

**APPLICATION FOR AN ENVIRONMENTAL PERMIT UNDER THE ENVIRONMENTAL
PERMITTING (ENGLAND AND WALES) REGULATIONS 2016 (AS AMENDED)**

FIRE PREVENTION PLAN

**ECO-POWER GREEN ENERGY LIMITED,
GIBSON LANE, MELTON, HULL, HU14 3HH**



Eco-Power
ENVIRONMENTAL

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ACRONYMS / TERMS USED IN THIS REPORT

AONB	Area of Outstanding Natural Beauty
BGS	British Geological Survey
CCTV	Closed Circuit Television
EA	Environment Agency
Eco-Power	Eco-Power Environmental Green Energy Limited
EMS	Environmental Management System
EP Regulations	Environmental Permitting (England and Wales) Regulation 2016 as amended
EP	Environmental Permit
EWC	European Waste Codes
FPP	Fire Prevention Plan
FRS	Fire Rescue Service
LNR	Local Nature Reserve
LWS	Local Wildlife Site
MAGIC	Multi-Agency Geographical Information for the Countryside
NGR	National Grid Reference
NNR	National Nature Reserve
PAT	Portable Appliance Testing
Ramsar	Ramsar Convention on Wetlands of International Importance
RDF	Refuse Derived Fuel

ACRONYMS / TERMS USED IN THIS REPORT (CONT.)

SAC	Special Areas of Conservation
SPA	Special Protection Areas
SRF	Solid Recovered Fuel
SSSI	Sites of Special Scientific Interest
Transwaste	Transwaste Recycling and Aggregates Limited

1. INTRODUCTION

1.1. Overview of the Fire Prevention Plan

- 1.1.1. A Fire Prevention Plan (“FPP”) has been produced for Eco-Power Environmental Green Energy Limited (“Eco-Power”) to form part of the Environmental Permit (“EP”) application to be submitted to the Environment Agency (“EA”).
- 1.1.2. As per the EA Fire Prevention Plan online guidance¹, a Fire Prevention Plan is a requirement of the permit application as the Installation falls within the non-hazardous waste sector and proposes to store the following combustible wastes as defined by the EA:
- plastics;
 - scrap metals contaminated or mixed with other waste such as oils or plastics;
 - Refuse Derived Fuel (“RDF”) and Solid Recovered Fuel (“SRF”); and
 - mixed waste containing combustible wastes.
- 1.1.3. This report follows the EA FPP guidance and details the required mitigation and management methods to prevent a fire of combustible materials stored at the Installation.
- 1.1.4. This FPP identifies measures to be employed to reduce the likelihood of fires at the Installation. In addition, the plan identifies measures to be employed in the event of a fire in order to limit the damage caused to the environment or human health.
- 1.1.5. Under current fire safety legislation², a responsible person must carry out, or appoint a competent person to carry out, a suitable and sufficient assessment of the risks of fire to employees and others who may be affected by the site. A Fire Risk Assessment will be carried out prior to the commencement of the proposed activities, as well as on an annual basis or in the event of a change to operations on site.

1.2. The Applicant

- 1.2.1. Eco-Power currently operate Bankwood Processing Site in Doncaster under a Waste Facility Environmental Permit (EPR/EB3207LH) delivering waste management solutions. Since 2017, Eco-Power’s main office and administrative centre has been based in Bankwood Lane Industrial Estate.
- 1.2.2. Transwaste Recycling and Aggregates Limited (“Transwaste”) currently operate a Waste Installation at Melton Waste Park under Environmental Permit EPR/BP3792LD issued by the EA on 17/01/2017. Eco-Power wish to obtain a section of the permitted land with the intention of operating a bespoke waste treatment Installation as proposed in this Environmental Permit application.

¹ EA online guidance – ‘Fire prevention plans: environmental permits’, available at: <https://www.gov.uk/government/publications/fire-prevention-plans-environmental-permits>, updated January 2020, accessed March 2020.

² Regulatory Reform (Fire Safety) Order 2005, available at: <https://www.gov.uk/government/publications/regulatory-reform-fire-safety-order-2005-guidance-note-enforcement>, accessed March 2020.



- 1.2.3. Transwaste will subsequently surrender the selected area from their Environmental Permit and Eco-Power will then hold the Environmental Permit for this area.

2. THE SITE

2.1. Site Location

- 2.1.1. The Installation is located on Gibson Lane, Melton, Hull, HU14 3HH and is centred on National Grid Reference 496740 425532. The exact location of the Installation is indicated on the Site Location Plan (Drawing 01) contained in Appendix I.
- 2.1.2. The Installation is situated within Transwaste’s Melton Waste Park and is predominately surrounded by industrial units and agricultural land.
- 2.1.3. Access to the Installation is via the eastern Transwaste site entrance off Gibson Lane. Gibson Lane leads to the A64, a major road network to the north of the Installation.
- 2.1.4. The closest Fire Station is Brough Fire Station located on Saltgrounds Road, Brough, HU15 1EG which is located approximately 3km west of the EP boundary.
- 2.1.5. The Eco-Power Installation will benefit from a 7m high perimeter fence to the north and east. Additionally, all access doors will be locked out of working hours and only a limited number of employees possess access keys in order to restrict unauthorised access into the Installation. The Installation will be covered by closed circuit television (“CCTV”) which is monitored by senior management. Key members of staff are also on call to attend site out of hours if required.
- 2.1.6. The Installation benefits from the existing Transwaste security measures including entire site perimeter fencing and a lockable main entrance gate. The site is manned 24/7 365 days of the year enabling constant site surveillance.

2.2. Sensitive Receptors

- 2.2.1. A summary of the immediate environmental site setting is provided in Table 1 below and the potential sensitive receptors within a 1km radius of the Environmental Permit boundary are shown on the Sensitive Receptors Plan (Drawing 03) contained in Appendix I.

Table 1: Summary of Surrounding Land Uses

Boundary	Description
North	Railway line, industrial units, A63 road network, residential housing and South Hunsley School and Sixth Form College in Melton, Melton Park, open fields, agricultural land and Melton Bottom Chalk Pit, Melton Bottom Local Wildlife Site.
East	Transwaste Melton Waste Park, industrial units, agricultural land and North Ferriby Ings.
South	Open field, industrial units and the Humber Estuary.
West	Agricultural land, Welton Waters Adventure Centre, Welton Water Sports Club, Field Welton Water and Brough Aerodrome.

2.2.2. A Wind-Rose showing the local meteorological conditions is shown below in Figure 1. The information is based on annual historical data from the Leconfield Meteorological Station. This demonstrates that the prevailing wind direction is west and south westerly.

Figure 1: Wind-Rose of the Local Meteorological Conditions

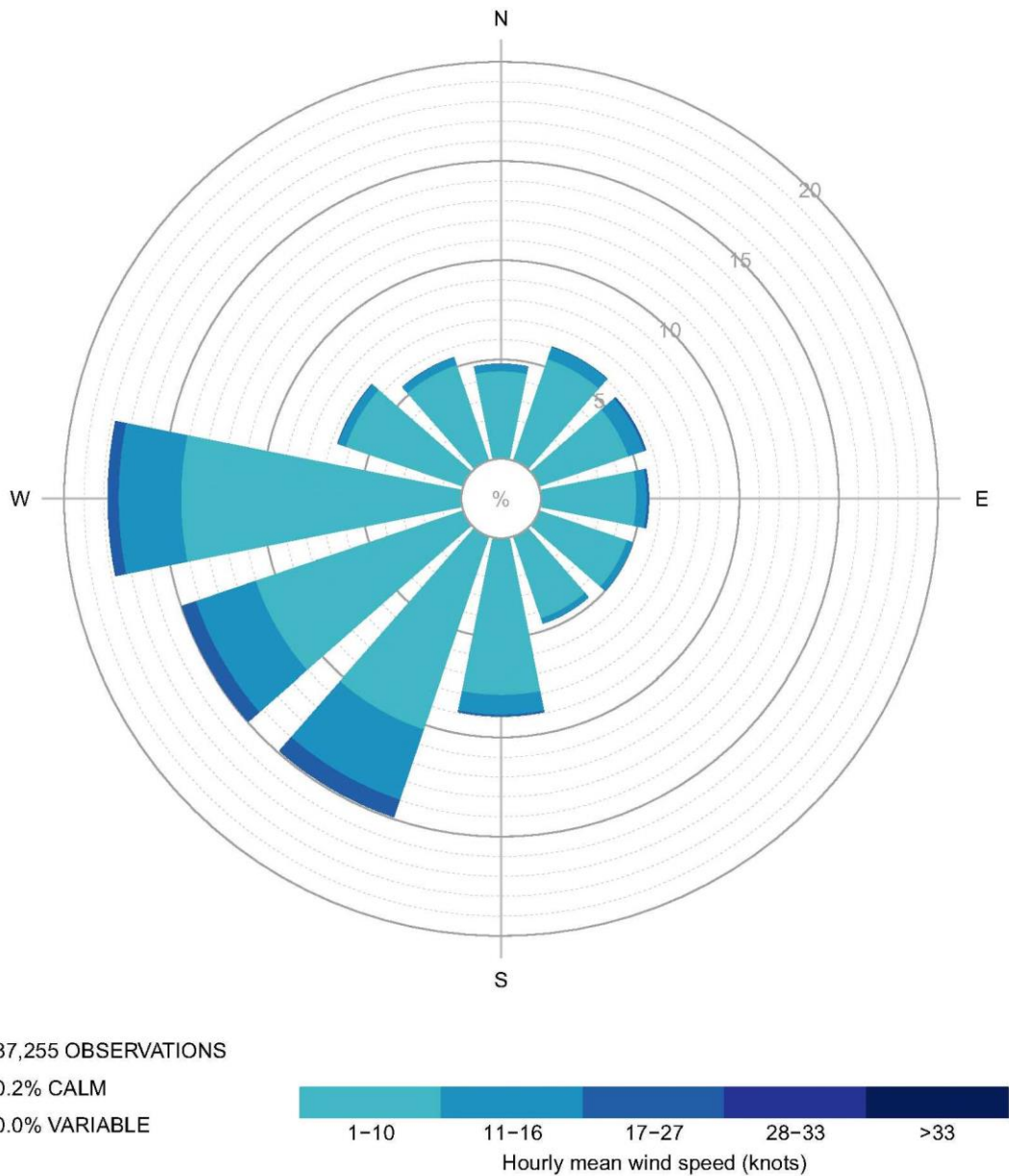


Met Office

**HOURLY MEAN WIND ROSE FOR
LECONFIELD**

NGR: 5025 E 4432 N
SEASON: ANNUAL

ALTITUDE: 7 metres AMSL
Period of data: Jan 2009 – Dec 2018



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2.3. Geology

- 2.3.1. The British Geological Survey (“BGS”) Geology of Britain Viewer online mapping tool³ indicates that the bedrock geology for the Installation is Ancholme Group – Mudstone, sedimentary bedrock formed during the Jurassic period.
- 2.3.2. The majority of the Installation is located on Brighton Sand Formation consisting of sand, silty which are sedimentary superficial deposits formed during the Quaternary period, whilst a small section is situated on Alluvium consisting of clay, silt, sand and gravel which are superficial deposits also formed during the Quaternary Period.
- 2.3.3. The regional soils are described as “slightly acidic loamy and clayey soils with impeded drainage⁴. Estimated soil chemistries in the area are:
- arsenic (“As”) 17 mg/kg;
 - cadmium (“Cd”) 0.6 mg/kg;
 - chromium (“Cr”) 60 mg/kg;
 - lead (“Pb”) 60 mg/kg; and
 - nickel (“Ni”) 22 mg/kg.
- 2.3.4. There are no areas of active mining or quarrying on site, however there are clay and gravel pit activities within 1km of the Installation.

2.4. Hydrogeology and Surface Water

- 2.4.1. A Settlement Pond is located within the Transwaste site as shown on the Drainage Arrangements Plan (Drawing 05). This Settlement Pond feeds into the Old Drain located to the south east of the Melton Waste Park boundary. The Old Drain flows into the Humber Estuary which is located approximately 0.83m from the Installation boundary.
- 2.4.2. The underlying bedrock has been classified as unproductive strata which are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.
- 2.4.3. The Groundwater Vulnerability of the Installation and its surrounding areas has been categorised as being a Secondary Aquifer (of high vulnerability). The Installation is located within a Zone 3 – Total Catchment Groundwater Source Protection Zone defined as “the area around a source within which all groundwater recharge is presumed to be discharged at the source”⁵

³ BGS Geology of Britain Viewer online mapping tool, available at: <https://www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html>, accessed September 2019.

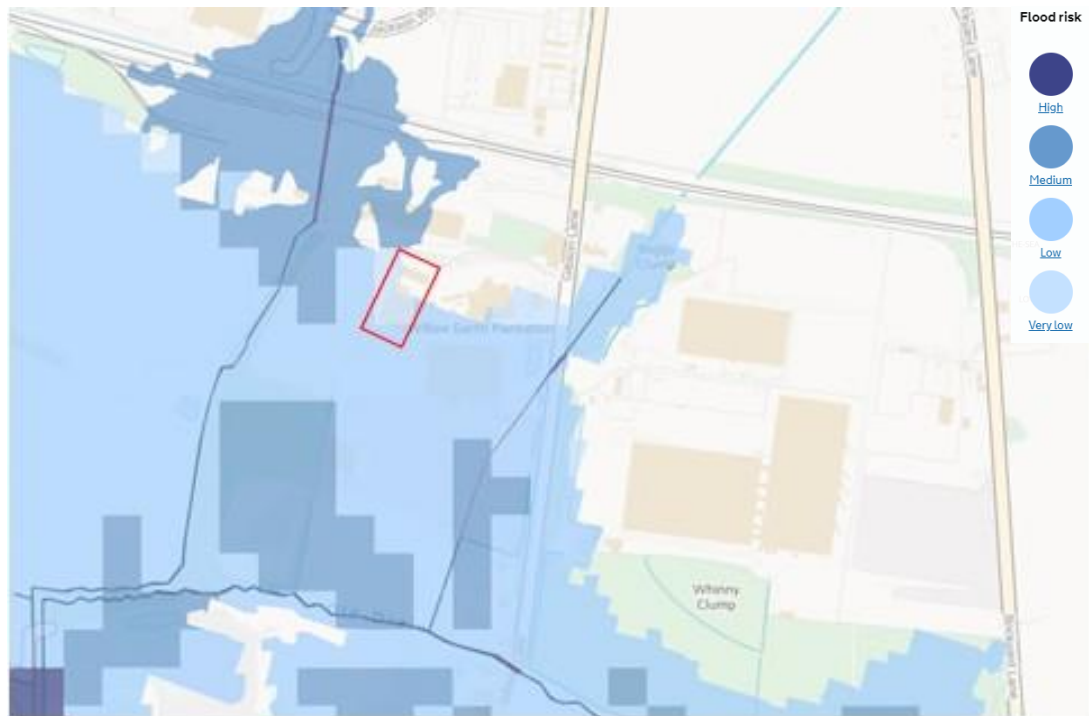
⁴ Soilscales Online Map, available at: <http://www.landis.org.uk/soilscales>, accessed September 2019.

⁵ EA Groundwater Source Protection Zones Descriptions, available at: <http://apps.environment-agency.gov.uk/wiyby/37833.aspx>, accessed September 2019

2.5. Flooding

- 2.5.1. The Humber Estuary is located approximately 0.83km south of the Installation's Environmental Permit boundary.
- 2.5.2. Figure 2 illustrates that the long term risk from flooding from rivers and sea at the Installation shown as the indicative red outline⁶.

Figure 2: Flood Risk Map – Rivers and Seas



- 2.5.3. As can be observed in Figure 2, the majority of the Installation is defined as very low – low risk of flooding from rivers and seas. This means the Installation has a chance of flooding of less than 0.1% for areas marked as very low and between 0.1% and 1% for areas marked as low. This takes into account the effect of flood defences in the area which are known to be present, however, it must be noted that although these defences reduce the risk, they cannot eradicate the risk of flooding as the defences can be overtopped or fail. The wider Transwaste Site and surrounding areas are marked as low with areas of medium which have a chance of flooding of between 1% and 3.3%.
- 2.5.4. Anecdotal evidence from Transwaste personnel indicates that the site did not flood during the extreme flood event of 2007.

⁶ Long Term Flood Risk Information, available at: <https://flood-warning-information.service.gov.uk/long-term-flood-risk/map>, accessed January 2020.

2.5.5. Figure 3 illustrates that the long term risk from flooding from surface water at the Installation shown as the indicative red outline².

Figure 3: Flood Risk Map - Surface Water



2.5.6. As can be observed in Figure 3, there are two areas within the Installation that are at low risk from surface water possessing a chance of flooding of between 0.1% and 1%. The majority of the Installation is at very low risk of flooding from surface water with less than 0.1% chance of flooding. It should be noted that flooding from surface water is difficult to predict as rainfall locations and volume are difficult to forecast and local features can greatly affect the chance and severity of flooding.

2.6. Ecology

2.6.1. International and European Sites

2.6.1.1. Searches conducted on the Multi Agency Government Information for the Countryside (“MAGIC”)⁷ online tool indicates that the Installation lies within 1km of the Humber Estuary which is designated as a Site Protection Area (“SPA”), Ramsar Site, Special Area of Conservation (“SAC”) and Site of Specific Scientific Interest (“SSSI”). This is illustrated in Figure 4 below.

⁷ Magic map online tool, available at: <https://magic.defra.gov.uk/MagicMap.aspx>, accessed September 2019.

Figure 4: Magic Map of the SPAs, Ramsar sites, SACs and SSSIs within 1km of the Installation Boundary



2.6.2. Other Ecological Receptors

2.6.2.1. Additionally, Field Welton Water Local Wildlife Site (“LWS”) is located 678m to the south west of the EP boundary.

2.6.2.2. None of the following ecological receptors have been identified within 1km of the EP boundary:

- Areas of Outstanding Natural Beauty (“AONB”);
- National Natures Reserves (“NNR”);
- Local Nature Reserves (“LNR”)
- Biosphere Reserves;
- environmentally sensitive areas; or
- National Parks.

2.6.3. Cultural Heritage

2.6.3.1. Online searches confirm that there none of the following are located within 1km of the Installation EP boundary:

- National Trust properties;
- registered Battlefields; or
- Scheduled Monuments.

3. SITE ACTIVITIES

3.1. Operational Activities

3.1.1. Eco-Power is proposing to fall under the listed activities detailed in Table 2 under the Environmental Permitting (England and Wales) Regulations 2016 (“EP Regulations”).

Table 2: Proposed Schedule 1 Activity

Activity listed in Schedule 1 of the EP Regulations	Description of Specified Activity
Section 5.4 A(1)(b)(ii)	Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving one or more of the following activities, and excluding activities covered by Council Directive 91/271/EEC – (ii) pre-treatment of waste for incineration or co- incineration.

3.1.2. Eco-Power wish to accept an annual throughput of up to 250,000 tonnes of waste. Only 2 no. waste codes are proposed as part of this permit application. These are detailed in Table 3.

Table 3: Proposed Wastes to be Accepted at the Installation

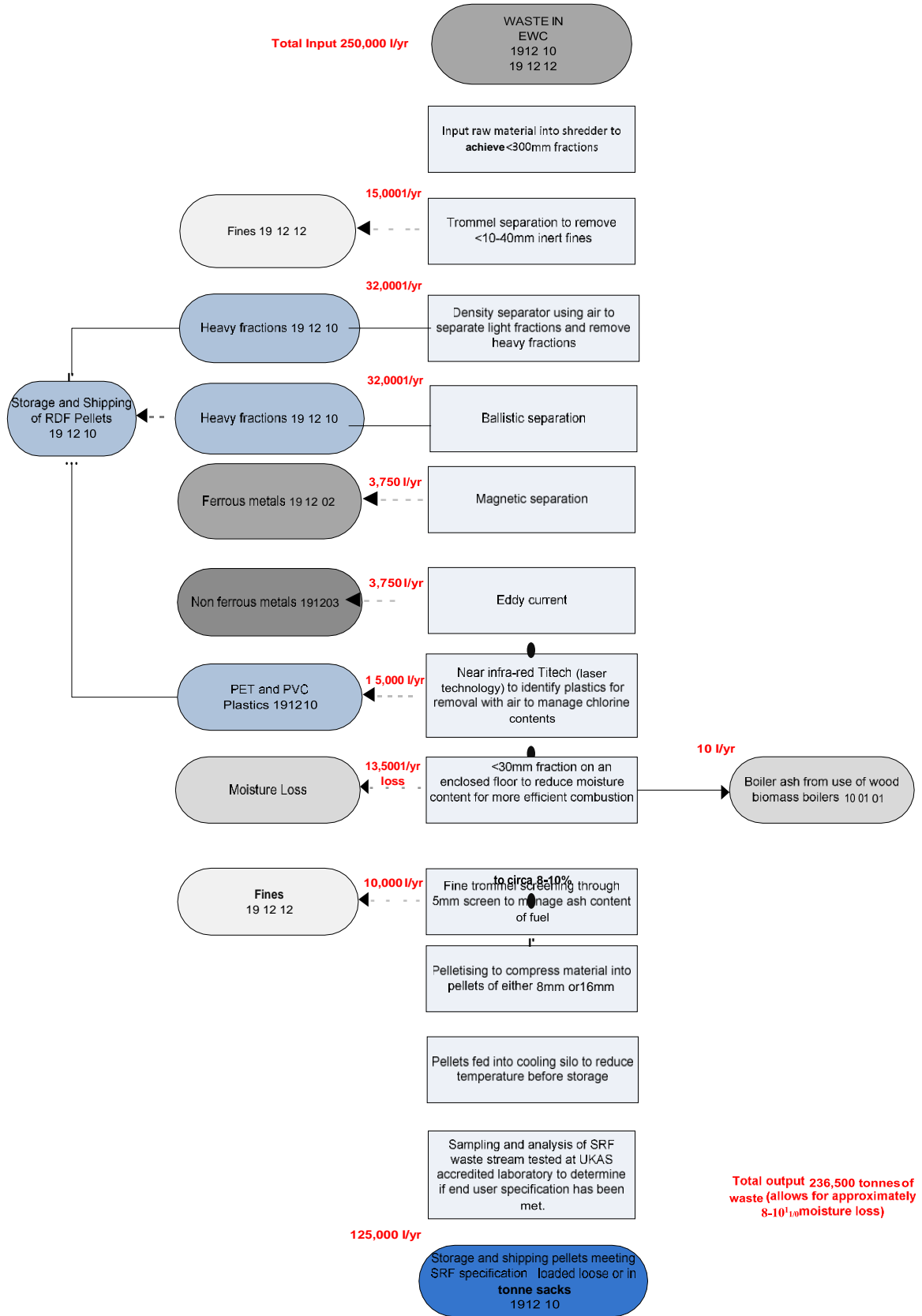
Waste Code	Description
19	WASTES FROM WASTE MANAGEMENT FACILITIES, OFF SITE WASTE TREATMENT PLANTS AND THE PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE
19 12	Waste from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified
19 12 10	Combustible waste (refuse derived fuel)
19 12 12	Other wastes (including mixtures of materials) from mechanical treatment of waste other than those mentioned in 19 12 11

3.1.3. The waste management operations to be carried out at the site as specified in Annex I and Annex II of the Waste Framework Directive 2008 are detailed below:

- **R4:** Recycling/reclamation of metals and metal compounds;
- **R5:** Recycling/reclamation of other inorganic materials; and
- **R13:** Storage pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).

3.1.4. The proposed process flow diagram is provided in Figure 5.

Figure 5: Process Flow Diagram



- 3.1.5. Waste procedures and control systems are contained within Eco-Power’s Environmental Management System (“EMS”) and are summarised below.
- 3.1.6. Waste Acceptance
- 3.1.6.1. Wastes delivered to the Installation will be required to report to the Weighbridge Office, where the load will be weighed and recorded, and the appropriate documentation duly completed.
- 3.1.6.2. The Weighbridge Operator will make a visual inspection of the wastes to ensure that the documented description matches the load and accords with the permitted European Waste Codes (“EWC”) listed in the Environmental Permit. Any non-conforming loads intercepted at the weighbridge and will not be accepted onto site.
- 3.1.6.3. Following authorisation to proceed onto site, waste delivery vehicles will be directed to the Feed Material Storage Area. A shovel loader/360 handling grab will be used to spread that load for a detailed secondary inspection.
- 3.1.6.4. Following the more detailed inspection of the waste, if waste not permitted by the Environmental Permit is discovered, the material will be isolated immediately. The waste producer will be informed. The EA will also be informed of the waste type involved, the name of the carrier, date and time of delivery, the name of the producer of the waste and proposed cause of action. The material will either be reloaded into the delivery vehicle or if this is not possible, the waste will be loaded into another vehicle and moved to the Non-Conforming Waste Quarantine Area which is shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained in Appendix I. Waste within this Quarantine Area will be stored for a maximum of 5 working days prior to removal offsite to an appropriately licenced Facility/Installation.
- 3.1.6.5. Records of non-compliant waste received at the site will include details on:
- the quantity;
 - characteristics;
 - origin;
 - delivery date and time; and
 - the identity of the producer and carrier.
- 3.1.6.6. Additionally, records will be kept of the quantities of each category of waste accepted together with all acceptance information and any non-conforming incidents. Consignee returns for waste material will be sent following the required timetable every three months.
- 3.1.6.7. A running total will be maintained of the quantity of waste on site at any time. This will ensure that the maximum storage capacity is never exceeded. In the event of the storage limit is reached, no further waste will be accepted at the Installation until a sufficient quantity has been removed.
- 3.1.7. Waste Storage and Processing

- 3.1.7.1. Eco-Power will be accepting waste from several waste suppliers and waste prior to processing will be stored in the enclosed Feed Material Storage Area.
- 3.1.7.2. All waste received at the Installation will be treated within 3 months of receipt excluding specific requirements outlined in the EMS, such as constraints required for odour and pest management.
- 3.1.7.3. The waste will be moved into the main building for processing. Waste is to be shredded and processed through a number of separation systems. Following this processing, waste will be sent off site as a fuel at R1 certified Energy from Waste Facilities.
- 3.1.7.4. Furthermore, waste meeting Eco-Power's criteria following the physical processing will be selected for the production of SRF and placed on a drying floor. Heat from the biomass boilers provides heat to reduce the moisture content of the SRF. The dried SRF is then to be pelletised and stored within the Pellet Storage Area prior to transfer off site for use as a fuel at R1 certified Energy from Waste Facilities.
- 3.1.7.5. Eco-Power will set up and implement an output quality management system to ensure that the output of the waste treatment is in line with the expectation of the SRF being produced to British Standard BS EN 15359:2011. This management system will allow the performance of the waste treatment to be monitored and optimised.
- 3.1.7.6. Waste storage areas have been designated in the building for each waste stream resulting from the process, such as ferrous and non-ferrous metals which will be sent off site for recycling. All waste storage arrangements are illustrated on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I.
- 3.1.8. Waste Dispatch
 - 3.1.8.1. Collection vehicles used to remove waste materials from the Installation will consist of HGVs and will be loaded using either loading shovels or a 360 grab handler.
 - 3.1.8.2. Removal of waste materials from the site will be documented in accordance with Duty of Care requirements. All waste materials will be weighed prior to these being removed from the site. This will be carried out by the passage of vehicles carrying such waste over the weighbridge prior to departure.

3.2. Waste Quantities and Storage Arrangements

- 3.2.1. Wastes will not be accepted unless the site is adequately resourced to receive the waste.
- 3.2.2. The breakdown of the waste types and their associated storage arrangements on site including total waste volume and total quantity at any one time are provided in Table 4.

Table 4: Storage Arrangements for Combustible Waste Types

Waste Stream Description & EWCs	Location on site (See Fire Prevention and Mitigation Plan) (Drawing 1901.3)	Maximum Waste Pile Size (m ³)	Total Waste Volume (m ³)	Total Quantity of Waste (tonnes)
Ferrous 19 12 02	Bay 1	49.5 3.75m x 4m x 3.3m	49.5 1 bay	15
RDF 19 12 10	Bays 2 & 4	49.5 3.75m x 4m x 3.3m	99 2 bays	37
Non-Ferrous 19 12 03	Bay 3	49.5 3.75m x 4m x 3.3m	49.5 1 bay	45
Glass 19 12 05	Bay 5	70.4 5m x 4.4m x 3.2m	70.4 1 bay	23
Glass 19 12 05	Bay 6	64 5m x 4m x 3.2m	64 1 bay	21
RDF 19 12 10	Bay 7	244.8 15m x 4.8m x 3.4m	244.8 1 bay	91
Glass 19 12 05	Bay 8	94.5 4.5m x 6m x 3.5m	94.5 1 bay	31
Plastic 19 12 04	Bay 9	94.5 4.5m x 6m x 3.5m	94.5 1 bay	26
Plastic 19 12 04	Bay 10	184 10m x 4.6m x 4m	184 1 bay	51
SRF pellets 19 12 10	Bay 11	448.5 13m x 11.5m x 3m	448.5 1 bay	166
SRF pellets 19 12 10	Bay 12	360 12m x 12m x 2.5m	360 1 bay	133
Mechanically Treated waste 19 12 12	Bays 13 - 16	420 14m x 12m x 2.5m	1,680 4 bays	622
Mechanically Treated waste 19 12 12	Bay 17	280 8m x 7m x 4m	224 1 bay	83
Total of Combustible Waste on Site at Any One Time			1,269	

Note to Table:

1 The density conversion factors for each specific waste code have been taken from the UK Density Conversion Factors for Waste Excel Spreadsheet produced by the Environment Agency and published on the Scottish Protection Environmental Agency "SEPA" website.⁸ The following conversion factors were used:

- 19 12 10 & 19 12 12- 0.37
- 19 12 02 - 0.30
- 19 12 03 - 0.90
- 19 12 04 - 0.2776
- 19 12 05 - 0.3332

⁸ UK Density Conversion Factors for Waste, available at: <https://www.sepa.org.uk/environment/waste/waste-data/guidance-and-forms-for-operators/licensed-and-permitted-sites/>, accessed October 2019.

- 3.2.3. The total amount of combustible waste stored on site at any one time will not exceed 1,269 tonnes. The maximum time unprocessed waste will be stored on site is 3 days in warmer months (from April to October) and 7 days from November to March..
- 3.2.4. The movement, processing and storage of waste is tracked and recorded to ensure the oldest waste is processed. This is achieved by all combustible waste being deposited within appropriate storage bays according to the waste type. A record is maintained for each storage bay which confirms the date and time of the following occurs:
1. the bay is empty;
 2. the deposition of waste commenced into the empty bay;
 3. the bay was filled with waste or the removal of waste commenced; and
 4. all waste was removed from the bay.
- 3.2.5. The Site Manager carries out daily checks of each storage bay to ensure that the time between points 2 and 4 discussed above does not exceed the maximum storage durations.

3.3. Fire Prevention Plan – Quarantine Area

- 3.3.1. The Quarantine Area will be used in the event of a fire on site and will be kept clear at all times. The Quarantine Area will have moveable cones and a display sign so that it can be easily located and to inform vehicles not to restrict access to this area. Additionally, the location of internal roadways has been specifically chosen to prevent vehicles blocking access to the Quarantine Area. All staff will be trained in the location and use of the Quarantine Area to ensure that waste can be transported to this area as soon as possible or at most within 1 hour of the fire starting. The training will include practice exercises stimulating a fire event in which staff will be required to move waste to the Quarantine Area in an emergency situation.
- 3.3.2. The Quarantine Area is identified on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I and can be used to place burning wastes to extinguish them or to move unburnt wastes into the quarantine area to isolate and prevent them catching fire. The quarantine area has a storage capacity of 240m³ which is large enough to hold in excess of 50% of the volume of the largest waste pile (i.e. 13m x 11.5m x 3m = 448.5m³/2 = 224.25m³) and benefits from a separation distance of 6 metres around the quarantined waste.

4. POTENTIAL SOURCES OF FIRE RISK

4.1 Common Causes of Fire

4.1.1. As per EA's Fire Prevention Plan Guidance, the following potential sources of fire risk have been identified, based on the hypothetical scenario of the absence of any risk management measures and strategies being employed:

- **Arson:** Industrial Estates and factories can commonly be affected by arson; a serious issue as the ensuing fire can easily spread to another unit.
- **Plant or Equipment Failure:** When not properly maintained and inspected, plant and equipment can pose a serious fire hazard. This is particularly true of mechanical equipment, due to the potential for friction to develop between moving parts of the equipment.
- **Electrical Faults (including damaged or exposed electrical cables):** Faulty electrics and non-compliant electrics are one of the most common causes for fires in the workplace. The main hazards include wiring not meeting the relevant standards, exposed wiring, overloaded circuits and power outlets, extension cords, and static discharge. All of these have the potential to generate a spark, which has the potential to act as an ignition source.
- **Discarded smoking materials:** Smoking materials have the potential to ignite a fire if they come into contact with flammable or combustible materials.
- **Hot works:** Hot works, commonly including welding and torch cutting, have the potential to cause a fire as a result of the sparks and molten material which are generated during their operation. These can become hot, and could ignite a fire if they come into direct contact with flammable/combustible materials.
- **Industrial heaters:** Industrial Heaters can become a potential fire hazard if a fault develops, allowing issues such as over-heating to develop within the device. This hazard is worsened by the heaters being left turned on and unattended.
- **Hot exhausts:** The settling of dust on hot exhausts and hot engine parts can cause a fire as a result of the heating up of the materials. This could become a hazard both during operation and post-operation.
- **Ignition sources:** Other ignition source such as naked flames must be kept away from combustible or flammable materials
- **Leaks and spillages of oils and fuels:** Oils and fuels are flammable (and potentially explosive), therefore if they leak or are spilled within the site boundary, they are liable to present a risk of fire should an ignition source interact with it.
- **Build-up of loose combustible waste, dust and fluff:** Loose combustible waste creates more opportunity for interaction with potential ignition sources, increasing the likelihood of a fire starting.
- **Reaction between wastes:** If incompatible wastes are stored together, they have the potential to react and potentially lead to a hazardous situation. Common outcomes of the mixing of hazardous wastes include heat generation, flammable gas generation, explosions or fire.
- **Self-Combustion:** This occurs by an increase in temperature due to exothermic internal reactions within the waste piles, followed by thermal runaway due to chemical oxidation, rapidly accelerating to high temperatures and auto ignition.

4.2 Non-waste Materials

4.2.1 Non-waste combustible materials are stored on site which pose a fire risk. These consist of biomass fuels used on the boilers, diesel and various oils, cleaners and other chemicals required for plant maintenance. The mitigation measures in place for these materials are as follows.

1. Biomass fuel inside the Boiler House:

- No biomass fuel is stored indirect contact with the boilers.
- The area around the boilers is kept clear of obstructions.
- The quantity of biomass fuel stored inside the building is limited to what will be used in 24 hours.

2. Biomass fuel stored outside the Boiler House:

- The quantity of biomass fuel stored outside the building is limited to what will be used within 7 days.

3. Diesel stored in 3 tanks outside Sheds 1 and 2:

- The tanks are located outside of the buildings.
- The tanks are bunded to ensure fuel cannot escape in the event of a failure in the tank walls.
- The tanks, bunds and associated pipework are maintained in accordance with manufacturers' instructions.
- The area around the tanks is kept clear of obstructions.
- All fuel spillages are dealt with in accordance with the existing spills procedure.

4. Oils, cleaners and other chemicals required for plant maintenance:

- All the tanks are bunded to ensure fuel cannot escape in the event of a failure in the tank walls.
- The tanks, bunds and associated pipework are maintained in accordance with manufacturers' instructions.
- The area around the tanks is kept clear of obstructions.
- All fuel spillages are dealt with in accordance with the existing spills procedure.

5. PREVENTION MEASURES

5.1 Table 5 below provides a summary of the associated preventative measures as per EA’s ‘Fire prevention plans: environmental permits’ (updated January 2020, accessed March 2020).

Table 5: Preventative Measures

Cause	Preventative Measures
Pile Sizes/Volumes and Dimensions	<ul style="list-style-type: none"> • Markers will be drawn onto bay walls/floors to indicate approximate maximum stockpile sizes; • Fireproof concrete block bay walls are to be constructed to store waste piles. Eco-Power has chosen the product and design based on the requirement to achieve a fire resistance period of 120 minutes to allow waste to be isolated to stop fire spreading and minimise radiant heat which enables the fire to be extinguished within 4 hours. Intumescent mastic sealant is to be applied between the interlocking concrete blocks to provide a gap free fit and enhance their effectiveness; and • The maximum height of waste stored will not exceed 4m with a 1m freeboard to minimize the risk of fire spreading through flame height. The risk of fire spreading through burning brands has been accounted for by housing all storage bays inside buildings (to prevent burning brands being blown by external winds) and by the installation of the proposed fire suppression system. • The Eco-Power Installation will benefit from a 7m high perimeter fence to the north and west. • All access doors will be locked out of working hours and only a limited number of employees possess access keys in order to restrict unauthorised access into the Installation. • The Installation will be covered by CCTV which is monitored by senior management and Melton Waste Park is manned 24/7 365 days per year enabling constant surveillance.
Arson and Vandalism	<ul style="list-style-type: none"> • The Installation benefits from the existing Transwaste security measures including entire site perimeter fencing and a lockable main entrance gate. The security company patrols the entire Melton Waste Park, including the Installation, out of operational hours. Key members of staff are on call to attend site out of hours if required. • Fencing and entrance doors will be maintained and repaired by Eco-Power to ensure their continued integrity. Transwaste will be responsible for the maintenance and repair of the wider site security infrastructure measures. In the event that damage is sustained, repairs will be made by the end of the working day. If this is not possible, suitable measures will be taken to prevent any unauthorised access to the site and permanent repairs will be affected as soon as practicable; • A visitor sign-in system will be in place. In the event of a breach of security at the site, the cause will be investigated and appropriate mitigation measures implemented. This will be recorded in the EMS; • Records will be maintained and will include inspections and maintenance of security fencing and doors under Eco-Power’s control, breaches of security, investigations and actions taken. A blank example of the Site EMS Day Diary Checks Form is provided in Appendix II.

Table 5: Preventative Measures (Cont.)

Cause	Preventative Measures
Storage Duration	<ul style="list-style-type: none"> • Unprocessed and processed waste will be stored in stockpile(s) and the waste will be stored no longer than 1 week. The aim of this is to process the incoming material and arrange for its export off site as soon as practically possible, which is usually 1 week as per the EMS, to minimise over-stocking which in-turn minimises the risk of overheating and spontaneous combustion. • Waste will be checked and monitored on a weekly basis by the Site Manager; • There are no seasonal variations in opening times.
Training	<ul style="list-style-type: none"> • Training will be provided to all site personnel in relation to how to prevent fires on site, how to identify fire risks and how to spot fires on site; • Site management will ensure that there is always a sufficient number of staff on site when the site is operational. • A fire drill will be held annually to simulate the processes which would be undertaken in the event of a fire or other similar emergency. It involves creating a situation which replicates what would happen if a real fire were to occur, with the inclusion of fire alarms, and requires the employees, contractors and visitors to evacuate. • The drill enables familiarisation of the FPP and ensures the quickest and safest exit routes are used. Findings from the drill will be discussed and an action plan to address any opportunities for improvement will be implemented if necessary.
Employee Awareness	<ul style="list-style-type: none"> • Employees will be aware of: <ul style="list-style-type: none"> ○ the actions to be taken on discovery of fire and on hearing a fire alarm; ○ the location of manual fire alarm call points within the building and the method of operation; ○ the location of firefighting equipment within the building and the method of operation; ○ the location of firewater containment equipment and the procedure for deployment, as well as the location and procedure for closing the Settlement Pond isolation valve; ○ all escape routes within the building; ○ the purpose of fire resisting doors and their location within the building; and ○ evacuation procedures for the building and the location of the assembly point. • All employees will be aware of the methods of fire prevention as detailed below: <ul style="list-style-type: none"> ○ should an employee consider that something or someone presents a fire risk within the building, they will report the matter to the Site Manager; ○ employees will not allow the accumulation of large amounts of combustible materials around workplaces or escape routes; ○ employees will not obstruct fire escapes; fire exits or any fire-related equipment; ○ employees will ensure that self-closing fire/smoke doors are not wedged in the open position; and ○ employees will observe the no smoking policy.
Monitoring	<ul style="list-style-type: none"> • Site operatives will undergo training on the identification of stockpiles; • The following action will be taken should a hotspot be identified: <ul style="list-style-type: none"> ○ stockpile will be turned to bring the hotter areas to the surface; and ○ water sprays will be utilised if wastes are dry.

Table 5: Preventative Measures (Cont.)

Cause	Preventative Measures
Monitoring (Cont.)	<ul style="list-style-type: none"> • In order to ensure stockpiles are sufficiently rotated and waste storage time is minimised, site operatives will ensure that the oldest materials will always be removed or processed first. • Stockpiles will be visually inspected throughout the day and where appropriate findings logged within the Site Diary at the start and end of each working day as a minimum.
Actions to Limit Self-Heating	<ul style="list-style-type: none"> • Effective stock management limits the likelihood of the self-combustion of materials stored on site. As such, the operator has waste acceptance and stock management procedures which are followed by all employees at the site. • Stockpiles of unprocessed and processed materials will be managed as follows, to minimise self-combustion: <ul style="list-style-type: none"> ○ Stockpile volume, height and storage times will be minimised on site and hence stored materials will be rotated whilst held on site; and ○ where possible and practicable, material is stored in its largest form prior to processing. • Wherever possible, the following measures will be implemented on site to reduce self-combustion: <ul style="list-style-type: none"> ○ separation of materials; ○ isolation of combustible materials; and ○ restricting storage times.
Plant and Equipment	<ul style="list-style-type: none"> • Site vehicles for Eco-Power will be kept to a minimum and an indicative list of the main plant and equipment is provided in the relevant tabs of the Planned Preventative Maintenance Regime (“PPMR”) contained in Appendix III. • Vehicles will be fitted with fire extinguishers and dust filters. • A number of measures will be implemented at the site to prevent fuel and combustible liquids leaking or trailing from site vehicles. These will include: <ul style="list-style-type: none"> ○ Site vehicles subject to annual servicing and maintenance checks; ○ Daily checks, such as evidence of obvious leaks, hydraulic fluid levels, operating systems, undertaken on site vehicles prior to use; ○ A procedure for reporting any faults or maintenance concerns to prevent any foreseeable breakdowns or leaks; ○ A procedure for immediate reporting of fuel leaks or spillages; ○ In the unlikely event of a fuel leak, spill kits will be deployed to clean up any fuel spillage and prevent entry to the onsite. As part of the Site’s EMS, staff are trained in emergency response procedures, including the deployment and appropriate disposal of spill kits. ○ Any delivery vehicle allowed entry onto site must be serviced and MOT road worthy. ○ Any evidence of leaks from these vehicles will be recorded and communicated. Further entry to site will be refused until repairs have been made. • Operatives will be required to complete inspection records for all plant on a daily basis. Inspection of plant and equipment will be undertaken to check for faults and ensure appropriate safeguards are in place. The inspections will be undertaken and recorded as per the PPMR contained in Appendix III. All plant will be operated, maintained and serviced in line with manufacturer’s recommendations and instructions. Instruction Manuals for plant and equipment will be held on site.

Table 5: Preventative Measures (Cont.)

Cause	Preventative Measures
Plant and Equipment (Cont.)	<ul style="list-style-type: none"> • Induction training and refresher training will be provided to staff in the safe operation of plant and equipment relevant to their role, in accordance with the EMS. • A maintenance schedule is provided in Appendix III and will also be displayed in the site office and records of all servicing and maintenance will be stored within the site office. • Plant and equipment will be visually inspected to ensure it is fit for purpose. • If required, plant will be subject to blow down at the end of the day to remove any dust or fluff accumulations from waste processing operations. A check will be undertaken to ensure that each blowdown has been carried out and a record maintained of these checks (See Appendix III – PPMR, Cleaning Report). This record sheet will be updated as the site develops to reflect any additions to plant/equipment on site. • In the event of a failure or suspected fault with an item of plant or piece of equipment, the operator will ensure that the equipment is shut off in a safe manner and not used until the equipment can be repaired or replaced.
Infrastructure and Site Inspections	<ul style="list-style-type: none"> • Operational areas of the site and equipment will be cleaned down during each working day to reduce the build-up of loose waste, dust and fluff. As discussed, a record will be maintained of the time of each clean/blowdown of each item of plant (see Appendix III). • The site will undergo daily housekeeping and infrastructure inspections which are recorded on the Site EMS Day Diary Checks (Appendix II). • Potential dust emissions resulting from the site’s activities will be managed as per the Emissions Management Plan which is contained within the site’s EMS. • All staff will be trained in how to identify fires and fire hazards on site.
Electrical Faults	<ul style="list-style-type: none"> • Regular safety checks and daily site inspections will be recorded in the site diary/wall planners; • All buildings electrics will be fully certified by a qualified electrician; and • Annual Portable Appliance Testing (“PAT”) testing of any portable electrical appliances will be carried out.
Ignition Sources	<ul style="list-style-type: none"> • Sources of ignition will be kept at least 6 metres away from combustible and flammable materials. Sources of ignition will be minimal and waste stored on-site will not readily ignite. • There will be no naked lights permitted on site. • All waste storage piles will be located a minimum of 10m from the electricity pylon located on site. • If used, a safe use policy for portable heaters will be in place which states; • the use of such heaters will be kept to a minimum; • staff will be fully trained in their use; • they will undergo PAT every 12 months to ensure the safety and compliance of equipment; • they will be placed at a safe distance from any flammable material;

Table 5: Preventative Measures (Cont.)

Cause	Preventative Measures
Ignition Sources (Cont.)	<ul style="list-style-type: none"> • they will not be covered by any material or clothing items; • will be turned off and unplugged when unattended. • a no smoking policy will be in effect in all operational areas and this will be communicated to all staff and visitors with signage and training. There will be a designated smoking area which is located a sufficient distance from the combustible waste stored on site.
Heat and Spark Prevention	<ul style="list-style-type: none"> • No burning, reactive / reacting or visibly hot (producing steam or heat) loads will be accepted on site. Loads will be visually inspected at the site entrance to ensure compatibility with accompanying delivery notes, therefore minimising prohibited wastes. A quarantine area for hot loads is not required as hot loads are not received or processed at the site. In the very unlikely event that a hot load is identified on delivery, it would be rejected and immediately returned to the supplier and therefore, not accepted onto site. • Any hot works/use of cutting tools will be carried out indoors and at a safe distance from combustible materials. The site operates a Permit to Work system to control high risk activities, such as hot works. Only a Competent Person, one that is adequately trained and experienced, is authorised to undertake the welding and cutting on site. The control and preventative measures stipulated on the Permit to Work will be rigorously followed by the Competent Person and the other members of the team. The area will be made safe before the work starts and all the prescribed preventative precautions will be taken whilst the work is in progress. • On completion of the hot work, the area will be cleared and checked. The competent person or deputy will re-visit the work area, after a suitable period of time. This will be undertaken one hour after the activity has ceased and at the end of the working day. This is known as a fire-watch and ensures no signs of smouldering embers or hot surfaces are evident which could potentially cause a fire. An example of a blank Permit to Work is provided in Appendix IV. At regular intervals during working day, as well as at the end of the working day, a fire watch will be carried out. • Vehicles will be turned off when not in use. A fire watch will be undertaken at regular intervals throughout the working day to detect signs of fire caused by dust settling on hot exhausts and engine parts. Special consideration will be given to the high-risk time which is the hour after the plant/machinery has been switched off when dust can settle on hot exhausts. A fire watch will carry out visual checks. Additionally, vehicles will be given time to cool down and the final fire watch will be undertaken at the end of the working day prior to staff leaving site. • Following each treatment process, waste piles will be allowed sufficient time to cool prior to being transferred to the next treatment stage. Movement of the material will also provide cooling as it passes through the air. • The temperature of the waste within the drying floor is monitored and recorded every 3 hours to ensure any significant rise in temperature identified would result in halting of the drying process to allow sufficient time for cooling. The equipment controls should prevent this from being necessary.

Table 5: Preventative Measures (Cont.)

Cause	Preventative Measures
Heat and Spark Prevention (Cont.)	<ul style="list-style-type: none"> Flammable/combustible materials will be stored in designated areas away from frequent vehicle movements; Due to the nature of the waste, temperature and moisture content of materials within the site does not require checking, however, if advised by the Fire Rescue Service (“FRS”), thermometers will be installed on site to monitor heat.
Gas Bottles and Other Flammable Items	<ul style="list-style-type: none"> Through the implementation of robust pre-acceptance and acceptance waste procedures, waste gas cylinders/bottles won’t be accepted on site.
Smoke/Heat/Flame Detectors	<ul style="list-style-type: none"> A Fire Alarm System has been installed on site and hence the Installation will have manual call points throughout the entire site which are linked to internal and external sirens. The location of the fire alarm system is provided on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I. The design and installation has been undertaken by a third-party accredited company who will also undertake periodic maintenance and therefore the Fire Alarm System is covered by an appropriate UKAS-accredited third-party certification scheme. The Fire Alarm System will be monitored out of hours and the Compliance Director will attend site immediately to assist FRS and ensure the FPP is adhered to. The Fire Alarm System will be tested weekly and serviced in accordance with the manufacturer’s recommendations. Records of the tests, servicing and any false alarms will be kept in the Site Diary. As waste will be stored internally, a fire suppression system will be installed. The appropriate suppression system has been selected and will be installed by a specialist a third-party accredited company to ensure the suppression system is covered by an appropriate UKAS-accredited third-party certification scheme. The detailed fixed suppression system proposal is provided in Appendix V. The indicative location of the suppression system is shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I.
Reactions between incompatible materials	<ul style="list-style-type: none"> Strict waste acceptance procedures will be implemented on site to ensure only the 2 no. permitted waste types are accepted. All loads are pre-booked and covered by appropriate waste documentation. Employees are under instruction to reject the load if incoming waste or materials have been identified which have not been previously agreed and stated on the waste documentation As a result, any incoming waste or material has been pre-inspected and determined and therefore, incompatible waste and material will not enter site. If incompatible waste is identified during tipping, the non-conforming waste procedure will be followed using the Non-Conforming Waste Quarantine Area – see Section 3.1.6.4.

6. FIRE MANAGEMENT AND IMPACT REDUCTION

6.1 Waste Acceptance and Records

- 6.1.1 Strict waste acceptance procedures will be implemented on site to ensure only permitted materials are accepted.
- 6.1.2 All staff receiving waste will be fully trained and will be able to detect any non-conforming materials at point of arrival on site. All loads will then be checked upon receipt and a checking procedure will be in place to identify non-conforming materials.
- 6.1.3 Any non-conforming waste is described as any waste that:
- the Installation is not authorised to accept;
 - is not recorded on the accompanying waste documentation;
 - would not be expected to be present.
- 6.1.4 In the unlikely event that non-conforming materials arrive on site on arrival and at the unloading stage, the inventory stage would then identify non-conforming material. The non-conforming material will not be accepted at the site and will be returned to the supplier. If this is not possible, the non-conforming waste will be held in the Non-Conforming Quarantine Area for a maximum of 5 working days prior to dispatch to an appropriately licenced facility or installation.
- 6.1.5 Eco-Power will record waste descriptions, date and time of arrival on site and original producer details.
- 6.1.6 Eco-Power will also ensure:
- accurate records of the nature and quantity of waste are held on site;
 - record waste locations;
 - record any decisions regarding acceptance/rejection of waste streams;
 - hold information related to the comparison of total quantities of waste on site compared against total permitted; and
 - record the time the waste has been on site enabling the implementation of the “first in, first out” principle.

6.2 Site Infrastructure

- 6.2.1 The Installation will consist of impermeable concrete hardstanding surfacing and will include a Feed Material Storage Area building and a Main Processing Building housing the processing plant, the drying floor/screen area, the pelleting plant and pellet storage area. The Boiler House containing 41 biomass wood boilers will be located adjacent to the Workshop. Boiler House 2 will be used to store additional unprocessed or processed waste. The Installation layout and infrastructure arrangements are displayed on the Fire Prevention and Mitigation Plan (Drawing 1901.3).
- 6.2.2 The Installation will also utilise the weighbridge and internal roadways within the wider Transwaste Waste Park.
- 6.2.3 The Installation’s drainage system will link directly to the existing Transwaste Melton Waste Park drainage. The proposed drainage arrangements are shown on the Drainage Arrangements Plan (Drawing 05) contained in Appendix I.

- 6.2.4 All waste storage and operational areas are located within the site buildings which are isolated from the drainage network.
- 6.2.5 The Installation surface water drainage will connect to the existing Transwaste surface water drainage via two separate routes which enter a Settlement Pond, one via the car park interceptor and another directly into the Settlement Pond. The settlement is captured whilst the clean surface water discharges via a drain to the Humber Estuary. The Settlement Pond benefits from an isolation valve which can isolate the drainage system in an emergency situation. The Settlement Pond and Interceptor are emptied and cleaned periodically.
- 6.2.6 The drainage line running from the Feed Material Storage Area links directly to the foul sewer.
- 6.2.7 Fire exit doors are an important part of a building's fire defences. The two functions of a fire door are:
- to compartment the building to prevent the spread of fire; and
 - to provide a safe means of escape for those persons evacuating the building.
- 6.2.8 All employees will ensure that all fire doors, particularly those providing access to stairwells, are kept shut at all times. All fire doors can be opened using a push bar in the event of the fire alarm sounding.
- 6.2.9 The fire alarm system on site consists of separate button activated sirens, which are independently battery powered.
- 6.2.10 The site will not continue to accept waste if there is an active fire on site. Waste will be diverted to a nearby suitably licenced site and, if possible, waste producers will be notified in advance to prevent delivery vehicles arriving on site. Site personnel will be stationed in an appropriate location on the access road outside of the Melton Waste Park to redirect any delivery vehicles which were on route prior to the fire event occurring on site.
- 6.2.11 Should fire compromise its stability or integrity of the building, all personnel on site will be immediately evacuated and the FRS will be contacted.

6.3 Containing and Mitigating Fires – Existing Measures

- 6.3.1 The site has foam, carbon dioxide and powder extinguishers (See Figure 6). The indicative locations of the fire extinguishers are shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I. The proposed Eco-Power Waste Recovery Building will be fitted with applicable fire extinguishers by a specialist third party accredited company and therefore covered by an appropriate UKAS-accredited third-party certification scheme. All fire extinguishers will be serviced as part of an annual inspection contract.
- 6.3.2 An up-to-date site plan will be on display in the site office and will detail:
- site layout;

- waste storage arrangements;
- firefighting equipment locations;
- fire detection equipment; and
- PPE.

6.3.3 In addition, all procedures relating to emergency procedures on site, including fires, be easily found and readily available.

Figure 6: Fire Extinguishers Type and Application



6.4 Containing and Mitigating Fires – Upgrading to Zoned Deluge and Water Cannon System

6.4.1 The design of the Zoned Deluge & Water Cannon system is outlined below. Further details are attached at Appendix 5. The system is a custom-engineered fire solution designed with consideration to the following standards:

- LPCB – Pumped Water Supply.
- NPFA 13 – Water Deluge Systems in Pre-Processing and Pelletising Areas.
- NFPA 15 – Water Spray Systems on Bunkers.
- NFPA 850 – Water Cannon System (flow rate, and use of wetting agent).

Fire Suppression System – Pumped Water Supply

6.4.2 The Pumped Water Supply has been designed to cater for either:

- The largest Deluge Zone operating, or;
- 2x Water Cannons operating.

6.4.3 The pumped water supply is based on an operating duration for the largest flow scenario for 120 minutes, with no provision made for infill. The system comprises:

- Two LPCB Approved, electric fire pumps, each rated at 3,000 l/min at 9.0 bar, and jockey set, (electrical changeover panels, by others).

- One LPS1276 Approved above ground 594 m³ effective capacity cylindrical galvanised water storage tank, 7.64 metres diameter x 14.042 metres high.
- All necessary pump suction, delivery and test pipework, complete with suction and delivery valves.
- 50mm. tank infill riser from base of tank to ball valve, complete with butterfly isolation valve.
- GRP Pumphouse Enclosure – 6.0 metres x 5.0 metres x 2.8 metres high.
- Pump house electrics and pump wiring as specified, including heating, lighting, emergency lighting and small power.
- BSEN12845, dual circuit electrical trace heating and weatherproof thermal lagging of exposed Tank Infill Riser, Pump Suction connection between tank and pump house & Pump Delivery connection between pumphouse and building.
- Pumphouse mounted Pump Remote Alarm Panel, together with interconnecting signal wiring from pump panels, pressure and flow switches.
- 1500lt Bladder Tank & Wide-Range Proportioning System (pre-piped assembly), providing sufficient additive for approx. 90 minutes of firefighting duration on the largest zone. For any areas using a lesser flowrate, the duration will be proportionately longer.
- 1500lt Toppex ia 0.5% Wetting Agent.
- A 150mm Wet Mains in medium galvanised steel will be routed at high level through the building as shown on the Red Line marked on the drawing, to 3no. valve manifolds at low level.

Deluge System

6.4.4 Deluge Protection will be provided over storage bay 17 (shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I). This will consist of:

- Provision and installation of High Hazard Deluge Sprinkler Protection to the storage bay.
- Protection would be designed to provide a design density of 16.3mm/min over the entire storage area, to suit EH2 Classification of NFPA 13, utilising K160 ‘open’, pendant spray sprinkler heads.
- 1x Electrically Activated Deluge Control Valve Assemblies, complete with Release Panel and Trim Piping, would be located within the adjacent area.
- Commissioning and Trip Testing of completed deluge systems upon completion.

6.4.5 Automatic Fire Detection & Activation of this deluge zone will be provided by a single FGD IR3 Flame Detector as shown. The zone can also be activated manually, via a Yellow ‘Manual Release’ point - which will be protected within a Perspex cover and provided with suitable clear signage.

6.4.6 Deluge Protection will be provided over storage bays 11, 12 and 13 (shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I). This will consist of:

- Provision and installation of High Hazard Deluge Sprinkler Protection to the storage bays.
- Protection would be designed to provide a design density of 16.3mm/min over the entire storage area, to suit EH2 Classification of NFPA 13, utilising K160 'open', pendant spray sprinkler heads.
- 1x Electrically Activated Deluge Control Valve Assemblies, complete with Release Panel and Trim Piping, would be located within the adjacent area.
- Commissioning and Trip Testing of completed deluge systems upon completion.

6.4.7 Automatic Fire Detection & Activation of this deluge zone will be provided by a single FGD IR3 Flame Detector as shown. The zone can also be activated manually, via a Yellow 'Manual Release' point - which will be protected within a Perspex cover and provided with suitable clear signage.

Automatic Water Cannon System

6.4.8 A Dual Automatic Water Cannon System, rated to flow 946lt/min per cannon will be provided over storage bays 14, 15 and 16 (shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I). The cannon will be positioned over the concrete dividing walls which rise to 8m and separate the bays. Each 'bay' will be a separate zone. In the event of a fire being detected in either zone, the cannon will oscillate over that 'zone' only. Due to the short distance, the cannon will be set to operate in a soft-spray pattern for optimum coverage. Automatic Fire Detection & Activation of each zone will be provided by a single FGD IR3 Flame Detector over each zone as shown. The zones can also be activated manually, via a Yellow 'Manual Release' point - which will be protected within a Perspex cover, and provided with suitable clear signage.

6.4.9 Each cannon will have a motorised isolation valve at accessible level, fed off the wet main feed supply within the MRF Building. From this position, a separate dry pipe will be routed to each cannon along the front roofline of the feed material storage sheds. All power supplies & control panels will also be located at low level near the valve positions, for each of maintenance. The cannon will also be equipped with a wireless handheld controller, to allow remote manual operation of the system from safe area (line of sight operation of 100m).

Manual Deluge System

6.4.10 Within the pre-processing plant, there are a number of storage bunkers where separated materials from the process are deposited. These storage bunkers require deluge systems mounted on, or under the plant to ensure effective application of extinguishing agent directly onto the risk area - whilst minimising the risk of consequential damage as a result of water discharge. Each of these zones will have the following design characteristics:

- Protection would be designed to provide a design density of 16.3mm/min over each entire protected area, to suit EH2 Classification of NFPA 13, utilising K160 'open', extended coverage, horizontal sidewall sprinkler heads.
- The use of 'sidewall' heads allows the protection of the bunker without pipework directly over the risk area, minimising the chance of damage during operations.

- Each zone will be equipped with a manual ball valve, allowing site operators to operate the system over each zone individually.

Bunker Deluge Zones	
No.	Description (position shown on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I)
1	Bay 10
2	Bays 1 – 4
3	Bay 9
4	Bay 7
5	Bay 8
6	Bays 5 and 6

Foam Fire-fighting Trolleys

6.4.11 Three DF130 mobile foam fire-fighting trolleys will be positioned around the facility at key points, to provide effective manual fire-fighting capacity for trained operators. Quick-connection points will be made in these positions to the wet-mains of the fire suppression system to allow for connection of the trolleys to the pumped water supply.

Detection and Control System

6.4.12 An 'Advanced' Analogue Addressable control panel has been specified for the detection and control of the fire suppression system. This provides significant scalability on the system, and very extensive cause-and- effect functionality to allow the system to evolve to the requirements of the facility. This includes providing shutdown outputs to the plant and provision of 'repeater' panels in other locations if required.

Fire Alarm System Specification	
1x	Advanced MxPRO5 Fire Alarm Control Panel Two-loop enclosure, with single loop card for scalability.
1x	Mains Keyswitch Isolator
1x	Battery Backup
1x	Set of associated cabling, containment
2x	'FDP' Custom Built Power/Signal Panels for all Flame Detector Interfaces and Valve outputs.

7x	<p>Sounder/Beacon units, for a clear alarm warning of the system activation and evacuation of the areas where the system is covering, including:</p> <ul style="list-style-type: none"> • 5x Asserta Maxi 120dB Sounder Beacons, inc PSU's & Controllers. • 2x XP95 Loop Powered Sounder Beacons
3x	<p>FGD IR3 Flame Detectors in the Pre-Processing Facility, to provide automatic fire detection over all of the storage areas shown in Yellow.</p>

6.4.13 The panel will control all the detectors, activation point, PSU's & Interfaces on the detection system, and the activation outputs to the suppression zones.

6.4.14 For Automatic Detection & Manual activation, each zone will include:

- FGD Flame Detectors for superior detection performance.
- A Yellow 'Manual Activation' push button inside a Perspex protective cover for operation of the system from a safe area.

6.5 Site Procedures

6.5.1 The following procedures will be in place on site that will be followed in the event of a major fire on site:

- the Site Manager and FRS will be notified immediately and the EA as soon as practicable;
- if the fire is contained within a delivery vehicle, the vehicle will be quarantined and the fire quenched using onsite fire-fighting equipment;
- if the fire originates within the site building, if it is safe do so, a temporary bund (firewater booms) will be deployed to ensure that firewater is kept within the building which benefits from impermeable surfacing, or a designated area which would limit overland flow to prevent the percolation of firewater into the ground (any firewater held within the bund will be tested before removal offsite to a suitably licensed Facility once the fire has been extinguished);
- the isolation valve at the Settlement Pond will be closed and the water diverted to the Settlement Pond if additional containment capacity is required and the firewater will be subject to testing and removal offsite to a suitably licenced Facility.
- if possible, waste that is unburnt will be dampened down to prevent the fire from spreading further and any contaminated runoff will be withheld within the temporary bunded area;
- if possible, unburned material will be separated from the fire using site plant;
- the burning area will be isolated and attempts will be made to extinguish the fire utilising the onsite fire extinguishers if safe to do so; and
- depending on the scale of the fire, the site and buildings will be evacuated;
- the Site Manager will notify adjacent businesses to the site directly by telephone; and
- Transwaste Operational Manager will be informed immediately and businesses in the adjacent industrial estates will be alerted by the fire alarms and the FRS

will instigate evacuation of nearby businesses and residents if deemed necessary.

- during a major fire waste inputs would be suspended pending an assessment of risk from continuing to accept waste and waste inputs would only resume when the risk was considered to be acceptable.

6.5.2 A Site Information and Key Contacts List is provided in Appendix VI which outlines the contact details of internal and external contacts to notify in the unlikely event of a fire on site. Out of hours telephone numbers are also provided.

6.6 Fire Waters

6.6.1 All waste will be accepted, treated and stored within the confines of the Installation buildings which benefit from impermeable surfacing. In the event of a fire, doors would be closed to contain the fire water internally.

6.6.2 Prior to the installation of the proposed fixed fire suppression system water to actively fight a fire will be available from the two nearest fire hydrants shown as H1 and H2 in Figure 7. Water for the fixed fire suppression system will be taken from the existing mains water supply, which will be used to fill and top up the proposed water storage tank.

Figure 7: Hydrant Location in relation to Eco-Power



Note to Figure:

Fire hydrants locations provided by Humberside FRS on 13th August 2019:

- H1 – NGR 496965 42567; and

- H2 - NGR 496867 425033.

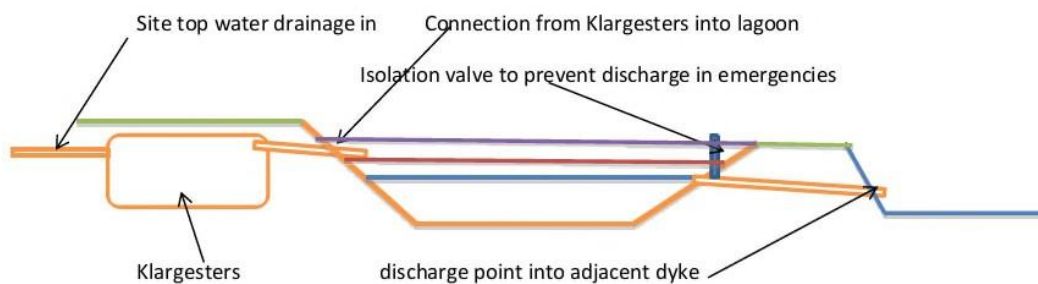
6.6.3 The FPP guidance firewater calculations state that a water supply of at least 2,000 litres a minute for a minimum of 3 hours for a 300m³ pile of combustible material is required. Therefore, it has been estimated that based on a 448.5m³ stockpile of waste, this being the maximum sized stockpile on site, 538,200 litres of water over a 3-hour period would be required. This has been calculated as follows:

$$2,000 \text{ litres/min} \times 180 \text{ min} \times 448.5\text{m}^3/300\text{m}^3 = 538,200 \text{ litres}$$

6.6.4 The fire hydrants will have been designed in accordance with the ‘*National guidance document on the provision of water for fire-fighting*’⁹ which states for industry with an area of greater than 3 hectares, the water supply should be capable of delivering a minimum flow of 75 litres per second. Therefore, the use of the 2 hydrants will enable the delivery of 9,000l of firewater per minute which is well in excess of the 2,990l per minute required (total of 538,200l divided by 180 minutes). Any fire water that pools on site surfacing will be utilised by the firefighting team, if possible.

6.6.5 In the event of a fire, action will be taken to prevent potentially contaminated firewater from leaving the buildings including the deployment of booms and spill kit containment measures. The locations of these emergency spill kits are provided on the Fire Prevention and Mitigation Plan (Drawing 1901.3). If additional containment capacity is required, the Settlement Pond on site will Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I be utilised (see Figure 8). In this event Eco-Power personnel will close the isolation valve to prevent discharge of firewater from the settlement pond. Eco Power has access 24 hours per day and 365 days per year to the isolation valve to ensure this can be closed at any time, as required. Eco Power will immediately notify Transwaste that the valve has been closed. The firewater will be held until Eco Power has tested the firewater and, if necessary tankered the water offsite to an appropriately licenced facility or installation.

Figure 8: Settlement Pond Firewater Containment Capacity



6.6.6 The water level capacity to discharge point as shown by the blue line is 260m³ under normal conditions. The capacity to the inlet point as shown by the red line is a further 260m³. The capacity of the lagoon before the site becomes flooded is a further 520m³ shown by the purple line. Therefore, the total capacity of the lagoon in an emergency situation is 780m³. Therefore, the lagoon has the capacity to hold well in excess of 538m³ (53,8200 l) of firewater required.

6.7 Management after a Fire Event

- 6.7.1 After a fire event, the following procedure will be implemented depending on the severity of the fire:
1. *A small and containable fire that can be dealt with in-house using suitably trained staff and firefighting equipment located on site:* the fire will be recorded in the site log, including the causes of the fire and methods used to manage the fire.
 2. *A larger fire that requires the presence of the Fire and Rescue Service:* if the site operatives have been told to evacuate or cease operations by the EA and/or Fire and Rescue Service, the site personnel will wait until told safe to re-enter site. The fire will be recorded in the site log, including the causes of the fire and methods used to manage the fire.
- 6.7.2 The Directors will liaise with the EA to determine a plan-of-action, to introduce waste transfer and storage operations at the site, and the timescales involved to achieve this.

6.8 Fire Damage Extent and Decontamination

- 6.8.1 The extent of the fire damage will be assessed by the Directors and depending on the scale of the fire, the FRS may also be present.
- 6.8.2 Should damage be sufficient to prevent the site from being able to treat and store waste, the site will cease accepting waste and will divert to a suitably permitted Facility.
- 6.8.3 Depending on the scale of the fire, smoke particles may have been transported and deposited onto various surfaces within the affected building. The thermal degradation of certain material can cause corrosive deposits to be omitted within the smoke particulates. It is therefore important that such deposits are effectively neutralised. A specialist company will be commissioned to undertake post fire clean up and smoke damage decontamination.
- 6.8.4 The structural stability of fire damaged infrastructure will be assessed and approved by a professional prior to re-entry onto the site.
- 6.8.5 The FRS may have also isolated gas and electric during the fire. These will be reconnected by a registered gas engineer or electrician. The integrity and functionality of the drainage system will also be assessed and approved by a professional prior to recommencement of operations.

6.9 Fire Damaged Waste

- 6.9.1 A visual assessment will be carried out by the Directors to determine whether the waste can be treated on site. Wherever possible, unburnt wastes will be separated from fire

damaged areas of waste. If waste piles have become mixed, then it is likely that the waste will be removed from site to a suitably licensed Facility.

- 6.9.2 Any quarantined waste, waiting for removal from site, will be stored to prevent the contamination of unburnt wastes on the site, as illustrated on the Fire Prevention and Mitigation Plan (Drawing 1901.3) contained at Appendix I.
- 6.9.3 The burnt waste will be removed off site within 24 hours. The Fire Prevention Quarantine Area will benefit from at least 6m separation area to aid separation and management of wastes during an incident. Site staff will be trained in how to safely move quarantined waste to this area.

6.10 Recommencing Operations

- 6.10.1 An assessment will be carried out to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this Fire Prevention Plan and the site's EMS as required. Once this work has been undertaken, the Directors will revisit the site to ensure all of the above have been undertaken and the site can recommence operations.

7 CLOSURE

7.1 This Fire Prevention Plan is considered to be a 'working' document that will be reviewed and updated annually or as required should any of the following occur:

- a fire on site;
- a change or review of legislation;
- if the site is instructed to do so by the EA; or
- there are any changes to named contractors or emergency contacts.

7.2 It will be the responsibility of the Compliance Director to maintain this Fire Prevention Plan and to ensure it is adhered to in the event of a fire on site.

APPENDIX I DRAWINGS

APPENDIX II

SITE EMS DAY DIARY CHECK FORM

APPENDIX III

PLANNED PREVENTATIVE MAINTENANCE REGIME



APPENDIX IV BLANK PERMIT TO WORK FORM

APPENDIX V

FIRE SUPPRESSION SYSTEM PROPOSAL

APPENDIX VI

SITE INFORMATION AND KEY CONTACT DETAILS