

## EPR WASTE OPERATION PERMIT APPLICATION

**Mekatek Ltd**  
**Maerdy Industrial Estate**

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## NON TECHNICAL SUMMARY

Mekatek Ltd (the 'Applicant', Mekatek hereafter) is making a Bespoke Waste Operation Permit Application for the proposed operation of a waste recovery and recycling facility at Maerdy Industrial Estate, Rhymney.

The Site is located at Unit C, Maerdy Industrial Estate, Rhymney, NP22 5PY.

The waste recovery and recycling facility has been designed to predominantly process waste electrical and electronic equipment (WEEE), selected source segregated packaging materials, plastics and metals. The site will accept 30,999 tonnes per annum and include the receipt, storage, segregation and mechanical processing into various grades of granular metals and plastics for sale as recovered product.

All recovered / processed materials are then stored within dedicated storage bays ready for offsite transfer and sale. Any waste materials that are not able to be recycled on site are stored pending off site transfer to other licensed waste management facilities for further processing or disposal.

All physical and mechanical processing takes place within the main processing building. The only external activities are the storage of wooden pallets which are stored before being collected and transferred off site and the occasional storage of surplus waste skips.

All storage is in accordance with the Fire Prevention Plan guidance.

The waste management facility will be permitted by the Natural Resources Wales as a Waste Operation and will be operated in accordance with the EPR Regulations 2016.

### **Emissions to Air**

There will be no emissions to air from the proposed operations. All extracted dust emissions from the shredding and granulating plant are internal and recirculate air internally. There are no external discharges to atmosphere of any baghouse duct collection systems.

### **Emissions to Controlled Water**

There are no process emissions to controlled water from the proposed development. None of the processing activities require the use of any process water, water cooling or create any effluents.

There are no internal surface water or foul water drains within the processing building, accordingly there is no pollution linkage or pathway to controlled waters from any of the activities at site.

Uncontaminated surface water run-off from external hard standing and roof top areas is discharged via surface water drain and is ultimately discharged to the River Rhymney.

### **Emissions to Sewer**

The only emissions to sewer is domestic sewerage. There will be no emissions to sewer from the proposed operations.

### **Emissions to Land**

There will be no emissions to land arising from the site.

### **Emissions of Noise**

The site is located within an existing industrial estate context with neighboring 24/7 activities.

All processing activities are carried out internally and are fitted with acoustic treatment (enclosures, attenuators etc) where required. The noise impacts of the site have been assessed using the BS4142:2014 methodology and are not considered to have a significant impact.

### **Emission of Odour**

The site only processes dry cleaned solid waste materials. A majority of the waste product processed at the site will be WEEE materials, dry plastics or metals. No odourous post consumer packaging will be accepted onto site. The site has established robust waste acceptance and pre-acceptance procedures that ensure that no material with any odour potential will ever be accepted or processed on site.

### **Impact**

On the basis of the technical assessments carried out in association with this application, there are no offsite impacts associated with this proposed process.

## 1 INTRODUCTION

This document has been prepared on behalf of Mekatek Ltd by Sol Environment Ltd and provides supporting evidence as required by Environmental Permit Application Forms Part B2 and B4 issued by Natural Resources Wales.

Mekatek Ltd (the 'Applicant', Mekatek hereafter) is making a Bespoke Waste Operation Permit Application for the proposed operation of a waste recovery and recycling facility at Maerdy Industrial Estate, Rhymney.

The Site is located at Unit C, Maerdy Industrial Estate, Rhymney, NP22 5PY.

The waste recovery and recycling facility has been designed to predominantly process waste electrical and electronic equipment (WEEE), selected source segregated packaging materials, plastics and metals. The site will accept 30,999 tonnes per annum and include the receipt, storage, segregation and mechanical processing into various grades of granular metals and plastics for sale as recovered product.

All recovered / processed materials are then stored within dedicated storage bays ready for off-site transfer and sale. Any waste materials that are not able to be recycled on site are stored pending off site transfer to other licensed waste management facilities for further processing or disposal.

All physical and mechanical processing takes place within the main processing building. The sole external activity is the storage of wooden pallets and surplus skips which are stored before being collected and transferred off site. It is understood that storage of skips is infrequent. All storage is in accordance with the Fire Prevention Plan guidance.

The waste management facility will be permitted by Natural Resources Wales as a Waste Operation and will be operated in accordance with the EPR Regulations 2016.

The remainder of this application support document is structured accordingly:

- *Section 2:* Provides specific nature of the proposed operations associated with the New Waste Operation Permit Application;
- *Section 3:* Provides specific nature and detailed description of the emissions to air and water associated with the site;
- *Section 4:* Provides details of all environmental monitoring associated with the site; and
- *Section 5:* Provides an Environmental Impact and Assessment of the site.

All technical appendices associated with the site comprise the following:

- *Annex A:* Figures
- *Annex B:* Environmental Risk Assessment
- *Annex C:* Site Condition Report

- *Annex D:* Environmental Noise Assessment
- *Annex E:* Draft Site Working Plan
- *Annex F:* Fire Prevention Plan
- *Annex G:* Odour Management Plan
- *Annex H:* Accident Management Plan
- *Annex I:* WAMITAB Certification

The boundary of the installation is provided in Figure 1.2. Please refer to *Annex A – Figures* for a more detailed site layout.

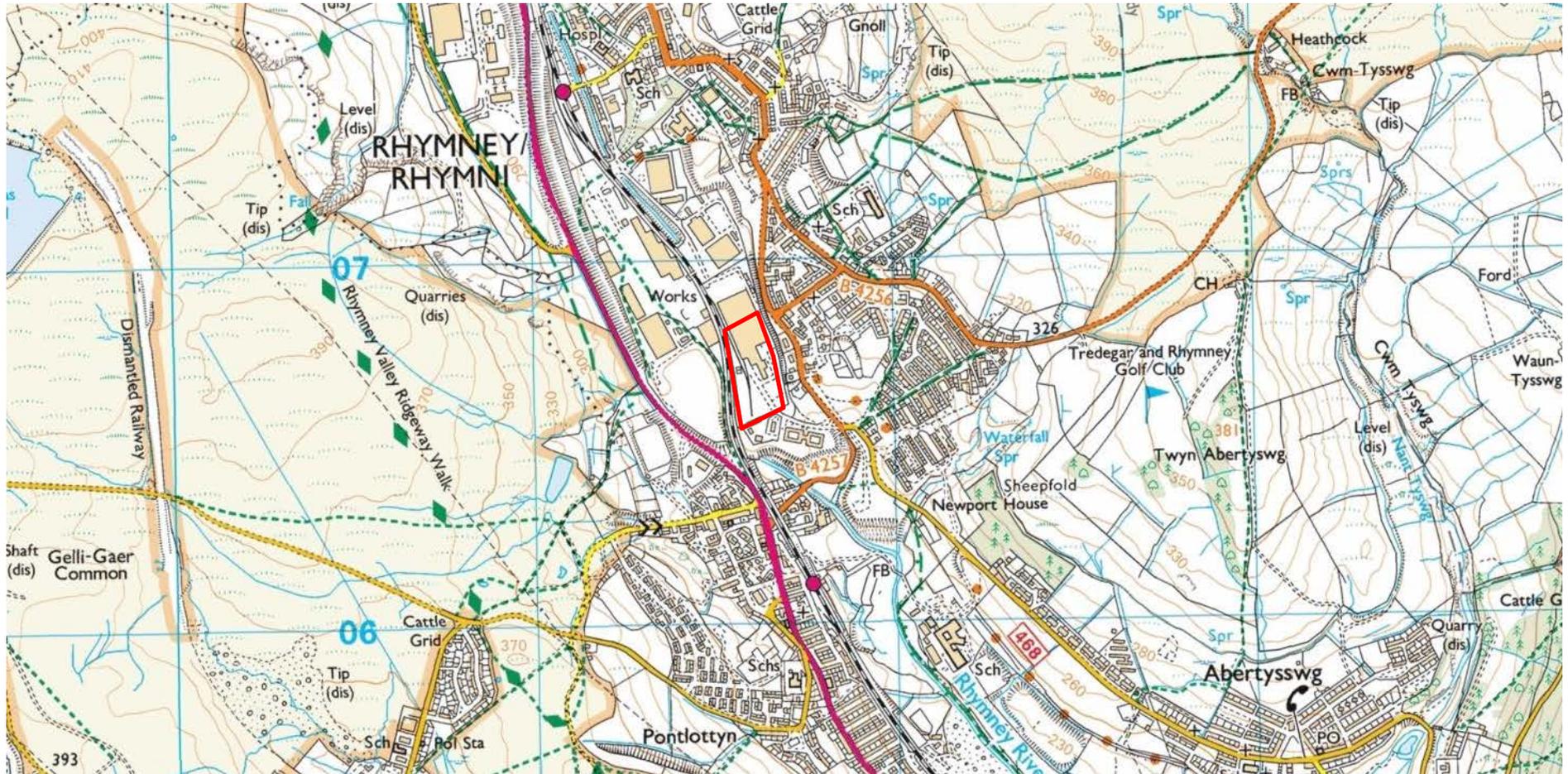


Figure 1.1: Site Location



## 2 PROPOSED ACTIVITIES

### 2.1 Type of Permit

Mekatek is making a Bespoke Waste Operation Permit Application for the proposed operation of a waste management facility at Maerdy Industrial Estate, Rhymney.

The site will accept 30,999 tonnes per annum of segregated waste plastics, packaging and waste electronic and electrical (WEEE) material. The site operations will consist of receiving, sorting, separating, segregating, bulking and mechanical processing mixed recyclable materials including commodities for onward treatment and / or use off site.

A majority of the output of the facility will comprise bagged and bulked granular metals and plastics.

Due to the nature of the activity the process is defined as:

- *R3 Recycling/reclamation of organic substances which are not used as solvents;*
- *R4 Recycling / reclamation of metals and metal compounds; and*
- *R5 Recycling / reclamation of other inorganic material;*
- *R13 Storage of wastes pending any of the operations numbered R1 to R12;*
- *D9 Physico-chemical treatment resulting in final compounds or mixtures which are discarded by any of the operations numbered D1 to D12;*
- *D14 Repackaging prior to submission to any of the operations numbered D1 to D13;*
- *D15 Storage pending any of the operations numbered D1 to D14;*

There are two possible complexity attributes for the facility, *A20 – Metal Recycling Site (MRS) (mixed)* and *A11 (household, commercial and industrial waste transfer station)*. Both options are complexity band C.

All products produced by the facility will be exported off site. There will be no onsite use for the waste in any capacity.

The technical guidance note used in the preparation of this application document is:

- *How to Comply with your Environmental Permit.*

The main environmental issues identified within this guidance document and the relevant Best Available Techniques have been built into the site operation procedures that will form the management systems and working plans for the site.

## 2.2 Details of the Site

### 2.2.1 Site Location and Setting

The location of the subject Site is shown on Figure A1, Annex A and centered at approximate National Grid Reference OS X (Eastings) 311588; OS Y (Northings) 206808. The proposed site layout is shown in Section 1, Figure 1.1.

### 2.2.2 Installation Boundary

All proposed operations will be contained within the Installation boundary denoted in Section 1, Figure 1.1.

A Site Condition Report that provides a detailed site setting baseline conceptual model for the site has been completed and included within *Annex C –Site Condition Report*.

The previous site uses and contamination history have been fully described and detailed within the Site Condition Report as required by Natural Resources Wales Guidance.

It is concluded that the site does not present a significant contamination risk, nor does it identify any aspect of the new site that presents a potential contamination risk to the environment.

All aspects of the new site have been designed in accordance to Natural Resources Wales Pollution Prevention Guidance.

### 2.2.3 Infrastructure and Design

#### *Site Drainage Arrangements*

There are no process effluents produced from the sites activities. There is no drainage system within the building. Should any water (surface moisture, small puddles of liquids on top of IBC etc) be present on incoming wastes, this generally evaporates or where possible is collected and disposed of via IBC.

Any spillages, leaks or incidents arising within the building will be effectively contained and captured in accordance with the sites spill response procedure, utilising spill kits which will be strategically located around the site. Any spillages / leaks etc. would be of small volume and be non-hazardous in their nature.

Internal bunds associated with the plant maintenance oil storage area are checked daily and in the unlikely event of spillages, these would be pumped out and disposed of offsite via IBC.

Uncontaminated surface water run-off from external hard standing and roof top areas discharges via surface water drain and is ultimately discharged to the River Rhymney (W1 and W2).

Foul drainage from the offices / canteen area will be discharged to sewer (S1).

The following has been designed in the event of a fire:

- The WEEE Reception bay would be utilised as a holding bund for firewater;
- All fire water will enter the bay which would be isolated from the external surface water drainage system;
- Company tankers would be mobilised from nearby sites (1-hour mobilisation time) to remove any collected firewater held in the bay to a suitable treatment facility;
- The bay is calculated to have a storage capacity of 245m<sup>3</sup> if empty and 150m<sup>3</sup> if at full utilisation as a reception bay.

#### *Tanks and Bunds*

There will be one bunded diesel tank incorporated on the site for the storage of vehicle fuels and maintenance oils associated with the proposed facility. This will be located externally and there will be no other tanks installed on site.

The diesel tank will be installed with secondary containment and be designed to comply with the Environment Protection Pollution Prevention Guideline *Above Ground Oil Storage Tanks: GPP 2*.

All storage tanks associated with the process are detailed within Table 2.2 'Raw Materials'.

#### **2.2.4 Site Design and Layout**

The layout of the site is provided in Figure 1.2.

#### **2.2.5 Roadways and External Areas**

An internal roadway system has been designed to give safe access to the processing building.

Separate segregated pedestrian walkways and car parking areas have been provided to allow for safe access and egress of all personnel at site.

### **2.3 Description of the Process**

A summary description of the proposed waste management facility is provided below:

- *Waste Reception:* All vehicles will enter the site via the main entrance and report to the weighbridge office. All wastes being received by the site, will be inspected and placed within the waste storage area where it will be manually sorted into categories prior to being placed within the relevant storage bay.
- *Waste Sorting:* When waste materials are required to be processed they will be transferred from the relevant storage bay and loaded onto a conveyor or suitable work station for pre-sorting, picking and / or de-packing. All material is sorted into relevant categories and stored within stackable hoppers or stillages. The wastes will be stored until there is sufficient material to warrant processing through the rotorshredder.
- *Pre-Liberation Processing:* Pre-liberation processing involves manual sorting prior to mechanical processing and will be undertaken on individual workstations and will be dependent on what product is being processed.

- *Shredding:* As required any material that needs to undergo shredding or mechanical liberation will be transferred to the rotorshredder. The rotorshredder is fed via a segmented conveyor which can be hopper fed or manually fed depending on waste type. The rotorshredder processes approximately 4.5 tonnes per hour. All material discharged from the rotorshredder is passed through a trommel with oversize passing to a picking line. Further mechanical separation is utilised for specific waste types e.g. Eddy Current Separator and Overband Separation.
- *Cable Granulation:* The cable granulation system will primarily process commodity (cable, boards, non-ferrous) liberated by the rotorshredder. The system is specified to process 1 tonne per hour of cable / board. The processed cable is stored within bags before being exported off site.
- *Separation Equipment:* An electrostatic separator has been installed to separate conductive and non-conductive materials (less than 10mm). This equipment is able to separate any residual metallic content in the plastics fraction after cable granulation.
- *Export off Site:* All processed / sorted material will be exported off site.

The processing route on site is dependent on what material is being processed, however a simplified process flow is provided in Figure 2.1 overleaf.

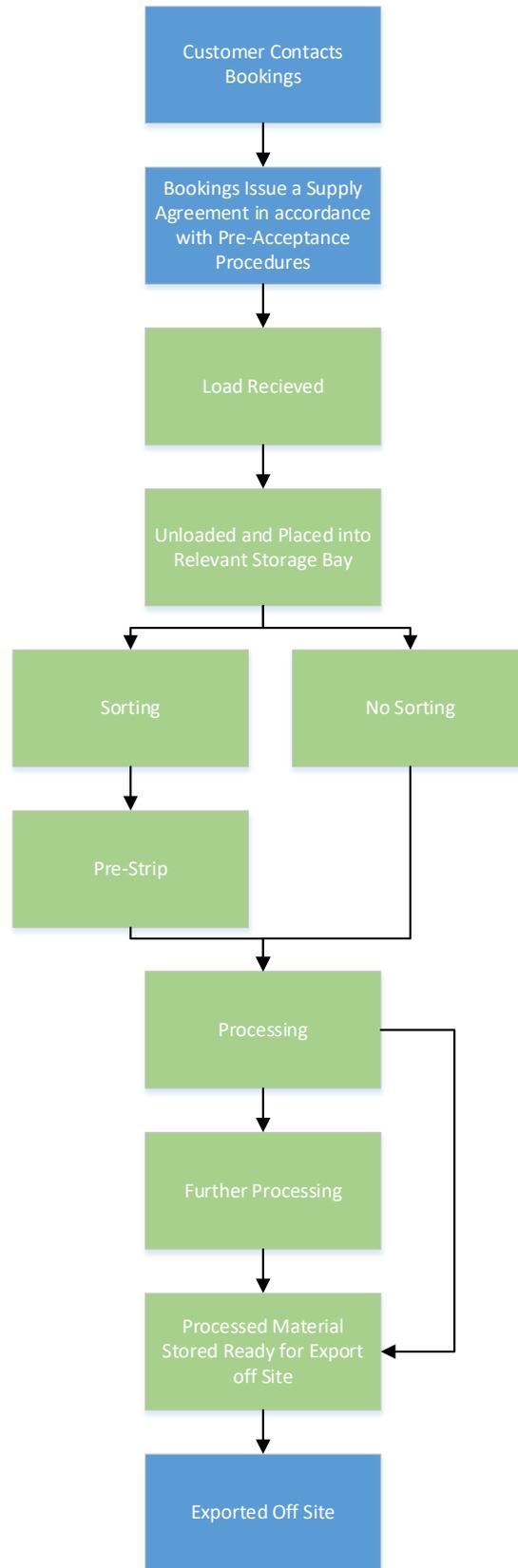


Figure 2.1: Simplified Process Schematic

### 2.3.1 Raw Materials

#### Waste Feedstocks

The site will be permitted to accept a maximum of 30,999 tonnes of waste per year.

Prior to processing, all wastes accepted on site are subjected to stringent waste acceptance criteria in accordance with the sites environmental management plan and associated procedures:

- MK-E01 – Waste Pre-Acceptance;
- MK-E02 – Waste Acceptance; and
- MK-E03 – Waste Rejection.

A detailed list of European Waste Catalogue (EWC) codes of wastes that will be accepted by the site is provided in Table 2.1 below.

Table 2.1: Proposed Feedstock EWC Codes and Types	
Waste Codes	Description
<b>02</b>	<b>WASTES FROM AGRICULTURE, HORTICULTURE, AQUACULTURE, FORESTRY, HUNTING AND FISHING, FOOD PREPARATION AND PROCESSING</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 04	waste plastics (except packaging)
02 01 10	waste metal
<b>07</b>	<b>WASTES FROM ORGANIC CHEMICAL PROCESSES</b>
<b>07 02</b>	<b>wastes from the MFSU of plastics, synthetic rubber and man-made fibres</b>
07 02 13	waste plastic
<b>09</b>	<b>WASTES FROM THE PHOTOGRAPHIC INDUSTRY</b>
<b>09 01</b>	<b>wastes from the photographic industry</b>
09 01 07	photographic film and paper containing silver or silver compounds
09 01 10	single-use cameras without batteries
09 01 11*	single-use cameras containing batteries included in 16 06 01, 16 06 02 or 16 06 03
09 01 12	single-use cameras containing batteries other than those mentioned in 09 01 11
<b>12</b>	<b>WASTES FROM SHAPING AND PHYSICAL AND MECHANICAL SURFACE TREATMENT OF METALS AND PLASTICS</b>
<b>12 01</b>	<b>wastes from shaping and physical and mechanical surface treatment of metals and plastics</b>
12 01 01	ferrous metal filings and turnings
12 01 02	ferrous metal dust and particles
12 01 03	non-ferrous metal filings and turnings
12 01 04	non-ferrous metal dust and particles
12 01 05	plastics shavings and turnings
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
<b>15</b>	<b>WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>
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
<b>16</b>	<b>WASTES NOT OTHERWISE SPECIFIED IN THE LIST</b>
<b>16 01</b>	<b>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)</b>
16 01 03	end-of-life tyres
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 22	components not otherwise specified
<b>16 02</b>	<b>wastes from electrical and electronic equipment</b>
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 14	discarded equipment other than those mentioned in 16 02 09 to 16 02 13
16 02 15*	hazardous components removed from removed from discarded equipment
16 02 16	components removed from discarded equipment other than those mentioned in 16 02 15
<b>16 06</b>	<b>batteries and accumulators</b>
16 06 01*	lead batteries
16 06 02*	Ni-Cad batteries
16 06 03*	mercury-containing batteries
16 06 04	alkaline batteries (except 16 06 03)
16 06 05	other batteries and accumulators
<b>17</b>	<b>CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES)</b>
<b>17 02</b>	<b>wood, glass and plastic</b>
17 02 03	plastic
<b>17 04</b>	<b>metals (including their alloys)</b>
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
<b>19</b>	<b>WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION/INDUSTRIAL USE</b>
<b>19 10</b>	<b>waste from shredding of metal containing wastes</b>
19 10 01	iron and steel waste
19 10 02	non-ferrous waste
19 10 04	fluff-light fraction and dust other than those mentioned in 19 10 03
19 10 06	other fractions other than those mentioned in 19 10 05
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 01	paper and cardboard
19 12 02	ferrous metal
19 12 03	non-ferrous metal
19 12 04	plastic and rubber

<b>20</b>	<b>MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 01	paper and cardboard
20 01 02	glass
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 34	batteries and accumulators other than those mentioned in 20 01 33
20 01 35*	discarded electrical and electronic equipment other than those mentioned in 20 01 21 and 20 01 23 containing hazardous components
20 01 36	discarded electrical and electronic equipment other than those mentioned in 20 01 21, 20 01 23 and 20 01 35
20 01 38	wood other than that mentioned in 20 01 37
20 01 39	plastics
20 01 40	metals
<b>20 03</b>	<b>other municipal wastes</b>
20 03 07	bulky waste
<b>Total</b>	<b><i>Aggregate Quantity of all wastes listed above will be less than 30,999 tonnes per annum</i></b>

Notwithstanding the EWC's codes stipulated in Table 3.1 above, waste shall not be accepted at the site which has any of the following characteristics;

- No odorous Waste;
- No biodegradable waste;
- Waste showing evidence of charring, elevated temperatures or fire damage; or
- Liquids.

*Process Consumables*

The waste operations at site will not require large volumes of process chemicals or raw materials beyond the waste feedstocks. The key hazardous process consumables are listed in Table 2.2 below:

Table 2.2: Raw Materials Summary				
Material	Approximate Quantity	Storage Arrangements	Location	Fate
Mixed Electronic Recyclables and Plastics	30,999 tonnes per annum	Stored and processed internally within the building	Internal	Components are separated, processed and sold
Diesel Oil	3,000 litres per annum	500 L tank Double skinned steel or polyurethane tanks stored internally and designed to conform to EA Pollution Prevention Guideline 2 (PPG2) above ground oil tanks.	Storage: Within external secure compound	Used for the processing equipment
Oils, Grease, Lubricants	< 10m <sup>3</sup> per annum	Stored within internal bunded caged area	Internal	Consumed within plant  All waste oils disposed off site to appropriately qualified contractor.

### 2.3.2 Waste Reception and Pre-Sorting

Vehicles will enter the site via the main entrance and report to the weighbridge office, in accordance to site working plan procedure (MK-E02 – Waste Acceptance). Any waste that does not meet the waste acceptance criteria will be refused entry to site in accordance to MK-E03 – Waste Rejection.

All waste materials will be received on site and placed within the waste storage area where it will be manually sorted into categories prior to being placed within the relevant storage bay.

Any non-conforming waste will be rejected in accordance to MK-E03 – Waste Rejection. The rejected waste will either be transferred immediately back onto the delivery vehicle and removed off site or transferred to the external quarantine area for storage until collected. Waste will be stored within the quarantine area for as short a time as practical.

The internal layout of this building has been designed to conform with the requirements of Natural Resources Wales Fire Prevention Plan Guidance. A Fire Prevention Plan has been prepared for the site and is provided within *Annex F – Fire Prevention Plan*.

All incoming and outgoing delivery vehicles will be recorded via the weighbridge and all deliveries recorded accordingly.

All waste will be stored within:

- Stillages;
- FIBC Bags; or
- Bales.

Some modular wastes do not lend themselves to the above storage containers, therefore these will be stored loose, neatly and safely, stacked within the designated storage areas. An example of such waste would be domestic fridges awaiting onward consignment.

Please refer to the photos below which identify typical storage arrangements on site.



**Photo 1:** FIBC Bags



**Photo 2:** Metal Stillages



**Photo 3:** Plastic Stillages



**Photo 4:** Baled Plastics

When waste is required to be processed it will be transferred from the relevant storage area and loaded onto a conveyor or individual workstation for pre-sorting, picking and / or de-packing.

Typically, waste will be sorted into the following categories:

- a) Items with high value IT / precious metal bearing boards: e.g base units, set top boxes, routers/modems, laptops, games consoles, mobile phones.
- b) Items predominantly made up of a plastic case and a motor: e.g vacuum cleaners, mowers, strimmers, pumps, hand tools, battery chargers (motor / transformer based items). It may be that these items are further separated into brand to enable the plastic to be batched more accurately (e.g specific type of vacuum cleaner i.e. henry hoovers are polypropylene (PP) however most vacuum cleaners are acrylonitrile butadiene styrene (ABS));
- c) Mainly plastic items with medium grade circuit boards: e.g media items (Hi Fi, speakers, CD/DVD, home telephones, Karaoke machines);
- d) Primarily metal and plastic items: e.g microwave ovens (glass plates removed), toastie makers etc.
- e) Items not requiring shredding but mechanically separated by magnets with a little manual picking; e.g kettles, toasters, radiators, lamp standard/fittings, childrens toys.

Once sorted, the above wastes will be stored within stackable hoppers or stillages. The wastes will be stored until there is sufficient material to warrant processing through the rotorshredder, however the storage time will not exceed 3 months.

In addition to the mixed small domestic appliances, some commercially sourced equipment and commodity will be received in bulk and packaged. Depending on the requirements, this may be further sorted and de packed. Large domestic appliances will be received this way and pre-processed to ensure that it is suitable for primary liberation through the rotorshredder operation.

Commodities (circuit boards, cable, single stream electronics) may also be received in bulk into an internal bunker for direct processing (pre-liberation or cable / board granulation) depending on the requirements.

Once operational, the sorting and storage arrangements mentioned above may be amended to improve efficiencies and the output quality.

A baling machine will also be present on site should any incoming waste need to be baled before storage.

### **2.3.3 Pre-Liberation Processing**

Pre-liberation processing will be undertaken on individual workstations and will be dependent on what product is being processed.

Examples are as follows:

a) *Base units, set top boxes, routers / modems, laptops.*

- Base Units – the operator will remove the main face (steel) and remove any memory, heat sinks, PCU chips and plug and play cards and put all items on the conveyor. The picker will then segregate the above into individual receptacles and pack the remaining base unit into a stillage for storage.
- Laptops – the screen will be removed along with any memory and the battery pack. The screen, memory and battery pack will be segregated and the remaining laptop stored within a stillage as above.
- Set top boxes, routers, modems etc would be put on the conveyor ‘as is’ and allowed to run straight into the stillage for storage.

b) *Vacuum Cleaners, Mowers, Strimmers, Pumps, Hand Tools, Battery Chargers (motor /transformer based items)*

- On the assumption that all plastic has been assessed and is primarily of the same grade, the operators will remove any dust bags and the wired plastic hose from vacuum cleaners. Each work station will have two waste receptacles, one for the dust bags and one for the plastic.
- The operators will also remove cord from strimmer’s, batteries from power tools and any remaining cable, all of which will go into receptacles placed at each workstation. The remaining ‘core item’ would be placed on the conveyor and allowed to run directly into a stillage. No picker is required.

c) *Washing Machines*

- External panels are removed along with any concrete weight. The remaining drum and assembly will be warehoused prior to being further liberated using the rotorshredder on slow speed. Circuit bored, motors, plastic, steel, stainless steel and aluminum will be the primary commodities liberated.
- The workstations consist of stations along each side of an extended conveyor with a stillage discharge at the end and a direct picking station lengthways along the conveyor.
- At this stage, all waste will either be exported off site or further processed through the rotorshredder or the cable board granulation line.

Once operational, the pre-liberation processes mentioned above may be amended to improve efficiencies and the output quality. Other items will be assessed on an individual basis to identify the most efficient pre-liberation techniques for maximum recovery yield.

### 2.3.4 Shredding

The rotorshredder is fed via a segmented conveyor which can be hopper fed or manually fed depending on waste type.



**Photo 5:** Rotorshredder

Any items that are to be ‘generally liberated’ will be manually fed onto the conveyor. The conveyor speed will be adjusted to feed at a rate that ensures the material gets an initial soft “knock”.

Items that are to undergo complete disintegration would be mechanically fed to fill the segments at a regular level to ensure that the rotorshredder input remains constant to produce a constant product quality output.

The rotorshredder processes approximately 4.5 tonnes per hour.

Once waste is discharged from the rotorshredder it is passed through a trommel with oversize passing to an 8 station picking line discharging into specific categories. One of these categories is for material that has not been sufficiently liberated which will be returned back to the rotorshredder.

Large items of plastic will be picked which should be possible due to the pre-sorting carried out on site. Large steel / aluminum sheets should be able to be picked, however there is an additional overband after the trommel which is used to transfer larger items to a dispatch container.

Items such as transformers, mixed metal heatsinks, motors and cable are picked and containerised for further processing or sale prior to the overband magnet.

All sub 40mm material that drops through the trommel is passed under an overband magnet and over an eddy current separator to remove ferrous and aluminum / generic non-ferrous content. The resultant material will then be further assessed and either further processed or sold.

Boards that have been primarily stripped of their surface mount components in the rotorshredder will be further processed through the cable granulation system or sold. Boards can be selectively liberated as a batch feed using the rotorshredder and a picking team will remove cable and ferrous / aluminum content to reduce the workload and maximise the quality of output from the cable granulation system.

The cable granulation system will primarily process commodity (cable, boards, non-ferrous) liberated by the rotorshredder. The system is specified to process 1 tonne per hour of cable / board.

The rotorshredder can also be utilised for non-WEEE shredding and separation e.g wheelie bins can be shredded to remove items such as castors and hinges with the plastics entering the adjacent plastics processing operation and the metals entering the metal chain. Plastics with metal insets or multi polymer assemblies can be liberated to produce metal free / single stream polymers for further processing.

All material discharged from the Rotoshredder is passed through a trommel with oversized passing to a picking line. Further mechanical separation is utilised for specific waste types e.g. Eddy Current Separator and Overband Separation.

### **2.3.5 Separation Equipment**

An electrostatic separator has been installed to separate conductive and non-conductive materials (less than 10mm). This equipment is able to separate any residual metallic content in the plastics fraction after cable granulation e.g precious metal dusts in high grade board captured during granulation, metals in frag fines etc. An air table will separate copper from aluminum and tinned copper from cable processing.



**Photo 6:** Processing Equipment

### 2.3.6 Battery Sorting and Storage

A small building to the south of the main processing building will be used for the manual sorting and storage of waste batteries.

During waste reception, if batteries are included in an incoming load, they will be removed from the main processing building to the battery sorting building, where they will be sorted then stored ready for export off site.

### 2.3.7 Environmental Management and Operator Competence

Mekatek will operate the site in accordance with an Environmental Management System which is structured to meet the requirements of the Environmental Permitting Regulations and associated pollution prevention guidance.

The EMS is designed to ensure:

- The identification of all foreseeable environmental impacts and risk that Mekatek activities pose to the environment.
- Prevention or minimisation of any identified risks to practical minimum.
- Legal Compliance assurance.
- Identification of risks of pollution including those arising from operations, maintenance, accidents, incidents, non-conformances and complaints, and how these will be minimised.
- Activities at the site will be managed in accordance with the management system, which will be subject to continuous review, audit and improvement. Specific detailed management system reviews will take place if there is a significant change to the activities, following an accident or if a non-compliance is found.

- The key aspects of the EMS for the site will include:
  - Preventative maintenance;
  - Operator requirements;
  - Training and Competence;
  - Emergency response and incident management; and
  - Monitoring, measurement and reporting.

The environment management system and procedures have been written to ensure that the environmental risk and impact of the normal running of the site activities are documented and minimised.

*Working Plan*

Mekatek have developed a draft working plan for the operation of the site. This working plan defines the management of the site and provides the management controls for all aspects of the site. The basic structure of the operational procedures has been designed around the best practice requirements of the NRW guidance notes.

The company will operate a suite of procedures for each of the key activities on site. Draft versions of these procedures are included in *Annex E – Draft Site Working Plan* and includes the following:

Table 2.3: Working Plan		
Reference No:	Title	Purpose
MK-E01	Waste Pre-Acceptance	This procedure defines the upstream screening, checking and pre-acceptance of all incoming waste prior to its arrival on site.
MK-E02	Waste Acceptance	This procedure outlines the onsite controls and considerations that need to be applied when waste materials arrive on site for processing.
MK-E03	Waste Rejection	This procedure outlines the waste rejection process for all non-conforming wastes that cannot be processed on site. Acceptance of non-conforming wastes will be a direct breach of the permitted conditions of the sites Environmental Permit.
MK-E04	Off Site Waste Transfers	This procedure provides the necessary information to enable the assessment and off site transfer of non-conforming or untreatable waste streams.
MK-E05	Waste Reception and Storage	This procedure outlines the waste reception, storage processes for all incoming waste.
MK-E06	Environmental Records	This procedure defines the necessary Environmental Permit and Waste Records that are required to be managed by the site to ensure compliance.
MK-E07	Environmental Management and Monitoring Programme	This procedure provides an overview of all of the necessary environmental monitoring, management procedures and controls to ensure compliance with the Permit.
MK-E08	Infrastructure Management and Monitoring Programme	This procedure provides an outline of the inspection and cleaning requirements for the site.

**Table 2.3: Working Plan**

Reference No:	Title	Purpose
MK-E09	Accident Management Plan	This plan refers to the sites accident management requirements.
MK-E10	Odour Management Plan	This plan refers to the sites odour prevention measures.
MK-E11	Fire Prevention Plan	This plan refers to the sites fire prevention measures.

*Site Maintenance*

All maintenance activities on site will be carried out in accordance to the manufacturers’ recommendations and are integrated within the company’s environmental management system.

The key aspects of the maintenance management programme will include:

- A programme of Planned Preventative Maintenance (PPM) is undertaken, to ensure ongoing management and replacement of key plant and equipment rather than waiting for equipment to fail.
- The inspection and maintenance schedules that the manufacturer recommends are adhered to, including any period of recommended shut-down.
- Predictive maintenance is carried out to prevent any catastrophic breakdown.

The detailed management system operated by the site will include procedures for ensuring that adequate maintenance is undertaken at the site.

The maintenance programme will ensure that all equipment or infrastructure that is deemed essential in the prevention of pollution to the environment (e.g. hard-standing, bunds etc.) or the prevention of local nuisance impacts (e.g. dust suppression etc) or fire prevention (e.g plant cleaning, prevention of build-up of dusts etc) is maintained and kept in good operating condition.

**2.3.8 Operator Competence**

The site will be fully staffed during all operations.

The primary role of site staff is to ensure and oversee waste delivery and unloading operations, material transfers and management.

Additional activities will include general site housekeeping and administration activities. Additional staff attending the site will be visiting engineers from the equipment manufacturers who are adequately trained to perform their duties at the site. The site will maintain written operation instructions all for the plant and monitoring equipment present on site.

All personnel working at the facility will be trained in the necessary sections of the Working Plan and associated Procedures.

All staff working for and on the behalf of the site, will be suitably trained and competent (e.g. professional maintenance engineers, electricians, equipment operators etc).

All operations on the site will be managed by the Site Manager, who will act as both the competent person at the facility and the main process supervisor.

The Site Manager will be deemed competent through qualification and will hold the necessary Level 4 WAMITAB qualifications as required by the WAMITAB competency scheme. Third party support will be provided by suitably qualified contractors.

### **2.3.9 Site security**

Site security measures include:

- Secure fencing provided along site boundaries;
- Site access via secure gates at the main site entrance which will be locked out of normal operating hours;
- CCTV operations; and
- Daily inspection of both the site fencing and gates will be undertaken and recorded.

### **2.3.10 Hours of Operation**

All waste deliveries will be in accordance with the sites planning permission:

- Monday to Friday: 06:00 – 19:30;
- Saturday: 08:00 – 13:00; and
- No deliveries shall take place on Sundays or Bank Holidays.

Please note, outside the specified hours for deliveries, all roller shutter doors in the main building will remain closed.

It is the intention to operate the site on a 24/7 basis should the workload require.

### **2.3.11 Accidents and Emergencies**

#### *Accident Management Plan*

Mekatek have developed their own Accident Management Plan based around the specific risks associated with the site operations.

The key aspects of the Sites Accident Management Plan are:

- Reviewed by Site Management annually, and as soon as practicable after an accident.
- Considers hazards presented by
  - emergency shut-down procedures;
  - actions in case of fire;
  - actions in case of fire/emergencies;
  - contaminated firewater;

- failure of any equipment;
- spillages and uncontrolled releases;
- plant or equipment failure (e.g. over-pressure of vessels and pipework, blocked drains);
- vandalism;
- flooding;
- Identify events or failures that could damage the environment.
- Assesses the likelihood and the potential environmental consequences from accidents at the site.
- Proposes action to minimise the potential causes and consequences of accidents.

Mekatek's Accident Management Plan has been included in *Annex H – Accident Management Plan*. Specific emergency response procedures will be developed by the operator in conjunction with the plant manufacturer. These procedures will be complete prior to operations commencing at the site.

#### *Incident Reporting*

The reporting of incidents and non-conformities forms a key component of the companies Environmental Management System. Identified non-conformities under the system include, but are not limited to the following:

- Uncontrolled leaks and spillages of any materials with the potential to cause pollution to the environment (diesel, unabated dust emissions to atmosphere);
- Non-compliance to any permitted condition or consent limit (emissions excursions, missing of reporting deadlines, breach of any permitted consent limits);
- Internal Audit findings (legal non-compliances, EMS procedural breaches, system non-compliances);
- External and Internal Complaints; and
- Whenever a plant malfunction, breakdown or failure, or any near miss occurs.

The EMS requires that all identified incidents and non-conformities will be investigated and closed out.

#### *Fire Risk*

Mekatek have developed a Fire Prevention Plan that complies with the requirements of Natural Resources Wales Fire Prevention Plan Guidance. The size and layout of the site storage has been designed to ensure that any fire on site can be brought under control within a four hour period.

All details relating to the site fire prevention measures are detailed within *Annex F – Fire Prevention Plan*.

### 3 EMISSIONS & THEIR ABATEMENT

#### 3.1 Emissions to Air

There are no process emissions to atmosphere from the site. All dust extraction and occupational emission systems are internally located and recirculate cleaned air internally.

#### 3.2 Emissions to Controlled Water

There are no process emissions to controlled water from the site. None of the processes on site create or release any effluent emissions.

#### 3.3 Emissions to Sewer

There are no process water emissions from the site.

#### 3.4 Emissions to Land

There will be no emissions to land arising from the site.

#### 3.5 Odour

No odourous material will be accepted on site. This is ensured by the detailed waste acceptance criteria which ensures rejection of waste immediately if any odour emissions are apparent from the incoming waste.

Odour shall be monitored daily during the perimeter walkover around the boundary of the site in accordance with the sites Odour Management Plan which is provided within *Annex G – Odour Management Plan*.

An overview of the measures has been provided in Table 3.1 below.

Table 3.1: Odour Management Summary		
Tier	Reference	Description
1	Inventory Control	<p>The Installation will process a maximum of 30,999 tonnes of mixed waste per annum. The waste accepted on site has no potential for odourous emissions.</p> <p>All wastes accepted on site will be required to be pre-declared and be deemed acceptable by a trained site operative prior to the transportation and delivery to site. All waste accepted on site will be inspected on arrival to ensure compliance with the agreed 'Waste Declaration Form' and do not have any malodourous properties.</p> <p>Waste Acceptance and inventory controls are covered within the site working plan documents Procedures MK-E01 to MK-E05.</p>
2	Internal Processing	<p>All processing will take place within the processing building. The only external activities are the storage of wooden pallets which are stored before being collected and transferred off site and the occasional storage of surplus waste skips.</p>

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3	Management Control	The site has a detailed Odour Management Plan which details the procedures that will be carried out on site, in the unlikely event that odour is detected.
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### 3.6 Noise Impacts

An environmental noise assessment to establish the noise impact resulting to the surrounding environment, as arising from the defined, worst case operation of the existing Mekatek site, has been carried out as part of the application.

The objectives of the assessment were as follows:

- To identify the nearest noise sensitive premises to the site (i.e. receptors), which are most likely to be potentially affected by environmental noise arising from plant and/or processes associated with the Application Site during the proposed operating periods (e.g. daytime and night-time periods).
- To determine the prevailing daytime and night time background noise climate at the nearest receptors.
- To identify all existing and significant noise sources at the site, such as specific fixed processing plant and machinery as well as noise generated from external HGV movements.
- To obtain suitable source noise level data for the identified significant noise sources at the Application site.
- To calculate the resultant environmental noise contribution and impact arising at the nearest noise sensitive receptors to the site during daytime and night time periods taking factors such as distance to receptors, acoustic screening and other environmental features into consideration.

The potential noise emitting processing equipment located within the processing building are as follows:

- Rotorshredder;
- Stokermill;
- Green Dragon shredder;
- Ulster Engineering granulator; and
- Small air compressor.

The noise assessment demonstrates that based upon the current site arrangement and proposals, but assuming 24-hour site operation, the rating level from the application site could be expected to exceed the existing background noise level by, at worst, +3dB at any residential premises, at any time. In accordance with BS4142: 2014, this is an indication of less than adverse impact, depending on the context.

On this basis, noise from the operations of the existing Mekatek site is not expected to have an adverse impact on any of the identified nearest noise sensitive premise during both daytime and night-time periods.

Please refer to the noise impact assessment provided within *Annex D – Noise Assessment* for more information.

### **3.7 Fugitive Emissions**

The proposed facility will not result in any fugitive releases of emissions of process emissions, dust or odour.

The site is unlikely to cause dust emissions due to all site operations taking place within the main processing building.

If any dust emissions are observed, it will be recorded within the site diary and corrective action will be taken. However, due to no dusty waste types being accepted on site, all processing taking place within the processing building and the shredder being equipped with a dust suppression system, this is considered very unlikely.

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## 4 ENVIRONMENTAL MONITORING

### 4.1 Emissions to Air

There are no process emissions to air from the site, therefore no monitoring is required.

### 4.2 Emissions to Controlled Water

There are no process emissions to controlled water from the site, therefore no monitoring is required.

### 4.3 Emissions to Sewer

There are no process emissions to sewer from the site, therefore no monitoring is required.

### 4.4 Odour Monitoring

No biodegradable or odourous post consumer waste is accepted on site, therefore the chance of odour generation from the site is very unlikely. However, it is understood that all waste processing facilities have the potential to smell. Odour is monitored daily during the site walkover and formally one a month in accordance with the Odour Management Plan.

Please refer to the sites Odour Management Plan which is provided within *Annex G – Odour Management Plan*.

## 5 IMPACT TO THE ENVIRONMENT

### 5.1 Impacts to Air

There are no impacts to air relating to the proposed site.

### 5.2 Impacts to Land

There are no impacts to land relating to the proposed site.

### 5.3 Impacts to Controlled Waters

There are no impacts to controlled waters relating to the proposed site.

### 5.4 Impacts to Sewer

There are no impacts to sewer relating to the proposed site.