



forward
waste management

FORWARD HOUSE, EAST MOORS ROAD, CARDIFF, CF24 5EE

FIRE PREVENTION PLAN

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TABLE OF CONTENTS

1.	Introduction	1
1.1.	Overview of the Fire Prevention Plan	1
1.2.	The Applicant	1
2.	The Site	2
2.1.	Site Location	2
2.2.	Sensitive Receptors	2
2.3.	Geology	4
2.4.	Hydrogeology and Surface Water	4
2.5.	Flooding	5
2.6.	Ecology	5
3.	Site Activities	6
3.1.	Operational Activities	6
3.2.	Waste Types and Quantities	7
3.3.	Waste Storage and Quarantine Area	9
4.	Potential Sources of Fire Risk	10
4.1.	Common Causes of Fire	10
5.	Prevention measures	11
6.	Fire Management and Impact Reduction	16
6.1.	Waste Acceptance	16
6.2.	Site Infrastructure	16
6.3.	Containing and Mitigating Fires	17
6.4.	Site Procedures	18
6.5.	Fire Waters	19
6.6.	Management After a Fire Event	20
6.7.	Fire Damage Extent and Decontamination	20
6.8.	Fire Damaged Waste	21
6.9.	Recommencing Operations	21
7.	Closure	22

TABLE OF CONTENTS (CONT.)

DRAWINGS

ECL.010.01.03 – 01	Site Location Plan
ECL.010.01.03 – 02	Site Layout Plan
ECL.010.01.03 – 03	Environmental Receptor Plan
ECL.010.01.03 – 04	Fire Prevention and Mitigation Plan

APPENDICES

APPENDIX A	Drawings
APPENDIX B	Stocksheets
APPENDIX C	Site Information and Key Contacts List

ACRONYMS / TERMS USED IN THIS REPORT

CN	Consignment Note
EA	Environment Agency
ECL	Environmental Compliance Limited
EMS	Environmental Management System
EWC	European Waste Catalogue
FLIR	Forward Looking Infrared
FPP	Fire Prevention Plan
FWM	Forward Waste Management
NNR	National Nature Reserve
NRW	Natural Resources Wales
SAC	Special Area of Conservation
SPA	Special Protection Area
SPZ	Source Protection Zone
SSSI	Sites of Special Scientific Interest
WTN	Waste Transfer Note

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1. INTRODUCTION

1.1. OVERVIEW OF THE FIRE PREVENTION PLAN

- 1.1.1. This Fire Prevention Plan (and its associated supporting documentation) has been prepared on behalf of Forward Waste Management (“FWM”) by Environmental Compliance Limited (“ECL”) and relates to the operation of a Waste Transfer Station at Forward House, East Moors Road, Cardiff, CF24 5EE, hereafter referred to as “the Facility”.
- 1.1.2. As per the improvement programme requirements set out by Natural Resources Wales (“NRW”) under the notice of variation (variation application number EPR/AB3099FT/V002 – issue date: 26 April 2018), a Fire Prevention Plan (“FPP”) is required to be produced 3 months after permit issue or otherwise agreed in writing with NRW.
- 1.1.3. This report takes into consideration the NRW guidance for FPP¹ and details the required mitigation and management methods to prevent a fire of combustible materials stored on site.
- 1.1.4. This FPP identifies measures to be employed to reduce the likelihood of fires at the site. 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 guidance², 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 on an annual basis, or in the event of a change to operations on site.

1.2. THE APPLICANT

- 1.2.1. FWM was formed in 2006 and operates East Moors Road Waste Transfer Station (“the Facility”) in Cardiff which delivers waste management solutions to all businesses and specifically those within the manufacturing industry. FWM operations are founded on the application of the waste hierarchy; preventing waste production, mitigating and minimising the effect of wastes produced and reusing and recycling redundant resources across the whole spectrum of waste from recyclables to hazardous materials.

¹ NRW Online Guidance – ‘Fire Prevention & Mitigation Plan Guidance – Waste Management’. Guidance Note 16, Version 2.0, Published August 2017, and accessed July 2018

² Regulatory Reform (Fire Safety) Order 2005

2. THE SITE

2.1. SITE LOCATION

- 2.1.1. The Facility is located at Forward House, East Moors Road, Cardiff, CF24 5EE and is centred on National Grid Reference ST 19610 75714. The exact location of the Facility is indicated on Drawing ECL.010.01.03-01 Site Location Plan contained within Appendix A, which is provided as part of this submission.
- 2.1.2. The site is situated within East Moors Business Park and is surrounded by industrial/commercial units. The Central Link Road (A4234), is a major road in Cardiff which links the southern part of the city centre to the motorway network and is located immediately west of the site. The surrounding land uses are described in Section 2.2 of this FPP.
- 2.1.3. Access to the site is from Ocean Way just east of the Central Link Road located to the north of the site. This is illustrated, in addition to the wider local road network, on the Site Location Plan Drawing ECL.010.01.03-01 (contained in Appendix A).
- 2.1.4. The closest Fire Station is Cardiff Central Fire Station on Adam Street (CF24 2FL), located approximately 800m north-west of the site. The site benefits from a security fence around the perimeter and two main roller shutter entrance doors. At the end of each working day, all access doors are locked and only a limited number of employees possess a door key in order to restrict unauthorised access into the Facility.

2.2. SENSITIVE RECEPTORS

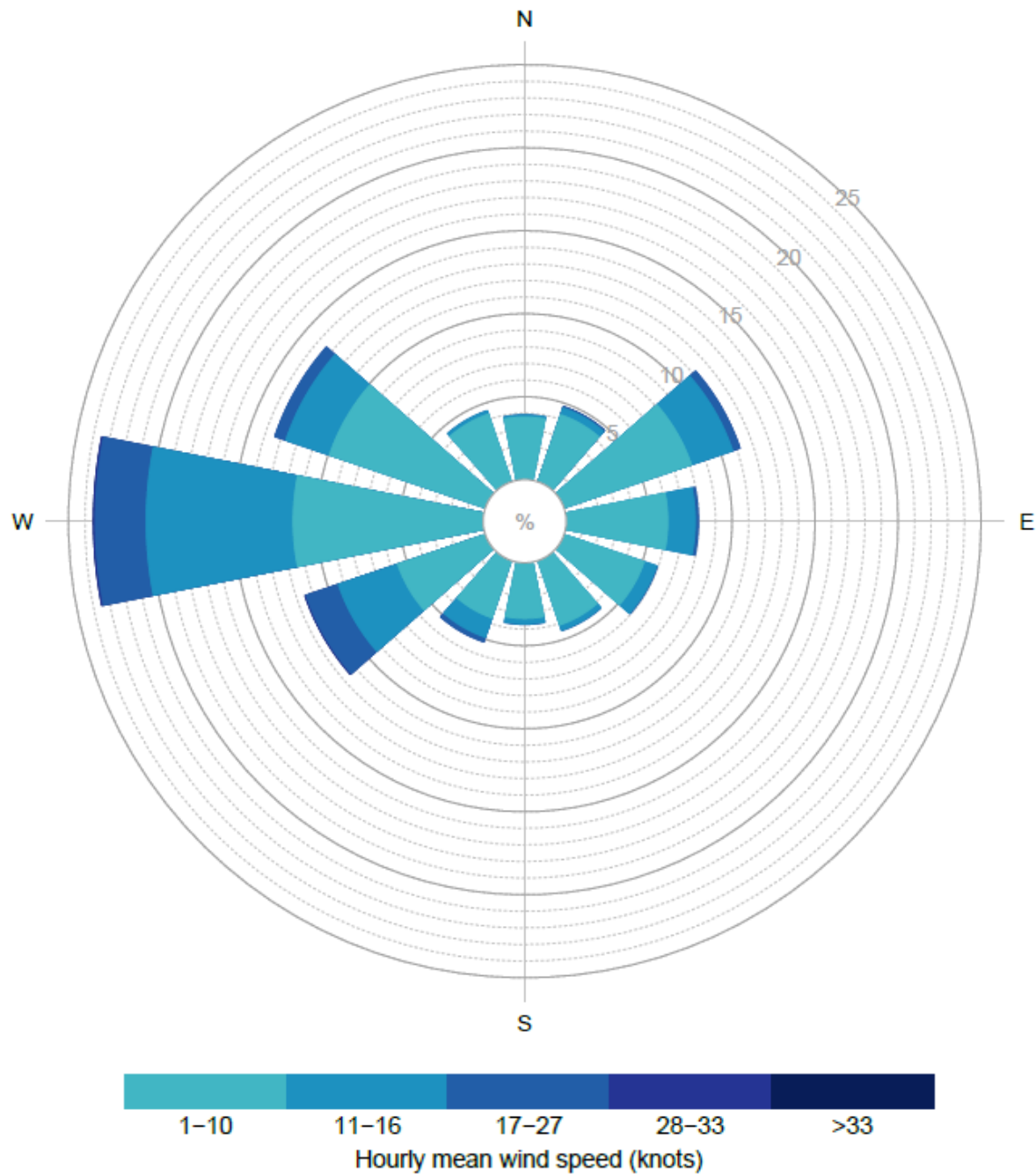
- 2.2.1. A summary of the immediate environmental site setting is provided in Table 1 below and the potential sensitive receptors within a 1km radius of the Environmental Permit boundary are shown on the Environmental Receptors Plan Drawing ECL.010.01.03-03 contained in Appendix A.

Table 1: Surrounding Land Uses

Boundary	Description
North	Predominantly industrial / commercial units, a children's nursery and residential areas
East	Industrial / commercial units, residential areas and recreational green spaces
South	Industrial / commercial units as well as recreational areas around Cardiff Bay
West	Central Link Road, Atlantic Wharf, residential areas, places of worship, recreational green spaces and industrial / commercial units

2.2.2. A Wind-Rose showing the meteorological conditions is shown below in Figure 1. The information has been extracted from annual data taken from St Athan weather station from January 2008 to December 2017.

Figure 1: Wind-Rose of the local meteorological conditions



2.3. GEOLOGY

- 2.3.1. The geology of the permitted site (based on British Geological Survey borehole records (4 No.) drilled in 1970) can be summarised as:
- Surface Level – approx. 11mAOD;
 - Made Ground – variable depths of made ground (4m typically) comprising black clinker or sand with gravel and brick fragments (materials probably placed for levelling purposes when the site was first developed (see below for details)). It should be noted that the Groundsure report indicates the permitted site and wider site area are constructed over artificial ground;
 - Firm to stiff sandy, silty clay (Tidal Flat Deposits) with a thickness of circa 3m;
 - Sandy gravel (Glaciofluvial deposits) – circa 6m thick; and
 - Mudstone (Mercia Mudstone Group) – present at circa 13m depth.

2.4. HYDROGEOLOGY AND SURFACE WATER

- 2.4.1. The nearest water body is Bute East Dock located 260m west/south west of the permitted site. This dock is a remnant of the Cardiff Docks area. Further docks are present 900-1,100m south of the site. Cardiff Bay is located 1,400m south west and the Severn Estuary/Bristol Channel is located 1,400m south east at its closest point. The Severn Estuary is subject to a number of ecological designations (Special Protection Area (“SPA”), Special Area of Conservation (“SAC”) and Ramsar Site).
- 2.4.2. Information provided within the Groundsure report (based on previous Environment Agency (“EA”) mapping) classifies the superficial deposits as a Secondary (Undifferentiated) Aquifer and bedrock in the site area as a Secondary B Aquifer. These are defined as:
- **Secondary Undifferentiated** - has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type; and
 - **Secondary B** - predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
- 2.4.3. Former EA mapping classified the application site as not within a Groundwater Source Protection Zone (“SPZ”).
- 2.4.4. No groundwater abstractions are recorded for the site or immediate surrounding area (within 1km). Surface water is abstracted from Bute East Dock by Celsa Manufacturing (UK) Limited for evaporative cooling purposes.
- 2.4.5. No significant groundwater gradients are considered likely given the flat topography of the site area and the variable permeability of the underlying deposits.

- 2.4.6. Borehole logs supplied with the original permit application suggest that groundwater levels are typically present in the made ground (typically 3-4m depth) perched above the clay. The underlying sandy gravel deposits are likely to contain a confined aquifer which may be subject to a degree of tidal influence, but this could be limited due to the distance to the sea.

2.5. FLOODING

- 2.5.1. The site is located within an area that has a low probability of flooding from rivers or the sea, as defined by NRW's Flood Risk Maps.³

2.6. ECOLOGY

2.6.1. International and European Sites

- 2.6.1.1. Searches conducted on the Multi Agency Governmental Information for the Countryside ("MAGIC") website⁴ indicate that the site does not lie within 1km of any European or nationally designated sites. Therefore, no RAMSAR sites, Special Protection Areas ("SPA"), Sites of Special Scientific Interest ("SSSI") and Special Areas of Conservation ("SAC") were identified.

2.6.2. Other Ecological Receptors

- 2.6.2.1. None of the following ecological receptors have been identified within 1km of the proposed permit boundary:
- National Natures Reserves ("NNR"); or
 - Ancient Woodlands;

2.6.3. Cultural Heritage

- 2.6.3.1. Online searches confirm that there are none of the following within 1km of the application site:
- National Trust Properties;
 - Registered Battlefields; or
 - Scheduled Monuments.

³ NRW Flood Risk Maps – '<https://naturalresources.wales/evidence-and-data/maps/long-term-flood-risk/?lang=en>'. Accessed July 2018

⁴ <http://magic.gov.uk/MagicMap.aspx>, accessed July 2018

3. SITE ACTIVITIES

3.1. OPERATIONAL ACTIVITIES

3.1.1. Overview

- 3.1.1.1. The waste arrives on site within sealed 35 yard Roll On Roll Off skip lorries or HGV curtain sided vehicles. Loaded vehicles enter the Facility off East Moors Road and weigh in at the weighbridge (see Site Layout Plan Drawing ECL.010.01.03-02, contained in Appendix A). adopting the following procedure:
- if the load is a single material, the vehicle is unloaded and the weighbridge ticket is recorded against the vehicle tare;
 - if the load contains multiple materials, each bale is labelled (i.e. weight, material type, and customer) with the weighbridge ticket recorded against the vehicle tare; and
 - materials other than cardboard (except filter cake) are weighed individually.
- 3.1.1.2. The waste is from known sources and material assessment takes place by FWM staff. During this assessment the paperwork supplied by the driver is checked against the materials on load to determine if they conform to the EWC ("European Waste Catalogue") codes. If the material is rejected it is either quarantined or sent away under non-conformance.
- 3.1.1.3. Once the material assessment has been complete the driver and vehicle are directed to the designated tipping area for that particular load. Dependent on the vehicle type the vehicle will either tip off straight into the material bay or will be offloaded via a forklift truck. An operator visually inspects the vehicle loads for any contaminants before allowing the vehicle to discharge
- 3.1.1.4. Where multiple client recyclable streams are present, the calibrated weighing scales in the process area are utilised to determine inbound weights.
- 3.1.1.5. For outbound materials, the material is designated a recycling route by the Operations Department. Vehicles that enter the Facility assigned to a load are tared in.
- 3.1.1.6. If single materials are loaded, gross weight of the vehicle is taken and a weighbridge ticket is produced. The material must match the description displayed on the waste transfer note ("WTN") or consignment note ("CN").
- 3.1.1.7. Where multiple materials are allocated for outbound transfer, individual materials are loaded with their weights recorded on the WTN / CN. A new WTN / CN is produced describing the materials contained within the load.
- 3.1.1.8. The driver transporting the outbound material completes the waste carrier note, with FWM signing as the Producer and Customer.
- 3.1.1.9. Exit from the site must be made via the front gate only. Alternative means of entry must be approved by the Transport Manager / Operations Director prior to the activity taking place.

- 3.1.1.10. The site layout, which outlines the Environmental Permit boundary in green, is illustrated on Drawing ECL.010.01.03-02, which is contained within Appendix A.

3.1.2. Plant and Equipment

- 3.1.2.1. The following items of plant and equipment are held on site from time to time dependent on the waste stream being stored on site:
- Telehandler ;
 - 1 x Forklift truck;
 - 1 X 40Te semi-auto horizontal baler (for non-hazardous wastes);
 - 1 x 40Te semi-auto horizontal baler (for EWC 15.02.02*);
 - 1 x 50Te vertical baler; and
 - 1 x sweeper / washer.
- 3.1.2.2. All items of plant and equipment used on site will be maintained in accordance with manufacturer's recommendations.

3.2. WASTE TYPES AND QUANTITIES

- 3.2.1. 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, and specified in the permit, are detailed below:
- **D15:** Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced);
 - **D14:** Repackaging prior to submission to any of the operations numbers D1 to D13;
 - **R13:** Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where the waste is produced);
 - **R3:** Recycling/reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes);
 - **R4:** Recycling/reclamation of metals and metal compounds; and
 - **R5:** Recycling/reclamation of other inorganic materials.

3.2.2. Limits of activities

- 3.2.2.1. The limits of the operations, maximum permitted quantities and exclusions are listed below:
- all waste must be stored and treated within a building, on an impermeable surface with sealed drainage;
 - the treatment at the Facility is limited to the manual and or mechanical bulking up, baling, compaction and transfer of waste;
 - the maximum quantity for waste to be accepted on site shall not exceed 10,000 tonnes per year;
 - the maximum quantity of hazardous waste that can be stored at the site in total, for recovery or disposal, shall not exceed 50 tonnes at any one time;
 - there shall be no treatment of 16 01 21* and 16 01 22 other than bulking up for onwards transfer;

- there shall be no mixing of hazardous waste; and
- notwithstanding the waste types set out in Table 2, wastes having any of the following characteristics shall not be accepted:
 - consisting solely or mainly of dusts, powders or loose fibres; or
 - odorous or odour producing wastes.

3.2.3. As defined in the permit variation, EPR/AB3099FT/V002, waste shall only be accepted if it is of a type listed in Table 2 and it conforms to the description in the documentation supplied by the producer and holder. FMW are registered under S2 and T4 waste exemptions and the associated waste have also been accounted for within this FPP.

Table 2: Permitted Wastes as per EWC codes

EWC	WASTE DESCRIPTION
11	WASTES FROM CHEMICAL SURFACE TREATMENT AND COATING OF METALS AND OTHER MATERIALS; NON-FERROUS HYDRO-METALLURGY
11 01	Wastes from chemical surface treatment and coating of metals and other materials (for example galvanic processes, zinc coating processes, pickling processes, etching, phosphating, alkaline degreasing, anodising)
11 01 09*	Sludges and filter cakes containing hazardous waste
11 01 10	Sludges and filter cakes other than those mentioned in 11 01 09
15	WASTE PACKAGING; ABSORBENTS, WIPING CLOTHS, FILTER MATERIALS AND PROTECTIVE CLOTHING NOT OTHERWISE SPECIFIED
15 01	Packaging (including separately collected municipal packaging waste)
15 01 10*	Packaging containing residues of or contaminated by hazardous substances
15 02	Absorbents, filter materials, wiping cloths and protective clothing
15 02 02*	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by hazardous substances
15 02 03	Absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02
16	WASTES NOT OTHERWISE SPECIFIED IN THE LIST
16 01	End-of-life vehicles from different means of transport (including off-road machinery) and wastes from dismantling of end-of-life vehicles and vehicle maintenance (except 13,14 16 06 and 16 08)
16 01 21*	Hazardous components other than those mentioned in 16 01 07 to 16 01 11 and 16 01 13 and 16 01 14
16 01 22	Components not otherwise specified

3.2.4. FWM are not currently accepting or processing the following EWC codes on site:

- 11.01.10
- 15.01.10*
- 15.02.03

3.2.5. Prior to reaccepting the above EWC codes, FWM will inform NRW and subsequently update the Fire Prevention Plan to reflect the proposed storage areas of these wastes. Only once FWM have received approval from NRW will these waste codes be permitted on site.

3.3. WASTE STORAGE AND QUARANTINE AREA

- 3.3.1. All vehicles bringing waste to the site will report to the site office where the load will be visually inspected, where possible, in order to confirm its description and composition against the relevant waste consignment note (if hazardous) or waste transfer note (if non-hazardous) and any other accompanying documentation. All wastes will undergo a further visual inspection during deposition within the designated area.
- 3.3.2. Wastes will only be accepted at the site if the description in the accompanying documentation is in accordance with the Environmental Permit (EPR/AB3099FT/V002) and that onsite inspection confirms waste is consistent with the description provided.
- 3.3.3. Should the waste be found not to conform during the initial visual inspection, the details will be recorded and the vehicle turned away. Should wastes already be discharged within the stockpile area and deemed not to conform or otherwise not be permitted then the waste will be:
- reloaded on to the delivery vehicle; or
 - removed to a designated quarantine area as appropriate.
- 3.3.4. 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.
- 3.3.5. Wastes will not be accepted unless the site is adequately resourced to receive the waste.
- 3.3.6. A record will be kept in the site diary of all rejected wastes. The waste producer and NRW will be notified of the non-conformance.
- 3.3.7. 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 is identified on the Fire Prevention and Mitigation Plan (ECL.010.01.03-04) 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 is large enough to hold at least 50% of the volume of the largest waste pile (i.e. 10m x 5m x 4m) and has 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 NRW'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 or vandalism:** Industrial Estates and factories can commonly be affected by arson; a serious issue as the ensuing fire can easily spread to another unit.
- **Visitors and Contractors:** Visitors and contractors can prove to be a fire hazard due to their potential lack of familiarity with the correct safety and fire prevention procedures on site.
- **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.

5. PREVENTION MEASURES

5.1.1. Table 3 below provides a summary of the associated preventative measures as per NRW's 'Fire Prevention and Mitigation Plan Guidance – Waste Management' document (Version 2.0, updated August-2017, accessed July 2018).

Table 3: Preventative Measures

Cause	Preventative Measures
Pile Sizes/Volumes and Dimensions	- Signposts will be used to indicate stockpile areas, with the bay dimensions being predetermined (as shown on Drawing ECL.010.01.03–04, Fire Prevention and Mitigation Plan); and - The maximum height of waste stored will not exceed 4m.
Arson and Vandalism	- The site benefits from existing perimeter palisade security measures in place; - Waste will be stored within the waste reception building which benefits from roller shutter doors that will be locked every night and when the site is closed; - The Facility possesses security gates with the doors to the building locked at all times when the building is unattended; - Gates and fencing extending around the perimeter of the site will be inspected regularly by the operations staff to identify any deterioration and damage, and the need for any repairs; - Fencing and gates will be maintained and repaired to ensure their continued integrity. 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 Accident and Incident Record; and - Records will be maintained and will include inspections and maintenance of security fencing and doors, breaches of security, investigations and actions taken.
Storage Duration	- Unprocessed and processed waste will be stored in the, stockpile(s), stacks and the waste will be stored no longer than 3 months. The aim of this is to process the incoming material and arrange for its export off site as soon as practically possible to minimise over-stocking which in-turn minimises the risk of overheating and spontaneous combustion. - Waste is monitored daily by the Transfer Station Manager or nominated deputy via visual inspections and a forward-looking infrared ("FLIR") camera. - There are no seasonal variations in opening times.

Table 3: Preventative Measures (cont)

Cause	Preventative Measures
Training	• 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; • All staff and contractors working on site will be made aware and understand the salient points of the Fire Prevention Plan and the procedures that are in place in the event of a fire on site. This familiarisation training will be undertaken as part of the company's induction process and staff will be required to provide a signature to confirm and record that they have read and understood salient points of the FPP and associated procedures; and • A fire drill will be held every six months 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	• Employees will be aware of: • 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; • 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: • 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; • employees will observe the smoking policy for the building; and • No waste will be stored on site longer than 3 months; • Site operatives will undergo training on the management of stockpiles, including, recognising hot spots within stockpiles and managing hotspots;

Table 3: Preventative Measures (cont)

Cause	Preventative Measures
Monitoring	• The following action will be taken should a hotspot be identified: • stockpiles will be turned to bring the hotter areas to the surface to cool; and • stockpiles will be rotated in an effort to dissipate any heat • In order to ensure stockpiles are sufficiently rotated and waste storage time is minimised, site operatives will ensure that the oldest materials will be removed or processed first. Blank examples of stock sheets are provided in Appendix B which will be used to ensure good stock rotation for all stored materials and a clear method to record and manage the storage of all waste on site. • 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	• 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: • 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: • separation of materials; • isolation of combustible materials; and • restricting storage times.
Plant and Equipment	• Site vehicles will be kept to a minimum, as discussed in Section 3.1.2 the site will be serviced with the mentioned plant and equipment as and when it is needed. • Vehicles will be fitted with fire extinguishers. • 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: ➢ 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 drainage systems; and ➢ any delivery vehicle allowed entry onto site must be serviced and MOT road worthy.

Table 3: Preventative Measures (cont.)

Cause	Preventative Measures
Plant and Equipment (continued)	- 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 regular basis. 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. - A service schedule will 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. - 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 site's Environmental Management System ("EMS"). - Inspection of plant and equipment will be undertaken on a weekly basis to check for faults and ensure appropriate safeguards are in place. - At the end of the working day, mobile plant will be stored away from any stockpiles of waste materials. - 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	- All waste handling operations will occur within the waste reception building which has a roller shutter door, thus any emissions arising from dust are contained and properly managed. - Site access and operational areas will be maintained and repaired to minimise emissions of dust due to uneven and poor surfacing - The site will be inspected by operatives throughout the working day. Daily and weekly monitoring will be recorded within the site diary at the start and end of each working day as a minimum. - All staff will be trained in how to identify fires and fire hazards on site. - The site will undergo regular cleaning to prevent a build-up of debris on site and all floors will be regularly swept to minimise the build-up of debris within the building. - The Site Manager will be responsible for implementing the dust management, monitoring and action plan
Electrical Faults	- Regular safety checks and daily site inspections will be recorded in the site diary; - 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.

Table 3: Preventative Measures (cont.)

Cause	Preventative Measures
Ignition Sources	- No naked lights or burning will be permitted on site. - No sources of ignition will be allowed in the transfer station. - A no smoking policy will be in effect in and around the building and this will be communicated to all staff and visitors with signage and training.
Heat and Spark Prevention	- 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. - No hot works/cutting tools will be carried out on site without the provision of a hot works permit and the relevant risk assessments and method statements in place. - Vehicles will be turned off when not in use. Consideration will be given to the high-risk time for hot exhausts (one hour after switch off when dust can settle on hot surfaces) and wherever possible vehicles will be given time to cool down prior to site staff leaving site. - Flammable/combustible materials will be stored in designated areas away from frequent vehicle movements. - FLIR camera inspections are carried out daily by the Transfer Station Manager and the Waste Operators
Gas Bottles and Other Flammable Items	Due to the robust pre-acceptance and acceptance procedures, gas bottles will not be accepted on site.
Smoke/Heat/Flame Detectors	- A Fire Alarm System has been installed on site and hence the Facility has smoke detectors fitted throughout the waste building and office. The maintenance will be undertaken by Waveley Fire and Security Ltd, a third party accredited company and therefore covered by an appropriate UKAS-accredited third-party certification scheme. - 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.
Reactions between incompatible materials	- Strict waste acceptance procedures will be implemented on site to ensure only permitted materials are accepted. - All loads arriving on site are covered by the 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.

6. FIRE MANAGEMENT AND IMPACT REDUCTION

6.1. WASTE ACCEPTANCE

- 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 Facility 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.
- 6.1.5. A waste tracking system will be implemented which will record the waste description, date and time of arrival on site and original producer details.
- 6.1.6. In addition to the waste tracking system FWM utilise waste operational software called ISYS. This software will:
- keep accurate records of the nature and quantity of waste to be held on site; and
 - compare total quantities of waste on site compared against total permitted.

6.2. SITE INFRASTRUCTURE

- 6.2.1. The Facility will consist of a building and an outside concreted area. The site infrastructure is displayed on the Site Layout Plan Drawing ECL.010.01.03-02, contained within Appendix A of this document.
- 6.2.2. All waste will be stored and treated within the waste building which benefits from impermeable concrete surfacing and an enclosed drainage system. FWM is connected to the sewer and surface water drainage system that serves the East Moors Business Park drainage network.

- 6.2.3. Roof water and drainage from areas of the site not used for waste will be separately managed and feed into the existing surface water drainage arrangements for the site which connects to East Moors Business Park drainage network.
- 6.2.4. 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.
- 6.2.5. All employees will ensure that all fire doors, particularly those providing access to stairwells, are kept shut at all times.
- 6.2.6. All fire doors can be opened using a push bar in the event of the fire alarm sounding. In addition, all of these doors are fitted with a manual override device in the form of a break glass point as displayed below.



- 6.2.7. The site will not continue to accept waste if there is an active fire on site. Waste will be diverted to a nearby suitably licensed 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 site to redirect any delivery vehicles which were on route prior to the fire event occurring on site.
- 6.2.8. Should fire compromise its stability or integrity of the building, all personnel on site will be immediately evacuated and the Fire and Rescue Services will be contacted.

6.3. CONTAINING AND MITIGATING FIRES

- 6.3.1. The site will have powder and carbon dioxide extinguishers (See Figure 2). The indicative locations of the fire exits and extinguishers are shown on Drawing ECL.010.01.03-04, Fire Prevention and Mitigation Plan. The 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, will be held within the site office and will be easily found and readily available.

Figure 2: Fire Extinguishers Type and Application



6.4. SITE PROCEDURES

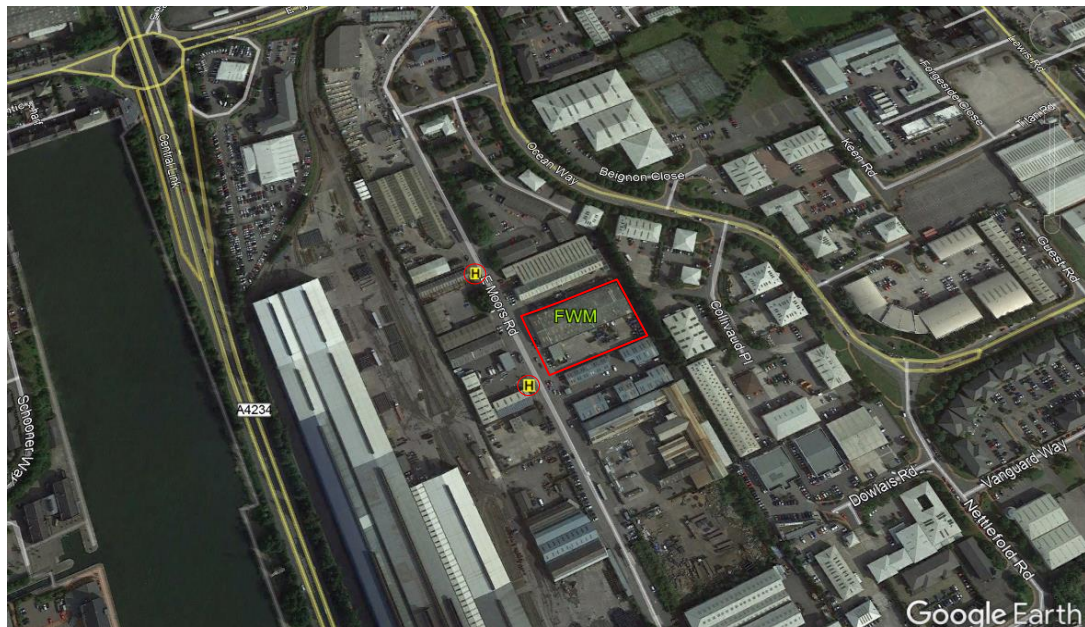
- 6.4.1. The following procedures will be in place on site that will be followed in the event of a major fire onsite:
- the Site Manager and Fire Brigade will be notified immediately and NRW as soon as practicable;
 - if it is safe do so, a temporary bund (firewater booms) will be deployed to ensure 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);
 - if possible, drains will be blocked with drain mats to prevent the ingress of the firewater;
 - 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 bunding 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.
 - businesses in the East Moors Business Park will be alerted by the fire alarms and the Fire Brigade will instigate evacuation of nearby businesses and residents if deemed necessary;

- 6.4.2. A Site Information and Key Contacts List is provided in Appendix C 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.

6.5. FIRE WATERS

- 6.5.1. All waste will be stored and treated within the building, which benefits from impermeable surfacing and enclosed drainage systems.
- 6.5.2. Runoff from external hardstanding and roof areas is drained via storm drainage network, which drains East Moors Business Park surface water drainage network/public sewer.
- 6.5.3. Water to actively fight a fire will be available from two fire hydrants located as shown on Figure 3. The closest being approximately 30m southwest of the site's entrance and the other being approximately 115m northwest of the site's entrance.

Figure 3: Hydrant locations in relation to FWM



- 6.5.4. In the event of a fire, action will be taken to prevent potentially contaminated firewater from entering the drainage system including the deployment of drain barriers, booms and spill kit containment measures. The locations of these emergency spill kits are provided on the Fire Prevention and Mitigation Plan ECL.010.01.03–04.
- 6.5.5. The FPP guidance firewater calculations states 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 200m³ stockpile of waste, this being the maximum sized stockpile on site, 240,000 litres of water over a 3 hour period would be required. The water available for firefighting will be taken from the hydrants marked on Figure 3, and if needed, the mains water supply. Any fire water that pools on site surfacing will be utilised by the firefighting team, if possible.

6.6. MANAGEMENT AFTER A FIRE EVENT

- 6.6.1. 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 NRW 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.
- 6.6.2. The Site Manager will liaise with NRW to determine a plan-of-action, to introduce waste transfer and storage operations at the site, and the timescales involved to achieve this.

6.7. FIRE DAMAGE EXTENT AND DECONTAMINATION

- 6.7.1. The extent of the fire damage will be assessed by the Operations Director and depending on the scale of the fire, the Fire Brigade may also be present.
- 6.7.2. 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.
- 6.7.3. 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.
- 6.7.4. The structural stability of fire damaged infrastructure will be assessed and approved by a professional prior to re-entry onto the site.
- 6.7.5. The fire and rescue service may have also isolated gas, electric and water supplies. These will be reconnected by a registered gas engineer, electrician or plumber. The integrity and functionality of the drainage system will also be assessed and approved by a professional prior to recommencement of operations.

6.8. FIRE DAMAGED WASTE

- 6.8.1. A visual assessment will be carried out by the Operations Director / Technical Manager 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.
- 6.8.2. 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 ECL.010.01.03–04.
- 6.8.3. The burnt waste will be removed off site within 24 hours. The 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.

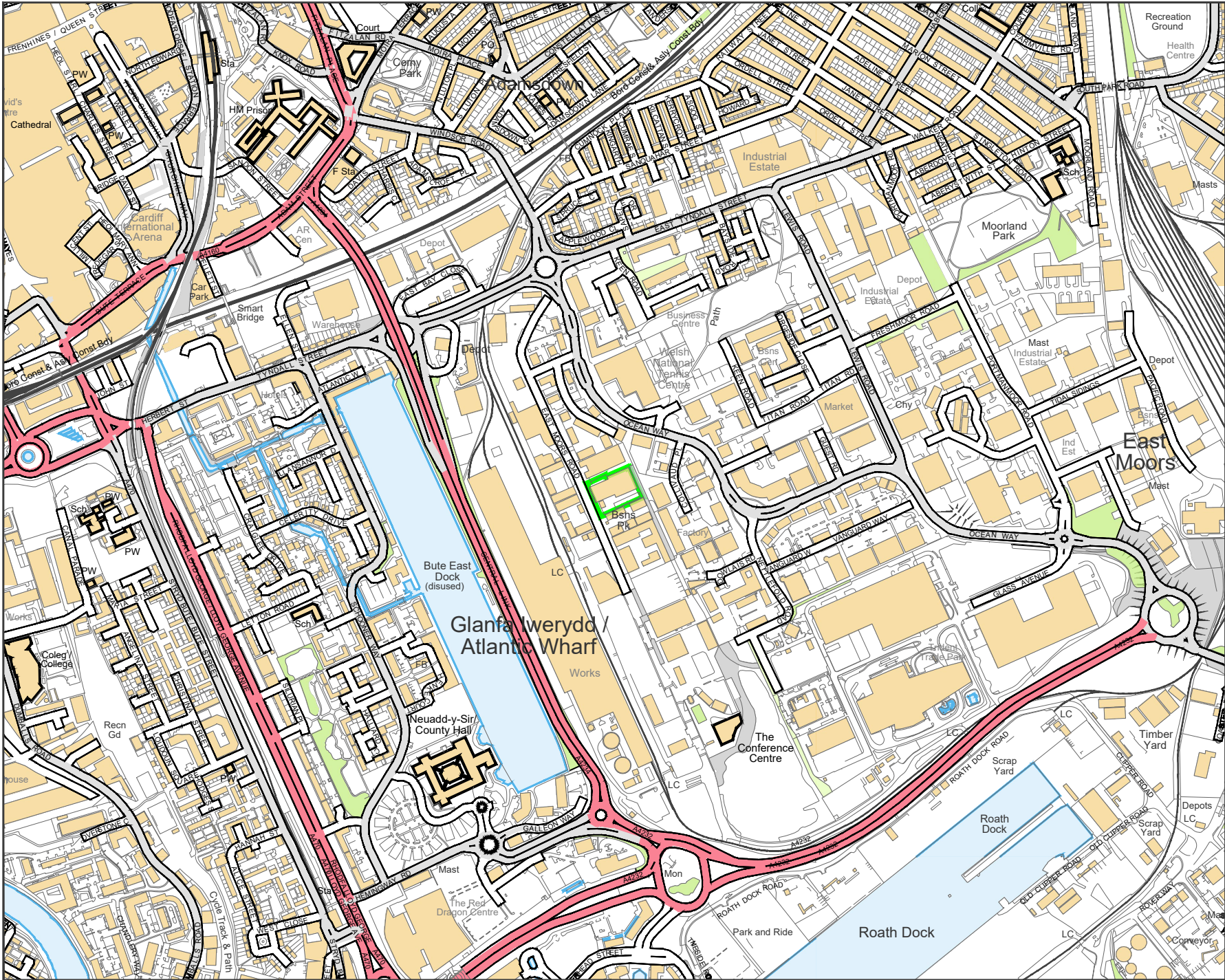
6.9. RECOMMENCING OPERATIONS

- 6.9.1. 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 Operations Director 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 has been prepared based on NRW guidance and in consultation with FWM. It will be reviewed and updated annually or as required should any of the following occur:
- FWM inform NRW that they intend to reaccept any of the following EWC codes back on site: 11.01.10, 15.01.10*, 15.02.03;
 - a fire on site;
 - a change or review of legislation; or
 - if the site is instructed to do so by NRW.
- 7.2. It will be the responsibility of the Operations Director / Technical Manager to maintain this Fire Prevention Plan and to ensure it is adhered to in the event of a fire on site.

APPENDIX A DRAWINGS





LEGEND

■ ENVIRONMENTAL PERMIT BOUNDARY

Rev	Date	Details	Chkd



Environmental Compliance Ltd.
Unit G1, The Willowford,
Treforest Industrial Estate,
Main Avenue, Pontypridd. CF37 5YL

Tel: 01443 841760
Fax: 01443 841761

Email: info@ecl.world
Web: www.envirocompl.com

Client



Date	Scale	Drawn by	Checked by	Approved by
27/07/2018	1:10K @ A4	GTB	TH	CB

Drawing Status

ISSUED DRAWING

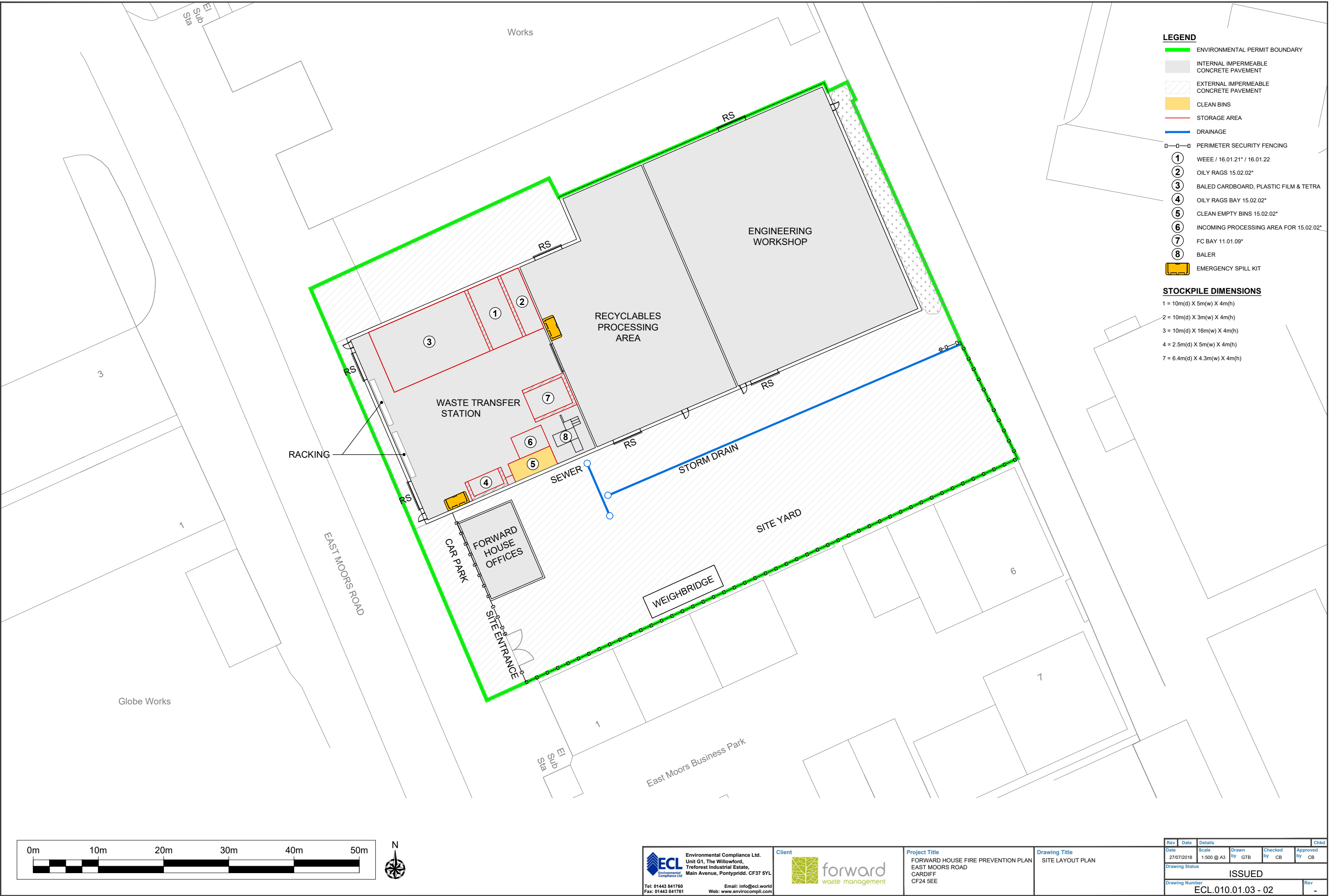
Project Title

FORWARD HOUSE FIRE PREVENTION PLAN
EAST MOORS ROAD
CARDIFF
CF24 5EE

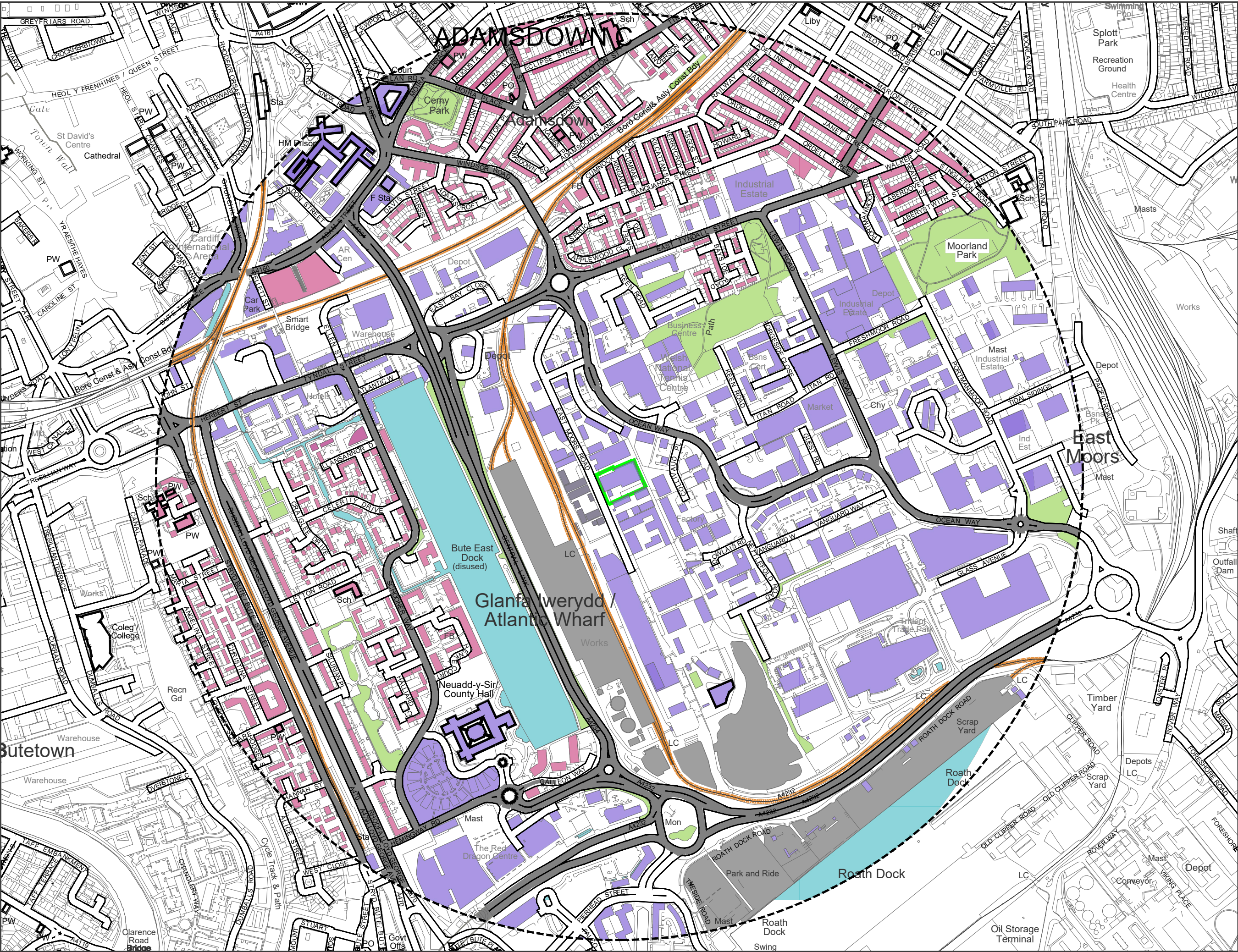
Drawing Title

SITE LOCATION PLAN

Drawing Number	Rev
ECL.010.01.03 - 01	-



Rev	Date	Details	Drawn by	Checked by	Approved by	Chkd
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Drawing Status						ISSUED
Drawing Number						ECL.010.01.03 - 02
						Rev -

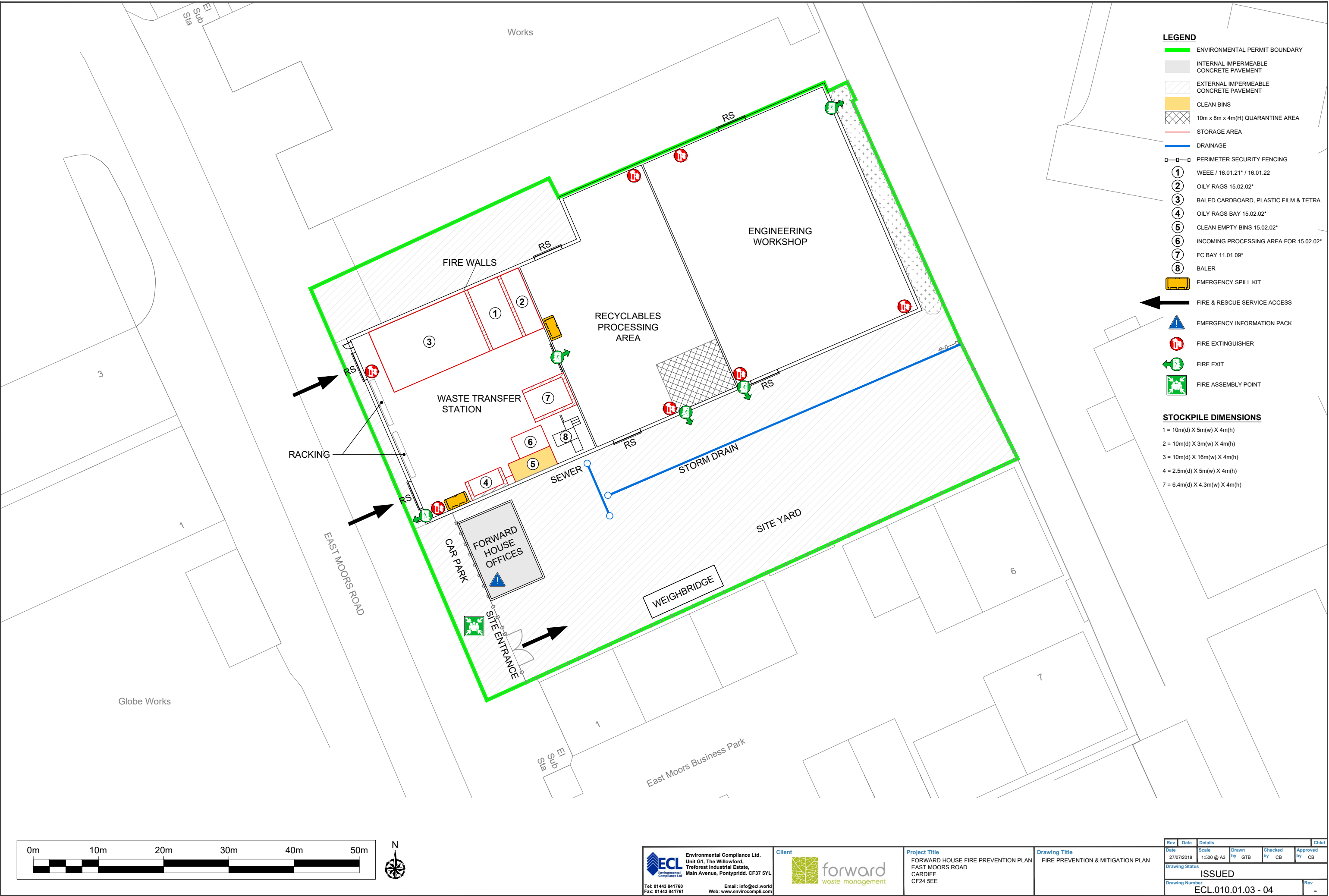


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LEGEND

- ENVIRONMENTAL PERMIT BOUNDARY
- 1000m OFFSET BOUNDARY
- DOMESTIC DWELLINGS
- AREAS OF OPEN SPACE / PLAYING FIELDS
- COMMERCIAL PREMISES
- INDUSTRIAL PREMISES
- ROAD FEATURES
- RAILWAY FEATURES
- SURFACE WATER FEATURES

Rev	Date	Details	Chkd
Environmental Compliance Ltd. Unit G1, The Willowford, Treforest Industrial Estate, Main Avenue, Pontypridd, CF37 5YL Tel: 01443 841760 Fax: 01443 841761 Email: info@ecl.world Web: www.envirocompli.com			
Client			
Date	Scale	Drawn by	Checked by
09/07/2018	1:7.5K @ A3	GTB	TH
Approved by CB			
Drawing Status			
ISSUED DRAWING			
Project Title			
FORWARD HOUSE FIRE PREVENTION PLAN EAST MOORS ROAD CARDIFF CF24 5EE			
Drawing Title			
ENVIRONMENTAL RECEPTOR PLAN			
Drawing Number			
ECL.010.01.03 - 03			



APPENDIX B STOCK SHEETS

January					
Material	Volume (tonnes)	Estimated Rebates	Stock Value	Anticipated Sale Value	Description
ALUSOLID					Aluminium Solid
BABY WIPES					Baby Wipes
CARDBALE					Baled Cardboard
CARDCOMP					Compacted Cardboard
CARDLOOS					Loose Cardboard
CARDTRAY					Cardboard Trays
COREX					Corex
CRAFTLOO					Loose Craftboard
FILTERCA					Filter Cake
GENDRY					General Dry
HD					HDPE
HESSIAN					Hessian Sacks
HIPS					HIPS
MIXMETAL					Mixed Metal
MIXRECYC					Mixed Rcycling
NEWPAMLO					Loose News & Pams
NYLON					Nylon
PAPERBAL					Baled Paper
PAPERLOO					Loose paper
PLHDPELO					Loose HDPE
PLLAMINA					Laminate
PLLDCLBA					Clear Baled LDPE
PLLDCLLO					Loose Clear LDPE
PLLDJABA					Baled Jazz LDPE
PLLDJALO					Loose Jazz LDPE
PLMIX					Mixed Plastic
PLMIXBA					Baled Mixed Plastic
PLPETLO					Loose PET
PLPPBA					Baled PP

PLPPLO					Loose PP
PLPPREGR					PP Regrind
PLPSLO					Loose Polystyrene
PLTPOBA					Baled TPO
PLTPOLO					Loose TPO
PLTPOMB					Mixed Baled TPO
PLTPORE					TPO Regrind
STAINSTEEL					Stainless Steel
TETRABAL					Baled Tetra
TETRALO					Loose Tetra
TEXTILES					Textiles
WEEHN					Mom Haz WEEE
WEEMIX					Mixed WEE
WOODPALL					Wooden Pallets
Total	0.00	£0.00	£0.00	£0.00	

<u>Other</u>	<u>Volume</u>	<u>Volume Type</u>			
FRIDGE		Units			
NHS Cages WEEE		General Electrical eq			
MULUX Bags		Bales of 300 bags			
Other Total	0.00				

APPENDIX C

SITE INFORMATION AND KEY CONTACTS LIST

Site Information and Key Contacts List

Site Address:		Forward House, East Moors Road, Cardiff, CF24 5EE	
Site Operator:		Forward Waste Management Ltd	
Contact	Description	Office Hours	Out of Hours
Internal			
Richard Brown	Operations Director	07812152665	07812152665
Wayne Lockwood	Technical Manager	07824 563829	07824 563829
Craig Housley	Transfer Station Manager	07398 838064	07398 838064
Craig Sysum	Fire Marshall	02920 487504	-
Victor Garrick	Fire Marshall	02920 487504	-
External			
South Wales FRS		999	999
Cardiff Central Fire Station	Fire and Rescue Service	(non-emergency 01443 232000)	(emergency only)
Medical Assistance	Ambulance Service (emergency only)	999	999
	Local Doctor Surgery – Cardiff Bay Surgery Grangetown Health Centre, Grangetown, Cardiff,	029 2183 3450	-
Police	Local Non-Emergency	101	101
	Emergency	999	999
Natural Resources Wales	Environmental Regulator	Incident Hotline 0300 065 3000	Incident Hotline 0300 065 3000
Environmental Compliance Ltd	Specialist Advisor (Environmental Permitting and Management)	01443 841 760	-