UMBRELLA ENVIRONMENTAL

PROTECTING YOUR BUSINESS

Best Available Technique Assessment

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CIWM

Affiliated Organisation 2022

Together, we stand for a world beyond waste

Site Address:

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Registered Office

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1 INTRODUCTION

This Best Available Technique Assessment (BAT) accompanies the application for variation to an bespoke waste permit to modernise in accordance with legislation from a waste permit to an installation permit and to add an additional waste code. Site is located at 54 Caswell RoadBrackmills Industrial EstateNorthamptonNN4 7PW.

In approx. 2012 Installation Emissions Directives (IED) was issued and those applicable bespoke waste permits that fell within the remit as defined by the IED regulations had a transition period to apply and vary their operations to be complaint. Unfortunately permit EPR/AP3398LQ was not varied to an IED permit in 2012 and now needs to be varied under a substantial variation application rather than a normal variation as described in the pre application advice received in section 01 of this application pack/

MISWA Chemicals Limited was established in 1979 and has operated in around Northamptonshire creating and exporting products worldwide. An bespoke environmental permit was applied for and issued 0n 28th April 2009 however to date the site has not operated this permit fully.

The existing permit enables the operation of;

'The main features of the facility are as follows. Glycol and water are recovered from waste glycol streams using filtration, settlement, flocculation, and distillation. The recovered glycol and water are then used as raw materials in other downstream processes.

This BAT assessment covers the proposed on site operations.

The permitted activities are described in Table 1 Permitted Activities below which also include the processing of Glycol. At present this process is not active on site as the plant has not yet be commission however, on commissioning and prior to operations a revised EMS will be submitted to the EA for approval and notification of intended and permitted activity.

1.1 Overview of Site Operations

Table 1 Permitted Activities

Activity Reference	Disposal and Recovery Codes	Limits of activities
S5.3 A(1)(ii) Physico – chemical treatment	R3 – Recycling/Reclamation of organic substances which are not used as solvents R5 – Recycling/reclamation of other inorganic materials R13 – Storage of wastes pending any of the operations R1 to R12	R5 operation is to be limited to the separation of water from the waste glycol Treatment consisting only of screening, flocculation, centrifuging, filtration, distillation condensing and storage of waste

	(excluding temporary storage, pending collection, on the site where it is produced)	Glycol (24 hour period) Processing capacity of up to 150 tonnes per day. Brake Fluid Processing capacity of up to 20 tonnes per day.
Section 5.6 - temporary or underground storage of hazardous waste.	R13 – Storage of wastes pending any of the operations R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	Storage

1.1.1 Directly Associated Activity

- Storage of non-hazardous waste (any amount) prior to treatment.

1.1.2 Total Annual Tonnage

The total quantity of waste accepted at the site shall be up to 45,000 tonnes per annum.

Table 2 Permitted Waste

05	**Wastes from Petroleum Refining, Natural Gas Purification and Pyrolytic Treatment of Coal**
05 07	05 07
05 07 99	wastes not otherwise specified (wastes containing glycol only)
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 14*	antifreeze fluids containing dangerous substances
16 01 15	antifreeze fluids other than those mentioned in 16 01 14
16 03	off-specification batches and unused products
16 03 05*	organic wastes containing dangerous substances (wastes containing glycol only)
16 03 06	organic wastes other than those mentioned in 16 03 05 (wastes containing glycol only)
16 10	aqueous liquid wastes destined for off-site treatment
16 10 01*	aqueous liquid wastes containing dangerous substances (wastes containing glycol only)
16 10 02	aqueous liquid wastes other than those mentioned in 16 10 01 (wastes containing glycol only)
16 10 03*	aqueous concentrates containing dangerous substances (wastes containing glycol only)

16 10 04	aqueous concentrates other than those mentioned in 16 10 03 (wastes containing glycol only)
16 01 13*	Brake Fluids

2 BAT TECHNIQUES

Originally published in August 2006, the Best Available Techniques (BAT) Reference (BREF) Document for Waste Treatment was updated in August 2018. Relevant regulatory bodies, in the EU Member states, have four years (i.e. by August 2022) to implement any changes to the indicative standards and expectations that the revised document may describe for particular waste treatment activities.

The term 'best available techniques' is defined in Article 3 (10) of the Directive as 'the most effective and advanced stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing in principle the basis for emission limit values designed to prevent and, where that is not practicable, generally to reduce emissions and the impact on the environment as a whole.'

Article 3 (10) goes on to clarify further this definition as follows:

- 'best' means most effective in achieving a high general level of protection of the environment as a whole.
- 'available techniques' are those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;
- 'techniques' includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;

This document provides a technical description of the activities to demonstrate they achieve the BAT relevant to the process.

This document should be read in conjunction with other supporting information contained within the Application pack.

2.1 Application of BAT standards to the specific process

In this BAT assessment, the following reference and guidance documents have been considered:

Commission Implementing Decision (EU) 2018/1147, of 10 August 2018, establishing best available techniques (BAT) conclusions for waste treatment, under Directive 2010/75/EU of the European Parliament and of the Council.

- Best Available Techniques (BAT) Reference Document for Waste treatment Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control); EUR 29362 EN; Publications Office of the European Union, Luxembourg, 2018;

A summary of all relevant BAT contained in the BAT conclusions document have been collected in Table 5 BAT assessment. The table references the relevant documents within the application pack that describe how compliance with BAT is met or will be met in the future, within the timescales allowed by the BAT conclusions document.

The assessment of Best Available Technologies reference documents has found the following to be relevant to the Northampton site:

- Improve the overall environmental performance of the plant: this requires the implementation of the following:

Environmental Management System (EMS): the applicant currently operates according to a Management System, which is described in Environmental Management System ref. 016.1_05_002

3 PRE ACCEPTANCE OF WASTE

Waste Brake fluid will only be accepted to site, in Intermediate Bulk Containers (IBCs) see Appendix 2 IBCs Specification For specification.

3.1 Procedures for the pre-acceptance of waste

Context

Miswa Chemicals Ltd will enforce a waste acceptance procedure, rejecting any IBC's that fail the testing completed on-site. In order to ensure the number of rejected IBC's is at a minimum, "Enva" will conduct a number of basic tests before dispatching the waste to Miswa Chemicals.

The procedure will work in a 3 stage process where the technician will have to ask questions at each stage. If the answer to these questions at any point is "YES" they must notify their colleagues to refrain from sending the IBC to Miswa Chemicals. If the answer is "NO" then they can proceed to the next stage.

PROCEDURE

Primary

Remove the cap off the top of the IBC. Is there an overwhelming petrol/diesel smell coming from the IBC?

If so, is this smell still present when just stood near the IBC?

If the answer to these questions was YES – then refrain from sending the IBC to Miswa Chemicals.

Secondary

Visually observe the contents of the IBC. Is there a large amount of sediment? Are there any solids of size (~5 cm) with in the IBC?

Extract ~ 500 mL from the bottom of the IBC. Using the Miswa Chemicals visual colour specification, compare the sample to the specification.

If the sample is considerably darker and murky - then refrain from sending the IBC to Miswa Chemicals.

Tertiary

Using the *Karl Fischer* apparatus, retrieve a water content percentage from the sample collected in the *Secondary* stage.

If the Waste Brake Fluid has a water content less than 5% - dispatch IBC to Miswa Chemicals.

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4 WASTE ACCEPTANCE PROCEDURES

The only waste to be accepted to site is listed below in Table 2 Permitted Waste.

To ensure only permitted wastes are accepted, waste acceptance criteria have been implemented and are maintained and communicated to all relevant staff.

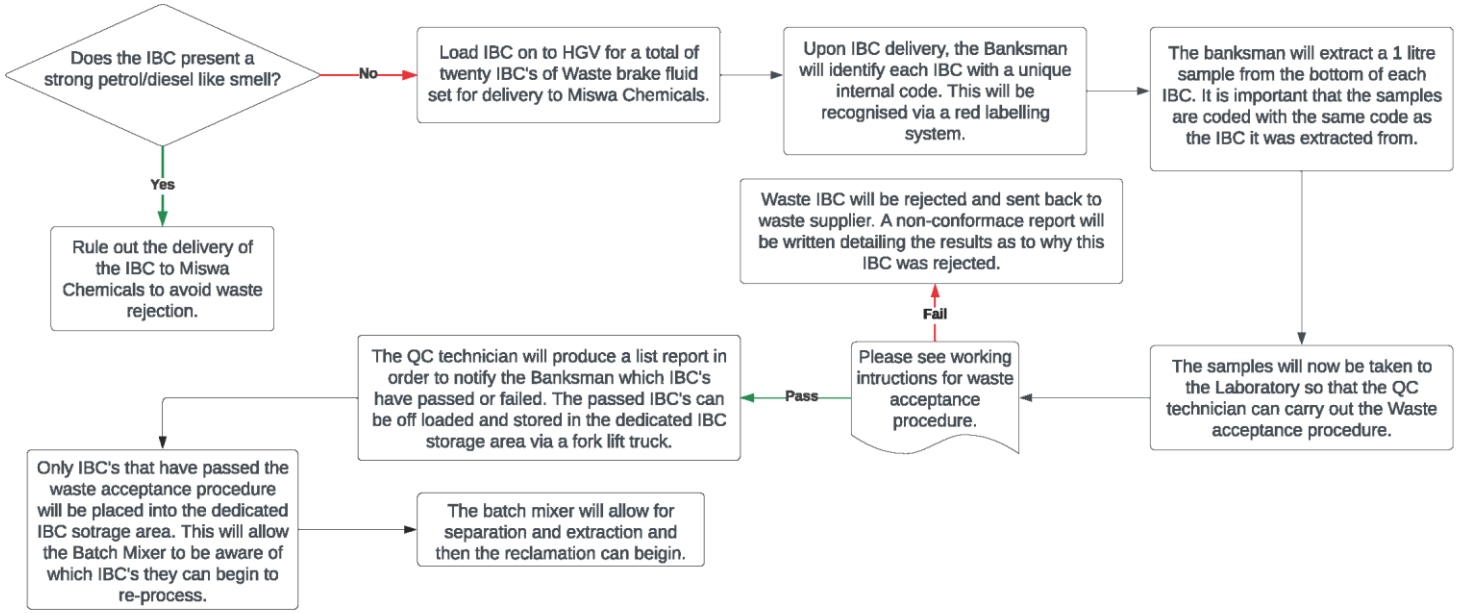
The Waste Acceptance Procedure includes the following:

- A pre-acceptance procedures as per section 3 Pre Acceptance of Waste
- Initial inspection where all incoming deliveries are checked for compliance with the acceptance criteria.

The permit holder will only accept those wastes that comply with the permit. Non- conforming loads will be rejected And removed from site.

Waste IBCs will be stored prior to waste acceptance which could take up to 1 month. If non conforming it will be rejected and returned to Enva.

Figure 1 Waste acceptance process flow



5 WASTE STORAGE AND TREATMENT

There are no pint source emissions from this process. The process is self contained and waste material is moved via a series of Tanks and pipework pre, during and post treatment. It is then removed from site via tanker.

Storage Area	Volume (litres)	Technical Requirement	Storage Description
IBC Internal (32 IBCs)	32,000 (Up to)	• Sector Guidance Note IPPC S5.06 'Guidance for the Recovery and Disposal of Hazardous and Non-Hazardous waste' May 2013European Directive 2010/75/EU — on industrial emissions • Develop a management system: environmental permits.[1] • Integrated Pollution Prevention and Control Reference Document on Best Available Techniques on Emissions from Storage July 2006 • Control and monitor emissions for your environmental permit[2] • Containment systems for the	Appendix 2 IBCs Specification. Internally stored IBCs are stored on an impermeable site surface with no internal site drainage. (Any spillages would be contained on the immediate site surface). In process IBCs are stored on racking away from vehicle movements. IBCs are stored on large drip trays capable of holding either 110% of an individual IBC or a combined volume of 125%.
IBC Internal (16 IBCs)	16,000 (Up to)		
IBC Internal (12 IBCs)	12,000 (Up to)		

[1] https://www.gov.uk/guidance/develop-a-management-system-environmental-permits
[2] https://www.gov.uk/guidance/control-and-monitor-emissions-for-your-environmental-permit

Storage Area	Volume (litres)	Technical Requirement	Storage Description
PR23 (Processed brake fluid awaiting blending).	7,000 (Up to)	prevention of pollution (C736)[3] • Best Available Techniques (BAT) Reference Document for Waste Treatment Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control); EUR 29362 EN; Publication Office of the European Union, Luxembourg, 2018 • Chemical Waste Appropriate Measures[4]	Tank farm is design to contain 125% of the total volume of material stored within. Brake fluid will be accepted to site. If this changes a review of the EMS and associated risk assessments will be undertaken to ensure no potentially incompatible waste are mixed. Present process on site is carried out with a sealed system
PR2	2,000 (Up to)		Tank farm is design to contain 125% of the total voume of material stored within. Brake fluid will be accepted to site. If this changes a review of the EMS and associated risk assessments will be undertaken to ensure no potentially incompatible waste are

[3] https://www.ciria.org/
[4] https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities/4-waste-storage-segregation-and-handling-appropriate-measures

Storage Area	Volume (litres)	Technical Requirement	Storage Description
			mixed. Present process on site is carried out with a sealed system
TF3	210,000 (Up to)		Tank farm is design to contain 125% of the total volume of material stored within. Brake fluid will be accepted to site. If this changes a review of the EMS and associated risk assessments will be undertaken to ensure no potentially incompatible waste are mixed. Present process on site is carried out with a sealed system. Bunding is Brick built with an impermeable render on the inside of the bund.
TF2	56,000 (Up to)		
TF8 (Fully Processed material awaiting transport off site).	210,000 (Up to)		

5.1 Waste Delivery and Storage

- Both driver and Miswa Yard Co-Ordinator must be in attendance at all times.
- All drivers/operators must hand the documentation to the Yard Co-Ordinator for verification.
- The Yard Co-Ordinator will instruct the driver where to position his vehicle.
- On receipt of the delivery documentation the Yard Co-Ordinator shall hand the driver the internal delivery procedure which they will read and sign it. The Yard Co-Ordinator will read and sign the driver's paperwork and retain a copy.
- The Yard Co-Ordinator will wear a suitably charged gas monitor at all times during the delivery.
- The Yard Co-Ordinator will secure the site by closing the entrance gates, not locking.
- The Yard Co-Ordinator will place physical barriers across entrances to the operational area to prevent unauthorized staff members and vehicles accessing the unloading point.
- The driver must be shown to the location of the Safety Shower in case of accidental contact
- Each individual Waste brake fluid IBC shall be identified with a unique internal code which shall be noted down on the list report.
- A one litre sample will be extracted from each IBC, it is important that the sample is labelled with the same unique identifier as the IBC that it was extracted from.
- Each 1 litre sample will be taken over to the laboratory, along with the list report. Here the QC lab technician will follow the Waste Acceptance QC working instruction.
- If any of the samples are to fail the QC process then this will be noted on to the list report and a non-conformance will be raised listing the results leading as to why that particular IBC failed.
- The now completed list report can be handed over to the Yard Co-Ordinator so that he/she will be able to identify which IBC's have passed the pre-acceptance tests and which have failed.
- The failed IBC's will remain on the HGV and will return to the waste provider. The waste provider will receive a report including the results as to why the IBCs in question have been rejected.
- The IBC's that have passed the waste acceptance procedure can now be unloaded, by use of fork lift truck. These will be placed into the designated waste storage area, highlighted in the permit boundary extension.

5.2 Waste Treatment Summary

1. Using the “waste batch sheet” fill out the necessary information:
    - Name of Batch Mixer
    - Time of start
    - The Date
    - The waste IBC identifier
2. Use a forklift truck to place the Waste Brake fluid IBC on to IBC 0. When ready slowly open the tap on the bottom of the IBC. The waste Brake Fluid will begin to flow into IBC 0. It is important that a slow sensible flow rate is achieved so that the top layer is not reached too quickly.
3. The valve connecting IBC 0 and the plant can now be emptied and the double diaphragm pump can begin to operate. This will push the spent brake fluid through a multi-filtration process.
4. The re-claimed brake fluid will then be stored in PR23 until required.
5. Once all of the IBC’s from the delivery have been reclaimed, all IBC should be decanted into one single IBC.
6. This IBC will be left until two clear layers have reformed. Then the reclamation process can occur on this final IBC. This is to ensure maximum reclamation from a waste delivery.

Figure 2 Waste brake fluid treatment process

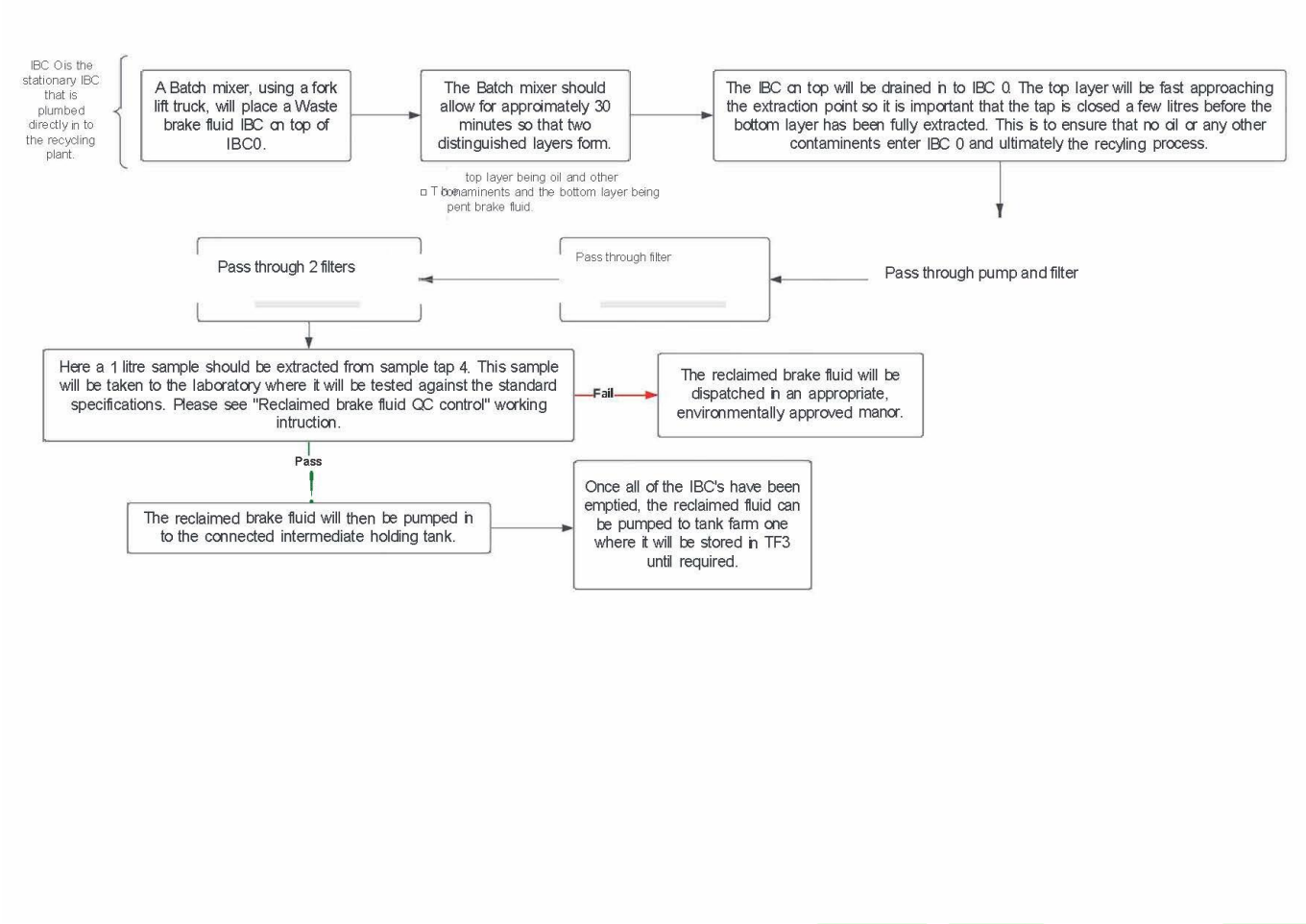
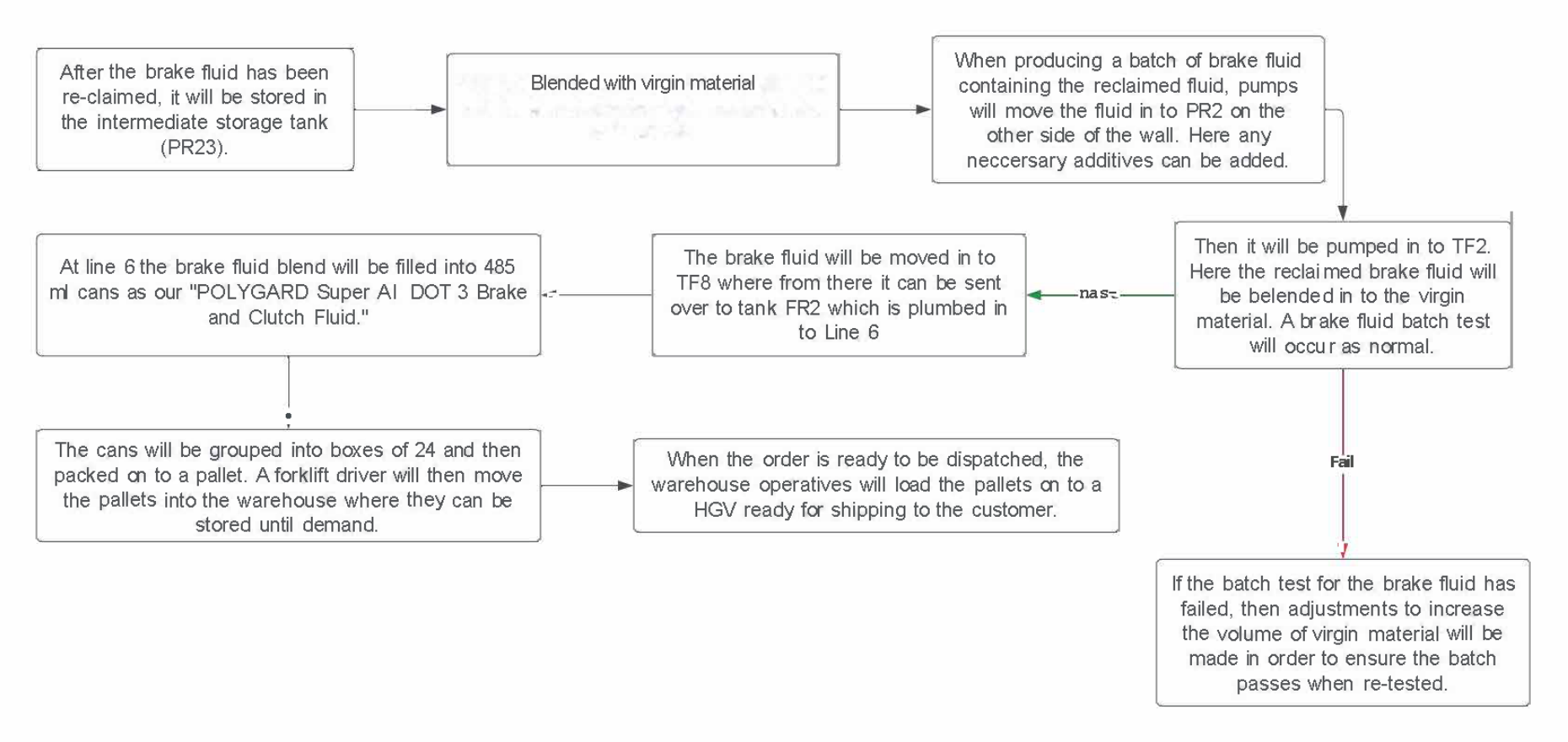


Figure 3 Product procedure process flow diagram



5.3 Residual waste

As apart of contractual arrangements all residual waste is returned to Enva for onward treatment/disposal at another appropriately authorised facility.

Waste rejected will be noted in the site diary including a description, volume and type of container. Appropriate duty of care paper work will be completed.

5.4 Waste Rejection

Non conforming waste is rejected and returned to Enva. The waste acceptance procedures detailed in section 4 Waste Acceptance Procedures

Waste rejected will be noted in the site diary including a description, volume and type of container. Appropriate duty of care paper work will be completed.

6 DRAINAGE

There is no internal drainage to the site. Roof water is segregated from the foul lines.

Primary containment externally is provided by the tank farms that store non waste materials, with secondary containment provided by localised bunds with tertiary containment provided by a concrete site surface and kerbing, the fall of the external yard is to the middle see site drainage plan MD17007 External yard drainage goes to foul via an interceptor and penstock valve.

7 TRAINING FOR SITE STAFF

7.1 Training Needs Assessment

All new and existing site staff are subject to a specific training regime based on their responsibilities at the site to ensure all operations are carried out without harm to the environment or amenity of the surrounding area. Training in all aspects of the site and waste operations at the site with regard to the individual responsibilities of the site staff will help to prevent incidents occurring which may have an adverse impact on the environment and/or the employees and their co-workers.

Training needs are shown below in Table 3 Training Matrix.

Table 3 Training Matrix

WORKING INSTRUCTIONS						
ROLE	Reclaimed brake fluid Quality control	Inspection and maintenance of the B.E.R.P plant	Waste brake fluid IBC delivery and storage	Using the B.E.R.P plant to reclaim waste Brake fluid	Spill response procedure	Fire evacuation procedure
YARDSMEN						
BATCH MIXER						
SENIOR CHEMIST						
QC TECHNICIAN						

KEY

– Training N/A

– Requires Training

– Training completed and signed off

7.2 Emergency Procedures Training

In addition to normal operating conditions as specified in the site rules, employees must also be trained in dealing with eventualities which may occur outside the scope of normal operating conditions, so they are aware of how to deal with these situations in advance of an occurrence.

7.3 Recognition of Waste Types Training

All employees will be given induction training and subsequent training to identify waste types which are permitted for acceptance at the site under the site's Environmental Permit (EP) and those wastes which are not. This will include specific training to identify those common wastes which may be found following deposit and are not permitted at the site and will also include more obscure wastes and how to handle these wastes safely. All employees will be advised that they will refer any unrecognisable or unknown wastes to site manager/TCM, who will, in turn, follow procedures outlined in the EMS and/or contact the EA to agree a suitable method for removal.

This training will be provided to all site users who handle waste on site and those in charge of administration and reporting. In-depth training will also be provided to drivers responsible for collecting wastes from the site of production. They will be trained to identify any wastes not covered by the EP for the site and inform the producer that an alternative facility must be sought for any non-compliant wastes.

Staff will also be trained in BAT procedures ensuring **only** the EWC codes listed in Table 2 Permitted Waste are accepted on site.

7.4 Plant and Equipment Preventative Maintenance Training

This training is provided specifically for the vehicle and plant operators in order to ensure that all plant and machinery is checked regularly to prevent any occurrences which may lead to any adverse impacts on the environment or human.

The same training will be provided to senior management enabling a dual-level maintenance programme.

7.5 Duty of Care Training

All employees dealing with consignments of waste will be trained in the completion of Duty of Care Waste Transfer Notes and Consignment Notes .

7.6 Plant Operation Training

Any employees who are required to operate loading or treatment plant for the movement or processing of waste will be required to undertake the necessary qualifications for the operation of the specific item of plant in question. This will be required prior to operating the plant and will be obtained through necessary externa certification programmes.

Regardless of general plant operation certification, all operatives will be fully inducted in the operation of the specific make and/or model of plant used on site.

7.7 Permit and EMS Training

All employees will be inducted into the operating conditions as prescribed in the EP for the site. Whilst much of the above training will provide specific guidance on many aspects of these documents, all employees will be made aware of the location of the EP in the site office. All managerial positions will be made fully aware of the sites operating conditions.

8 PRODUCT MONITORING & MONITROING

8.1 General Management

The company have detailed written procedures and recording systems covering all aspects of site and company operations.

8.2 Plant and Equipment, Preventative Maintenance

Site management will undertake or delegate additional preventative maintenance checks on a daily basis to ensure, where possible, the machinery is mechanically sound, as described in the section below.

Fuels and combustible liquids from site vehicles (forklift trucks etc.) will be controlled by ensuring each vehicle has undergone the relevant preventative maintenance checks.

Any spillages of fuel will be cleared immediately by depositing sand or absorbents on the affected area and removed to the quarantine area or to a dedicated skip to await removal to a suitably permitted facility.

All items of plant and equipment (and any additional items of plant which may be hired in to cover busier periods) are subject to preventative maintenance checks to ensure their safe operation and to prevent any potential situations which may give rise to faults or malfunction.

All mobile plant on site are subject to annual manufacturer maintenance to ensure proper working order in the form of service contracts. site manager/TCM will undertake or delegate additional preventative maintenance checks on a more frequent basis to ensure i.e. daily, before, during and at the end of each working day to ensure (where possible) the machinery is mechanically sound. These checks will be carried out using the preventative maintenance table in the EMS 012.1_05_003.

8.3 Accidents and Incidents

The system for the identification of potential accidents, incidents and emergency situations is through risk assessments which are routinely undertaken in accordance with the operator's health and safety policy.

In order to prevent or reduce potential accidents, incidents and emergency situations at the site, BAT is using the techniques given below:

- At introduction of new contract/working practices, procedures are established to deal with potential accidents/incidents from specific hazards, identified from experience.
- Risks are assessed on an ongoing basis and as work proceeds.
- MISWA Chemicals Limited uses its expertise to provide method statements that include recognised emergency procedures which are then briefed to all site staff and any subcontractors.
- If an accident, incident or near-miss occurs, the accident reporting procedure is used to investigate and remedy the cause. Any accident or incident that falls into the RIDDOR category shall be reported accordingly and submitted to HSE within 10 days of the occurrence.

- Site management meet regularly to review the causes of any accident/ incident and corrective and preventative actions implemented to address them. This may lead to changes in working practices, training and staff information briefings to ensure that the root cause is understood and addressed.
- Investigations are undertaken by company Management.
- Meeting the requirements of S5.06 Section 2.8.

The manner in which the facility is managed is a critical element in ensuring emissions from the site operations are minimised. Therefore, the management of the facility ensures:

- Staff are competent to manage and operate the facility i.e. fit and proper persons
- Strict waste pre-acceptance and acceptance are procedures are in place
- Procedures and control techniques in place to minimise potential emissions to air, land and water
- Operational procedures as detailed in the EMS 012.1_05_003 are in place to minimise the risk of emissions having regard to the waste types being accepted and the waste processing activities at the facility
- Operational procedures are in place to minimise the risk of odours having regard to the waste types being accepted and the waste processing activities at the facility
- Appropriate storage and handling procedures are in place
- Waste despatch procedures are in place
- Provision of a impermeable surface with appropriate kerbing to prevent escape to adjacent permeable areas
- Containment bays provided on site for the secure storage of the waste
- Wastewater management procedures in place
- There is an EMS 012.1_05_003 in place for MISWA Chemicals Limited to ensure standards are maintained, including incidents and complaints management procedures,
- Techniques in place for prevention and minimisation of resource consumption e.g. Energy efficiency, use of raw materials

8.4 Monitoring

A Batch mixer will deliver the 1 litre sample to the laboratory a long with the IBC identifier. The QC laboratory technician should then proceed to complete the table below.

Test	Method No.	Specification	Result	Initial
Appearance	TM-QC025	Clear Golden liquid with no visible or suspended matter.		

SG	TM-QC010	~ 1.080 (20°C)		
pH	TM-QC004	7.0 - 9.0		
Water Content	TM-QC006	< 0.5% w/w		
ERBP	TM-QC002	>205ºC		
WERBP	TM-QC003	>140ºC		

If the reclaimed brake fluid achieved results that exceeded the brake fluid industry standard specifications, then the batch mixer can be notified that the IBC has passed and therefore can proceed with the process.

It is important that the QC technician then records all of the results along with the IBC identifier on an allocated spread sheet for reclaimed brake fluid, in the QC folder.

9 CONTINGENCY PLANNING

9.1.1 Flood

The site is not in a location identified as having a significant risk of flooding from costal or river sources. However, surface water flooding may occur this is managed by monitoring local high way drains to ensure they are not blocked as well as the on site drainage system

9.1.2 Equipment

The equipment used on site is maintained by on site engineers and repaired on site. Localized spares are kept for smaller jobs.

If necessary, as a result of breakdown, specialised contractors would be called to repair equipment.

9.1.3 Staffing

Full training for all staff involved in the permitted process is provided. Only trained personnel will be allowed to operate the process.

If staff are not able to fulfil their roles then new resource will be found and fully trained prior to starting work.

9.1.4 Fire

Site will be evacuated as per evacuation procedure. The Fire and Rescue Service (FRS) will be notified and high risk areas notified to the FRS such as COMAH zoning.

Drills are undertaken regularly at least every 6 months to test emergency procedures and ensure staff are confident of the actions to take in the event of an emergency. All drills are documented and any problems highlighted are used to review the procedures if necessary

10 RAW MATERIALS AND JUSTIFICATIONS

Table 4 Energy Use

Schedule 1 activity	Description of raw material and composition of raw material	Maximum amount daily	Annual throughput	Description of how raw material is used including main hazards	Justification for use (Form B3 Q6d)	Reducing waste arising from raw materials
S5.3 A(1)(ii) Physico – chemical treatment	Electricity	Unknown as new site will be monitored for first year to identify.	Unknown as new site will be monitored for first year to identify.	No hazards associated other than slips, trips, falls etc.	Treating waste for further recovery to reduce waste to landfill. Segregation of hazardous and non-hazardous waste	N/A

10.1 PV panels

Site benefits from a recent infrastructure upgrade and how they obtain their electricity. Site has installed a 258 kwh PV Farm located on its roof providing a majority of electricity for the site see Appendix 1 PV panel data sheet.

11 WASTE RECOVERY OR DISPOSAL

MISWA Chemicals Limited are committed to pushing the wastes they handle and produce as far up the waste hierarchy as possible and the specialisation in low volumes of difficult to handle wastes has given a particular emphasis to this ethos.

The company record and analyse all energy use and have policies and procedures in place which emphasise the need to avoid unnecessary use and to identify savings and efficiencies, meeting the requirements of S5.06 Section 2.7 as shown Table 4 Energy Use

11.1 Waste Treatment Summary

7. Using the “waste batch sheet” fill out the necessary information:
    - Name of Batch Mixer
    - Time of start
    - The Date
    - The waste IBC identifier
8. The waste Brake fluid IBC will have two clear layers, the layer we desire is the bottom layer. The top layer contains a range of contaminants such as motor oil and diesel. The two fluids are miscible which is why there is a clear level of separation.
9. Use a forklift truck to place the Waste Brake fluid IBC on to IBC 0. When ready slowly open the tap on the bottom of the IBC. The waste Brake Fluid will begin to flow into IBC 0. It is important that a slow sensible flow rate is achieved so that the top layer is not reached too quickly.
10. When the top layer is approximately 20 cm away from the bottom of the IBC, close the tap. This is to ensure that no unwanted contaminants enter the plant that could potentially be damaging.
11. The valve connecting IBC 0 and the plant can now be emptied and the double diaphragm pump can begin to operate. This will push the spent brake fluid through a multi-filtration process.
12. The re-claimed brake fluid will then be stored in PR23 until required.
13. Once all of the IBC’s from the delivery have been reclaimed, all IBC should be decanted into one single IBC.
14. This IBC will be left until two clear layers have reformed. Then the reclamation process can occur on this final IBC. This is to ensure maximum reclamation from a waste delivery

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Figure 4 Waste brake fluid treatment process

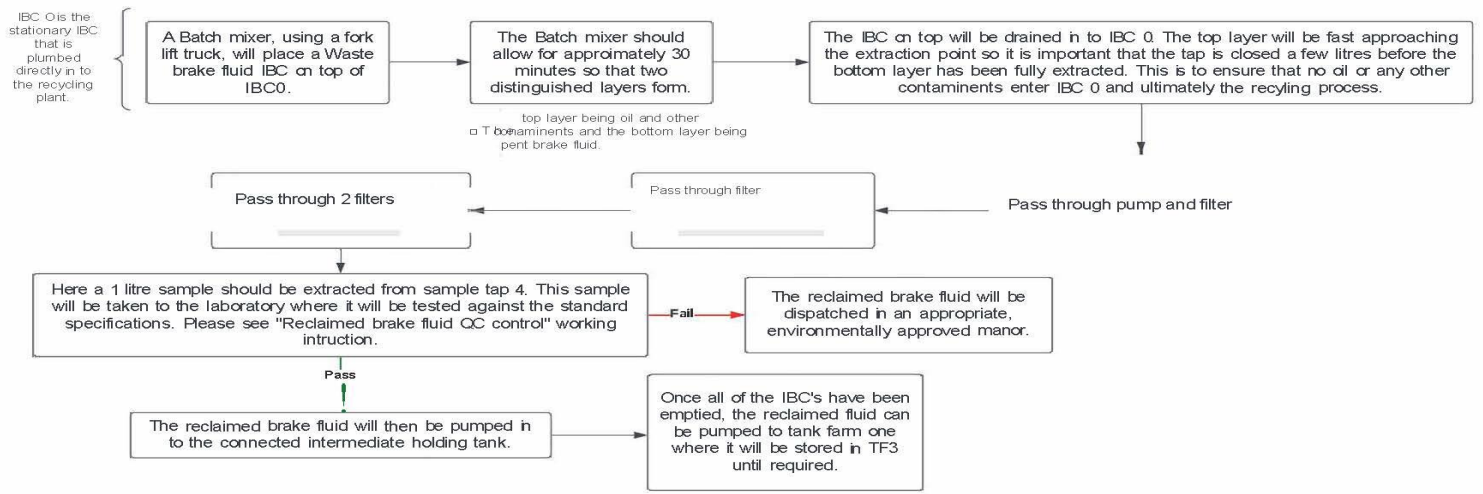
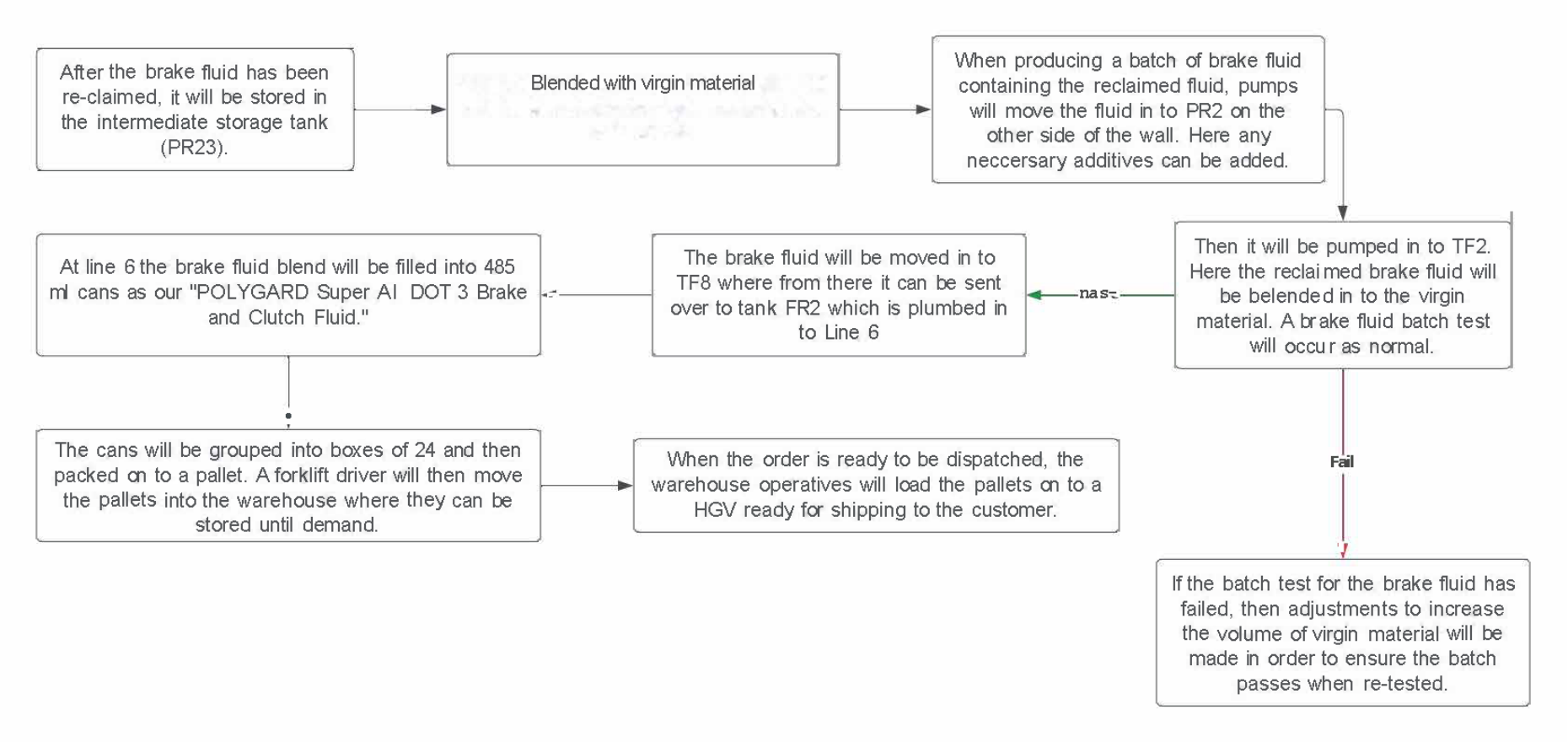


Figure 5 Product procedure process flow diagram



11.2 Residual waste

As apart of contractual arrangements all residual waste is returned to Enva for onward treatment/disposal at another appropriately authorised facility.

Waste rejected will be noted in the site diary including a description, volume and type of container. Appropriate duty of care paper work will be completed.

11.3 Waste Rejection

Non conforming waste is rejected and returned to Enva. The waste acceptance procedures detailed in section **Error! Reference source not found.**

Waste rejected will be noted in the site diary including a description, volume and type of container. Appropriate duty of care paper work will be completed.

12 CLOSURE AND DECOMMISSIONING

12.1 Site Condition Report

A Site Condition Report (SCR) has been produced as part of this application, site condition report 012.1_05_006.

12.2 Decommissioning Plan

A Decommissioning Plan has been prepared meeting S5.06 section 2.11 and is shown below. The plan follows the general principles as detailed below:

- If the site is to be dismantled all equipment, buildings etc. will be disposed of having full regard to the waste hierarchy.
- Buildings and pipe work will be checked and any infrastructure likely to contain asbestos material will be inspected and removed only using suitably authorised contractors.
- The dismantling and re-use of the majority of the equipment through sale to interested third parties the remainder to be scrapped; and
- The scrapping of the majority of the equipment probably through a single contractor with only a small proportion salvaged for re-use at some point in the overall process.

12.3 Sequence of Decommissioning

Final use, after the final transfer of waste has been despatched from the site, electrical systems will be isolated and locked off leaving only lighting and what circuits are considered necessary for on-going inspection and maintenance in place. All systems will be double checked and labelled to ensure there are no unmarked live systems on the site.

The drainage system and water supply will remain intact.

Dismantling - In line with the waste hierarchy efforts will be made to seek a buyer for all the plant and equipment. Either as a whole or in suitable lots.

Scrapping - If no suitable parties are found to purchase the plant it will be scrapped, again either as a whole or in suitable lots.

After plant has been removed - The whole internal area will be subject to a thorough inspection testing remaining electrical circuits labelling testing.

Deep cleaning the building, floors and removing all residues off-site to a suitably permitted facility.

12.4 Monitoring

Throughout the period of decommissioning the plant and building will be checked at least weekly when dismantling work is not being undertaken and daily when it is. Checks will ensure the integrity of the site surface is being maintained and the risk of spillage or pollution is being kept to a minimum. Contractors will be required to make

their own checks and make these available during such checks. Once plant has been removed periodic checking will be carried out giving regard to the risk if any the use of the area may pose.

12.5 Permit Surrender

If the permit is to be surrendered a scheme of sampling and analysis of the soil beneath the site maybe undertaken if during communications with the EA it is deemed required.

If analyses show any contamination to be present which would interfere with the succeeding use of the site this will be removed or treated to bring the round/groundwater into an acceptable condition for the surrender of the permit and completion of the SCR to the satisfaction of the EA or the relevant regulatory body at that juncture.

13 ENVIRONMENTAL PERMITTING REGULATIONS

The permit application meets all aspects of the EPR by virtue of being part site application and part installation application.

The site is subject to a planning application which will give due consideration to all local and national planning policies in relation to waste disposal and recycling /recovery.

Meeting the requirements of S5.06 Section 4.2

14 HABITATS

There is no designated HABITAT within 1 km of the site. However a environmental risk assessment (012.1_05_002) is provided within mitigation in place for the onsite activities.

Table 5 BAT assessment

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
	Environmental Management Systems	Improve the overall environmental performance	Implement and adhere to an EMS that incorporates key features identified	N/A	Yes	N/A	MISWA Chemicals Limited have an internal Environmental Management System (EMS) 012.1_05_003. The EMS	

[5] https://www.gov.uk/guidance/chemical-waste-appropriate-measures-for-permitted-facilities

2	Environmental Management Systems	In order to improve the overall environmental performance of the plant	a) Set up and implement waste characterisation and pre acceptance procedures b) Set up and implement waste acceptance procedures c) Set up and implement a waste tracking system and inventory d) Set up and implement an output quality management system e) Ensure waste segregation f) Ensure waste compatibility prior to mixing or blending of waste g) Sort incoming solid waste	N/A	Yes	N/A	includes standard operating procedures that minimise the environmental risks and impacts of the normal operations and include maintenance, contingency plans to minimise the effect of breakdown and accidents etc. These include procedures relating to waste acceptance and environmental monitoring. A planned programme of maintenance is specified in the management system. All plant is inspected and maintained in line with the manufacturer's instructions or other appropriate regime. MISWA Chemicals Limited have a training and development programme designed to ensure that staff are suitably trained to undertake their duties. The roles and responsibilities of staff on site are clearly defined and training records for each member of staff are maintained and reviewed regularly to ensure competence is maintained and up to date. MISWA Chemicals Limited will have an accident prevention and	2. General management appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
							management plan. In the event of an incident, details are recorded, and a full review undertaken. The EMS contains the following sections/procedures: • Environment Policy • Safety, Health • Operating Techniques • Environmental Emission Controls • Communication with Complaints and Non-Conformances Procedures • Review Procedure • Contingency Plan • Health and Safety Requirements • Maintenance and Training Records • Site Closure Plan • Fire Prevention Plan	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
3	Environmental Management Systems	In order to facilitate the reduction of emissions to water and air, BAT is to establish and to maintain an inventory of waste water and waste gas streams, as part of the environmental management system (see BAT 1)		N/A	Yes	N/A	The plant does not include any process point source emissions to air or water. Details of mitigation measures to reduce emissions to air No internal drainage external roof water is separated from the site surface. • MD17007 - Drainage 54 Caswell Road - No. 9 Emergency Response Drawing - Rev C - DRAFT	2. General management appropriate measures
4	Environmental Management Systems	In order to reduce the environmental risk associated with the storage of waste, BAT is to use all of the techniques given below.	a) Optimised storage location b) Adequate storage capacity c) Safe storage operation d) Separate area for storage and handling of packaged hazardous waste	N/A	Yes	N/A	• EMS 012.1_05_003 • MD22024 - BERP Project Site Drawing - Dated 14-12-2022	2. General management appropriate measures

5	Environmental Management Systems	In order to reduce the environmental risk associated with the handling and transfer of waste, BAT is to set up and implement handling and transfer procedures.		N/A	Yes	N/A	MISWA Chemicals Limited has established handling and transfer procedures(EMS 012.1_05_003) Records of all incoming and outgoing waste are kept as part of EMS 012.1_05_003 procedures. The EMS outlines that the handling and transfer of waste is carried out by competent staff. Section 14 of the EMS states that a record system is to be maintained in accordance with the environmental permit. recording of waste throughput and rejection is achieved via the use of a weighbridge system and duty of care information (waste transfer notes) recorded for every load that arrives and leaves. All appropriate information to satisfy the requirement of duty of care and the permit is obtained and recorded. All records are maintained for inspection by the EA. The records contain the following information: Site inspections by the operator or other body and	2. General management appropriate measures

							any subsequent issues and corrective actions taken (as recorded in Compliance Assessment Reports); Emergencies; • Complaints and actions taken; • Plant/equipment failure; • A record of any rejection of waste; • Any queries with Waste Carriers; • Technically competent manager (TCM) – times on site; • Any incidents/accidents on site and actions taken; • Security failures; and • Severe weather conditions. The operation will benefit from an well-trained work force who are trained in operations on site including appropriate waste storage and measures taken to prevent, detect and mitigate spills. Staff are trained appropriately in the handling and transfer of waste, in the	

							use of spill kits and the requirements of the EMS 012.1_05_003 & Contingency Plan. All staff are trained in appropriately detecting and identifying spillages and the spill response procedure is used when a spillage is detected. Spill drills are undertaken to test response procedures. All site personnel are tasked with monitoring for evidence of spillages and leakage during their day to day routine. Any evidence of leaks or spillages are reported to the TCM or the nominated person for remedial action. Relevant documents: • Environment Management System • Review Procedure • Contingency Plan • Health and Safety Requirements • Maintenance and Training Records • Site Closure Plan • Fire Prevention Plan	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
							• Compliance Assessment Reports (CARs) • Complaints Log and Investigation Procedure	
Monitoring								

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
6	Monitoring Emissions	For relevant emissions to water as identified by the inventory of waste water streams (see BAT 3), BAT is to monitor key process parameters (e.g. waste water flow, pH, temperature, conductivity, BOD) at key locations (e.g. at the inlet and/or outlet of the pre-treatment, at the inlet to the final treatment, at the point where the emission leaves the installation).		N/A			As discussed above there are no relevant wastewater streams which would require an inventory under BAT 3. There are no discharge points associated with this permit.	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
7	Monitoring Emissions	BAT is to monitor emissions to water with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. (See BAT Conclusions document for standards)		N/A			N/A	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
8	Monitoring Emissions	BAT is to monitor channelled emissions to air with at least the frequency given below, and in accordance with EN standards. If EN standards are not available, BAT is to use ISO, national or other international standards that ensure the provision of data of an equivalent scientific quality. (See BAT Conclusions document for standards)		N/A			N/A	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
9	Monitoring Emissions	BAT is to monitor diffuse emissions of organic compounds to air from the regeneration of spent solvents, the decontamination of equipment containing POPs with solvents, and the physico-chemical treatment of solvents for the recovery of their calorific value, at least once per year using one or a combination of the techniques in the BAT conclusions document.		N/A			N/A	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
10	Monitoring Emissions	BAT is to periodically monitor odour emissions.		N/A	Yes	N/A	• EMS 012.1_05_003	6. Emissions control appropriate measures
11	Monitoring Emissions	BAT is to monitor the annual consumption of water, energy and raw materials as well as the annual generation of residues and wastewater, with a frequency of at least once per year.		N/A	Yes	N/A	Waste returns are submitted to the EA for all wastes received and dispatched. Monitoring of raw water and energy use on site is carried out via supplier invoices and records of these are maintained. Use of hydraulic and lubricating oils is monitored via purchase invoices. A full description of the process techniques can be found in the 012.1_05_003 document,.	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
12	Monitoring Emissions	BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes all of the elements specified in the BAT Conclusions document.		N/A	Yes	N/A	The nature of the waste accepted at the site presents a low risk of odour nuisance. The EMS 012.1_05_003Bis reviewed, and the odour mitigation measures specifically would also be reviewed following receipt of an odour complaint, albeit this is considered unlikely due to the type of waste accepted on site.	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
13	Monitoring Emissions	In order to prevent or, where that is not practicable, to reduce odour emissions, BAT is to use one or a combination of the techniques specified in the BAT conclusions document.		N/A	Yes	N/A	Odour management controls are detailed in the EMS 012.1_05_003Bbut are not deemed an significant risk for this type of waste and activity. Plan, as set out in the response to BAT 10. The waste accepted at the site presents a low risk of odour nuisance. Control and monitoring of waste acceptance procedures will ensure wastes likely to cause malodours are not accepted. Any odorous material identified will be handled accordingly and removed from site as a priority as per waste acceptance/rejection procedures in the EMS 012.1_05_003.	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
14	Monitoring Emissions	In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques given in the BAT Conclusions document.	a) Minimising the number of potential diffuse emission sources b) Selection and use of high-integrity equipment c) Corrosion prevention d) Containment, collection and treatment of diffuse emissions e) Dampening f) Maintenance g) Cleaning of waste treatment and storage areas h) Leak detection and repair (LDAR) programme	N/A	Yes	N/A	All waste acceptance, storage and processing occur within a building accept for metal storage in one metal container see site layout MD22024 - BERP Project Site Drawing - Dated 14-12-2022. Odour is not expected to be a problem due to the type of waste and activities carried out on site see EMS 012.1_05_003 Site specific equipment is utilised in the processing of waste. Internal operations and waste type reduce risk and impact of waste. Regular maintenance of processing. The site management team carry out monitoring of site operations and undertake regular visual inspections (at least once per day) of operations	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
15	Monitoring Emissions	BAT is to use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns) by using both of the techniques given below		N/A			N/A	
16	Monitoring Emissions	In order to reduce emissions to air from flares when flaring is unavoidable, BAT is to use both of the techniques given below	a) Correct design of flaring devices b) Monitoring and recording as part of flare management	N/A			N/A	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
17	Monitoring Emissions	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to set up, implement and regularly review a noise and vibration management plan, as part of the environmental management system (see BAT 1), that includes all of the following elements	I. a protocol containing appropriate actions and timelines; II. a protocol for conducting noise and vibration monitoring; III. a protocol for response to identified noise and vibration events, e.g. complaints; IV. a noise and vibration reduction programme designed to identify the source(s), to V. measure/estimate noise and vibration exposure, to characterise the contributions of the VI. sources and to implement prevention and/or reduction measures.	N/A	Yes	N/A	Pre application advice from the Environment Agency (EA) Identified the need for an Noise Impact Assessment (NIA) BS BS4142. The NIA screened out the need for an noise and vibration plan as there is no significant impact at noise sensitive receptors. Complaints procedure is contained within EMS 012.1_05_003	2. General management appropriate measures 6. Emissions control appropriate measures

18	Monitoring Emissions	In order to prevent or, where that is not practicable, to reduce noise and vibration emissions, BAT is to use one or a combination of the techniques given.	a) Appropriate location of equipment and buildings b) Operational measures c) Low-noise equipment d) Noise and vibration control equipment e) Noise attenuation	N/A	Yes	N/A	Activities undertaken on site are not considered to represent an risk of at noise sensitive receptors • All plant will be maintained to current recommended standards and manufacturer recommendations. • Vehicles, plant and machinery will be switched off when not in use where practicable. • Delivery vehicles processed as quickly as possible to minimise noise from engines, reversing warning signals etc. Sympathetic driving of vehicles will reduce unnecessary revving of engines. • Waste will be unloaded using forklifts and placed down in to storage with no 'drop height' • When moving material around the site,, operators ensure that the material is loaded/contained prior	6. Emissions control appropriate measures 7. Emissions monitoring and limits appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
							to be transported around site reducing the likelihood of material being dropped. • As part of the EMS 012.1_05_003, the operator has systems in place for dealing with complaints and this would be relevant to any noise complaints received at the site. In response to previous noise nuisance complaints,	
Emissions to Water								

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
19	Monitoring Emissions	n order to optimise water consumption, to reduce the volume of waste water generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques given	a) Water management b) Water recirculation c) Impermeable surface d) Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessel. e) Roofing of waste storage and treatment areas. f) Segregation of water streams g) Adequate drainage infrastructure h) Design and maintenance provisions to allow detection and repair of leaks. i) Appropriate buffer storage capacity	N/A	Yes	N/A	Water is not used as apart of any permitted process on site. There is no site surface run off as the waste storage and processing area is within a building or bunded area.. Roof water is sperate see drawing MD17007 - Drainage 54 Caswell Road - No. 9 Emergency Response Drawing - Rev C – DRAFT Drainage Plan. For process description see EMS 012.1_05_003	6. Emissions control appropriate measures

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
20	Monitoring Emissions	In order to reduce emissions to water, BAT is to treat wastewater using an appropriate combination of the techniques given in the BAT conclusions document.	a) Equalisation b) Neutralisation c) Physical separation, e.g. screens, sieves, grit separators, grease separators, oil-water separation or primary settlement tanks. d) Adsorption e) Distillation/rectification f) Precipitation g) Chemical Oxidiation h) Chemcial Reduction i) Evapouration j) Ion Exchange k) Stripping l) Activated sludge precise m) Membrane bioreactor n) Nitrification/denitrification when the treatment includes a biological treatment o) Coagulation and flocculation p) Sedimentation q) Filtration (e.g. sand filtration, microfiltration, ultrafiltration) r) Flotation	N/A	Yes	N/A	No waste water generated.	
Emissions from Accidents and Incidents								

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
21	Monitoring Emissions	In order to prevent or limit the environmental consequences of accidents and incidents, BAT is to use all of the techniques given below, as part of the accident management plan (see BAT 1).	a) Protection measures b) Management of incident/accidental emissions c) Incident/accident registration and assessment system	N/A	Yes	N/A	The EMS 012.1_05_003Covers environmental protection measures, accident and incident management. These documents contain the following procedures; • Site evacuation including drill requirements • Fire • Explosions • Non-conforming waste • Emergency procedures for liquid spillages or leaks including drill requirements • Flooding • Escape from containment	6. Emissions control appropriate measures
Material and Energy Efficiency								

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
22	Efficiency Monitoring	In order to use materials efficiently, BAT is to substitute materials with waste	**Description** Waste is used instead of other materials for the treatment of wastes (e.g. waste alkalis or waste acids are used for pH adjustment, fly ashes are used as binders). **Applicability** Some applicability limitations derive from the risk of contamination posed by the presence of impurities (e.g. heavy metals, POPs, salts, pathogens) in the waste that substitutes other materials. Another limitation is the compatibility of the waste substituting other materials with the waste input (see BAT 2)	N/A	Yes	N/A	The raw materials used on site are as follows: • Lubricating oil/grease, for parts lubrication • Hydraulic oil, used as a power transmitting medium and to protect machine components	8. Process efficiency appropriate measures
23	Efficiency Monitoring	In order to use energy efficiently, BAT is to use both of the techniques given below	a) Energy efficiency plan b) Energy balance record	N/A	No	N/A	Although permit has been live it has not been operated there is no base line of energy consumption to design an energy efficiency plan or energy balance record.	8. Process efficiency appropriate measures
Reuse of Packaging								

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
24	Efficiency Monitoring	In order to reduce the quantity of waste sent for disposal, BAT is to maximise the reuse of packaging, as part of the residues management plan (see BAT 1).	**Description** Packaging (drums, containers, IBCs, pallets, etc.) is reused for containing waste, when it is in good condition and sufficiently clean, depending on a compatibility check between the substances contained (in consecutive uses). If necessary, packaging is sent for appropriate treatment prior to reuse (e.g. reconditioning, cleaning). **Applicability** Some applicability restrictions derive from the risk of contamination of the waste posed by the reused packaging	N/A	Yes	N/A	A majority of waste that is received at site is containerised in Intermediate Bulk Containers (IBC) see EMS 012.1_05_003and site layout MD22024 - BERP Project Site Drawing - Dated 14-12-2022 for location.	8. Process efficiency appropriate measures
BAT Conclusions for the Mechanical Treatment of Waste								

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
25	Mechanical Treatment	In order to reduce emissions to air of dust, and of particulate-bound metals, PCDD/F and dioxin-like PCBs, BAT is to apply BAT 14d and to use one or a combination of the techniques given.		N/A	Yes	N/A	Waste accepted is not know to generate dust as it is a liquid site will operate in compliance with EMS 012.1_05_003 to reduce dust emissions.	2. General management appropriate measures

26	Mechanical Treatment	In order to improve the overall environmental performance, and to prevent emissions due to accidents and incidents, BAT is to use BAT 14g and all of the techniques given in the BAT conclusions document.	a) implementation of a detailed inspection procedure for baled waste before shredding; b) removal of dangerous items from the waste input stream and their safe disposal (e.g. gas cylinders, non-depolluted EoLVs, non-depolluted WEEE, items contaminated with PCBs or mercury, radioactive items); c) treatment of containers only when accompanied by a declaration of cleanliness.	N/A	Yes	N/A	• Plant and machinery are inspected/maintained and cleaned on a regular basis. • Good housekeeping is employed daily to reduce quantities of particulates and dust accumulating on the site, to minimise the risk of emissions and alleviate any waste leaving the site. • Manual sweeping is employed to minimise build-up of dust and debris. Visual monitoring by the site manager or appointed representative in their absence is undertaken throughout the day to determine the frequency such sweeping. • Site employees will undertake regular inspections and undertake remedial action if odour is identified as a problem. • Staff are trained in handling waste.	•

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
							• As far as possible all loads are visually assessed from the weighbridge and may be rejected if the waste is found to be mis-described or non-permitted. If there are other irregularities with the paperwork, the weighbridge operator may also radio a designated site operative and request specific inspection of the load when deposited at the reception / storage area. • Material might be isolated for further inspection and investigation. • No non conforming waste	

27	Mechanical Treatment	In order to prevent deflagrations and to reduce emissions when deflagrations occur, BAT is to use technique a. and one or both of the techniques b. and c. given below.	a) Deflagration management plan b) Pressure relief dampers c) Pre-shredding	N/A	Yes	N/A	The process on site do not treat wastes that could cause deflagrations. Wastes that could cause deflagrations are not accepted at the site. The EMS 012.1_05_003sets out the process for dealing with non-conforming wastes such as these. As far as possible all loads are visually assessed from the weighbridge and may be rejected if the waste is found to be mis-described or non-permitted. If there are other irregularities with the paperwork, the weighbridge operator may also radio a designated site operative and request specific inspection of the load when deposited at the reception / storage area. Further inspection follows before and during the unloading stage. If the site operative is unsatisfied with any particular item(s) or indeed the whole load, its removal offsite by the driver is required or, if the Company considers it to be the best environmental option, the material is	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
							quarantined pending further investigation and possible referral to the EA. Non-conforming wastes will be placed immediately in a designated quarantine area until suitable disposal arrangements can be made. There will be no mixing of non-conforming (quarantined) wastes with authorised wastes. Non-conforming wastes will be stored separately where possible and when legislation requires. Any non-conforming wastes that are defined as hazardous under the Hazardous Waste Directive will be handled and moved off site in line with the requirements of the Directive.	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
28	Mechanical Treatment	In order to use energy efficiently, BAT is to keep the shredder feed stable.	The shredder feed is equalised by avoiding disruption or overload of the waste feed which would lead to unwanted shutdowns and start-ups of the shredder. BAT conclusions for the treatment of WEEE containing VFCs and/or VHCs Unless otherwise stated, the BAT conclusions presented in this section apply to the treatment of WEEE containing VFCs and/or VHCs, in addition to BAT 25.	N/A			No shredder used on site.	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
29	Mechanical Treatment	In order to prevent or, where that is not practicable, to reduce emissions of organic compounds to air, BAT is to apply BAT 14d, BAT 14h and to use technique a. and one or both of the techniques b. and c. given below.	a) Optimised removal and capture of refrigerants and oils b) Cryogenic Condensation c) Adsorption	N/A				
30	Mechanical Treatment	In order to prevent emissions due to explosions when treating WEEE containing VFCs and/or VHCs, BAT is to use either of the techniques.	a) Inert atmosphere b) Forced ventilation	N/A				

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
31	Mechanical Treatment	In order to reduce emissions to air of organic compounds, BAT is to apply BAT 14d and to use one or a combination of the techniques	a) Adsorption b) Biofilter c) Thermal oxidation d) Wet scrubbing	N/A				
32	Mechanical Treatment	In order to reduce mercury emissions to air, BAT is to collect mercury emissions at source, to send them to abatement and to carry out adequate monitoring.	• equipment used to treat WEEE containing mercury is enclosed, under negative pressure and connected to a local exhaust ventilation (LEV) system; • waste gas from the processes is treated by dedusting techniques such as cyclones, fabric filters, and HEPA filters, followed by adsorption on activated carbon (see Section 6.6.1); • the efficiency of the waste gas treatment is monitored; • mercury levels in the treatment and storage	N/A				

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
33	Mechanical Treatment	In order to reduce odour emissions and to improve the overall environmental performance, BAT is to select the waste input.	The technique consists of carrying out the pre-acceptance, acceptance and sorting of the waste input (see BAT 2) so as to ensure the suitability of the waste input for the waste treatment, e.g. in terms of nutrient balance, moisture or toxic compounds which may reduce the biological activity.	N/A	Yes	N/A	• EMS 012.1_05_003	•
34	Mechanical Treatment	In order to reduce channelled emissions to air of dust, organic compounds and odorous compounds, including H2S and NH3, BAT is to use one or a combination of the techniques given below.	a) Adsorption b) Biofilter c) Fabric Filter d) Thermal oxidation e) Wet scrubbing	N/A				

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
35	Mechanical Treatment	In order to reduce the generation of waste water and to reduce water usage, BAT is to use all of the techniques given below.	a) Segregation of water streams b) Water recirculation c) Minimisation of the generation of leachate	N/A				
36	Mechanical Treatment	In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters.	Monitoring and/or control of key waste and process parameters, including: • waste input characteristics (e.g. C to N ratio, particle size); • temperature and moisture content at different points in the windrow; • aeration of the windrow (e.g. via the windrow turning frequency, O2 and/or CO2 • concentration in the windrow, temperature of air streams in the case of forced aeration); • windrow porosity, height and width.	N/A				

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
37	Mechanical Treatment	In order to reduce diffuse emissions to air of dust, odour and bioaerosols from open-air treatment steps, BAT is to use one or both of the techniques given below.	a) Use of semipermeable membrane covers b) Adaption of operations to the meteorological condition	N/A				

38	Mechanical Treatment	In order to reduce emissions to air and to improve the overall environmental performance, BAT is to monitor and/or control the key waste and process parameters.	Implementation of a manual and/or automatic monitoring system to: • ensure a stable digester operation; • minimise operational difficulties, such as foaming, which may lead to odour emissions; • provide sufficient early warning of system failures which may lead to a loss of containment and explosions. This includes monitoring and/or control of key waste and process parameters, e.g.: • pH and alkalinity of the digester feed; • digester operating temperature; • hydraulic and organic loading rates of the digester feed; • concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate; • biogas quantity, composition (e.g. H2S) and pressure; • liquid and foam levels in the digester.	N/A	Yes	N/A	• EMS 012.1_05_003	•

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
39	Mechanical Treatment	In order to reduce emissions to air, BAT is to use both of the techniques given below.	a) Segregation of the waste gas streams b) Recirculation of waste gas	N/A				
Physico-Chemical Treatment of Waste								
40	Physico-Chemical Treatment	In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).		N/A	Yes	N/A	EMS 012.1_05_003	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
41	Physico-Chemical Treatment	In order to reduce emissions of dust, organic compounds and NH3 to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.	a) Adsorption b) Biofilter c) Fabric filter d) Wet scrubbing	N/A				
Re-refining of waste oil:								
42	Re-refining of waste oil:	In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).	Monitoring of the waste input in terms of content of chlorinated compounds (e.g. chlorinated solvents or PCBs).	N/A	Yes	N/A	EMS 012.1_05_003	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
43	Re-refining of waste oil:	In order to reduce the quantity of waste sent for disposal, BAT is to use one or both of the techniques given below.	a) Material recovery b) Energy recovery	N/A	Yes	N/A	• EMS 012.1_05_003 • BAT Assessment 012.1_05_004	•
44	Re-refining of waste oil:	In order to reduce emissions of organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.		N/A	Yes	N/A	• EMS 012.1_05_003 BAT Assessment 012.1_05_004	•

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
45	Re-refining of waste oil:	In order to reduce emissions of organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques	a) Adsorption b) Cryogenic condensation c) Thermal oxidation d) Wet scrubbing	N/A				
Regeneration of spent solvents								
46	Regeneration of spent solvents	In order to improve the overall environmental performance of the regeneration of spent solvents, BAT is to use one or both of the techniques given below.	a) Material recovery b) Energy recovery	N/A				

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
47	Regeneration of spent solvents	In order to reduce emissions of organic compounds to air, BAT is to apply BAT 14d and to use a combination of the techniques given below.	a) Recirculation of process off-gases in a steam boiler b) Adsorption c) Thermal oxidation d) Condensation or cryogenic condensation e) Wet scrubbing	N/A				
Thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil								
48	Thermal treatment	In order to improve the overall environmental performance of the thermal treatment of spent activated carbon, waste catalysts and excavated contaminated soil, BAT is to use all of the techniques	a) Heat recovery from the furnace off-gas b) Indirectly fired furnace c) Process-integrated techniques to reduce emissions to air.4	N/A				

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
49	Thermal treatment	In order to reduce emissions of HCl, HF, dust and organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.	a) Cyclone b) Electrostatic precipitator (ESP) c) Fabric filter d) Wet scrubbing e) Adsorption f) Condensation g) Thermal oxidation	N/A				
Water washing of excavated contaminated soil								
50	Water washing of excavated contaminated soil	In order to reduce emissions of dust and organic compounds to air from the storage, handling, and washing steps, BAT is to apply BAT 14d and to use one or a combination of the techniques	a) Adsorption b) Fabric filter c) Wet scrubbing	N/A			Not applicable as no water washing of excavated contaminated soil.	
Decontamination of equipment containing PCBs								

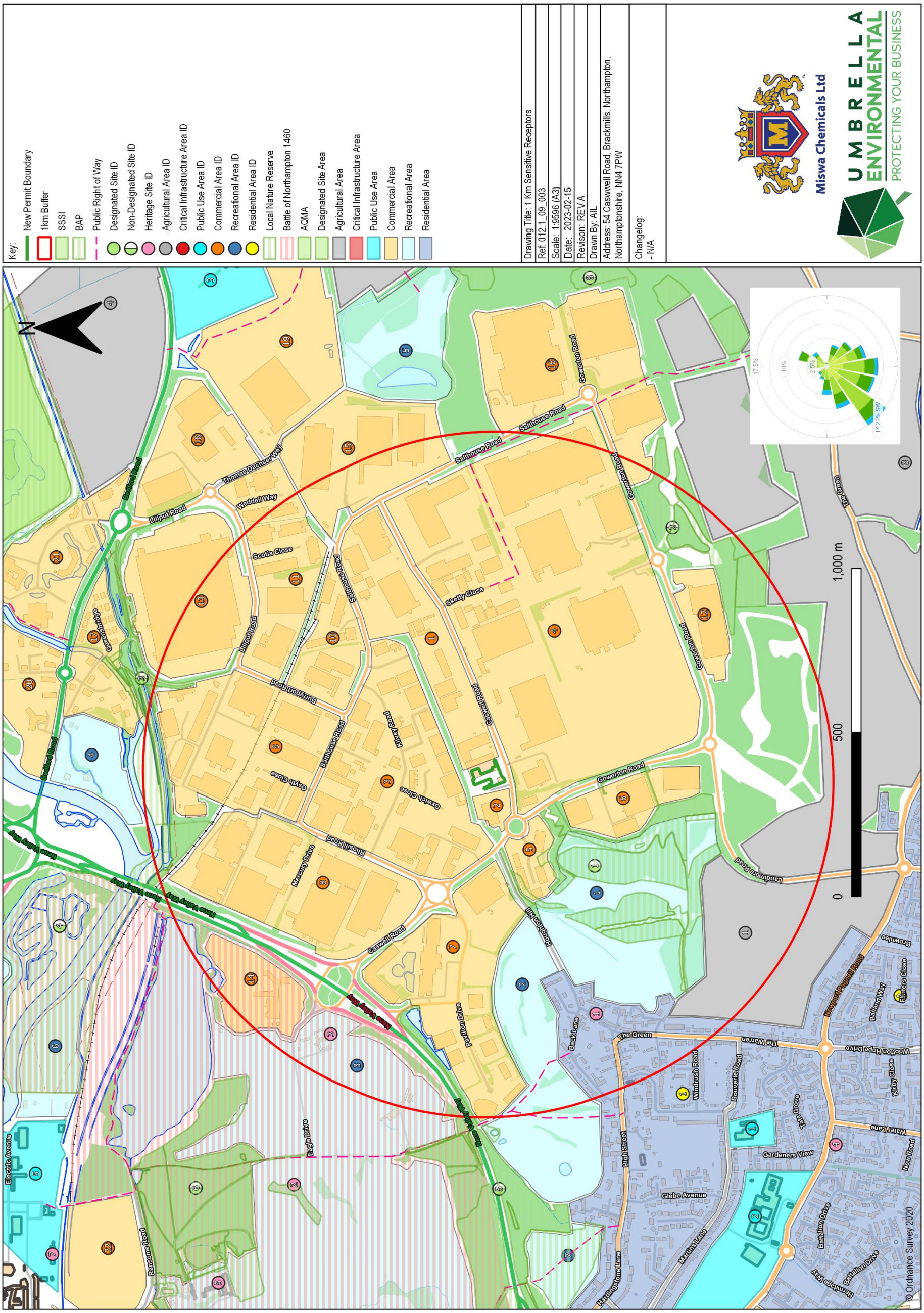
BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
51	Decontamination of equipment containing PCBs	In order to improve the overall environmental performance and to reduce channelled emissions of PCBs and organic compounds to air, BAT is to use all of the techniques	a) Coating of the storage and treatment areas b) Implementation of staff access rules to prevent dispersion of contamination c) Optimised equipment cleaning and drainage d) Control and monitoring of emissions to air e) Disposal of waste treatment residues f) Recovery of solvent when solvent washing is used	N/A				
Treatment of water-based liquid waste								
52	Treatment of water-based liquid waste	In order to improve the overall environmental performance, BAT is to monitor the waste input as part of the waste pre-acceptance and acceptance procedures (see BAT 2).	Monitoring the waste input, e.g. in terms of: • bioeliminability (e.g. BOD, BOD to COD ratio, Zahn-Wellens test, biological inhibition potential (e.g. inhibition of activated sludge)); • feasibility of emulsion breaking, e.g. by means of laboratory-scale tests.	N/A			Not applicable to site operations as no treatment of water-based liquid waste.	

BAT No.	Topic	Brief Description	BAT	BAT-AEL	Operating to BAT?	BAT-AEL derogation needed?	Comments	Chemical Waste Appropriate Measures[5]
General BAT Conclusions								
53	Treatment of water-based liquid waste	In order to reduce emissions of HCl, NH3 and organic compounds to air, BAT is to apply BAT 14d and to use one or a combination of the techniques given below.	a) Adsorption b) Biofilter c) Thermal oxidation d) Wet scrubbing	N/A				

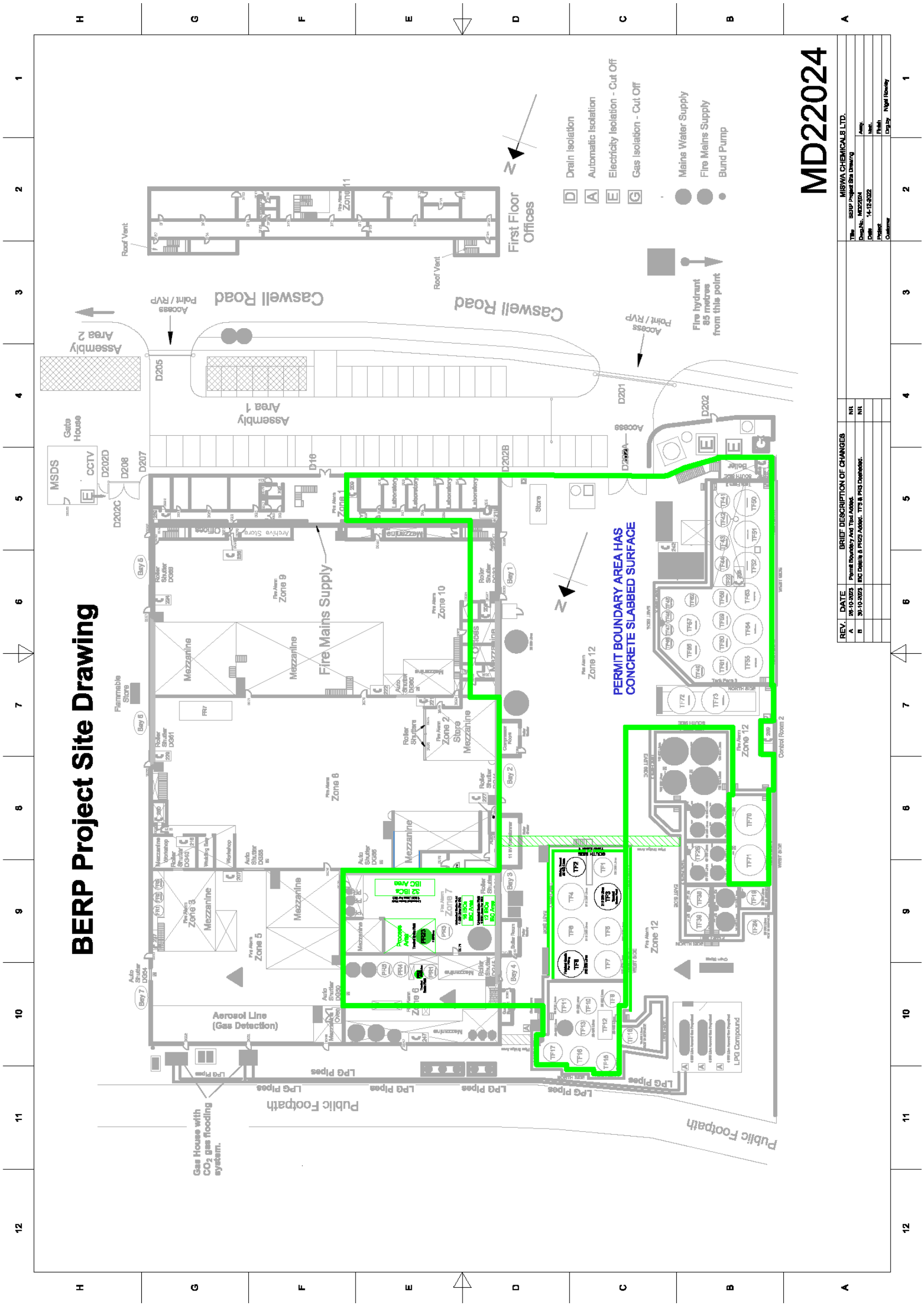
15 DRAWINGS

Drawing 1 Permit Boundary 012.1_09_001

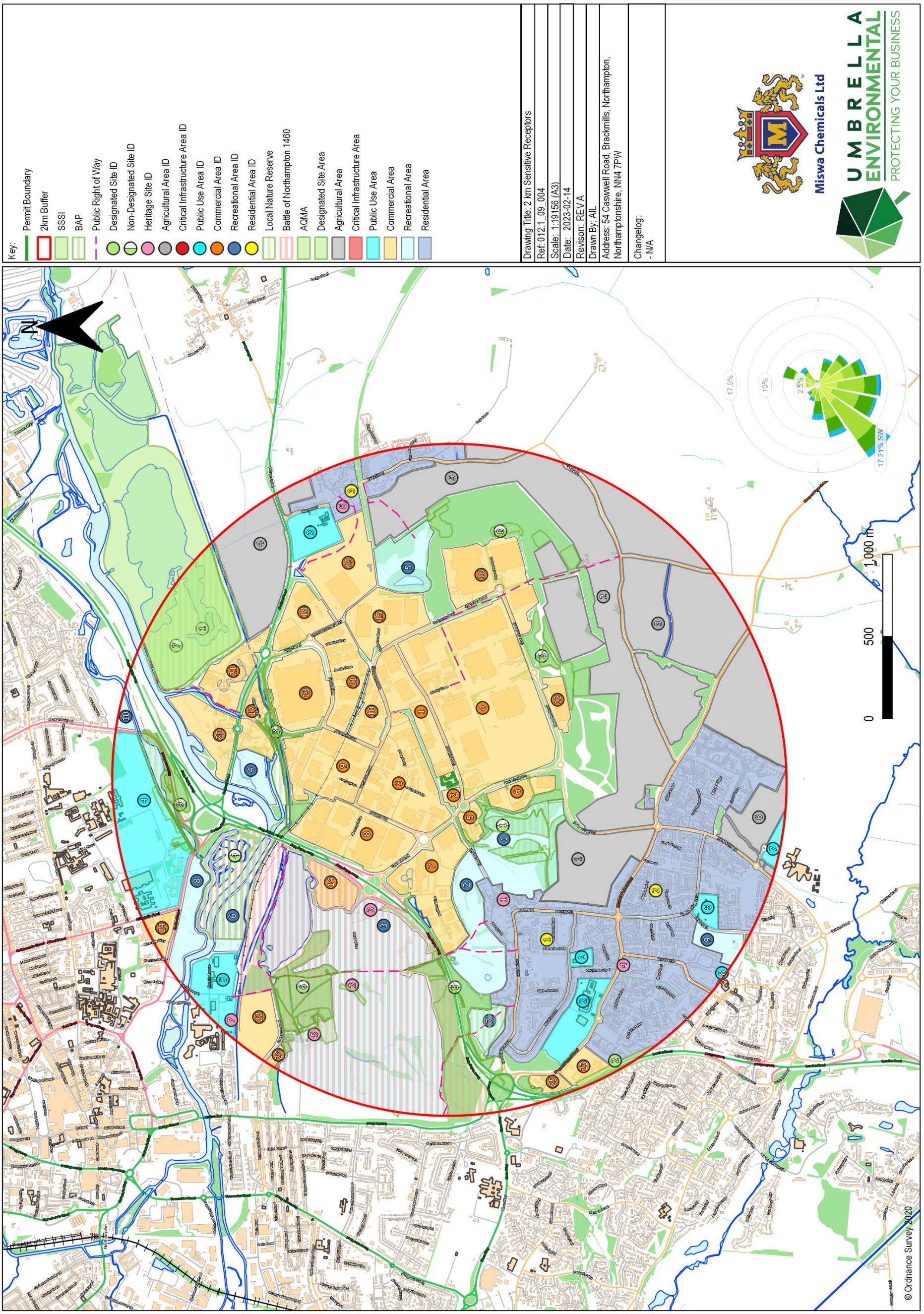
Drawing 2 012.1_09_003 1 Km Sensitive Receptors REV A



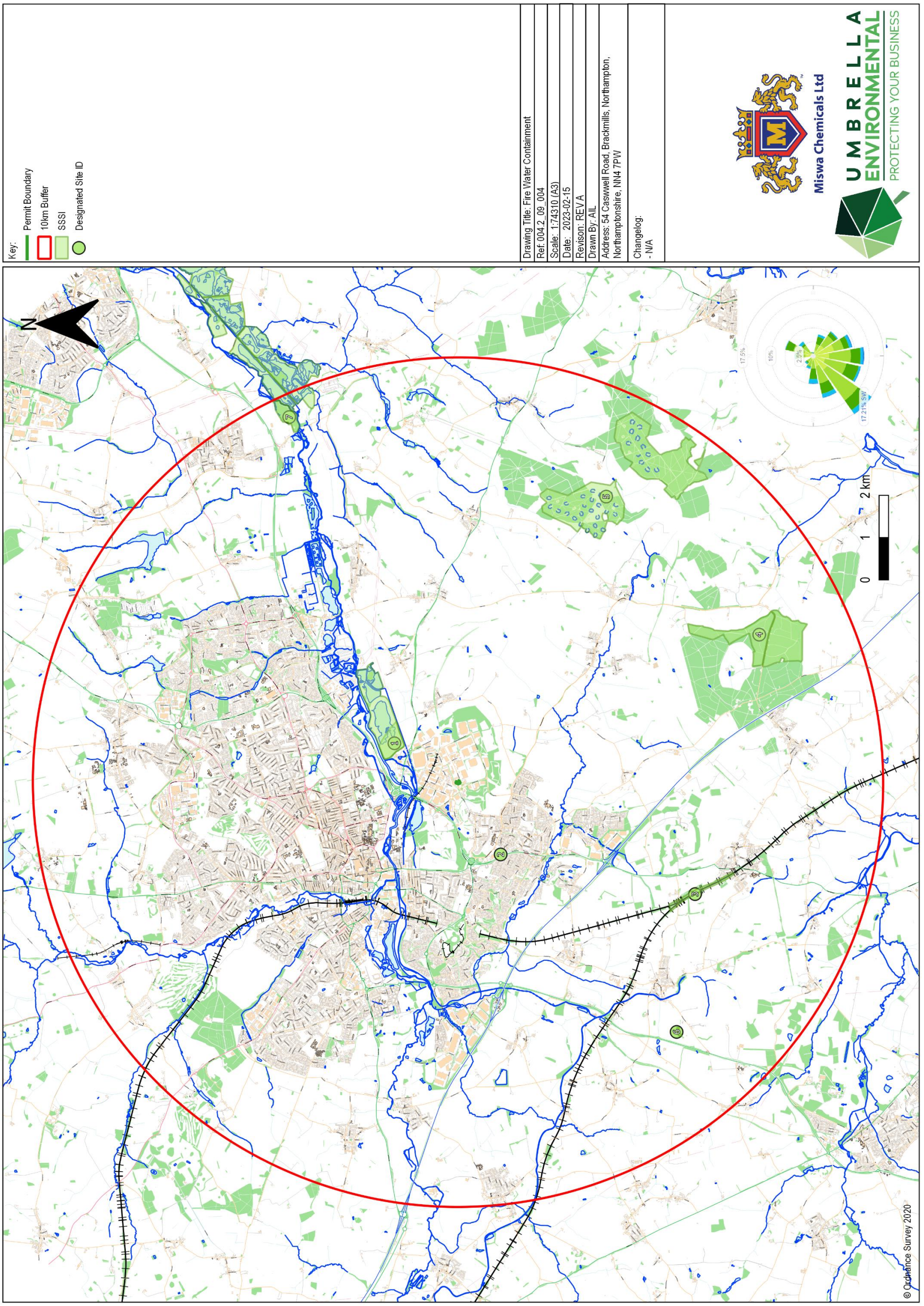
Drawing 3 MD22024 - BERP Project Site Drawing - Rev B - Dated 30-10-2023



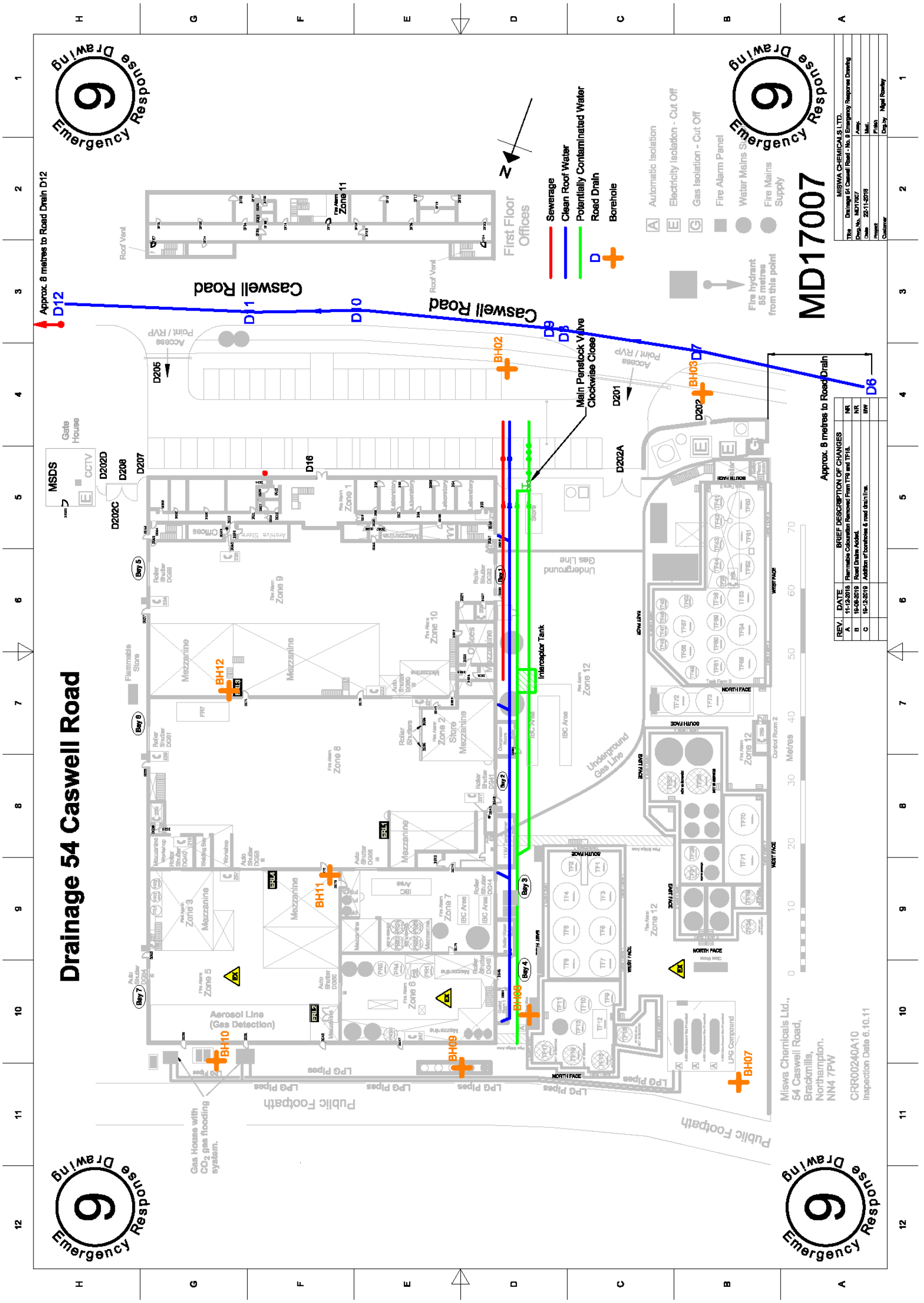
Drawing 4 Sensitive Receptors 2 km Plan 012.1_09_004



Drawing 5 Sensitive Receptors 10 km Plan 012.1_09_005



Drawing 6 Drainage Plan MD17007



16 APPENDICES

Appendix 1 PV panel data sheet

Hi-MO 4m

LR4-72HPH
445~465M

- Suitable for ground power plants and distributed projects
- Advanced module technology delivers superior module efficiency
  - M6 Gallium-doped Wafer
  - 9-busbar Half-cut Cell
- Excellent outdoor power generation performance
- High module quality ensures long-term reliability

12 12-year Warranty for Materials and Processing

25 25-year Warranty for Extra Linear Power Output

Complete System and Product Certifications

IEC 61215, IEC 61730, UL 61730
ISO9001:2015: ISO Quality Management System
ISO14001: 2015: ISO Environment Management System
ISO45001: 2018: Occupational Health and Safety
IEC62941: Guideline for module design qualification and type approval

LONGi

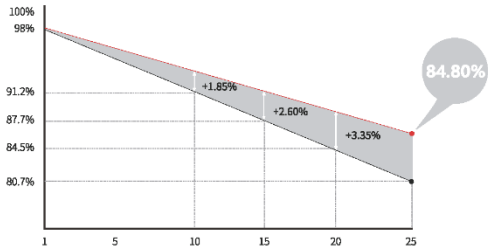
Hi-MO 4m

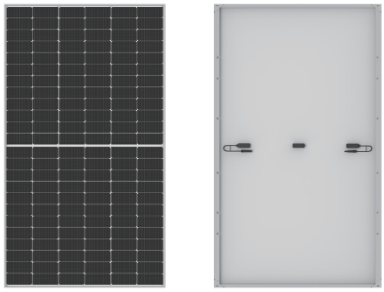
LR4-72HPH 445~465M

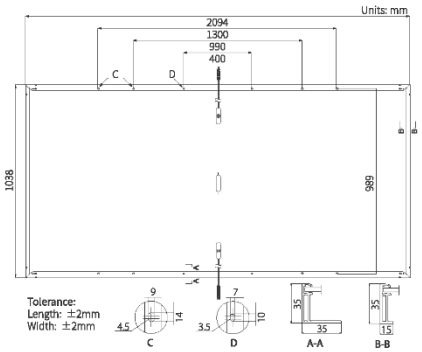
21.4%	0~3%	<2%	0.55%	HALF-CELL
MAX MODULE EFFICIENCY	POWER TOLERANCE	FIRST YEAR POWER DEGRADATION	YEAR 2-25 POWER DEGRADATION	Lower operating temperature

Additional Value

25-Year Power Warranty







Mechanical Parameters

Cell Orientation	144 (6×24)
Junction Box	IP68, three diodes
Output Cable	4mm², +400, -200mm/±1400mm length can be customized
Glass	Single glass, 3.2mm coated tempered glass
Frame	Anodized aluminum alloy frame
Weight	24.3kg
Dimension	2094×1038×35mm
Packaging	30pcs per pallet / 150pcs per 20' GP / 660pcs per 40' HC

Electrical Characteristics

STC : AM1.5 1000W/m² 25°C NOCT : AM1.5 800W/m² 20°C 1m/s Test uncertainty for Pmax: ±3%

Module Type	LR4-72HPH-445M		LR4-72HPH-450M		LR4-72HPH-455M		LR4-72HPH-460M		LR4-72HPH-465M	
Testing Condition	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT	STC	NOCT
Maximum Power (Pmax/W)	445	334.3	450	338.0	455	341.8	460	345.5	465	349.3
Open Circuit Voltage (Voc/V)	49.1	46.2	49.3	46.4	49.5	46.5	49.7	46.7	49.9	46.9
Short Circuit Current (Isc/A)	11.53	9.35	11.60	9.41	11.66	9.46	11.73	9.51	11.79	9.56
Voltage at Maximum Power (Vmp/V)	41.3	38.4	41.5	38.6	41.7	38.8	41.9	39.0	42.1	39.2
Current at Maximum Power (Imp/A)	10.78	8.70	10.85	8.75	10.92	8.81	10.98	8.86	11.05	8.91
Module Efficiency(%)	20.5		20.7		20.9		21.2		21.4	

Operating Parameters

Operational Temperature	-40°C ~ +85°C
Power Output Tolerance	0 ~ 3%
Voc and Isc Tolerance	±3%
Maximum System Voltage	DC1500V (IEC/UL)
Maximum Series Fuse Rating	20A
Nominal Operating Cell Temperature	45±2°C
Protection Class	Class II
Fire Rating	UL type 1 or 2 IEC Class C

Mechanical Loading

Front Side Maximum Static Loading	5400Pa
Rear Side Maximum Static Loading	2400Pa
Hailstone Test	25mm Hailstone at the speed of 23m/s

Temperature Ratings (STC)

Temperature Coefficient of Isc	+0.050%/°C
Temperature Coefficient of Voc	-0.265%/°C
Temperature Coefficient of Pmax	-0.340%/°C

LONGi

No.8369 Shangyuan Road, Xi'an Economic And Technological Development Zone, Xi'an, Shaanxi, China.
Web: www.longi.com

Specifications included in this datasheet are subject to change without notice. LONGi reserves the right of final interpretation. (20220810V16)

Appendix 2 IBCs Specification

Packaging - Specification
ECOBULK

SCHÜTZ

Transportcontainer ECOBULK 1000 ltr.
MX1000 UN 1,6 Nat/150R TP 2"Vent
Bfly 50 00 Met 3PCA/Plast skid
2-Plt LG:LG/TI

Schütz GmbH & Co. KGaA
Schützstrasse 12
D-56242 SELTERS / WESTERWALD

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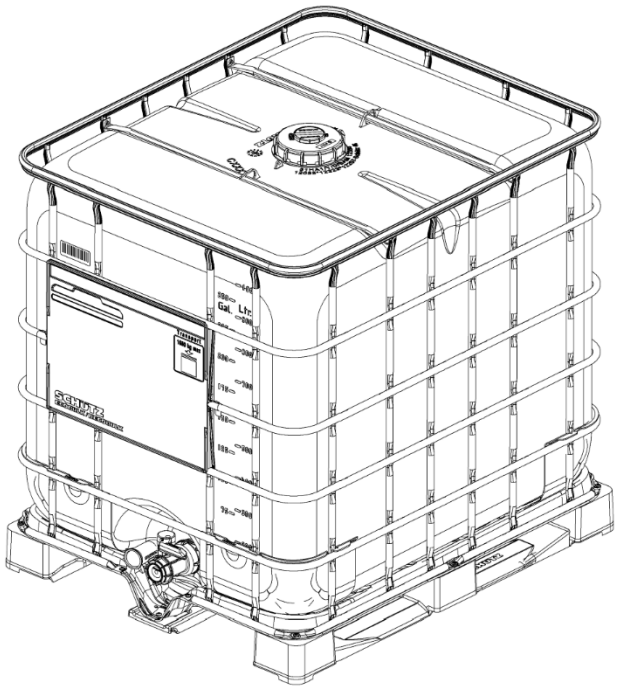

This picture is for illustration purpose only and does not necessarily correspond to the specified product.

Weights and measures

Nominal Capacity	1.000 l	275 gal US
Brimful Capacity	1.060 l	280 gal US
Length	1.200 mm	47,24 in
Width	1.000 mm	39,37 in
Height with pallet	1.160 mm	45,67 in
Total weight approx.	57,5 kg	126,8 lbs US

Pallet

Pallet type	Plastic-skidpallet
Opening height	min. 90mm, 4-way entry

Outer container

Packaging - Specification
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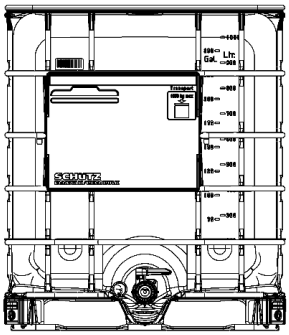
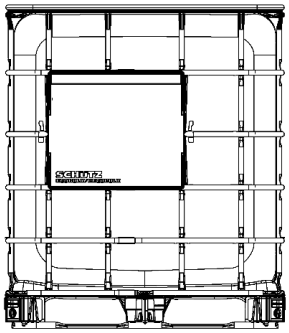
Grid	Steel, galvanized
Bottom plate	Steel, galvanized
Label plate	large - 6 field, with Schütz-Ticket
additional label plate	back side - standard





Inner container

Rectangular blow molded tank of high density polyethylene

Container	PE-HD, natural

Filling opening

Screw cap	DN150 / 6", PE-HD, red
O-ring gasket	TPE
Sealing-cap	red

Packaging - Specification
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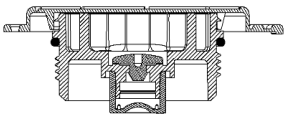
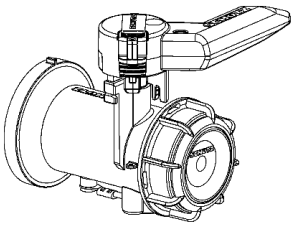
Plug	G2"plug w/vent (Silicone)



Discharge opening

Outlet valve	integr.butterfly-valve DN50/2"
Case	PE-HD
Connection thread	metric
Flap gasket / Ball gasket	PP
Handle color	blue, Handle protection
Screw cap	PE-HD
Screw cap gasket	PE, foamed
Screw cap color	black
Outlet nozzle	PE-HD



Features

UN-Marking

UN_31HA1/Y/mm yy/D/BAM14976-Schütz#/4056/1722/1060l/57kg/100kPa

Heavy metals

Concentration level of heavy metals (Pb, Cd, Cr VI and Hg) in packaging does not exceed 100 ppm

Delivery

Ready for filling. The customer or filler is responsible for testing the material compability of the filling material with the packaging

User information:
By implementing and continually improving extensive preventive programmes, SCHÜTZ strives towards minimising the potential contamination risk for filling material in line with the current state of the art and in accordance with recognised und applicable quality and system standards.
In industrial manufacturing, however, the possibility of particles arising cannot be fundamentally and entirely eliminated. Specifically for plastic and steel packaging, unavoidable friction during opening and closing as well as static charging of the packaging contribute to the development of particles and/or the possibility of particles being attracted. Such particles can then also invariably penetrate the packaging interior.
With the goal of minimising the risk of particle formation and transmission into packaging, users are recommended – particularly during further processing – to keep packaging closed wherever possible and to keep the number of opening and closing procedures as low as possible.
In the case of sensitive filling materials or filling material applications (e.g. for food/pharmaceutical products, paint or electro-chemicals), it is also recommended that the filling material is filtered on removal or prior to further processing.

Packaging - Specification
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SCHÜTZ reserves the right to change the construction, technology, design and material of the product or individual components without notice. The dimensions and weights given here are approximate and can vary according to the configuration of the individual components. For other product details and operating information concerning the correct handling of our packaging, please consult our Handling Guide.

UMBRELLA ENVIRONMENTAL

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