NEATH PORT TALBOT
(RECYCLING) LTD

Material Recovery & Energy Centre
Crymlyn Burrows, SWANSEA, SA1 8PZ
TELEPHONE 01792 641901
FAX 01792 465188

Application for a Variation to an Installation Permit

Appendix 1

Waste Storage, Recovery & Recycling Operations

Document Prepared by	March 2016 Revision 1
Joe Gatley Caldey View Clos Sant Cenydd Llangennith Swansea SA3 1JT **Tel:** 01792 386699 **E-mail:** joe.gatley@gmail.com	**Document Reference:** **NPT/VAR/2016/JG1** 

Contents

Appendix 1 to Application Forms EPC Part C2 and C3

Application for a Variation to an Installation Permit

1. Supplementary information & Non-technical Summary

1.1 Type of Application

This application is for a ***minor change to existing areas within the permitted boundary of the Installation*** which are used for the of the ***storage (R13) of additional source segregated household wastes*** for off-site recycling and recovery elsewhere. An ***additional waste type*** is also proposed for the use in the on-site manufacture (R3) of Refused Derived Fuel (RDF) / Solid Refined Fuel (SRF).

1.2 Pre-application Discussions

Pre-application discussions, advice and correspondence for the changes to the site have been on-going with the local regulating Officer Guy Baskerville and PIR team leader Paul Gibson of Natural Resources Wales, based at the Llandarcy offices, tel no. 03000 65 3203.

Pre-application proposals for changes to the facility were provided to Guy Baskerville in a letter dated 29th July 2015, the relevant extracts are provided below:

The proposed permit variation will seek to amalgamate all the relevant changes to the site waste management operations *now that the incineration operations have ceased*[1], these will include:

1. Waste Storage Areas

- **Kerbside Recyclates Building**

  This area is to be used for non-exempt source segregated wastes and it is proposed that all wastes and storage areas being used for these wastes are to be ***newly incorporated into the permit under Activity Reference AR10, Temporary Storage of Waste for off-site Recycling / Recovery R13.***

  - **Process Area**

  This area is to be used for ***Recovered Recyclates from on-site treatment***, new storage areas within this area will also include all the concrete bays 1 to 5 which were previously used for storage of Incinerator Bottom Ash.

  Footnote [1] All Permitted Incineration Activities to be retained for future recommencement.

- **Main Reception Area**

  The Main Reception area is still to be used for the storage of incoming Municipal Solid Wastes (MSW) for treatment through the MREC facility as currently permitted, with the ***addition of an extra waste code 19 12 12*** which would allow further processing of ***pre-treated MSW (e.g. fines, shredded paper, plastic etc.***) received from other Material Recovery Facilities.

Additional storage of ***MSW green wastes for temporary storage pending off-site transfer (R13***) within the Main Reception Area is also proposed.

- **Fuel Preparation Area**

  Existing storage arrangements are to continue within the building, albeit ***with the addition of a proposed additional waste code 19 12 08 / 19 12 12 textiles or the fluff fraction from the mechanical treatment of end of life tyres***, this material would be used as an additive for the manufacture of RDF / SRF.

- **External Storage of Baled RDF**

  It is proposed that the storage of ***Baled RDF is confined to appropriate safe areas at agreed locations*** to the rear (eastern section of the site) of the Main Process Building, there are 2 types of storage proposed:

  Designated "main" storage areas will be segregated and limited to ***comply with HSE guidance*** (size of stacks) on their capacities and will be controlled using the advised HSE time limited rotational storage method.

  Contingency storage area(s) for Baled RDF which has undergone additional weatherproof wrapping are also proposed ***for temporary storage (not continual storage)*** at segregated, capacity limited and time limited (less than 6 weeks) areas of the site in accordance with HSE guidance, for discussion & agreement.

❖ **General Note on all Waste Storage Proposals**

Storage capacities, areas and waste types proposed (to be provided in the application) to be **varied to *Activity Reference AR10***.

Following further pre-application discussions and meetings with Guy Baskerville ***it was agreed that the additional contingency storage areas for Baled RDF / SRF were not required.***

1.3 Non-technical Summary

Neath Port Talbot Recycling Ltd proposes to utilise existing areas and infrastructure at their Materials Recycling Facility (WREC) for the storage of waste for recycling or recovery.

Changes to existing areas used for waste storage include:

- Re-allocation of Municipal Solid Wastes (MSW) and Green wastes in the **Reception Area** as provided in **Appendix 1.2.1 a** - **Site Layout Plan - Reception Area**, and an ***additional waste type 19 12 12,*** including the location and quantities, which are provided in **Appendix 3** - **List of Additional Wastes to be Accepted**.

- Re-allocation of recovered recyclates from on-site treatment in the **Process Area** as provided in **Appendix 1.2.1 b** - **Site Layout Plan - Process Area**, this area (Bays 1 to 5) were previously used for the storage of Incinerator Bottom Ash (IBA).

Additional areas to be used for waste storage include:

- An **external uncovered area** for the storage of Baled RDF / SRF, as provided in **Appendix 1.2.1 d** - **Site Layout Plan - External Rear Storage Area** is to be included into the permit for the storage of Baled RDF / SRF produced on-site pending dispatch or export off-site to authorised waste to energy recovery facilities.

- The **Recyclates Building** situated at the far East of the site as provided in **Appendix 1.2.1 e** - **Site Layout Plan - Kerbside Recyclates Building** is to be incorporated into the permit for the storage of assorted source segregated MSW, a list of ***9 new waste types***, including their locations and quantities are provided in **Appendix 3** - **List of Additional Wastes to be Accepted**.

Existing Storage layout in the **Fuel Preparation Area** ***remains unchanged*** as shown in **Appendix 1.2.1 c** - **Site Layout Plan - Fuel Preparation Area**, a list of **2 additional waste types**,19 12 08 & 19 12 12 including their locations (Area C2) and quantities are provided in **Appendix 3** - **List of Additional Wastes to be Accepted**.

There are no proposed changes to treatment throughput capacities or the maximum annual throughput at the MREC facility.

The proposed variation ***does not include any additional land*** and all waste operational and storage areas are to be carried out in/on existing site infrastructure on impermeable surfaces, wastes stored in external waste storage areas will be contained in weatherproof containers/packaging with existing site drainage systems.

2. Proposed changes to activities and permit conditions

2.1 Proposed minor changes to (EPR/BJ5775IF/V018) Table S.1.1 activities

Activity Reference AR10: Waste storage prior to any activities specified under activity reference AR1, AR3 or AR9 above

The proposed changes, additions or ~~deletions~~ to conditions specified within **Activity Reference AR10** are provided with highlighted proposals below:

AR10

Municipal Waste Storage	No more than 1500 tonnes to be stored on flat floor with push walls in Reception Area
Wastes awaiting SRF manufacture	No more than 100 tonnes to be stored on flat floor with push walls in Area A1 and C2 in the Fuel Preparation Area
SRF digestate liquor	No more than 175 tonnes to be stored in the underground tank in Area H
Recovered recyclables	No more than 500 tonnes to be stored on flat floor within the Process Areas or transferred to roll-on/roll-off containers in Skip 2 or Skip 3 ~~Areas 3.2A, 3.2B, 3.2C, 3.2D, 3.2E, 3.2F & 3.4F~~
Loose or Baled Refuse Derived Fuel	No more than 400 tonnes of Loose or Baled RDF to be stored on flat floor with push walls in Areas ~~1.12~~ A, B & C in the Fuel Preparation Area. No more than 1,000 tonnes of Baled RDF to be stored in Area D (Contingency Storage) in the Fuel Preparation Area. No more than 3,000 tonnes of Baled RDF in weatherproof packaging to be stored in Area E in the Rear External Storage Area
Unacceptable wastes	No more than 10 tonnes to be stores in a lockable container in Area 1.3. in the Reception Area. Container to be locked when not in use

Process rejects	No more than 200 tonnes (total process rejects) to be stored on flat floor within Skip 1, P-Bay 2 or P-Bay 3 within the Process Area ~~reception area or transferred to roll- on/roll-off container in Area 1.3~~
Storage of separately collected recyclable/recoverable wastes	No more than 1,600 tonnes within bays K1 to K8 within the Kerbside Recyclate Building. No more than 50 tonnes in containers in areas S1, S2 & S3 adjacent to the Kerbside Recyclate Building.
Drainage from waste reception and processing area	No more than 110 tonnes to be stored in underground tank in Area G
Incinerator bottom ash (IBA)	No more than 30 tonnes per bay for non-hazardous IBA (total 120 tonnes) and 30 tonnes hazardous IBA to be stored in concrete bays within process building prior to transfer to roll-on/roll-off container in Area 1.13A, 1.13B, 1.13C, 1.13D & 1.13E
Air pollution control residues / fly ash (including dust / lime / carbon)	No more than 30 tonnes to be stored in flexible IBCs on flat floor within process building
Other wastes	Quantity as detailed in the Application to be stored in drums or sealed containers

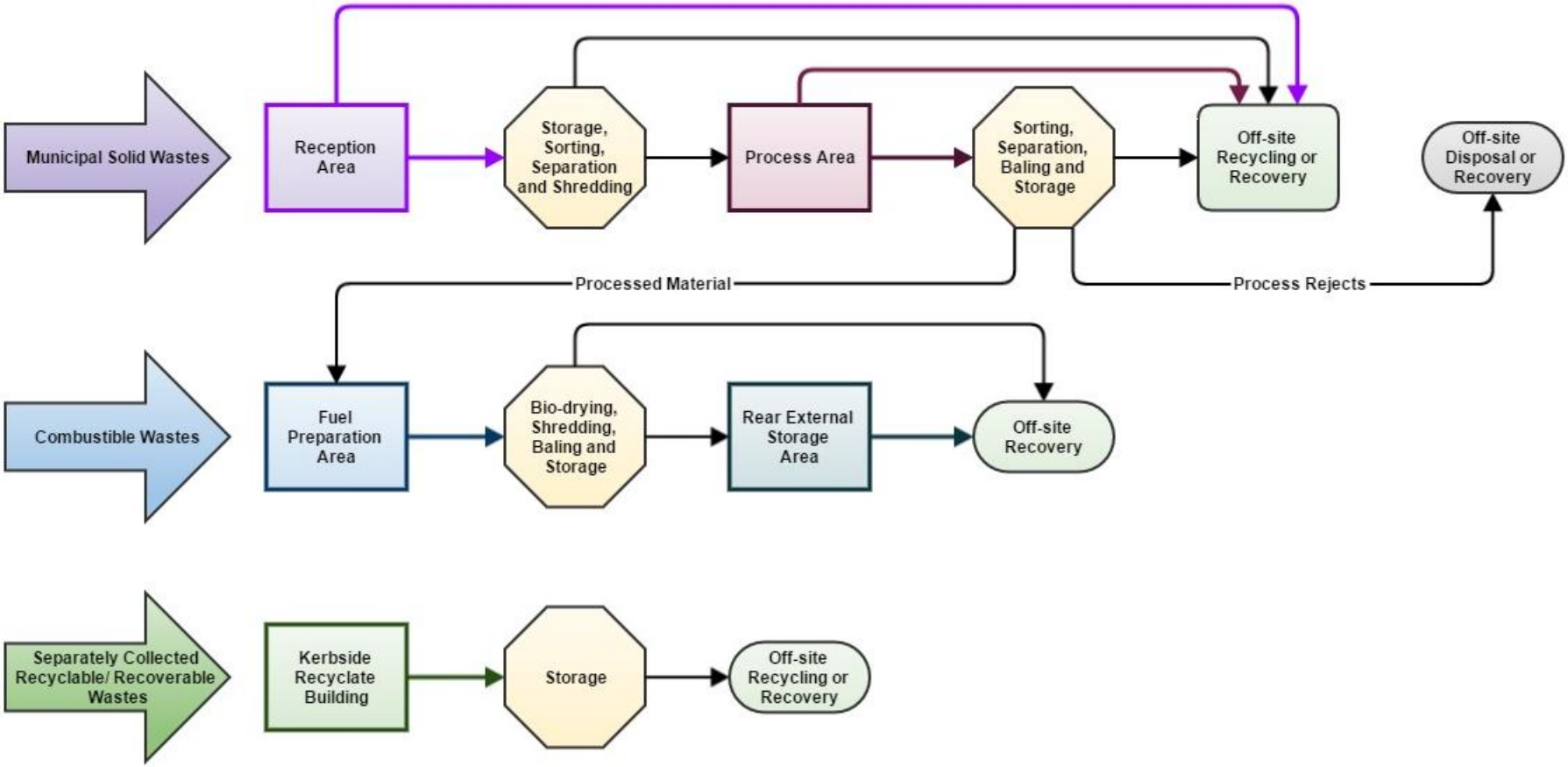
2.1 Proposed Additions to Schedule 2 Table S3 & Table S4 Wastes

Details are provided separately in **Appendix 3 to Variation Application, List of Additional Wastes to be Accepted**

3 Waste Storage, Recycling and Recovery Operations

3.1. Overview of Operations

An overview of the waste storage, recycling and recovery operations carried out at MREC Facility is provided on **Figure 3.1 Operational Overview Flowchart** below:



There are no proposed changes to Waste to Energy (WTE) operations (including manufacture of densified RDF for on-site incineration) which are currently non-operational, these operations are likely to undergo re-fitting and refurbishment before they re-commence in the future.

3.2 Waste Pre-acceptance Procedures

Wastes to be accepted at the Materials Recovery and Energy Centre (MREC) are pre-determined and sourced from the following sectors and EWC/LoW Chapters:

- Chapter 02 Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing
- Chapter 03 Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard
- Chapter 04 Wastes from the leather, fur and textile industries
- Chapter 15 Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified
- Chapter 19 Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use
- Chapter 20 Municipal solid wastes comprising of separately collected fractions from kerbside collection and recycling schemes.

3.2.1 Solid Combustible Wastes

These wastes are accepted for on-site manufacturing of SRF / RDF, Specific waste types produced from the industry sectors above are sought for the operations and uses provided below:

Chapter 02 **Plant tissue waste,** where the analysis and composition of wastes are predetermined to show that the wastes can be processed to manufacture RDF / SRF.

Chapter 03 **Waste bark, cork and wood,** where the analysis and composition of wastes are predetermined to show that the wastes can be processed to manufacture SRF.

Chapter 04 **Organic matter from natural products (e.g. grease and wax),** these wastes may be used as a binding agent particularly for the use in producing fuel pellets or briquettes RDF where the analysis and composition of wastes are predetermined to show that the wastes can be processed to manufacture RDF / SRF.

Chapter 15 **Packaging wastes** will be individually assessed, their analysis and compositions will be determined for each source and waste type to evaluate their potential to manufacture RDF / SRF. fuel and any additional processing for recovery of components.

Chapter 19 **Wastes from the off-site treatment of wastes,** these wastes will be individually assessed, their analysis and compositions will be determined for each source and waste type to evaluate their potential to manufacture RDF / SRF fuel and any additional processing for recovery of components.

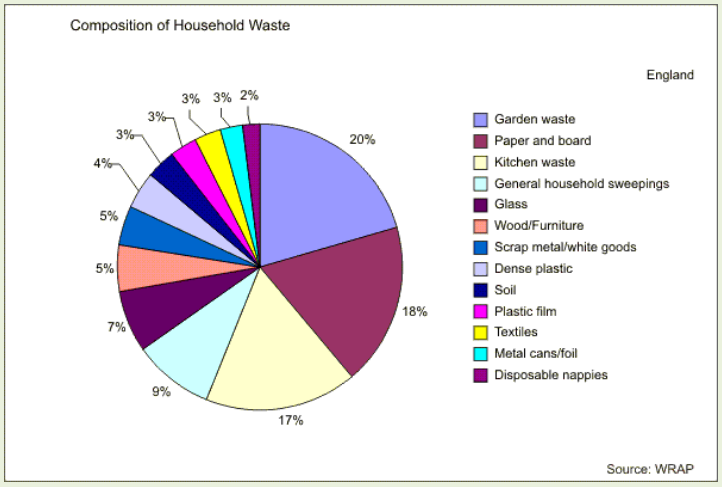
Refuse derived fuel from the on-site treatment of wastes, these wastes are currently accepted and permitted for on-site treatment and production of refuse derived fuel RDF / SRF which is either densified and incinerated on-sitealong with energy recovery or to be used and blended with specified wastes above to manufacture RDF / SRF for off-site energy use.

3.2.2 Mixed municipal solid wastes (MSW)

These wastes are accepted for on-site treatment, MSW also referred to as black bag wastes, are periodically reviewed for composition and data, typical waste analyses for the Neath Port Talbot Borough Council area is provided by WRAP shown in Figure 2.1.1 below and has been used as the basis of the composition of these wastes undergoing treatment, recycling and preparation of refuse derived fuel (RDF) or manufacture of solid recovered fuel (SRF) operations at the MREC facility. The residual waste element "black bag" is the main waste stream processed at the site and the compositional analysis is representative of material being disposed of in the residual waste stream.

Periodic checks on the composition of mixed municipal solid waste received at the MREC facility is undertaken *(Residual Waste Compositional Analysis)*, however, the composition can vary in time due to changes in collection and recycling schemes, manufacturing and legislative controls. These on-going changes will are reviewed to determine their impact on the changes to the MSW mixed refuse wastes composition and reflected and updated in their treatment and recovery operations.

Figure 3.2.2 Composition of Household Waste



Household waste collected is composed of a wide variety of materials. There is limited compositional data available, but the best overall estimates currently available show that, on average, household waste typically consists of garden waste (20 per cent of the total), paper and board (18 per cent), putrescible waste such as kitchen waste (17 per cent), general household sweepings (9 per cent), glass (7 per cent), wood (5 per cent), wood and furniture (5 per cent), scrap metal/white goods (5 per cent), soil (3 per cent), textiles (3 per cent), metal packaging (3 per cent) and disposable nappies (2 per cent).

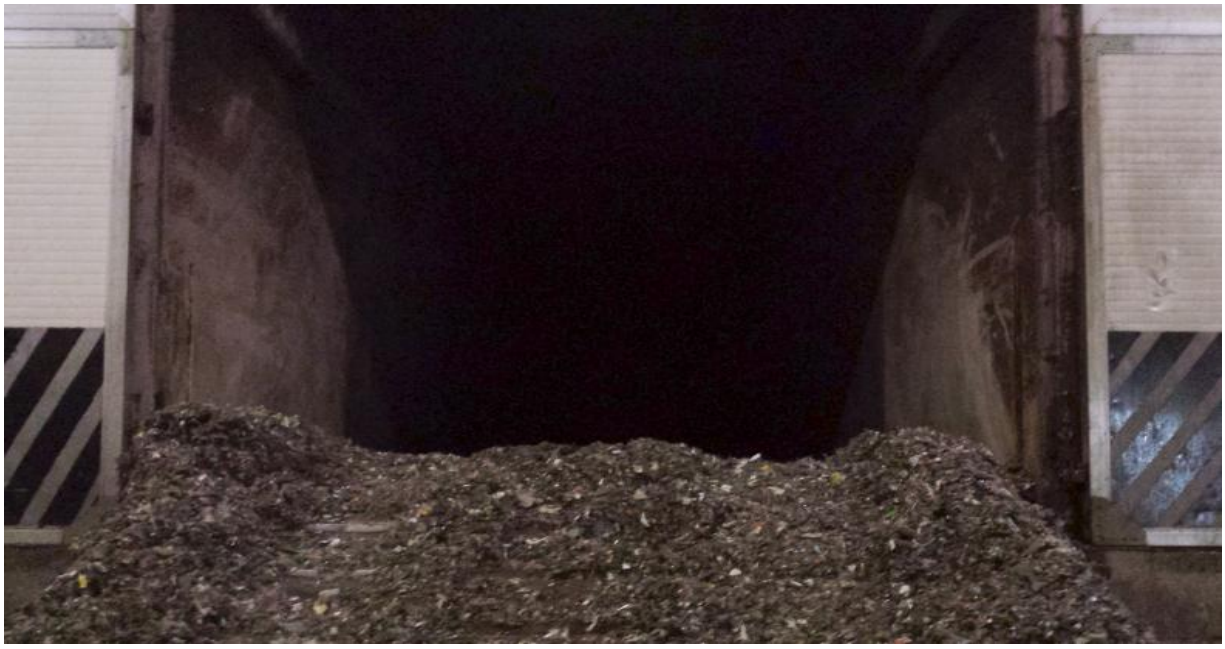
3.2.3 Recyclates and separately collected fractions

These wastes are accepted for ***transfer for off-site recycling or recovery*** facilities:

Chapter 15 **Packaging wastes** these wastes will be accepted for temporary storage pending off-site recovery operations or on-site processing for the recovery of their component recyclable fractions and / or manufacture of RDF / SRF.

Chapter 20 **Separately collected fractions of municipal wastes** these wastes will be accepted for temporary storage pending off-site recovery operations (e.g. composting & recycling).

3.2.4 RDF / SRF manufacturing



Not withstanding the general pre-acceptance procedures provided above, wastes accepted for RDF / SRF manufacture, waste streams will be carefully chosen and where appropriate (e.g. new waste streams or where the components/composition is known or likely to be variable on key factors), it is proposed that ***trials to be agreed with Natural Resources Wales*** will be carried out on new waste streams e.g. on samples and small consignments (up to 50 tonnes) of waste for evaluation of suitability for use as a fuel and appropriate processing techniques before full waste acceptance of those wastes for full scale manufacturing of SRF is agreed and undertaken.

3.3 Waste Acceptance Procedures

3.3.1 Arrival of Incoming Waste

Vehicles delivering waste arrive firstly at the weighbridge which is situated at the entrance to the MREC facility, the driver of the vehicle is stopped at the weighbridge barrier and registers the details of the waste being carried with the weighbridge officer, who is located in the control room on the first floor of the amenity building.

The information that will be required, checked and recorded prior to the vehicle proceeding onto the site includes:

i. Time and date of receipt;
ii. Vehicle registration/identity number;
iii. Drivers Details;
iv. Producer
v. Contract Reference;
vi. Details and date of issue of “Season Ticket” Controlled Waste Transfer Note;
vii. Details and date of issue of Carrier;
viii. The District of Waste Origin;
ix. The waste type or types and waste code or codes;
x. Physical state/form of the waste;
xi. Containment type/packaging type;
xii. Any irregularities with the load, e.g. documentation, odours, hazardous items etc.
xiii. Any irregularities with the load, prior to offloading and on inspection after deposit, e.g. contamination, odours, unsuitable debris, hazardous items etc.
xiv. Redirected (rejected) waste/loads for alternative off-site treatment/disposal

3.2.3 Waste rejection and/or quarantine

If the weighbridge officer finds any irregularities with the consignment of waste or with the documentation accompanying it, then the driver will be requested to pull off the weighbridge and wait near the weighbridge whilst the shift supervisor is contacted and investigates the situation. The vehicle will not be allowed to either deposit the waste at the site or leave the site until the situation rectified and all the documentation and transfer note(s) are corrected or re-issued.

Any non-conforming wastes or hazardous items ***detected on deposit*** and inspection of the loads will be immediately notified by the site operatives to the shift supervisor and the consignment of waste or hazardous items within the consignment of waste will be relocated and quarantined securely in quarantine storage within the Reception Area, location area ***1.3*** as provided in ***Site Plan Appendix 2.1a***.

In all cases the vehicle or waste will not be allowed to leave the site until the situation is investigated, rectified and notified to the Natural Resources Wales.

3.2.4 Waste reception

On successful completion of the waste checks the vehicle is weighed, recorded and the driver is directed to where the waste material is to be unloaded, ***there are 3 main areas on the site for receiving wastes***.

- **Reception Area**

Municipal Solid Wastes (including any bulky items) collected from households are ***accepted and offloaded at the Reception Area*** (main tipping hall of the MREC building) as provided in ***Site Plan Appendix 2.1a.***

Waste types accepted are those specified in **Permit Tables S2.2 S2.3 & S2.5** and the ***additional waste 19 12 12*** as provided in ***Appendix 3*** - ***Table 2.3***.

- **Fuel Preparation Area**

Solid combustible wastes are ***accepted and offloaded at the Fuel Preparation Area*** within the main MREC building, inputs for manufacturing SRF /RDF are stored within **Area C2** provided in ***Site Plan Appendix 2.1c.***

Waste types accepted are those specified in **Permit Table S2.3** and the ***additional waste 19 12 12*** as provided in ***Appendix 3*** - ***Table 2.3***.

- **Kerbside Recyclate Building**

Separately collected fractions are ***accepted and offloaded at the Kerbside Recyclate Building*** which is situated North East to the main MREC building, inputs for storage pending off-site transfer are stored within areas specified and in ***Site Plan Appendix 2.1e.***

Waste types accepted are those specified in **Permit Table S2.3** and the ***additional waste 19 12 12*** as provided in ***Appendix 3*** - ***Table 2.4***.

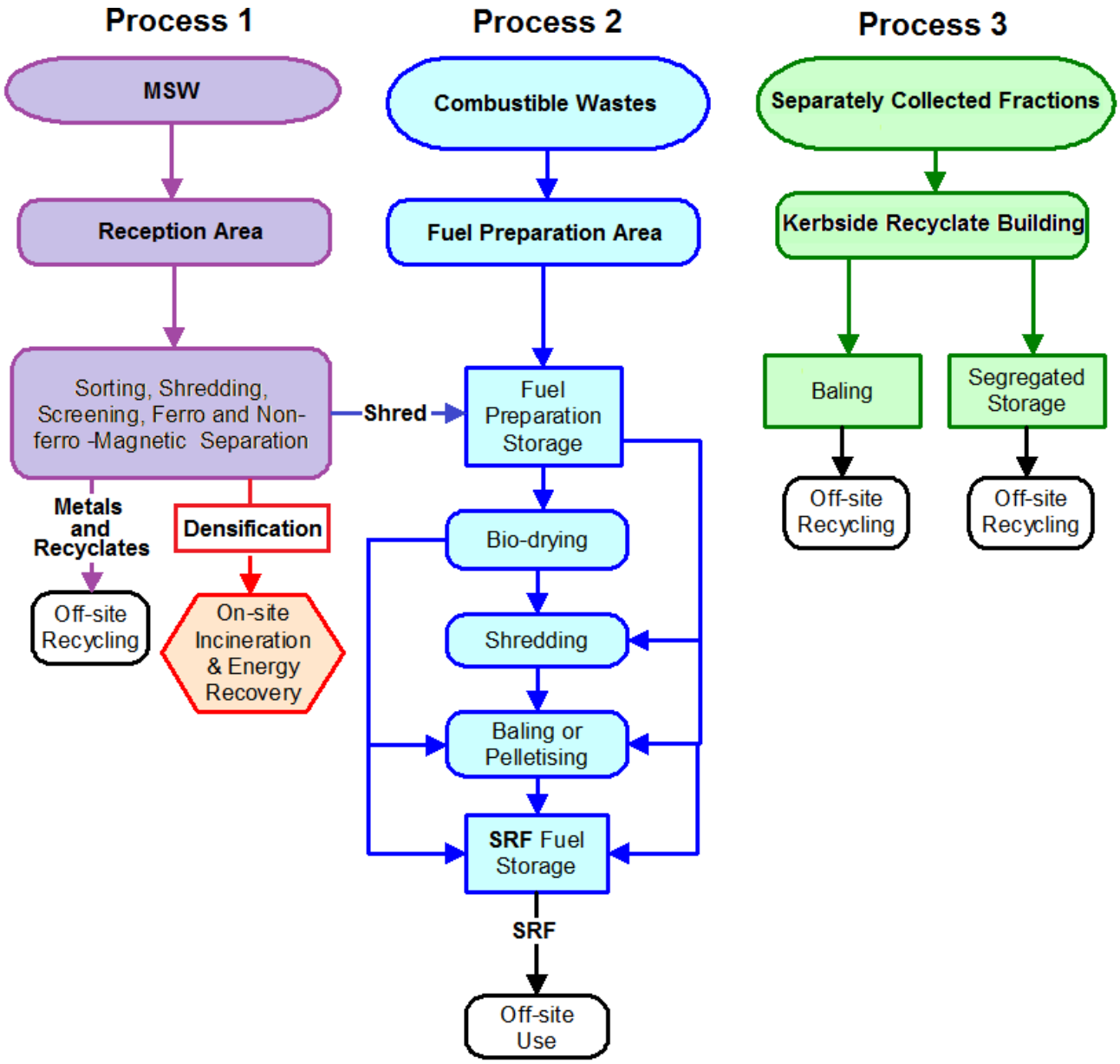
3.4 Waste storage and treatment operations

3.4.1 Processes

The MREC facility incorporates a waste reception area, waste preparation, sorting, refining and collection process areas, manufacture of solid recovered fuel utilising the bio-drying tunnels and subsequently baling and pelletising the fuel for off-site use and the on-site combustion of refuse derived fuel from the organic fraction of mixed municipal solid waste to generate electricity.

There are **3** main and distinct process routes carried out at the MREC facility, these are provided in ***Figure 3.4.1 Process Flowchart*** below and further described overleaf:

Figure 3.4.1 Process Flowchart



1 Treatment of wastes to produce densified RDF for on-site Incineration

This is not the subject of the variation application, the on-site manufacture of dRDF for on-site ***incineration in the Waste to Energy plant is currently off-line***, however, a portion of the ***resulting SRF /RDF residual shredded waste*** is to be utilised in the manufacture of SRF for off-site incineration and use as a fuel, as described in ***Process 2*** below.

When operations re-commence, this process accepts mixed municipal solid wastes for treatment to ***remove and recover the recyclates and produce RDF*** (Process 2) for on-site incineration incorporating energy production for on-site use and off-site (export into the national grid) use.

Operations are currently carried out in the **Reception Area** → **Process Area** → ~~**Waste to Energy Plant**~~ prior to further processing in the **Fuel Preparation Area.**

2 Manufacture of SRF / RDF from Combustible Wastes for Energy Recovery

SRF manufacturing sourced from selected wastes and the bio-dried fraction of RDF recovered from the treatment of mixed municipal solid wastes (Process 1) for use as a fuel by off-site energy users or providers.

Operations are currently carried out in the **Reception Area** → **Process Area** → **Fuel Preparation Area** ~~→~~ **External Rear Storage Area** prior to **transfer off-site.**

3 Storage, Baling and Transfer of Kerbside Collections for off-site Recycling or Recovery

These wastes and transfer operations previously operated under an exemption for a permit are to be incorporated into the proposed variation.

Storage and **Transfer** operations are currently carried out in the **Kerbside Recyclate Building** and **Reception Area** prior to **transfer off-site.**

Kerbside Recyclate Building / green waste stored in **Reception Area** → **transfer off-site**.

Storage and **Baling** operations of Paper, Cardboard, Plastic and Plastic & Cans from the Kerbside Recyclate Building is carried out in the **Process Area**.

Kerbside Recyclate Building → **Process Area** → **transfer off-site**.

3.4.2 Process Descriptions

- **Process Route 1, Treatment of MSW**

  Mixed MSW received in the **Reception Area** (see **Appendix 2.1a Site Layout Plan**) undergoes ***shredding, sorting and magnetic separation*** of recoverable and recyclable fractions.

  Mixed MSW is stored in area **R1** prior to shredding and separation of metals (tins and cans), shredded waste is stored in area **R3** and **R5** prior to further treatment (separation) in the **Process Area**, and recovered ferrous metals are stored in area **R4** prior to dispatch for off-site recovery.

  The Reception Area is also fitted with a ***Picking Line*** where waste can be fed into a hopper which the passes along a conveyor belt and a picking room where recyclates are manually removed and placed in a series of chutes, and which fall into skips underneath. The picking line is also fitted with a magnet to remove tins and cans which are also collected separately below into a skip for off-site recovery.

- **Process Route 2, Manufacture of SRF / RDF**

  Treated MSW produced from operations carried out in the **Reception** and **Process Areas** which is not densified and incinerated on-site is directed from the **Process Area** to the **Fuel Preparation Area** area **C2** (see **Appendix 2.1c Site Layout Plan**) for the manufacture of SRF / RDF.

  Recyclable fractions and unsuitable fractions (process rejects) separated along a series of conveyors, trommels and ferrous and non-ferrous magnetic separators within the **Process Area** (see **Appendix 2.1b Site Layout Plan**).

  P - Bays 1 to **P-Bay 5** (previously used for the storage of Incinerator Bottom Ash) are utilised for the segregated storage of separated recyclates, organic fines and factory sweepings and ferrous and non-ferrous metals removed from the MSW passing through.

  Skip 1 is used to store a maximum of 15 tonnes of separated organic fines and process rejects prior to off-site disposal, **Skip 2** and **Skip 3** is used to store a maximum of 2 x 15 tonnes of non ferrous metals (aluminium) prior to off-site recovery.

  Sourced solid combustible wastes specified in ***Permit Table S2.3 deemed*** suitable for SRF/ RDF manufacture by mechanical biological treatment (MBT) are delivered at the rear of the facility to **Fuel Preparation Area** in area **C2** (see **Appendix 2.1c Site Layout Plan**) prior to processing via the bio-drying tunnels, shredding, and/or baling or pelletising, packaging and/or storage pending collection for off-site use.

  Loose or baled SRF / RDF are stored in areas **A1**, **B** & **C1** at total capacity of 100 tonnes, ***additional internal contingency storage*** for Loose or Baled SRF / RDF is provided within the Process Area Building in area **A2** at total capacity of 1,000 tonnes.

  Additional external storage for Baled SRF / RDF is provided within the **External Rear Storage Area** (see **Appendix 2.1d Site Layout Plan**) at total capacity not exceeding 2,500 tonnes, wastes storage will be compliant with the size of stacks and separation distances provided WISH or Environment Agency Fire Prevention Plans.

SRF / RDF Process Description

Bio-drying is the process by which biodegradable waste is rapidly heated through initial stages of composting to remove moisture from a waste stream and hence reducing its overall weight but also increasing its' calorific value. It can take as little as 8 days to dry waste in this manner.

The composting or bio-drying process is carried out within 9 reinforced concrete composting tunnels.

Each tunnel can process 180 tonnes of material, and are fitted with under floor aeration and collection systems for the leachate water, which is then re-circulated and sprayed back onto the composting beds.

The process of bio-drying is a good solution for municipal and other solid waste management, allowing the production of fuel with valuable energy content.

Appropriate management of the processing parameters (air-flow rate and biomass temperatures) can achieve biomass drying in very short times (typically 8-9 days).

Bio-drying may be used as part of the manufacturing process for SRF/RDF. The aim of this process is the exploitation of the biochemical exothermic reactions for the evaporation of the highest amount of the humidity in the waste, with the lowest consumption of organic carbon.

The same in-vessel reactor for composting are utilised for bio-drying the SRF with a different processing cycle that determines air fan speeds and damper angles.

The treatment process is preferably carried out using bacteria in the upper mesophilic and thermophilic phases, which occur in the temperature range of above 40ºC and most preferably around 40ºC to 55ºC. In this phase, very rapid decomposition occurs with the rapid production of heat. The reaction in the thermophilic phase is higher than the mesophilic phase which occurs in the range 30ºC to 40ºC. Accordingly, accelerated decomposition of the waste takes place

The compound floor is bounded on three sides by 3m high steel reinforced concrete push/restraining walls. These walls will assist in the stacking of the waste and in the loading of the mechanical shovel. The floor incorporates a drainage point to permit washing down on occasion with effluent going to the leachate chamber in the composting area.
Outgoing rejects will be by loaded by mechanical shovel into bulk vehicles, which will be covered before leaving the building.

Following the bio-drying process the output product having been bio-stabilised is shredded to reduced its' size to produce a ***flock*** to customer specification.

Due to the nature of the product being dry a purpose extraction system specific to the shredders has been installed to abate dust emission from the machines.

This control measure is independent to the ventilation system that forms an integral part of the drying process in the tunnels.

The Dedicated LEV is primarily installed to control occupation exposure to dust levels in the area as it has its own bag filtration system with dust collecting in screw fed hoppers. This dust can be re-blended with the fuel.

Leachate from the bio-drying tunnels is collected in a sealed sump and is collected by pumping the liquid onto a road tanker and consigned as non-hazardous waste for off-site treatment at a local sewage treatment works.

Baling SRF is carried out by filling a high pressure chamber were it is netted prior to wrapping the bale with a water proof plastic film membrane that allows storage outside without being effected by the elements. The SRF being baled has been bio-dried and stabilized with moisture content under 15% and therefore there is no odour attributed to the material.

Each bale is 1m³ with a bulk density of 600kg.

The bales are sealed with several layers of plastic film membrane to ensure they are airtight and impervious to water, the wrapped bales will be handled and stacked using the appropriate handling equipment. We have taken our lead from current practice in Germany were SRF fuel substitution is advanced in its application and used as a secondary fuel. Baling of SRF fuel is common practice at these facilities in Germany i.e. Herhof, Osnabrueck

Any dust emissions will be controlled as the baling activity will take place in the Fuel preparation hall, the material being baled has been bio-dried and stabilized, therefore eliminating any odours, and reducing and eradicating the risks of generating polluting leachate, dust emissions or nuisance odours.

Pelletising the SRF / RDF to customer specifications involves passing the material through the densification mill chutes which are equipped with a sealed screw discharge system, which directs material into the die of the densifiers.

The 850mm inside diameter die is equipped with 2 No 350mm diameter vertically disposed rollers. The bottom roller squeezes material through the lower section of the die whilst the upper roller squeezes material through the top of the die.

Feed material is "sprayed" into the die orifices by the densifier feeder. Any material not sprayed into the die orifices direct is picked up by a pair of ploughs and mechanically directed into either of the two die orifices.

The die is perforated by a series of specially contoured holes and the action of the rollers squeezes the material throughout the die, which is densified during its progress through the die wall.

The pellet size is variable depending on customer requirements and specifications, variations to pellet sizes simply involves changing the die rings to produce the required pellet size.

The manufactured SRF/RDF is stored in the product storage area within the facility prior to collection for off-site use, the output material passes onto an incline conveyor that feeds either the purpose build vehicle loading system for loading trailers overhead and this will limit dust emissions as the extraction system will be integrated into this loading conveyor or the material can be passed over to the dedicated holding bay for additional aeration from the maturation system of drawing air through the material via ventilation in the floor area and this material can be loaded into trailers inside the building when the loading system is not running.

Baled and packaged SRF are transported to the storage areas in the facility by a truck fitted with suitable grabs that will not damage the weatherproof wrapping/packaging.

The storage areas are within a sealed drainage area and the attenuation pipe for the site in the unlikely event of material run off can be isolated and procedures are in place for these eventualities. There will be no noise impact as the baling activity will be indoors and there will be no litter or waste releases as the bales are sealed and will be handled by trained personnel with the appropriate equipment.

Where additional storage is required e.g. in the event of operational issues at the customers plant where there is a need to retain product (rather than having to unnecessarily dispose of short term surplus fuel to landfill) or in the event of maintenance issues in the fuel preparation area, an **External Rear Storage Area** outside the building is to be utilised, this option also presents a buffer stock on the site as a contingency plan for ensuring continued customer supplies.

Baled and packaged SRF / RDF will be stored in weather proof plastic shrink wrapping, there are no potential for odours or attraction by pests issues attributed to the SRF contained within sealed bales or packaging. Provisions for fire and security are also in place and robust procedures exist for emergency situations in addition to comprehensive security provisions day and night with security guards and 24 hr CCTV surveillance on the **External Rear Storage Area** for the SRF / RDF.

Quality Protocol and Customer Specifications

A quality protocol for the manufacture and use of SRF is currently under development by Neath Port Talbot (Recycling) Limited and will comprise of a separate quality management system which on completion will be available on request.

Customer specifications and contracts for the supply and use of SRF are agreed in advance and put place prior to manufacture and supply, copies of the customers' specifications and contracts can be made available on request.

- **Process Route 3, Storage, Baling and Transfer of Kerbside Collection Recyclates**

Storage ***Recyclates*** specified in ***Permit Table S2.4*** are collected from kerbside collections from households and are delivered to the **Kerbside Collection Building** (see **Appendix 2.1e Site Layout Plan**) and stored in areas **K1** to **K8** in segregated bays within the building.

Textiles are stored in containers in areas **S1** & **S2**, and mixed dry recyclates (occasional additional contingency storage) are stored in area ***S3*** outside the building.

Green waste collected from kerbside collections are stored separately in the **Reception Area** (see **Appendix 2.1e Site Layout Plan**) area **R2.**

Waste types, locations and quantities are also provided in **Appendix 3 - List of Additional Wastes to be Accepted** to this application.

Baling Recyclates comprising of Paper, Cardboard, Plastic, and mixed Plastic and Metal cartons are transferred from the **Kerbside Recyclates Building** to the **Process Area** where they are baled into their respective fractions and stored in the areas shown within the **Process Area** (see **Appendix 2.1e Site Layout Plan**).

3.4.3 Waste Dispatches

Consignments of waste that are collected on-site from the MREC Facility will be directed to leave via the outgoing weighbridge. At this location the vehicle is re-weighed and the computer records all of the relevant data associated with the delivery for that particular vehicle. The weighbridge officer can issue a “Waste Transfer Note” to the driver via a ticket machine at the weighbridge. On completion of all relevant details the weighbridge barrier is raised and the vehicle leaves the facility.

4 Environmental Risk Assessment

H1 Assessment for fugitive releases

Table FE-A1 Fugitive Releases risk assessment and management plan						
Site operations and potential targets			**Risk management measures[1]**	**Assessing the risk**		
Hazard	**Pathway**	**Receptor**		**Probability of exposure**	**Consequence**	**Overall level of risk?**
To Air Dust from shredding and treatment operations.	Airborne particulates transported by the wind	Crymlyn Bog (SSSI) to the North and adjacent commercial and industrial premises, residents and public using the footpaths appx 300 metres to the South and South West of the facility	Process Controls & Waste acceptance procedures Dry dusty wastes are not accepted Treatment operations are carried out within contained building with dust abatement (deduster) system.	Possibility of occurrence is low	Possible annoyance of dusts affecting adjacent premises, local residents and public using footpaths.	Not significant
To Water Contamination to water from waste storage areas	Sediments from site buildings, and surfaces falling to water drains via an interceptor	Surface water drain leading to Swansea bay	Process Controls: Monitoring of point source release point W1 Underground tanks fitted to Kerbside, Process and Fuel Prep Areas Waste stored in weatherproof packaging and containers	Possibility of occurrence is low	Run-off of suspended solids and contaminants entering the surface water drain	Not significant

Table FE-A1 Fugitive Releases risk assessment and management plan						
Site operations and potential targets			**Risk management measures[1]**	**Assessing the risk**		
Hazard	**Pathway**	**Receptor**		**Probability of exposure**	**Consequence**	**Overall level of risk?**
Pests Infestation of flies or rats in the waste	Degradable putrescible and food wastes stored within facility building	Crymlyn Bog (SSSI) to the North and adjacent commercial and industrial premises, residents and public using the highways and footpaths appx 300 metres to the South and South West of the facility	Process Controls & Waste acceptance procedures Degradable fractions which are capable of attracting pests are stored and treated within the building to produce a non-putrescible waste which is not attractive to pests..	Possibility of occurrence is low	Spread of diseases and damage to property	Not significant
Mud/litter Litter from vehicles delivering wastes Mud from storage and processing areas	Airborne litter transported by the wind Tracking of soils from the waste facility		Process Controls & Waste acceptance procedures Wastes capable of causing litter are deposited, stored and treated within the facility building. Site surface is swept and kept clean	Possibility of occurrence is low	Accumulation of litter and mud outside the facility boundary	Not significant

Table Od-A2 Odour risk assessment and management plan						
Site operations and potential targets			**Risk management measures**	**Assessing the risk**		
Hazard	**Pathway**	**Receptor**		**Probability of exposure**	**Consequence**	**Overall level of risk?**
Odour Smells/odours generated from degradable putrescible and food wastes stored and/or processed	Odours transported by the wind	Adjacent commercial and industrial premises and local residents and public using the footpaths appx 300 metres to the South and South West of the facility	Process Controls & Waste acceptance procedures Continuous olfactory monitoring carried out on-site by site supervisers Odour Management Plan (Revision 3.1 - 09.09.2015)	Possibility of occurrence is moderate	Possible annoyance of smells affecting adjacent premises and and local residents and public using the footpaths downwind of the facility	Moderate

5 (iii) Simple H1 Assessment for noise and vibration

Table NV A3 Noise and Vibration risk assessment and management plan						
Site operations and potential targets			**Risk management measures**	**Assessing the risk**		
Hazard	**Pathway**	**Receptor**		**Probability of exposure**	**Consequence**	**Overall level of risk?**
Noise and Vibration Noise and vibration from vehicles delivering and removing wastes and operational plant e.g. shredding, baling, bio-drying etc.	Air - wind direction, and; Land – transmission of vibrations	Adjacent commercial and industrial premises and local residents and public using the footpaths appx 300 metres to the South and South West of the facility	Process controls SRF / RDF stored against building walls within the fuel preparation area will reduce noise and vibration from operating plant. Plant hire contractor Plant Maintenance Schedules On-site auditory monitoring by the site manager Noise and Vibration Monitoring Plan, monitoring carried out.	Frequency and possibility of occurrence is low	Possible annoyance of noise and vibration affecting adjacent premises and local residents and public using the footpaths appx 300 metres to the South and South West of the facility	Low

End.