GLAMORGAN RECYCLING WOOD PROCESSING FACILITY

FIRE PREVENTION and MITIGATION PLAN

BY

Glamorgan Recycling Limited
Berth 31 Wimborne Road
Barry
Glamorgan
CF63 3DH

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Glamorgan Recycling Limited
Berth 31 Wimborne Road, Barry,
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CONTENTS PAGE

1 Purpose

The purpose of this document is to identify potential fire hazards, detail the controls implemented to prevent fires and the actions taken to reduce the impacts should there be a fire on site.

This plan has been prepared in conjunction with the format prescribed by Natural Resources Wales and Fire Prevention & Mitigation plan Guidance No.16 V2 August 2017.

2 Scope

This Fire Prevention & Mitigation Plan (FPMP) is applicable to Glamorgan Recycling Ltd, Berth 31 Wimborne Road, Barry, Glamorgan, CF63 3DH.

3 Associated Documents

- Waste Acceptance procedure
- Fire Risk Assessment
- Emergency Action plan
- Site Environmental Permit
- Site plan

4 Management Responsibilities

4.1 The Company Director and Site manager will;

- Ensure the effective implementation of the FPMP
- Allocate sufficient resources to ensure the FPMP can be implemented
- Ensure site staff are trained and competent to manage the arrangements in place for the FPMP
- Monitor the effectiveness of the FPMP through weekly inspections
- Manage emergency situations and initiate the Emergency plan
- Regularly review and update the plan as required.

4.2 The Site Operatives will;

- Follow operating instructions
- Maintain the site in accordance with the FPMP
- Report any activity or events which could affect the FPMP strategy.

5 The Site

5.1 The Site Location

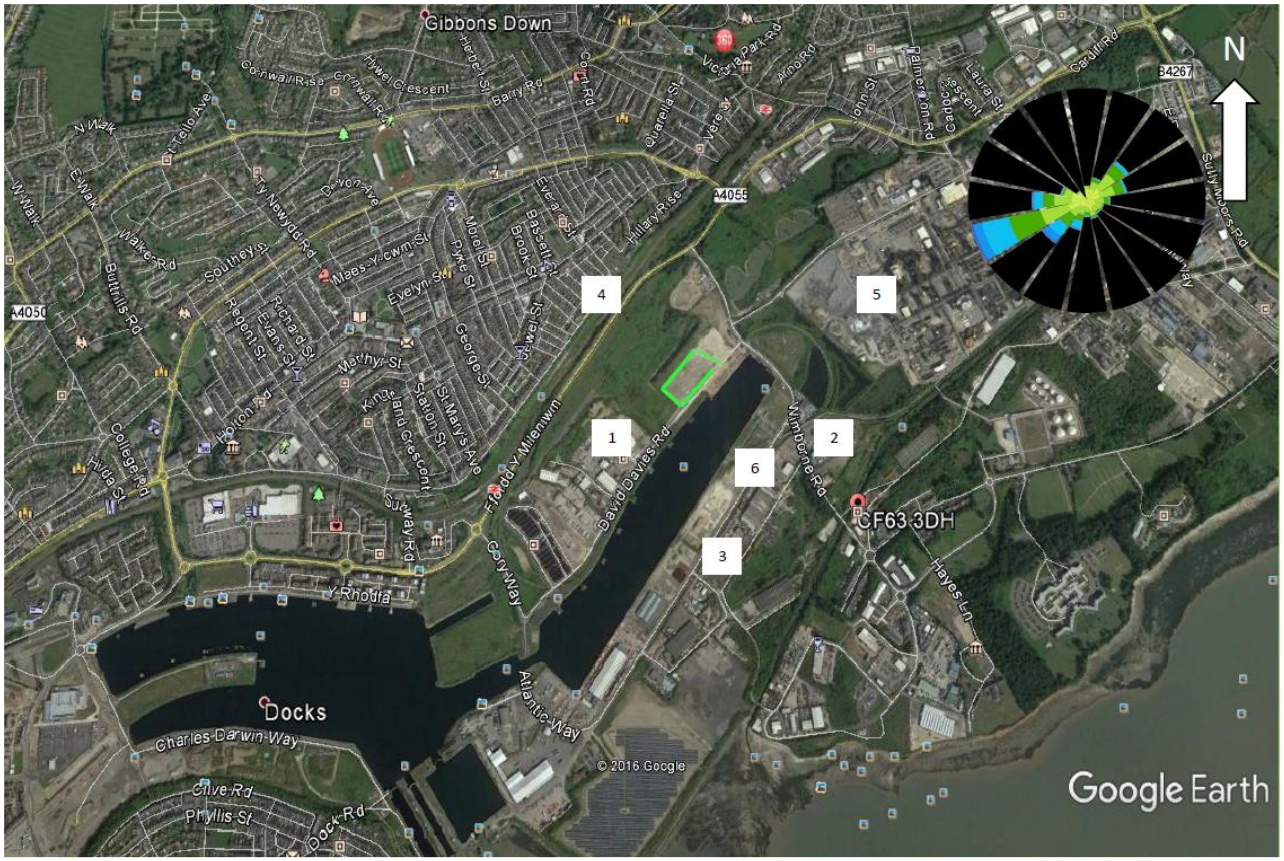


Figure 1: Site Location and Receptors

The site is situated to the east of Barry town centre, north west of No.2 Dock, Berth 31 off Wimborne Road. The location of the facility is shown in the site location plan. Wood waste processing will be carried out on an area of the existing site and all operations will be carried out on impermeable hard standing, all surface waters will drain to a centralised storage facility on the existing site. There will not be any discharges off site.

It is anticipated that the total amount of wood waste grade B and C and oversize material to be handled will not exceed 75,000 tonnes per annum. It is anticipated that production will be ramped up in the autumn owing to the storage requirements for this material at the power station for the Christmas close down period. The operational requirements for this material will be approximately 4,000 tonnes maximum to provide sufficient buffer during the winter periods when the demand for supply is expected to increase. It is intended due to the contract arrangements in place that material is handled within a day or so of acceptance at site. Should situations arise such as plant breakdown / temporary closure of outlets, contingency plans are in place to divert materials within Jack Moody Recycling sites (Berkswell, Cannock, Telford, Ince, Hull).

5.2 Local Receptors – See Figure 1

Within 1km of the site the following receptors are located;

(Permit Boundary = Green line)

Location	Receptor	Distance
1	Harris Pye International	166m SW
2	Container Storage	320m SEE
3	Industrial	371m SE
4	Residential	330m NW
5	Dow Corning	250-500m E
6	Navigator Terminal	200m SE

Location	Receptor	Contact Number
	Harris Pye Marine International	01446 720066
	Atlantic Container Storage	01446 677648
	Dow Corning	01446 732350
	Associated British Port Authority	029 2083 5042
	Navigator, Dock 9 (Opposite Dockside)	01446 736556
	Vale of Glamorgan Civil Protection Unit	01446 700111
	Highways Agency	0300 123 5000
	Barry Hospital	01446 704000
	Holton Primary School	01446 734 844
	Cadoxton Primary School	01446 741 518
	Hafod Housing Association	01446 732 494
	Pen Yr Enfys	01446 729 911
	Bellavista Nursing Homes	01446 743 983

Site is adjacent to a Barry Docks which leads to Severn Estuary but is 800m away from nearest SSSI.
The site boundary is approximately 330m from the nearest residential household. These local receptors would be impacted by a large fire on site, however the prevailing wind direction is South Westerly, thus reducing the likelihood of impact of air emissions from those receptors located South of the site.
The site boundary is between 250 and 500m of the Dow Corning COMAH Site, which could be affected by air emissions depending upon how a fire is dealt with.

5.3 Site Drainage and Containment

Glamorgan Recycling Limited is developing Berth 31, Wimbourn Road as a wood waste facility. The development includes construction of rigid pavement for the site access road and processing area. The construction of the floor is with re-enforced concrete and stock bay walls are concrete blocks. The runoff from these areas will be controlled and managed through the use of sustainable drainage systems and water harvesting for re-use at the wood waste facility.
Operational Area (total area 15310m^2).

The new area for operating is approximately 15310m^2. Taking a M5-48hr event of 50mm a runoff volume of 7655m^3 would be generated at the site. To handle this runoff, a new storage tank will be construction with a capacity of 1million

Litres (allowing for 33.5% extra/free space storage capacity).

This will be managed via a pumping chamber and surface mounted 1million litre tank shown on the site layout drawing.
The tank will be filled from surface run-off, along with a 4" mains fed supply to ensure that the tank has sufficient guaranteed water in storage.
Couplings on the storage tank will be compatible with Fire service equipment. Firefighting water usage on site will be part of the fire prevention and mitigation plan, we have provided the calculation as part of the drainage design also.

Fire Fighting Water (stockpile 750 m^3 for 4Hrs)

4hrs firefighting water requirements for site, with wood stockpiles of 750m^3. Wood piles in case of emergency require a rate of 5m^3 or 5000 litres of water per minute of burn.

4hrs or 240 minutes at 5m^3 per minute equates to 1200m^3 per hr requirement. Total storage capacity on site for fire prevention is 1million Litres in surface water tank. Site design is such that if a fire event would occur all water stays bunded on site by the site infrastructure. The site infrastructure includes a perimeter drainage channel directing water to the sump for pumping and raised concrete kerbs around the site for containment.

Waste treatment and storage activities will be carried out on an impermeable surface, with drainage directed to a sealed tank, giving an added level of protection to soils, surface water and groundwater. Regular checks of site surfacing, drainage, bunding and storage vessels and these will be repaired as necessary, to ensure that they retain their integrity. The tank has no outlet to prevent contaminated water entering surface water (e.g. following a fire). All waste storage areas will drain to the tank.

All tanks and drums used for the storage of diesel, plant oil and lubricants, will be suitable for the material being contained. The diesel tank will be initially 500 litres, but increasing to 2000 litres, it will be double skinned. Oils will be in 205 Litre drums stored within an ISO unit. All tanks will be either self-bunded or sited on impervious bases and surrounded by impervious walls. The size of the bunded area for a single tank will be at least equivalent to the capacity of the tank plus 10%. Where multiple tanks are used, the impervious, bunded compound will be at least equivalent to the capacity of the largest tank plus 10%, or 25% of the total volume of the tanks (whichever is the greater). All filling points, vents and sight glasses will be located within the bund. The bunds will be inspected weekly. Each bund will be fully enclosed and will fall to a sump from which liquid can be removed once its chemical constituents are identified. Each sump is sealed, to prevent migration of lost material off-site. Drums will be kept in the ISO unit with drip trays.
All pipes, bunds and other relevant infrastructure will be inspected and maintained on a regular basis.

The management in emergency situations and the initiation of the emergency plan – including the management of fire water, is the responsibility of the Company Director / Site Manager. This would also include the organisation of tankers to remove excess waters from the site should the situation arise.

5.4 Site Plans

Please refer to Appendix A.

A copy of the site plans are to be located on the outside of the weighbridge in a "Fire Information" Box for the emergency services to locate key information in the event of an incident on site.

5.5 Waste Quantities and Locations

Wood waste will be sourced mainly from contractors, transfer sites and local authority contracts in the local area. All wastes are assessed for their suitability to be received on site with the accepted waste types.
The site plan Appendix A shows the areas for wood reception and the areas for storage bays, Stockpiles and Maltese Crosses. All storage will be in the open, in Maltese Crosses, Bays and open stockpiles, the only building on site is the weighbridge. The Maltese Crosses and bays will have concrete block walls that facilitate being able to move the walls according to process demand. The stacks within the bays will be in accordance with the Fire Prevention and Mitigation Plan – N0. 16 V2 August 2017 (FPMP 2017). Staff will be informed of the procedures for processing and storage.

The Stocks will be stored within Maltese Cross configurations, 17.5m x 17.5m x 5m, each quadrant storing 735m^3 (367.5 tonnes per quadrant, 1470 tonnes per Maltese Cross), with 1m freeboard and a minimum of 9m between the cross configurations (in accordance with FPMP 2017).

The storage bay walls are designed to act as fire breaks to minimise the spread of fire across the site (Appendix F examples the specification). The free board space for every bay will be maintained at 1metre, this free board is sufficient to prevent fire spread across the top of the bays in normal conditions and to maintain the radiated insulation properties of the concrete block system. There is no requirement to have joints filled between the blocks, as there is no gap.

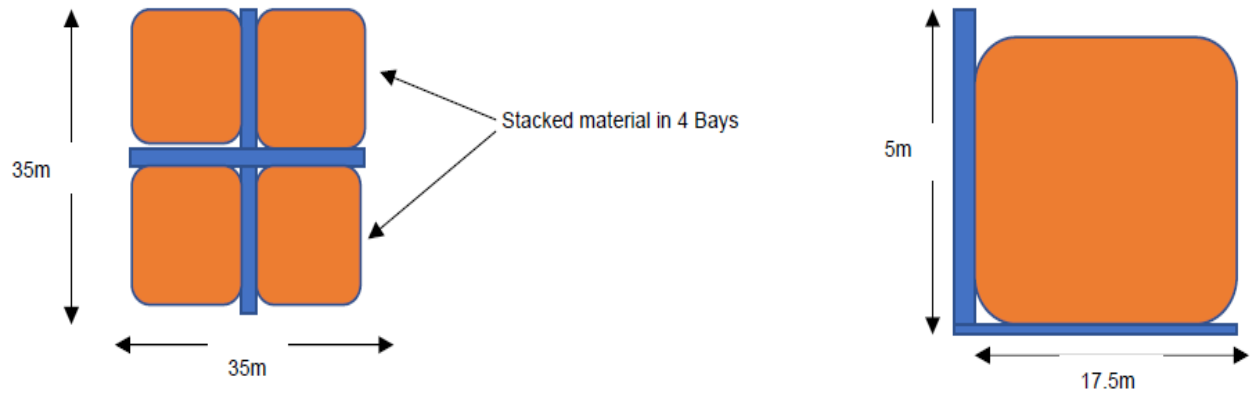


Figure 2 "Maltese Cross" Stacks (informative, not to scale, or shape)

Overspill will be managed, following tipping off, the wood will be pushed into the quadrant by the end of the working day.

Other wastes on site are;

- Office bin, emptied frequently
- General waste skip emptied when full. Stored away from wood stockpiles. This can be pushed around the yard by the loading shovel should this be required.

We do not store shipping containers on site.

5.6 Fire Load non- waste

In addition to the wood waste, the following sources of fuel have been identified as;

- Diesel (Red, for machines and plant) (500- 2000Litres in a double skinned tank)
- Oils & Grease (25Litre drums stored is ISO Unit)

These are stored in as shown on the Site Plan (Appendix A).

6.0 Site Operating Techniques

6.1 Controlling ignition sources

Sources of ignition have been assessed and reduced as far as reasonably practicable. Remaining sources of ignition have been identified and controlled as described below;

- Plant / Equipment
- Wheeled loading shovels
- Slow-speed shredder
- Mobile screener
- 360 Excavators
- Vehicles
- Material (Self Combustion)
- Unprocessed Mixed Wood
- Biomass product
- Other
- Arson
- Electrical
- Hot works (Not applicable)
- Hot exhausts
- Industrial Heaters (Not applicable)
- Chemicals / Gas bottles (Not applicable)
- Smoking

Receptors:

- Human
- Employees }
- Site users } Health (smoke inhalation) & Safety (burns)

- Public }

- Environment
- Air - Smoke / windblown ash
- Land - Impact of fire on ground & fire residue
- Water - Firewater run-off

Risks to people & prevention of harm is covered by operational Risk Assessments, Safe Working Procedures, and Emergency Procedures (including those detailed in the Fire Logbook). In an incident, key receptors would be contacted as detailed in Appendix B – Emergency Action Plan.

Risks to the environment are addressed by the site infrastructure and the prevention measures in this document.

- Air -Bund around perimeter of pad & internal stock bay walls create windbreaks.
- Land- Impermeable pad constructed to protect ground beneath & provide containment.
- Water – Pad constructed with falls to contain run-off; all run-off collected in above ground tanks.

Fire Prevention Measures:

- Wind breaks (Concrete block walls, perimeter bund)
- Fire breaks
- Concrete stock bay walls/Maltese Cross arrangement (Appendix F details block specification)
- Limited stockpile sizes – dependent on risk of material to FPMP V2 2017 guidance.
- Daily Temperature and moisture monitoring of processed stocks at risk of self-combustion, either using a temperature and moisture probe or a thermal heat gun. Monitoring will be initially carried out using handheld probes with online probes introduced to provide a live monitoring system – Itom (this is in use at all our facilities See Appendix E). This is in addition to the contracted monitoring by CCTV.
- Stock rotation, ensures that stock is not left on site longer than necessary, helping to reduce the possibility of self-combustion.

  The stock bays will be filled and emptied in rotation. With the demand required for contracted outlets that are in place, the bays will be emptied frequently. Contingency plans are in place to divert wood to other Jack Moody Recycling facilities should the need arise (See Appendix E).
- Site inspection for any signs of combustion at the start & end of each day
- Firewatch (following cessation of production) at the end of each processing shift
- Mobile plant parked at a suitable distance away from stockpiles outside operating hours
- Site security to reduce potential for arson (Monitored 24hr CCTV) and fencing
- Housekeeping – processing plant regularly cleaned
- Plant maintenance – daily checks, planned & routine, annual servicing.
- Stockpiles arranged to permit access from at least 2 sides in case of need to fight fire

- Quarantine area, 9m away from stockpiles and 50% volume capacity of the largest pile on the pad (minimum 25m x 15m).

There is a strict no smoking policy on site, a designated smoking area is by the weighbridge for staff and visitors to use. The smoking area does not contain any combustible materials and there is a sand / or water filled bucket for cigarette ends.

Hot Works (Grinding, cutting, welding) are not expected to be regular activities undertaken on site. Should such activities be required, they will be carried out in accordance with a management procedure that requires an authorisation to work and includes pre and post work checks. The area of works is to be kept clear of flammable and combustible materials for a distance of 6 metres. A fire watch takes place during the hot works operation and for 60 minutes after its completion and then a final inspection is completed at the end of the day. No hot works must be conducted in the proximity of combustible or flammable materials and provisions have been made for protection of such materials by non-combustible materials, where hot works is conducted must be properly ventilated. Appropriate signage will be used during these works.

Sparks from buckets / grabs and equipment coming into contact with metallic surfaces are not expected.
There are no sources of ignition from the shredder / screener. This equipment is diesel powered and there is no metal-on-metal surfaces. The shredder is slow speed. To mitigate fire risk, the equipment is fitted with fitted with a mist system for dust suppression and an automatic fire detection and extinguisher system. All equipment and plant is regularly blown out / cleaned to mitigate the potential risk of fire.

Welfare and cooking take place in the canteen area (within the weighbridge building), where appropriate fire extinguishers are held.

Hot Spots / Fires:
Wood chip begins to heat after production due to breathing (microbiological oxidation), it is possible to reach temperatures of 65^{O}c after two weeks.

The critical temperature for processed wood is 105^{0}C and time to ignition is approximately 8 months once this temperature is reached across the bulk of the material stockpile.

Usually charring is an indication that temperatures are getting critical, this occurs sometime before smoke develops.

Daily checking of stockpiles for temperature and signs of temperature increase will minimise the potential for hot spots.
Should a hot spot be identified and requires digging out, this will be undertaken in a controlled manner;

- Identify a concrete block bay or an isolation area minimum 9m from other sources and materials with sufficient room to spread the materials to cool it down using the site plant (Shovel(s), 360 grab)
- Monitoring of temperature with temperature probe or electronic hand held infrared monitor
- Provision of a water spray or fogging
- Flooding of the stockpile by inserting perforated pipes and pumping water in
- Dug out material (Hot spot or Fire) will be put away from stockpiles in an isolated area and dampened down, temperatures will be monitored until the temperature is no longer a risk with a temperature probe or hand-held monitor. This material will then be removed from site to a suitable licensed facility.

On-site security is provided: e.g. locked gate, monitored alarm and the site has Monitored 24-hour CCTV.

6.2 Waste reception, processing and storage

It is anticipated that 10 – 1000 tonnes of wood are to be received on site each week, this material is received, rejected, processed and stored in accordance with written operating procedures.

Pre-acceptance procedures will ensure compliance with the waste types the facility is permitted to accept. Third parties will be required to provide the operator, in advance, with all necessary information/documentation to satisfy the requirements of the Environmental Protection (Duty of Care) Regulations 1991 and, the conditions of the Environmental Permit. Further information is provided in the Management techniques section.

A waste stream will only be accepted where pre-acceptance documentation shows that it is suitable for storage and processing at the site and, that it is authorised by the Environmental Permit. Checks will be made to establish whether the haulier is a registered waste carrier or has a valid exemption from registration. Only registered waste carriers, or those who are lawfully exempt from registration, will be permitted to use the site.

Wastes will be checked on arrival against the details given on the waste transfer note/season ticket. If necessary, the weighbridge operator, or other suitably qualified person will make a visual inspection of loads received in sheeted or netted containers. All waste loads, including those received in enclosed containers, will be inspected visually, upon deposit.

Any non-permitted wastes, deposited inadvertently, will be reloaded onto the delivery vehicle for off-site removal to an authorised facility. Where this is not practical the waste will be removed to the designated quarantine area for secure storage, prior to off-site removal to an authorised site.

Following the acceptance procedures detailed above, waste loads will be deposited into the dedicated waste reception area and processed in accordance with the operational procedures.

The site plan (Appendix A) shows the areas for wood reception and areas for storage bays. The bays will have concrete block walls that facilitate being able to move the walls according to process demand. The stacks within the bays will be in accordance with FPMP 2017. There is a minimum of 9m separation between the stacks, stockpiles are separated by the concrete blocks (Bays and Maltese Crosses).
The feedstock material will be evaluated and stockpiled prior to processing. The material will be handled on FIFO principles, e.g. first in, first out. The Bays will be numbered to aid with batch control and to ensure FIFO is achieved. The site will operate an information management system that will record the types, quantities, sources of waste received at the site.

Barry Wood Process & Rotation

Un-processed	Un-processed	Pre-Shred		Pre-Shred	Pre-Shred Into	Processed Into Product		Stored In	Product Loads Out	
Pile No	Pile Tonnes	Start Date	Finish Date	Tonnes	Bay No	Start Date	Finish Date	Bay No	Start Date	Finish Date
1	0.00			0.00						
2	0.00			0.00						
3	0.00			0.00						
4	0.00			0.00						

The nature of the incoming feedstock material is considered to be low risk from a fire assessment, the stock will be managed to the compliance limits within the designated storage bays (as per FPMP 2017). It is intended due to the demand for the contracted outlets, that the material will not be on site for a prolonged period. When the material has been processed, it becomes a higher risk. This material will be removed from site within 3 months of production. This will ensure that there is effective stock rotation eliminating the situation for old stock to remain in the back of bays.

The controls in place to reduce the risk from fire are;

- All deliveries are checked upon arrival (paper work & contents of the load)
- No loads are tipped without an operative in supervision
- Loads are checked before pushing into the bay
- A visual fire watch is carried out through the day
- A quarantine area is available for any hot / unsuitable loads
- Wood is stored within designated bays / maltese crosses
- Plant & equipment is regularly blown out / washed down
- Heat checks are undertaken with a heat gun on plant and equipment
- Processed material is monitored for temperature using the Itom probes

- Fire watch is undertaken at the end of every day
- Contingencies are in place for when the power station is closed for maintenance and for operational breakdowns in the wood yard (Diverting wood to other sites and short-term hire/loan options for site plant / machinery).

6.3 Waste storage bay inspections

6.3.1 Formal Inspections

On a daily basis each storage bay is visually inspected by the site manager for any anomalies, such as visual signs of heat, steam or vapour. Any anomaly will be actioned by investigation and remedial action will be taken such as rotation of the material, removal of the material, dampening down etc. Processed material and fines are monitored daily with the handheld and/or ITOM probes (See Appendix E). Each probe location has a unique number/ code and sends data every 15 minutes, trigger temperatures are set and when reached email notification is sent out to mobile phones. All the data is stored on PC's. This system is not UKAS approved, we have not been able to find a UKAS system that will work in our facilities. Flame ionisation detectors and thermal cameras will not work in an outdoor environment, also with the design of the site with the Maltese crosses it is not possible to get a clear field of view (therefore black spots would be a problem). This system has been working at our other permitted facilities without any cause for concern (Berkswell EPR/DB3508MA, Lodgewood EPR/BB3907UX). Photographic evidence can be taken to demonstrate stock rotation is taking place. Actions from inspections are record in the daily diary (electronic and/or hard copy).

6.3.2 Informal Inspections

Owing to the nature of our business, site operatives are located within the yard area throughout the day, whereby they are continually and vigilantly observing / monitoring the condition of the site process and materials for the potential fire risk situations.

6.4 Visitors and Contractors

Visitors and Contractors are controlled on site, all have to sign in at the weighbridge where the site rues are explained. Contractor's work is supervised, and visitors will be accompanied around the site.

6.5 General Housekeeping

The site is kept as clean and tidy as possible at all times. Daily and weekly inspections are undertaken for tidiness, fire extinguishers, diesel storage, access / egress into the site as a part of the walk around. These checks are recorded in the daily diary (electronic or hard copy).

Daily site boundary checks are completed to ensure the site security is maintained and the risk of arson reduced.

Out of hours, plant and equipment is not stored next to the storage bays, their locations are detailed on the site plan (See Appendix A).

Fire equipment is checked regularly and serviced annually. Exit routes for emergencies are kept free of material at all times.

6.6 Plant and Equipment Maintenance Activities

The plant and machinery used on site will include;

- Excavator with grab attachment fitted
- Loading shovel(s)
- Screener
- Slow Speed Shredder

Specific details will be in the site EMS when the site has been established.
All equipment will be of suitable for the activity intended. Equipment will be operated, inspected and maintained in accordance with the manufacturers' recommendations, in order to minimise fugitive emissions. It is recognised the importance of ensuring that critical plant and equipment are maintained using preventative maintenance. All plant and equipment will be maintained in accordance with manufacturers' recommendations, preventative work will be carried out as a part of routine checks. Suitable facilities for the maintenance and storage of plant and equipment will be provided. A contingency arrangement is in place with the adjacent site for short term provision of plant if required.

In addition, throughout the day operators remove dust and wood chip from vulnerable areas such as exhausts and engine bays and fans. All plant and equipment prior to the end of shift, is cleaned, blown out, checked with heat gun and visually inspected by the operator for the purpose of identifying fire risks.
All items of plant are fitted with fire extinguishers.

6.7 Hot works

As detailed in section 6.1 above, Hot works (such as welding, cutting, grinding) activities are rarely carried out on site.

Should such activities be required, they will be carried out in accordance with a management procedure that requires an authorisation to work and includes pre and post work checks. The area of works is to be kept clear of flammable and combustible materials for a distance of 6 metres. A fire watch takes place during the hot works operation and for 60 minutes after its completion and then a final inspection is completed at the end of the day. No hot works must be conducted in the proximity of combustible or flammable materials and provisions have been made for protection of such materials by non-combustible materials, where hot works is conducted must be properly ventilated. Appropriate signage will be used during these works.

6.8 Self-Combustion Risk

The risk from self-combustion from the materials on site is low owing to how they are received, processed and removed from site.

6.9 Wood transfer from site

Contracts are in place for the sole supply of biomass fuel by Glamorgan Recycling to supply several power stations in the UK and other outlets, of which Barry is one of them. Schedules are in place through the liaison between the Transport Manager and the Wood Hall Manager to achieve the required inputs into the power station.
Occasionally collections can be amended through site plant break down and power station shut down / break down. In these instances, Management reassess and modify the schedules accordingly;

- The modified schedules are sufficient to meet the demand for wood removal and therefore no action is taken,
- Arrangements are made to hire in plant so demand can be met. A contingency arrangement is in place with the adjacent site for short term provision of plant if required.
- Material is moved to another power station or customer as a part of our contingency action plan.

6.10 Fire-Fighting Provisions

Fire extinguishers are to be located around the premises (a detailed list will be written when the site is operational.
Mobile extinguishers will be a variety of: 6kg Foam, 6ltr water, 4ltr Carbon dioxide.
Plant is fitted with industry standard extinguishers.

Access to water will be from the 1million litre site tank, a 3inch water main on site and two Fire Hydrants within the site.
There is also the availability to abstract water from the Port (subject to consent from the Port Authority and agreement from FRS).

Site extinguishers are inspected annually by an external fire protection company and visual checks are carried out monthly by the site manager. All extinguishers are placed in prominent locations in clear view with easy access.

There is no fixed fire suppression system on site. Fire suppression will be achieved by the use of mobile equipment as described above to actively fight any fire on site. Staff have been trained to use extinguishers in the event of an emergency.

The estimated volume of water needed to fight a wood fire has been calculated at 4hrs firefighting water requirements for site, with wood stockpiles of 750m^3 as detailed in 5.3. Wood piles in case of emergency require a rate of 5m^3 or 5000 litres of water per minute of burn.
4hrs or 240 minutes at 5m^3 per minute equates to 1200m^3 per hr requirement. Total storage capacity on site for fire prevention is 1million Litres in surface water tank.

There is sufficient water on site and with the locality to meet this demand. It should be considered that to calculate the amount of water required to fight a wood fire is complicated owing to a number of factors – rate of delivery, the intensity, the location of the fire within the stack and the shape of the fire.
These factors can be reduced by removal of wood from the affected area using the plant on site as a means to reduce the stack size.

Access / exit routes for emergencies are kept free of material at all times. See Traffic Management Plan Appendix G.

6.11 Fire Alarm and Detection

The fire alarm on site is an airhorn with manual operation from the weighbridge.
The Itom probes give early warning of a potential fire, by means of continuous monitoring and notification by email to mobiles (see Appendix D).

6.12 Staff Training

All staff are trained in the site operating procedures, maintenance procedures and emergency plans.

All staff are trained in the use of firefighting equipment and the emergency plan.
Refresher training and updates are given to staff as required. The

effectiveness of this is tested through regular fire drills.
Records are kept for all training completed and for fire drills performed.

7 Emergency Situations

7.1 Emergency Action Plan

Actions to detail with an emergency from a fire are detailed in the Fire Action (see Appendix B). The Emergency Action Plan contains details for key personnel. The most senior member of staff on site at the time of an incident will act as incident controller until Senior management get to site.
The plan also contains contact details of neighbours to contact in the event of an incident.

To prevent an incident escalating and to reduce the spread of fire, onsite plant (e.g. Loading shovel(s), 360 Grab) would be used to move unburnt wood adjacent to the fire to an alternative area on site. Also, these machines could be used to break into the stockpile on fire, to remove unburnt wood and drench the burning wood.
The initiation of this action would be taken by the most senior member of staff on site and will always consider the safety of employees.

The assessment of whether to move unburnt wood / break into the burning stack will consider the following;

- The safety of the operative inside the machine
- The direction of smoke
- The heat of the fire – intensity & duration
- Means of escape.

7.2 Access for Emergency Services

The main access for emergency services is through the main gate on the south of the site, off Wimborne Road, please refer to site plan (Appendix A). If required water can be from the Hydrants within the site, as well as on David Davis Road and the Dock adjacent to the site.
Access/ exit routes for emergencies are kept free of material at all times, see Traffic Management Plan (Appendix G).

7.3 Liaison with Emergency Services

It is expected to have visits from FRS for a familiarisation along with welcoming any advice that the FRS may have.

7.4 Post Incident Actions

After an incident the following steps would be taken;

- Access any damage
- Liaise with the insurance provider
- Remove any excess fire water
- Remove any burnt or semi burnt material to a licensed waste management facility

- Repair / replace any damaged infrastructure
- Suspend operations if repairs cannot be made – implement Contingency plan.

8 Fire Prevention Risk Assessments

A fire risk assessment, desk-top fire priority gathering audit and an Environmental hazards, pathways & receptors assessment has been conducted in order to produce this Fire Prevention & Mitigation Plan. Please refer to Appendix C for details.

9 Continual Improvement Action Plan

Glamorgan Recycling is dedicated to continually improving site operations through investments and modifications, taking into account Industry Best Practice. It is intended as a part of the Annual review of the site EMS that the FPMP is also reviewed.

10 APPENDICES

Appendix A Site Plan

Appendix B Emergency Action Plan

Appendix C Fire Prevention Risk Assessment

Appendix D ITOM System

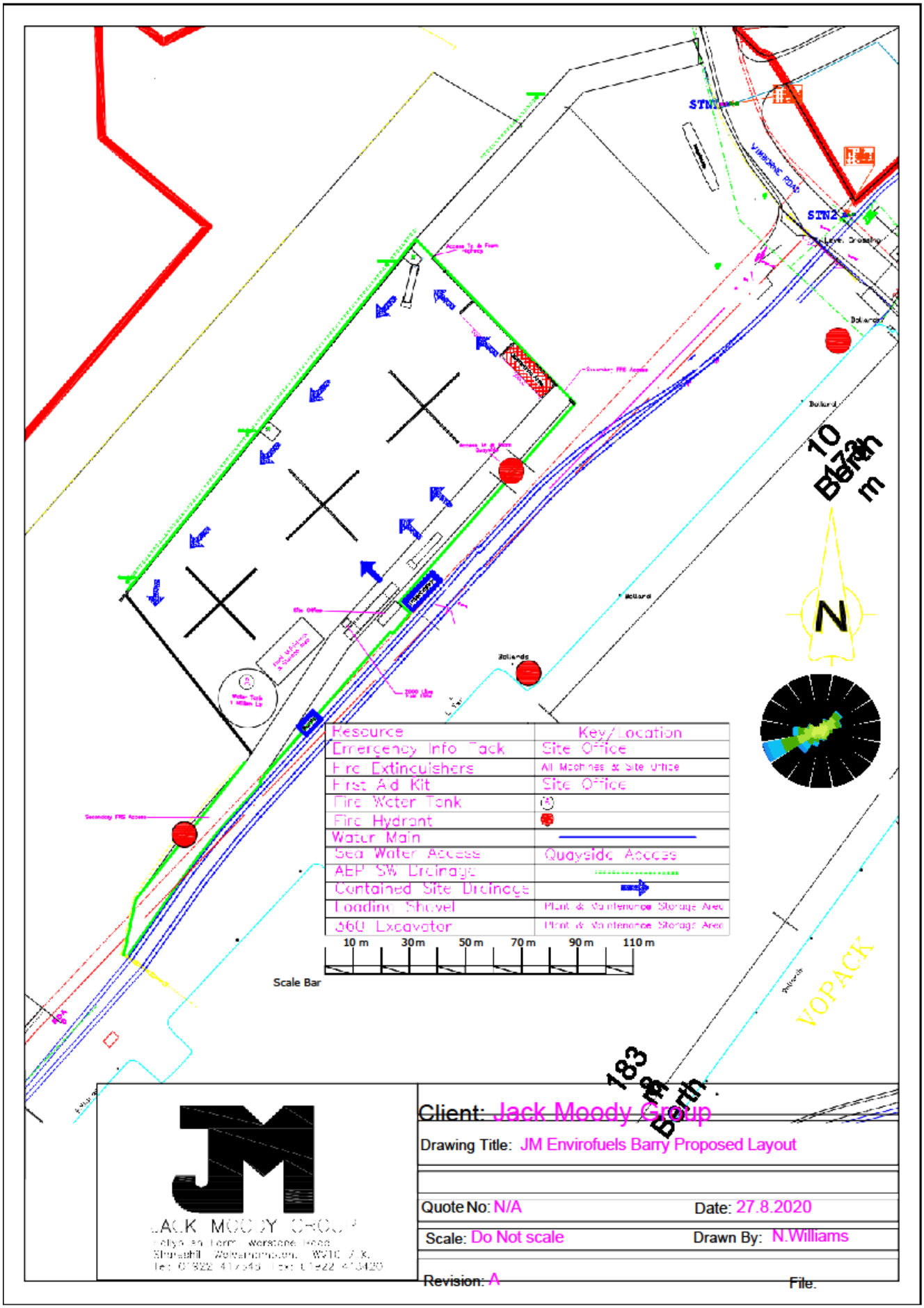
Appendix E Contingency Plan

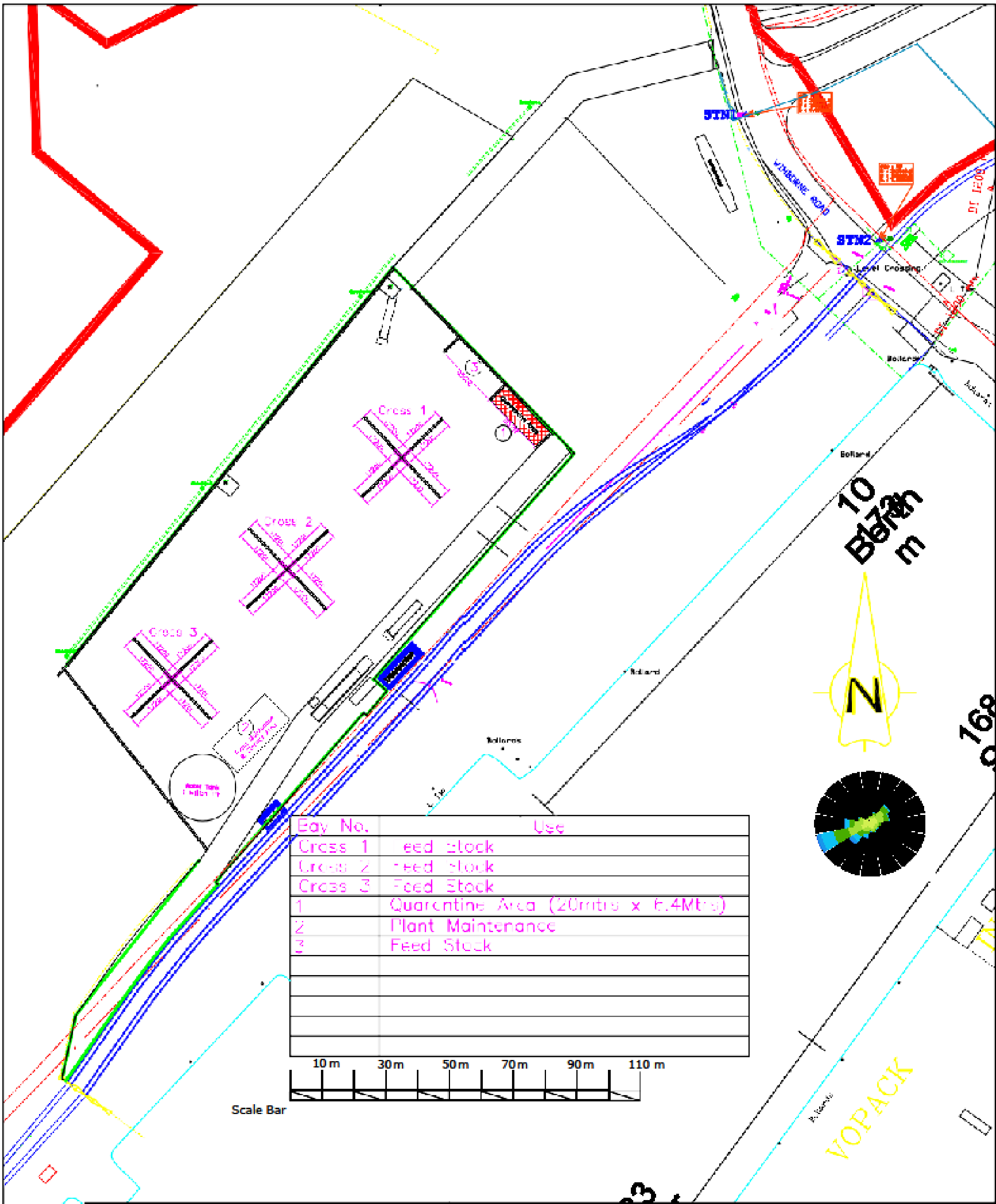
Appendix F Concrete Block Specification

Appendix G Traffic Management Plan

Appendix A

Site Plans


STN1
STN2
10 Berth
183 m Berth
N
VOPACK
Resource
Key/Location
Emergency Info Pack
Site Office
Fire Extinguishers
All Machines & Site Office
First Aid Kit
Site Office
Fire Water Tank
Fire Hydrant
Water Main
Sea Water Access
Quayside Access
AEP SW Drainage
Contained Site Drainage
Loading Shovel
Plant & Maintenance Storage Area
360 Excavator
Plant & Maintenance Storage Area
10 m
30 m
50 m
70 m
90 m
110 m
Scale Bar
JACK MOODY GROUP
Client: Jack Moody Group
Drawing Title: JM Envirofuels Barry Proposed Layout
Quote No: N/A
Date: 27.8.2020
Scale: Do Not scale
Drawn By: N.Williams
Revision: A
File.



Bay No.	Use
Cross 1	Feed Stock
Cross 2	Feed Stock
Cross 3	Feed Stock
1	Quarantine Area (20mtrs x 6.4Mtrs)
2	Plant Maintenance
3	Feed Stock

JACK MOODY GROUP

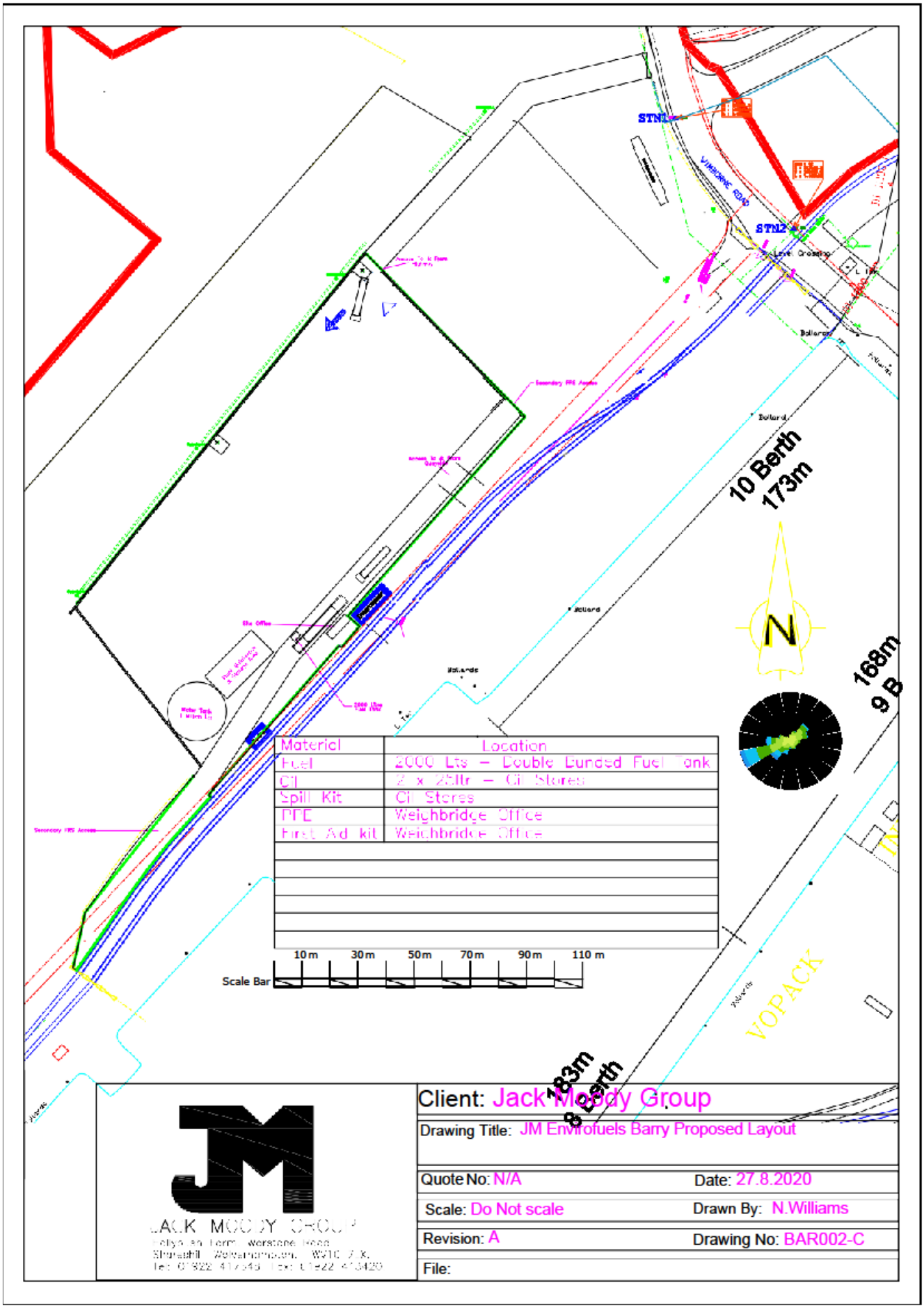
Client: Jack Moody Group

Drawing Title: JM Envirofuels Barry Proposed Layout

Quote No: N/A Date: 27.8.2020

Scale: Do Not scale Drawn By: N.Williams

Revision: A File:


STN1
STN2
10 Berth
173m
168m
9 B
N
VOPACK
8 Berth
183m
Material
Location
Fuel
2000 Lts – Double Bunded Fuel Tank
Oil
2 x 25ltr – Oil Stores
Spill Kit
Oil Stores
PPE
Weighbridge Office
First Aid kit
Weighbridge Office
10m
30m
50m
70m
90m
110 m
Scale Bar
Client: Jack Moody Group
Drawing Title: JM Envirofuels Barry Proposed Layout
Quote No: N/A
Date: 27.8.2020
Scale: Do Not scale
Drawn By: N.Williams
Revision: A
Drawing No: BAR002-C
File:

Appendix B

Emergency Action

Plan

Emergency Fire Action Plan

- Introduction

The fire safety plan has been established for the safe working of the Barry site to ensure that:

- This plan covers the action to be taken in the event of a fire on the Barry Site.
- How fire hazards will be controlled.
- Emergency responders will be notified of a fire emergency.
- Emergency responders will not be delayed in carrying out their duties.
- Firefighting operations will be managed effectively without unnecessary delays.
- Designated supervisory staff will be appointed and organized to respond to fire emergencies.
- Instructions including schematic diagrams describing the type, location and operation of building fire emergency systems will be established.
- Building facilities, systems, equipment and devices will be properly inspected and maintained.
- Access / exit routes for emergencies are kept free of material at all times, see Traffic Management Plan (Appendix G).

The fire safety plan reflects the characteristics of the wood facility considering the available firefighting infrastructure. The fire safety plan includes the following information:

- Emergency procedures for an emergency

In the event of a Fire all operatives must inform the Site Manager by radio or by mobile phone his number. The Manager will then inform the Fire Brigade 999 and the Natural Resources Wales Incident Hotline 0300 065 3000. In the event of the fire effecting residents the police may need to be involved because the residents may need evacuation.

Other contact numbers are: (Site Manager) Mobile: TBC
Mr Andy Bakes (Operations Director) Mobile: 07736 598781
Mr Robert Moody (M.D) Mobile: 07976 200239

- Training of site personnel on evacuation procedures

Site operatives have the evacuation procedures explained at their induction provided by the Health and Safety Manager. Regular site fire safety meetings a part of regular safety meetings and fire drills are conducted throughout the year.

- The Assigned site personnel are responsible to maintain fire safety duties

They are responsible for controlling combustibles on the site and around the buildings. Also, general site housekeeping this done by asking staff to removing excess pallets, rubbish /waste material and other combustibles on a regular basis.

Other things to take into consideration are maintaining separation of combustibles from open flame devices. They maintain and clear unobstructed from access route(s) for fire brigade. Maintaining there is a clear exit from the office.

The parking of vehicles or delivery trucks should not obstruct fire department access if needed to attend site.

- Firefighting Services – Access Route

Site drawings are in weighbridge / site office for the fire brigade and show the location of firefighting equipment. The site address signs are visible and legible to emergency crews from the street. The site road is 12 metres wide, allowing good access for appliances (See Appendix A).
Access / exit routes for emergencies are kept free of material at all times, see Traffic Management Plan (Appendix G).

- Fire Extinguishers

There is a sufficient quantity and type on-site and servicing is undertaken annually by Diamond Fire or another certified company.

They are provided at or near fuel operated equipment and are they adjacent to any hot works operations (e.g. cutting torch, welding, torching, etc.). The extinguishers are intended for small fires and plant fires. Water is intended for extinguishing wood fires.
All plant has industry standard fire extinguishers onboard; the shredder has an automatic suppression system.

- Hot Spots

Wood chip begins to heat after production due to breathing (microbiological oxidation), it is possible to reach temperatures of 65^{O}c after two weeks.
The critical temperature for processed wood is 105^{0}C and time to ignition is approximately 8 months once this temperature is reached across the bulk of the material stockpile.

Usually charring is an indication that temperatures are getting critical, this occurs sometime before smoke develops.

Daily checking of stockpiles for temperature and signs of temperature increase will minimise the potential for hot spots.

Should a hot spot be identified and requires digging out, this will be undertaken in a controlled manner;

- Identify a concrete block bay or an isolation area minimum 20m from other sources and materials with sufficient room to spread the materials to cool it down
- Monitoring of temperature with temperature probe or electronic handheld infrared monitor
- Provision of a water spray or fogging
- Flooding of the stockpile by inserting perforated pipes and pumping water in
- Use on site plant e.g. Loading shovel(s), 360 Grab to remove hot material
- The removed material will be put away from stockpiles in an isolated area using site plant (Shovel(s), 360 Grab) and dampened down, temperatures will be monitored until the temperature is no longer a risk with a temperature probe or hand-held monitor. This material will be removed from site for disposal if not longer suitable or for re-processing at one of our primary processing sites.

• Hot Works Operations

The area is to be kept clear of flammable and combustible materials for a distance of 6 metres. A fire watch takes place during the hot works operation and for 60 minutes after its completion and then a final inspection is completed at the end of the day. No hot works must be conducted in the proximity of combustible or flammable materials and provisions have been made for protection of such materials by non-combustible materials, where hot works is conducted must be properly ventilated. Appropriate signage will be used during these works.

• Flammable and Combustible Storage

There are no flammable or combustible liquids stored within the wood yard.

• Electrical Installations and Petroleum Gases

The electrical installations, storage and use of petroleum gases comply with the requirements of the Safety Standards Act. Electrical installations will be checked by a qualified electrician. Diesel is stored in a double skinned, secure tank. Lubricants are stored in an ISO Unit.

- Security

On-site security is provided: e.g. locked gate, monitored alarm and the site has Monitored 24-hour CCTV (with contact call out list held by the CCTV company).

- Contact Personnel

The names and telephone numbers of persons to be contacted during and after normal operating hours or in the event of an emergency are below;

- Site Manager TBC
- Operations Director: Mr Andy Bakes: Mobile 07736 598781
- Managing Director: Mr Alan Webb: Mobile 07764 89530

- In addition, key neighbours to be contacted also;

Location	Receptor	Contact Number
1	Harris Pye Marine International	01446 720066
2	Atlantic Container Storage	01446 677648
3	Dow Corning	01446 732350
4	Associated British Port Authority	029 2083 5042
	Navigator, Dock 9 (Opposite Dockside)	01446 736556
	Vale of Glamorgan Civil Protection Unit	01446 700111
	Highways Agency	0300 123 5000
	Barry Hospital	01446 704000
	Holton Primary School	01446 734 844
	Cadoxton Primary School	01446 741 518
	Hafod Housing Association	01446 732 494
	Pen Yr Enfys	01446 729 911
	Bellavista Nursing Homes	01446 743 983

All the contact personnel are able to respond in a timely fashion with a response time of about 30 minutes.

- Building Diagrams:

The diagrams for the site are:

- Plans of the site;
- Muster point(s);
- Location of water sources
- Location of fire protection equipment

The fire safety plan will be reviewed and updated as the site developers and then periodically afterwards. The plan will evolve and will be used to maintain and protect the buildings and site operatives.

- Fire Precautions and Evacuation procedures

The Managing Director will ensure that: -

All employees receive comprehensive induction before commencing work, to ensure that they are fully aware of all the arrangements in place during the evacuation procedure.

A register of employees is kept up to date at all times. This register must be available for inspection at all times and will be taken to the fire assembly point in the event of an evacuation for the purpose of calling the roll.
The requirements for employee training in fire safety are adhered to.

A fire logbook is kept up to date with all relevant records relating to fire safety and ensure that it is made available for inspection by the local authority fire brigade.

All fire-fighting equipment is tested on a regular basis as per the manufacturer's guidelines and records kept.

A fire evacuation drill is carried out at least annually which will be recorded in the fire logbook.

A fire risk assessment is undertaken within the workplace, outlining who may be affected by a fire along with any special requirements that may be identified.

A regular check is made to ensure escape routes and doors are not obstructed. Fire exit doors should be unlocked and available for use at all times when persons are in the building. Fire doors should be closed at all times and not wedged open.

In the event of a fire, the safety of a life shall override all other considerations, such as saving property and extinguishing the fire.

The company does not expect employees to fight fires, however, extinguishing action can be undertaken if it is safe to do so. On no account, should a closed room be opened to fight a fire.

Employees should report any concerns regarding fire safety to management, so that the company can investigate and take any remedial actions that may be necessary. The hazard detection form can be used for this function.

Weighbridge / Office
In the event of a fire breaking out in the site office all staff must follow the company's fire instructions, and evacuate the office by following the green man to the fire exits.

Re-entering the building is strictly prohibited until the incident control officer from the emergency services declares that it is safe to do so.

Process Yard
In the event of a fire in the stockpiles operatives must inform the Site Manager who will then inform the fire brigade and the Natural Resources Wales. After this he will instruct the appropriate members of staff assist in the fire action plan.

At present temperature monitoring will be undertaken daily during operational hours using a temperature and moisture probe. If concerns occur regarding temperatures, it is hoped that monitoring with online probes to a live monitoring system- Itom when daily monitoring indicates that a thermal event could develop Refer to Wood SOP (standard operating procedures) for trigger levels. Following ABPR guidance (currently the only standard detailing continued monitoring) there will be a minimum of two probes per storage bay during evenings and weekends. This will be in addition to the contracted monitoring by CCTV.

- **Extinguishing Fires.**

Only attempt to put out fires if safe to do so. If in doubt, evacuate the buildings or site area. Fire extinguishers are located at various positions around the site and in the site offices. Familiarise with their positions.

The following table summarises the various fires on which the different types of extinguishers should be used. These will only be used for small fires, it is not practicable to fight large fires with extinguishers. For fires the Fire Rescue Service will be notified. Staff will work alongside FRS to extinguish the fire if practically possible by removing to the Quarantine area or concrete bay to contain the fire.

Type	**Solid fires (wood, paper, cloth, etc.)**	**Liquid fires (petrol, oil, paints, fats)**	**Safe in vicinity of live electrical apparatus**
Water (gas cartridge)	YES	NO	NO
AFFF spray	YES	YES	YES
Halon 1211 (BFC)	NO	YES	YES
Dry powder	NO	YES	YES
CO2	NO	YES	YES
Fire Hydrants (2 on site, 2 off site)	Yes	No	No

- **Points of Importance**

i) All operatives must familiarise themselves with the 'Fire Evacuation' drawing displayed in the weighbridge and in recycling site office any contractor Prior to commencing work, must have an induction and pointed out all how this relates to the actual site layout.

ii) No hot works are to be carried out without prior agreement of Glamorgan Recycling Site Management and must be carried out under a 'permit to work'. Appropriate firefighting equipment must be at hand during hot works operations.

iii) In the case of a fire, all operatives and staff must report to the fire assembly point adjacent the outside the site gate. Then a role call will be done to ensure all personnel have evacuated.

v) Operatives must not leave the Fire Assembly Point area until they are told to do so by Glamorgan Recycling Site Management.

Important

Many activities are the cause of fire. It is your responsibility to prevent fires by safe working practices.

Site Manager will inform the Fire Brigade and the Natural Resources Wales Incident Hotline 0300 065 3000

Appendix C

Fire Prevention Risk Assessment

Table 1 – Potential environmental hazards, pathways & receptors		
Hazard	Pathway	Receptor
Inadequate waste acceptance procedures resulting in the receipt of non-permitted wastes	Airborne / Land based	Site personnel, visitors, local residents, neighbouring facilities
Inadequate waste storage leading to odour, litter & dust	Airborne / Land based	Site personnel, visitors, local residents, neighbouring facilities, A1033
Transfer of materials leading to spillage	Airborne / Land based	Site personnel, visitors, local residents & neighbouring facilities
Overfilling vehicles/ vessels leading to spillage	Airborne / Land based	Site personnel, visitors, local residents & neighbouring facilities
Emissions from plant & equipment	Airborne / Land based	Site personnel, visitors, local residents, school & neighbouring facilities
Failure of containment	Absorption to ground, un-off & site drains	Site personnel, visitors, local residents & neighbouring workforces. Groundwater, surface water, air quality & soils, Estuary
Fires	Airborne	Site personnel, visitors, local residents, school & neighbouring workforces, air quality. A1033
Failure to contain firewater	Absorption to ground, run-off, site drains	Groundwater, surface water & soils, Estuary, A1033, Salt End Sewage works
Wrong connections made in drains/ other systems	Absorption to ground, run-off & site drains	Groundwater, surface water & soils, Estuary, Salt End Sewage Works
Failure of main services	Airborne	Site personnel, visitors, local residents & neighbouring facilities, air quality
Operator error	Airborne, land & water	Site personnel, visitors, local residents & neighbouring facilities, Groundwater, surface water, Estuary, air quality & soils
Dust from processes & site roads	Airborne	Site personnel, visitors, local residents, neighbouring facilities, A1033
Mud / debris on roads due to site activities	Site roads, public highway	Users of site roads and public highway
Breach of security	Fences / gates	Site personnel, plant / equipment, intruders
Release of effluent before adequate checks are made	Absorption to ground, run-off & site drains	Groundwater, surface water & soils, Canal, Estuary

Tables 2, 3 and 4 identify the scoring system;

Table 2 – Probability of hazard occurring without the use of protective measures

Frequency	Score
Never	0
Annually or less frequently	1
Monthly or less frequently	2
Weekly or less frequently	3
Daily or less frequently	4
More frequently than daily	5

Table 3 – Consequence of hazard to the environment or human health

Consequence	Score
Harmless	0
Almost harmless	5
Some harm	10
Harmful	15
Very harmful	20
Extremely harmful	25

Table 4 – Mitigation factor

Mitigation	Score
Ineffective or non-existent	1
Partly effective	2
Effective	3
Very effective	4
Entirely effective	5

The risk assessment matrix, for Glamorgan Recycling' Limited, is shown in Table 5;

Table 5 – Risk Assessment Matrix

Hazard	Probability of Hazard Occurring	Consequence of Hazard	Risk Factor (Probability x	Summary of Preventative Measures/Controls	Mitigation Factor	Mitigated Risk Factor (Risk Factor/Mitigation Factor)
Inadequate waste acceptance procedures	5	10	50	Pre-acceptance procedures are in place to confirm compliance with list of permitted waste types. On arrival at the facility, waste loads will be checked against the details given on waste transfer notes/season tickets. All waste loads will be inspected visually on deposit in the waste reception area. Any non-permitted wastes deposited inadvertently at the site, will be reloaded onto the delivery vehicle for off-site removal or placed in a quarantine area. Hazardous wastes will not be accepted.	4	12.5
Inappropriate waste storage	5	10	50	After inspection, wastes will be stored in the waste reception area to wait processing. Materials unsuitable for processing are stored in containers or bays as appropriate.	5	10
Transfer of substances (e.g. filling or emptying of vessels)	2	15	30	Diesel Oil, Plant oil and lubricant tanks will either, be self-bunded or, surrounded by bunds with a minimum capacity of 110% of the tank's contents. Bund bases and sides will be impermeable. All vents, sight glasses and pipework connections etc will be located within the bunded area. Absorbent material will be used to treat any spillage that may arise.	5	6
Overfilling of vessels	3	15	45	Diesel Oil, Plant oil and lubricant tanks will be bunded (see above). The volume of liquid in these tanks will be recorded. The level will be checked before deliveries are made, to ensure sufficient capacity within the tank. Absorbent material will be used to treat liquid spillages.	5	9
Emissions from plant or equipment,	5	15	75	Alarms and interlocks will be used on major items of plant and equipment in the facility as part of the c o n t r o l system. There will be strict compliance with start-up shut down and operating procedures. Maintenance of plant and equipment will be in accordance with the manufacturers' recommendations.	5	15

Table 5 – Risk Assessment Matrix

Hazard	Probability of Hazard Occurring Without Protective	Consequence of	Risk Factor (Probability x	Summary of Preventative Measures/Controls	Mitigation Factor	Mitigated Risk Factor (Risk
Failure of containment	1	15	15	Diesel Oil, Plant oil and lubricant tanks will be fully bunded (see above). The effective capacity of the bunds will be maintained at all times. The site will have an impermeable surface, with waste handling areas drained to an underground storage tank. Tanks, bunds, raw materials storage containers and the surface water drainage system and sumps etc. will be inspected on a weekly basis. Any repairs will be undertaken as soon as practicable and no later than 5 working days from discovery (subject to the availability of replacement materials). Mitigation measures will be undertaken immediately, if there is a possibility of pollution or harm.	5	3
Fires	1	25	25	No wastes will be burned within the boundaries of the site. Fire extinguishers will be located at the site. All fire extinguishers will be clearly marked and, tested at appropriate intervals, to confirm their integrity. Site personnel will be made aware of their location and trained in their correct use. There will be strict compliance with pre-acceptance and acceptance procedures to ensure only permitted wastes are accepted. Explosive, flammable and oxidizing wastes will not be received. Implementation of Fire Prevention and Mitigation Plan. Thermal radiation damage will be minimal owing to the impermeable surface and bay walls being concrete, these structures will absorb heat up to 1200^{o}c. There is no infrastructure adjacent that could be affected by thermal effects. Following a fire, the integrity of the floor and blocks will be inspected by a suitably qualified engineer and a report provided, any actions resulting from this will be acted upon. There is a no smoking policy within the operational area.	4	6.25
Failure to contain firewater	1	15	15	There are no outlets to allow drainage off site, containment of potentially contaminated firewater will be in the storage tank.	4	3.75
Wrong connections made in drains or other systems	1	15	15	Suitably qualified engineers will ensure that materials and plant are in accordance with approved specifications and, their installation is in accordance with the approved designs.	4	3.75

Failure of main services	1	10	10	The facility will incorporate process controls, to ensure plant can be operated safely at all times, including during emergency shut down in the event of a power cut.	5	2
Operator error	2	15	30	Strict compliance with the operator's Environmental Management System (EMS). Use of Technically Competent Persons, as part of the Fit and Proper Person requirement, to manage activities at the site. Health and safety and environment, accident, management training, will be provided for all employees.	4	7.5

Table 5 – Risk Assessment Matrix

Hazard	Probability of Hazard Occurring Without Protective	Consequence of	Risk Factor (Probability x	Summary of Preventative Measures/Controls	Mitigation Factor	Mitigated Risk Factor (Risk Factor/ Mitigation
Dust from waste handling operations, processing and loading etc.	3	10	30	The waste accepted at the site is not intrinsically dusty. There will be strict compliance with waste pre-acceptance and acceptance procedures. Waste will be deposited, stored and processed in a controlled manner, in accordance with site operational procedures. The site will be hard surfaced with concrete on the operational area. The site will utilize dust suppression, as well as manual or mechanical sweeping as necessary. Dust protection netting will be used in areas where dusty operations are undertaken. Visual monitoring for dust will be undertaken daily.	5	6
Mud on adjacent Highways due to activities on site	2	15	30	All internal roads and waste storage and processing areas will comprise a paved, impermeable surface that is fit for purpose. Internal roads, site entrance and public highway will be cleaned by mechanical sweeper, as appropriate. Waste will only be stored on paved areas. Waste handling activities are unlikely to generate mud. Site staff will inspect the roadways regularly and instigate remedial action if required.	5	6
Breach in site	3	15	45	Perimeter fencing and lockable gates are installed. CCTV will be used.	4	11.25
Explosions	0	15	0	There is no risk of explosions owing to the waste streams accepted and the waste acceptance procedures that are in place.	5	0
Sources of ignition from plant /equipment	4	15	60	The plant is routinely maintained, thereby reducing the potential for electrical faults. The loading buckets do scrap up debris from the impermeable surface; the potential for sparks from this activity is minimal as there is not any aggregate on the wearing surface. The impermeable surface is routinely checked as is replaced when defects are identified.	4	15

Appendix D

Itom System

Standard Operating Procedures (SOPs) for Monitoring Wood Waste Temperature

Jack Moody Recycling Template SOP	Issue 1 Revision 1	Issued: 10/02/2015
Glamorgan Recycling Limited	Issue 1 Revision 2	Issued: 25/03/2021

COMPANY DETAILS AND RESPONSIBLE PERSON

1. Company name, address

Glamorgan Recycling Wood Facility,
Berth 31 Wimborne Road
Barry Glamorgan
CF63 3DH

FIG. 1 Jack Moody Recycling Ltd

2. Recovery facility name and address

Glamorgan Recycling Limited
Berth 31 Wimborne Road
Barry
Glamorgan
CF63 3DH

General items

General description of monitoring process

The process is to produce a Fuel for power stations and this document is produced for the temperature and moisture monitoring and quality management of the processed fuel prior to delivery.

The stockpiles are constructed to guidance note FPMP 2017 V2

2 Input materials

2.1 Types of input materials

Wood waste types accepted are Grade A B C (see table 1, for definition).

FIG. 2 Acceptable Wood Waste

FIG. 3 Wood Waste Delivery

G	Typical Markets	Typical Sources of Raw Material for Recycling.	Typical Materials	Typical Non – Wood Content Prior to Processing	Notes

Grade A. "**Clean"** **Recycled Wood**	A feedstock for the manufacture of professional and consumer products such as animal bedding and horticultural mulches. May also be used as fuel for renewable energy generation in non WID* installations, and for the manufacture of pellets and briquettes.	Distribution. Retailing. Packaging. Secondary manufacture e.g. joinery. Pallet Reclamation.	Solid softwood and hardwood. Packaging waste, scrap pallets, packing cases, and cable drums. Process off-cuts from manufacture of untreated products.	Nails and metal fixings. Minor amounts of paint, and surface coatings.	Some visible particles of coatings and light plastics will remain. Excludes grades below.
Grade B. **Industrial Feedstock** **Grade**	A feedstock for Industrial wood processing operations such as the manufacture of panel products, including chipboard and medium density fibreboard (mdf)	As Grade A, plus construction and demolition operations and Transfer Stations.	May contain up to 60% Grade A material as above, plus building and demolition materials and domestic furniture made from solid wood.	Nails and metal fixings. Some paints, plastics, glass, grit, coatings, binders and glues. Limits on treated or coated materials as defined by WID.	The Grade content is not only costly and difficult to separate, it is essential to maintain the quality of feedstock for chipboard manufacture, and for PRN revenues. Some feedstock specifications contain a 5 – 10% limit on former panel products such as chipboard, MDF, and plywood. Excludes Grade D
Grade C. **Fuel Grade.**	Biomass fuel for use in the generation of electricity and/or heat in WID** compliant installations	All above plus Municipal Collections, Recycling Centres	All of the above plus fencing products, flat pack furniture made from board products and DIY materials	Nails and metal fixings. Paints coatings and glues, paper, plastics and rubber, glass, grit.	Suitable only For WID installations**. Material coated and treated with preservatives as defined by WID may be included. Excludes Grade D

Transfer Stations And Civic Amenity Recycling sites	High content of panel products such as chipboard, MDF, plywood, OSB and fibreboard.	Coated and treated timber (non CCA or creosote).

Table 1.

2.2 Sources of input materials

See Table 1.

The company has contract(s) with waste producers for the delivery of wood.

2.3 Rejection or acceptance and storage of input materials

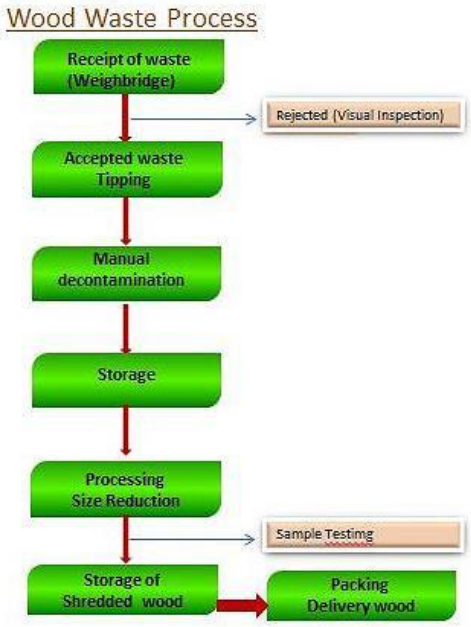


FIG. 4 Wood Waste Process

Input materials delivered for recycling shall enter the site via the weighbridge.

The description, nature and source of wastes that arrive at the site are verified prior to weighing. Details of the waste carrier, waste type, client/source and quantity (tonnes) of waste shall be recorded on a central computer and on a Waste Transfer Note.

The weighbridge operator shall then notify the driver to proceed to the offload pad/bay where a site operative shall ensure the wood waste carrier takes it to the input materials storage area which will be a numbered bay/stockpile system. Here, the waste carrier will deposit the waste wood so as not to merge it with any input materials already being stored.

A site operative shall spread and inspect each load deposited at the storage bay area.

Any load shall be rejected if subjective assessment of the surface of the waste deposited indicates that it contains more than 10% contamination by volume and moved to the quarantine area for rejected loads or re-loaded straight back onto the vehicle.

Each load for rejection shall be separated from loads awaiting inspection or those accepted and then removed from the site prior to the waste carrier leaving the site.

If a load is less contaminated with litter/contrary items than the above limit, these shall be removed as far as practically possible and placed into a 'rejects' container stored on the impermeable pavement. The container's contents shall regularly be removed for disposal and recycling.

Each accepted load shall be assessed to identify the processing requirements and any potential problems.

2.4 Traceability of input materials

A record system shall be maintained connecting sources of wastes with delivery dates and weights. This is achieved via the use of a weighbridge and bay system and the duty of care information collected for every load that arrives.

Wood waste arriving on site shall be directed to the weighbridge situated at the site entrance. Details of the waste carrier, waste type, source and quantity (tonnes) of waste shall be recorded at the site office (Waste Transfer Note). The weighbridge clerk shall notify the driver to proceed to the waste reception area where the load shall be tipped and inspected by available site operatives. After tipping in the allocated bay, the driver shall be directed back to the weighbridge, weighed off and issued with a weighbridge ticket.

FIG. 5 Weighbridge Entry

Wood processing batches are created one at a time, each being given a unique bay number and is clearly identifiable with a marked board with the unique bay number together with the probe set used in the bay, this then stays with the bay during the monitoring process. Once formation of a bay is completed, and waste loads begin arriving to go into a new bay, the bay 'start' date is recorded (on the 'Bay Formation and

Monitoring Record Sheet'). Once the formation of this bay is complete and ready to start the monitoring process, the 'finish' date is recorded (on the "Bay Formation and Monitoring Record Sheet"). All wood loads that arrive at the weighbridge between these two dates therefore have gone into that bay, and thus can be traced back to source.

Each rejected load shall be recorded as well as action taken (e.g. load returned to sender or site audit required, etc).

FIG. 6 Rejected Material

3 Preparation of input materials

3.1 Shredding

Input materials accepted and stored for this wood waste process shall be stockpiled to quantities of no more than 735m^3, typically over a period of 24-72 hours depending on waste acceptance rates (as per the environmental management system). Shredding shall be carried out on each working day, as required.

Any large objects, for example tree trunks and root stocks, over 40 cm in diameter shall be removed and placed away from the shredding process.

The shredded material shall be formed into a bay if not delivered to the power station usually within 24 hours of being shredded.

FIG. 4 Wood shredded to form a batch

3.2 Mixing

Mixing of material between old and newly defined bays will be done after shredding explained in section 4.1.

If it is necessary to add oversize material from different batches, then the batch record sheets shall be updated to hold this information so as to maintain traceability.

3.3 Moisture assessment prior to bay formation

Moisture evaluation of the shredded material shall be carried out when using the handheld probe and if indicates that moisture is different from existing materials then a new bay will be started for that batch/bay of materials and the information recorded on the bay record sheet. The hand-held probe will be updated to an i-TOM remote monitoring probe when the development of the probe and calibration has been completed.

3.4 Records connecting delivery notes with shredding dates, mixing and wetting

Each wood waste bay that undergoes the shredding process at this site shall be given a unique batch/bay number.

As data for all waste wood arriving at the site shall be recorded on weighbridge software, and automatic bay data sheets provide details of the batches formed, a connection to the weighbridge ticket for each bay is achieved via date of bay formation – start and finish date (dates in between can be compared to the weighbridge data).

FIG. 5 Tickets that form a Batch

The ‘Bay Formation and Monitoring Record Sheet’ shall also hold the results of the feedstock quality assessment (in particular any feedstock rejections), wetting/misting for dust. It shall also include the unique number of any other bays mixed with this bay (including oversize) material when added to the bay will also be recorded on the bay formation and monitoring recorded sheet. The weighbridge ticket will always identify the feedstock process for the incoming wood material.

4 Wood activities – managing, monitoring.

4.1 Bay formation and monitoring

After receipt at the reception area, each accepted load will have been spread and litter picked if containing litter, and pre-treated (shredded/mixed/watered) where required, ready for delivery to power station.

FIG. 6 Shredded Wood Storage and Probes (not to scale)

The dimensions of each batch shall be approximately 4 metres high, 17.5 metres square, organised in a maltase cross, with a gap of typically 9 metre plus between each maltase cross. This allows easy access for operational personal/Fire services (FRS).

FIG. 7 Shredded Wood Dimensions

The New Probes sample the bay temperature every 15 minutes 24/7 remotely. It will automatically inform the operations manager (by email), if the temperatures rises above a predefined value (58^{O}c) or the temperature rises by 2^{O}c in a 24hour period.

Each formed batch's unique number shall be easily visible to any operative inspecting materials on site.

In the event that batches are combined during the monitoring process, the 'on-going' batch code(s) shall be recorded on each of the corresponding batch record sheets and the record for one of these batches shall be used as the ongoing record.

4.1.1 Monitoring equipment

In addition, the wireless probes the site uses a hand-held probe (which is used once a day to record Batch temperatures). Handheld moisture probes will also be available for use when wireless probes are not available.

All monitoring equipment shall be maintained in a functional state by the site manager.

Equipment shall be calibrated at a frequency consistent with the manufacturer's instructions or at least every 12 months, whichever is sooner. If any problems are identified or suspected, the relevant item(s) of equipment shall be checked as a matter of urgency.

Calibration dates and outcomes shall be recorded in the 'Equipment Calibration Record Sheet' and any calibration certificates shall also be filed with this record.

4.1.2 Temperature monitoring and records

Temperature detected by the sensor when inserted in the batch shall be allowed to stabilise before a final reading is recorded.

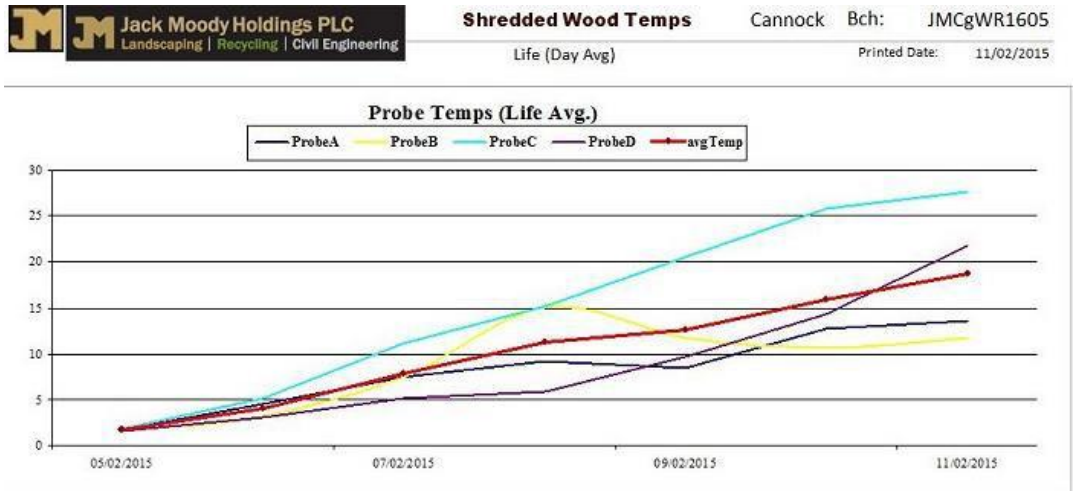


FIG. 11 Shredded Wood Temperature Monitoring

All Batch temperature monitoring results shall be recorded in the 'Batch Formation and monitoring Record Sheet'

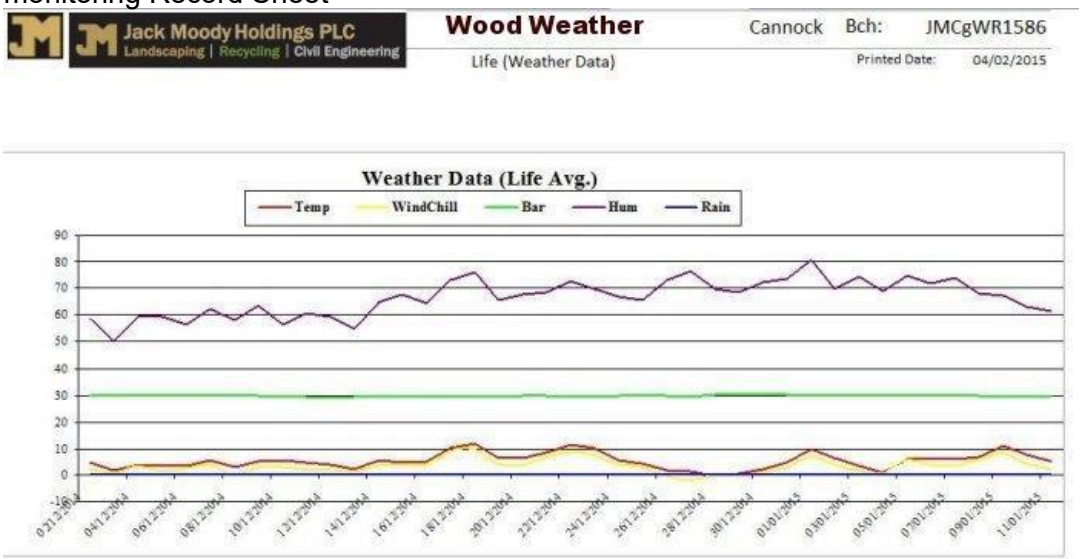


FIG. 11 Weather data during Windrow monitoring

4.1.4 Weather monitoring and records

The following weather conditions shall be monitored and recorded daily;

- Temperature
- Wind
- Pressure
- Humidity and
- Rain Fall

4.1.5 Monitoring records and corrective actions

Monitoring records for each Batch shall be checked every working day.

Corrective actions shall be carried out if stockpile/batch core zone temperature trends move out of the target range.

Corrective action to lower the batch/stockpile temperature may include:

- Additional or more frequent turning/mixing;
- Decrease batch size;
- Water addition if temperature conditions have become too dry; and/or
- Source dry input materials if weather conditions have become too moist.

Any corrective action taken to bring Batch core temperatures within the target ranges shall be recorded on the 'Batch Formation and Monitoring Record Sheet'.

4.2.1 Process validation phase
Monitoring Table using the hand-held probe

Parameter	Limits
Temperature Core decomposition zone	Once per working day. At 2 points per 150m^3 bay/stockpile at a minimum of 1 m below surface.
Moisture content Core decomposition zone	At 2 points per 150m^3 bay/stockpile at minimum of 0.5 m below surface.

The responsible person shall ensure the critical control points and critical limits of the monitoring process are recorded on the batch record sheet.

The site manager shall ensure that the critical control points and critical limits of the wood process continue to be effective in guiding process management. If for any reason they are suspected or known to have become ineffective, a phase of Hazard Analysis and Critical Control Points evaluation and process validation shall be returned to (refer to the quality policy

Parameter	Limits
Core Temperature Range parameters For Itom monitoring System	Once per working day with a handheld probe or continuous with Itom monitoring system. Temperature range for normal operating condition is between 0-45 degrees C Temperature range for Critical monitoring and piles requiring attention and moving or splitting to cool is 45-60 degrees C also time limit of 1 week before removal from site

	Temperature range for emergency action to be taken immediately and piles moved to the quarantine area and eventually off site and split up in quarantine area immediately are 60-75 degrees C over a 24 hour period
Moisture content Core zone Moisture Content Core Zone	At 2 points per 150m^3 bay at minimum of 0.5 m below surface. Ideal moisture range is 15%-35% If moisture is outside of the range 15%-35% less than 15% - NO Action deliver to Power station If moisture is outside of the range 15%-35% More than 35% - Out of specification for fuel and requires drying or blending or moving to the quarantine area for windrowing, drying and aeration moving

REF. BRE Global Ltd Isotherme testing report February 2015 (note limits and data from report)

4.2.2 Product storage and batch identification

Wood products batches shall be stored outdoors has described in section 4.1.

The graded wood batches shall be stored explained in section 4.1.

After the wood has been loaded onto vehicles by site staff it will then be weighed at the weighbridge and a weigh bridge ticket is produced by the weigh bridge with the customer's name and weight of the wood being dispatched to the customer.

Executive Summary:

This procedure describes the activity, procedures and monitoring at the Glamorgan Recycling facility.

Reference has been made to the Environment Agency guidance documents TGN7.01 and Fire Prevention/Plans 2015, along with Commissioned research for Fire Spread Analysis and Self-Heat Report (BRE Global Ltd).

Based on the information provided, the SOP concludes the following;

Item	NRW (guidance)	BRE Global Ltd (test Data)	JMRL (site limits)
Volume Unprocessed Wood (UP)	750m^3	130^{o}C	3000m^3
Volume Processed Wood (PW)	~~150m^3~~450m^3	105^{o}C	1250m^3
Storage Time (UP)	3 months	313 days	3 months
Storage Time (PW)	3 months	259 days	3 months
Temperature (UP) – Critical limit	Not detailed	130^{o}C	45-60 degrees
Temperature (PW) – Critical Limit	Not detailed	105^{0}c	45-60 degrees

APPENDIX E

Business Continuity Plan

Revision 1
Date: June 2022

Introduction

Distribution List

Copy Number	Name	Location
001	R Moody	Head Office
002		Site office
003		
004		
005		
006		

If you have any suggested changes to this plan, please notify the Company Health, Safety and Environment Manager

Aim of this Plan
To prepare this business to cope with the effects of Disaster Recovery, Business Continuity and Risk management in the event of an emergency.

Objectives
- To define and prioritise the Critical Functions of the business
- To analyse the emergency risks to the business
- To detail the agreed response to an emergency
- To identify Key Contacts during an emergency

Disaster Recovery

Disaster is defined as a prolonged impact on the ability to maintain service level. Types of disaster may include:

- Total loss of assess to premises, machines, personnel and customer files
- Partial loss of premises, machines, personnel and customer file due to;-
    - External or internal strike
    - Ecological events such as flood
    - Accidents, such as fire or
    - Deliberate disruption (e.g. Bombs)

This plan will provide direction and tool to assess the damage, establish emergency communications, plan and implement solutions so that the loss is minimised, and the stricken facilities are repaired or replace as soon as possible.

The responsibilities include:

- Full assessment of loss and actions necessary to recover.
- Assign staff.
- Specify physical and technical requirements.
- Source temporary site for medium to long term if required.
- Implement agree tasks and solutions in the short, medium and long term.

Outside Services include:

- Power& Utilities
- Royal Mail
- Courier Services
- Suppliers
- Other departments within Jack Moody Group

In the event of a disaster occurring at Glamorgan Recycling which makes the site unusable, the following plan will be put into operation immediately.

1. A member of senior staff from Glamorgan Recycling will contact the insurance company and inform them of the incident.

2. The Glamorgan Recycling operations contact (Site Manager) will be alerted, who will then implement the Recovery Plan. Moving forward, all members off staff will be contacted and subsequently assign tasks to begin the recovery process. This could include either meeting on site or at a specific location or being contacted remotely via email or telephone depending on the arisen circumstances. Members of Glamorgan Recycling staff now assigned to the recovery team will be responsible for:

    - Business recovery
    - Assessing salvage viability
    - New equipment purchases where required.
    - New arrangements for suppliers etc.

The staff from Glamorgan Recycling site office will move to Cannock with the main objective to provide a full set-up as far as reasonably practicable and continued supply services to our customers with minimum disruption. The recovery team authority will supersede any existing procurement procedures.

Glamorgan Recycling will transfer priority work and personnel to the recovery site. The Site Manager will co-ordinate the relocation of any required equipment and stationery, deploy replacement kit and hire equipment where necessary.

If the site becomes unusable for a long period of time, the Site Manager will plan for a relocation site that is suitable for their needs to operate as a business whilst the old site is dealt with.

The Site Manager will undertake a site survey and kit out the new location with suitable equipment necessary to restore the offices or production to full strength, if any equipment can be salvaged from the disaster site, Glamorgan Recycling's staff will check and re-deploy any such equipment that can be used.

Business Continuity Plan

Glamorgan Recycling Business Continuity Plan will ensure that processes are in place that will be followed in the event of unforeseen events, likely to cause disruption to normal business activities.

Glamorgan Recycling will work with customers and suppliers to minimise the effect of any such occurrences.

Glamorgan Recycling Business Continuity Plan is based on the following objectives:

- Identify at an early stage, abnormal occurrences that may impact the service.
- Assess the probability of these events occurring and evaluate the impact.
- Design and implement procedures, both reactive and pro-active, to minimise the possibility of the plan being implemented.

- Provide necessary resources to ensure customers receive the necessary service levels.

These primary objectives will be achieved by:

- Identifying key personnel, equipment, facilities and systems required to recover and or maintain service.

- Use the recovery plan to restore full operational capability in the minimum amount of time.

Events are classified into 3 escalating levels, and these reflect the severity of the event, and directly correlate with the required action.

Level One – Minor event that must be recorded for review purposes. These are event that in isolation have minor capacity to disrupt operations.

Level Two – Events that have the potential to disrupt operations. These must be notified to the director and contract managers and recorded with the insurance company if required.

Level Three – Events capable of major disruption where there actual or potential. The full Community Plan must be initiated, and relevant parties and authorities informed.

It is important that the escalation plan be implemented and escalated in a controlled manor. Responsibility for implementation rests initially with the Managing Director who will co-ordinate all aspects of the initial implementation

Response One – Responsibility rests with the contract manager for co-ordinating and documenting all events.

Response Two - Responsibility rests with the site manager for the processes which have to be implemented immediately. The contracts manager is responsible for all further actions and escalations.

Risk Management

Risk Management is the identification, assessment and prioritisation of risks (defined in ISO31000) and the effect of uncertainty on objectives, whether positive or negative. Following by co-ordinated actions and resources to monitor, control, and minimize the probability and impact of negative events.

Glamorgan Recycling Risk Management outlines steps and procedures that are either currently implemented or have the availability to be implemented, in the bid to reduce negative effects on the business and its ability to uphold business continuity as detailed above. Glamorgan Recycling have taken steps to ensure that risks relating to that risks relating to loss or damage are reduced and monitored as far as reasonably practicable.

Premises

- Are covered by comprehensive 24-hour CCTV which is recorded.

- Are kept locked when not in use and are further guarded by high level fencing throughout.

- Yard areas, offices and ancillary building are regularly maintained to include the worthiness of roofing, security to windows and doors and general overall condition.

- Comprehensive insurance is maintained for every aspect of the business activity.

Information and Communications

- All documentation is regularly backed up and kept in an off-site location.
- Information is also collated and stored by an external online service provider.
- All primary staff members have access to mobile computer and telephone facilities in the event that affixed office equipment is not accessible.
- Glamorgan Recycling IT systems are monitored and maintained via an external communications company.

General Works

- All operations hold relevant health and safety and industry specific training certificates. To include regular refresher training and conformity audits.
- All staff members are aware of the policy and procedure for documenting incidents, injuries and near misses.
- All individual works carry site specific method statements and risk assessments.
- All staff are aware of the fire and emergency procedure, and this information is displayed accordingly.
- All vehicles are associated plant is regularly maintained.

APPENDIX F

Concrete Block Specification

CASTLE CONSTRUCTION PRODUCTS

Product Data Sheet – Jan 2018

Product Name - **Fortress 'A'**

Description - **Concrete Interlocking Block 1600 mm X 800 mm X 800 mm**

Colour – Grey Finish - Smooth

8 Number Studs – 4 x 2 - Matching indents on underside to allow interlock.

Weight per unit approx. 2200 kg

Details

Our 1600 x 800 x 800 interlocking concrete blocks are ideal for Boundary walls, Push Walls, Segregation and Fire Walls, Temporary Buildings and many other uses.

Manufactured from C35 concrete from our modern computerised batching plant in Cardiff.

Class A1 Fire resistant (BS EN 13501 1:2002) – (Non Combustible Materials)

Each block comes fitted with 2 lifting pins for easy handling without the need for block grabs.

Castle Construction Products – Roath Docks, Gate 1B, Old Clipper Road, Cardiff Docks, Cardiff. CF 0 4LX
Tel: 02920 104000 E: sales@castleconstructionproducts.co.uk W: www.castleconstructionproducts.co.uk

APPENDIX G

Traffic Management Plan