

ATLANTIC RECYCLING, RUMNEY - FIRE PREVENTION AND MITIGATION PLAN

Atlantic Recycling Limited



DOCUMENT CONTROL**PREPARED FOR:**

Atlantic Recycling Limited
Atlantic Ecopark
Newton Road
Rumney
Cardiff
CF3 2EJ

PREPARED BY:

RPS Risk
105 Dalton Avenue,
Birchwood Park,
Warrington.
WA3 6YF
Tel: 01925 831000
Fax: 01925 831231
Web: www.rpsgroup.com/risk

ISSUE RECORD

Issue No.	Issue Description	Issue Date	Author	Checker	Approver
IA	Draft I	February 2017	Craig Jolley	James Daley	Jon Lowe
IB	Incorporating RPS Checker Comments	February 2017	Craig Jolley	James Daley	Jon Lowe
IC	Incorporating ARL Comments	March 2017	Craig Jolley	James Daley	Jon Lowe
ID	Incorporating final ARL and RPS Comments	March 2017	Craig Jolley	James Daley	Jon Lowe
2	Incorporating NRW Comments	September 2017	Craig Jolley	James Daley	Jon Lowe
3	Updated to reflect latest NRW Guidance	February 2018	James Daley	Craig Jolley	Jon Lowe
4	Minor changes to report.	August 2018	James Daley	Craig Jolley	Jon Lowe
5	Incorporating minor NRW comments	November 2018	James Daley	Craig Jolley	Jon Lowe
6	Incorporating minor NRW comments in a Schedule 5 request for information	January 2019	James Daley/ Ahlim Hashm	Craig Jolley	Jon Lowe

	Name	Signature	Date
Author	James Daley		January 2019
Checker	Craig Jolley		January 2019
Approver	Jon Lowe		January 2019

DISTRIBUTION

Name	Organisation	No. of	Purpose of Issue (Action,
------	--------------	--------	---------------------------

		Copies	Information, Comment)
Phil Ridley	Atlantic Recycling Limited	1	Action & Comment

COPYRIGHT © RPS This report has been prepared for the exclusive use of Atlantic Recycling Limited and shall not be distributed or made available to any other company or person without the knowledge and written consent of RPS.

This document has been provided in an editable format in line with customer request. Changes made to this document do not reflect the view of RPS and RPS accepts no responsibility for the misuse or alteration of the document. For auditable purposes, the non-editable version of this document held by RPS is considered to be the original document which should be referred to, to authenticate the veracity of this document.

CONTENTS

1	Executive summary	7
2	Introduction.....	8
2.1	Scope.....	8
2.2	Site Description	8
2.2.1	Site Processes and Activities.....	8
2.2.2	Site Throughput	9
2.2.3	Site Location	9
2.2.4	Proposed Variation.....	11
2.2.5	Sensitive Receptors.....	12
2.2.6	Prevailing Wind Direction	14
2.2.7	Site Layout.....	14
3	Fire Prevention Methods.....	15
3.1	Managing common causes of fire.....	15
3.1.1	Arson.....	15
3.1.2	Visitors and Contractors	15
3.1.3	Plant and Equipment.....	15
3.1.4	Electrical Faults.....	16
3.1.5	Smoking on Site.....	16
3.1.6	Hot Works.....	16
3.1.7	Hot Exhausts.....	16
3.1.8	Leaks and Spillages of Oils and Fuels	16
3.1.9	Build-up of Loose Combustible Waste, Dust and Fluff	16
3.1.10	Reaction between Wastes.....	17
3.1.11	Other Common Causes of Fires	17
3.1.12	Gas Bottles or Other Flammable Substances	17
3.2	Waste Acceptance Procedures.....	17
3.2.1	Waste Acceptance	17
3.2.2	Waste Inspection	18
3.2.3	Unacceptable Waste.....	18
3.2.4	Dangerous Substances.....	18
3.2.5	Waste Quantity Measurement Systems.....	18
3.3	Combustible Waste Storage Arrangements	19
3.3.1	Duration of Waste Storage.....	19
3.3.2	Recording of Storage Piles Durations.....	20
3.3.3	Storage Pile Sizes and Separation Distances	21
3.3.4	Pile Monitoring.....	22
3.3.5	Seasonality	23
4	Mitigation of Fire impact.....	24
4.1	Fire Detection	24

4.2	Fire fighting techniques and Access.....	24
4.3	Quarantine Area.....	25
4.4	Water supplies	25
4.5	Management of fire water	26
4.6	During and after an incident	26
5	Design of New RDF/ SRF Processing Facility and New Biomass Boiler	28
5.1	New RDF/ SRF Processing Facility	28
5.2	New Biomass Boiler	28
6	Conclusions	30
Appendix A – Diagrams Supporting the FPMP		31

GLOSSARY

Acronym	Definition
ARL	Atlantic Recycling Limited
CCTV	Closed Circuit Television
F&RS	Fire and Rescue Service
FIFO	First In First Out
FPMP	Fire Prevention and Mitigation Plan
IVC	In-Vessel Composting
MRF	Materials Recovery Facility
NRW	National Resource Wales
PVC	Poly Vinyl Chloride
RDF	Refuse Derived Fuel
RRFSO	Regulatory Reform (Fire Safety) Order
SRF	Solid Recovered Fuel
SSSI	Site of Special Scientific Interest
WTS	Waste Transfer Station

I EXECUTIVE SUMMARY

New permitting requirements have introduced the requirement for a Fire Prevention and Mitigation Plan (FPMP) for the waste operations at the Atlantic Recycling Limited (ARL) site in Rumney to be considered. The new Biomass Boiler has been installed on site; however, the equipment inside the Boiler House is not currently operational. Furthermore, a new Refuse Derived Fuel (RDF)/ Solid Recovered Fuel (SRF) and Materials Recovery Facility (MRF) Phase 2 are proposed for construction on the site. Therefore, this FPMP has been prepared to present how the ARL site meets these requirements and how they will be managed in the new Facility.

The FPMP takes into account the current practices and operational constraints at the site together with consideration of various fire guidance documents relevant to the site. It is noted that detailed information pertaining to the construction of the new RDF/ SRF Processing Facility and the Phase 2 MRF is available at the time of writing, but site management has committed to ensuring that current site practices will be rolled out for the new construction and that the building will be constructed to minimise fire risk.

The FPMP shows that the site meets the requirements of the National Resource Wales (NRW) FPMP guidance. Storage of waste is in line with the maximum pile sizes presented in the guidance, fire prevention procedures are in place and available fire fighting activities, water supplies and procedures are such that a fire on the site would be effectively controlled. Similarly, engineered systems are in place to prevent the uncontrolled discharge of fire water, if required.

2 INTRODUCTION

This FPMP has been produced to present how Atlantic Recycling Limited's (herein referred to as 'ARL') Rumney site will comply with the updated FPMP guidance introduced by the NRW in August 2017. A FPMP is required and enforced by the NRW as a condition of an Environmental Permit, will form part of the overall management system and sets out the fire prevention measures and procedures used on site to meet the NRW guidance accordingly.

2.1 SCOPE

RPS Risk have been commissioned by ARL to produce this FPMP and ensure that fire prevention measures that are commensurate with the activities taking place are implemented on the site. Furthermore, this FPMP will highlight, where necessary, measures that need to be put into place to improve fire prevention measures and procedures on site in order to both meet the requirements of the NRW guidance and to minimise the impact of fire.

RPS Risk will make recommendations, where necessary, to highlight the fire prevention measures that will be required to ensure that suitable fire protection is in place, but will hold no responsibility for carrying out the recommendations which have been made within this FPMP. This will be down to the discretion of ARL.

As the site currently has a proposal in place to modify the site by constructing a new RDF/ SRF processing facility and MRF Phase 2, these will be assessed in this report; however, to ensure that a suitable FPMP is produced holistically for the site, this report will also consider the arrangements currently in place for waste processing.

2.2 SITE DESCRIPTION

2.2.1 Site Processes and Activities

ARL currently operates an Ecopark facility at its Newton Road site, Rumney, Cardiff which includes the following activities:-

- Soil Processing Facility (permitted, operational);
- Waste Transfer Station (WTS) with Treatment (permitted, operational);
- Wood Processing Facility (permitted, operational); and,
- Refuse Derived Fuel (RDF) and Solid Recovered Fuel (SRF) Processing Facility (permitted, operational).

ARL is also permitted to store some wastes in the WTS without treatment, for example, asbestos.

ARL is a part of the Dauson Environmental Group Limited. The group is made up of a series of companies specialising in land regeneration, environmental remediation, demolition, materials recycling, ground works and civil engineering operations.

The principal aim of the ARL Material Recovery Facility is to extract recyclable materials (refuse derived fuel (RDF)) where they exist and to divert residual waste away from landfill. This is done through a purpose built, sophisticated waste sorting system. The system enables recyclable materials to be separated and bulked up to send on to specialised recycling companies, who in turn, convert the recycled materials back into products for re-use.

The current process involves:

- Waste Reception: After being weighed on the electronic weighbridge, all loads are directed into the waste reception area. Here the loads are inspected and a visual waste composition analysis is completed.

- **Mechanical Pre-sort:** A specially designed Materials Handler fitted with a heavy duty rotator grab conducts a pre-sort of the waste to remove large items such as sofas, mattresses, carpets, wheelbarrows, etc. which are not suitable to process through the materials sorting line. Metal items are transferred directly into a skip to go to metal recovery, mattresses and carpets are transferred to a specialist recycling facility.
- **Heavy Duty Feeder/ Screener:** With larger items removed, the mixed waste is loaded into a heavy duty feeder with a mechanical selector grab. The feeder separates the material into a -200 mm fraction and a +200 mm fraction.
- **+200 mm Material Recovery:** Recyclable materials are recovered from the +200mm fraction by hand. This hand picking process enables material to be separated cleanly in order to be successfully marketed.
- **-200 mm Material Recovery:** The -200 mm material first passes through a long-part separator to remove long pieces which could potentially cause blockages in the plant. These pieces are predominately recyclable such as wood, plastic, metal and PVC. These items are later reintroduced into the +200 mm sorting line via an independent in feed conveyor. Any metals contained in the minus 200mm material are then extracted by a powerful in-line magnet. These metals are then consolidated and transferred to a specialist metal processor. The remaining material is passed over a screen and separated into 3 fraction sizes: -35mm, 35mm to 100mm and 100mm to 200mm. As this subsequent material is suitable for RDF, it is consolidated and stored before additional processing.
- **RDF Processing:** The various size fractions of light, combustible materials which have been separated through the process are now shredded to produce a homogenous and consistent fuel. The RDF will be stored in loose waste piles on the ARL site the majority of the time, however it is understood that although unlikely, waste may be baled depending upon the requirements of the end destination client.

2.2.2 Site Throughput

The Ecopark is currently permitted to accept up to 220,000 tonnes of waste per year in accordance with the current permit for the site. This would increase to 280,000 tonnes per year. This is of the order of 650 tonnes per day and 800 tonnes per day respectively. In practice, the actual mass of incoming wastes onto the ARL site is approximately 500 tonnes per day.

It is noted that the permit for the site has previously been 280,000 tonnes of waste, including 60,000 tonnes of green waste for a formerly proposed IVC. However, ARL have recently surrendered this part of the permit; therefore, the increase in the permitted waste to 280,000 tonnes will be in line with the maximum allowances previously accepted for the site.

2.2.3 Site Location

The site is located to the South-East of Cardiff City Centre at Atlantic Ecopark which is situated off Newton Road, Rumney. The site is surrounded by a series of drainage ditches/reens and lies within the footprint of a Site of Special Scientific Interest (SSSI). Site access is from the B4239 (Wentloog Avenue) via Newton Road which provides access to the primary road network and M4.

The general site location is shown in Figures 1 and 2; the site address is:

Atlantic Recycling Limited

Atlantic Ecopark

Newton Road

Rumney

Cardiff

CF3 2EJ

The National Grid Reference of the facility is NGR ST 239 783.

Figure 1 – Location of the ARL Rumney site

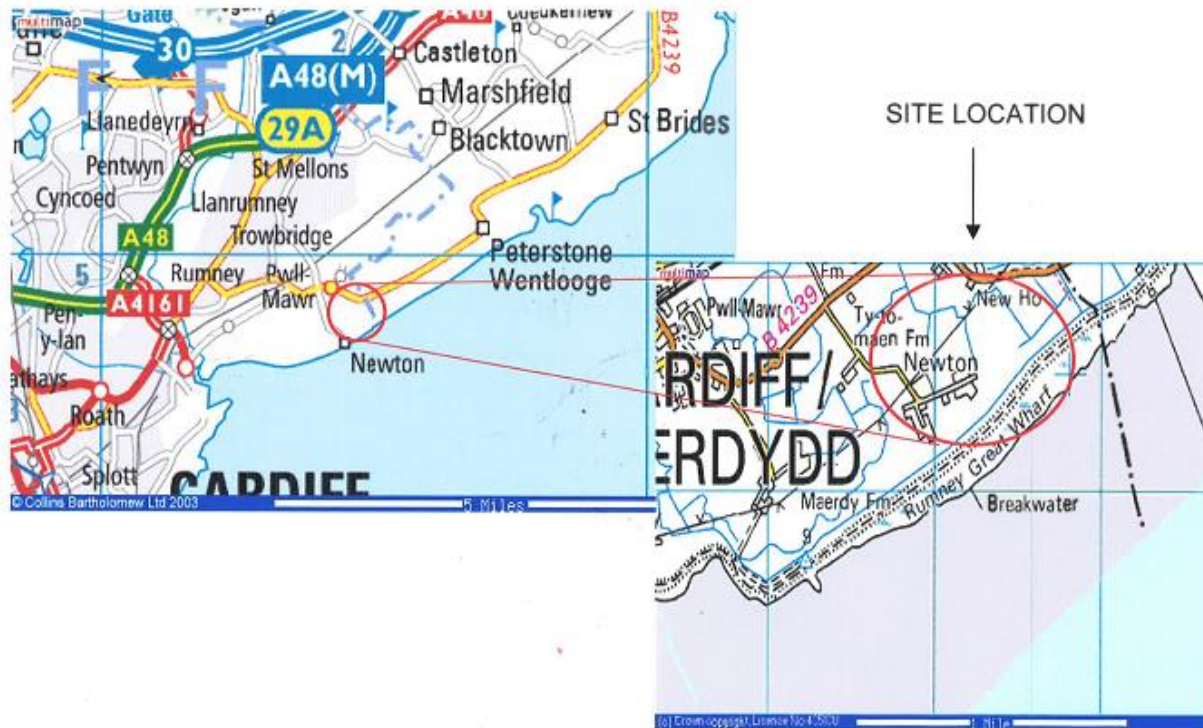


Figure 2 – Aerial view of the ARL Rumney site



2.2.4 Proposed Variation

2.2.4.1 Refuse Derived Fuel (RDF) and Solid Recovered Fuel (SRF) Processing Facility

The site is proposing to construct a new RDF/ SRF processing facility (it is noted that the RDF processing activity is already included in the permit for the site with limits of 40,000 tonnes per year. This is to be increased for the additional waste tonnage and the provision of the building. An RDF/ SRF processing facility was a requirement of the original permit and there was a building that completed this function that is no longer viable; this building is a replacement of the previous, now redundant building). The current WTS will continue to operate as currently permitted and agreed with NRW. Once the RDF/ SRF processing facility is operational loads of waste received from off-site categorised as a category 19 12 10 waste code will be automatically directed to it rather than to the WTS. This will reduce the volume of internal transfer between the WTS and new facility.

The new RDF/ SRF processing facility will be located South of the WTS and extending to the East. The new Facility will process waste that will mainly constitute papers, plastics, cardboard and other packaging via the plant and machinery incorporating the latest technology.

The new facility will be 149.1 m in length with a width of 29 m and a height of 14.5 m (12 m to the eaves) of the building. The facility will be constructed on an impermeable hardstanding, with a fully sealed drainage system. Rain water will be collected from the roof and will be re-used for dust suppression on-site.

The basic functionality of the plant relies on material being initially raised by a conveyor belt to allow the material to be gravity fed through the processing stages, thus minimising the need for additional conveyors and allowing the plant to discharge into hoppers or bays without the need for additional mechanical handling machinery with associated overall energy efficiency savings.

If RDF is being produced, the current Mobile Plant on site will be used to shred the waste and remove metals (see Section 2.2.1), which is located outside, external to the new RDF/ SRF processing facility.

If SRF is being produced, the following process occurs:

Waste from the stock pile area is fed into a slow speed shredder for initial sizing to a uniform 300 mm. Material then passes under an over band electro magnet to remove ferrous metals. Metals removed will then be transferred to the WTS and stored in accordance with the current permit conditions.

Material then passes through a 3D Combi Flip Flow screen to remove the <10 mm 'fines'. The fines will then be transferred to the WTS for storage in accordance with the current permit conditions. The material that is 10 to 40 mm then passes into a 2 way drum separator and is divided into stone and light fraction. The stone is bulked up and sent for recovery. The light fraction is bulked up for RDF feedstock.

The 40 to 300 mm material passes through a 3 way drum and a manual quality pick. The stone is sent for recovery, mid-heavy product is sent for recovery and incompliant SRF material is bulked up for RDF feedstock. The remaining 40 to 300 mm light fraction is passed through a high speed shredder to become 30 mm SRF product that will then be stored loose. Although not currently planned, in the future some SRF may be baled¹ depending on customer requirements.

2.2.4.2 Phase 2 Materials Recovery Facility (MRF)

The site is proposing to construct a new Phase 2 Materials Recovery Facility (MRF) later in 2018. The current MRF will continue to operate as currently permitted and agreed with the NRW.

There is currently limited information on the Phase 2 MRF installation as the design is yet to be finalised, however, it is noted from discussions with ARL personnel that it will be external plant and not considered to be an enclosed building. The central MRF (i.e. the current MRF plant located on site) will remain the

¹Baling and wrapping is an automated system which wraps the bales in high density plastic wrap. The bales are then tied with plastic/ steel ties. These are interchangeable depending on the nature of the wrap (plastic for SRF and RDF bales and steel for recyclable/ recoverable bales i.e. plastics).

same and the 'heavy line' located on the eastern side will be removed and replaced with a new improved process line (including new plant and equipment) located on the western side of the central MRF.

The proposed Phase 2 MRF will include (but not be limited to):

- Transit conveyors.
- Tromel.
- Shredders.
- In-line Magnets.

The majority of equipment will be of steel construction (with most combustible components being located internally, such as the insulation on electrical wiring). There will be small combustible waste piles generated at the end of the transit conveyors during operational periods and for short periods of time, before they are transported elsewhere on the ARL site.

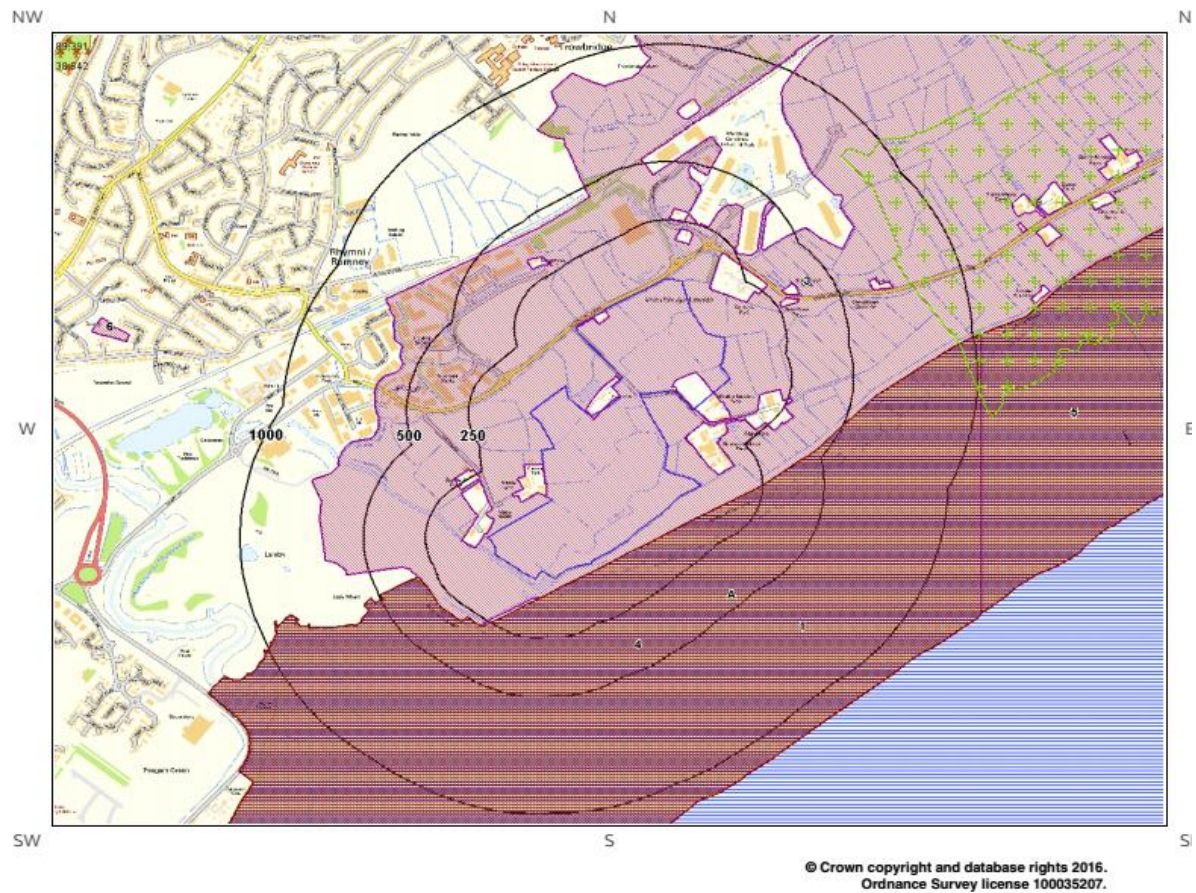
2.2.5 Sensitive Receptors

The ARL Operating Techniques Update Report produced by RPS presents a comprehensive assessment of the sensitive receptors located within 1 km of the ARL site. The report concludes that there are few sensitive receptors close to the site and these are not at significant risk. The main potential receptors are a small number of workplaces where industrial processes are carried out. No schools, hospitals or nursing homes are within this distance.

However, it is noted that the site falls within a Site of Specific Scientific Interest (SSSI) area.

Figure 3 overleaf shows the Designated Environmentally Sensitive Sites Map for the site.

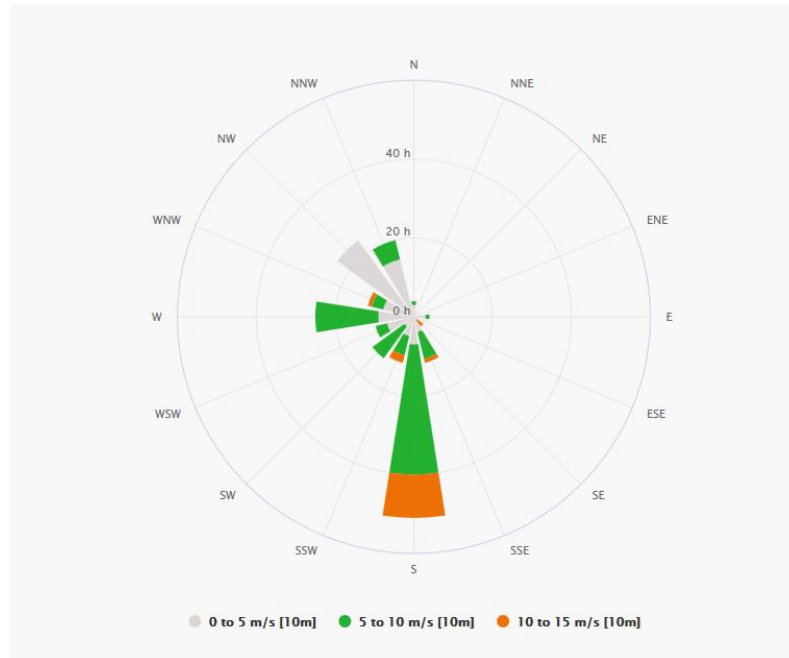
Figure 3 – Designated Environmentally Sensitive Sites Map



2.2.6 Prevailing Wind Direction

Wind rose data for Cardiff (4 miles from the ARL, Rumney site) is presented below:

Figure 4 – Wind rose for Cardiff



2.2.7 Site Layout

The ARL site is split into areas where different processes are carried out. All areas on the site within the scope of this FPMP are shown in Appendix A (it is noted that the storage layouts detailed Appendix A are not fixed, but included as an example of the potential arrangement on site to show compliance with the NRW storage requirements. Due to the potential change in quantities of waste received (i.e. change in waste pile size) it is not practicable to detail a permanent storage arrangement).

The areas where the combustible waste is stored and their locality to other features of the site (e.g. buildings) is also presented in Appendix A.

3 FIRE PREVENTION METHODS

3.1 MANAGING COMMON CAUSES OF FIRE

3.1.1 Arson

The NRW FPMP guidance states that suitable security measures should be in place to prevent deliberate fire raising in the premises.

The ARL site is largely open. Some basic protection to the perimeter is afforded by the presence of water courses but pedestrian access to the site is relatively easy.

Frequent instances of vandalism and theft have occurred in the past. The fire occurrences that have been experienced on the site have also been considered by the site management and the F&RS to have been instances of vandalism and arson.

In considering the most effective method of providing suitable and effective security measures it is necessary to take into account a range of measures and to assess what the particular risks to the site are. In considering the provision of a security fence the management are mindful that it is likely that the fence would very quickly be rendered ineffective by those intent on cutting up the fence for scrap purposes. It is considered that the provision of a fence would not provide a suitable defence against unauthorised entry to the site. Alternative solutions have been considered by the site management which include the installation of monitored CCTV across the site. Whilst this is being installed, a security presence is in place during the time periods when the site is not operating or staffed. The security staff make frequent patrols of the site. It is considered that this is the most effective solution to the problems of unauthorised access to the site. Security is on site out of hours that constantly patrol the WTS with instruction to have heightened awareness for initial signs of fire such as smoke.

Once the CCTV is installed, it will be fitted with motion detectors that will alert security staff to the motion and focus the system on the area. The CCTV will also be fed back to security staff continually for monitoring purposes.

3.1.2 Visitors and Contractors

The NRW FPMP guidance states that all visitors and contractors on the site should follow the correct safety and fire prevention procedures.

All visitors to the ARL site are required to sign in the visitor's book (located in reception), and are escorted at all times. Contractors who visit the site regularly read an induction leaflet which details the fire safety procedures to adhere to when visiting the ARL site.

3.1.3 Plant and Equipment

The NRW FPMP guidance states that a regular maintenance and inspection program for all site areas should be introduced.

The static plant and equipment used on the site are regularly maintained and inspected to ensure that they are functioning correctly and their potential for fire initiation is minimised. The plant undergoes autonomous maintenance and inspection, which is non-intrusive and involves operators completing daily checks on the plant they are operating and preventative maintenance and inspection, where fully trained maintenance personnel carry out intrusive inspections. The periodicity of the maintenance and inspection is identified in site maintenance schedules.

There are shut down procedures for high risk plant items, such as the shredders whereby the machines are cleaned after every shift by way of blowing off residual debris with compressed air before being parked up for the night. They are also observed for at least one hour after shut down; both measures are to mitigate the risks of spontaneous combustion of residual debris out of hours.

Mobile Plant is used on the site to transport wastes to their requisite locations; these vehicles are also maintained and inspected. The Mobile Plant undergoes a daily visual inspection for, amongst other things, cleanliness, correction operation and oil leaks.

The Mobile Plant is parked away from the area where waste processing operations take place when not in use, usually in the area around the current office building; this is approximately 50 m away from working areas.

It is noted that a small number of Mobile Plant used on the site have automatic suppression installed, which would further prevent the Mobile Plant acting as an ignition source for the waste plies.

Not all Mobile Plant currently have fire extinguishers located upon them; ARL will ensure that all Mobile Plant that does not have automatic fire suppression will have a fire extinguisher installed.

3.1.4 Electrical Faults

The NRW FPMP guidance states that all electrics used on the site are required to undergo certification and regular maintenance by a certified electrician. This requirement is met on the site (see Figure 9 in Appendix A). The Electrical Installation Condition Report detailed within this assessment is due to be updated, and thus Figure 9 in Appendix A is included for information purposes only. ARL will ensure the Electrical Installation Condition Report is up to date for the ARL site accordingly.

3.1.5 Smoking on Site

In order to prevent accidental ignition of any combustible wastes the NRW FPMP guidance states that smoking should not be permitted in close proximity to waste materials. Smoking is not permitted in close proximity to the combustible waste; designated smoking shelters are provided for this purpose, which are located a considerable distance (> 30 m) from the stored combustible waste.

3.1.6 Hot Works

The NRW FPMP guidance states that hot works are a potential initiator of fire if suitable measures are not in place to control the risk. Hot works are not carried out on the area of the site where waste is stored or processed; if hot works are required, these are completed in the Workshops that are located off the ARL site.

3.1.7 Hot Exhausts

The settling of dust on hot exhausts and engine parts is a common cause of fire initiation. The NRW FPMP guidance document recommends that a fire watch is carried out at regular intervals during the working day to detect signs of a fire caused by hot exhausts.

As is stated in Section 3.1.3, all Mobile Plant undergoes a daily inspection, which includes a check of the plant for dust on their exhausts. If any dust is found, the plant will be cleaned with compressed air following a safe system of work.

3.1.8 Leaks and Spillages of Oils and Fuels

The NRW FPMP guidance document requires that suitable controls must be in place to prevent fuels and combustible liquids leaking or trailing from site vehicles and ELVs. For example, this includes from vehicles being tracked around the site.

As is stated in Section 3.1.3, all Mobile Plant undergoes a daily inspection, which includes a check for any signs of fuel leaks.

3.1.9 Build-up of Loose Combustible Waste, Dust and Fluff

Autonomous inspections by operators takes place that check for poor housekeeping and the build-up of combustibles in inappropriate areas during day to day operations. Also see Sections 3.1.3, 3.1.7 and 3.1.8 for the identification of other inspections which will prevent fire initiation.

3.1.10 Reaction between Wastes

Suitable processes must be in place to prevent unwanted reactions between wastes.

Section 3.2 presents the waste acceptance and inspection processes that are completed at the site. The quality checks in place will ensure that there are no unwanted reactions between stored waste materials.

3.1.11 Other Common Causes of Fires

There are various other common causes of fires listed in the NRW guidance document, such as 'Industrial Heaters' and 'Deposited Hot Loads'; however, these are not applicable to the site, as either the site does not have such ignition sources or the process does not require the use of the materials.

There is a requirement to ensure that major ignition source sources, such as naked flames, space heaters, furnaces, etc. are kept a minimum of 6 m away from the combustible wastes stored on the site. This is achieved on the site.

'Tramp' metal can be transferred into moving machinery, which has the potential to cause localised 'hot spots'. Where 'tramp' metal could be present in the process, the ARL site have sufficient means of separating this via magnets. The RDF/ SRF Processing Facility and the MRF will both have powerful in-line magnets to separator 'tramp' metal accordingly.

Procedures should be in place when receiving materials, to ensure that an effort is made to remove any form of batteries within waste deposits. Due to the materials and processes undertaken on the ARL site, receiving batteries within waste deposits will be highly unlikely. If ARL are in receipt of batteries, there are procedures in place (i.e. visual checks) to separate these from waste deposits. The batteries are sent to hazardous landfill sites or battery recycling centres accordingly.

3.1.12 Gas Bottles or Other Flammable Substances

The NRW FPMP guidance document states that separation distances should be maintained between flammable or combustible materials and waste on the site. Gas bottles potentially containing flammable gases or other containers with flammable substances are not used in the processing areas of the site, but are occasionally received in the waste imported to the site. All orphaned flammable gas cylinders are separated from the other waste and stored inside a locked metal cage located >20 m away from any stored wastes or any locations where wastes are processed.

3.2 WASTE ACCEPTANCE PROCEDURES

3.2.1 Waste Acceptance

Waste acceptance is carried out in accordance with established and approved procedures. All vehicles entering the site will drive to the weighbridge and take instructions from the Weighbridge Operator. Where appropriate, first time visitors will be required to confirm their registration as a waste carrier to the site and will be issued with instructions on health and safety and site procedures. Visitors other than customers bringing waste to the site must sign the Visitors Book before proceeding onto the site, and sign out prior to leaving.

In order to fulfil Duty of Care requirements, drivers of vehicles bringing waste to the site must provide a waste transfer note detailing the source location and description of the waste they are carrying. Seasonal duty of care notes are provided by some customers for inputs where the producer, description of waste, approximate quantity and carrier does not vary. A copy of these notes will be held at the site office.

The site operative will question the driver if unsure about the waste description to ensure it complies with the requirements of the Environmental Permit for the site and any associated booking. A visual check will be made, whenever possible, to ensure an adequate description has been provided.

If the site operative is satisfied that the waste is acceptable at the site within the terms of the Environmental Permit, the customer will be directed to the appropriate discharge location. If the site operative is not satisfied by either the waste description or the content of the incoming load, the vehicle will be directed to a waste checking area. The load will be inspected thoroughly to decide on its acceptability.

If the site operative is satisfied that the waste is not acceptable under the terms of the Environmental Permit, entry to the site will be refused and the registration number of the vehicle recorded separately in the site diary.

3.2.2 Waste Inspection

Once the vehicle has discharged its load, a site operative will visually check its contents to ensure no unpermitted waste is included. This visual check will continue whilst the waste is being moved into the correct waste processing area.

3.2.3 Unacceptable Waste

If the site operative identifies wastes for which the site is not permitted or is unsure of its acceptability, the site manager will be called. The registration number of the vehicle that discharged the waste will be taken; the site manager will inspect the waste and decide on the safety of the load. If possible, and if it is safe to do so, the unpermitted waste will be loaded back onto the vehicle, which discharged it. If it's not possible or safe to do so, the site manager will consult NRW on the course of action to be taken. No tipping will be allowed in the area of this waste until a decision has been made. Such incidents will be recorded in the Site Diary for inspection as appropriate.

3.2.4 Dangerous Substances

Should dangerous substances be delivered and discharged at the site they will be isolated from any other area by provision of an exclusion zone marked out with cones and rope or similar and the tipping area closed. On assessment of the material, tipping will continue in the alternative-tipping zone.

NRW will be informed immediately and advice sought on how to deal with the materials. Should there be any reason to suspect that fumes or leakage is likely to affect site operatives and customers the site area will be evacuated and the fire service called out and specialist advice will be sought from them.

Appropriate actions to remove the substances from the site will be taken following consultations with the Fire & Rescue Service and NRW.

3.2.5 Waste Quantity Measurement Systems

Quantities of incoming wastes to the facility shall be recorded in kilograms utilising the site weighbridge via the existing access road. Quantities of outgoing materials shall also be recorded using the weighbridge.

All site records will be collated and stored at the site office in order to ascertain waste throughput at the site.

3.3 COMBUSTIBLE WASTE STORAGE ARRANGEMENTS

3.3.1 Duration of Waste Storage

3.3.1.1 Existing Waste Storage

The waste, both processed and unprocessed, is stored outside in open compounds. The majority of the processed waste is stored in its loose form (although unlikely and currently not present on the site, baled waste may be stored; this is dependent upon the requirements of the end destination client).

The NRW FPMP guidance states that sites should ensure that any combustible materials are not stored for more than the maximum storage times detailed in Table 1 below, unless the operator demonstrates an appropriate case for this:

Table 1 – NRW FPMP Maximum Storage Times of Waste

Combustible Waste Type	Maximum Storage Time on Site
Non-shredded or similarly treated wastes (that is wastes whose particle size has not been reduced)	6 Months
Baled and compacted wastes	6 Months
Shredded and similarly treated wastes (that is wastes whose particle size has been reduced)	3 Months
Combustible fines/dusts & very small particle size wastes	1 Month
Storage times > 6 months may be acceptable if the operator demonstrates an appropriate case.	

There is a limit placed upon the storage of processed RDF and mixed wastes in the NRW FPMP guidance document, on the basis that if processed (i.e. shredded) RDF and mixed wastes are stored for more than 3 months there is a risk of self-combustion. Unprocessed RDF can be stored for up to 6 months on site.

It is noted that the ARL site (during normal operating conditions) will not be storing unprocessed and processed material for longer than 6 months. Table 2 details the typical storage durations for the various waste types on the ARL site.

Table 2 – ARL Site Maximum Storage Times of Waste

Waste Type	ARL Storage Duration
Baled Storage of Processed RDF	In the region of 12 months (with periods occasionally in excess of this). Note that baling waste is not expected on site going forward (see section below for discussion).
Loose Storage of Processed RDF	<3 months ⁽¹⁾
Loose Storage of Processed Mixed Waste	<3 months ⁽¹⁾
Processed Wood	<3 months ⁽¹⁾
Unprocessed Wood	Site Rotation is generally <6 months
Unprocessed RDF	Site Rotation is generally <6 months
Unprocessed General Mixed Waste	Site Rotation is generally <6 months

Waste Type	ARL Storage Duration
Cardboard / Paper (Loose)	<6 months.
Carpets / Mattresses	Site Rotation is generally <6 months
Plastics	Site Rotation is generally <6 months
Combustible fines	1 month
Note 1 - Storage of processed RDF, processed mixed waste and wood in loose piles will generally not be for a period in excess of three months, with site turnaround expected to be much quicker than this. However, If these waste loose piles are stored for a longer period than three months, ARL will implement a means to permanently monitor the temperature in the piles (see Section 3.3.4 for more detail).	

Going forward it is unlikely that baled RDF will be stored on the site. However, when it is stored it will generally only be present for 6 months; however, occasionally, due to the demands of the end destination client, it is proposed that baled RDF could be stored on the site for greater than 6 months and for a period in the region of 12 months. Although it is recognised that this is greater than the maximum period stated in the NRW FPMP guidance document, it is considered that this proposal is acceptable on the following basis:

Research has been completed on baled mixed waste for an extended period (9 months) where internal temperatures were measured for the duration of the storage time (Seasonal and Long-Term Storage of Waste Fuels with Baling Technique, William Hogland et al, Report No. 112, 2001). The research showed that there was an insignificant rise in temperature in the bales, such that the risk of self-ignition was negligible. The results of the research were backed up by a study of selected baled RDF stored on the ARL site in 2014 where the internal temperatures were measured and recorded to be insignificantly above ambient temperatures (RDF Bale Landfill Gas Monitoring Results – Atlantic Recycling Facility, Rumney, Cardiff, 8th October 2014, A Hashm, JCD0170).

Additionally, as a trade off against the proposed extension to the storage of baled RDF on the ARL site, regular monitoring of the internal temperature of the baled RDF will be completed (see Section 3.3.4).

Therefore, it is considered that when there is a requirement to store baled RDF, it may be stored for periods greater than the durations stated in the NRW FPMP guidance document; however, this presents negligible additional unmitigated fire risk.

Other combustible (e.g. plastics) and non-combustible materials (e.g. concrete) are temporarily stored on the site that are separated from the unprocessed material during inspection of the recycled material that is received by the site. All these materials are stored in either metal skips or separated piles. The required separation distances are detailed in Table 3 in Section 3.3.3.1. Storage of these materials will be short lived and is not envisaged to be for a period of greater than three months, with a six month limit being proposed. Combustible fines, if accumulated on the site, will be in much smaller pile sizes and preferably stored in metal containers, with a storage time limit of 1 month.

3.3.1.2 Waste Storage Associated with New RDF/ SRF Processing Facility

To facilitate the processes being undertaken in the new RDF/ SRF Processing Facility there will be some storage of processed RDF/ SRF inside the building as shown on drawings JCD0170-FPP-007 and JCD0170-FPP-008. The storage duration will be in line with the storage durations recommended in the NRW FPMP guidance as presented in Table 2 above.

3.3.2 Recording of Storage Piles Durations

Quantities of incoming and outgoing wastes for the site are recorded in kilograms utilising the site weighbridge; therefore, an accurate appreciation of site throughput is known. This is recorded and kept in the site office.

A first in, first out (FIFO) system is operated for the unprocessed wastes, which creates a rolling turnover of the storage piles ensuring no material is stored for longer than the specified duration. Visual confirmation of the location of the newest unprocessed waste that has been delivered is carried out and the waste that has resided in the piles for longest used first.

In terms of the processed waste, each of the processed waste piles is labelled with a number. An information board is provided in the monitoring cabin that displays the date defining when it was stored and its intended destination. This allows a clear indication of how long the waste has been stored in situ.

3.3.3 Storage Pile Sizes and Separation Distances

3.3.3.1 Existing Waste Storage

The typical location of the storage piles of combustible waste is shown in Appendix A. The separation of combustible waste from adjacent structures and waste piles provided in the NRW FPMP guidance varies based on the dimensions and the type of waste in the waste pile. Table 3 below details waste pile sizes and required separation distances in accordance with the NRW FPMP guidance (i.e. utilising Graphs 1 and 2 for general materials and plastics accordingly).

For insurance purposes when the Phase 2 MRF facility is built (largely metal plant and equipment), it will have a separation distance from neighbouring buildings and waste piles of 10 m. This is considered acceptable with regards to fire safety as the equipment installed is largely metal with the majority of combustibles being located internally. If a fire was to occur in the MRF the fire would not have a sufficient fire load to maintain or produce sufficient radiative heat flux to allow fire spread to neighbouring waste piles or buildings located a minimum of 10 m away.

The layout of waste piles throughout the ARL site ensure that the attending F&RS can gain access to fight a fire on both sides of all waste piles.

Table 3 – Waste Pile Sizes and Required Separation Distances

Waste Type	Dimensions	Neighbouring Target	Required Separation Distance
Loose Waste Piles (General Waste such as RDF, SRF, wood, paper, etc.)	20 m (width) x 4 m (high) (length of waste piles vary) ¹	Waste Pile	12 m
		Waste Pile (located at ends width)	10 m
Loose Waste Piles (General Waste such as RDF, SRF, wood, paper, etc.)	20 m width by 4 m high	Building (located at ends width) ²	13 m
Loose Waste Piles (Plastic Waste)	10 m x 10 m x 4 m	Waste Pile	15 m
Loose Waste Piles (Plastic Waste)	10 m x 10 m x 4 m	Building	17 m
Inert Waste Pile	500m ³	Buildings & Waste Piles	0 m (non-combustible waste)
Baled RDF ³	-	Building & Waste Piles	Dependant on the sliding scales in the NRW FPMP guidance.

Note 1: Graph 1 in the NRW FPMP guidance document details a maximum length of 50m on the horizontal axis. However, the 'loose stack to loose stack' graph line does not increase with regards to

Waste Type	Dimensions	Neighbouring Target	Required Separation Distance
separation distance from approximately 40m (i.e. stack length). The separation distance of 12 m is maintained across site between loose waste piles regardless of the size, and meets the minimum required separation distances detailed in the NRW FPMP guidance document. Note 2: Buildings on the ARL site are not located adjacent to waste piles which are wider than 20 m. Note 3: Baled RDF is not currently stored on site and is unlikely to be stored on site going forward. Should baled RDF be stored on the site, it will be in accordance with the required separation distances stated within the NRW FPMP.			

The current and proposed separation distances used on the ARL site are all greater than or equal to the values listed in Table 3. In addition, Figure 7 and Figure 8 in Appendix A presents the maximum volumes of waste that are envisaged for the site and their potential locations for each waste type. It is noted that the storage arrangements will vary on the site (depending on the waste received); however storage arrangements will always adhere to the NRW guidance requirements accordingly.

3.3.3.2 Waste Storage Associated with New RDF/ SRF Processing Facility and the MRF

The NRW FPMP guidance presents the general principles to follow if waste is to be stored within a building.

The NRW FPMP guidance states that waste pile separation distances and sizes should be accordance with Table 2 in the guidance document, which summarises the standard stack separation distances and sizes for general combustible wastes. At the time of producing this report there is limited information on the waste pile separation distances and sizes that will be temporarily stored in the RDF/ SRF Processing Facility. However, ARL site management are aware of the requirement to ensure that waste is stored within the building in line with the NRW FPMP guidance.

It is also noted in Section 5 that suitable fire protection measures, such as a fit for purpose fire suppression system will be installed. The means of escape arrangements will also be suitable for the building (it is understood that the RDF/ SRF Processing Facility will have a standalone fire strategy document which will ensure suitable and sufficient means of escape provisions are in place, in accordance with the Regulatory Reform (Fire Safety) Order (RRFSO)). This will reduce the potential for a significant waste fire in the building and safe occupant evacuation upon discovery of fire in the building.

No electrical equipment and heaters will be stored adjacent to waste piles, and means of clearing smoke from the building will be suitably provided (e.g. roller shutter doors). The RDF/ SRF Processing Facility is also located a considerable distance away from the office building (>80 m) and therefore, a fire in the RDF/ SRF facility will not produce enough radiated heat, smoke and hot gases to affect the office building.

The MRF consists of external plant equipment, is not considered to be an enclosed building and does not store any combustible materials. Further information on the MRF is detailed in Section 2.2.4.2.

In addition, there is at least a 10 m clear area around the perimeter of the ARL site, with the neighbouring areas containing no combustibles and being under the control of Neal Soil Suppliers Ltd, which ARL have free and unhindered access to and authorisation from David Neal (the owner).

3.3.4 Pile Monitoring

Given that it is proposed that the storage of processed RDF, wood and mixed wastes in loose piles on the site will be for a duration of greater than three months and in the region of twelve months for baled RDF (although baled RDF is unlikely to be stored on the ARL site going forward) and that the guidance document considers that there is an increased risk of self-combustion if this material is stored for greater than three/ six months respectively, it would be pertinent to consider the implementation of an effective means of monitoring the temperature of the waste piles on the site. On this basis, daily monitoring of all

stock piles on site will be carried out. For the unprocessed material, this will be done simply by means of visual inspections conducted at the start and end of the working day (as the potential for self-heating of the unprocessed waste is very unlikely due to the size of the waste and the gaps in the piles). Further and in accordance with the guidance, bales of RDF will be broken and re-baled if kept for longer than 6 months to help reduce risk.

For processed RDF, wood and mixed wastes in loose piles a permanent infrared sensor will be used for monitoring purposes that will be inserted into the centre of the piles (see Figure 10 in Appendix A for the proposed monitoring system) should any waste piles be stored on site for more than three months.

In the unlikely circumstance that baled RDF is stored on the site and its storage duration is for a period of >6 months, a means to monitor the temperature of the bales will be implemented. This will be provided by a temperature monitoring system (a sampling and testing protocol to ensure a representative number of bales (minimum 10%) are assessed during monitoring should be implemented).

It is noted that continuous visual monitoring is provided for across the whole site during the working day as a matter of course with site operatives who, as part of their working routine, are required to note any general observations of signs of material heating immediately.

3.3.5 Seasonality

Based on Atlantic's current practice, supply is not season dependent as the various combustible fractions of waste are mostly extracted from mixed waste which is in regular supply. A reduction in the supply, if happens though unlikely due to the established nature of the business, means less rate of production. An increase in the supply will be managed by ensuring the site only accept quantities that can be processed and stored on site within the storage arrangements and time limits applied and discussed in previous sections. Quantities that cannot be accommodated within the site limits will be rejected.

Atlantic provide their recovered combustible materials to various types of outlets and is continuously identifying new ones to ensure regular removal of processed material. If an issue with the availability of an outlet arises, Atlantic current practice is to redirect the material to alternative recovery facilities, with available capacity, after partial treatment to remove the metals. If none of these facilities have available capacity, as a contingency residual waste after removal of all recyclables will be sent to a suitable landfill as a last resource.

As discussed in Section 3.3.2 above, a first in, first out (FIFO) system is operated for the unprocessed wastes, which creates a rolling turnover of the storage piles ensuring no material is stored for longer than the specified duration. Visual confirmation of the location of the newest unprocessed waste that has been delivered is carried out and the waste that has resided in the piles for longest used first.

In terms of the processed waste, each of the processed waste piles is labelled with a number. An information board is provided in the monitoring cabin that displays the date defining when it was stored and its intended destination. This allows a clear indication of how long the waste has been stored in situ.

It is recognised that, given higher ambient temperatures, there is a greater risk of self-heating of some combustible waste piles (although, it is noted that the unprocessed waste is not considered to be at as high a risk from self-heating as processed waste due to its uncompacted arrangement). Site management take account of higher ambient temperatures and have plans in place to carry out additional visual monitoring of the waste piles to ensure any obvious signs of self-heating are detected. An on-site water cannon could also be used to apply water to the waste piles and artificially lower the temperature if it is deemed necessary; however, this would only be completed as a last resort when there were signs to suggest that self heating was becoming problematic.

4 MITIGATION OF FIRE IMPACT

In addition to taking suitable steps to prevent fire initiation and to prevent fire spread should one initiate, a FPMP must identify how a fire will be detected and what fire-fighting measures are in place.

4.1 FIRE DETECTION

The NRW FPMP guidance document states that procedures must be in place to detect a fire in its early stages so its impact can be reduced. Fire detection systems should be proportionate to the nature and scale of waste management activities and the associated risks.

The current waste piles on the site are stored externally; therefore, there are limitations on the type of fire detection that can be effectively and proportionally used. No automatic fire detection is used; however, autonomous inspections by operators takes place that check for poor housekeeping and fire initiation during day to day operations. If a fire was detected by an operator, they would activate one of the manual call points located across the site, which alarm locally and would alert other operators to the presence of a fire. Fire fighting activities would then commence as appropriate.

Six Fire Points are located around the WTS that contain 1x water and 1x CO₂ extinguishers and a manual fire alarm bell. These points are regularly checked, logged and replenished.

4.2 FIRE FIGHTING TECHNIQUES AND ACCESS

The NRW FPMP guidance document states that a site must be designed to allow for active firefighting. This will help allow a fire to be extinguished within four hours, which is the aim to meet the requirements of the NRW guidance document.

If a fire was to initiate, involve any of the waste piles and was detected by an operator, a manual call point would be activated by the operator. The manual call point would cause a local alarm, which would result in the evacuation of other operators local to the fire. Operators would alert the site Foreman to the presence of a fire.

Upon attendance at the scene, the site Foreman would firstly assess the situation and decide on the appropriate course of action. If it was immediately obvious that site operatives would be unable to immediately extinguish the fire, a decision would be made by the Foreman to contact the county Fire and Rescue Service (F&RS) who would attend the site to carry out the fire fighting. Access routes for the F&RS are shown on the site plan in Appendix A. The F&RS vehicle access requirements detailed in the NRW guidance document are met on the ARL site, with large vehicles attending site regularly.

Emergency contact procedures are in place with the night security personnel and can have first responders on site within 10 minutes.

If it was decided that the fire could be mitigated by the site operatives there are various fire fighting techniques that could be utilised.

The site operatives would use the Mobile Plant to spread the burning waste into the Quarantine Area (area with an impermeable floor); the burning waste will be spread to a shallow depth to allow segregation, subsequent damping down and isolation. Site staff have been informed of their duties and aware of the potential action they must take.

If the F&RS were required, fire water supplied from the water sources identified in Section 4.4 would then be used to extinguish the fire, which would be facilitated by the attending on-site F&RS personnel and fire appliances.

Given the available fire fighting techniques and means of detecting a potential fire, it is expected that a fire would be extinguished within four hours.

Staff who work on the ARL site receive fire safety awareness and fire warden training (which includes an element level of first aid fire fighting training – see Appendix A for details). See Section 4.4 for further details on the techniques used to deploy sufficient amounts of water for fire fighting to take place.

4.3 QUARANTINE AREA

A Quarantine Area is somewhere where burning wastes can be placed to extinguish them. Unburnt wastes can also be moved into the Quarantine Area to isolate and prevent them catching fire. The Quarantine Area must be within the boundary of the site for which a permit is held.

The ARL site has two areas that could be used as Quarantine Areas, one being the Field I Processing and Storage Area and the second being the Concrete area for waste processing and storage (currently under construction). Field I is a very large area of impermeable ground (of the order of 30,000 m²), which has a 300 mm kerbed bund surrounding its entire perimeter and engineered slopes to contain a fire water run-off (see Section 4.5 for more detail).

The NRW FPMP guidance document states that the quarantine area should be large enough to hold at least 50% of the volume of the largest waste pile on site. In addition, it should have a separation distance of at least 6 m around its perimeter from adjacent buildings and waste piles (this distance can decrease if concrete bunkers/ fire walls are installed). An area in Field I has been designated as the main Quarantine area (see Figure 7), and satisfies the requirements of the NRW FPMP guidance.

Waste affected by a fire would be moved to an appropriate place in the Quarantine Area by the Mobile Plant. A fire break would be established between the burning waste and the remaining combustible materials and the F&RS would then act as required (see Section 4.2).

If fire fighting operations are required on burning wastes in the Quarantine Area, it will not be left unattended until the fire is extinguished. Monitoring will be carried out following extinguishing to ensure that the material does not re-ignite.

The Concrete area for waste processing and storage and the area around the WTS are also both areas of hardstanding that are connected to a sealed drainage system; burning waste could be moved to locations within these areas if required.

There are two assembly points for staff and visitors; one located in the ARL site car park and the other adjacent to the weigh bridge (which is also located on the ARL site).

4.4 WATER SUPPLIES

The NRW FPMP guidance document states that sufficient water must be available for firefighting to take place and to manage a worst case fire scenario.

Four mobile water bowsters with high pressure water cannons are available on site that can provide water to fight a potential fire on the site. Two of the water bowsters are large, consisting of volumes of 13,600 litres each, with the smaller bowsters being able to store approximately 10,000 litres. Additionally, large quantities of water (approximately 9,000,000 litres) can be utilised < 150m from the permit boundary of ARL and < 350m from the Transfer Station. There is approximately 600,000 litres of water located within the permit boundary (i.e. in the interceptor ditch). The lagoon is on the Neal Soil Suppliers Ltd site, and ARL have free and unhindered access to it and authorisation from David Neal (the owner) to use the water for emergency purposes. It is also noted that additional interceptor ditches on the ARL site are available for additional water supplies if required.

It is considered that a large volume of water is available to support fire fighting operations.

It is also noted that the drainage containment systems installed at the site will allow the recycling of fire water if it was required.

Whilst the supply of water can match the requisite amounts based on NRW FPMP guidance figures, it is not considered that such a water supply would be necessary for several reasons. In the first instance it is

unrealistic to anticipate a scenario on the site with every pile on fire given the separation distances and waste pile dimensions, in full accordance with the NRW FPMP guidance. The separation distances will prevent the spread of fire notwithstanding the fire mitigation and fighting provisions designed to extinguish any fire event.

4.5 MANAGEMENT OF FIRE WATER

The NRW FPMP guidance document requires that the site must be able to contain the run-off from fire water to prevent pollution of the environment.

The containment facilities and pollution equipment needed depends on the:

- Size of the site.
- Amount of waste stored.
- Fire fighting strategy.

Field I and the Transfer Station both have a fully sealed surface with sealed/ controlled drainage so water can be retained in that area for recirculation in the event of a fire.

During normal operation, Field I surface water is drained via an engineered slope through an open/ closed check valve, through an interceptor and into a control ditch. Following a quality control check if it is found to be in compliance with the limits set out in the Permit it will be discharged into the SSSI (if the water does not meet the limits set out in the permit it will be transferred off site via a tanker). Given the requirement to contain fire water within Field I, a penstock valve will be manually closed, which will prevent the normal discharge of water.

It is understood that the water treatment plant will be operational in the future (i.e. when authorised for use), and when it is, water can be pumped through (following a quality control check) and if it is found to be in compliance with the limits set out in the Permit, discharged into the SSSI. Given the very large volume of Field I (approximately 8,500 m³) and the ability to redirect water to the water treatment plant in the future (if required); there is no credibility that fire water would not be contained within this area.

The surface of the WTS and adjacent processing and storage areas, have two distinct areas, separated by concrete blocks to provide an appropriate bund. The eastern part of the northern section of the WTS (i.e. north of the culvert) is constructed from re-enforced concrete. The west side is constructed from tarmac that has been recently maintained and improved. Both areas have sealed surfaces with a perimeter curb and a 1:100 fall into the culvert, this in turn will pass through another interceptor and discharge into a control ditch and follow the same principles as detailed for Field I (above). This area is again controlled by a penstock valve that can be manually operated to prevent discharge.

It is understood that the eastern part of the southern section of the WTS (i.e. south of the culvert) is also due to be constructed from concrete in the near future.

During fire fighting operations, given the very low likelihood that the volume of water being generated is too great for the capacity of the drainage system/ bunded areas there is a need to pump the water to a controlled area. This would be completed either by using a Contract Vacuum Tanker, which involves sourcing a contract tanker to attend site and remove the water. This action is an acceptable means of removing excess volumes of water and will be dependent on the conditions during the fire fighting activity. However, it is reiterated that its use is not considered to be likely.

The volume available for containment of fire water is very large, given the large volume of the Quarantine Area/ areas of hardstanding; therefore, it will be adequately controlled.

4.6 DURING AND AFTER AN INCIDENT

Contingency measures must be in place for dealing with issues during and after a fire.

If a fire occurred in the processing or storage areas of the site, an initial assessment period would be completed by the first responders. A decision would then be made of the fire fighting strategy that would be most appropriate to implement. The risks associated with these operations would then be assessed and the decision made on whether operations could continue on the site.

Given a small fire that could be quickly extinguished in the Quarantine Area, operations may be quickly restarted, after a short shutdown to ensure that the area is safe. However, if it was judged that it was not safe to continue operations, processing would immediately stop. In these cases no deliveries of any additional unprocessed material would be permitted to the site. No deliveries would be received until the position was assessed by the responders to be safe again.

Given the lack of adjacent sites or neighbours, there are no arrangements in place to inform any other people (with the exception of suppliers and emergency responders) to the progression of the fire event.

Once a potential fire has been successfully extinguished, site personnel must make the site suitable for future operations. The amount of work required to complete this requirement is dependent upon the scale of the fire; however, the following tasks would be required to be carried out:

- Disposal of all burnt materials. These would be taken off-site for landfill by the numerous vehicles constantly located on the site.
- Clean the Quarantine Area and ensure all unburnt combustibles are removed.
- Investigate the cause of the fire.
- Once the cause of the fire is discovered, dissipate this information to staff members to minimise the potential for the incident to reoccur.
- Check all equipment and make sure it is undamaged and is working appropriately.
- Dispose of the fire water. The Water Treatment Plant will be used for this purpose (when it is authorised and included in the permit).

5 DESIGN OF NEW RDF/ SRF PROCESSING FACILITY, PHASE 2 MRF AND NEW BIOMASS BOILER

5.1 NEW RDF/ SRF PROCESSING FACILITY

As is discussed in Section 2.2.4, the site is proposing to construct a new RDF/ SRF processing facility. Once the RDF/ SRF processing facility is operational, loads of waste categorised as a category 19 waste code will be automatically directed to it rather than to the WTS. The new RDF/ SRF processing facility will be located south of the WTS and extending to the East. The new Facility will process waste that will mainly constitute papers, plastics, cardboard and other packaging via the plant and machinery incorporating the latest technology.

The new facility will be 149.1 m in length with a width of 29 m and a height of 14.5 m (12 m to the eaves) of the building. The facility will be constructed on an impermeable hardstanding, with a fully sealed drainage system, operated in the same manner as those already installed on the site.

The current design of the building is not complete or fully defined at the time of writing this report; therefore, an accurate appraisal of the fire risk in the building cannot be fully provided. However, the site management are aware of their requirements to minimise fire risk and control discharges. The building will be designed to meet legislative requirements for fire safety design and will ensure that the safety of occupants in the building will be appropriately managed. Means of escape for building occupants and access arrangement for the F&RS will be appropriately implemented into the design to ensure that the building is compliant with relevant fire safety legislation. An appropriate means of fire detection will be implemented in the building that is commensurate with the fire risk and fire points, containing first aid fire fighting media will be installed.

An automatic fire suppression system will be installed in the building. Consideration is currently being given to the type of system, which will be selected with appreciation of the type of materials, the processes being carried out, the fire risk and the building's geometry.

5.2 PHASE 2 MRF

As discussed in Section 2.2.4, the ARL site are proposing to install a new Phase 2 MRF later in 2018, with the current MRF continuing to operate as currently permitted and agreed with the NRW. The Phase 2 MRF will consist of external plant and will not be an enclosed building.

As the current design of the MRF is not complete or fully defined at the time of writing this report, an accurate assessment of the fire risk cannot be fully completed. However, ARL site management are aware of their requirements to minimise fire risk, and the MRF will be designed to meet legislative requirements for fire safety design.

The design will ensure that the safety of occupants in the area will be appropriately managed, and means of escape for occupants working in the MRF area and access arrangement for the F&RS will be appropriately implemented into the design to ensure that the MRF is compliant with relevant fire safety legislation.

An appropriate means of fire detection will be implemented into the MRF that is commensurate with the fire risk and fire points, containing first aid fire fighting media will be installed.

5.3 NEW BIOMASS BOILER

The Biomass Boiler construction on the ARL site is now complete, but not currently operational. It is located to the South of the existing offices (which are to be relocated to accommodate the Biomass Boiler building). The new building has dimensions of 20 m by 10 m by 6 m high (8 m to the roof apex). The construction is a purpose built steel portal framed building, with single skin cladding on a 300 mm concrete slab foundation. The Biomass Boiler provides heat to assist with the processing of surface run off water

during the water treatment process; it is also configured to be used for drying purposes. Although not currently planned, future boilers on the ARL site will provide electrical power to the site.

The Biomass Boiler is located a minimum of 50 m away from any waste stockpiles and is enclosed (see location on Figure 5). Therefore, it meets the NRW FPMP guidance for separation distances between waste piles and buildings.

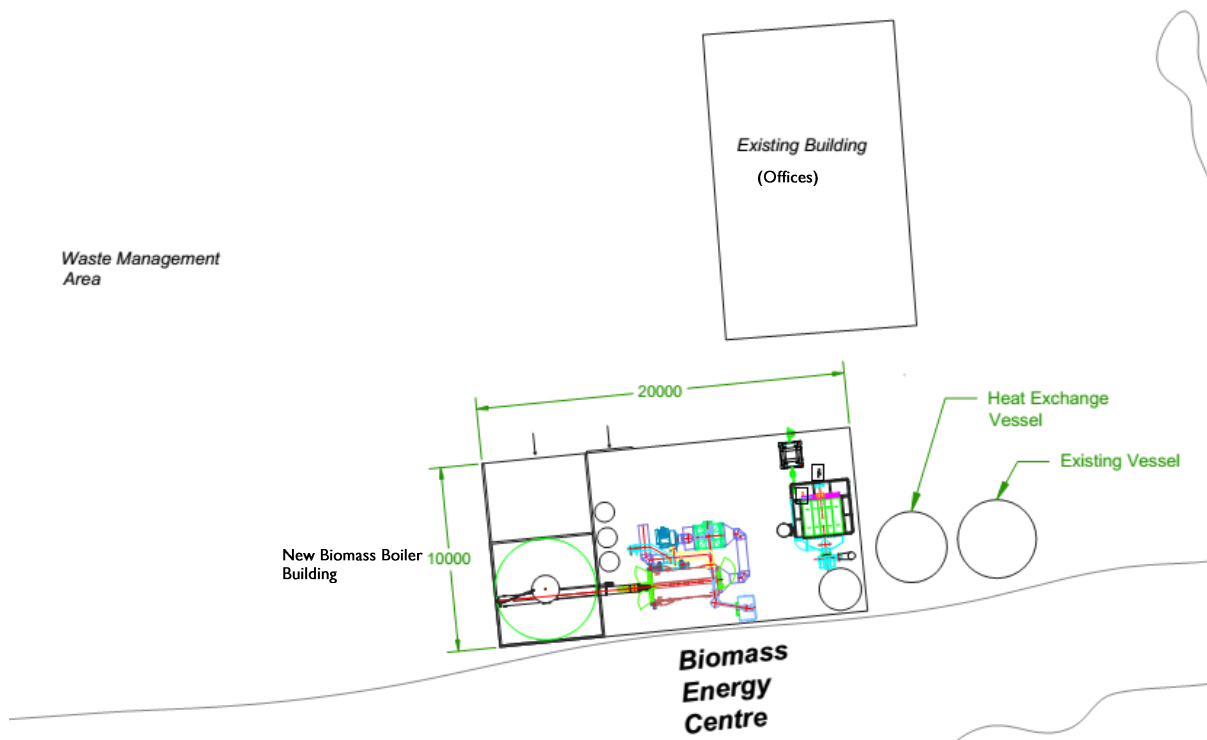
The Biomass Boiler has its own self-contained fuel bunker that has a max capacity of approximately 20 tonnes. It is usual practice to only keep one days' worth of fuel in the bunker at a time (approximately 7 tonnes) and only fill it to capacity on a Friday night and holidays to see it through the period.

The fuel will be C grade wood waste, chipped to 80 mm. The fuel is fed into the Biomass Boiler via a computer controlled auger (which controls the dosage); the fuel bunker is separated from the Biomass Boiler by a brick/block bulkhead.

The Biomass Boiler building will have a mains water feed and will have at least one emergency fire point consisting of one water and one CO₂ fire extinguisher. In addition, the location of the Biomass Boiler building is in the immediate vicinity of the security location, so will be under constant visual supervision out of hours.

The fire prevention and mitigation methods presented in Sections 3 and 4 are applicable to the new buildings and will be implemented accordingly.

Figure 5 – Location of New Biomass Boiler



6 CONCLUSIONS

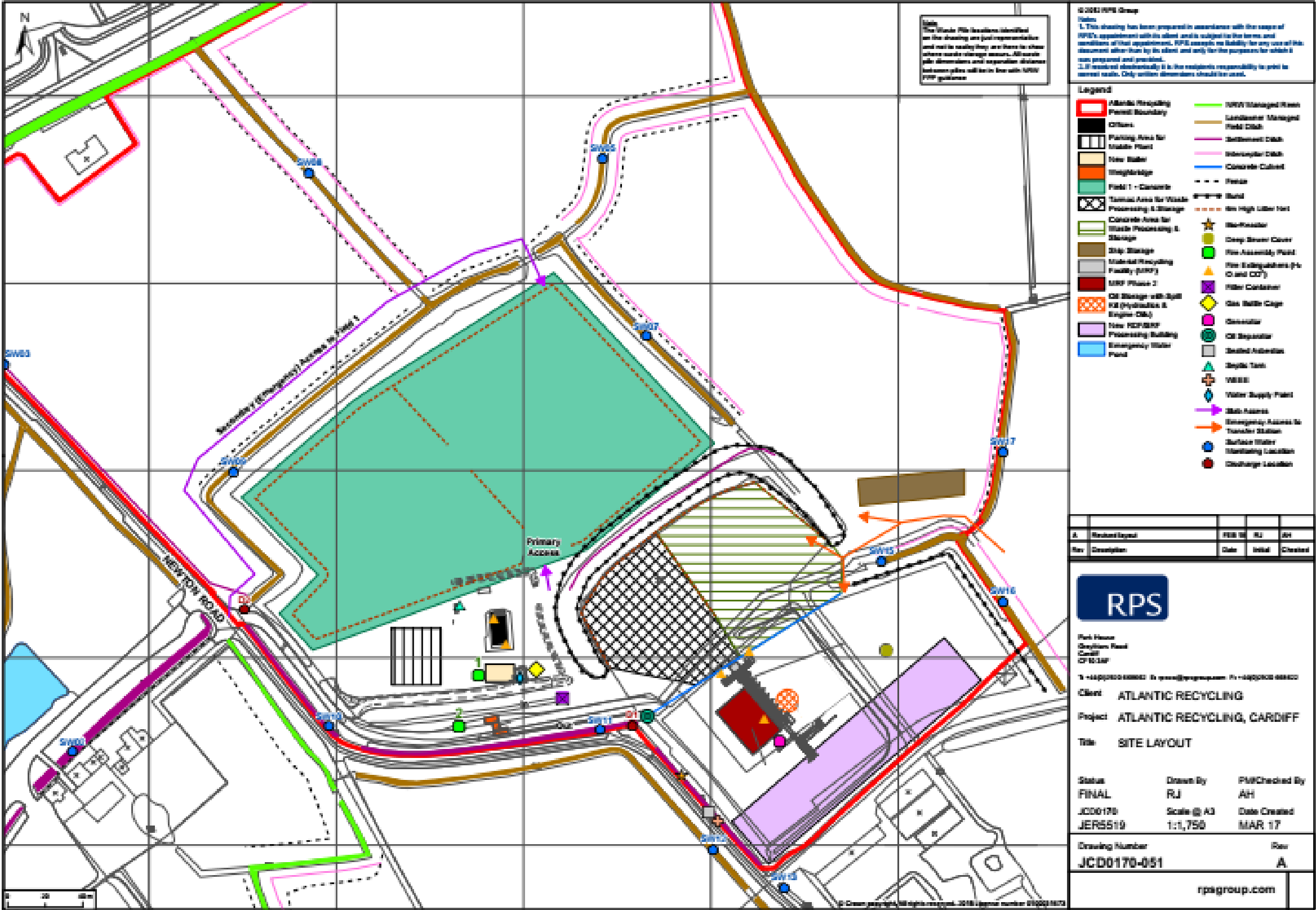
The FPMP takes into account the current practices and operational constraints at the site together with consideration of various fire guidance documents relevant to the site. It is noted that limited information pertaining to the construction of the new Facility is available at the time of writing, but site management has committed to ensuring that current site practices will be rolled out for the new construction and that the building will be constructed to minimise fire risk.

The FPMP shows that the site meets the requirements of the NRW FPMP guidance. Storage of waste is in line with the maximum pile sizes presented in the guidance, fire prevention procedures are in place and available fire fighting activities, water supplies and procedures are such that a fire on the site would be effectively controlled. Similarly, engineered systems are in place to prevent the uncontrolled discharge of fire water, if required.

It is proposed that the maximum storage times for loose processed RDF be greater than the three months stated in the NRW FPMP guidance document. It is justified in this report that this extension is acceptable, based upon the permanent, continued temperature monitoring that will be installed in each pile being stored for a duration of greater than 3 months.

Appendix A – Diagrams Supporting the FPMP

Figure 6 – Site Plan



Note: the emergency water pond is on the Neal Soil Suppliers Ltd site. ARL have free and unhindered access to it and authorisation from David Neal (the owner) to use the water for emergency purposes.

Figure 7 – Maximum Pile Sizes and Locations

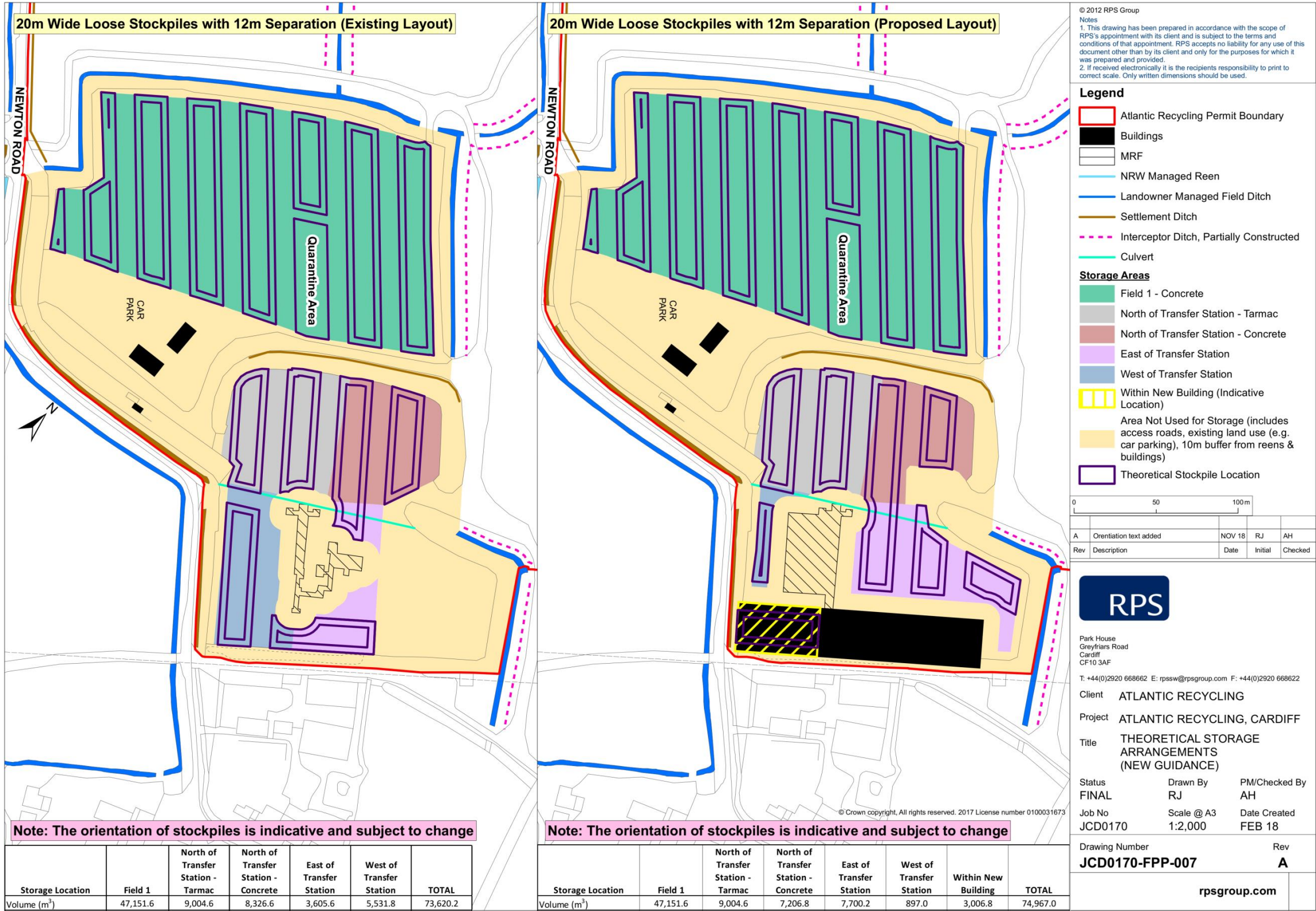


Figure 8 – Maximum Pile Sizes and Locations (including storage of plastics and inert materials)

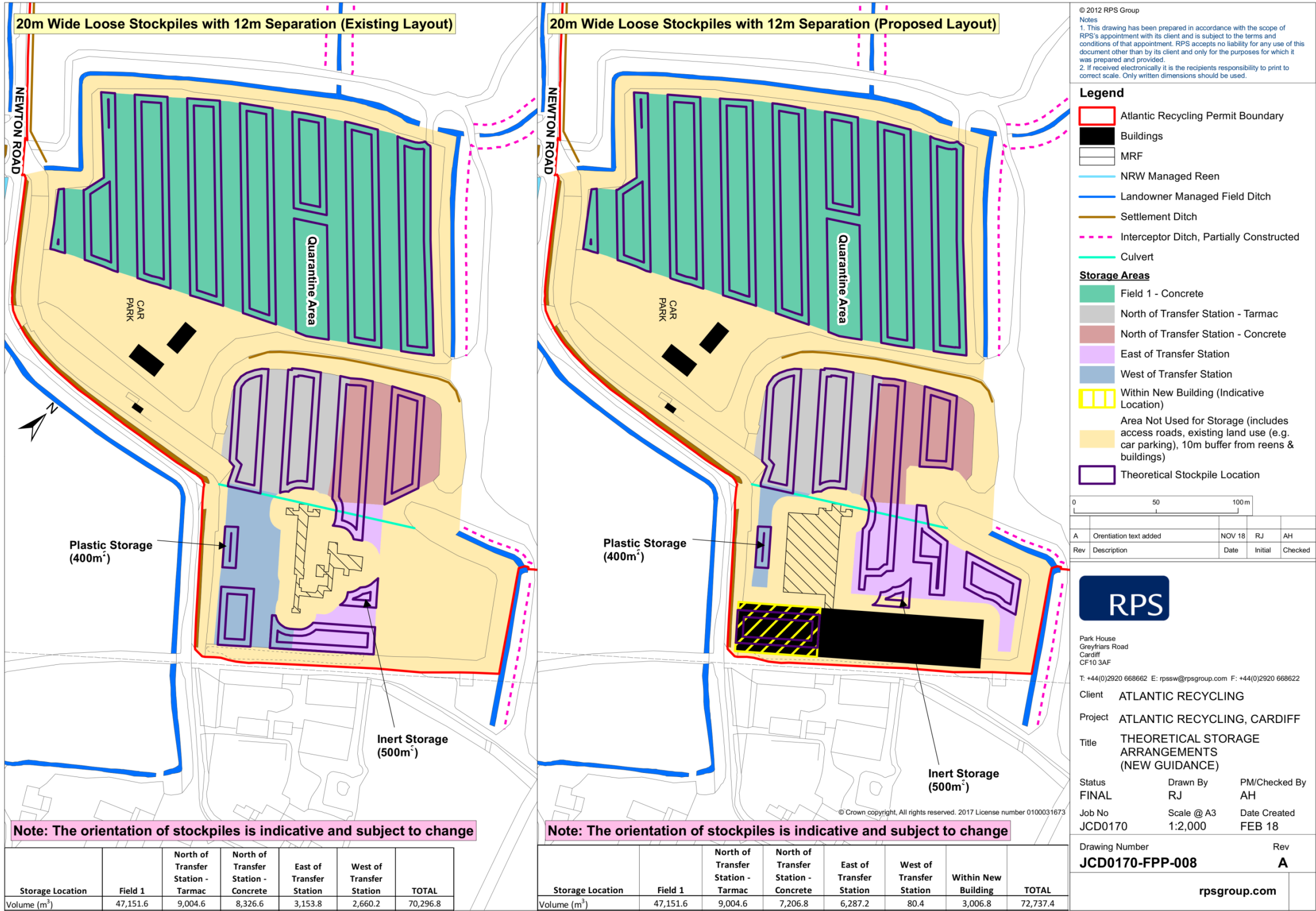


Figure 9 – Example of a written certificate documenting electrical maintenance

IPM5

ELECTRICAL INSTALLATION CONDITION REPORT

Issued in accordance with British Standard 7671 - Requirements for Electrical Installations

Original (To be passed, entering the work)

A. DETAILS OF THE CLIENT			
Client:	Atlantic Recycling	Address:	Newton Road, Rumney Cardiff
		Postcode:	CF3 2EJ
B. PURPOSE OF THE REPORT			
This report must be used only for reporting on the condition of an existing installation.			
Purpose for which this report is required:	Periodic Inspection		
Date(s) on which inspection and testing were carried out:	7 th /8 th January 2014		
C. DETAILS OF THE INSTALLATION			
Occupier:	As Client	Address:	As Above
Estimated age of the electrical installation:	5 years	Description of premises: domestic, commercial, industrial, other (Please state)	Industrial
Date of previous inspection:	N/A	Evidence of alterations or additions:	/ If yes, estimated age: 2 years
Records of installation available:	Yes	Records held by:	Mr. Phil Ridley
		Electrical Installation Certificate No or previous Periodic Inspection or Condition Report No:	0036572
D. EXTENT OF THE INSTALLATION AND LIMITATIONS ON THE INSPECTION AND TESTING			
Extent of the electrical installation covered by this report:			
Fixed wiring only, Office area Fed via site generator, 80% checked from main panel to Distribution board.			
Agreed limitations including the reasons, if any, on the inspection and testing:			
Visual inspection to DB11b only due to IT + server supplies			
Operational limitations including the reasons (see page No.)			
Agreed with: Mr. Phil Ridley			
The inspection and testing have been carried out in accordance with BS 7671, as amended. Cables concealed within trunking and conduits, or cables and conduits concealed under floors, in inaccessible roof spaces and generally within the fabric of the building or underground, have not been visually inspected.			
E. SUMMARY OF THE CONDITION OF THE INSTALLATION			
General condition of the installation (in terms of electrical safety):			
Generally all in a satisfactory condition			
Summary of the condition of the installation continued on additional pages? No Yes Specify page			
Overall assessment of the installation: SATISFACTORY Unsatisfactory (Delete as appropriate)			
An 'Unsatisfactory' assessment indicates that dangerous and/or potentially dangerous conditions have been identified			

This report is based on the model forms shown in Appendix 5 of BS 7671
© Copyright The Electrical Safety Council (July 2011)

Page 1 of 1

Please see the 'Notes for Recipients' on the reverse of this page.

Figure 10 – Proposed temperature monitoring system for loose waste piles

Note: the cable temperature monitoring system is proposed rather than the use of the probes



www.freelandscientific.com

Rosedale Nursery, College Road,
Hextable, Kent, BR8 7LT
T: 01322 667076
E: enquiries@freelandscientific.com



PREVENTiT
EARLY WARNING STOCKPILE MONITOR

PRICE LIST 2017

INDUSTRIAL TEMPERATURE MONITORING SYSTEMS FOR WASTE STOCKPILES

PRODUCT DESCRIPTION	UNITS		
	1-10	10-20	20-30
1.5m Wireless Probe with Built in Transmitter & Transceiver	£500.00	£450.00	£400.00
2m Wireless Probe with Built in Transmitter and Transceiver	£600.00	£550.00	£500.00
Temperature Monitoring Unit	£350.00		
Software licence (Unlimited user's) remote data access, online data storage, text alerts & emails and technical support	£80.00		

Warranty 12 months excluding damage: All prices are excluding VAT

DISPOSABLE CABLE TEMPERATURE MONITORING SYSTEM SUITABLE FOR WOOD WASTE

Disposable Temperature Monitoring Sensor String Cables @ 2m spacing	£3.50 per meter
Temperature Monitoring Unit	£350.00
Software licence (Unlimited user's) remote data access, online data storage, text alerts & emails and technical support	£80.00 per month

Warranty 12 months excluding damage: All prices are excluding VAT

Don't let your site go up in smoke – PREVENTiT

Contact Maria on 01322 667076 or email enquiries@freelandscientific.com for more information.

Developed by Freeland Scientific Limited




Company Registered in England No: 04293220. Registered Office: Rosedale Nursery, College Road, Hextable, Kent BR8 7LT

Figure 11 – Level I Fire Safety Awareness Training Course Details

LEVEL ONE

1. FIRE AWARENESS

Fire awareness is designed to meet the current legislation, providing employees with essential fire safety knowledge. Helping them understand how fires start and how to prevent them.

A. Content

- i. Causes of fire
- ii. Fire Triangle
- iii. Fire Risk assessment
- iv. Fire control measures
- v. Duties and responsibilities of employers, employees and Fire wardens
- vi. Procedures in the event of a fire
- vii. Actions in the event of a fire
- viii. Fire prevention
- ix. Reporting Fire safety issues
- x. Portable fire-fighting equipment
- xi. Checking portable fire-fighting equipment

2. COURSE DETAIL

Designed for new employees at Induction phase, employees with no dedicated fire safety role and to give all employees an entry level to Fire Safety.

Course Duration is 2 – 3 hours

Candidates will be assessed through multiple choice questions

Figure 12 - Level 2 Fire Warden/ Marshal Training Course Details

LEVEL TWO

1. FIRE WARDEN / MARSHAL

Organizations are required to train staff to take charge in an emergency situation. Fire Wardens / Marshals instruct other employees on what to do and to follow company procedures in the event of an emergency and to assure all employees have evacuated safely

A. Content

- i. Fire awareness and Causes
- ii. Combustion and fire spread
- iii. Fire control methods
- iv. Human behavior in Fire
- v. Fire detection and raising the alarm
- vi. Means of escape
- vii. Fixed Fire-fighting systems
- viii. The Regulatory Reform (Fire Safety) order 2005
- ix. Fire Risk assessment and Safety Inspections
- x. The Role of the Fire Warden / Marshal
- xi. Fire drills and pre-planning
- xii. Fire -fighting equipment
- xiii. Practical Fire-fighting session

2. COURSE DETAIL

Designed for employees to develop their basic Fire safety awareness to assist the employer and undertake a more specific role of Fire Warden/Marshal

Course Duration is one day

Candidates will be assessed through multiple choice questions

Figure 13 – ARL Site Personnel who have attended Fire Safety Training Courses

Atlantic Recycling	Expiry Date	Course
David Cooke	23/11/2019	Fire Warden/Marshall
Wayne Shortman	19/10/2019	Fire Warden/Marshall
Paul Watkins	19/10/2019	Fire Warden/Marshall
Michael Green	19/10/2019	Fire Warden/Marshall
Andrzej Stadniczuk	19/10/2019	Fire Warden/Marshall
Dariusz Szyfelbajn	19/10/2019	Fire Warden/Marshall
Marek Smialek	26/10/2019	Fire Warden/Marshall
Geoffrey Green	23/11/2019	Fire Warden/Marshall
Gareth Morgan	30/07/2019	Fire Awareness
Wayne Shortman	19/10/2019	Fire Awareness
Paul Watkins	19/10/2019	Fire Awareness
Michael Green	19/10/2019	Fire Awareness
Andrzej Stadniczuk	19/10/2019	Fire Awareness
Marek Smialek	19/10/2019	Fire Awareness
Dariusz Szyfelbajn	19/10/2019	Fire Awareness
Michael Murphy	15/11/2019	Fire Awareness
Lajos Kassai	15/11/2019	Fire Awareness
Sasha Almasian	15/11/2019	Fire Awareness
Gary Farmer	15/11/2019	Fire Awareness
Stephen Phillips	16/06/2020	Fire Awareness
Wayne Davies	16/06/2020	Fire Awareness
Irmantas Butkevicius	16/06/2020	Fire Awareness
Gareth Morgan	16/06/2020	Fire Awareness
Peter Sorenson	16/06/2020	Fire Awareness
Adam Hamburger	16/06/2020	Fire Awareness
Tomasz Sekretarczyk	16/06/2020	Fire Awareness
Sebastian Paszkiewicz	16/06/2020	Fire Awareness
Janusz Osowski	16/06/2020	Fire Awareness
Mateusz Krasnowski	16/06/2020	Fire Awareness
Stephen Jones	16/06/2020	Fire Awareness
Wesley Marshall	16/06/2020	Fire Awareness

Atlantic Recycling	Expiry Date	Course
Stephen Williams	16/06/2020	Fire Awareness
Clifford Williams	16/10/2020	Fire Awareness
Anthony Bilton	26/01/2021	Fire Awareness
Jacob Creaghan	26/01/2021	Fire Awareness
Stephen Williams	26/01/2021	Fire Awareness
Pawel Pisarek	26/01/2021	Fire Awareness

		RPS Risk 105 Dalton Avenue, Birchwood Park, Warrington. WA3 6YF Tel: 01925 831000 Fax: 01925 831231