enzygo
environmental consultants

Fire Prevention Plan EPR/GB3490HG/A001

Nine Mile Point Waste Processing Facility

for:

Hazrem Environmental Ltd

CRM 083 002

'Experience and expertise working in union'

enzygo.com

Contact Details:

Enzygo Ltd.
The Byre
Woodend Lane
Cromhall
Gloucestershire
GL12 8AA

tel: 01454 269237
fax: 01454 269760
email: peter.cumberlidge@enzygo.com
www: enzygo.com

Fire Prevention Plan CRM 083 002 PE R 010 A

Project:	Nine Mile Point Waste Processing Facility
For:	Hazrem Environmental Limited
Status:	Draft
Date:	April 2016
Author:	Steph Charnaud Senior Consultant
Reviewer:	Peter Cumberlidge, Director

Contents

Tables & Figures

1.0 INTRODUCTION

1.1. Overview

1.1.1. This Fire Prevention Plan has been prepared as part of on-site Operational Documentation in support of the proposed waste processing facility ('The Facility') at Nine Mile Point Industrial Estate, Cwmfelinfach, Caerphilly.

1.1.2. This document provides information to support an Environmental Permit Application reference **EPR/GB3490HG/A001** and comprises a stand-alone operational document which will be implemented on-site following permit issue.

1.1.3. The Operator of the Facility will be Hazrem Environmental Ltd, hereby referred to as 'the Operator'.

1.1.4. Environment Agency Guidance Note: Fire Prevention Plans, Version 2, March 2015, describes the waste activities for which fire risk is a key issue and for which a Fire Prevention Plan is required, and applies to facilities which store combustible materials. Nine Mile Point Waste Processing Facility stores such materials.

1.1.5. This Fire Prevention Plan will be transposed into the site's Environmental Management System (EMS) following formal approval by Natural Resources Wales (NRW). The plan will be updated and reviewed in accordance with the requirements of the site management systems.

1.1.6. This Fire Prevention Plan is intended to be used as a stand-alone working document for operational staff on a day to day basis. It outlines the main potential fire sources at the proposed site, the mitigation measures to be used to reduce the risk of fire and the monitoring and reporting methods to be used when the site becomes operational. It will be reviewed regularly and revised as required.

1.2. Aim and Objectives of the Fire Prevention Plan

1.2.1. This Fire Prevention Plan has been developed based on the requirements of Environment Agency Horizontal Guidance Note 'Fire Prevention Plans' Version 2, March 2015. This guidance document outlines the standards which must be followed when storing combustible materials at permitted sites.

1.2.2. The aims of this Fire Prevention Plan are to identify sources of combustible materials, possible causes of fires, minimise the risk of fire occurring at the Facility and in the event of a fire occurring ensuring that it is identified as early as possible.

1.3. Relevant Guidance and Documentation

1.3.1. This Fire Prevention Plan has been prepared with reference to the following key guidance:

- Fire Prevention Plans' Version 2, March 2015;
- Environment Agency Environmental Management Guidance 'Control and monitor emissions for your environmental permit'
- Environment Agency Environmental management guidance 'Develop a management system: environmental permits'; and
- CIRIA 736: 'Containment Systems for the Prevention of Pollution'.

2.0 SITE DESCRIPTION

2.1. Site Location

2.1.1. The full site address is:

Nine Mile Point Waste Processing Facility
Nine Mile Point Industrial Estate,
Ynysddu,
Cwmfelinfach,
Caerphilly,
NP11 7HZ

2.1.2. The National Grid Reference for the site is: ST 19235 91305. The site covers an area of approximately 1.09 hectares and is currently undeveloped. The site is bordered by an industrial unit to the east, a road to the west beyond which are more industrial units, a road to the south beyond which is woodland and the Sirhowy River and to the north by woodland.

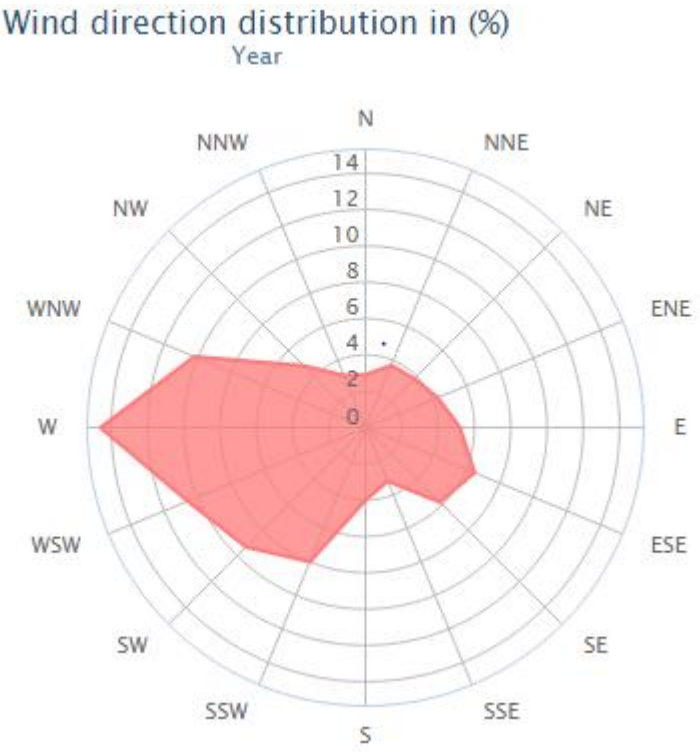
2.1.3. The nearest residential properties are on New Road, approximately 470m North East of the eastern edge of the site boundary and William Street, approximately 478m West of the western edge of the site boundary.

2.1.4. The prevailing winds at this site are from the west, west north west and west south west (based on regular observations recorded at the 'Caerphilly' monitoring station between April 2013 and May 2015 (www.windfinder.com).

Figure 2.1.5A: Caerphilly Weather Station Data

Month of year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
	01	02	03	04	05	06	07	08	09	10	11	12	1-12
Dominant Wind dir.	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤	➤
Wind probability >= 4 Beaufort (%)	19	23	18	21	21	11	8	11	5	14	6	24	15
Average Wind speed (kts)	6	7	7	8	7	6	6	6	5	6	4	7	6
Average air temp. (°C)	8	8	10	13	15	19	23	19	17	15	11	9	13

Figure 2.1.5B: Caerphilly Weather Station Wind Rose



2.1.5. The site plan included in Appendix B shows the general layout, storage areas, access, water supplies, location of fire detecting equipment, electricity supplies, fire alarm call point and emergency exits.

2.1.6. Appendix E shows the location of key sensitive receptors within 1km of the facility.

3.0 FACILITY OPERATIONS

3.1. Overview

3.1.1. Nine Mile Point Waste Processing Facility has a capacity to process a maximum of 100,000 tonnes of non-hazardous household, commercial and industrial waste per annum, to produce Refuse Derived Fuel (RDF) or Solid Recovered Fuel (SRF).

3.1.2. A Site Plan is included in Appendix B showing the general layout of the external part of the site. Appendix C shows the internal layout of the site.

3.1.3. In summary, waste will be brought to site and unloaded in the Waste Reception Building then fed into a preparation plant for segregation of recyclable content. The remaining waste will then either be passed through a dryer, and then baled and wrapped, or passed directly to the baler and wrapped. Bales will be stored outside the building on an impermeable pavement.

3.1.4. Waste analysis has been conducted on the waste streams to be brought onto the site. This analysis which is included in Appendix I indicates that the moisture content of the imported waste will be between 44 to 50%.

3.1.5. The waste reception building has an impermeable floor capable of being cleaned and all drainage is directed to foul sewer under a trade effluent consent from Welsh Water.

3.1.6. For the majority of the time the facility will accept more than 75 tonnes of waste per day. This waste will include an element of combustible wastes such as wood, paper, cardboard, plastics and metals.

3.1.7. The proposed Waste Processing Facility comprises of the following elements:

- Weighbridge;
- Waste reception and storage;
- Storage area for recycled wastes, i.e metals, plastics, fines;
- Shredders;
- Screens;
- Separating equipment, magnets, heavy light separators and a near infra-red unit for plastic separation;
- Dryer;
- Baler and Wrapper;
- RDF/SRF Storage; and
- Site cabin with associated staff and visitor parking.

3.1.8. Waste materials are delivered to the site during the following operational hours:

- Monday – Friday 07:30 – 18:30
- Saturday 07:30 – 13:00
- No waste will be delivered to the facility on Sundays or Public/Bank Holidays.

- The treatment of waste through the process will in general operate continuously 24 hours a day.
- The facility will be staffed 24 hours a day.

3.1.9. Waste storage areas are detailed on the site plans in Appendix B and C.

3.1.10. Potentially combustible wastes include wood, general waste and cardboard which are present in the quantities detailed in Table 2.2.7 below

Table 3.1.8: Combustible Waste Types and storage capacities

Waste types	Containment	Approximate Storage capacity
Input material for processing (waste codes as listed in permit)	In the waste reception building in the waste reception bay	610 tonnes
Ferrous Metals	In the waste reception building in 35 cu. yard skips separated from other materials by 6m.	17.95 tonnes
Non-Ferrous Metals	In the waste reception building in 16 cu. yard skips separated from other materials by 6m.	8.45 tonnes
PVC	In the waste reception building in 35 cu. yard skips separated from other materials by 6m.	9.08 tonnes
Large heavy material (only a small proportion will be flammable e.g. wood, food waste)	In the waste reception building in 35 cu yard skips separated from other materials by 6m.	4.59 tonnes (estimated flammable portion as specified in process flow)
Fines	In the waste reception building in 35 cu yard skip and one 16 cu yard skip separated from other materials by 6m.	41.54 tonnes
Non-recyclable mixed wastes to be baled and or dried	In bunker in the waste reception building which has an impermeable floor	69.31 tonnes
RDF/SRF bales	Wrapped five times and stored outside the building on impermeable surface	600 bales

3.1.11. The scope of the proposed Facility will be limited to the activities specified in Table 3.1.19 below.

Table 3.1.9. Regulated Activities

Schedule 1 Activity	Description of Activity	Annex IIA or IIB	Treatment Capacity
Part A(1) Section 5.4 Part A(1)(b)	*Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day involving (ii) pre-treatment of waste for incineration or co-incineration.* *Bulking of recyclable wastes recovered as an incidental part of production of SRF/RDF*	R3: Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes) R4: Recycling/reclamation of metals and metal compounds R5: Recycling/reclamation of other inorganic materials R13: Storage of wastes pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on site where it is produced)	Total capacity of 100,000 tonnes per annum. Daily treatment capacity of 360 tonnes per day.

3.2. Recyclate Storage

3.2.1. Recyclates removed during the RDF/SRF preparation process will be stored in dedicated 35 cu. yard skips within the waste reception building.

3.2.2. The maximum pile sizes given in table 3.2.2 below are based on the dimensions of a 35 cu. yard skip with the exception of baled RDF which is based on table 1 of the *'Fire Prevention Plan'* guidance. None of these pile sizes exceed the limits given in the Environment Agency's '*Fire Prevention Plans'* guidance.

Table 3.2.2 Maximum pile sizes and minimum separation distance

Material	Max height (m)	Length/width (m)	Max vol (m^3)	Max area (m^2)	Min separation (m)
Paper, cardboard and rags	2.35	6.10/2.44	27	15	6
Plastic, rubber and other materials	2.35	6.10/2.44	27	15	6
Processed wood	2.35	6.10/2.44	27	15	6
Fragmentiser fluff	2.35	6.10/2.44	27	15	6

3.2.3. A strict rotation system will be employed to ensure that no recyclates will be stored for longer than 3 months on site.

3.3. Baled RDF

3.3.1. Baled RDF and SRF will be wrapped 5 times and stored outside the building on an impermeable surface.

3.3.2. There will be one baled RDF storage area which will occupy a total area of 267m². Within this area there will be a number of stacks which will have a maximum height of 3.5m, length of 20m, volume of 450m³ and area of 235m².

3.3.3. A strict rotation system will be employed to ensure that no RDF will be stored for longer than 3 months. Records of stock rotation will be kept on site.

3.4. Input material

3.4.1. Waste will be delivered to a reception bay inside the building which has a volume of approximately 2400m³ and able to store 610 tonnes of waste. The building is on an impermeable surface and drains to foul sewer under a trade effluent consent regulated by Welsh Water.

3.4.2. Waste is then fed into the process to be segregated into recyclable materials and those materials suitable for the production of RDF/SRF.

3.4.3. Analysis has been carried out on the proposed input materials and results indicate that the moisture content of the waste is between 44 and 50% w/w.

4.0 MANAGEMENT OF RISK FROM FIRE

4.1. Overview

4.1.1. Provisions for storage of combustible materials take into account the guidance provided in Environment Agency Guidance Document *'Fire Prevention Plans'* Version 2, March 2015.

4.1.2. In the event of a fire, the site personnel, the Sirhowey River and other businesses on Nine Mile Point Industrial Estate (the closest being immediately adjacent to the facility) are most at risk. Combustion products may have a local and temporary impact depending on meteorological conditions at the time of any incident. The nearest residents are approximately 470m to the North East and 478m to the West of the facility so could also be impacted. A Location Plan is included in Appendix D. A map showing sensitive receptors is included in Appendix E.

4.2. Incident management

4.2.1. Hazrem Environmental Limited have in place an Integrated Management System which covers how potential emergency situations are documented and an Accident Management Plan.

4.2.2. A 'Fire Response Procedure' is incorporated into the above procedure and details specific actions which must be carried out in the event of a fire.

4.2.3. Emergency contacts and other useful contact information will be included in Appendix A when the site is operational.

4.3. Fire Prevention Techniques

4.3.1. Fire Risk Management techniques are detailed below which describe how the requirements of Environment Agency Guidance Document *'Fire Prevention Plans'* Version 2, March 2015 are applied on-site.

4.3.2. This Fire Prevention Plan will be reviewed during the construction programme in discussion with the Fire Safety Officer and if available, the Fire Rescue Service, and updated as appropriate.

4.4. General Measures to Minimise Fire Risk

4.4.1. Table 4.4.1 below details the measures required by the EA Guidance Document 'Fire Prevention Plans' Version 2, March 2015 and how the Operator proposes to prevent risk of fire.

Table 4.4.1A: Prevention of Fire

Factor	Mitigation Measures Employed	Meets FPP Guidance?
Control sources of ignition such as heating pipes, naked flames, light bulbs, space	Industrial heaters will not be used at the Facility. No waste or other materials will be burnt on site. Electrically operated equipment, which may present an ignition source, will be at least 6m	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
heaters, furnaces and incinerators	from combustible waste sources. Ignition sources during non-routine activities e.g. during maintenance activities, will be at least 6m from combustible materials. The facility has a strict no smoking policy.	
Keep sources of ignition at least 6m away from piles of combustible and flammable materials	Ignition sources will be kept greater than 6m from combustible materials.	Yes
Reinforce fire prevention messages using signs	Visitors will be informed of the correct safety and fire prevention procedures; information will be provided at gatehouse at the signing in point and by appropriate signage on-site. Signage will be maintained in areas where combustible materials are stored	Yes
Ensure staff and contractors follow safe working practices when undertaking hot working, such as welding and cutting	No hot work will be carried out on-site routinely. Should maintenance require hot works to be carried out, procedures including relevant work permits will be in place to minimise fire risk. No hot work will be carried out within 6m from combustible waste sources.	Yes
Ensure all visitors follow the correct safety and fire prevention procedures	Visitors will be informed of the correct safety and fire prevention procedures; information will be provided at gatehouse at the signing in point and by appropriate signage on-site.	Yes
Apply a no smoking policy or ensure designated smoking areas are situated away from combustible materials	Smoking is not permitted on site. No smoking signs will be visible on site and staff will be made aware of this requirement through training.	Yes
Introduce a regular maintenance and inspection programme for all site areas (including site machinery) and minimise fibre and paper in buildings and around the site	A maintenance and inspection programme will be in place following commencement of operations. All waste stored in skips shall be inspected daily along with the waste reception area and the RDF/SRF storage. Infrared heat sensors will be used to aid these inspections. The operator conducting the inspection will be looking to ensure there is no sign of the waste heating up, such as steam, arising. Plant and equipment on-site will be maintained in accordance with the manufacturer's requirements and in accordance.	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
	A program of planned maintenance procedures will be included in the EMS for the facility from day 1 of operation. This will include the completion of a machine service record sheet and machine daily inspection checklist.	
Put site security measures in place (e.g. security fencing, intruder alarms and CCTV) to prevent arson (your arrangements should include outside normal working hours)	Site security measures are in place to prevent unauthorised access and include total fencing of the site, CCTV and security gates. Security gates are kept locked and secured outside normal working hours.	Yes
Have all site vehicles been fitted with fire extinguishers and dust filters.	All site vehicles will be fitted with fire extinguishers and dust filters. All mobile plant will be parked outside the reception building when not in use and at least 6 metres from any flammable materials.	Yes
Have all bucket loaders fitted with rubber strips to prevent sparks when the bucket comes into contact with hard-standing etc.	Bucket loaders are fitted with rubber strips to prevent sparks when the bucket comes into contact with the surfacing.	Yes
Implement a fire-watch at the end of each shift (when dust from processing operations can settle onto hot exhausts and engine parts)	A fire-watch will be achieved through inspection of waste processing areas following the start of daily operations prior to the Facility being vacated. No plant or machinery will operate when site is not staffed.	Yes
Make sure separation distances are observed between plant and material when the site is not staffed	Separation distances will be inspected before the start of each shift and no operations are carried out when the site is not staffed.	Yes
Provide a dedicated emergency or quarantine area big enough to cope with a major incident, with a clear area of at least 10m around the perimeter (this must be available at all times and identified on your site plan)	A dedicated emergency or quarantine area is incorporated into the design of the site and is marked on the site plan. This will be for incoming waste and materials which are not suitable for processing or are suspected of being a fire risk i.e. found to be smouldering following unloading etc. A 10 metre buffer will be maintained around the quarantine area.	Yes
Documented waste acceptance procedure to	Waste acceptance and pre-acceptance procedures will be maintained to ensure that only the permitted waste codes, which do not include	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
identify incompatible wastes/ hot loads	any hazardous wastes, including those with oxidising or flammable risk phrases, are accepted.	
Mitigate and reduce risk from hot exhausts	Vehicles will not have exhausts at ground level. Staff are trained to watch out for signs of smouldering or smoke at all times.	Yes
Building electrics fully certified by a qualified electrician and documented maintenance schedule in place	Testing will be carried out on electrical equipment by fully and appropriately qualified electricians when required and inspection of electrical cabling at the Facility will be included in the maintenance and inspection programme. The Planned Preventative Maintenance Planner will be included once the equipment has been purchased and details of maintenance requirements have been supplied by the plant and equipment supplier.	Yes
Gas containers/flammable items in an isolated location	There will be a 200l fuel oil tank on site for fuelling the fork lifts and a lockable cage containing maintenance fluids in trivial quantities. The fuel oil tank will be positioned at least 6 m away from combustible material to the rear of the admin office, outside the waste reception building. The lockable cage containing maintenance fluids will be positioned next to it	Yes
Routinely turn waste piles	Waste will be turned based on routine temperature monitoring. If the temperature of the waste pile rises to 10°C above ambient temperature, then the pile will be turned.	Yes

4.4.2. Table 4.4.1B below details the measures required by the EA Guidance Document 'Fire Prevention Plans' Version 2, March 2015 and how the Operator proposes to detect fire.

Table 4.4.1B: Detection of Fire

Factor	Mitigation Measures Employed	Meets FPP Guidance?
You must carry out regular inspections, including at the start and end of every working day	The site, including all combustible waste storage piles, will be inspected at the start of each shift. The site will be operational 24 hours a day 7 days a week. These inspections will be logged, see Appendix H. The operator conducting the inspection will be looking to ensure	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
	there is no sign of the stockpiles heating up such as steam arising. If there are any indications that cause concern the stockpile will be turned mechanically to check and to allow any heat build up to dissipate.	
Consider fitting automatic detection systems such as smoke and heat detectors including temperature probes	Smoke detector will be installed in the main building. Heat monitoring will be carried out during hot weather using an infrared heat sensor.	Yes
Monitor and control sub-surface temperature and moisture content with a thermal probe or other device and ensure that this is capable of reaching all parts of a pile (if materials are stored in plastic wrapping you must demonstrate a sampling and testing protocol to ensure a representative number of bales (minimum 10%) are assessed during monitoring)	Bales of RDF/SRF will be subject to heat monitoring using an infrared heat sensor. This monitoring will be carried out at the beginning of each shift. At least 10% of the bales on site at any one time will be monitored. A record will be kept showing the which areas of bale storage are monitored at each check and operatives will ensure that monitoring is rotated so different bales are check each time.	Yes
Detect and control hotspots within piles	Daily heat monitoring will be carried out during hot weather using an infrared heat sensor for all combustible waste storage piles.	Yes

4.5. Storage of Waste to Minimise Fire Risk

4.5.1. Table 4.5.1A below lists the combustible wastes which are accepted by the Facility and how they are stored.

Table 4.5.1A: Storage of Combustible Materials

Combustible Material	Type of containment (if any)	Approximate Storage Capacity (m^3)	Separation distances from other waste piles	Storage times
Bailed RDF/SRF	stored outside the building on	450	6m	less than 3 months

Combustible Material	Type of containment (if any)	Approximate Storage Capacity (m^3)	Separation distances from other waste piles	Storage times
	impermeable paving			
Paper, cardboard and rags	Dedicated 35m^3 skip inside the waste reception building	27	6	less than 3 months
Plastic, rubber and other materials	Dedicated 35m^3 skip inside the waste reception building	27	6	less than 3 months
Processed wood	Dedicated 35m^3 skip inside the waste reception building	27	6	less than 3 months
Fragmentiser fluff	Dedicated 35m^3 skip inside the waste reception building	750	6	less than 3 months
Quarantine area	Located between the waste reception building and the RDF Storage.	750	10	Less than 48 hours

4.5.2. Table 4.5.1B below details the measures required by the EA Guidance Document 'Fire Prevention Plans' Version 2, March 2015 and how the Operator proposes to store materials to minimise risk of fire.

Table 4.5.1B: Storage of Materials to Minimise Fire Risk

Factor	Mitigation Measures Employed	Meets FPP Guidance?
Documented and recorded stock rotation e.g. bay or pile plan with dates in and out and clear methodology for showing duration of	A strict rotation system will be employed to ensure that bales of RDF/SRF are not stored for longer than 3 months. Records of stock rotation and turning will be kept.	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
storage for any wastes within a pile	A Stock Rotation Control document (RDF/SRF) will be held in the site office and reviewed by the Site Manager on a weekly basis. Skips containing potentially combustible materials will be removed from site when full. The time taken for this to occur will depend on the quantity of incoming waste streams. Details of storage durations are provided in Table 4.5.1A for all wastes.	
Storage duration - if the operator is proposing mixed durations during processing, then take the LONGEST duration	Material turnover will be high and in any instance, combustible materials will be stored for less than 3 months.	Yes
Minimise pile sizes and maintain sizes and separation distances.	Baled RDF/SRF is stored outside the building on impermeable paving to a maximum height of 3.5m, width and length of 20m, volume of 450m³ and area of 235m³. There will be a minimum space of 6m between each stack of RDF/SRF. All other material will be stored in skips with a separation distance of 6m (15m from electrical equipment). Further details are within table 4.5.1.B above.	Yes
Control moisture levels	All material (excluding SRF/RDF) will be stored within a building, and therefore moisture levels will be more stable than external storage. Temperature monitoring will take place daily using an infrared heat sensor. Should Bales of RDF/SRF which are store externally gain 10°C above ambient temperatures, piles will be doused with water.	Yes
Store material in largest form prior to processing	Input wastes may be received in a variety of forms therefore this is beyond the operator's control. However, material will be inputted into the process within 24 hours of receipt so the risk of combustion is minimised.	Yes
Provide shading from direct sunlight	All material excluding RDF/SRF will be stored within the building, and therefore will be shaded from direct sunlight. Only baled RDF/SRF will be stored in direct sunlight. As a mitigation measure temperature monitoring of the baled RDF/SRF will be undertaken at the start of every shift using a hand held infrared heat sensor. Records of this monitoring will be kept. Should the	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
	RDF/SRF bales gain 10°C above ambient temperatures bales will be dosed with water from the onsite tank.	
Mark any hazardous or combustible materials on site plan	Pre-acceptance procedures will be maintained to ensure that only permitted waste codes, which do not include hazardous wastes, are accepted into the site.	Yes

4.6. Actions in the event of a fire

4.6.1. Table 4.6.1 below details the measures required by the EA Guidance Document 'Fire Prevention Plans' Version 2, March 2015 and how the Operator proposes to store materials to minimize risk of fire.

Table 4.6.1: Actions in the event of a fire

Factor	Mitigation Measures Employed	Meets FPP Guidance?
A firefighting strategy must be included within the fire prevention plan	A 'Fire Response Procedure' is included in Appendix F. All site staff will be trained in the Fire Emergency Response Procedure	Yes
Provision of portable fire extinguishers	Firefighting equipment will be maintained on site in accordance with fire regulations, including portable fire extinguishers. All site staff will be fully trained in the Fire or Explosion Response Procedure and in the use of firefighting equipment.	Yes
Materials stored in a building will require a fire suppression system. Materials must be kept a minimum of 3m below the level of the spray or sprinklers.	A fire suppression system will be installed in the waste reception building as part of a pre operational condition.	Yes
Installation of secondary and tertiary containment to prevent fire-water run-off polluting the local receiving environment.	Any run off from external fire fighting will be directed via interceptors to the surface water crates. Under normal circumstances the water would then pass at a controlled rate to the off-site surface water drainage system. In the case of a fire the lock of valve would be closed retaining any fire water within the crates and allowing for it to be recirculated for reuse in the fire fighting efforts.	Yes

Factor	Mitigation Measures Employed	Meets FPP Guidance?
Water supply Volume available, rate of supply and location to site	A year-round supply of water will be available to supress fire; this will be stored in a tank within the roof of the waste reception building. This tank will be sized to hold 900,000 litres of water and able to supply water at a rate of 200 litres a minute. This is in addition to the mains connection at the facility.	Yes
Containment of fire water volume	Firewater will be recycled and reused wherever possible.	Yes, based on alternative measures proposed

4.6.2. Firefighting equipment will be maintained on site in accordance with fire regulations.

4.6.3. All site staff will be trained in the Fire Emergency Response Procedure in Appendix F and in the use of firefighting equipment. Training records will be maintained in accordance with the Facilities' Management System. The Fire Emergency Response Procedure is incorporated within the site's Environmental Management System.

4.6.4. Any incidents of fire will be reported to the Environment Agency in accordance with Condition 4.3 of the Environmental Permit and recorded in the site diary including the outcome of any root-cause investigations.

4.6.5. Unburnt/ burning material will be separated using on-site machinery where the level of risk permits this activity, and where possible moved to the quarantine area.

4.6.6. Water will be applied to fire and unburnt material for cooling if the level of risk permits these actions.

4.6.7. The Site Manager will oversee any decision to apply on-site fire-fighting equipment and has the authority to cease on-site measures should the risk to personnel prove too high.

4.6.8. In the event of a fire, waste will not be accepted onto site. Contingency arrangements are in place whereby waste is diverted directly to the Riverside Resource Recovery Facility.

4.7. Abnormal Operating Conditions

4.7.1. Operators must also consider what incidents or emergencies might increase the risk of fire in order that they can plan and take appropriate steps to reduce the likelihood of the incident occurring; minimise any impacts if the incident were to occur; and re-establish normal operations as quickly as possible.

4.7.2. Periods of very warm weather can increase the risk of fire. During these periods, additional site inspections and monitoring will take place.

4.7.3. Maintenance operations, routine or otherwise, may increase the risk of fire by introducing potential ignition and heat sources. Separation distances between any ignition sources and

combustible wastes will be adhered to as detailed in Section 3.5 above. During maintenance operations, additional inspections shall take place.

5.0 RECORDS AND REPORTING

5.1. Record Keeping

5.1.1. Records will be maintained of the following activities on-site:

- Incidents including post-incident investigation;
- Stock management, including rotation;
- Training of operatives;
- Site inspections;
- Maintenance;
- Monitoring;
- Testing of firefighting equipment; and
- Complaints.

5.1.2. All records of events and actions taken will be retained as required by the Environmental Permit.

5.2. Notifying Natural Resources Wales

5.2.1. In the event of a fire, the Operator will notify the Fire Rescue Service in the event of an emergency and Natural Resources Wales as soon as practically possible, using the emergency 24hr phone line (0800 80 70 60). Following the incident, the Site Manager will advise what remedial measures or actions have been taken to prevent further incidents.

5.3. Fire Prevention Plan Review

5.3.1. This Fire Prevention Plan will be reviewed and updated by senior management following construction and every 4 years afterwards or immediately following any major fire incident / event.

5.3.2. Any technical and managerial changes on site will also initiate a review of the Fire Prevention Plan to ensure that the control techniques remain appropriate for the site.

5.3.3. The first review and update of the Plan will occur during site commissioning prior to full operations commencing to include further detailed information on the proposed mitigation measures installed at the facility.

APPENDICES

APPENDIX A – KEY SITE AND EMERGENCY CONTACTS

This table will be completed when the site has been constructed.

SITE DETAILS		
Location: Nine Mile Point Waste Processing Facility, Nine Mile Point Industrial Estate, Cwmfelinfach, Caerphilly		
Postcode: NP11 7HZ		
Site Access Grid Reference: ST 19235 91305		
SITE CONTACTS	Office Hours (specify)	Out of hours
General Manager:		
Site Manager:		
Site Supervisor:		
Security Contact:		
EMERGENCY SERVICES	Office Hours	Out of hours
Emergency	999	999
Medical:	111/999	111/999
Police:	999	999
Fire:	999	999
REGULATORS	Office Hours	Out of hours
Health and Safety Executive (HSE)	0845 300 9923	0151 922 9235
Local Authority:		
Natural Resources Wales (Local)		
Natural Resources Wales (24 hour emergency hotline)	0800 80 70 60	
UTILITY AND KEY SERVICES	Office Hours	Out of hours
Water provider		
Sewerage provider		
Gas supplier:		
Electricity supplier:		
Oil supplier:		
Fuel supplier:		
Chemical supplier:		
Oil spill contractor:		
Maintenance contractor:		
Electrician:		
Plumber:		
Locksmith:		
Joiner:		
OTHER KEY CONTACTS	Office Hours	Out of hours
Head Office:		
Adjacent landowners:		
Neighbours:		
Specialist advisors:		

APPENDIX B –SITE LAYOUT

BALE STORAGE

28.5m

11.4m

QUARANTINE AREA

5.0m

20.0m

10.0m

15m CLEARANCE AROUND MINE SHAFT

SRF

50.0m

80.0m

OUT

IN

FENCELINE

DROPPED KERB CROSSING WITH TACTILES

HGV EGRESS ONLY AND ALTERNATIVE ACCESS FOR EMERGENCY VEHICLES

PROPOSED FOOTWAY

A1 Stack.

GREENMEADOW ROAD

HGV EGRESS ONLY AND MAIN ACCESS FOR EMERGENCY VEHICLES

Class 1 Full Retention Separator with Alarm Klargester Ref NSFA030 or similar approved

2.99L Fuel Tank

Maintenance Fuel Storage

ADMIN

10.0m

DROPPED KERB CROSSING WITH TACTILES

PEDESTRIAN ACCESS GATE

Hand Lock Valve

HEOL TIR TON

El Sub Sta

S1 - New FWMH on existing Public Sewer

Class 1 Full Retention Interceptor with Alarm

ALTERNATIVE ACCESS FOR EMERGENCY VEHICLES

SW1 - Existing drainage spur from manhole to be confirmed and utilised.

N

enzygo
environmental consultants

STEP Business Centre, Wortley Rd, Sheffield, S6 2UH

Key

- Installation Boundary
- Quarentine Area
- Quarantine Area 10m Clearance on all sides
- Marks Area of Concrete
- Storm Drains
- Foul Drains

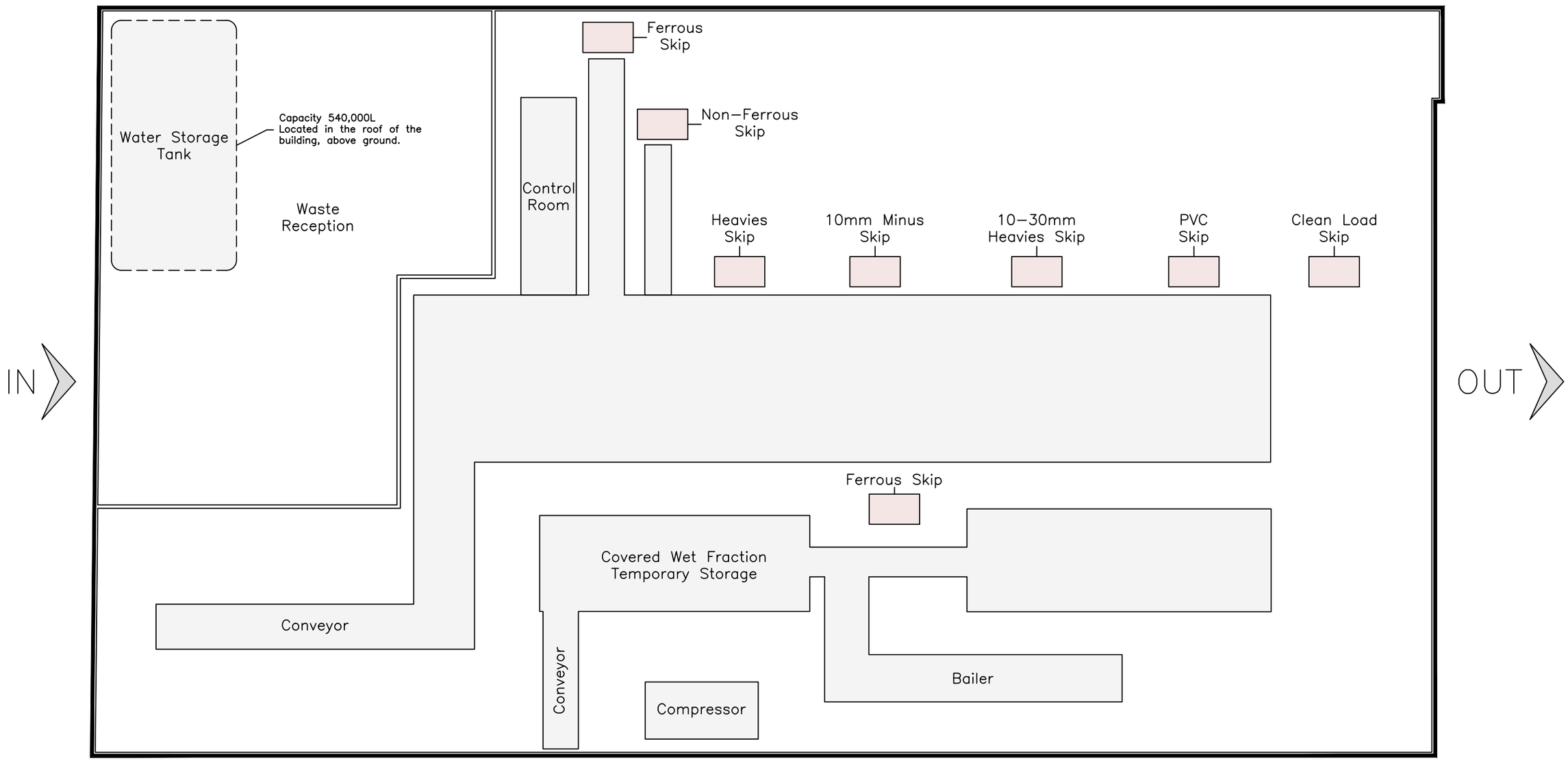
SCALE: 1:250@A1	PROJECT NO.: CRM.083.002
DATE: Mar 2016	DRAWING NO.: CRM.083.002.PE.D.003.A
DRAWN: MG	CHECKED: SC

Proposed SRF Facility, Greenmeadow Road, Nine Mile Industrial Estate

Site Layout for Environmental Permit Application

CLIENT: Hazrem Environmental Ltd

APPENDIX C – INTERNAL LAYOUT



enzygo
environmental consultants

STEP Business Centre, Wortley Rd, Sheffield, S36 2UH

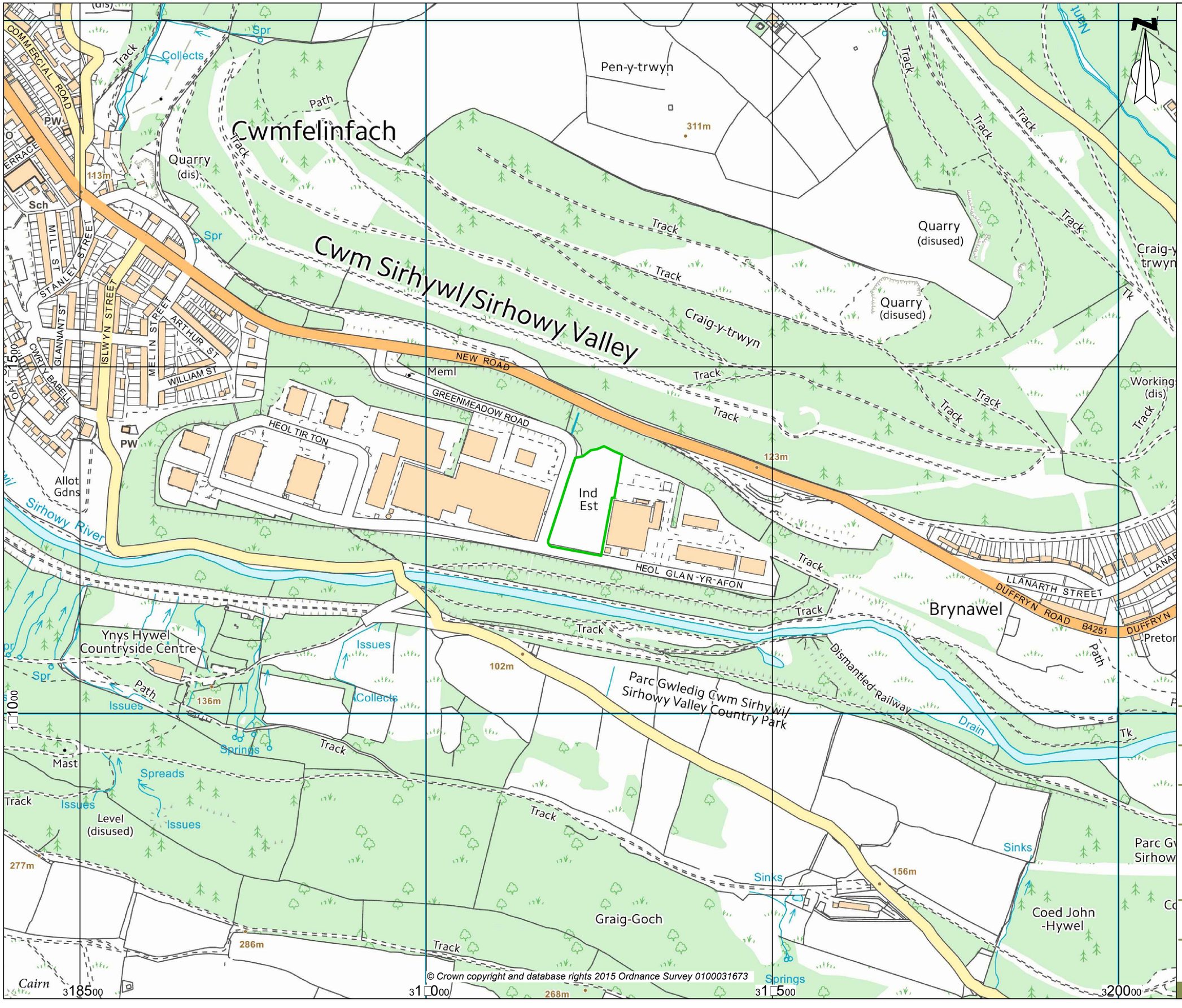
SCALE	1:250@A3
PROJECT NO.	CRM.083.002
DATE	Apr 2016
DRAWING NO.	CRM.083.002.PE.D.005
DRAWN	MG
CHECKED	SC

Proposed SRF Facility, Greenmeadow Road, Nine Mile Industrial Estate

DRAWING TITLE
SRF Building Layout

CLIENT
Hazrem Environmental Ltd

APPENIDX D - LOCATION PLAN



Key

Installation Boundary

enzygo
environmental consultants
STEP Business Centre, Wortley Rd, Sheffield, S36 2UH

CLIENT: Hazrem Environmental Ltd

SCALE: 1:5,000@A3

PROJECT REF: CRM.083.002

DRAWN: MG

CHECKED: SC

DATE: Oct 2015

PROJECT: Proposed SRF Facility, Greenmeadow Road, Nine Mile Industrial Estate

TITLE: Site Context Plan

DRAWING NO: CRM.083.002.PE.D.002

APPENDIX E - MAP OF SENSITIVE RECEPTORS

Key

A	Site Location ST 19223 91274
B	Commercial Receptor ST 19116 91312
C	Residential Receptor ST 18751 91473
D	Residential Receptor ST 19742 91248
E	Sirhowy River
F	School ST 18427 91774
	1km Buffer Zone

enzygo
environmental consultants
STEP Business Centre, Wortley Rd, Sheffield, S36 2UH

CLIENT: Hazrem Environmental Ltd

SCALE: 1:10,000@A3

PROJECT REF: CRM.083.002

DRAWN: MG

CHECKED: BK

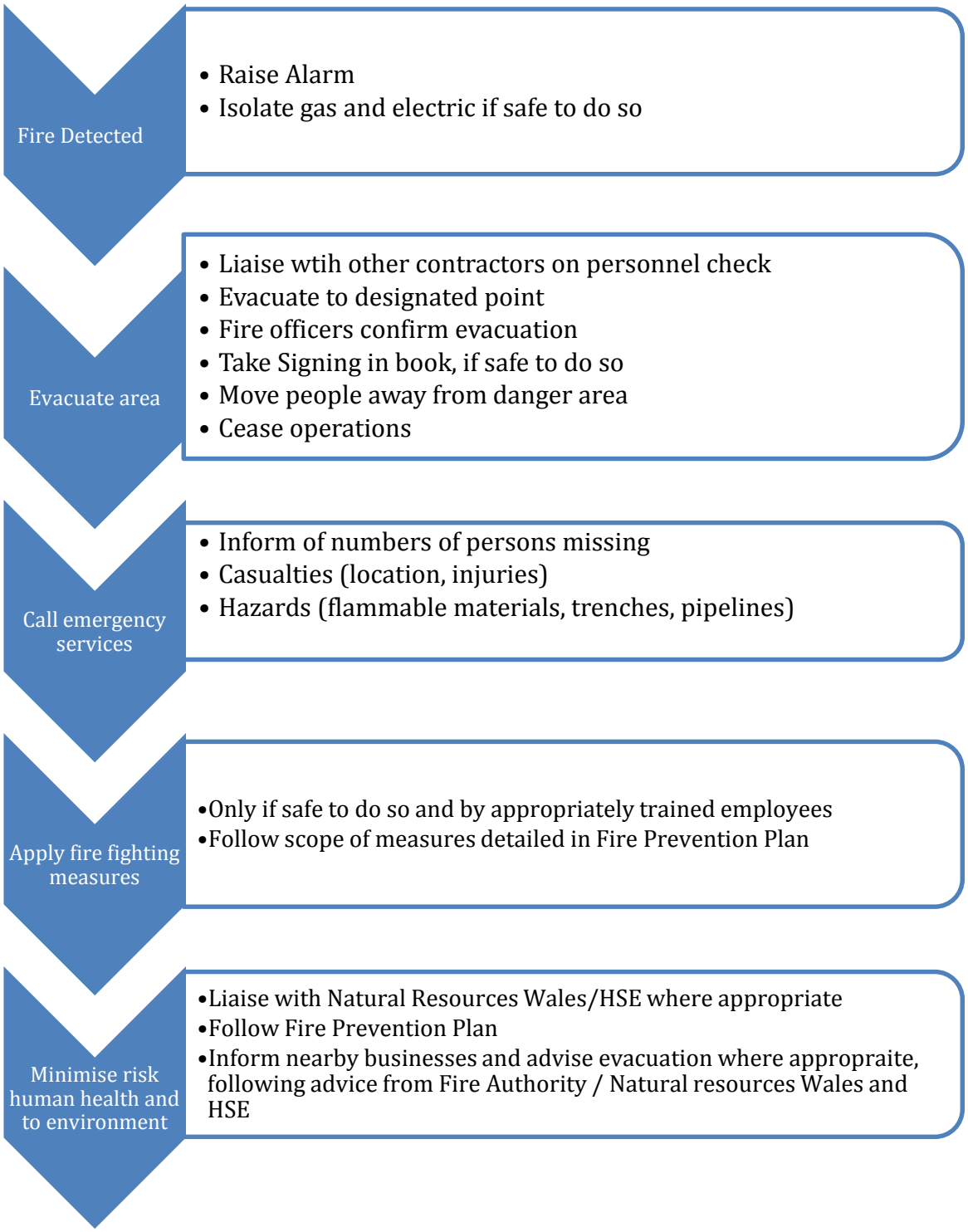
DATE: Mar 2016

PROJECT: Proposed SRF Facility

TITLE: Sensitive Receptor Plan

FIGURE NO: CRM.083.002.PE.D.004

APPENDIX F –FIRE EMERGENCY RESPONSE PROCEDURE



APPENDIX G1- STOCK ROTATION CONTROL: SKIPS

Stock Rotation Control

Size of skip	Date filling commences	Date of removal from site

APPENDIX G2 – STOCK ROTATION CONTROL: RDF/SRF

Bale identification	Date storage commenced	Date of removal from site

APPENDIX H – TEMPERATURE MONITORING FORM

RDF/SRF Temperature Recording				
Date/time	**Temperature of waste °C**	**Ambient Temperature °C**	**Waste >10°C above ambient temperature? Yes/No**	**Corrective actions (e.g. RDF/SRF transferred off-site, waste turned)**

APPENDIX I – WASTE ANALYSIS

MARCHWOOD SCIENTIFIC SERVICES
Unit 1A.2(a) North Road
Marchwood Ind. Park
Marchwood
Southampton
SO40 4BL

Hazrem Environmental
Fern Close
Crumlin
NP11 3EH

TEST REPORT

Certificate No.	116/1412
Received Date:	02/02/2016
Ref.	HE/116/1412
Sampling Date:	13/01/2016
Date of Analysis:	10/02/2016
Conforming:	Yes

10/02/2016

Analysis of a Sample of RDF Ref. Service Sample 13/1/16 for Range of Determinands

Please find below the tabulated results for the sample received. (AR= as received; D = Dry basis)

Determinand	Units	AR	D	Method
Gross CV	KJ/Kg	12506	22377	WI 3015
Net CV	KJ/Kg	10612	20914	WI 3015
Proximate Analysis				
Moisture	% w/w	44.1	-	WI 3013
Ash	% w/w	8.1	14.4	WI 3014
Fixed Carbon	% w/w	3.6	6.4	-
Volatile Matter	% w/w	44.2	79.2	-
Total	% w/w	100	100	Calculation
Ultimate Analysis				
Sulphur	% w/w	0.2	0.4	WI 3016
Chlorine	% w/w	0.06	0.11	WI 3016
Carbon	% w/w	28.1	50.3	WI 3024
Hydrogen	% w/w	3.9	6.9	WI 3024
Nitrogen	% w/w	1.1	1.9	WI 3024
Oxygen by difference#	% w/w	14.5	26.0	By Calculation
Total #	% w/w	100	100	By Calculation
Halides				
Bromine	% w/w	<0.01	<0.01	WI 3016
Fluorine	% w/w	0.02	0.04	WI 3016
Iodine	% w/w	<0.01	<0.01	WI 3016
Total Halides	% w/w	0.02	0.04	WI 3016
Metals				
Mercury	ppm	<1	<1	ICP-OES
Cadmium	ppm	<1	<1	ICP-OES
Thallium	ppm	<1	<1	ICP-OES
Antimony	ppm	10	17	ICP-OES
Arsenic	ppm	<1	<1	ICP-OES
Chromium	ppm	20	36	ICP-OES
Cobalt	ppm	<1	<1	ICP-OES
Copper	ppm	224	401	ICP-OES
Lead	ppm	49	87	ICP-OES
Manganese	ppm	20	36	ICP-OES
Nickel	ppm	14	25	ICP-OES
Tin	ppm	<1	<1	ICP-OES
Vanadium	ppm	<1	<1	ICP-OES
Total group of 11 Metals	ppm	336	602	ICP-OES
Biomass	% w/w	-	56.0	WI 3009
Non-Biomass	% w/w	-	29.6	WI 3009
Inert-Mass	% w/w	-	14.4	WI 3009

#Oxygen and Total calculations include ash and moisture as appropriate

Certificate Number:	**116/1412**
Sample Identifier:	**Amber Service Sample 13/1/16**

Physical Characterisation

Material Category	Results (% w/w)
Paper and Card	25.1
Plastic Film	15.1
Dense Plastic	7.4
Textiles	41.2
Miscellaneous combustible	0.9
Miscellaneous non-combustible	ND
Glass&Stones	ND
Putrescibles	3.8
Ferrous metal	ND
Non-Ferrous metal	ND
WEEE	ND
Potentially hazardous	ND
<5mm	6.5
Total	100

*ND=not detected

Reported by: J Fursman

Position: Director

For/on behalf of Marchwood Scientific Services Ltd

MARCHWOOD SCIENTIFIC SERVICES
Unit 1A.2(a) North Road
Marchwood Ind. Park
Marchwood
Southampton
SO40 4BL

Hazrem Environmental
Fern Close
Crumlin
NP11 3EH

TEST REPORT

Certificate No.	116/568
Received Date:	14/01/2016
Ref.	HE/116/568
Sampling Date:	13/01/2016
Date of Analysis:	27/01/2016
Conforming:	Yes

28/01/2016

Analysis of a Sample of Fines Ref. Fines for Range of Determinands

Please find below the tabulated results for the sample received. (AR= as received; D = Dry basis)

Determinand	Units	AR	D	Method
Gross CV	KJ/Kg	4432	9296	WI 3015
Net CV	KJ/Kg	2751	8448	WI 3015
Proximate Analysis				
Moisture	% w/w	52.3	-	WI 3013
Ash	% w/w	24.3	51.0	WI 3014
Fixed Carbon	% w/w	2.5	5.2	-
Volatile Matter	% w/w	20.9	43.8	-
Total	% w/w	100	100	Calculation
Ultimate Analysis				
Sulphur	% w/w	0.1	0.1	WI 3016
Chlorine	% w/w	0.59	1.25	WI 3016
Carbon	% w/w	13.5	28.3	WI 3024
Hydrogen	% w/w	1.9	4.0	WI 3024
Nitrogen	% w/w	0.4	0.8	WI 3024
Oxygen by difference#	% w/w	6.9	14.5	By Calculation
Total #	% w/w	100	100	By Calculation
Halides				
Bromine	% w/w	<0.01	<0.01	WI 3016
Fluorine	% w/w	<0.01	<0.01	WI 3016
Iodine	% w/w	<0.01	<0.01	WI 3016
Total Halides	% w/w	<0.01	<0.01	WI 3016
Metals				
Mercury	ppm	<1	<1	ICP-OES
Cadmium	ppm	<1	<1	ICP-OES
Thallium	ppm	<1	<1	ICP-OES
Antimony	ppm	5.7	12	ICP-OES
Arsenic	ppm	<1	<1	ICP-OES
Chromium	ppm	6.2	13	ICP-OES
Cobalt	ppm	<1	<1	ICP-OES
Copper	ppm	131	275	ICP-OES
Lead	ppm	49	103	ICP-OES
Manganese	ppm	21	45	ICP-OES
Nickel	ppm	5.2	11	ICP-OES
Tin	ppm	<1	<1	ICP-OES
Vanadium	ppm	<1	<1	ICP-OES
Total group of 11 Metals	ppm	219	459	ICP-OES
Biomass	% w/w	-	40.7	WI 3009
Non-Biomass	% w/w	-	8.3	WI 3009
Inert-Mass	% w/w	-	51.0	WI 3009

#Oxygen and Total calculations include ash and moisture as appropriate

Certificate Number:	**116/568**
Sample Identifier:	**Bryn 2 Fines**

Physical Characterisation

Material Category	Results (% w/w)
Paper and Card	28.6
Plastic Film	4.8
Dense Plastic	7.4
Textiles	4.3
Miscellaneous combustible	17.2
Miscellaneous non-combustible	1.5
Glass&Stones	35.8
Putrescibles	0.5
Ferrous metal	ND
Non-Ferrous metal	ND
WEEE	ND
Potentially hazardous	ND
<5mm	ND
Total	100

*ND=not detected

Reported by: J Fursman

Position: Director

For/on behalf of Marchwood Scientific Services Ltd

MARCHWOOD SCIENTIFIC SERVICES
Unit 1A.2(a) North Road
Marchwood Ind. Park
Marchwood
Southampton
SO40 4BL

Hazrem Environmental
Fern Close
Crumlin
NP11 3EH

TEST REPORT

Certificate No.	116/567
Received Date:	14/01/2016
Ref.	HE/116/567
Sampling Date:	13/01/2016
Date of Analysis:	27/01/2016
Conforming:	Yes

28/01/2016

Analysis of a Sample of RDF Ref. RDF for Range of Determinands

Please find below the tabulated results for the sample received. (AR= as received; D = Dry basis)

Determinand	Units	AR	D	Method
Gross CV	KJ/Kg	9655	19410	WI 3015
Net CV	KJ/Kg	7891	18329	WI 3015
Proximate Analysis				
Moisture	% w/w	50.3	-	WI 3013
Ash	% w/w	12.2	24.5	WI 3014
Fixed Carbon	% w/w	3.5	7.0	-
Volatile Matter	% w/w	34.1	68.5	-
Total	% w/w	100	100	Calculation
Ultimate Analysis				
Sulphur	% w/w	0.5	1.1	WI 3016
Chlorine	% w/w	0.23	0.47	WI 3016
Carbon	% w/w	18.8	37.7	WI 3024
Hydrogen	% w/w	2.5	5.1	WI 3024
Nitrogen	% w/w	0.7	1.4	WI 3024
Oxygen by difference#	% w/w	14.8	29.8	By Calculation
Total #	% w/w	100	100	By Calculation
Halides				
Bromine	% w/w	<0.01	<0.01	WI 3016
Fluorine	% w/w	<0.01	<0.01	WI 3016
Iodine	% w/w	<0.01	<0.01	WI 3016
Total Halides	% w/w	<0.01	<0.01	WI 3016
Metals				
Mercury	ppm	<1	<1	ICP-OES
Cadmium	ppm	<1	<1	ICP-OES
Thallium	ppm	<1	<1	ICP-OES
Antimony	ppm	9.9	20	ICP-OES
Arsenic	ppm	<1	<1	ICP-OES
Chromium	ppm	17	35	ICP-OES
Cobalt	ppm	<1	<1	ICP-OES
Copper	ppm	166	333	ICP-OES
Lead	ppm	44	89	ICP-OES
Manganese	ppm	17	34	ICP-OES
Nickel	ppm	15	30	ICP-OES
Tin	ppm	<1	<1	ICP-OES
Vanadium	ppm	<1	<1	ICP-OES
Total group of 11 Metals	ppm	269	541	ICP-OES
Biomass	% w/w	-	57.5	WI 3009
Non-Biomass	% w/w	-	18.0	WI 3009
Inert-Mass	% w/w	-	24.5	WI 3009

#Oxygen and Total calculations include ash and moisture as appropriate

Certificate Number:	**116/567**
Sample Identifier:	**Bryn 1 RDF**

Physical Characterisation

Material Category	Results (% w/w)
Paper and Card	20.9
Plastic Film	3.5
Dense Plastic	5.6
Textiles	43.2
Miscellaneous combustible	4.3
Miscellaneous non-combustible	ND
Glass&Stones	13.0
Putrescibles	ND
Ferrous metal	9.1
Non-Ferrous metal	0.1
WEEE	0.3
Potentially hazardous	ND
<5mm	ND
Total	100

*ND=not detected

Reported by: J Fursman

Position: Director

For/on behalf of Marchwood Scientific Services Ltd

MARCHWOOD SCIENTIFIC SERVICES
Unit 1A.2(a) North Road
Marchwood Ind. Park
Marchwood
Southampton
SO40 4BL

Hazrem Environmental
Fern Close
Crumlin
NP11 3EH

TEST REPORT

Certificate No.	116/591
Received Date:	15/01/2016
Ref.	HE/116/591
Sampling Date:	13/01/2016
Date of Analysis:	28/01/2016
Conforming:	Yes

29/01/2016

Analysis of a Sample of RDF Ref. RDF/C & I Waste W. M 13/1/16 for Range of Determinands

Please find below the tabulated results for the sample received. (AR= as received; D = Dry basis)

Determinand	Units	AR	D	Method
Gross CV	KJ/Kg	11498	21046	WI 3015
Net CV	KJ/Kg	9627	19647	WI 3015
Proximate Analysis				
Moisture	% w/w	45.4	-	WI 3013
Ash	% w/w	6.7	12.2	WI 3014
Fixed Carbon	% w/w	3.7	6.8	-
Volatile Matter	% w/w	44.2	81.0	-
Total	% w/w	100	100	Calculation
Ultimate Analysis				
Sulphur	% w/w	0.1	0.3	WI 3016
Chlorine	% w/w	0.27	0.49	WI 3016
Carbon	% w/w	28.1	51.5	WI 3024
Hydrogen	% w/w	3.6	6.6	WI 3024
Nitrogen	% w/w	1.5	2.8	WI 3024
Oxygen by difference#	% w/w	14.3	26.1	By Calculation
Total #	% w/w	100	100	By Calculation
Halides				
Bromine	% w/w	<0.01	<0.01	WI 3016
Fluorine	% w/w	<0.01	<0.01	WI 3016
Iodine	% w/w	<0.01	<0.01	WI 3016
Total Halides	% w/w	<0.01	<0.01	WI 3016
Metals				
Mercury	ppm	<1	<1	ICP-OES
Cadmium	ppm	<1	<1	ICP-OES
Thallium	ppm	<1	<1	ICP-OES
Antimony	ppm	7.1	13	ICP-OES
Arsenic	ppm	<1	<1	ICP-OES
Chromium	ppm	14	25	ICP-OES
Cobalt	ppm	<1	<1	ICP-OES
Copper	ppm	207	379	ICP-OES
Lead	ppm	62	113	ICP-OES
Manganese	ppm	25	46	ICP-OES
Nickel	ppm	11	21	ICP-OES
Tin	ppm	<1	<1	ICP-OES
Vanadium	ppm	<1	<1	ICP-OES
Total group of 11 Metals	ppm	326	597	ICP-OES
Biomass	% w/w	-	56.6	WI 3009
Non-Biomass	% w/w	-	31.2	WI 3009
Inert-Mass	% w/w	-	12.2	WI 3009

#Oxygen and Total calculations include ash and moisture as appropriate

Certificate Number:	**116/591**
Sample Identifier:	**RDF/C & I Waste 13/1/16**

Physical Characterisation

Material Category	Results (% w/w)
Paper and Card	27.4
Plastic Film	7.1
Dense Plastic	5.0
Textiles	21.8
Miscellaneous combustible	8.2
Miscellaneous non-combustible	0.3
Glass&Stones	8.4
Putrescibles	16.1
Ferrous metal	2.1
Non-Ferrous metal	0.7
WEEE	ND
Potentially hazardous	ND
<5mm	2.9
Total	100

*ND=not detected

Reported by: J Fursman

Position: Director

For/on behalf of Marchwood Scientific Services Ltd

Enzygo specialise in a wide range of technical services:

Property and Sites
Waste and Mineral Planning
Waste Technologies and Renewables
Landscape and Visual Impact
Environmental Assessment Co-ordination
Hydrology and Flood Risk
Waste Contract Procurement
Noise and Vibration
Environmental Permitting and Regulation
Development Planning & Policy
Ecology Services
Contaminated Land and Geotechnical
Traffic and Transportation

BRISTOL OFFICE
The Byre,
Woodend Lane,
Cromhall,
Gloucestershire GL12 8AA
Tel: 01454 269 237

SHEFFIELD OFFICE
STEP Business Centre
Wortley Road
Deepcar
Sheffield S36 2UH
Tel: 0114 321 5151

MANCHESTER OFFICE
76 King Street,
Manchester,
M2 4NH

Tel: 0161 413 6444

Please visit our website for more information.

enzygo.com