
	WEEE and Batteries	Solid wastes. WEEE might be contaminated with POPs, and some batteries may be filled with liquid electrolyte	Containers stored within 'Existing building' and Buildings 1, 2 or 3	Impermeable surfacing across the site. No drainage ('Existing building and Building 1) or sealed drainage (Buildings 2 and 3 and yard area).	210,000 T / annum	575 tonnes Within the overall site total (575 T)	
	Aqueous wastes	Hazardous and non-hazardous aqueous effluents	Containers stored within Building 3	Impermeable surfacing and sealed drainage. Bunded bulk tanks.		200 tonnes Within the overall site total (575 T)	
	Other / garage services waste	Solid and liquid (e.g. oils, antifreeze, paint) wastes for sorting, repacking or bulking and storage	Containers stored within Building 3	Stored within specified bays. Impermeable surfacing and sealed drainage.			
	Non-hazardous wastes	Solid and liquid forms of the above wastes for sorting, repacking or bulking and storage	Containers stored within Building 3, or in yard skips	Stored within specified bays. Impermeable surfacing and sealed drainage.		210 tonnes Within the overall site total (575 T)	
Treated Waste for Storage Prior to Dispatch	Segregated materials from various shredding and sorting operations	Solid waste for storage prior to and post processing, before onward transfer for recycling or disposal	Containers stored within 'Existing building' and Buildings 1, 2 or 3	Impermeable surfacing across the site. No drainage ('Existing building and Building 1) or sealed drainage (Buildings 2 and 3 and yard area). All materials will be retained in appropriate containers, and will be sealed where contaminants (e.g. Mercury) may be present. Containers will be stacked 2 high at max. and will be accessible for inspection and to enable fire-fighting as required.		575 tonnes Within the overall site total (575 T)	

Figure 2 identifies the current site layout and storage areas.

Site storage is specified (and marked on the site plans) as likely capacities based on the current market availability and future estimates. However, in reality, any area of the site can be used to store any waste, subject to the availability of suitable infrastructure. That is, for example, WEEE waste will always be stored within a building or protected from the elements and aerosols will always be stored securely either within a cage, or in a vented waste safe. The overall storage capacity and annual throughput will remain within the maximum values stated above, although any one or combination of waste types may make up the total storage of the site at any one time.

Wastes are stored in appropriate containers, for example bulk tanks, drums, battery boxes or IBCs. Bulk aqueous wastes (oils or Mono Ethylene Glycol) are stored separately in self bunded tanks in the yard.

The largest area of storage bays is located in Building 2 and is approximately 21 m x 11 m (307 m^2). Containers can be stored up to 2 high, resulting in an overall storage volume of 737 m^3 in this area. Whilst this exceeds the maximum stockpile volume for fire prevention planning, all of the stored materials are containerised and an allowance of 800 mm is available between all bays to allow sufficient access for inspection of the containers stored therein.

Waste input and output data is reconciled weekly to confirm the amounts of waste received by the site and to compare them to the weight of waste removed from the site during the course of the week. Therefore, the site can assess the quantity of waste on site at any time.

6. Management of Wastes

Mulberry Waste Limited operates to an ISO 14001 Environmental Management System and details of the site operations are provided within the Management Systems documents which are retained on site and reviewed and updated as required. All site staff are trained appropriately for their roles and would refer to the Site Manager should they have any queries as to their day-to-day operations.

Site managers give guidance and training to all employees on the permitted waste types and acceptable wastes for the site. Site operations are managed in accordance with the Appropriate Measures requirements, and these are regularly reviewed with procedures being updated as necessary in order to ensure continued compliance.

Guidance on acceptable waste types is also given to sub-contractors, other waste carriers and customers. The site mainly receives waste directly from its own customers, transported by Mulberry Waste drivers, and therefore has strict control over the wastes accepted at site. Where waste is received from third parties, checks are carried out to ensure that wastes are acceptable, thereby minimising the potential for incorrect waste to inadvertently be delivered to site. The following wastes are not accepted into the site: non-permitted wastes, wastes which consist solely or mainly of dusts, powders, or loose fibres.

At the initial enquiry stage, information regarding the consignment is taken. This includes information on the waste type(s), source and quantity of the waste, any hazardous properties and the risk of any odour or dust, amongst other things. These details are checked to ensure the load is acceptable under the Environmental Permit and planning permission conditions. If the waste is not permitted under either authorisation, it will not be accepted at the site. When the Company driver arrives at the customer's site to collect a consignment of waste, they will inspect the load for conformity with the waste description and acceptability for transport conformity. A visual inspection is undertaken to ensure that the description of the waste and number of containers matches the description given prior to collection. This inspection will include assessment of the container labelling and integrity to ensure appropriate safety procedures are followed.

The nature of the waste (palletised drums, IBCs etc.) can make detailed inspection difficult until the load is deposited at the site. However, the waste receives its first (visual) inspection when the trailer curtains are opened. Waste is unloaded in the trailer offload area (see site layout plan in Figure 2) and is inspected and sampled as required before being stored according to its type. If unauthorised waste is discovered either during or after being unloaded, then either:

- The waste will be returned to the producer (if safe to do so) and the Environment Agency advised, or
- Where the producer of the load cannot be contacted or where an alternative disposal route is not immediately available then the waste will be deposited and stored in the quarantine area provided (see layout of Building 3, Figure 5).

A non-conformance will be raised and the Environment Agency will be notified of all unauthorised waste.

All waste to site is pre-booked and therefore, deliveries will only be made should there be sufficient capacity on site. However, if the maximum storage capacity of the site is reached, then no further waste will be collected until there is sufficient room to allow delivery in a safe manner. The total quantity of waste stored at the site shall not exceed 575 tonnes at any one time.

Mulberry Waste Limited, Knowsley Waste facility instigates a site tracking system which comprises a daily stock sheet which details the driver delivering the load, the customer it came from, the quantity of waste per load and details of the storage area in which the waste is deposited. Waste input and output data is reconciled weekly to confirm the amounts of waste received by the site and to compare them to the weight of waste removed from the site during the course of the week. All records relating to pre-acceptance, acceptance or rejection are available and are retained at the site.

Duty of Care Transfer Notes and Consignment Notes are used to record details of all loads, and any waste which is unacceptable or potentially so, will be rejected or quarantined respectively, as detailed in the Waste Acceptance and Sampling Procedure. All deliveries are fully supervised by a member of staff.

The offload and quarantine areas are marked on the site plan and are covered by CCTV. The Site Manager ensures that offloaded wastes are cleared by the end of each working day. The offload area is paved with impermeable concrete hardstanding and drainage is directed to a three-stage interceptor which is also served by a penstock valve which can be shut-off in the event of an incident or emergency. No waste treatment is permitted in the offload area and spill absorbent materials are available in the vicinity should there be a spill during acceptance sampling.

Wastes are placed in the offload area in line with the segregation requirements of HSG 71. After any required further inspection (i.e. emptying and repacking containers of contaminated clothing, packaging or rags to check for items that should not be there) wastes are moved to appropriate storage locations, in line with HSG 71. Wastes are either stored within the storage and process buildings, in self-bunded bulk tanks, or segregated for dedicated storage (e.g. aerosols), prior to any further treatment or transfer.

Where wastes are required to be quarantined, the non-conformance procedure is followed. Any waste may be re-packaged, rejected, have the labels removed and / or be quarantined as necessary. Plastic containers used for storage will be checked for the use by date. The quarantine area can retain a maximum of 54 containers although usually holds no or minimal quantities of waste. Wastes are to be stored in the quarantine area for a maximum of 5 working days and will be clearly signed as quarantined material.

All wastes are stored in such a way as to make them accessible for visual assessment and in order to readily control any fire which may break out within the containers. The height of waste storage in all areas of the site will be maintained at less than 4 m

The management of the waste stored is controlled through a combination of waste intake and dispatch records, the reconciliation of the waste data at the close of each week, staff training, and management of both the area and height of stock-piles. Where any waste is in danger of exceeding its maximum storage duration, incoming wastes will be reduced or stopped completely as necessary until such time as the backlog of waste is cleared. Avenues for waste from site will be sourced as a priority and waste shall be removed from site as soon as possible in order to start receiving waste at the site again.

The treatment of wastes at the site comprises sorting (manual and mechanical), repackaging, bulking, shredding and the recovery of Mercury using a dedicated retort.

7. Preventing Emergencies

As with any working site, there is a potential for accidents and emergencies to occur, although the Company aims to control the risk of these and keep this potential to a minimum. The use of robust waste acceptance procedures to prevent the receipt of unauthorised waste, appropriate storage, and the regular treatment and dispatch of materials to ensure a high turnover of waste is the principal method of fire prevention at the site.

The likelihood of fire breaking out at the site is limited, however, should it occur, it is most likely to be associated with:

1) Mechanical waste treatments, including shredding, sorting and heating (retort).
2) Due to incorrect or prolonged storage or extreme weather conditions affecting the stored materials.

Reducing the risk comes in the form of the following respective actions,

1) All processing operations are manned and, where relevant, include emergency and protective measures and controls.
2) Waste storage areas are limited in their size, and all wastes are containerised, enabling swift action to segregate wastes in the event that a fire does occur.
3) The process building includes an automatic detection fire alarm system which is currently monitored by ADT Fire and Security (ADT) 24-hours per day. The contract includes full service and call out cover.
4) The site CCTV system is also monitored by ADT and includes call out cover. The CCTV system includes two thermal cameras which are directed at the waste storage area and are also monitored by ADT with significant changes in temperature being notified to Mulberry Waste Limited.
5) Availability of hoses and extinguishers to enable swift action in the event of a fire breaking out.

Waste is stored in appropriate containers which are positioned in appropriately sized and located groups, to ensure suitable separation of wastes. WEEE waste, both before and after treatment, is stored within the confines of a covered building.

Should a fire occur, the building and firewalls will provide some protection against fire spread, whilst remaining easy to access in order to fight the fire. However, the presence of the building may restrict the flow of Oxygen to the fire when the site is not operational (e.g. overnight and at weekends), especially in the Existing building and Building 1 which are structures with full walls and a roof, unlike the open 'barn-type' structures of Buildings 2 and 3. Whilst a lack of Oxygen slows the rate of the fire, it also leads to the incomplete combustion of materials until such time as the building is opened or collapses, at which point the fire intensity will increase. The incomplete combustion of waste materials during a fire may increase the impacts on air quality during the initial phases of the incident.

Should a fire occur, products of combustion might include the following emissions to air:

Carbon Monoxide;
Carbon Dioxide;
Oxides of Nitrogen;
Oxides of Sulphur;
Dioxins;
Poly Chlorinated Biphenyls.

The products of combustion will be determined by the waste types involved and whether they are able to achieve complete or incomplete combustion. Each of these gases can be toxic to humans at their relevant concentration, and thus Mulberry Waste Limited aims to minimise the potential for fire and the release of combustion gases to occur. Should a fire break-out, the aim is to extinguish it as soon and effectively as possible, and within 4 hours if at all possible.

All site operatives are trained to be vigilant to site emergencies including the potential for fire, and all site operations are manned. Hence staff continually watch for fire in their work area and general surroundings, and would report any unusual smell, smoking of wastes, or any other observed emergency situation, notifying their supervisor or the Site Manager. At the end of each working day the operatives on site will carry out an extensive fire watch, ensuring good housekeeping is maintained. If anything unusual is found, staff are trained to report it and a 24-hour fire watch / cover will be arranged. Nothing unusual is ever left unattended.

Sources of ignition are limited at the site. Smoking is not allowed anywhere on site and a Hot Work Permit is required for any welding or cutting. Where possible, this will occur away from areas storing combustible wastes, and will be undertaken off-site if possible. Where the work required necessitates hot work in all areas of site, the Hot Work Permit specifies the precautions to be taken during the works and details of any fire watch etc. Only authorised Mulberry Waste staff can issue Hot Work Permits.

All wastes are processed within the waste treatment building on a priority basis and no wastes will be stored at the site for longer than 6 months. Combustible wastes will be inspected daily and if the waste is seen to smoulder the Plant Operators will endeavour to cool the pile by either processing or dispatching this material in preference to any other where it is safe to do so. Should this not be possible, the smouldering material shall be moved to the quarantine area. All handling of smouldering wastes will be undertaken by trained personnel using mobile plant. At least one other member of site staff will have a hose or fire extinguisher prepared for use during any such operation.

Where possible, smouldering material will first be transferred into a waste safe, lifting the entire drum, pallet or IBC into the safe, before the waste safe is moved to the quarantine area. An extinguisher or fire hose will then be used to try to extinguish the fire. In the event that smouldering waste or a fire occurs in a skip, staff will not attempt to move the skip but will cool the waste or tackle any fire in-situ, using an extinguisher or hose. Should the situation appear unsafe or worsen to an emergency incident at any time, the Fire Procedure will be actioned (see Section 9) and the site fire wardens will assume their roles (see Appendix 1). The Fire Hose Reel Procedure (MW203A) is provided in Appendix 2.

Due to the space available on site, the site includes a single waste and fire quarantine area which usually stores no or minimal waste. This area is located in Building 3 and has the capacity for up to 54 containers, although any containers quarantined in this area will be cleared at the first sign of any fire on site and the area will then kept free from equipment, vehicles, and wastes to ensure that it remains accessible should it be needed to quarantine any wastes during a fire. This area is approximately 12.5 metres long by 5.5 metres wide. Should any waste on site ignite, staff will first extinguish or attempt to extinguish the fire, and the waste will then be removed to the fire quarantine area for further extinguishing or cooling. Alternatively, should multiple containers or a row require removing in part or in full to enable fire-fighting or cooling, staff can utilise the quarantine area, which is protected by fire walls, to douse the containers or to spread the waste for extinguishing and cooling.

The access routes into and around the site for emergency vehicles are usually through the main gate off Stockpit Road, although the 'Deliveries Entrance' to the yard from Draw Well Road can also be used, and this is the closest entry point to the quarantine area. Fire crews can also access and fight fires on the yard from a position on the roadways, with two fire hydrants located on Stockpit Road.

In order to minimise the risk of fire and fire spread, the temperature of combustible wastes such as used spill granules and rags, containers of plastics and WEEE will be measured daily using either a temperature probe, or a Forward Looking Infra-Red (FLIR) thermal imaging camera. Space (800 mm) will be left down the side of each row of containers to allow for testing. Probe testing will be directed towards the centre base point of each container. Alternatively, the FLIR thermal imaging camera will be used to identify any hotspots in stacked containers, with progressive investigation to confirm the affected container or containers, and to remove them or the individual article(s) from storage and into the quarantine area. The results of the temperature measurements are recorded in the site diary and any anomalies raised with management and actioned immediately. In the event that the temperature in any container is 50 ^{o}C or more, containers will be separated and temperature readings will be increased to hourly until the temperature reduces.

The make and model of temperature probe and thermometer or FLIR thermal imaging camera will be suitable and sufficient in reach and range to achieve the commitments within this Fire Prevention Plan.

During especially hot or prolonged dry weather, the frequency of temperature checks may be increased, initially to twice per day and more frequently as required. Waste storage times will be kept to a minimum, with additional and more frequent transfers being arranged wherever practicable.

Incoming waste is monitored in the offload area using two thermal cameras (VCP-42 Thermal Range from Concept Pro) which provide long-range video surveillance and multiple area monitoring for temperature. The cameras can also assess the temperature of the wastes stored in Buildings 2 and 3 and in the aerosol cage. The system is monitored on a 24-hour basis by a third-party, ADT and, in the event of an incident, notification is sent to the fire service and the Mulberry Waste Limited management team.

The waste storage and processing buildings are also fitted throughout with heat detection and fire alarm systems, which comply with the BS5839-1:2017 and are UKAS accredited. The systems are monitored on a 24-hour basis by ADT and, in the event of an incident, notification is sent to the fire service and the Mulberry Waste Limited management team. Figure 7 shows the location and extent of the fire protection measures and extinguishers, and other emergency equipment.

Any alarm is audible to staff working within the site buildings and the system relays a signal to the ADT control centre (off-site) who then automatically alert the fire brigade and the designated site managers. Fires can be immediately investigated both by persons on site and remotely using CCTV cameras, and a decision can be made on the required action to be taken.

The site incorporates an emergency alarm system and various fire-fighting tools, including powder, foam and CO_2 fire extinguishers and a water hose. Fire extinguishers are checked and serviced annually by an external third party. The fire hose is provided on a swinging reel for maximum mobility, ensuring that it can be used to tackle a fire anywhere within the quarantine area, Building 3, the offload bay or indeed across the wider yard. The hose is fed from the mains water supply and thus is primed and ready for immediate use.

The site includes multiple fire points and fire exits from the buildings and fire-fighting equipment is located by the exits and processing areas. Staff are trained in the use of fire-fighting equipment and dedicated fire marshals who have received external fire-fighting training are rostered onto each shift. In the event of a fire, the first responding fire marshal will assume control of the response and organise the emergency procedures on site and any liaison with the emergency services as required. An annual check of training records will be made with fire training scheduled as necessary.

The location of the nearest fire hydrants has been advised by Merseyside Fire and Rescue Service and are shown in Figures 7 and 8, while Figure 9 details the run of gas and electricity mains locally.

The site is covered by a CCTV system which is recorded 24-hours a day. The CCTV system and the fire alarm system are monitored by ADT who are automatically notified should the alarm be activated and will notify both the Fire and Rescue Service and site management in the event of an alarm.

Waste is not burned on site, and all reasonable precautions are taken to prevent the outbreak of fire leading to the likely release of fugitive emissions. The deposit of hot or burning waste will be avoided by rejecting or quarantining such waste. Waste is containerised and is stored in buildings with other, appropriate wastes. Where necessary, waste types and specific areas, for example the quarantine bay, are separated with fire walls. Firewalls also protect buildings or wastes stored close to the site boundary in order to avoid the spread of fire into or out of the site.

The firewalls are designed to resist fire (both radiative heat and flaming) and have a fire resistance period of at least 120 minutes, thereby allowing waste to be isolated and to enable any fire to be extinguished within 4 hours. Firewalls will be formed from modular concrete blocks or will comprise solid concrete walls meeting "Class A1" (BS EN 13501-1:2002). Each firewall will extend 1 m above the individual row high (2.4 m) and will be no less than 0.3 m thick. Wastes are not permitted to extend beyond the edge of the firewall in order that fire cannot readily spread beyond the protected area. The firewall locations are shown in Figure 10, and are marked in red.

All wastes are treated and dispatched from site as soon as possible, applying a ‘first-in, first-out’ policy where appropriate and no wastes is stored on site for longer than 6 months. Visual checks of all wastes are undertaken, including containerised wastes, bunded tanks, the aerosol cage and skips on a daily basis, and the temperature of stored wastes across the site are recorded on a daily basis with action taken to address any anomalies.

Sources of ignition are limited at the site which is a no-smoking facility. Maintenance hot work, and the storage of associated gases is undertaken on an ad-hoc basis and may involve any area of the site. Any hot work is carried out under the provision of a Hot Work Permit, an example of which is presented in Appendix 3, and by experienced and trained staff only.

The Company employs experienced mobile plant operators. Each is trained in the operational practices of the site and in their own operations, and works within the guidelines of written procedures. Plant is inspected daily and maintained regularly and is not left unattended near waste piles. All site fork lift trucks are equipped with fire extinguishers and are stored overnight within the Existing Building, close to the optical sorter, thereby ensuring more than 6 m between the mobile plant and any waste storage.

At the end of the working day, the plant and equipment will be shut down and inspected before locking up, for any signs of heat / smouldering. This also allows the operator to check the plant for any sign of damage or leaks etc. Site processes are generally manned whenever they are operational. Where the automatic programme of the retort operation extends beyond the normal working hours, thermal cameras and heat detectors throughout the process building provide 24-hour observation of the process.

Waste storage buildings will be tidied, and yard areas cleaned at the end of each working day. Thorough checks for any sign of fire or self-combustion will be done before staff leave the site.

8. Dealing with Emergencies

Emergency Procedures are in place to deal with accidents, and emergencies. First aid facilities are located throughout the building and yard areas. See Figure 7 for details. Mulberry Waste Limited will retain an appropriate number of first aid trained staff on site.

Site staff are trained to deal with events and accidents that could lead to pollution, and understand their individual responsibilities in the event of an incident occurring. The Fire Procedure is included in this Fire Prevention Plan (see Section 9), or can be viewed at any time in the site office. Training records are held within personnel training files and include reference to Fire Safety Training. Training records are available to view upon request.

A fire drill is undertaken and documented at least once per year. An example of the Fire Drill report can be seen in Appendix 4.

Staff are aware of the Fire Prevention Plan and the procedures to be followed if any potential for fire occurs. In the event that any of the waste is seen to smoke or smoulder, plant operators will attempt to cool the relevant container or containers by dousing or separating and dousing the material until resolved. Any movement of wastes will be undertaken with a minimum of two staff to ensure that the containerised waste can be segregated and thoroughly assessed, and a fire extinguisher or hose is ready for use should the hot material ignite during handling. The Site Manager will be alerted.

If combustible waste is seen to smoulder, it will be moved to the fire quarantine area. Where safe to do so, a trained staff member may first use a fire extinguisher or hose to douse the effected wastes in-situ, whilst another member of staff will move any other containers as required to ensure that the affected container(s) can be removed from storage efficiently.

If any waste continues to smoulder or if flames are seen, an extinguisher of hose will be used to try to extinguish the fire where safe to do so. If possible, the smouldering / ignited material will be deposited into a waste safe and will be moved into the quarantine area. Once in the quarantine area, the smouldering or burning waste will be further doused with water, or an appropriate extinguisher will be used to tackle the fire and cool the waste. Should the situation appear unsafe or worsen to an emergency incident at any time, the Fire Procedure will be actioned (see Section 9). A list of the persons and plant available for tackling emergencies at the site is presented below.

List of Persons and Plant Available at Site for Tackling Emergencies

Persons / Item	Number	Location
Site Management	1	Office
Process and fork lift truck operators	6	Yard and process building
Fire Extinguishers or Blankets	7	Existing Building and Building 1 (see Figure 7) Facilities in Buildings 2 and 3 still to be specified although will likely include 6 kg foam and power extinguishers in each area, located with spill kits
Fire Hose	1	In Building 3 (see Figure 7 for details)

The first line of response from the site will involve the prompt management of wastes involved in an incident, and fire-fighting with fire extinguishers or the fire-hose. In undertaking these precautionary and first response actions, the site aims to minimise the scale and nature of any incident, and thereby limit the size, duration and impact of any fire which does occur. The initial actions also aim to limit the quantities of water required to deal with the incident.

Operatives are instructed to utilise their extensive training when deciding how and when it is safe to fight a fire. The operatives will first assess whether the fire has broken containment and if it has, they will focus on containing the fire rather than fighting it. They will, however, only proceed to contain the fire if it is possible to do so with their backs to an unobstructed fire exit. At least two staff members will be present during any fire-fighting measures, and the alarm is raised to ensure awareness and initiate the evacuation of other staff as required.

Although the site buildings do not incorporate automatic fire suppression systems, such as a sprinkler system, it is considered that the site still meets the fundamental requirements of the guidance as follows:

- The nature and segregation of the materials stored at the site, managed by trained staff, and the regular housekeeping, inspection and maintenance of all site operations and stored materials will **minimise the likelihood of a fire occurring**;
- The available heat detection, fire alarm and call-out system across the site, and the availability of fire-fighting equipment for use by trained staff ensure that any fire to occur at the site would be capable of being attended to and **extinguished within 4-hours**.
- The management and protection measures detailed above, as well as the presence of firewalls where storage areas or buildings are close to site boundaries, will all assist in **minimising the potential spread of the fire to neighbouring sites**.

Site staff will tackle any fire with the mains fed water hose and the fire extinguishers retained at the site where it is safe to do so. This should enable staff to commence fire-fighting whilst the Fire Brigade are travelling to site, a journey of 2 miles which is expected to take less than 6 minutes. Once present at the scene, the Fire Brigade will have access to the local hydrant supplies to extinguish the fire.

It is understood that the minimum recommended flow rates for hydrant supplies to an industrial estate are as follows:

- Up to one hectare minimum of 20 l/sec (1,200 l/min)
- One to two hectares minimum of 35 l/sec (2,100 l/min)
- Two to three hectares minimum of 50 l/sec (3,000 l/min)
- Over three hectares minimum of 75 l/sec (4,500 l/min)

Stockpit Road is located within the Knowsley Industrial Park which is a large (> 200 hectare) industrial estate. As such, and in the absence of any qualified flow-rate for the local hydrants, it would be assumed that the hydrants should have a flow of approximately 75 litres per second, or 4.5 m^3 per minute.

The largest area of waste storage at the site equates to a total volume of 737 m^3. However, all of the wastes stored at site are containerised and have adequate spacing between rows to facilitate regular inspection and ease of movement should containers need to be segregated.

Environment Agency guidance specifies that a 300 m^3 pile of combustible material demands a water supply of at least 2,000 litres a minute for a minimum of 3 hours (360 m^3 fire water in total). Applying the same requirement, the maximum waste storage area at the site of 737 m^3 requires provision of 4,913 litres (4.9 m^3) per minute of extinguisher water, for up to three hours in order to comply with the Fire Prevention Plan guidance. With four BS 750 compliant hydrants located along Stockpit Road, two of which are located at the entrance to the site, with two more located between 100 and 200 m distance, all of which are tested annually by the Merseyside Fire and Rescue Service, an adequate supply of fire-fighting water is anticipated to the site.

In addition to the anticipated satisfactory availability of water from local hydrants, combustible materials stored at the Knowsley Waste Facility are containerised and assessed both manually and automatically for significant changes in temperature and signs of smouldering or fire. As such, any fire potential should be detected in the early stages and containers can be moved efficiently in order to minimise the potential for the spread of fire to neighbouring containers, thereby reducing the potential for any incident to affect large areas of the site.

The location of the site means that there are some sensitive receptors within 1,000 m of the site and, whilst these are industrial activities, their sensitivity comes from the potentially hazardous nature of their processes or storage facilities. As such they could be affected by a fire or smoke, and have the potential to require evacuation in the event of a fire or other such emergency at the site. The location of the local receptors to the site are detailed in Section 3 and can be seen in the map in Figure 6.

Cadent Gas has confirmed that the nearest gas main is located in Stockpit Road. SP Energy Networks has also confirmed that they manage a number of electricity cables in the area and Last Mile Asset Management Limited has confirmed that they are in the process of adopting assets to the east of the Knowsley Waste Facility, between Draw Well Road and Acornfield Road. Any substantial fire at the site could impact on the mains utilities in Stockpit Road, and Mulberry Waste will consider the requirement to inform the suppliers of any incident that might impact their infrastructure.

The entire site is laid with impermeable concrete surfacing, and has a controllable drainage system which can be closed to prevent the release of firewater to sewer. All water from the site, including any potentially contaminated surface water passes through a three-stage interceptor (10,000 litre per chamber) before being discharged to sewer or being tankered off-site.

The discharge to sewer can and will be closed in the event of an incident. Although the site is not completely bunded it does include strategic drainage which will direct fire water into the drainage system, where it can be held prior to testing and discharge, or recovery and transfer from site, and therefore reduces the required level of active fire-water management. Spill control booms will be used to block the site entrances, and drains in both Stockpit Road and Draw Well Road will be protected. As required, and assuming that any fire water is falling largely onto the yard, available ullage in the bulk storage tanks can be used to store firewater, assuming safe access to the tanks, and Mulberry Waste collection vehicles would be summoned to site in order to assist with fire water management in the event of an incident.

The site does not have any direct discharges to surface water. The Knowsley Brook, located approximately 1.6 km to the south east of the site is the closest named surface water feature in the vicinity.

Made ground deposits across the site can be broadly described as follows:

- fine to coarse angular sandy gravel;
- fine sand;
- red brick;
- firm sandy clay with angular gravels;
- stiff clay with gravels, cobbles and wood fragments; and
- clayey sand with gravels.

Natural strata consists primarily of silty clays and gravely sands.

The site has a total fire water storage capacity of approximately 1,580 m^3 as follows:

- Interceptor: 30 m^3;
- Yard area including Buildings 2 and 3 which are open ended: approximately 2,580 m^2 x 0.6 m (kerb height) = 1,548 m^3.

The calculated water supply requirement for the site over the course of a 3-hour fire, based on the size of the largest combustible waste storage area, is approximately 885 m^3. As such, the yard area should be capable of retaining any fire-water, even in the event that the interceptor is full.

Whoever discovers a fire, shall raise the alarm and dial 999 to ensure the fire brigade are summoned and the Site Manager will be informed. On hearing or raising the fire alarm, appointed and trained Fire Marshals are responsible for the safe evacuation of site and for undertaking a roll call. In the event of an incident their duties will include ensuring all employees, visitors and contractors have left the buildings and have reported to the assembly point as well as assisting the emergency services as required once they arrive.

Once the site has been evacuated, all staff and visitors are accounted for, and the emergency services have been called, the Site Manager will delegate one or more individual staff members to attend the immediate neighbours to inform them of the incident. In order that staff can return promptly to site to assist where required, only those residents and businesses in the immediate vicinity will be informed and may in-turn be asked to continue passing any details onto their own neighbours.

The Site Manager will consider the requirement to divert expected waste deliveries and collections from the site, and will contact other local facilities to identify any spare capacity they may have to receive wastes which must be diverted. Customers will be contacted in an attempt to divert deliveries before their arrival. Diverted wastes will usually be sent to Mulberry Waste Clydesdale Place transfer station.

Should an incident occur when the site is not operational, the alarm system will automatically alert ADT who will then notify the Fire and Rescue Service as well as Mulberry Waste staff of the incident using a call down telephone list. Similarly, monitoring of CCTV feeds including the thermal imaging cameras will identify any out-of-hours issues such as any notable increase in the temperature of waste materials, unauthorised entry or accidents, and will enable a call to be made to site staff to attend site. This enables a fast response in the event of any accident, incident or attempted vandalism. Trained Mulberry Waste staff will endeavour to attend site within 20 minutes during an out of hours emergency.

Since the construction of the new process building at the site, referred to currently as the 'Existing Building', an independent, third-party fire risk assessment has been undertaken for the site. The report of the assessment is included in Appendix 6. All areas of the site as it is currently laid out have been assessed and the site has been stocked with a suitable number of appropriate fire extinguishers and fire hoses. The risk assessment confirmed that all appliances were correctly located and maintained by a Competent Person - H Roberts and Sons Fire Protection Limited. Proposed buildings 1 – 3 will be assessed and similarly stocked once built.

Merseyside Fire and Rescue Service has not attended the site to consider how they might tackle any fire. However, it is anticipated that in the event of an emergency when the site is unmanned and no staff member is available or able to gain entry, the main gate, which has a padlock and chain, would be cut with bolt croppers or hydraulic cutters. If deemed appropriate to fight the fire, Merseyside Fire and Rescue Service would then use a door ram to open the office or process building doors as required and crew with breathing apparatus would be deployed to fight the fire and open the roller shutters from the inside. Other options are the use of a partner saw to cut through the doors or the use of a winch which can be used to pull the roller shutter doors off the runners, enabling the fire to be tackled from the doorway until the Aerial Ladder Platform (ALP) is in attendance as required, to flood the fire from above.

If access into the building is considered to be too dangerous, the fire may be fought from the doorways and, once the ALP is on site, from above, to avoid the need to access the building. A formal Operational Risk Assessment will be undertaken by the Merseyside Fire and Rescue Service prior to waste being accepted at the site.

The nearest fire station to respond to any fire at the site is Kirkby Community Fire Station, a permanently manned station which is located 2 miles away. The response time to any emergency call from the site is expected to be 6 – 10 minutes. Should ALP's be required, these are most locally available from Liverpool City or St. Helens. Both of these stations are located 8 – 9 miles from the Knowsley Waste facility and are expected to take 20 – 30 minutes to arrive, from the time of request by the incident commander. APLs are not called out during an initial response.

Mulberry Waste Limited have their own tankers and would be able to collect any firewater run-off for removal to their own or other appropriate third-party treatment facilities for storage or processing should this be required.

The Mulberry Waste Limited Knowsley Waste Facility Fire Procedure is clearly displayed in the office, and it is the responsibility of all staff to ensure that they are familiar with the procedure for dealing with fire and the actions that they should take if an incident occurs. The Site Manager will be responsible for all communication with the emergency services, and will direct site staff according to instructions from the Fire Brigade once they have arrived at site.

Once the fire is controlled and extinguished, and it is safe to re-enter the site, a suitable clean-up plan will be devised in conjunction with the Fire Brigade and the Environment Agency. This will be led by the Site Manager and will include assessment of the building and the safety of entering parts of the site, the removal of any fire damaged materials, including wastes, and the collection and removal of any spent firewater or foam, as soon as possible. Where possible wastes will be processed at the Mulberry Waste Clydesdale Place treatment facility.

Consideration will also be given to the potential for any contamination of the ground, ground water or surface water courses to have occurred during the incident, and as necessary, an assessment of the need for any decontamination or remediation will be made. A review of this Fire Prevention Plan will also be undertaken to ensure that it remains relevant and incorporates any potential improvements which have been identified.

9. What Should I do in the Event of a Fire?

The following information is taken from Mulberry Waste Emergency Procedures – Fire document MK-203.

EVACUATION PROCEDURES

- On hearing the alarm, or if instructed, leave the building by the nearest available exit avoiding any smoke / fumes and report to the muster point, located outside of the main gates by the main entrance way, but off the road.
- The Fire Marshal will collect the staff / visitor attendance board on exiting the site.
- DO NOT RETURN to collect personal belongings or other effects.
- The Fire Marshal will carry out a roll call to ensure that all employees, contractors / drivers and visitors have safely vacated.
- Upon arrival of the Fire Brigade the Site Manager / Fire Marshal shall advise the fire crew of the location and extent of the fire and advise of the chemical hazards in that area.
- Employees must not return until so advised by the Commanding Fire Officer.

ALARM SYSTEM

An automatic alarm system is installed.

“Break-Glass” activators are located at each exit doorway.

The main control and test panel is located to the left of the pedestrian entrance to the existing process building.

The alarm, once activated, will trigger an automatic telephone request to a 24-hour central listening station who in turn will notify the Fire Brigade.

EMERGENCY EQUIPMENT

Fire extinguishers are located at each entry / exit to the Waste Centre and other locations within the internal areas.

Figure 7 shows the location of all firefighting equipment.

TRAINING

All employees will receive induction training upon recruitment. This will cover fire and other emergency procedures, such training will be fully documented and updated at regular intervals, and training records will be available for inspection as and when required by any statutory body.

FIRE MARSHALS

Appointed and trained “Fire Marshals” are responsible for the safe evacuation of site and roll call.
In the event of an incident their duties will include ensuring that all employees, visitors and contractors have left the buildings and reported to the assembly point as well as assisting the emergency services.

CONTROL OF PERSONNEL / VISITORS

- All site staff will “register-in” and “register-out” using the attendance board located in reception.
- Drivers will be required to sign in and out.
- All visitors and contractors will sign in and out at reception upon arriving and leaving the site.

DISCOVERY OF FIRE

- IF SAFE TO DO SO, attempt to control the fire with assistance from other staff if available.
- In the event of not being able to safely control the fire, SOUND THE ALARM by activating the nearest "Break-Glass" point on the way out of the building.
- DIAL 999 Ensure the fire brigade are summoned, state clearly the address where the fire is.
- NEVER put yourself at risk even with the smallest fire.
- NEVER attempt to move burning objects.

TEST & DRILL PROCEDURES

- Fire alarm to be tested periodically (at least monthly) and from a different break glass location each time.
- A full alarm test with evacuation will be carried out at least annually. The neighbours will be notified beforehand to prevent panic. A report will be written detailing the evacuation event detailing any non-conformances.
- All drills and tests to be recorded in FIRE DRILL LOG REPORT

10. Site Location and Infrastructure

The Mulberry Waste Limited, Knowsley Waste Facility is situated on an industrial estate and is located approximately 2.75 km to the north of Knowsley village, and 1.3 km east of Kirkby at their nearest points. The estate is home to many light industrial units, as well as some larger works such as the Baker Hughes chemicals site also situated on Stockpit Road, and all infrastructure surrounding the site is industrial or commercial.

The centre of the site is positioned at approximate national grid reference SJ 43540 98760, and the site location can be seen in the plans in Figure 1.

The facility can receive up to 210,000 tonnes of waste per annum, and has a total storage capacity of approximately 575 tonnes, comprising aqueous wastes including waste oils, Waste Electrical and Electronic Equipment (WEEE) including batteries, End of Life Vehicle (ELV) waste, and other workshop and garage services wastes. No stockpile of waste (incoming or treated materials) will exceed 4m in height.

The nearest named surface water to the site is the Knowsley Brook which is located approximately 1.6 km to the south east of the site. Made ground deposits lie across the site including sand, red brick and clay. Natural strata consists primarily of silty clays and gravely sands.

The site is enclosed by secure fencing and lockable gates to deter unauthorised access, vandalism and arson. The gate is locked at all times when the site is not manned, and the site has CCTV, including two thermal cameras for the detection of temperature changes in the waste piles. Alarms are linked to external company ADT who will notify Mulberry Waste Limited through a telephone call down list when alarms are activated out of hours.

All water run-off from the site is captured in the site drainage system which flows into an interceptor and the site drain discharge point (S1) can be shut-off with a penstock valve to prevent the release of contaminated water or effluent (e.g. firewater) to sewer. Once the drainage system is full, firewater can continue to be captured within available tanks and their associated bund, across the impermeable surface of the site or tankered off-site.

11. Emergency Testing

The actions required within this Fire Prevention Plan will be tested on a regular basis, and at least once per year to confirm that the plan remains valid and would aid in the control and appropriate management of a fire incident at site. Any necessary improvements to the Fire Prevention Plan and emergency systems will be made, or further training given as required, as a result of issues identified during the tests.

Confirmation that this plan remains up-to date with both site practices and the latest guidance will be made at least once per year.

12. Figures and Appendices

Figure 1	-	Site Location Plans
Figure 2	-	Site Layout and Main Storage Areas
Figure 3	-	Building 1 Layout
Figure 4	-	Building 2 Layout
Figure 5	-	Building 3 Layout
Figure 6	-	Sensitive Receptors
Figure 7	-	Emergency Equipment Plan
Figure 8	–	Hydrant Locations
Figure 9	–	Gas and Electricity Main Locations
Figure 10	-	Site Firewalls
Figure 11	-	Site Drainage Plan

Appendix 1	–	Fire Wardens Roles & Routes Training (current)
Appendix 2	-	Fire Hose Reel Procedure MW203A
Appendix 3	–	Example Hot Works Permit
Appendix 4	–	Example of Fire Drill Report
Appendix 5	–	Housekeeping Check Sheet
Appendix 6	–	Fire Risk Assessment

FIGURES

Figure 1 – Site Location Plans

Imagery from Google Earth (2021). Red circle locates the Knowsley Industrial Park
See detailed location over page for site position

Imagery from Google Earth (2021). Red star locates the Mulberry Waste Limited; Knowsley Waste Facility

Figure 2 – Site Layout and Main Storage Areas

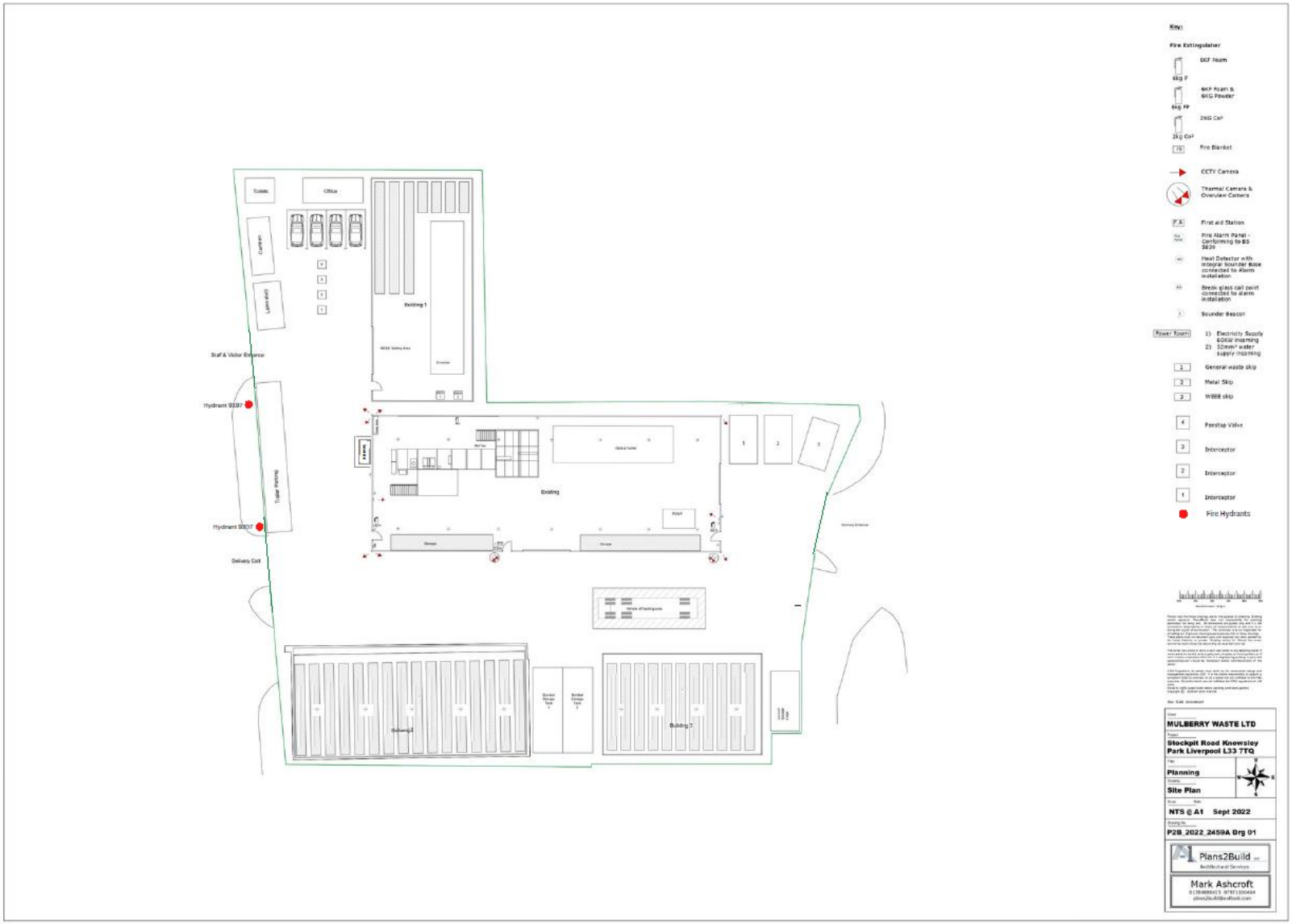


Figure 3 – Layout of Building 1

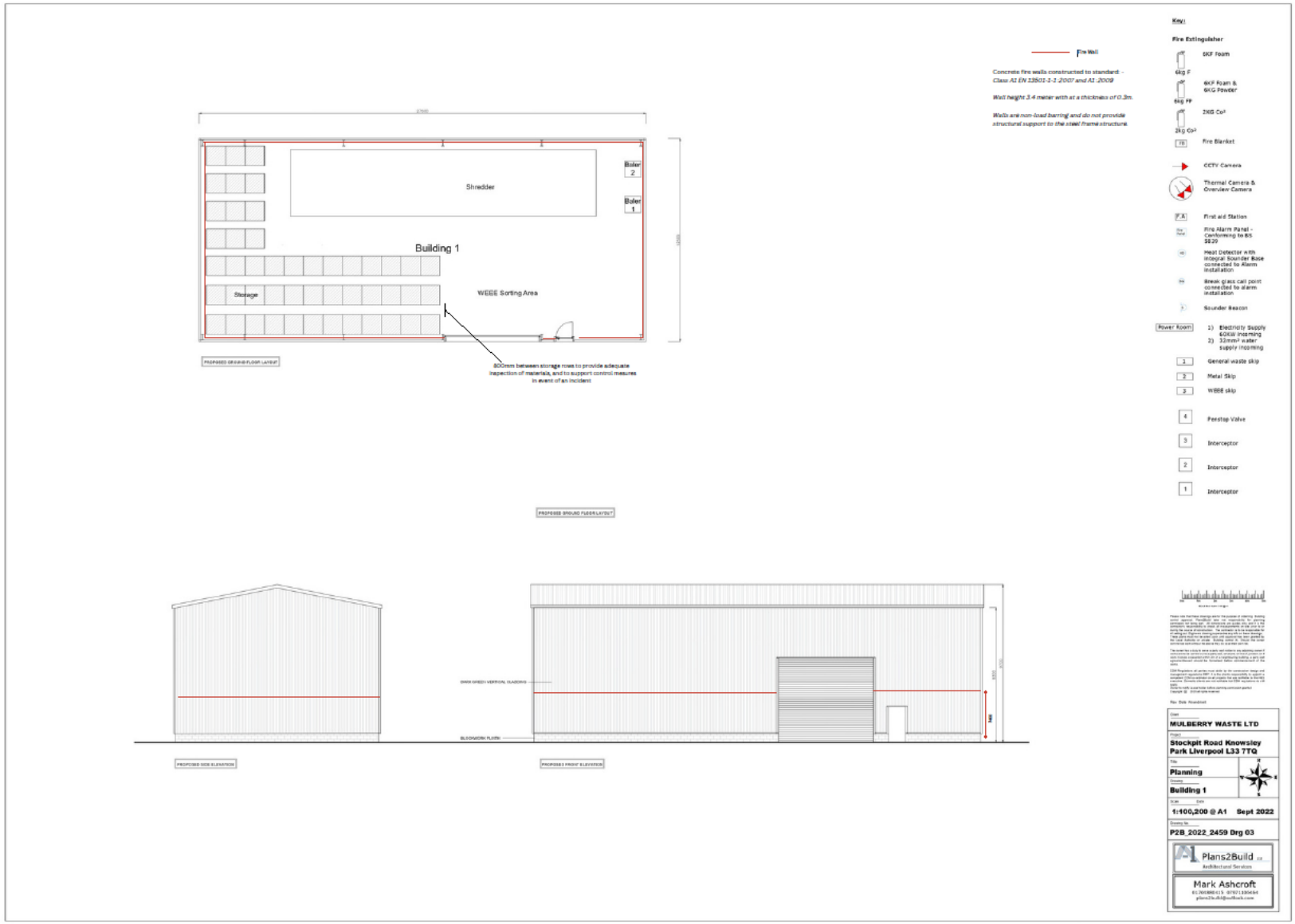


Figure 4 – Layout of Building 2

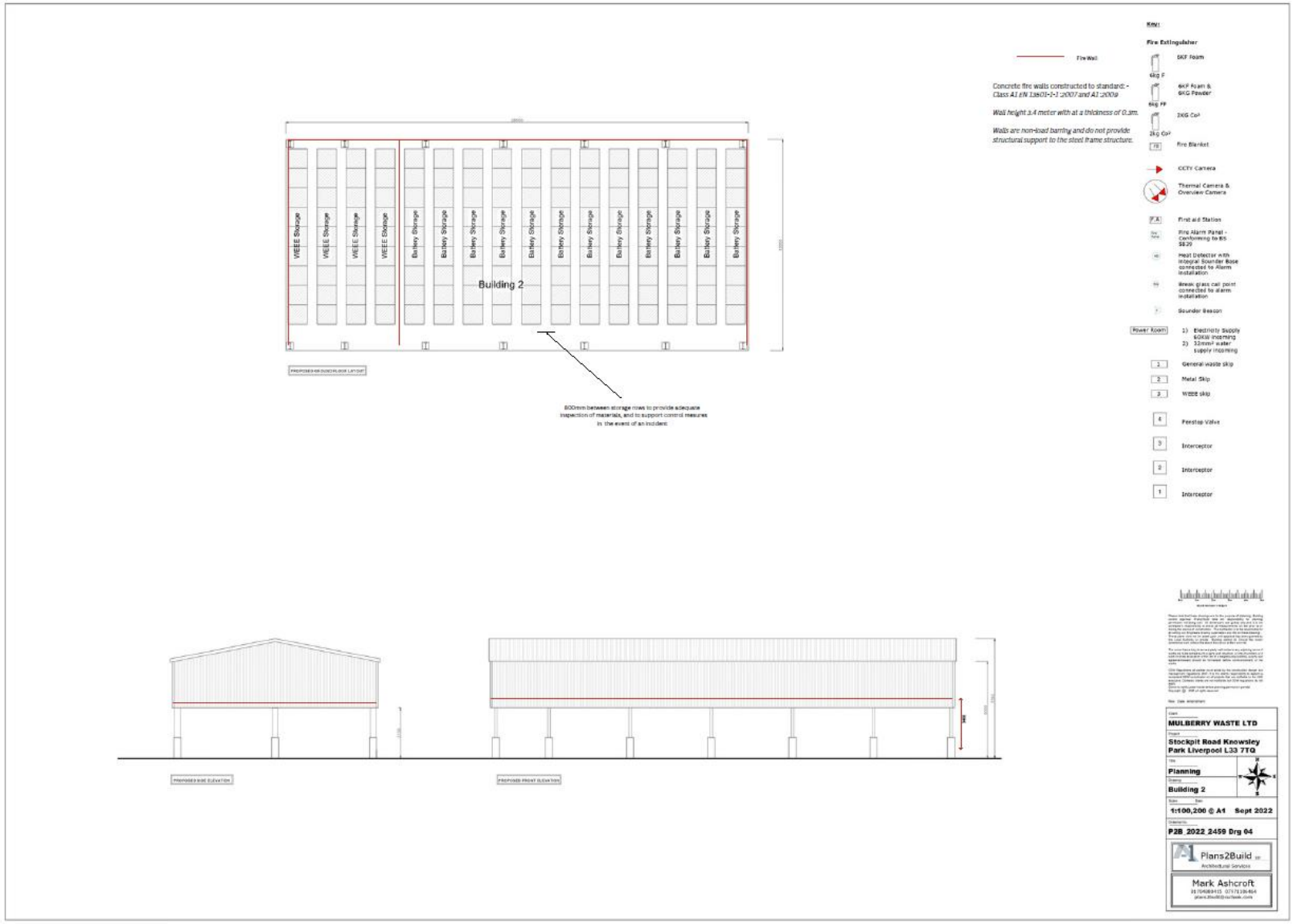


Figure 5 – Layout of Building 3

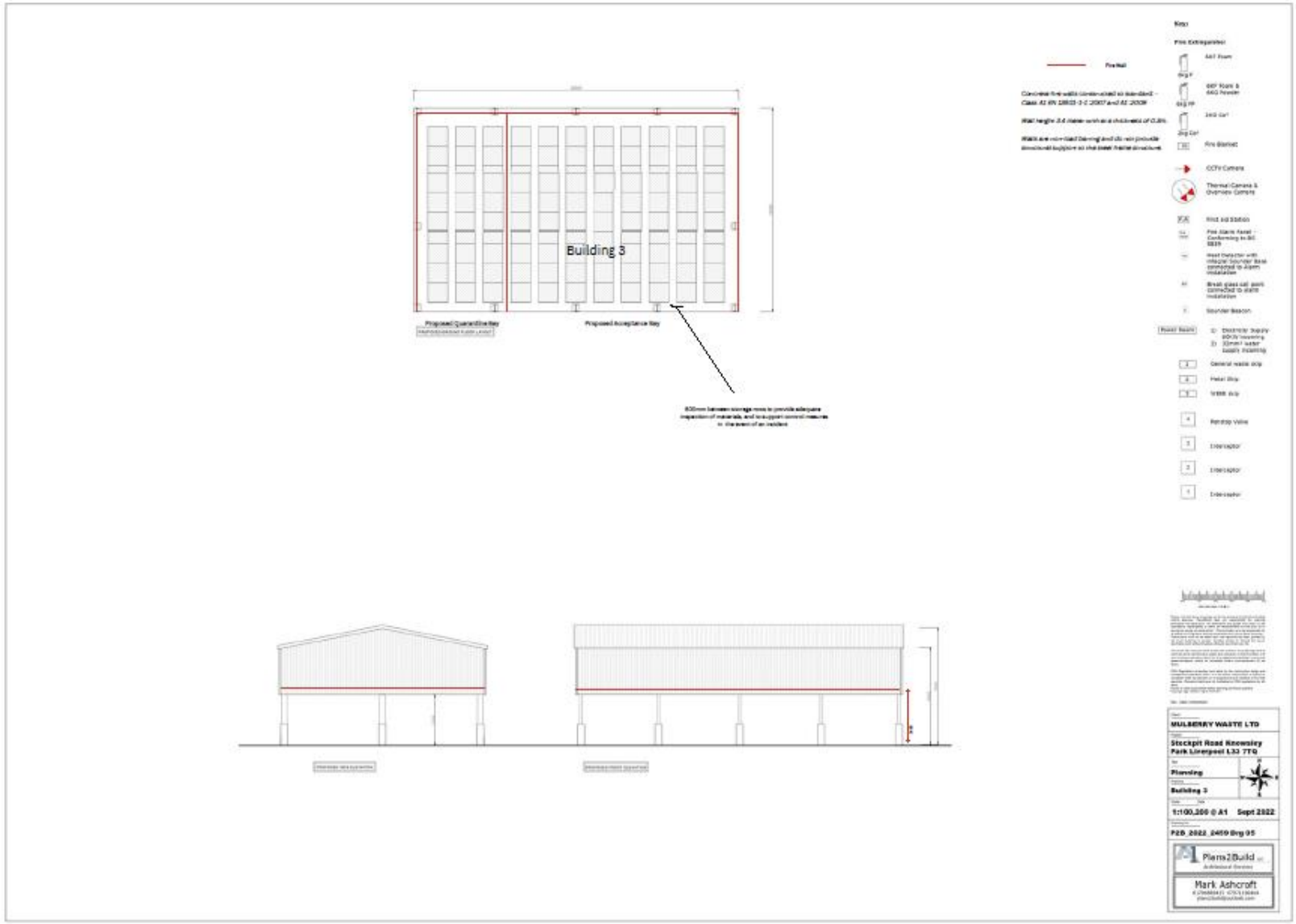


Figure 6 – Sensitive Receptors

Imagery from Google Earth (2021). Red star locates the Mulberry Waste Limited; Knowsley Waste Facility. Green triangles locate COMAH sites.

Figure 7 – Emergency Equipment Plan

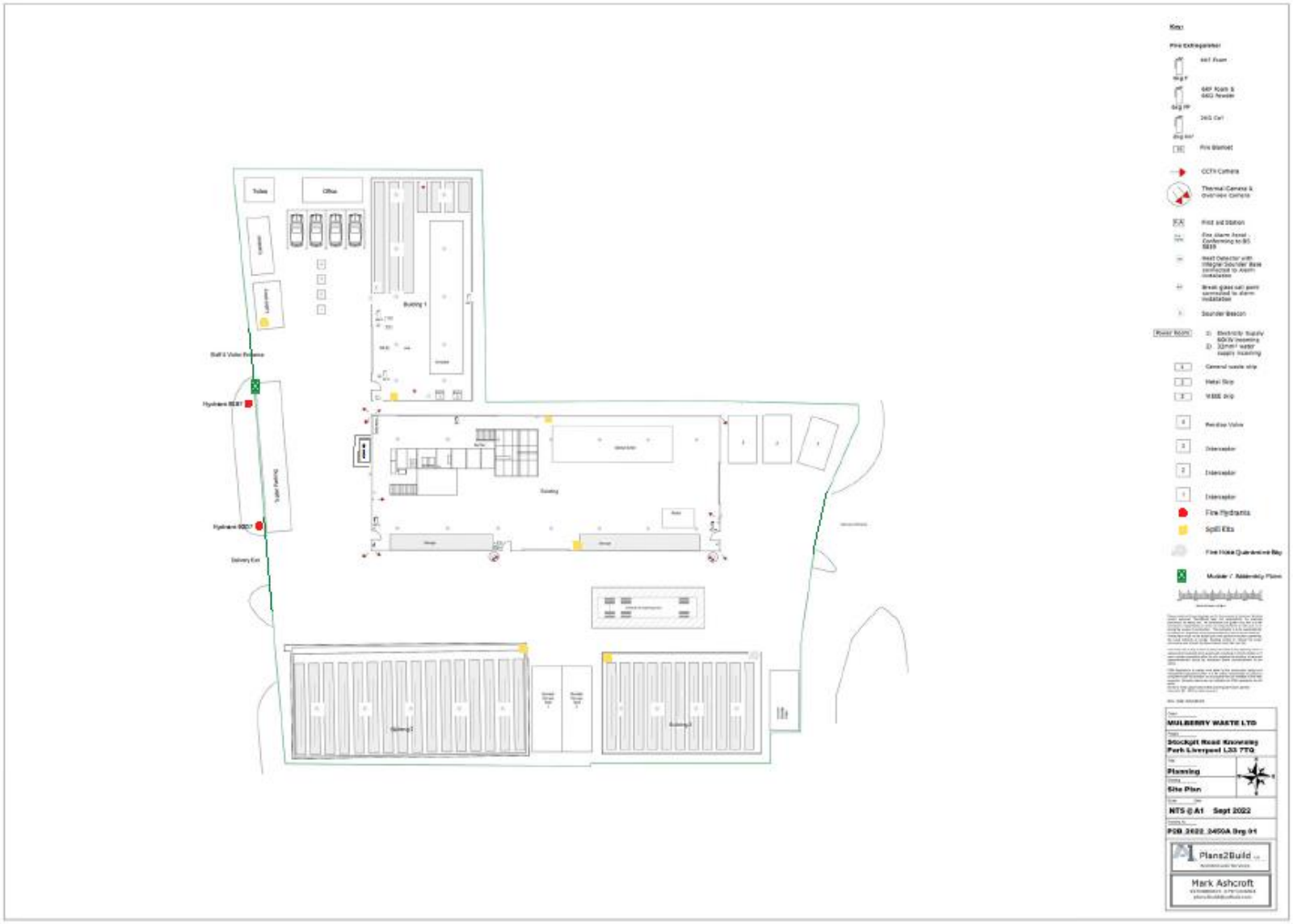
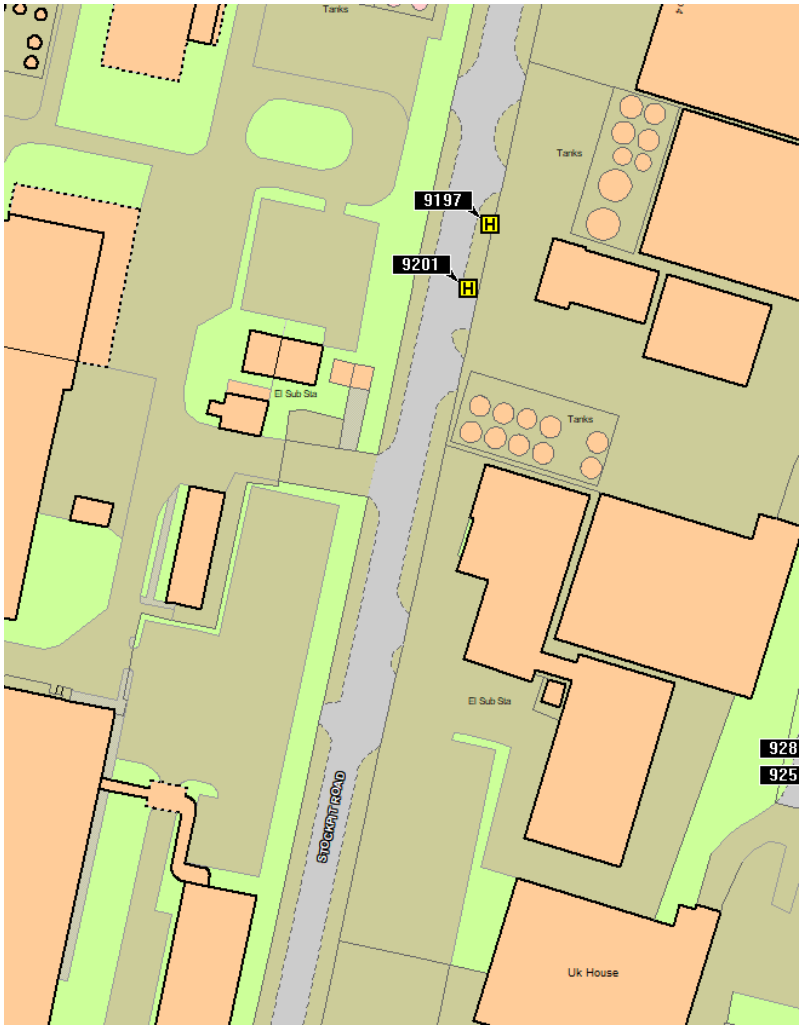
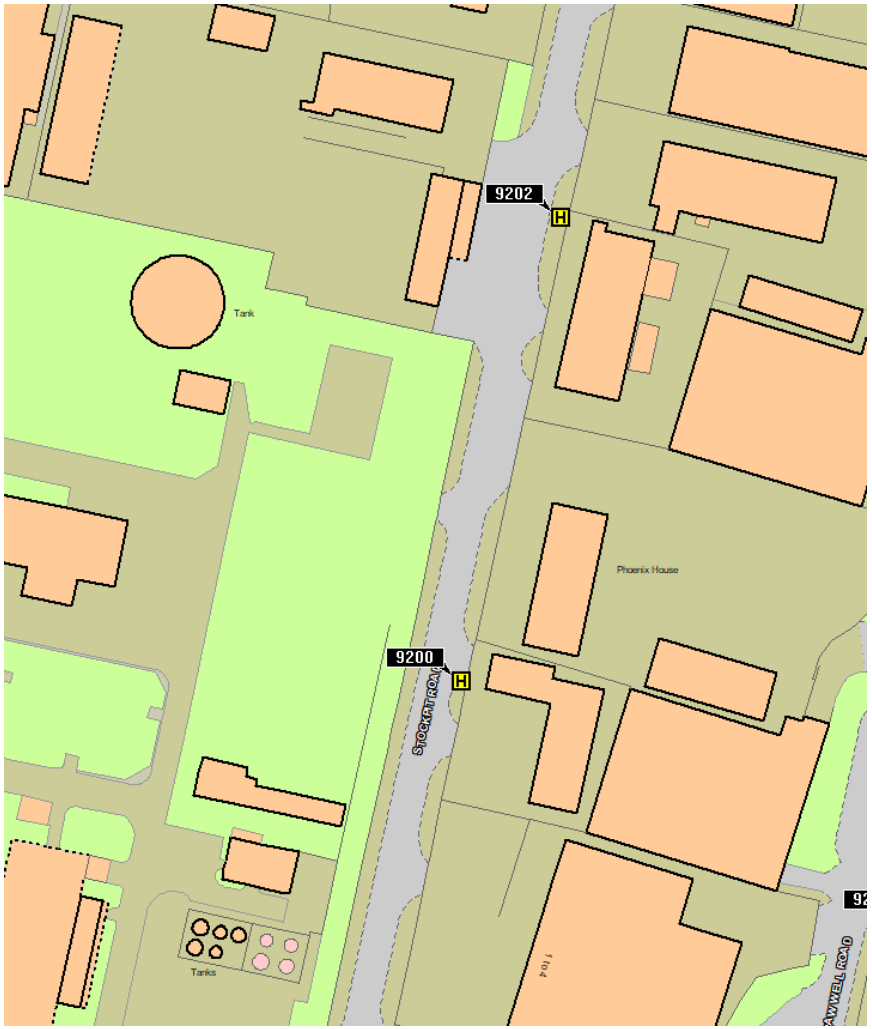


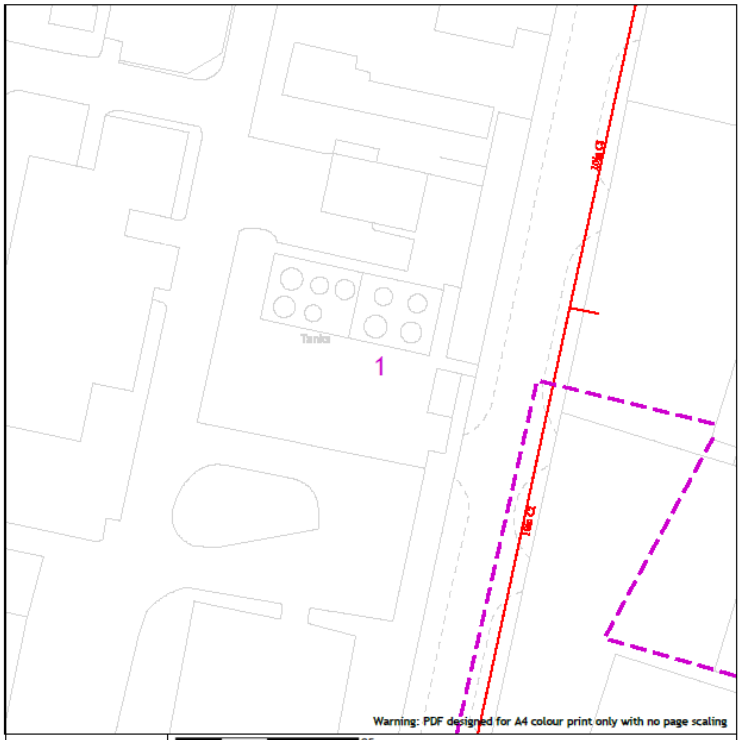
Figure 8 – Hydrant Locations





Hydrants 9201 and 9197 are located at the entrance to the Knowsley Waste Facility. Hydrants 9200 and 9202 are between 100 and 200 m north of the facility.

Figure 9 – Gas and Electricity Main Locations



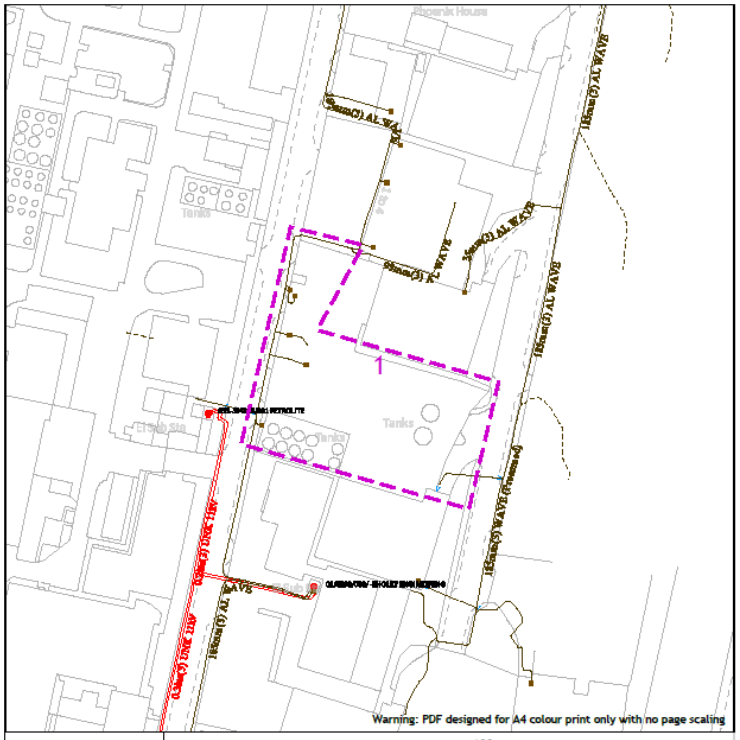


Figure 10 – Site Firewalls

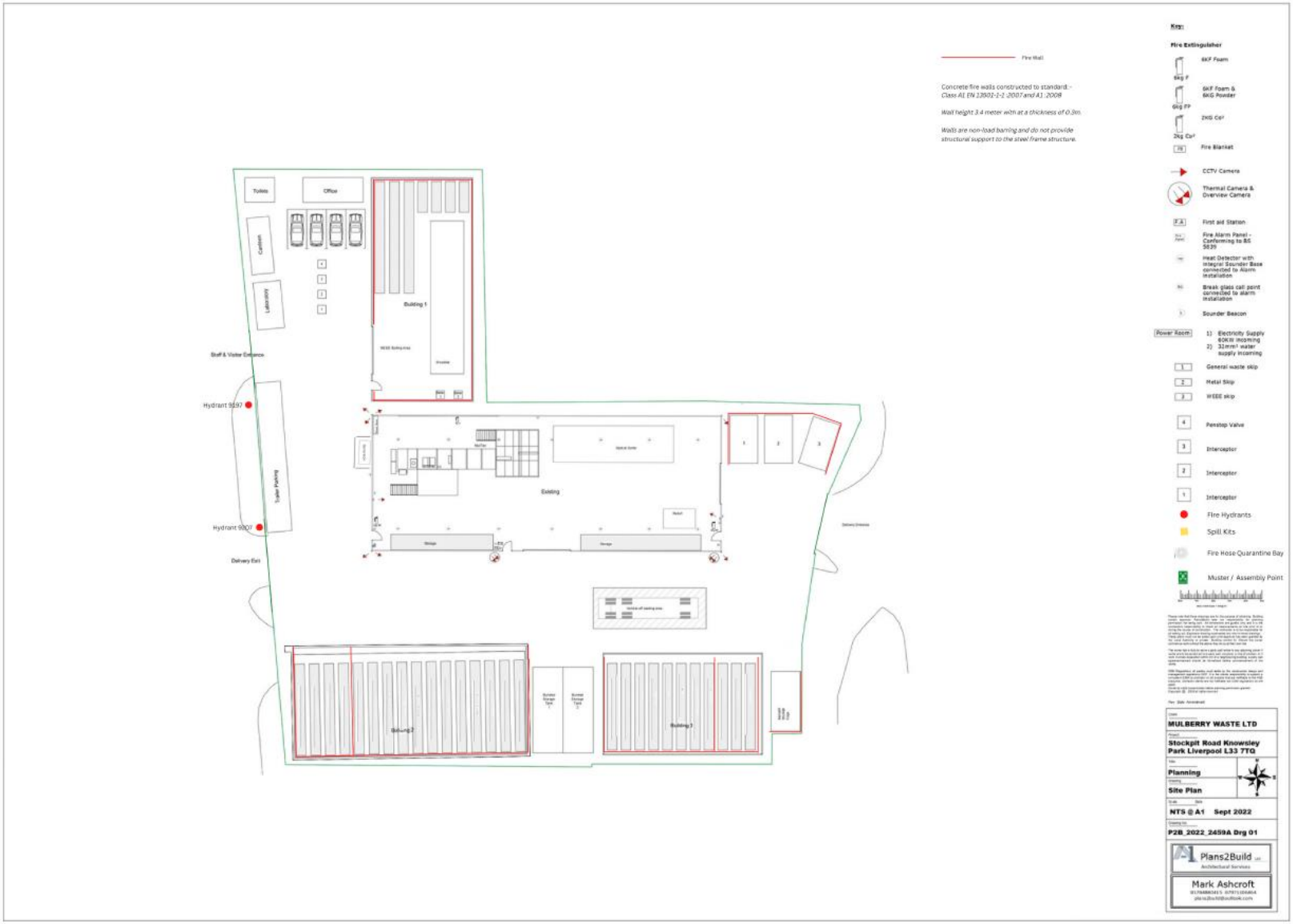
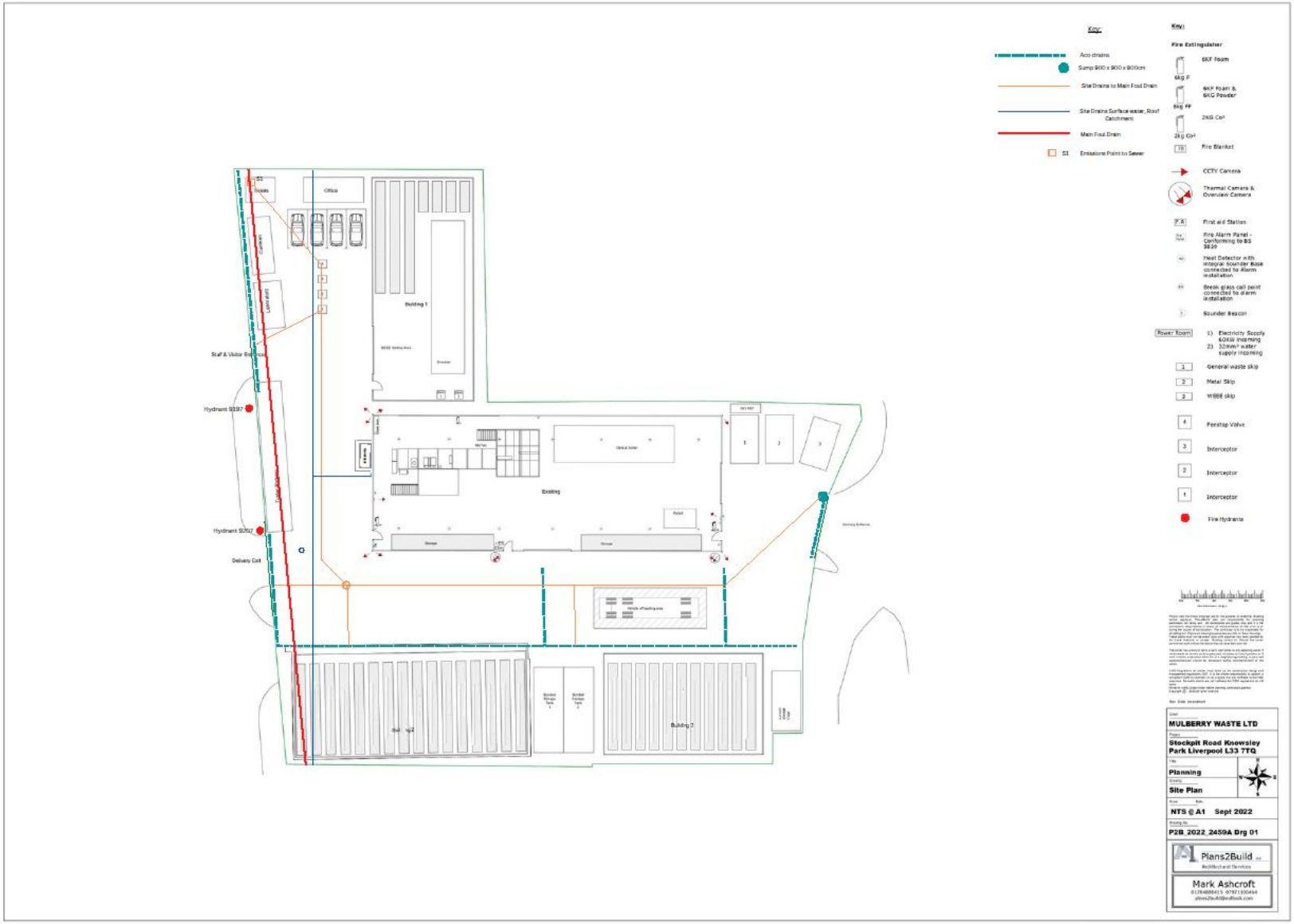


Figure 11 – Site Drainage Plan



APPENDICES

Appendix 1 – Current Fire Wardens Roles & Routes Training

Mulberry
Waste Limited

FIRE WARDENS
ROLES & ROUTES
TRAINING

Mulberry
Waste Limited

FIRE WARDENS ROLES & ROUTES

FIRE WARDENS ROLE
MK-DOC-007-2022

ASSMEBLY POINT AND MUST POINT MAP

Mulberry	Title	FIRE WARDENS ROLE			
	Document No.	MK-DOC-007-2022		Version No.	01
	Date	11/04/2022	Author	Stuart Wright	

1.0 Purpose

The purpose of this procedure is to ensure that all Fire Wardens understand exactly what they have to do in the event of a fire or other emergency situation requiring evacuation of the building.

2.0 Responsibility

This procedure shall be established and maintained by the

Compliance Department. The Authorised Persons, listed below, shall

implement this procedure.

- Plant Manager
- Fire Wardens

3.0 Instruction

3.1 On hearing the fire alarm, the Fire Wardens will instruct all employees and visitors on site in their zone to calmly exit the building by the nearest safe exit.

3.2 They will then do a "sweep" of their area to ensure that everyone is aware of the alarm and has begun to make their way to the exits.

3.3 Once they are confident that everyone has heard the alarm and is beginning to make the way to the exits, they can begin to exit the building themselves. The Fire Warden for the office will bring with them the visitors log, emergency grab bag (located in reception) and a picture of the booking in board.

3.4 The Fire Wardens will each be responsible for carrying a check for their own zone.

All information for each zone will be relayed to the Key Person to liaise with fire personnel .

3.5 Any members of staff unaccounted for must be immediately reported to the Key Person taking control of the situation.

3.6 In any case, the completed roll calls will be carried out by the Key Person, together

with the Emergency Grab Pack, in preparation for the arrival of the Emergency Services, who will need the information it contains.

LOCATION:	Fire Wardens Role
ZONE 1- Office Caitlin Evans (Key Person)	077725 131057
ZONE 2 Darryl Wilkinson	07873 209679
ZONE 3 Ste Burkes	

EMERGENCY TELEPHONE NUMBERS

Paul Evans (Director) 1st	07974 577248
Darryl Wilkinson 2nd	07873 209679

ZONE 1

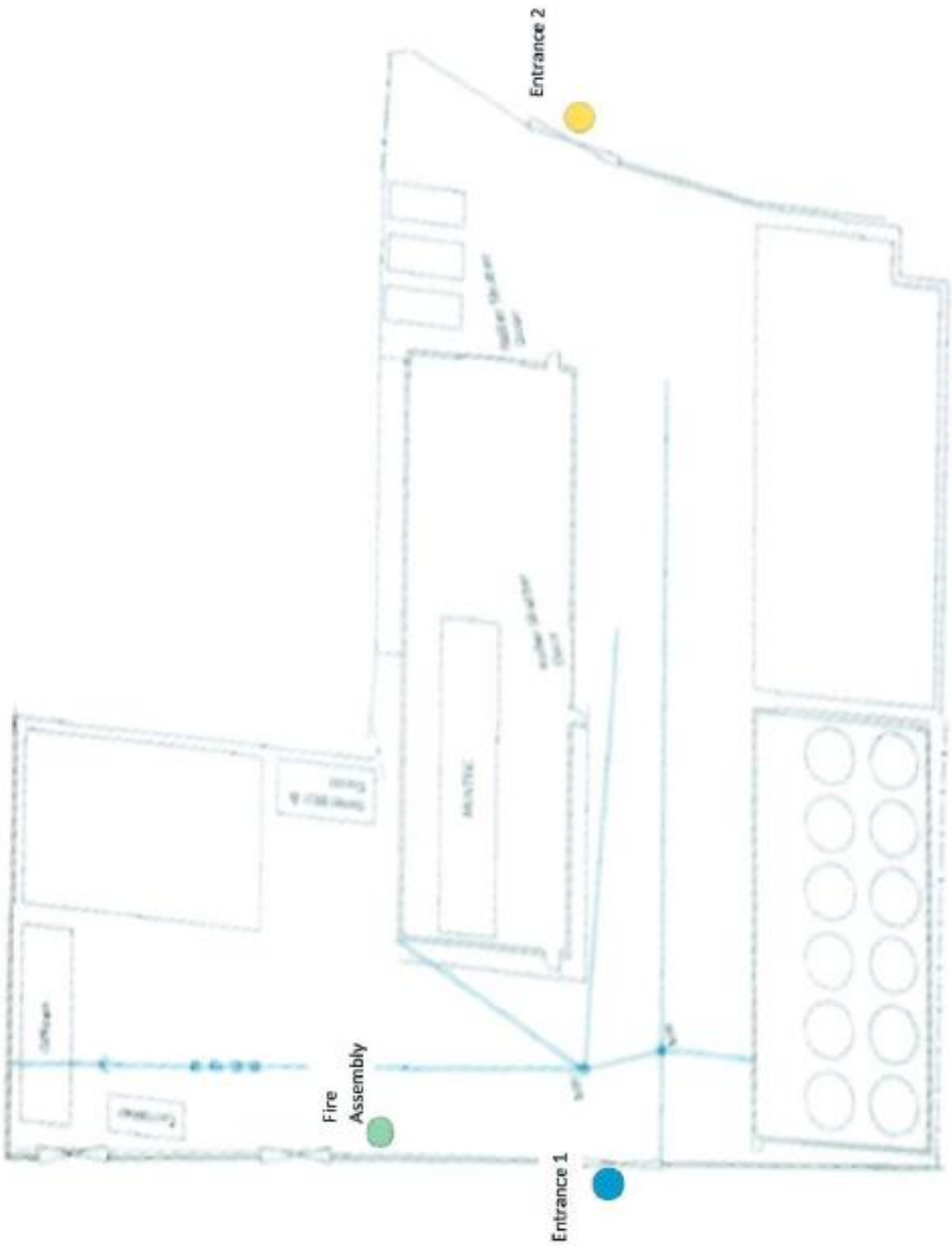
Starting in the downstairs office area collecting the emergency grab pack , walkie-talkie and signing in information/ visitors information, progressing to sweep through checking the upstairs office/meeting room, heading out to the toilets, checking both the gents and ladies, moving on to the canteen facility, heading towards the changing room, on exiting the changing room, view the area opposite to see no one is in the vicinity, prior to moving to the assembly point,to carry out roll call and await emergency services .

ZONE 2

Progressing from the Multech area, walk around the machine and check the mezzanine floors and under the machine, collecting walkie-talkie prior to exiting Fire exit 1. Progressing out and viewing both the waste delivery area of the building and viewing that the office is being checked through, finally progressing out of main gate (Entrance 1), ensuring they are open in time for the emergency services to arrive. Radio to affirm area is clear and you are at gate location.

ZONE 3

Progressing from the WEEE decanting area, evaluate the area is clear and collect the walkie talkie prior to exiting fire exit 3.
Progress to secondary rear access gate (Entrance 2), ensuring the area adjacent to the waste reception is clear and the skip area is clear. opening the gate and leaving open to await the arrival of the emergency services. Radio to affirm your area is clear and you are at gate location.


Entrance 2
Fire
Assembly
Entrance 1

Appendix 2 – Fire Hose Reel Procedure

MULBERRY WASTE LIMITED

ENVIRONMENTAL MANAGEMENT SYSTEM

Title:	Emergency Procedures – Fire – Fire hose reel procedure

Document No:	MW203A	Version number:	02
Date:	July 2021	Author:	David Reece

Procedure for using the fire hose reel

Further information on what to do in the event of a fire can be found in MW203.

Always read the instruction plate before using any extinguisher to ensure you have selected the correct extinguisher for the fire you intend to fight. The fire hoses eject water and are suitable for use on fires involving wood, textiles, curtains, furniture and plastics.

The fire hoses are connected to the mains and as such do not require priming before use. Each fire hose will be 25mm x 30m long and will reach 12m when used in jet form and 4.5m in spray form. They will always be provided on a swinging reel to ensure maximum mobility.

The procedure for using the fire hose reels in the event of a fire is as follows:

1. Raise the alarm – do not attempt to fight the fire alone
2. Run out the fire hose to the location of the fire.
3. Control the discharge by turning the nozzle from an 'off to jet to spray' function.
4. Ensure that you are positioned between the fire and a safe exit.
5. Apply the water jet to the base of the fire in short sweeping bursts, keeping out of the smoke and the steam produced.
6. **DO NOT** fight the fire if the size of the fire increases or there is any risk of your exit becoming blocked.
7. **DO NOT** attempt to extinguish an electrical fire or a flammable liquid fire with a water hose.
8. **DO NOT** attempt to extinguish a fire on your own. There should always be a minimum of two operatives present.

Fire Safety Technical Guide

USER GUIDE TO THE FIRE HOSE REEL (FIXED FIRE FIGHTING INSTALLATION)

Fire Hose Reels

Old Colour Code (BS 5406) & New Colour Code (BS EN 3)

Wood, textiles, curtains, furniture & plastics etc

WATER: Works by using the cooling effect of water, to reduce the heat from combustion to below its ignition temperature.

GENERAL INSTRUCTIONS FOR USE:

1. Always read the instruction plate before use to ensure that you have selected the correct extinguisher for the fire you intend to fight;

2. **Operations (Caution!)** there are two types of operations to turn on fire hose reels:

- **Auto Reel** - pull out the hose for 2m or 3m and the water is automatically turned on - control the discharge using the nozzle in 'jet / spray / off' mode;
- **Manual Reel** - to turn on the water, open the inlet valve, before running out the hose to location of the fire. Control the discharge by using the nozzle in a 'jet / spray / off' mode;

3. Generally, a minimum of two persons (to negotiate doors etc.) will be required to run out and effectively use the hose reel at the scene of the fire;

4. Ensure that you are positioned between the fire and a safe exit / escape route;

5. Apply the water jet to the base of the fire in short sweeping bursts keeping out of the smoke and steam produced;

6. **Warning** there is a continuous supply of water to the hose reel. **Do not fight the fire** if the size increases or for too long - be beware of your surroundings and local conditions.

SAFETY: Do **NOT** use water on electrical or flammable liquid fires;

Do not fight the fire if the size of fire increases;

Always read the instruction plate before use;

Date Last Amended: **May 15** 1.

Issued by the - Fire Safety Manager, UCL Estates, Gower Street, London, WC1E 6BT - This guide is to be regarded as a general statement of UCL local requirements, information or guidance only & supplements relevant British Standards or Manufacturers Instructions etc.

Appendix 3 – Example Hot Works Permit

HOT WORK PERMIT

To be issued for all hot work including gas/electric welding, cutting & grinding; blowtorches; tar boilers. Hot work to be carried out only by people trained in use of equipment, hazards, and precautions to prevent fires.

Permit Number:			
Description of work: (Please describe below)			
Equipment to be used: (Please list below)			
Location of work:			
Person in control of work:			
Does this permit relate to any other permit?		Yes (Give details below)	No

Fire precautions required: (tick boxes below):

☐ Area cleared of all loose combustible material. ☐ Competent and authorised to carry out the task. ☐ Presence of stored flammable materials within the area ☐ Welding, cutting, or grinding work screened with non-combustible material. ☐ Sparks from cutting/grinding process contained within work area. ☐ Work in a confined space ☐ All required PPE in place. ☐ Work area restricted against unauthorised access.	☐ Flash back arrestors fitted to gas cylinders. ☐ Gas cylinder secured in upright position. ☐ Bucket of sand for spent welding rods ☐ All electrical tools and equipment PAT tested & in good working order. ☐ Fire extinguishers in hot works area of correct type and in-date. ☐ Risk assessment and method statement in place. (To be sent through to operations director and attached to this permit) ☐ All hot works must stop one hour prior to the end of the shift and the area checked prior to leaving site; with the yard foreman performing a fire check of the area before locking up.

Specifics • Appropriate fire extinguishers must be provided in the working area. • People carrying out hot work must be informed of: (a) What to do if they discover a fire. (b) How to raise the alarm. (c) Evacuation procedure and location of the assembly point. - (See Emergency Instructions for appropriate building) • Heat detectors must be reconnected/uncovered immediately after work is completed.	
Permit issued to: **Of:**	
Issued by (name): **Mulberry Waste Ltd.**	**Date of issue:** **Time:**
Permit received by: **Of:**	**Date:** **Time:**
Permit received by: **Of:**	**Date:** **Time:**

Permit clearance and return	
The above work area has been checked one hour after completion of work. Name: Date: Signed: Time: Of: **Mulberry Waste Ltd.**	
Permit Received By Of:	Date Time
Permit Received By Of:	Date Time
Permit Received By Of:	Date Time

Appendix 4 – Example of Fire Drill Report

Site Fire Drill
Mulberry Waste Limited; Knowsley Waste Facility

Date of report		Completed By	
Date of Drill		Time	
Was an alarm Sounded for the drill			Yes No
Which area of facility were affected?			
Was Evacuation Completed			Yes No
If no to evacuation explain reasons why			

Effectiveness of Drill

	Satisfactory or Unsatisfactory	Comment
Staff Response		
Visitor Response		
Fire Marshalls Effectiveness		
Effectiveness of Procedures		
Speed of evacuation		
Communication during the drill		

Further Comments

Recommendations

Sign:	
Date:	

Appendix 5 – Housekeeping Check Sheets

Site Inspection Record

Date:		**Time:**	
Weather:		**Temperature:**	

Item	Description	Comments	Further Action Req.
1)	Warehouse Floor Condition		
2)	Service Yard Concrete Condition		
3)	Service Yard Fencing and Gate Integrity		
4)	Building Integrity		
5)	Warning Signs and Notices		
6)	Housekeeping		
7)	Odours		
8)	Noise		
9)	Litter		
10)	Dust		
11)	Mud and Debris		
12)	Storage of General Wastes		
13)	Storage of Incoming Wastes		
14)	Storage of Sorted Wastes		
15)	Container Storage		
16)	Labelling of Waste Storage Containers		
17)	Integrity of Storage Containers		
18)	Sorting / Dismantling Area		
19)	Quarantine Area		
20)	Spill Kits		
21)	Pedestrian Routes		
22)	Waste Storage Temp. Check		

Site Inspection – Further Action Required

Date:		Time:	

Details:	Action to be Carried Out:

Completed By:	
Signature:	
Job Title:	
Date:	

MK-S-002a issue 2

Monthly Site Inspection Form

Inspection Item	Notes for inspection	Compliant Y / N	Inspection Comments
Surface concrete and perimeter bunds and walls - internal and external	Visual check of concrete for integrity. Include consideration of expansion joints.		
Perimeter containment fencing / gates are secure	Ensure security is not compromised.		
Storage bays and any racking	Visual check of concrete and kerbs for integrity. Include consideration of expansion joints.		
Storage infrastructure – waste safes / cages / racking	Visual check for signs of damage and security of fitments.		
Waste storage	Visual check for leaks, damaged containers and poorly stacked items.		
Self-bunded tanks	Visual check for leaks / damage etc. and check bund alarm / level meter.		
Tank high level audible visual alarms	Check / test against supplier's handbook.		
Pipe-work and valves to tanks	Visual check for leaks, valves closed.		
All processing equipment	Check for oil leaks and or damage to all equipment. Check maintenance work has been actioned in line with schedule.		
Diesel Pump and any stored hoses.	Check for oil leaks and or damages to pump and hoses.		
Diesel generator	Check for presence of fuel / oil leaks and damage.		Report hours run (from meter)
Fork lift trucks	Check that the daily inspections are complete and filed and defects are being actioned.		

Interceptor	Check chambers for sludges and leaks.		
Electric submersible pump	Ensure pump is operational, test switches and floats.		
PPE: Adherence to minimum levels checked	Ensure operators are using appropriate PPE for task in hand.		
Control of Litter	Inspect yard and adjoining roadways etc.		
Visual evidence of vermin / pests	Observation for evidence of any infestations.		
Visual evidence of any damage / unauthorised access to office or process buildings	Check building doors, windows and roller-shutters are intact, operational and do not suggest any evidence of damage.		
Fire alarm tests	Check that the fire alarm checks and fire extinguisher check is complete.		
CCTV	Check that the CCTV system is fully operational and accessible by relevant managers and staff.		
Daily inspections and sign in sheets	Check both documents are complete and being filled out.		
Other Comments from Inspection			
Report completed by (Name)……Signed…….. **Date…….**			

MK-S-002c V01 September 2022

Appendix 6 – Knowsley Waste Facility Fire Risk Assessment

MULBERRY WASTE LTD.

Stockpit Road
Knowsley
Industrial Estate
Knowsley
L33 7TQ

FIRE RISK ASSESSMENT

Waste Recycling Site

MSC Consultancy Services

FIRE RISK ASSESSMENT:	**Waste Recycling Site**
DATE:	**16 May 2022**
REVIEW DATE:	**16 May 2023**
ASSESSED BY:	**MSC Consultancy Services Elhanan L39 7JE**
CONTACT DETAILS **Assessment Consultant Mobile:** **Assessment consultant e-mail:**	**01704 645 345** **07931 781 446** **graham.msc@hotmail.co.uk**
FOR AND ON BEHALF OF:	**Mulberry Waste Ltd.**
RESPONSIBLE PERSON:	**Hassan Isaji**
SITE RESPONSIBLE / Contact:	**Paul Evans**
INTERVIEWED PERSON:	**Daryl Wilkinson Caitlin Evans**
ASSESSMENT CARRIED OUT FOR & ON BEHALF OF:	**Mulberry Waste Limited.**
PREMISE:	**Stockpit Road Knowsley Industrial Estate Knowsley L33 7TQ**

CONTENTS

LEGISLATION AND CODES OF PRACTICE APPLICABLE TO FIRE RISK ASSESSMENT

The Regulatory Reform (Fire Safety) Order 2005 (hence referred to as The Fire Safety Order 2005

BS 9999:2008 – Fire safety in design, management and use of buildings

Health & Safety at Work Act 1974

BS 5499-10: 2014 Safety Signs including Fire Safety signs

BS 5499-4: 2013 Code of Practice for Escape route signs

BS EN ISO 7010: 2011 [H&S (Safety Sign and Signals) Regulations 1996]

Electricity at Work Regulations 1989

Equalities Act (2010)

Building Regulations 2011 Part B

BS 5839-6 2013 Fire Detection and Alarm Systems

BS 5266-1 2011 Emergency Lighting

BS 5306 Part 8 2012 Fire Extinguishing Installations and Equipment on premise

LEGAL REQUIREMENTS

The effect of the regulations is that, not only does the employer need to make suitable arrangements for fire precautions in the workplace; they should also undertake a Risk Assessment of the workplace with particular regard to fire safety.

The effect of this risk is that the employer will identify those areas, if any, which need attention to lessen the risk to employees and visitors to the premise from fire.

'The Fire Safety Order 2005' the Risk Assessment must comply with the following:

Employers must carry out a Risk Assessment to identify risks to employees at work and others in connection with the undertaking.

The employer must review the assessment if there have been changes to the premise, work processes, or where the assessment is no longer valid.

If there are five or more employees, then the significant findings must be recorded.

Employers must appoint competent person(s) to assist them to comply with their obligations. (A competent employee should be used in preference to a non-employee).

Employers who share buildings must make all employers in the building aware of the risks they have identified.

The employer should advise any contractors' employers of any fire risks and the measures taken to comply with **The Fire Safety Order 2005.**

The employer should provide his/her employees with information regarding the risks identified and the measures taken to ensure their safety.

These notes are a précis of the requirements and are not intended to give the strict legal interpretation of the regulations. Reference should be made to the Regulations themselves and any Home Office published guidance for such purposes.

Meaning of 'Responsible Person':

a. In relation to a workplace, the employer, if the workplace is to any extent under his control;
b. In relation to any premise not falling within paragraph (c) below.
c. The person who has control of the premise (as occupier or otherwise) in connection with the carrying on by him of a trade, business or other undertaking (for profit or not); or
d. The owner, where the person in control of the premise does not have control in connection with the carrying on by that person of a trade, business or other undertaking.

Meaning of 'Relevant persons':

a. Any person (including the Responsible and Competent Persons) who are or may be lawfully on the premise; and
b. Any person in the immediate vicinity of the premise who is at risk from a fire on the premise.

Risk Assessment:

The 'Responsible Person (see above)' must make a suitable and sufficient assessment of the risks to which relevant persons are exposed for the purpose of identifying the general fire precautions he needs to take to comply with the requirements and prohibitions imposed on him by or under this order.

The 'Responsible Person' must record the information if he employs five or more employees; a license under an enactment is in force in relation to the premise, or an alterations notice is in force on the premise.

BRIEF OUTLINE

This Assessment covers Mulberry Waste Limited. The site is a waste recycling 'plant' located on Stockpit Road within Knowsley Industrial Estate in Knowsley in Merseyside in the North West region of England. The postcode is within Knowsley and the site is in close proximity to M57, M58 and the A580 East Lancashire Road.

Mulberry Waste originated and have been located at their head office base in Leyland since 1980. The planning application for the Knowsley site was approved in January 2022 and work commenced on the site and Mulberry Waste located late January 2022.

The premise is currently managed and worked by 4 staff and minimal visitors attend the site with the exception of drivers (picking /dropping) The owner and Responsible Person is Hassan Isaji, and the Site Responsible Person is Paul Evans. Daryl Wilkinson was the Interviewed Person for this assessment.

Opening hours are currently:

- Monday 07.00 -17.00
- Tuesday 07.00 -17.00
- Wednesday 07.00 -17.00
- Thursday 07.00 -17.00
- Friday 07.00 – 17.00

Persons will not be present on site at weekends.

The premises are on a gated site. I x main warehouse unit is right located. Access is available for vehicles on 3 sides of the warehouse. The majority of traffic will access through a large side shutter(located right).

At the left of the site is a large double height portacabin that contains Office / Reception facilities on the ground floor and a Meeting Room on first floor. A separate container allows for a Canteen facility. It is noted that the space has an alternative exit. Adjoining the canteen is a Storage Unit. A separate unit houses a toilet block.

The site is exceptionally well organised and clear and sterile throughout during Assessment.

The main structure is a steel frame with block infill and is metal clad. Additional structures are portacabins of traditional composition.

A small car park (left) allows access directly from Stockpit Road. It is noted that there are scheduled plans to incorporate fencing for the car park and hatched segregation markings to give access throughout the site.

There is unrestricted access for a fire tender from Stockpit Road and from the alternative access at the rear.

The main warehouse benefits from a mains automatic monitored Fire Alarm system, and an emergency lighting system (tested during Assessment).

Essential services include electricity & water (no mains gas into site)

A No Smoking Policy is in force throughout the site.

All cleaning is performed 'in house'

Assembly Point is located at the front main entrance gate. It is noted that there are 3 evacuation gates throughout the site.

A demic FLT is located at the rear of the warehouse. An FLT is used within the warehouse and externally.

Fire Alarm system

Portacabins:

- Office portacabin (ground)
- Meeting Room portacabin (first floor)
- Breakout room portacabin
- Storage portacabin
- Toilet Block portacabin

Presently there is no fire alarm system located within the portacabins.

Due to the size of the portacabins and number of persons who would be located within the cabins, escape from the ground floor cabins is achieved in less than 10 seconds.

The 1st floor level meeting room is vacated in less than 20 seconds.

A shout of 'FIRE' is suitable and sufficient to alert members of staff.

Recycle Plant:
The recycle plant building has a dedicated automatic mains & monitored, fire alarm system throughout. A Kentec Electronics 16-zone panel is located at Warehouse entrance.

Detectors and Call Points are located to trigger the operation of the system with audible warning sound and alerting the monitoring station.

The system is tested weekly and maintained by a Competent Person and under a maintenance contract. Commissioning Certificate was sighted:

Competent Persons: ADT
Engineer: B Higginson
Cert No: 14572324M
Date: 01/03/2022

Clear and concise records were available to show fire evacuation completed on site. Last evacuation drill was recorded as 05/05/2022. Evacuation was achieved in 57 seconds.

In compliance with The Regulatory (Fire Safety) Reform Order 2005 the Fire Alarm System must remain under a service contract - as is current practice. It must also be maintained and serviced on an annual basis and recorded.

In compliance with The Regulatory (Fire Safety) Reform Order 2005 the following is advised:

- The alarm system should be tested weekly and should be recorded in the Fire Logbook as is current practice.
- The system must be serviced and maintained by a Competent Engineer on an annual basis and recorded in the Fire Logbook as is current practice.

Significant Findings

Records were available during assessment

Assessors advise that a portable battery-operated smoke detector be fitted to the ground floor office cabin. In the event of a fire in the office cabin, the detector will alert the upstairs meeting room cabin, affording staff early warning.

Emergency Lighting

At the time of inspection an Emergency Lighting system was installed within the recycle plant.

Emergency Lights are not located internally or externally at the portacabins.

Assessors are satisfied that suitable and sufficient borrowed highways lighting is available during the hours of darkness.

Assessors tested the Emergency Lighting system within the recycle pant. When the lights were tested, they operated correctly.

A Competent Person maintains the system on an annual basis.

Competent Persons: Tremayne Hoskinson
Cert No: 16052022
Date: 16/05/2022

It is to be noted that the Emergency Lighting system was tested during Assessment.

The following is advised: -

- The system must be fully tested (Soak) and maintained on an annual basis by a Competent Person (current practice).

- The Emergency Lighting system is to be tested on a monthly basis and recorded within the Fire Logbook.

Significant Findings

N/A

Portable Appliance Testing

During inspection, portable and fixed wired appliances were in-situ within all areas of the site.

There are no defined Regulations relating to PAT Testing. However, it is to be noted, HASWA 1974 (H&S Act) states that a Duty of Care is owed by the employer to his employees. THE ELECTRICITY EQUIPMENT (SAFETY) REGULATIONS 1994, Regulation (5) states 'there is a Requirement for equipment to be safe' and PAT testing proves Competent Management in the safety of portable electrical equipment. Always check with your insurer.

New items do not require testing until they are 12 months old. It is additionally recommended that a Competent Person should be appointed to carry out regular visual inspections of all electrical equipment and cables.

Testing was completed on day of Assessment

Competent Persons: T Hoskinson
Cert No: 1020
Date: 16/05/2022
Reg No: 608804000

General Comment
Care should also be taken to ensure that multi-sockets are not overloaded and are periodically inspected and tested. Electrical extensions should be included in testing.

The following is advised: -

- All portable electrical items (not fixed wired) must be tested by a Competent Person for safety once they are 12 months old (fit for purpose).
- A certificate and list of items tested must be presented to the client from the Competent Person who tested the equipment.

Significant Findings

N/A

Firefighting equipment

During inspection firefighting equipment was located within the recycle plant and within the office cabin.

All appliances were correctly located and maintained by a Competent Person H Roberts & Sons Fire Protection Ltd. attended the premises 05/22. Competent Person is scheduled to return to site to install an external cabinet for extinguisher and complete signage.

Significant Findings

The C02 appliance located in the office cabin must be accompanied by safety signage

Training

Any employee who works within the premise should (by law: - Fire Reform Order 2005) receive Basic Fire Awareness Training from an appropriate competent person or training company, (this may be in-house if delivered by a competent person.)

All staff should be trained to seek and report any sign of:
1. Damage to fire extinguishers
2. Damaged / defaced / missing signage

3. Lighting and emergency lighting that is not functioning correctly
4. Activation and testing of the fire vent system
5. Checking correct function of the fire doors

This is applicable to any staff who work within the buildings

Certificates sighted for:

- Caitlin Evans
- Daryl Wilkinson

Training was completed January 2022

Significant Findings

N/A

Stairs

All staircases externally and internally located were of appropriate width and fit for purpose during assessment.

An external metal staircase affords access to the 1st floor cabin meeting room. These stairs from part of the escape route from the meeting room.

Internal stairs within the recycle plant lead from the equipment to the ground floor evacuation route.

Assessors advise high viz markings to external stairs leading from the meeting room

Significant Findings

Hi-viz marking advised to external stairs from meeting room

Safety signage

Signage is clear, concise and located in appropriate locations. Assembly Point signage is located at the main gated entrance.

PUSH BAR TO OPEN signage is required on all recycle plant final exit doors. It is noted that this has been ordered

All signs must conform to BS5378 Safety signs and colours and BS5499 graphical symbols.

Significant Findings

Competent Management

Locate signage once received

Fire Safety Doors and Furniture

Portacabins:
All doors were inspected during assessment and all doors functioned correctly.

Recycle plant:
Only final doors are located. No internal doors are in-situ.

During assessment, all final doors were tested and functioned correctly during operation.

Significant Findings

Competent management

Car Park

A small car park is available adjacent to the portacabins.

Assessors advise segregation / hatched markings to ensure safe evacuation.

The car park is gated, and security fenced to reduce the risk of arson.

Significant Findings

Responsible Person to consider ground markings

Confinement of Fire

Combustible materials are stored both internally and externally. Competently managed the items should remain low fire risk.

The recycle building which is of steel frame, block and sheet metal clad is where most combustible items are stored, and this building houses an addressable and monitored fire alarm system.

The portacabins are low fire risk

Lead acid batteries are located on site ready for recycling purposes. The batteries are clearly identified and located externally at a suitable and sufficient distance from buildings.

Significant Findings

N/A

EVALUATION

The building is a recycle plant located on a dedicated industrial park, at a distance from any residential buildings.

The duty holder must note the following: -
They must hold in safe keeping and have readily available for inspection: -

- Recycle plant weekly fire alarm tests and annual maintenance certification
- Emergency lighting monthly tests, annual test and maintenance certification
- Electrical Safety (5-year Hard Wired) Certification (current until 18/12/2022)
- Currently there is no piped natural gas located on site

Safety & fire signage
FIRE ASSEMBLY POINT signage located in Car Park
CO2 appliance in office requires safety signage

Fire doors
All final exit doors located in recycle plant functioned correctly when assessed

Records
Records were available to show testing and maintenance of safety systems

This book is an official document and must be available for inspection and to also record all testing and maintenance of fire safety systems and equipment.

Emergency Lighting
It was noted during Assessment that the Assessors tested the emergency lighting system which functioned correctly.

Car park
Advice only – Assessors advise pedestrian / hatched segregation markings to ground

.

Review Date

The date of review will be carried out 12 months from 16 May 2022 or if there has been a change in circumstances to the: -

- Fabric of the building
- Construction or extension of the building
- Contents within the environment

Signed *G McGregor* Date 16 May 2022

Name G. McGregor Teng CEI IMI gradIOSH MCIEH
Principal Consultant – MSC Safety Consultants

Fire Risk Assessment

Areas of Consideration	Yes, No or Not Applicable	Remedial Action Required to Address the Significant Findings
Means of Escape		
When the premises are occupied, can all final exit doors be easily and immediately opened?	YES	All doors checked
Can all designated fire exits be easily and immediately opened without the use of a key?	YES	
Are all passageways and corridors that form part of an escape route free from obstructions and storage?	YES	
Do all self-closing fire doors close fully onto the rebate of the doorframe?	N/A	All final doors functioned correctly
Are all self-closing devices in good working order?	N/A	None in-situ – not advised
Are any self-closing fire doors wedged in the open position?	NO	No action required
Are the maximum travel distances between fire doors, as required by the Fire Authority adequate?	YES	No action required
Emergency Lighting		
Is the premise provided with an emergency lighting system to provide illumination of the escape route in the event of a failure of the general lighting system?	YES	Recycle plant – yes Cabins – no (none advised)
Is the premise occupied during the hours of darkness?	YES	Seasonal (winter months)
ANY PLACE OF WORK OCCUPIED DURING THE HOURS OF DARKNESS SHOULD BE PROVIDED WITH SOME FORM OF EMERGENCY LIGHTING.		
Is the emergency lighting system tested regularly?	YES	Tested by Assessors – no issues
Are tests recorded?	YES	

Areas of Consideration	Yes, No or Not Applicable	Remedial Action Required to Address the Significant Findings
Means of Giving Warning in The Event of Fire		
Is the premise provided with a system or procedure for raising the alarm in the event of fire?	YES	Mains monitored system within recycle plant
Is the system in full working order?	YES	Records of tests available during assessment
Is the system or procedure tested weekly?	YES	
Are the tests recorded?	YES	
Is the alarm audible in all parts of the building?	YES	
Are break glass call points clearly visible and unobstructed?	YES	No issues
Is any fixed automatic fire-fighting installation detection system in working order?	N/A	No system in-situ
Is the system or installation tested regularly?	N/A	
Are the tests recorded?	N/A	
Fire Safety Signs		
Are final exit doors and escape routes clearly and correctly signed?	YES	All present and correct
Do the signs depict the "running man" symbol?	YES	
Are all internal fire doors signed FIRE DOOR – KEEP SHUT	N/A	
Are "Fire Action" notices displayed?	YES	
Are "PUSH BAR TO OPEN" signs or similar affixed to doors with emergency fastenings?	NO	Signage scheduled
Are construction works in progress?	NO	

Areas of Consideration	Yes, No or Not Applicable	Remedial Action Required to Address the Significant Findings
Fire Fighting Equipment		
Are suitable fire extinguishers provided at each floor level and by each final exit door?	YES	
Are they securely mounted on wall brackets?	YES	
Are they freely available, visible and unobstructed?	YES	
Do they comply with BS EN 3 1996?	YES	CO2 signage missing – portacabin
Are the results of tests recorded?	YES	
Are they serviced annually by a competent person or company?	YES	H Roberts & Sons Ltd
Hazards		
Are all combustible materials and flammable liquids and gases stored safely and isolated from ignition sources?	YES	
Are radiant heaters fitted with suitable guards and fixed in a position away from combustible materials?	N/A	
Is the building free from rubbish and combustible waste materials?	NO	No issues. Recycle waste plant business. Excellent safety management
Training		
Are all employees given instruction on the action to take in the event of fire on induction and at periods afterwards?	YES	
Is a full evacuation fire drill carried out annually?	TBA	Scheduled
Have you recorded the findings of your Fire Risk Assessment?	YES	Annual review
Have you informed staff to the findings of the Fire Risk Assessment?	TBA	This assessment will be available to share with all concerned

Has a procedure been established to review the Fire Risk Assessment?	YES	Annual review of assessment to be performed
Advice to landlord/duty holder?	YES	Within assessment document
Areas of Consideration	YES	

Fire Risk Assessment Findings

	Significant Findings	Intended Remedial Action	RISK
1	***Fire appliances*** No fire blanket located within kitchen Signage missing from CO2 appliance within office cabin	Advise fire blanket to be located Signage to be located	LOW
2	***Safety signage*** PUSH BAR TO OPEN signage required to all final exit doors within recycle plant		LOW
3	***Advice only*** Assessors advise audible battery smoke alarm detector to be located within ground floor office cabin.	If meeting is in progress in meeting room above office cabin, the detector will alert above cabin of potential fire and smoke from below	LOW

PROPERTY FIRE RISK RATING

Categories

HIGH Risk – High-risk premise or parts of premise are those where there may be a serious risk to safety. These include that premise which have substantial quantities of readily combustible materials or any highly flammable substances and where there may, in consequence, be a great likelihood of fire occurring and fire, heat or smoke spreading rapidly. The provision of sleeping accommodation will constitute a high life safety fire risk.

MEDIUM Risk – Most premise will be of normal fire risk. They will generally contain quantities of combustible materials and sufficient sources of heat to take them out of the low-risk category. In such premise any outbreak of fire is likely to remain confined or is likely to spread only slowly, thereby allowing people time to escape to a place of safety.

LOW Risk – Premise or parts of premise of low fire risk are those where there is hardly any risk to life safety because there are few combustible materials, no highly flammable substances and virtually no sources of heat, which can cause a fire.

Risk Matrix

		Severity		
		Low	**Medium**	**High**
Likelihood of Fire	**Low (1)**	1	2	3
	Medium (2)	2	4	6
	High (3)	3	6	9

Action Priority

Risk Levels:	**Guidance on necessary action.**
LOW Within 3 Months	Actions (where applicable) to further reduce these risks are assigned low priority and arrangements should be made to ensure that the controls are properly implemented and maintained. Regular monitoring and reviewing is recommended.
MEDIUM Within 1 Month	Arrangements should be made to ensure that the controls are properly implemented and maintained within the timescales indicated.
HIGH Within 7 days	Substantial efforts should be made to reduce the risk, the risk reduction measures should be implemented urgently within the defined time period and taking into consideration it may be necessary to suspend or restrict the activity, or to apply interim risk control measures, until improvements have been completed. Arrangements should be made to ensure that the controls are properly maintained.

Overall Fire Safety Risk: - LOW

Overall Fire Safety Management: - Excellent Management

Clear and concise records were available, and the site appears exceptionally well managed. Clear and sterile evacuation routes. Assessors note that Emergency Grab Bags and additional support was available in the event of an emergency.

Fire Risk Assessment Carried Out By: - MSC Safety Consultants

Principal Consultant: - G McGregor T'eng CEI IMI gradIOSH MCIEH

Signature: - *G McGregor*

Review Date: 16 May 2023 or following a change

NOTES

FIRE RISK ASSESSMENT

MULBERRY WASTE LTD.

Stockpit Road

Knowsley Industrial Estate

Knowsley

L33 7TQ

Assessment Date
16/05/2022

Review Date
16/05/2023

Assessment carried by:
MSC Consultants ELHANAN 61 School Lane Haskayne Downholland Lancashire L39 7JE
Telephone 01704 645 345● Assessment Consultant Mobile: 07931781446
Assessment consultant e-mail: graham.msc@hotmail.co.uk WEB: www.mscconsultants.co.uk
For and behalf of the H Roberts & Son Fire Protection Ltd. .

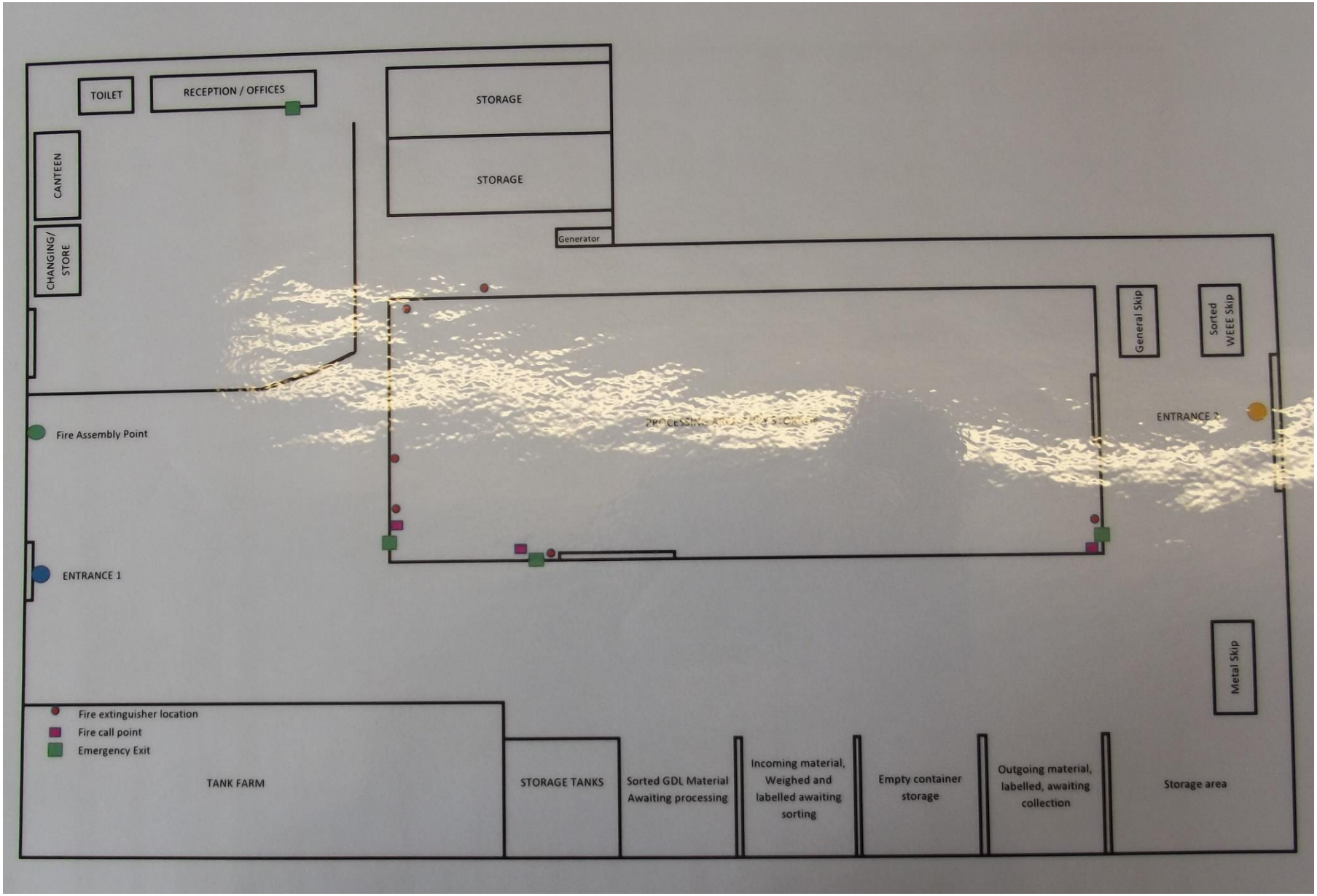
Left - both images

Store, Canteen and Toilet located within front yard

Below

2 storey Reception located at the far left of front yard. Offices to ground and 1st floor Meeting room.

Clear Site plan available



Left
Sufficient borrowed light is available from highways

Below left
1st floor meeting room

Below
Fire Blanket advised within Canteen area (This is currently on order)

Above –
Both images
Welfare / Break-out room
Alternative Exit is available
Store is located at left

Right
Image to show entrance to Main Office Block & car parking facilities
2 x Entrance/ Exits available at the front
Alternative exit at rear

Above

Clear & concise Fire Assembly Point signage located at Front fence

Left

PUSH BAR TO OPEN

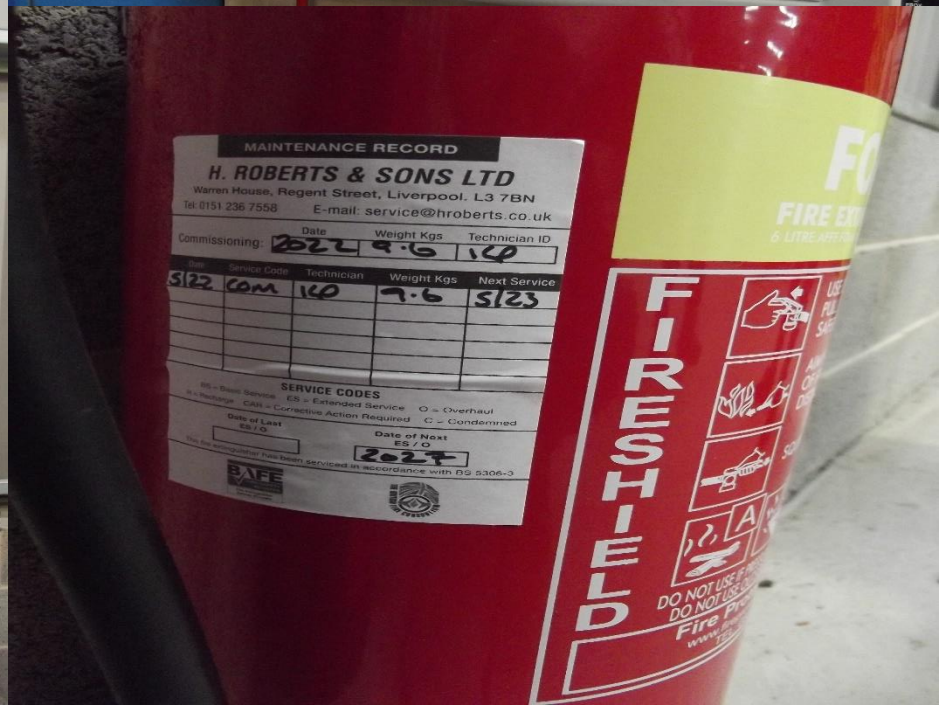
Signage required at any door with push bar operating mechanism

Signage has been ordered

Right
Monitored & maintained
fire alarm system

Right
Maintained fire appliances located

Below
Excellent safety management



Below & right
Views of recycling areas

Excellent safety management throughout
Large side entrance kept open throughout opening hours

All views

Clear & concise safety signage

Maintained safety systems

Monitored fire alarm system

Clear & sterile evacuation routes

All final exit doors tested and operated correctly

Excellent management

Left
FLT non-operational
Located in rear yard

Below left
Advise segregation markings to floor

Below
Concise 400v information located

Left &
below left
Recycling materials externally located

Below
Batteries externally stored and clearly labelled and identified

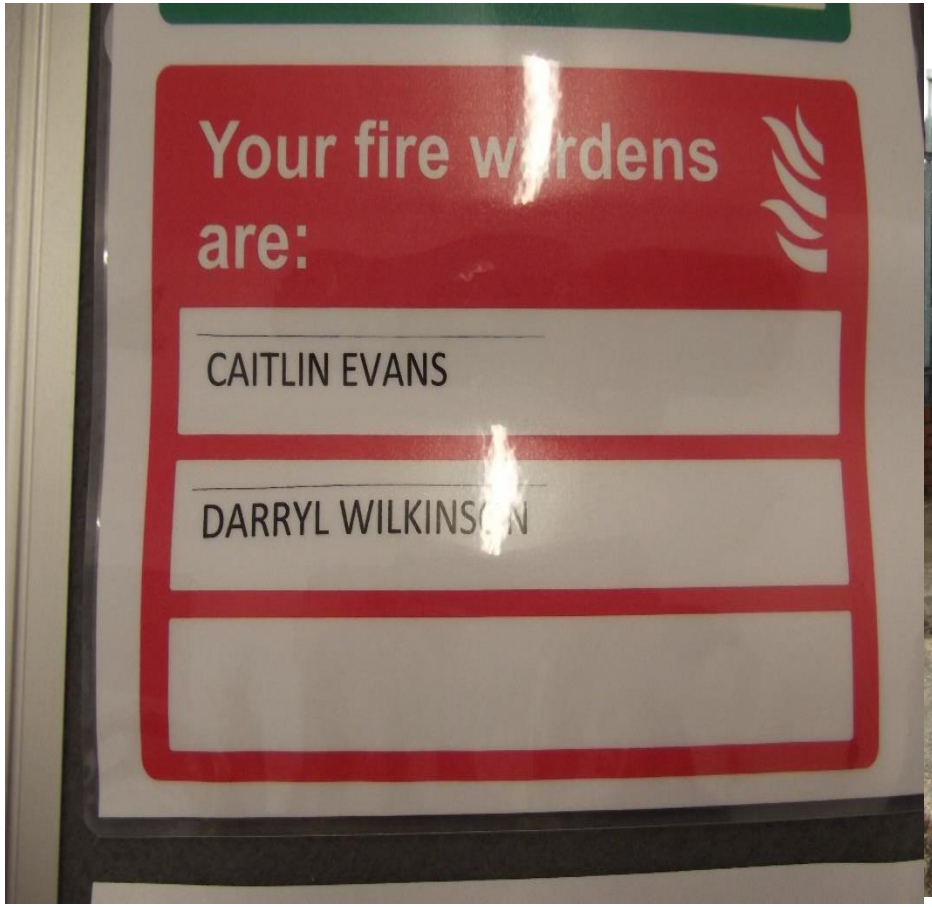
Above left
Area is part of premises
Tanks disused for a number of years

Above
Housekeeping is excellent throughout site

Left
Generator externally located

Right
Excellent housekeeping
& storage management

Below
Excellent fire safety management throughout

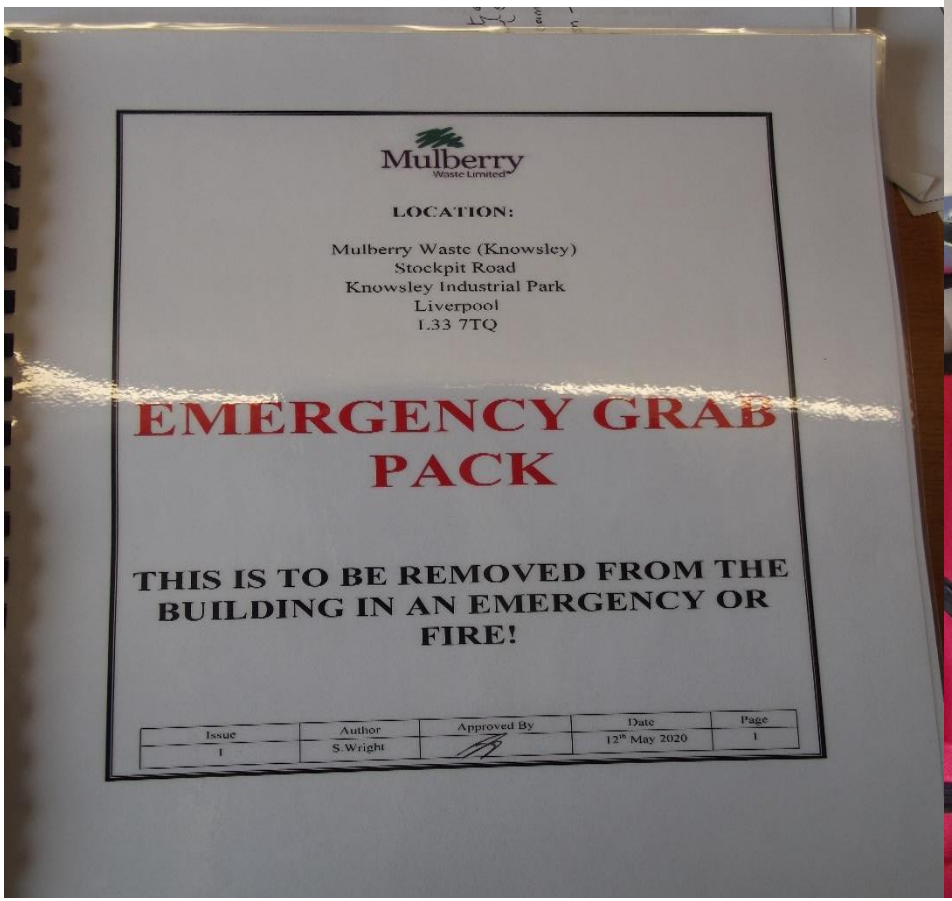


Right

Co2 appliance signage missing
Competent Person due to revisit site
to locate Appliance cabinet

Below

Excellent safety management



APPENDIX D
EXAMPLE SITE PROCEDURES

MULBERRY WASTE LIMITED

ENVIRONMENTAL MANAGEMENT SYSTEM

Title:	Pre-acceptance Procedures & Quotation of Wastes		
Document No.	MWKnowsely101	Version number:	1 DRAFT 2
Date:	August 2022	Author / Revised by:	AO
Issued to:			

Key Documents

- Customer Own Analysis Form (MW101A) for wastes other than nominally empty containers
- Waste List - Office Copy (MW101B)
- Booking-In Form (MW101C)
- Chain of Custody Form (MW101D) for wastes other than nominally empty containers
- Chemical Analysis Results Report (WM101E) for wastes other than nominally empty containers
- Lab testing Schedule (MW101F) for wastes other than nominally empty containers
- List 1 and 2 Items (MW101H)
- Environmental Permit (EPR/ZP3439RM)
- Transport Running Sheet (live document)

Related Procedures and Guidance

Chemical Waste: Appropriate Measures for Permitted Facilities
Waste Electrical and Electronic Equipment (WEEE): Appropriate Measures for Permitted Facilities

Personnel

The following personnel have responsibilities under this procedure:

Personnel
Laboratory Chemist
Technical Assessor
Site Manager
Operations Department
Commercial Manager
Sales Representative

Purpose

This document describes the systems, procedures, roles and responsibilities for waste pre-acceptance at Mulberry Knowsley Waste Facility (Mulberry). These are in place to facilitate the acceptance of wastes in a controlled and safe manner which will assist in the prevention of incidents such as, adverse reactions, uncontrolled emissions or fires. The procedures meet the requirements of BAT-Conclusion 2 for the waste treatment industry, and the appropriate measures required for chemical and WEEE waste. The procedures ensure that Mulberry can confirm the waste is technically and legally suitable for acceptance at their Knowsley Waste Facility.

Title:	Pre-acceptance Procedures & Quotation of Wastes		
Document No.	MWKnowsely101	Version number:	1 DRAFT 2
Date:	August 2022	Author / Revised by:	AO
Issued to:			

Customer Enquiry

Upon receipt of a customer enquiry, preliminary checks are done to ensure compliance of chemicals and EWC's with the site permit, identify a treatment route and provide an indicative quote prior to full technical pre-acceptance assessment.

The following information is obtained in writing / electronically from the waste producer / holder:

- details of the waste producer (organisation name, address and contact details);
- the source of the waste;
- where the holder of the waste is not the producer, details of the waste holder (organisation name, address and contact details);
- information on the nature and variability of the waste production process and the waste;
- a description of the waste
- the List of Waste code (European Waste Classification (EWC) code)
- its physical form;
- its composition (based on safety data sheets, where appropriate, or representative samples as required);
- any hazardous properties;
- any persistent organic pollutants (POPs) present;
- the potential for self-heating, self-reactivity or reactivity to moisture or air;
- any odour or potential for odour to occur;
- its age, that is when it first became waste;
- the type of packaging;
- an estimate of the quantity you expect to receive in each load and in a year;
- details of any waste treatment already undertaken;
- confirmation that the waste does not contain a radioactive source.

As necessary, further contact with or a visit to the waste producer will enable the verification of the pre-acceptance information, and any such communication will be undertaken by the Technical Assessor.

The Technical Assessor will also consider the potential for any risk of:

- explosion;
- corrosion caused by strong acids;
- uncontrolled reactions; or
- the evolution of gases.

Sampling and Analysis

Where relevant, a representative sample of the waste will be taken if:

- the chemical composition or variability of the waste is unclear from the information supplied by the customer;
- there are doubts about whether the sample analysed is representative of the waste;
- the waste will be blended or treated at the Knowsley Waste Facility.

Where a customer sample is relied upon, a record will be made to this effect, noting why the customer sample is acceptable.

Sampling is not required for:

- asbestos;
- a pure product chemical or aerosol where the chemical composition and hazardous properties are available in a REACH compliant safety data sheet;
- packaged cosmetics and pharmaceuticals;
- contaminated clothing, packaging or rags;
- an 'article', for example batteries, lighting tubes, waste electrical or electronic equipment, end-of-life vehicles or parts of vehicles, metal waste and scrap metal;
- solid non-hazardous waste (except for mirror entries when the waste composition is unknown);
- contaminated wood and roofing material;
- waste which has been produced in an emergency. However, such waste will not be treated or offloaded until a full characterisation has been obtained.

Analysis will usually be undertaken by Mulberry Waste's Leyland Facility laboratory at Clydesdale Place (refer to MW101 and supporting laboratory procedures). The laboratory is included in Mulberry's certification to the Quality Management System ISO 9001 which is externally audited annually.

The suite of analysis undertaken is dependent on a number of factors including the nature of the waste stream, the proposed treatment route and the information documented in the Chain of Custody Form. The Laboratory Chemist will analyse the waste and record the information on the Chemical Analysis Results Report with any requirements for additional analysis being requested by the Technical Assessor.

The Technical Assessment

Following characterisation of the waste by the Laboratory Chemist as required, the pre-acceptance information is provided to the Technical Assessor to carry out a technical assessment on the waste. The Technical Assessor may request further information from the customer so that a thorough pre-acceptance technical assessment can be carried out.

Title:	Pre-acceptance Procedures & Quotation of Wastes		
Document No.	MWKnowsely101	Version number:	1 DRAFT 2
Date:	August 2022	Author / Revised by:	AO
Issued to:			

The Technical Assessment is completed with due consideration given to Environmental Permit compliance, Control of Major Accident Hazards (COMAH) thresholds, applicable guidance documents and the technical information provided. The Technical Assessor signs the Waste List – Office Copy to indicate that the Technical Assessment has been completed. The technical assessment is made independent of any sales negotiation.

Quote Acceptance

On acceptance of the quote, the Operations Department generates the Waste List - Office Copy, populating it with suitable information about the consignment from the original enquiry and assigning a unique job number to the consignment. The creation of the "Job Pack" starts at this point.

Booking-In

Following the technical assessment, the customers preferred collection date is passed to the Site Manager who ensures the site has the required capacity and staffing to receive and process the material.

Should insufficient capacity or staffing be available, the customer is contacted to discuss an alternative date.

Following completion of the Booking-In Procedure above, the Operations Department generates the Booking-In Form and confirms the collection date with the customer.

Job Approved

Mulberry considers the job to be approved on the completion of the Booking-In Procedure above and receipt of all requested pre-acceptance information from the customer. On approval the Operations Department ensures the job is on the Transport Running Sheet. The Job Pack is updated during the waste acceptance stage and is kept in hard copy for three years and electronic documents are stored securely. This comprises a hard copy file of the completed documents listed above (see "Key Documents") plus any relevant supplementary information provided by the customer, and a list of the parameters to be checked at the waste acceptance stage, along with their acceptable range where relevant.

Records and Updates

All records relating to pre-acceptance will be maintained at the installation for cross-reference and verification at the waste acceptance stage. These records will be kept for a minimum of 3 years.

Waste pre-acceptance information will be reviewed annually or where:

- the waste changes;
- the process giving rise to the waste changes;
- the waste received does not conform to the pre-acceptance information.

Title:	Waste / product acceptance and sampling		
Document No:	MWKnowsley103	Version number:	1 DRAFT 2
Date:	August 2022	Author / Revised by:	AO

Acceptance and Sampling

Key Documents

- Transport running sheet
- Batching-In sheet (MW103A)
- Waste acceptance & PPE form (MW103B)
- Waste analysis sheet
- Customer own analysis form (MW101A)
- Sample submission sheet
- Chemical analysis results report
- Tank log
- Non-conformance report (MW205A)
- Environmental Permit (EPR/ZP3439RM)
- Site plan

Related Procedures

- Waste pre-acceptance and quote (MWKnowsley101)
- Waste storage, capacities and handline standards procedures (MWKnowsley103-1)
- Laboratory procedure (MW105)
- Consolidation procedure (MW104-2)
- Non-conformance procedure (MW205)
- Spillage prevention, control and emergency procedure (MW204)

Personnel

The following personnel have responsibilities under this procedure:

Personnel
Site Chemist
Technical Assessor
Site Manager
Operations Department
Logistical Director

Personnel responsible for the sampling, checking and analysis of wastes are suitably qualified and competent (HNC qualified chemist or higher, BSc etc.) and receive suitable structured training.

Purpose

This document describes the systems, procedures, roles and responsibilities for waste acceptance at Mulberry Knowsley Waste Facility (Mulberry). These are in place, together with the waste pre-acceptance procedures (See MWKnowsley101) to prevent the acceptance of unsuitable wastes which may lead to a breach of the Permit conditions, adverse reactions or uncontrolled emissions. The procedures are in place to check that the

characteristics of the waste received match the pre-acceptance information, and to facilitate rejection of the waste where this is not the case.

Other than in an emergency (waste from an emergency incident clean-up), staff must only receive pre-booked wastes onto site that has been adequately pre-accepted and are consistent with the pre-acceptance information.

Procedure

The procedure for waste acceptance should follow a risk-based approach, considering:

- the source, nature, and age of the waste;
- the waste's hazardous properties;
- potential risks to process safety, occupational safety, and the environment;
- potential for self-heating, self-reactivity or reactivity to moisture or air;
- knowledge about the previous waste holder.

All these points are taken into consideration when the waste is accepted.

Documentation

Following completion of the pre-acceptance process, the Operations Department collates the following paperwork for each delivery:

- Batching-In Sheet (MW103A)
- Waste acceptance & PPE Form (MW103B).
- Waste Analysis Sheet
- Sample Submission Sheet
- Customer Own Analysis Form (where the customer has undertaken the pre-acceptance sample analysis)

Each waste consignment is scheduled into the transport running sheet to minimise vehicle waiting times. The Site Manager will then inspect the transport running sheet daily, to ensure that there is sufficient storage capacity on site for all loads booked in. Loads will not be accepted on to site unless there is sufficient storage.

Prior to the delivery, the Operations Department place all relevant paperwork in the appropriate tray for collection by the Site Manager. At the start of each shift, the Site Manager reviews the paperwork contained in the relevant tray to familiarise themselves with the details of upcoming deliveries.

Site Capacity

All the storage areas (quarantine, reception and general) and treatment processes at Mulberry will have physical capacity for the waste received on site. Waste will not be received on site if the capacity is not available. The amount of waste we receive must also comply with storage limits on our permit and meet the requirements of the COMAH regulations if necessary.

Arrival on-site

Upon arrival of a packaged waste delivery on-site, the Site Manager will liaise with the driver and inspect / approve all their documentation before carrying out a visual inspection of the load. The purpose of this initial visual assessment is to ascertain the integrity of the waste containers, check that the labels visible indicate that the waste is as anticipated and identify potential significant issues with the consignment.

The paperwork will be validated and any discrepancies resolved before the waste is accepted. A non-conformance will be raised if necessary and non-conforming wastes will be rejected from the site. If the visual assessment is satisfactory, the Site Manager will sign the driver's consignment note and the driver will remain with their vehicle at all times whilst on site.

Following the visual assessment, the Site Manager completes the 'Waste acceptance and PPE Form' (MW103B). The Site Manager will then, with help from an operative, unload the waste containers into the dedicated reception area for further inspection and sampling.

Reception of wastes

The reception and quarantine areas are marked on the site plan and are covered by CCTV. The Site Manager ensures that reception wastes are cleared by the end of each working day. The reception area is paved with impermeable hardstanding concrete and drainage is directed to a three-stage interceptor. The drainage from the site is served by a penstock valve which can be shut-off in the event of an incident or emergency, thereby containing run-off in the site drainage system. No waste treatment is permitted in the reception areas and spill absorbent materials are provided should there be a spill during acceptance sampling.

Wastes are placed in the reception area in line with the segregation requirements of HSG 71. After any required further inspection (i.e. emptying and repacking containers of contaminated clothing, packaging or rags to check for items that should not be there) the waste must be moved to appropriate storage locations, in line with HSG 71. There must always be enough room in the reception area for any load that is due to be accepted. If there is no room for the load, off-loading must be delayed until space is created.

Staff carrying out waste acceptance checks are fully trained to effectively identify and manage any non-conformances in the loads received, and consideration will be given to the potential presence of radioactive material within the loads.

Where no further sampling of incoming wastes is required (i.e. nominally empty containers, articles etc.) the containers are moved directly into the storage bays in order to minimise the manual handling of waste, although further visual checks of labels etc. may be undertaken during off-loading where these could not be undertaken effectively prior to off-load. Unloading will be undertaken using mechanical techniques (e.g. fork-lift truck or similar).

- The reception area must be emptied at the end of each working day.

All areas of the site, including those used for general storage, reception and quarantine areas, have an impermeable surface with drainage that can be closed off, to prevent any spillage escaping off site.

Quarantine and rejection of wastes

If issues are identified during the visual assessment such as, but not limited to:

- Damaged, corroded or unlabelled containers used for storage;
- Ill-fitting / missing lids and caps;
- Damaged valves;
- Wastes not logged on paperwork;
- Wastes different from those anticipated;
- Wastes not permitted to be on site (according to permit / COMAH thresholds);
- Wastes we cannot treat;

The waste should then be quarantined and the non-conformance procedure is followed. Any waste may be re-packaged, rejected, have the labels removed and / or be quarantined as necessary. Plastic containers used for storage will be checked for the use by date.

- Wastes are to be stored in the quarantine area for a maximum of 5 working days and will be clearly signed as quarantined waste.

Batching-in

If weights are not provided or a valid weighbridge ticket is not supplied then each waste container can be weighed during the batching-in process, using our in-house calibrated scales.

The Operations Department prepares a batching-in sheet for each consignment, populated with information generated and technically assessed during the pre-acceptance stage.

The Operations Department completes the batching-in sheet with a unique batch number for each load or waste container, comprising the unique Job Number for the load (assigned during the pre-acceptance stage) and a sequential number for each container.

The Site Manager uses the batching-in sheet to undertake a confirmatory assessment of each waste type and container against the pre-acceptance information provided by the customer. This includes:

- Confirming that the volume of waste / number of containers is as expected;
- The type of waste within each container is as expected (from a visual inspection of the labelling and contents);
- The waste can be accepted on site (in relation to the site permit).

Tanker delivery, waste and product

Upon arrival on-site drivers of bulk tanker loads should be directed to the waste reception area. The arrival of all bulk loads is supervised by the Site Manager or the Site Chemist.

The reception area is paved with impermeable concrete hardstanding, and drainage can be closed off to prevent any spillage escaping off site. Spill absorbent materials are readily available within this area.

The tanker offloading area is accessible from the waste reception bay and both areas are covered by CCTV. The Site Manager ensures that the waste reception area is cleared by the end of each working day.

If the tanker is operated by a third-party, Mulberry will request a copy of the wash out certificate or a declaration of the previous load so that possible contamination by this route can be checked by a chemist. If the tanker is operated by Mulberry, the Logistical Director and Site Chemist are responsible for ensuring compatibility between consignments.

The driver, supervised by the Site Manager or Site Chemist, takes a representative sample prior to offloading from one of three points: the top hatch, the back valve (most common) or the sight glass. A suitable receptacle will be placed under the valve to contain any minor spillage. The sample is then delivered to the laboratory for analysis.

- All operations staff are trained in the company spillage procedures and spill competency testing is carried out.

The weight of the delivery is taken from the audited customer's weighbridge or by utilising the on-site flow meters and chemical data to determine the mass.

Generally, tanker loads will be of a consistent nature and a sample from the back valve will be sufficient. However, in the event that a bulk tanker load may be mixed and a sample from the back valve is not likely to be an accurate representation of the material within ("worst case scenario"), this will be identified at the pre-acceptance stage by the Technical Assessor. Such loads should be offloaded into IBC's and a core sample from each IBC will be analysed for compatibility.

- Emphasis is placed, at all times when sampling containers; on obtaining a core sample that is an accurate representation of the contents within the container.

Sampling

Any incoming liquid wastes, other than from nominally empty containers are sampled by taking a representative core sample from the container or vessel to undergo verification and compliance testing which will ensure:

- The waste is what it should be, based on the pre-acceptance information;
- The waste is as described;
- The waste is compatible with the content of the receiving vessel;
- The waste is suitable for the proposed treatment method / transfer route.

The results of these tests are documented on the waste analysis sheet. Further acceptance analysis may be carried out in the Company laboratory if acceptance analysis shows that wastes are not consistent with the pre-acceptance analysis. If this is the case, the sample submission form is used to identify which further analysis is required and the waste is placed within the quarantine area until such time as it is deemed acceptable or should be rejected.

A composite sample may be collected from containers of the same waste stream. Samples will comprise of a representative core sample to the base of the container where practicable. Container lids are replaced as soon as practicable.

Care is taken during sampling to prevent contact between incompatible substances; through spills etc. Prevention measures include:

- Staff training;
- Company procedures regarding the storage of wastes;
- Implementation of the spillage prevention control and emergency procedure;
- Maintaining adequate separation distances;
- Accurate labelling;
- Completion of the technical assessment at the pre-acceptance stage;
- Stable stacking of wastes;
- Visual inspection of loads / packages as they arrive on site;
- Provision of spill absorbent materials.

Mulberry will not typically accept a sample for analysis which has been taken prior to arrival of the waste on site. This would only be permitted where there are health, safety and environmental control considerations, for example, water reactive substances which would make sampling difficult. All operations staff are trained in the company spillage procedures and spill competency testing is carried out.

Each container is clearly labelled with:

- The unique job number relating to the consignment;
- The unique container number;
- The container's date of arrival on-site;
- The applicable hazard codes;
- The chemical identity of the contents;
- The container's location on-site.

Irrelevant or obsolete labels are removed from containers by the Site Manager or operatives and a new label is affixed to the container, if appropriate. Containers should be stored so as to ensure any labels are clearly visible.

The Tank Log is completed with the details of each load batched into a tank, including:

- The unique job number relating to the consignment;
- The date of arrival on-site;
- The applicable hazard codes;
- The chemical identity of the waste.

Further sample analysis

The analysis is undertaken as described in Laboratory Procedure MW105. Sample analysis, equipment calibration and standardisation procedures are undertaken in accordance with Laboratory Procedure MW105. The laboratory is included in Mulberry's certification to the Quality Management System ISO 9001.

Note that samples / analyses are not required for the following waste streams at the pre-acceptance stage:

- Laboratory smalls;
- Pure product chemicals;
- Oils from low-risk sources;
- Contaminated clothing, packaging and rags (the contamination of the waste is specified but the waste does not need to be analysed);
- Aerosols and gas cylinders (pure product chemicals);
- "Articles" (e.g. batteries, lighting tubes and Waste Electrical and Electrical Equipment);
- Asbestos;
- Oil / water interceptor waste, where the interceptor has not been affected by a spillage;
- Emergencies - such wastes are fully characterised on arrival on site and remain in quarantine until the characterisation has been completed.

However, acceptance analysis will be required for:

- Oils from low-risk sources;
- Oil / water interceptor waste, where the interceptor has not been affected by a spillage;
- Emergencies - such wastes are fully characterised on arrival on-site and remain in quarantine until the characterisation has been completed.

Samples should be retained on-site for a minimum of two days after the waste has been treated or removed off-site.

Additionally, containers of contaminated clothing, packaging or rags will be unpacked and re-packed prior to storage to check for items that should not be there.

Records

A "Job Pack" of information is generated during the pre-acceptance stage for each consignment of waste and is held on site for a minimum of three years. All documentation contained in the Job Pack is assigned with the unique Job Number for the consignment, allowing the information to be tracked from the pre-acceptance and acceptance stages to treatment and removal from site. Information and records consist of the following:

- Batching-In sheet;
- Pre-acceptance analysis / results;
- Results of any further analysis;
- Consignment note and / or duty of care transfer note detailing:
  - Date of arrival on site,
  - Waste producers' details,
  - A unique reference number,
  - Package size, quantity and type,
  - Intended treatment/ disposal route,
  - Hazard codes associated with the waste .
- Details of onsite waste location / tank number;
- Information relating to the identification of staff who have made any decisions regarding the waste.

The Job Pack is supported with an electronic stock control system, which tracks the movement of waste from acceptance through to treatment and ending with the removal of the waste off site. In addition, all electronic records are backed up daily and a back-up taken off-site by the Site Manager. Information held on the stock management system includes:

- Total quantity of waste;
- Breakdown of waste by:
  - Treatment route,
  - Disposal route,
  - Hazard classification,
  - Location of where the waste is on-site,
  - Waste amount against permitted limits,
  - Duration of waste on site against permitted limits.

Mulberry Waste Limited	**Title**	**Incoming Deliveries of Wastes - Collections of Containers**			
	Document No.	MK-DOC-073-2022-V01		**Version No.**	01
	Date	13/04/2022	**Author**	S.Wright	

1.0 Purpose

The purpose of this procedure is to ensure that all incoming deliveries of wastes and/or collection of containers by customers comply with the Duty of Care regulations, Environmental Protection Act, comply with the Site Permit and site operating procedures, and to ensure that all delivered wastes and collection of containers are controlled by the Quality System, to ensure the smooth running of the site.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager.
The Authorised Persons, listed below, shall implement this procedure.

- Plant Manager
- Logistics Manager and Assistant
- Sales
- Compliance Department

3.0 Operations/Sales Instruction for Waste Delivery / Collection of Containers (purchased/loaned)

3.1 All incoming waste deliveries and/or collection of containers by customers must be notified at least 24 hours in advance.

3.2 All incoming waste deliveries and/or collections of containers by clients must be accompanied by a Waste Receipt/Container Collection Booking Request Form.

3.3 On receipt of a request/order from a customer to deliver in waste or collect a container, a Waste Receipt/Container Collection Booking Form (see attached) is to be faxed or emailed to the client so that they can complete all the mandatory fields on the form and fax/email it back.

3.4 Upon receipt of the completed Waste Receipt/Container Collection Booking Form, the receiver should check that all the details are complete, contacting the customer where there is missing or unclear information. Where all details are complete and clear, the receiver is to complete Booking Reference number (Initials and Date), print their name, insert the date and sign in greyed area of the form.

3.5 The client should then be informed whether the waste is to be accepted or declined.

3.6 Customers should be informed that where they are delivering in wastes that the form should be accompanied by a Hazardous Waste Consignment Note or Special Waste Consignment Note. Deliveries will be refused where the customer attempts to deliver wastes without a Hazardous Waste Consignment Note or Special Waste Consignment Note.

3.7 A copy of the booking in form (duly completed, signed and dated) shall be put into the wallet on the door in the downstairs kitchen a day or more before the delivery is expected.
NOTE: Production are under the instruction that if they do not have a copy of a note in this wallet, that is duly filled out, they will refuse to receive the load.

3.8 The form should be attached to the Job & Waste Pre-Acceptance Form and accompanying communications for passing to Data Admin for input onto the Job Log.

4.0 Production Instruction for Waste Delivery / Collection of Containers (purchased/loaned)

4.1 When a customer arrives to deliver waste or collect containers, they must have a completed and signed Waste Receipt/Container Collection Booking Form and for the delivery of waste must have a Hazardous Waste Consignment Note.
Documents Required:
Delivering Waste Only – Completed and Signed Mulberry Knowsley Waste Receipt/Container Collection Booking Form and a Hazardous Waste Consignment Note and/or Special Waste Consignment Note.
Collecting Containers – Completed and Signed Mulberry Knowsley Waste Receipt/Container Collection

4.2 Booking Form Where a customer arrives without either of these two forms, no waste must be accepted or containers given to them.

4.3 Where a customer arrives to deliver waste without a Hazardous Waste Consignment Note or Special Waste Consignment Note this must be reported to the office immediately, giving all details of the customer, address, vehicle registration, etc. If in doubt ask.

5.0 Production – Hazardous Waste Consignment Notes & Special Waste (Section 62) Consignment Notes

5.1 The Authorised Person shall check the consignment notes to ensure that all the information is filled in and that the site is able to accept the load.

5.2 The load is checked on the vehicle and against the consignment note.

5.3 If the load is acceptable then a Production Receipt/Batch Note is obtained, and the next Batch Control Number is obtained from the Batch Control Number Register. The Batch Control Number is written in the relevant field on the Production Receipt/Batch Note.

5.4 If the load is a non-conforming load then follow Work Instruction: MK-DOC-075-2022-V01 NON CONFORMANCE LOAD SHEET.

5.5 The Production Receipt/Batch Note is filled in.

5.6 The Mulberry Authorised Person signs and prints their name on the Production Receipt/Batch Note and the Consignment Note in the relevant fields in PART E Consignee's Certificate. The Batch Number is written down the right hand side of the Consignment Note.

5.7

5.8 The Mulberry Authorised Person detaches the Carriers copy of the Consignment Note and passes it to the driver.

5.9 The Mulberry Authorised Person detaches the Consignee's Copy of the Consignment Note and attaches it to the Production Receipt/Batch Note. The information on the Production Receipt/Batch Note is written against the Batch Control Number in the Batch Control Number Register. Both documents are then filed in the Pending Jobs to be Processed File.

The Mulberry Authorised Person ensures that the remaining copies of the Consignment Note are stapled together and passed up to Operations Admin for logging as being collected/delivered onto the Job Log.

5.10 If in doubt ask your team leader, supervisor or the office.

MULBERRY WASTE LIMITED

ENVIRONMENTAL MANAGEMENT SYSTEM

Title:	Waste storage, capacities & handling standards procedures		
Document No.	MWKnowsley103-1	Version number:	2 DRAFT 2
Date:	October 2022	Author / Revised by:	D Reece, R Parker, A Owen, S Wright
Issued to:	Site Manager / Site Operators		

Key Documents

- HSG 51
- HSG71
- Risk assessment Knowsley RA 103 – 1 Storage
- Environmental Permit (EPR/ZP3439RM)

Related Procedures and Guidance

Chemical Waste: Appropriate Measures for Permitted Facilities
Waste Electrical and Electronic Equipment (WEEE): Appropriate Measures for Permitted Facilities

ALL WASTES MUST BE STORED WITH WELL FITTING LIDS / CAPS / VALVES. OPEN PACKAGES SHALL BE COVERED FROM THE ELEMENTS

Personnel

The following personnel have responsibilities under this procedure:

Personnel
Site Manager
Operations Department

Inspections of Stored Wastes

Daily inspection of the permitted facility is undertaken, recorded and stored in a file in the main offices. This is the responsibility of the Site Manager or their deputy.

Reception Area

Upon receipt and checking, the wastes are stored in the appropriate bays or within the process building, ready for treatment on-site or onward transfer.

The wastes are marked with a unique batch number and date.

At the close of the transfer station each evening all wastes shall be removed from the reception area and stored within the designated areas.

Title:	Waste storage, capacities & handling standards procedures		
Document No.	MWKnowsley103-1	Version number:	2 DRAFT 2
Date:	October 2022	Author / Revised by:	D Reece, R Parker, A Owen, S Wright
Issued to:	Site Manager / Site Operators		

Receipt of Tankers

Oil Wastes

On receipt of oil tankers a sample is taken and tested in the site lab for:

- Water concentration;
- Suspended solids;
- Odour;
- Flash point;
- Colour.

A sample is retained onsite for records purposes as well as for further offsite testing if necessary.

If analysis results are satisfactory, the receiving tank(s) are checked for capacity and the tanker is offloaded. If the sample fails, the non-conformance procedure is followed.

Non-Hazardous Wastes

On receipt of non-hazardous effluent in bulk tankers, a back valve sample is taken and analysed in the on-site laboratory for:

- COD;
- Anionic surfactants;
- Cationic surfactants;
- pH;
- Odour;
- Colour.

The sample is tested for compatibility with the existing material in the tank it is destined for and the available tank capacity is checked. Once analysis is approved and the available capacity has been confirmed, the waste is pumped to the chosen tank.

Waste Storage Locations

All waste is stored in in locations that minimise the waste. Waste handling is undertaken by competent staff using appropriate equipment.

There are no watercourses in the immediate vicinity of the site and wastes are stored away from sensitive perimeters. All waste is stored within the secure area of the site.

Title:	Waste storage, capacities & handling standards procedures		
Document No.	MWKnowsley103-1	Version number:	2 DRAFT 2
Date:	October 2022	Author / Revised by:	D Reece, R Parker, A Owen, S Wright
Issued to:	Site Manager / Site Operators		

Inventory of Maximum Volumes Held on Site Based on Environment Permit

The total site storage capacity is currently 575 tonnes. This includes the bulk storage of aqueous wastes, and is broken down as follows:

Storage Tanks

Tank	Contents	Hazards	UN Classes	Capacity (tonnes)
1	Antifreeze or Waste oil	HP4 (Antifreeze) HP5, HP7, HP14	NC	10.5
2	Antifreeze or Waste oil	HP4 (Antifreeze) HP5, HP7, HP14	NC	10.5

Waste quantities

Hazardous Wastes	**Tonnage**
Waste oil / oily water / sludge Oil filters (shredding) Metal containers (Paint wastes etc. - crush empty pots) Fluorescent tubes (crushing) Antifreeze/coolants Aerosols Brake fluids Absorbent rags/granules etc. Mixed waste fuel/solvent WEEE Waste and Batteries Contaminated wastes	Maximum 25 tonnes (tank and other container storage) Total hazardous waste = 575 tonnes Within the overall site total (575 T)
Non-Hazardous Wastes	**Tonnage**
Non-asbestos brake pads Metals and plastics Bulk non-hazardous aqueous effluent Other non-hazardous wastes	Total non-hazardous waste = 575 tonnes Within the overall site total (575 T)

Handling and Storage Standards for Wastes with Specified Characteristics

Solid wastes likely to produce polluting or contaminating run-off.

- All wastes are stored on impermeable pavement with sealed drainage to on site interceptors and a penstock valve to prevent run-off to external drainage.

Liquid or sludge wastes

- To be only received and stored within liquid retaining covered containers on impermeable pavement with sealed drainage.

Combustible wastes

- To be stored only on impermeable pavement with sealed drainage and access to firefighting equipment.

Light wastes liable to give rise to litter

- Wastes received in sealed containers and stored only on impermeable pavement with sealed drainage.

Aerosols

- Aerosols are also transferred into IBCs or vented waste safes, with IBCs then being stored in a secure cage to ensure that the aerosols are well ventilated but cannot become missiles in the event of a fire.

WEEE

- Where necessary to avoid contamination of surface water, WEEE that contains hazardous material or fluids will be stored beneath a weatherproof covering. This will include but is not limited to the storage of:
    - lamps and processed fractions;
    - flat panel display equipment which may contain cold-cathode fluorescent lamp (CCFL) backlights and where these are processed by shredding, the shredded fractions;
    - broken cathode ray tubes (CRTs) and CRT glass;
    - shredded WEEE or plastic containing fractions that may be persistent organic pollutant (POPs) waste.

Security

To prevent unauthorised access to the site the following items have been installed:

- Perimeter fencing to minimum 1.8 metres.
- Site includes CCTV which is continually monitored by a third-party.
- Gates to yard area to be kept closed and secure when unattended.
- Windows and doors to process buildings are further protected by roller shutter doors.
- Site security is inspected each day including weekends by estate security.

Mulberry
Waste Limited

BOOKING & RECEIVING MATERIAL TRAINING

Mulberry
Waste Limited

FLOW FOR MATERIAL BOOKING & RECEIPT

PRE-ACCEPTANCEOF WASTE
MK-DOC-071-2022

BATCH CONTROL & WASTE RECEIPT
MK-OA-002

UNLOADING BY FLT
MK-T-013

UNLOADING BY HAND
MK-T-014

UNLOADING BY MOFFETT
MK-T-015

TRANSPORT PAPERWORK BOOKING IN
MK-DOC-082-2022

LABELLING UP ALL CONTAINERS
MK-P-024

Mulberry Waste Limited	**Title**	**PRE ACCEPTANCE OF WASTE PROCEDURE**			
	Document No.	MK-DOC-071-2022-V01		**Version No.**	01
	Date	13/04/2022	**Author**	S.Wright	

1.0 Purpose

The purpose of this procedure is to ensure that all wastes to be collected from clients has the following information provided, beforehand:

- The nature of the process producing the waste;
- The composition of the waste (types of wastes – Lamp Type, Battery Type, WEEE Type, etc)
- Provenance of the waste (UK, Channel Islands, non-UK, Isle of Man)
- Quantity per Type
- Condition of the waste
- Packaging (container type)
- Contamination (packaging)
- Official Purchase Order (Physical copy not just the PO Number)
- Full site address
- Haz Waste Premises Code and Expiry Date (England and Wales only)
- Site Contact Name and Number
- Site restrictions for vehicles (height, weight, width)
- Site opening times

2.0 Responsibility

2.1 This procedure shall be established and maintained by the Site Management and Compliance Team.

2.2 Following training the Authorised Persons in the following departments, listed below, shall implement this procedure.

- Operations Personnel
- Admin Personnel
- Compliance Personnel

3.0 Waste Types Accepted and Actions Required

3.1 Mulberry Knowsley is authorised to receive the wastes detailed in Schedule 2 of the permit

- The nature of the process producing the waste;
- The composition of the waste (types of wastes – Lamp Type, Battery Type, WEEE Type, etc)
- Provenance of the waste (UK, Channel Islands, non-UK, Isle of Man)
- Quantity per Type
- Condition of the waste
- Packaging (container type)
- Contamination (packaging and other wastes)
- Official Purchase Order (Physical copy not just the PO Number)
- Full site address
- Haz Waste Premises Code and Expiry Date (England and Wales only)
- Site Contact Name, Number and Email address
- Site restrictions for vehicles (height, weight, width)
- Site opening times/days
- Site access procedures

4.0 Pre Acceptance Procedure (Generic Wastes detailed in 3.0)

4.1 For each request received the information below shall be obtained in writing

4.2 Where the above information is obtained, this shall be taken that the waste has been assessed, pre-accepted and approved, meeting the requirements of the site Permit.

4.3 Where there is an unusual waste or comment or where any of the information in 4.1 cannot be ascertained, the job paperwork and the details shall be passed to either Director or Compliance Team to be technically assessed.

Following the technical assessment being carried out the job paperwork will be passed back to the originator for completion as per the standard procedure 7.0 below.

5.0 Pre Acceptance Procedure (Batteries)

5.1 For each request received the information below shall be obtained in writing and recorded:

- The nature of the process producing the waste;
- The composition of the waste (Battery Type/Chemistry)
- Clear photos of the batteries
- Provenance of the waste (UK, Channel Islands, non-UK, Isle of Man)
- Quantity per Type
- Packaging (container type)
- Contamination (packaging)
- Official Purchase Order (Physical copy not just the PO Number)
- Full site address
- Haz Waste Premises Code and Expiry Date (England and Wales only)
- Site Contact Name and Number
- Site restrictions for vehicles (height, weight, width)
- Site opening times

In addition the following information is to be recorded and signed by the client on the "Battery Declaration Form **MK-DOC-072-2022 BATTERY DECLARATION FORM**

- Batteries are secure in the container.
- The container does not contain water.
- The batteries are dry, not wet or coated with another substance.
- The battery cases are undamaged.
- The battery lead wires have been removed.
- There are no traces of dangerous alkalis or acids on the batteries.
- The batteries have been protected from short circuit.
- Provenance of the waste (UK, Channel Islands, non-UK, Isle of Man, etc.)

5.2 When the above information is obtained, it will be passed to a technically competent member of the team for pre-acceptance checks, this shall be either the compliance team or a site director.

Following the technical assessment being carried out the job paperwork will be passed back to the originator for completion as per the standard procedure 7.0 below.

6.0 Pre Acceptance Procedure (Mercury Wastes- GDLs)

For each request received the information below shall be obtained in writing:

- The nature of the process producing the waste;
- Substances the waste may have been in contact with
- The composition of the waste
- Photographs of the waste(s)
- Quantity per Type
- Condition of the waste
- Packaging (container type)
- Packaging condition
- Contamination (packaging)
- Official Purchase Order (Physical copy not just the PO Number)
- Full site address
- Haz Waste Premises Code and Expiry Date (England and Wales only)
- Site Contact Name and Number
- Site restrictions for vehicles (height, weight, width)
- Site opening times

6.2 When the above information is obtained, it will be passed to a technically competent member of the team for pre-acceptance checks, this shall be either the compliance team or a site director.

Following the technical assessment being carried out the job paperwork will be passed back to the originator for completion as per the standard procedure 7.0 below.

7.0 Complete Job Request Procedure

7.1 Following assessment and Pre-Acceptance of the waste complete the Job & Waste Pre-Acceptance procedure.

7.2 Ensure that the Summary Job Details are filled out and, where applicable, the Notes/Instruction to Production are detailed.

7.3 Where applicable to incoming deliveries, complete a Booking in Request Form **MK-DOC-074-2022-V01**, following procedure **MK-DOC-073-2022-V01.** Ensure that the completed Booking in Request Form is placed in the folder in the downstairs kitchen, at least, the day before the load is due to arrive.

Log the job onto RAMS system

A different office member will then check the job details before moving it over to the job log for transport scheduling

8.0 Checking and Auditing

8.1 For all job requests received from clients, random samples will be checked and audited on a monthly basis to ensure that we meet the requirements of our permitted activities. Appropriate corrective and preventative actions will be taken where there is a non-conformance.

Mercury
Recycling Limited

LOCATION: Mulberry Waste (Knowsley)

PROCEDURE: MK-OA-002

SUBJECT: Batch Control Sheets & Waste Receipt Notes

1.0 Purpose

The purpose of this procedure is to ensure that all incoming loads have full traceability from receipt of waste to dispatch of by-products, thus complying with site operating procedures and the Environmental Protection Act.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager

The Authorised Persons, listed below, shall implement this procedure.

- Plant Manager
- Compliance department

3.0 Instruction – Batch Control Log

3.1 Each consignment is given a batch control number (MK) This is generated from the batch control log where the corresponding line is completed.

3.2 The Line should contain- Waste Producer, containers received, Paperwork numbers, Vehicle reg No. who is completing the booking and date and time load came in. (see Batch Control Log)

3.3 At this stage, the paperwork is completed and labels generated as per MK-DOC-082-2022 and MK-P-024

May 2022 BATCH CONTROL LOG

BATCH NUMBER	WASTE PRODUCER	CONTAINERS RECEIVED	WTN NUMBER	VEHICLE REGISTRATION	BOOKED IN BY	DATE	TIME
MK 22 05 001			/			D D M M Y Y Y Y	H H M M
MK 22 05 002			/			D D M M Y Y Y Y	H H M M
MK 22 05 003			/			D D M M Y Y Y Y	H H M M
MK 22 05 004			/			D D M M Y Y Y Y	H H M M
MK 22 05 005			/			D D M M Y Y Y Y	H H M M
MK 22 05 006			/			D D M M Y Y Y Y	H H M M
MK 22 05 007			/			D D M M Y Y Y Y	H H M M
MK 22 05 008			/			D D M M Y Y Y Y	H H M M
MK 22 05 009			/			D D M M Y Y Y Y	H H M M
MK 22 05 010			/			D D M M Y Y Y Y	H H M M
MK 22 05 011			/			D D M M Y Y Y Y	H H M M
MK 22 05 012			/			D D M M Y Y Y Y	H H M M
MK 22 05 013			/			D D M M Y Y Y Y	H H M M
MK 22 05 014			/			D D M M Y Y Y Y	H H M M
MK 22 05 015			/			D D M M Y Y Y Y	H H M M
MK 22 05 016			/			D D M M Y Y Y Y	H H M M
MK 22 05 017			/			D D M M Y Y Y Y	H H M M
MK 22 05 018			/			D D M M Y Y Y Y	H H M M
MK 22 05 019			/			D D M M Y Y Y Y	H H M M
MK 22 05 020			/			D D M M Y Y Y Y	H H M M
MK 22 05 021			/			D D M M Y Y Y Y	H H M M
MK 22 05 022			/			D D M M Y Y Y Y	H H M M
MK 22 05 023			/			D D M M Y Y Y Y	H H M M
MK 22 05 024			/			D D M M Y Y Y Y	H H M M

LOCATION: Mulberry Waste (Knowsley)

PROCEDURE: MK-T-013

SUBJECT: Loading and Unloading with FLT

1.0 Purpose

The purpose of this procedure is to ensure vehicles are loaded and unloaded in a safe and efficient manner.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager.

The Authorised Persons, listed below, shall implement this procedure.

- Plant Manager
- Compliance Department
- FLT Driver
- Drivers

3.0 Instruction

3.1 Park the Truck in a safe place with enough access space to load and unload safely, and ensure that the hand break is applied and the engine is switched off.

3.2 Secure the cab whilst unloading is taking place.

3.3 Open the curtains and take paperwork to site personnel

3.4 On approval, the FLT driver will remove the material from the vehicle. Ensure you wait in the vehicle cab while this is being carried out.

3.5 Unload the material into the receipt bay, to await weighing and booking in

3.6 Reload if required, ensuring paperwork is supplied to the driver.

LOCATION: Mulberry Waste (Knowsley)

PROCEDURE: MK-T-014

SUBJECT: Unloading by Hand (Incoming Deliveries)

1.0 Purpose

The purpose of this procedure is to ensure that Operatives are familiar with the correct methodology for safely unloading units by hand.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager.

The Authorised Persons, listed below, shall implement this procedure.

- Plant Manager
- Operatives

3.0 Instruction

3.1 Ensure that the incoming delivery has been properly booked (Booking In Sheet should have been provided in advance).

3.2 Ensure that a cradle have been put aside ready for the consignment to be loaded onto.

3.3 Unload the consignment onto the cradle, transport the cradle to the pallet scales, then weigh each separate container on the cradle separately.

3.4 Ensure that the Batch Log is filled out with the loads details.

3.5 Ensure that PART E of the consignment note is filled in and the batch control number written down the right hand side of the consignment note.

3.6 Log details, i.e weight, number of containers, and time and vehicle registration onto the Production Waste Receipt Record Form.

3.7 Ensure that all the paperwork is pinned together, the white copy of the Production Waste Receipt Record Form is passed to the office.

3.8 Move consignment to storage or processing area, ready for processing.

LOCATION: Mulberry Waste (Knowsley)

PROCEDURE: MK-T-015

SUBJECT: Loading & Unloading the 26 Tonne Truck (with Moffett/ FLT)

1.0 Purpose

The purpose of this procedure is to ensure that the 26 Tonne Truck (with Moffett FLT) is loaded and unloaded in a safe and efficient manner.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager

The Authorised Persons, listed below, shall implement this procedure.

- Plant Manager
- Compliance Manager
- Transport Manager
- Drivers

3.0 Instruction

3.1 Park the Truck in a safe place with enough access space to load and unload safely, and ensure that the hand brake is applied and the engine is switched off.

3.2 Secure the cab whilst unloading is taking place. Provide paperwork to site personnel

3.3 Open the curtains to the vehicle and secure safely. Disconnect Suzi Light Cables.

3.4 If no FLT is available to unload, use the Moffett FLT by doing the following

- Disconnect the lighting leads.
- Release / remove the security straps.
- Start up the Moffett.
- Tilt the forks forward which lifts up the body of the Moffett.
- Push in the supporting beams underneath the Moffett.
- Climb aboard the Moffett.
- Lower Moffett from rear of vehicle, by raising the Moffett forks.
- Ensure forks are horizontal, i.e. forks are not tipped.
- Reverse Moffett away from rear of vehicle in a straight line.

3.5 Assess load requirements. Await authorisation from site personnel to proceed

3.6 Unload the containers off the vehicle and put in the receipt area, or as directed by site personnel

3.7 Load empty/ full containers onto the vehicle (where applicable), ensuring there are no obstructions on the vehicle bed.

3.8 Obtain outgoing paperwork (where applicable)

3.9 Close the curtains and secure them.

4.0 Reload Moffett back onto the rear of the vehicle by reversing the steps detailed in 3.4.

Mulberry Waste Limited	Title	TRANSPORT PAPERWORK BOOKING IN PROCEDURE			
	Document No.	MK-DOC-082-2022		Version No.	01
	Date	11/04/2022	Author	S. Wright	

1.0 Purpose

The purpose of this procedure is to ensure that all consignments are correctly booked in and corresponding paperwork is completed correctly, ensuring full traceability.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager. The Authorised

Persons, listed below, shall implement this procedure.

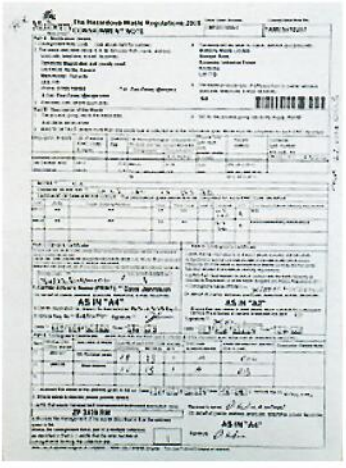
- Plant Manager
- Compliance Department

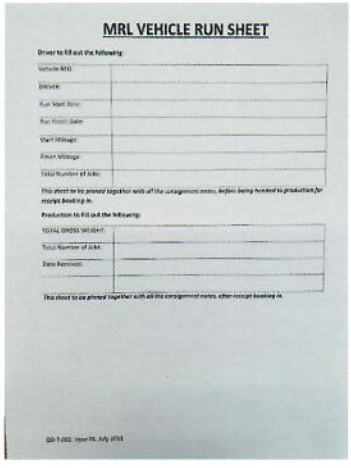
3.0 Instruction

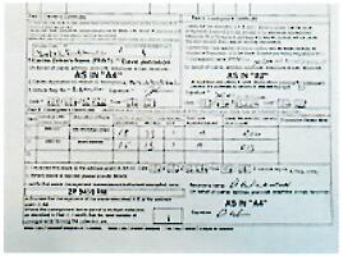
3.1 On receipt of consignment at Mulberry (Knowsley), the Driver will hand over all corresponding paperwork to the employee taking responsibility for booking in the load.

3.2 Each consignment note is given a unique batch number, issued sequentially. This number will start with MK and can be found in the first column the batch control number log. This log will need to be filled in completely with the relevant details. (see Procedure MK-OA-002)

3.3 The driver's paperwork should include a consignment note, waste receipt note and his run sheet for the delivery. The person in charge of booking in will have to complete section 'E' of the consignment note and also write the batch number down located along the right-hand side of the paperwork.

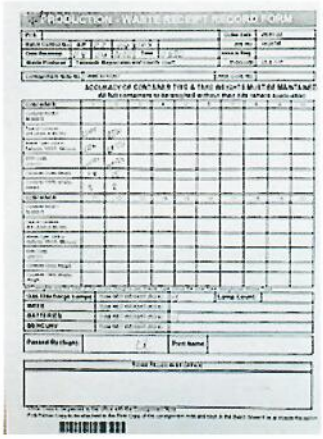






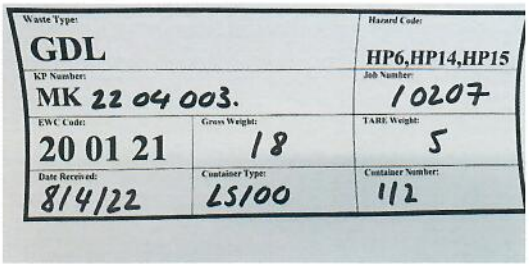
3.4 The batch number (MK number), date and time are to be filled in at the top of the waste receipt record form. On the same form, each container that has been delivered on that delivery must be logged in as well. These details are

- Type of container (LS350, LS300, LS100, WEEE175, BS20 etc)
- Waste type (GLD's, WEEE, Batteries)
- EWC code (can be found in part B of consignment note)
- Container gross weight
- Container TARE weight (empty weight)



3.5 Each container will come in with a label stuck on them that the delivery driver has put on. This label will have the job number on it to make it easier to match up to the paperwork. The job number can be found on the waste receipt form.

3.6 Once the paperwork has been completed you will need to weigh each container for that load and fill out the necessary label for each container. The container is then ready to be stored safely in the relevant area.



LOCATION: Mulberry Waste (Knowsley)

PROCEDURE: MK-P-024

SUBJECT: Labelling Up for All Containers

1.0 Purpose

The purpose of this procedure is to ensure that all consignments can be easily identified.

2.0 Responsibility

This procedure shall be established and maintained by the Plant Manager.

The Authorised Persons, listed below, shall implement this procedure.

- Plant Manager
- Compliance Department

3.0 Instruction

3.1 As each unit is delivered into Mulberry site, it is weighed and weight logged , together with the job number, batch control number container type and number off. The customer's name is also recorded.

3.2 A sticker containing the above information is also stuck onto each container received.

3.3 After processing, all stickers are removed from the containers.

Copies of each label is detailed in this procedure;

May 2022 BATCH CONTROL LOG

BATCH NUMBER	WASTE PRODUCER	CONTAINERS RECEIVED	WTN NUMBER	VEHICLE REGISTRATION	BOOKED IN BY	DATE	TIME
MK 22 05 001			/				
MK 22 05 002			/				
MK 22 05 003			/				
MK 22 05 004			/				
MK 22 05 005			/				
MK 22 05 006			/				
MK 22 05 007			/				
MK 22 05 008			/				
MK 22 05 009			/				
MK 22 05 010			/				
MK 22 05 011			/				
MK 22 05 012			/				
MK 22 05 013			/				
MK 22 05 014			/				
MK 22 05 015			/				
MK 22 05 016			/				
MK 22 05 017			/				
MK 22 05 018			/				
MK 22 05 019			/				
MK 22 05 020			/				
MK 22 05 021			/				
MK 22 05 022			/				
MK 22 05 023			/				
MK 22 05 024			/				

Waste Type:		Hazard Code:
GDL		**HP6,HP14,HP15**
MK Number:		**Job Number:**
MK		
EWC Code:	**Gross Weight:**	**TARE Weight:**
20 01 21		
Date Received:	**Container Type:**	**Container Number:**

Waste Type:		Hazard Code:
GDL		**HP6,HP14,HP15**
MK Number:		**Job Number:**
MK		
EWC Code:	**Gross Weight:**	**TARE Weight:**
20 01 21		
Date Received:	**Container Type:**	**Container Number:**

Waste Type:		Hazard Code:
GDL		**HP6,HP14,HP15**
MK Number:		**Job Number:**
MK		
EWC Code:	**Gross Weight:**	**TARE Weight:**
20 01 21		
Date Received:	**Container Type:**	**Container Number:**

Waste Type:		Hazard Code:
WEEE		**HP6,HP14,HP15**
MK Number:		**Job Number:**
MK		
EWC Code:	**Gross Weight:**	**TARE Weight:**
20 01 35		
Date Received:	**Container Type:**	**Container Number:**

Waste Type:		Hazard Code:
WEEE		**HP6,HP14,HP15**
MK Number:		**Job Number:**
MK		
EWC Code:	**Gross Weight:**	**TARE Weight:**
20 01 35		
Date Received:	**Container Type:**	**Container Number:**

Waste Type:		Hazard Code:
WEEE		**HP6,HP14,HP15**
MK Number:		**Job Number:**
MK		
EWC Code:	**Gross Weight:**	**TARE Weight:**
20 01 35		
Date Received:	**Container Type:**	**Container Number:**

Mulberry
Waste Limited

System or Process Change Assessment Form

Date:

Proposed Change:

Review Team:

Consideration	Likely Impact of Change	Impact Is +ve / equal / -ve	Changes Required	Further Investigations	Responsible Person	Deadline
How does the change affect the current strategic business plan?						
Impact of change on inputs (raw materials, energy and water requirements). Consider: Nature; Quantity required; Availability; Potential hazards or issues (e.g. dust, odour etc.); Security of supply						
Impact of change on operational procedures						
Impact of change on technologies employed						
Impact of change on staffing levels or resources						
Impact of change on health and safety requirements						

System or Process Change Assessment Form

Consideration	Likely Impact of Change	Impact Is +ve	Impact Is equal	Impact Is -ve	Changes Required	Further Investigations	Responsible Person	Deadline
Impact of change on products. Consider: Nature; Quantity produced; Quality of product; Available routes for products and waste; Storage and transport requirements; Potential hazards or issues (e.g. dust, odour etc.)								
Impact of change on compliance requirements and permitting								
Impact of change on environmental impact								
Necessary changes to management systems or procedures								
Necessary changes to the Health and Safety System								
Necessary changes to the Quality System								
Necessary changes to the Environmental System								
Total Number Of:	Positive Impacts:				Equal Impacts:		Negative Impacts:	
Do the total number of positive or equal impacts outweigh any negative impacts? Yes or No								
If further investigations are required set date for the next review meeting								
Where changes to Company operations, procedures or systems have been proposed, confirm that these have each been assigned with a date for completion								
Initial assessment is complete and Compliance Manager has reported to the Director (Compliance Manager to sign)								

System or Process Change Assessment Form

Director Sign-Off

Proposed change	
Are all identified impacts acceptable?	
Where impacts are not acceptable, sign here to reject the proposed change	
Date of rejection	
Are there any outstanding issues to be considered?	
Does the proposed change impact negatively on the Company or the business strategy?	
Are any outstanding risks associated with the proposed change, acceptable?	
Where changes to operations, systems or procedures are required, are these necessary for amendment prior to the change being facilitated?	
Have actions been assigned appropriately to facilitate the change?	
Change is considered acceptable with the controls listed above and hence can be approved: (Managing Director to sign)	
Date of approval	

APPENDIX E
MONITORING RESULTS

Example Monitoring Results from the Multec Technology Provider

Results from monitoring at two separate sites, where similar processes are installed.

Process Monitoring

Sample Period		Volume (m^3 at STP)	Weight (mg)	Concentration (mg Nm^{-3})	Mass Release (g hr-1)
09:00	10:00	0.155	< 0.05	<0.0003	<0.0013
11:15	12:15	0.153	< 0.05	<0.0003	<0.0013
12:45	13:45	0.151	< 0.05	<0.0003	<0.0014
14:15	15:15	0.131	< 0.05	<0.0004	<0.0016
			Mean	<0.0003	<0.0014

Total Mercury is reported above and was sampled from the exhaust point of the process, without filtration. The efficiency of the activated Carbon filter, on average is > 99.1 %

Occupational Monitoring of Mercury Vapour

Number	Location / Task	Sampling Time	Duration (h)	Concentration (mg m^{-3})
1	Personal monitor – Loading special shapes	09:30 – 11:50	2.3	0.003
2	Directional monitoring - Emptying residues*	08:20 – 08:50#	0.5	0.003 – 0.007
3	Directional monitoring - Podium feeding tubes / special shapes	08:20 – 08:50#	0.5	0.000 – 0.003
4	Directional monitoring - Podium feeding tubes / special shapes	09:30 – 11:50#	2.3	0.003
5	Directional monitoring - Podium feeding flat screens	11:00 – 11:50#	0.83	0.000 – 0.003
6	Directional monitoring - Emptying residues*	11:00 – 11:50#	0.83	0.000 – 0.003
7	Stationary monitoring - Podium feeding tubes / special shape lamps	08:25 – 11:55	3.5	0.003
			MAK 8-hour exposure	0.050

* Measured approximately 100 cm above and 10 com from the edge of the container being removed.
# Short-term (approximately 10 minute) measurements.
MAK = Maximum workplace concentration

Mulberry
Waste Limited

Mercury Vapour Monitoring

Date: 21-2-22 **Day:** MONDAY **Time:** 08.30

Area	Area Reading Taken	Activity at location at the time of this reading	Reading ug/m³	Temperature
1	Fluorescent Tubes Feeder		0.02	18.9
2	1C Powder Drum		0.05	18.8
3	2C Powder Drum		0.06	18.8
4	Container No 1		0.03	18.7
5	Container No 2		0.04	18.6
6	Container No 3		0.04	18.7
7	Container No 4		0.05	18.7
8	Container No 5		0.03	18.6
9	Container No 6		0.03	18.6
10	Booking in Desk		0.01	18.8
11	Feeder (Curtain side)		0.02	18.8
12	WEEE Area		0.01	18.8
13	Control Panel		0.02	18.7
14	Storage Area (Mixed)		0.01	18.8

LINE 01 Running And Fed?	YES / YES
Reading's Taken By:	P. Mc

Mulberry
Waste Limited

Mercury Vapour Monitoring

Date: 28-2-22 **Day:** MONDAY **Time:** 09.30

Area	Area Reading Taken	Activity at location at the time of this reading	Reading ug/m³	Temperature
1	Fluorescent Tubes Feeder		0.01	19.0
2	1C Powder Drum		0.04	19.1
3	2C Powder Drum		0.06	19.1
4	Container No 1		0.04	19.0
5	Container No 2		0.05	19.1
6	Container No 3		0.04	19.1
7	Container No 4		0.04	19.1
8	Container No 5		0.03	19.0
9	Container No 6		0.04	19.0
10	Booking in Desk		0.01	19.1
11	Feeder (Curtain side)		0.01	19.2
12	WEEE Area		0.02	19.1
13	Control Panel		0.02	19.0
14	Storage Area (Mixed)		0.02	19.1

LINE 01 Running And Fed?	NO/NO
Reading's Taken By:	D.W.

Mulberry
Waste Limited

Mercury Vapour Monitoring

Date: 14-3-22 **Day:** MONDAY **Time:** 10.00

Area	Area Reading Taken	Activity at location at the time of this reading	Reading ug/m³	Temperature
1	Fluorescent Tubes Feeder		0.02	20.7
2	1C Powder Drum		0.04	20.6
3	2C Powder Drum		0.06	20.6
4	Container No 1		0.04	20.6
5	Container No 2		0.04	20.6
6	Container No 3		0.04	20.6
7	Container No 4		0.05	20.6
8	Container No 5		0.03	20.6
9	Container No 6		0.03	20.6
10	Booking in Desk		0.03	20.8
11	Feeder (Curtain side)		0.01	20.9
12	WEEE Area		0.01	20.8
13	Control Panel		0.02	20.5
14	Storage Area (Mixed)		0.02	20.7

LINE 01 Running And Fed?	NO/NO
Reading's Taken By:	

Mulberry
Waste Limited

Mercury Vapour Monitoring

Date: 11-4-22 **Day:** MONDAY **Time:** 10:30

Area	Area Reading Taken	Activity at location at the time of this reading	Reading ug/m³	Temperature
1	Fluorescent Tubes Feeder		0.01	19.8
2	1C Powder Drum		004	19.7
3	2C Powder Drum		0.05	19.7
4	Container No 1 (Glass/TV Boxes)		0.03	19.7
5	Container No 2 (Glass/TV Boxes)		0.03	19.7
6	Container No 3 (Glass/TV Boxes)		0.03	19.7
7	Container No 4 (Glass/TV Boxes)		0.03	19.6
8	Container No 5 (Glass/TV Boxes)		0.03	19.7
9	Container No 6 (Glass/TV Boxes)		0.02	19.7
10	Glass Storer		0.02	19.7
11	TV Feeder (Inside Curtain)		0.02	19.8
12	Top Of Machine (Vent Filter)		0.04	19.9
13	WEEE Area		0.02	19.8
14	Storage Area (Mixed)		0.01	19.8

LINE 01 Running And Fed?	NO/NO
Reading's Taken By:	

Mulberry
Waste Limited

Mercury Vapour Monitoring

Date: 24/5/22 **Day:** TUESDAY **Time:** 06:55

Area	Area Reading Taken	Activity at location at the time of this reading	Reading ug/m³	Temperature
1	Fluorescent Tubes Feeder		001	18.8
2	1C Powder Drum		002	18.8
3	2C Powder Drum		003	18.8
4	Container No 1 (Glass/TV Boxes)		001	18.7
5	Container No 2 (Glass/TV Boxes)		001	18.7
6	Container No 3 (Glass/TV Boxes)		002	18.7
7	Container No 4 (Glass/TV Boxes)		001	18.6
8	Container No 5 (Glass/TV Boxes)		001	18.6
9	Container No 6 (Glass/TV Boxes)		001	18.6
10	Glass Storer		002	18.7
11	TV Feeder (Inside Curtain)		002	18.9
12	Top Of Machine (Vent Filter)		001	19.0
13	WEEE Area		000	18.5
14	Storage Area (Mixed)		001	18.6

ISOLATED

MACHINE

LINE 01 Running And Fed?	NO / NO
Reading's Taken By:	

Mulberry Waste (knowsley)
Stockpit Road
Knowsley Industrial Park
L33 7TQ

SHEFFIELD ANALYTICAL SERVICES
A Division of Sheffield Assay Office

Report No.: 05000 **Issue:** 1
Issued: 11/05/2022 **Extract Order No.:** DS32658

Reference : 1	Sample Date : 27/04/2022	Serial Number : 0054	Special-Hg

Element	Result	Low	High	Method
Mercury	0.427mg/kg			CVAFS to MDHS 16/2

FINES

Reference : 2	Sample Date : 27/04/2022	Serial Number : 0055	Special-Hg

Element	Result	Low	High	Method
Mercury	0.0276mg/kg			CVAFS to MDHS 16/2

METAL

Reference : 3	Sample Date : 27/04/2022	Serial Number : 0056	Special-Hg

Element	Result	Low	High	Method
Mercury	0.350mg/kg			CVAFS to MDHS 16/2

PLASTIC

Reference : 4	Sample Date : 27/04/2022	Serial Number : 0057	Special-Hg

Element	Result	Low	High	Method
Mercury	0.944mg/kg			CVAFS to MDHS 16/2

GLASS SM

Reference : 5	Sample Date : 27/04/2022	Serial Number : 0058	Special-Hg

Element	Result	Low	High	Method
Mercury	1.54mg/kg			CVAFS to MDHS 16/2

GLASS L

Reference : 6	Sample Date : 27/04/2022	Serial Number : 0059	Special-Hg

Element	Result	Low	High	Method
Mercury	0.0173mg/kg			CVAFS to MDHS 16/2

METAL

Reference : 7	Sample Date : 27/04/2022	Serial Number : 0060	Special-Hg

Element	Result	Low	High	Method

Reference : 7	Sample Date : 27/04/2022	Serial Number : 0060	Special-Hg

Element	Result	Low	High	Method
Mercury	0.255mg/kg			CVAFS to MDHS 16/2

PLASTIC

Reference : 8	Sample Date : 27/04/2022	Serial Number : 0061	Special-Hg

Element	Result	Low	High	Method
Mercury	0.887mg/kg			CVAFS to MDHS 16/2

GLASS SM

Reference : 9	Sample Date : 27/04/2022	Serial Number : 0062	Special-Hg

Element	Result	Low	High	Method
Mercury	0.631mg/kg			CVAFS to MDHS 16/2

GLASS L

Reference : 10	Sample Date : 27/04/2022	Serial Number : 0063	Special-Hg

Element	Result	Low	High	Method
Mercury	0.0100mg/kg			CVAFS to MDHS 16/2

METAL

Reference : 11	Sample Date : 27/04/2022	Serial Number : 0064	Special-Hg

Element	Result	Low	High	Method
Mercury	0.236mg/kg			CVAFS to MDHS 16/2

PLASTIC

Reference : 12	Sample Date : 27/04/2022	Serial Number : 0065	Special-Hg

Element	Result	Low	High	Method
Mercury	0.149mg/kg			CVAFS to MDHS 16/2

GLASS

Signature: **Head of Analytical Services - B Morales**

SHEFFIELD ASSAY OFFICE Guardians' Hall Beulah Road Hillsborough Sheffield S6 2AN
Telephone +44 (0) 114 231 2121 Fax +44 (0) 114 233 9079 Email info@assayoffice.co.uk

Mulberry Waste (knowsley)
Stockpit Road
Knowsley Industrial Park
L33 7TQ

SHEFFIELD ANALYTICAL SERVICES
A Division of Sheffield Assay Office

Report No.: 05001 Issue: 1
Issued: 11/05/2022 Extract Order No.: DS32658

Reference : TV1	Sample Date : 27/04/2022	Serial Number : 0078	Special-Hg

Element	Result	Low	High	Method
Mercury	0.124mg/kg			CVAFS to MDHS 16/2

TV PLASTICS F

Reference : TV2	Sample Date : 27/04/2022	Serial Number : 0079	Special-Hg

Element	Result	Low	High	Method
Mercury	0.0476mg/kg			CVAFS to MDHS 16/2

TV METAL FRAG

Reference : TV3	Sample Date : 27/04/2022	Serial Number : 0080	Special-Hg

Element	Result	Low	High	Method
Mercury	1.16mg/kg			CVAFS to MDHS 16/2

TV FINES MIX

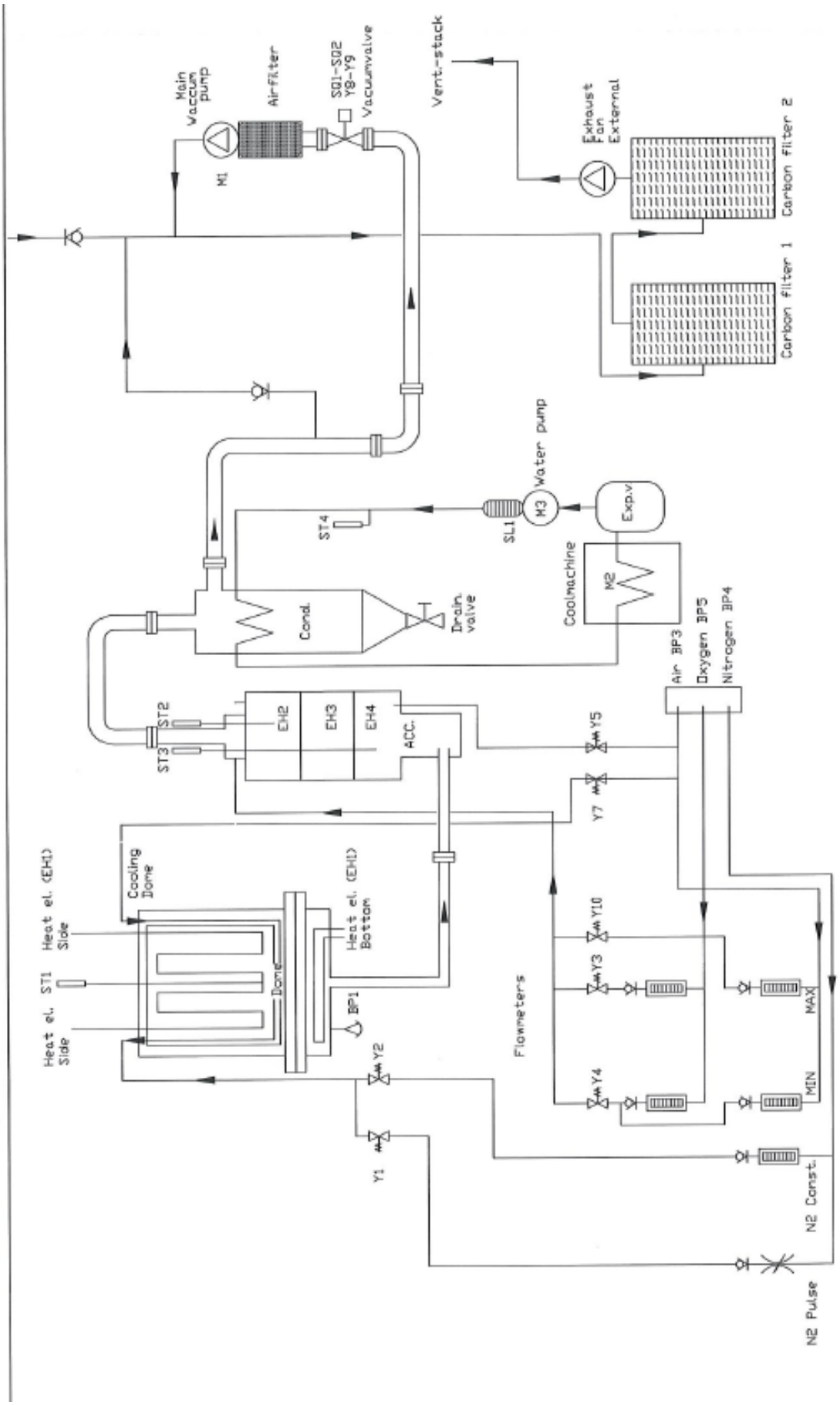
Reference : TV4	Sample Date : 27/04/2022	Serial Number : 0081	Special-Hg

Element	Result	Low	High	Method
Mercury	0.0366mg/kg			CVAFS to MDHS 16/2

TV PLASTIC

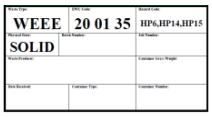
Signature: Head of Analytical Services - B Morales

APPENDIX F MERCURY RETORT PROCESS FLOW DIAGRAM



APPENDIX G
PROCESSING PLANT PROCESS FLOW DIAGRAMS

Sorting and Processing of Waste Electrical and Electronic Equipment (WEEE)
KNOWSLEY RECYCLING FACILITY



Received Waste Accepted for Treatment (Storage)
R13

Contents of WEEE containers emptied and sorted into WEEE Types

CAT 13 - see separate flow diagram

Remaining equipment dispatched for further treatment

CAT 10 &12 → Cooling Appliances & Automatic Dispensers R04 → Remove power lead → Cooling Equipment SOLID HP6,HP8,HP14,HP15 Pallet REPROCESSING

CAT 3 → IT Equipment & Telecom Equipment R04 → Remove power lead → Remove removable batteries → IT & Telecom Equipment SOLID HP6,HP8,HP14,HP15 Pallet REPROCESSING

BAILED / COMPACTED THEN SENT FOR FURTHER RECYCLING → Cardboard Packaging R03

CAT 11 → Display Equipment R04 → Remove power lead → **CAT 11 - see separate flow diagram**

SENT FOR FURTHER RECYCLING → Plastic Packaging R03

CAT 2 → Small Household Appliances R04 → Remove power lead → Remove removable batteries → Small Domestic Appliances SOLID HP6,HP8,HP14,HP15 Pallet REPROCESSING

SENT TO BATTERY SORTING FACILITY → Battery Contamination R13

CAT 1 → Large Household Appliances R04 → Remove power lead → Large Domestic Appliances SOLID N/A Pallet REPROCESSING

SENT TO MRF FOR FURTHER RECYCLING → General Waste Contamination R13

CAT 5 → Lighting Equipment R04 → Remove lamps-bulbs → Remove removable batteries → Lighting Equipment SOLID N/A Pallet REPROCESSING

CAT 6 → Electrical and electronic Tools R04 → Remove power lead → Remove removable batteries → Power Tools SOLID N/A Pallet REPROCESSING

CAT 7 → Toys, Leisure, and Sport Equipment R04 → Remove power lead → Remove removable batteries → Toys, Leisure and Sports Equipment SOLID N/A Pallet REPROCESSING

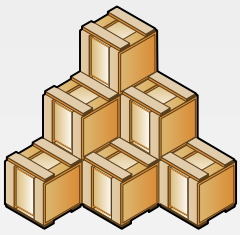
CAT 4 → Consumer Equipment R04 → Remove power lead → Remove removable batteries → Electrical Installation Equipment SOLID N/A Pallet REPROCESSING

CAT 8 → Medical Devices R04 → Remove power lead → Remove removable batteries → Components from EE Equipment SOLID N/A Pallet REPROCESSING

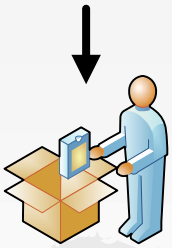
CAT 14 → Photovoltaic panels R04 → Remove power lead → Components from EE Equipment SOLID N/A Pallet REPROCESSING

Knowsley GDL Pre-Treatment and Sorting

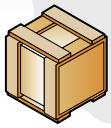
August 2022



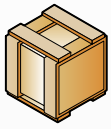
Received Containers of GDLs



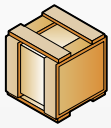
Decanting of Containers and Sorting into Batches for Treatment



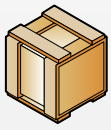
Cardboard Contamination



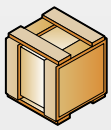
Plastic Contamination



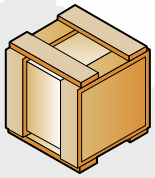
Contaminated Rainwater



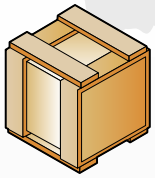
Other WEEE Contamination



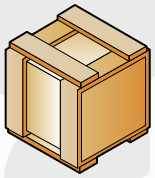
Other Wastes



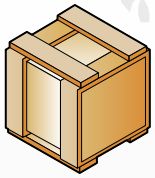
Straight GDL Tubes



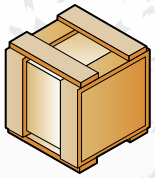
CFLi GDLs



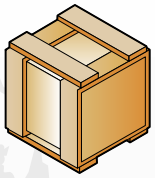
CFL GDL



HID GDLs



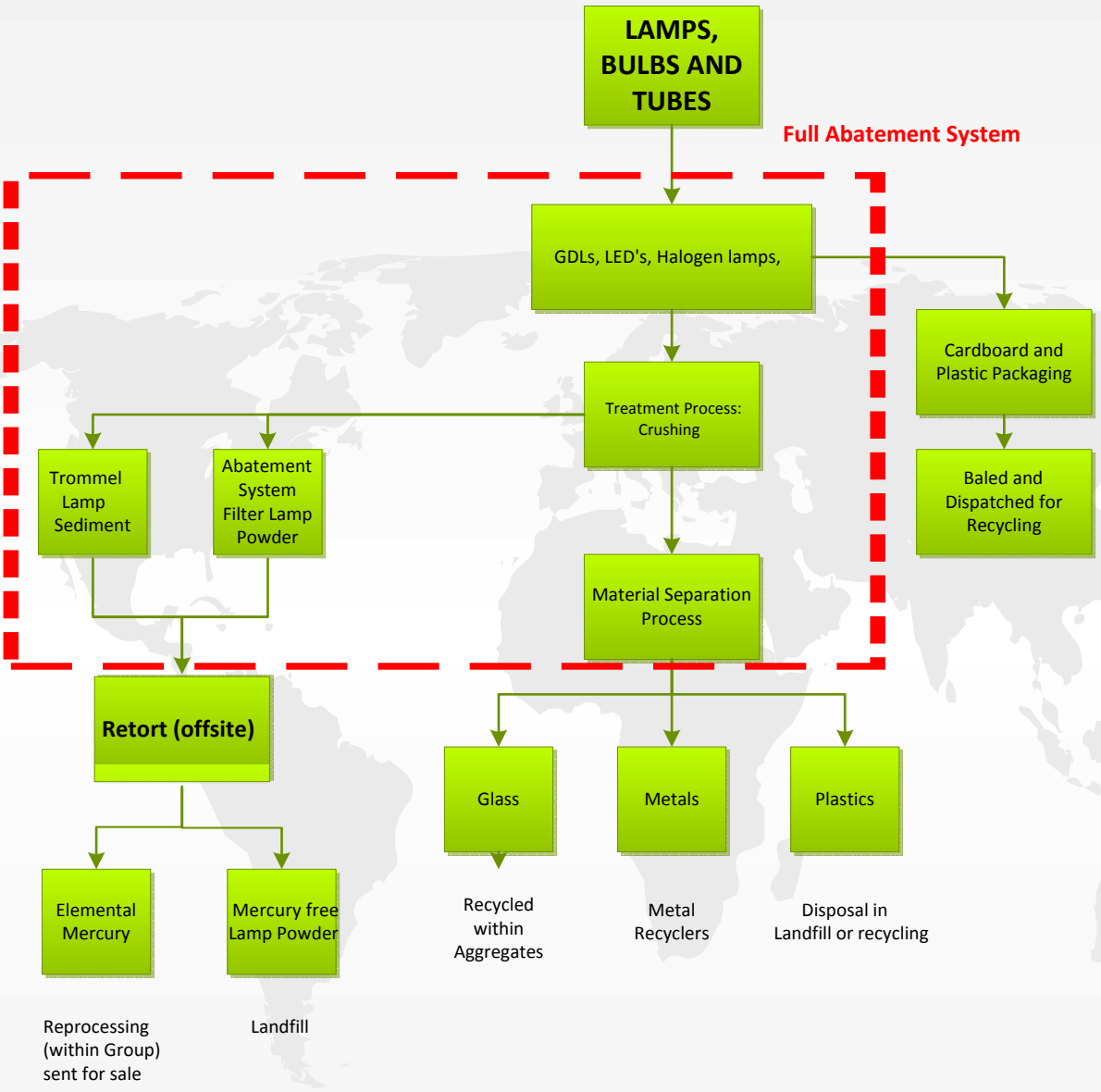
SOX GDLs



LED GDLs

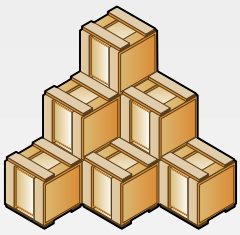
Knowsley GDL Treatment Process

August 2022

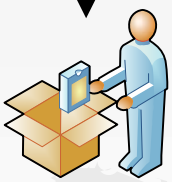


Knowsley Screens & F.P.D Treatment and Sorting

August 2022

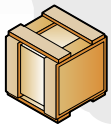


Received Containers of Screens & FPD's
(Flat Panel Displays)

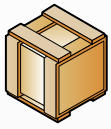


Decanting of Containers and Sorting into Batches for Treatment

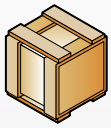
Screens & F.P.D's



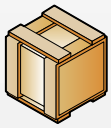
Cardboard Contamination



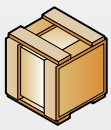
Plastic Contamination



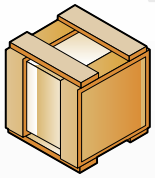
Contaminated Rainwater



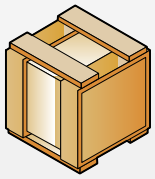
Other WEEE Contamination



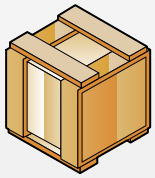
Other Wastes



MULTEC Treatment Process



Magnetic (ferrous) Fraction for Recycling

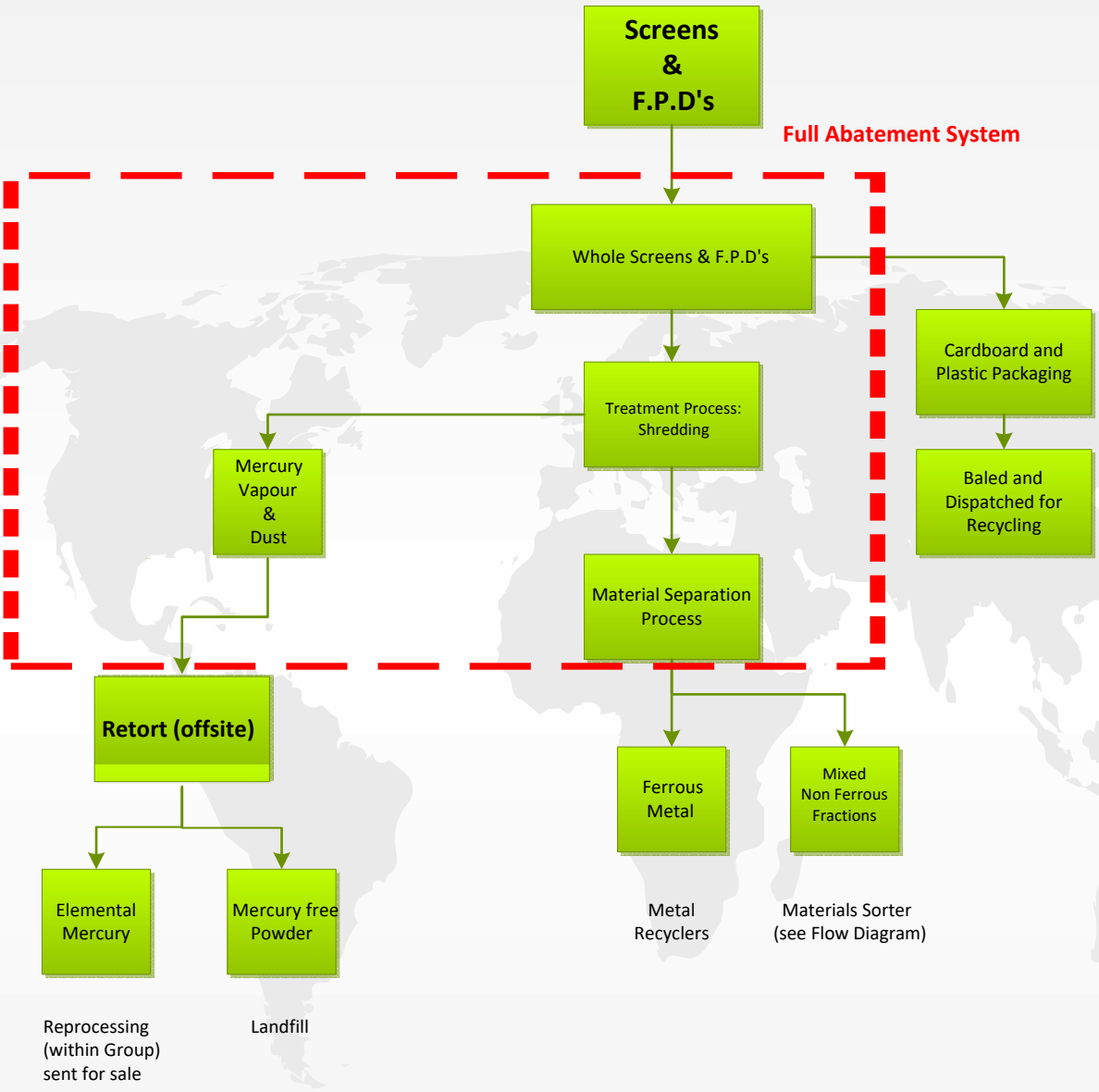


MATERIALS SORTER

Non Ferrous Fraction for Recycling

Knowsley Screens & F.P.D's Treatment Process

August 2022



Knowsley Materials Sorter Treatment Process

August 2022