



Brookhurst Wood MBT Facility

Environmental Permit Variation - EPR/HP3238GW
Fire Prevention Plan

Biffa Waste Services Limited

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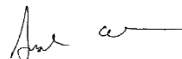
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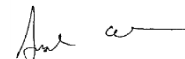
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Table of Contents

1.	Report Context.....	6
1.1	Introduction.....	6
1.2	Site Address	6
1.3	Objectives of This Plan	6
1.4	Using This Plan.....	6
2.	Activities At The Site	8
2.1	Site General Activities.....	8
2.2	Main MBT Building.....	8
2.3	Anaerobic Digestion	9
2.4	Outputs Waste Storage and Transfer Area	10
2.5	Ancillary Areas.....	10
3.	Types of Combustible Materials.....	13
3.1	Combustible Waste.....	13
3.2	Other Combustible/Hazardous Materials	15
3.3	Persistent Organic Pollutants	16
4.	Site Plans and Maps	18
5.	Sensitive Receptors.....	19
5.1	Site Location.....	19
5.2	Principal Wind Direction.....	19
5.3	Residential Receptors.....	20
5.4	Community Receptors	21
5.5	Other Workplaces	21
5.6	Sensitive Infrastructure	22
5.7	Sensitive Environmental Receptors	22
6.	Common Causes of Fire - Prevention Measures	25
6.1	Arson and Vandalism	25
6.2	Plant and Equipment	25
6.3	Electrical Faults	28
6.4	Lightning Protection	28
6.5	Discarded Smoking Materials	29
6.6	Naked Lights.....	29
6.7	Hot Works.....	29
6.8	Industrial Heaters	29
6.9	Hot Exhausts	29
6.10	Ignition Sources/Heat and Spark Prevention	29
6.11	Batteries	30
6.12	Leaks and Spills	30
6.13	Gas Bottles and Flammable Items.....	33
6.14	Build-up of Combustible Materials	33
6.15	Reactions Between Wastes	33
6.16	Deposited Hot Loads	33
7.	Prevent Self-Combustion	35
7.1	Manage Storage Time	35
7.2	Record and Manage Waste Storage.....	36
7.3	Stock Rotation Policy.....	36
7.4	Temperature Control.....	36
8.	Manage Waste Piles	38
8.1	Waste Bale Storage.....	38
8.2	Maximum Pile Sizes	38

8.3	End of Life Vehicles	39
8.4	Waste Stored in Containers	39
8.5	Compost	39
9.	Prevention of Fire Spreading	40
9.1	Separation Distances	40
9.2	Fire Walls and Bays	40
9.3	Quarantine Area	40
10.	Fire Detection, Suppression and Fighting	42
10.1	Fire Detection Arrangements	42
10.2	Suppression Systems	42
10.3	Firefighting	48
10.4	Maintenance of Fire Detection and Suppression Systems	49
11.	Water Management	51
11.1	Water Supplies	51
11.2	Firewater Management	52
12.	Contingency Measures	54
12.1	Fire Alarms	54
12.2	Access for Emergency Services	54
12.3	Emergency Management	54
12.4	Management Arrangements During and After a Fire	57
12.5	Reporting and Review	59
	Appendix A Site Plans	60
	Appendix B MBT Plant Fire Extinguisher Locations	68

Figures

Figure 1.	Site Layout Showing Waste Storage Locations	13
Figure 2.	Hazardous Materials Storage Areas	16
Figure 3.	Site Location	19
Figure 4.	Windrose	20
Figure 5.	MBT Plant ATEX Zones	27
Figure 6.	Location of Spill Kits and Emergency Showers	31
Figure 7.	Site Layout Showing Fire Protection Block Plan	43
Figure 8.	HWRC Bunker Protection Diagram	46
Figure 9.	Emergency Response Team	56

Tables

Table 1.	Waste and Product Inventory	14
Table 2.	Other Chemical Inventory	15
Table 3.	Drawings and Plans	18
Table 4.	Residential Receptors	20
Table 5.	Community Receptors	21
Table 6.	Other Workplaces	21
Table 7.	Habitats	23
Table 8.	Surface Water Receptors	23
Table 9.	Location and Contents of MBT Spill Kits	31
Table 10.	Water Requirements for Site Ha	52
Table 11.	Contingency Arrangements	57

1. Report Context

1.1 Introduction

AECOM has been commissioned by Biffa Waste Services Limited (“the Operator” or Biffa) to prepare an application to vary the existing environmental permit (EPR/HP3238GW) to include an additional area of land in proximity to the current Mechanical and Biological Treatment (MBT) Facility for the storage and dispatch of MBT outputs. The site is located at Brookhurst Wood, Horsham, West Sussex.

This document represents the Fire Prevention Plan for the MBT facility updated to include the new waste transfer and storage area. The document should be read in conjunction with the other supporting application reports and risk assessments.

1.2 Site Address

Biffa West Sussex Ltd.
(Brookhurstwood MBT)
Brookhurstwood,
Langhurstwood Road,
Horsham,
West Sussex,
RH124QD

1.3 Objectives of This Plan

This document provides guidance for the prevention and management of potential waste fires and seeks to minimise their impact on the environment in accordance with guidance provided by the Environment Agency “*Fire Prevention Plans: Environmental Permits*” (Jan 2021), and the WISH forum document WASTE 28.

This Fire Prevention Plan (FPP) sets out the fire prevention methods and procedures put in place to ensure the following EA objectives are met:

- minimise the likelihood of a fire happening at the proposed facility;
- aim for a fire to be extinguished within 4 hours;
- minimise the spread of fire within the site and to neighbouring sites.

This document does not seek to address the requirements of the Regulatory Reform (Fire Safety) Order 2005. Compliance with fire order is achieved in accordance with the Biffa Group Standard for Fire Prevention and Safety (Appendix C) and the completion of a Fire Risk Assessment (Appendix B) by a competent person.

1.4 Using This Plan

1.4.1 Accessing the FPP

This plan is to be used by site management, the Emergency Response Team, as well as any relevant contractors.

This Fire Prevention Plan will be kept on the sites shared drive with access for all Biffa staff with computer access. Hard copies of this document will be displayed on the Health and Safety noticeboard, as well as in the Shift Supervisors office (control room).

1.4.2 Staff Training

1.4.2.1 Inductions

Inductions are mandatory for every employee and contractor working on site and are delivered before any work is allowed to start. Inductions cover health, safety, environmental and quality awareness and highlight associated hazards and risks and how these apply to site activities. Employees are inducted at

the start of their employment with signed induction forms placed in personnel files. Contractors are inducted when they first arrive with inductions remaining valid for a year (unless significant changes to procedures which would then require re-induction of all contractors). A list of approved and inducted contractors is maintained, and signed induction forms filed in the Contractors Induction File for safekeeping.

1.4.2.2 Role Specific Training

Role Specific Training covers specific training needs that have been identified for each job role at Biffa West Sussex. These are recorded and maintained on the Role Specific Training Matrix (WS017), which covers general awareness of health, safety, and environmental aspects as well as legal and mandatory training – this also includes fire awareness training. An example of the training matrix is provided as Appendix D of the Management Plan and the current versions of this can be viewed at site. The Training Matrix (Excel) will also indicate where a refresher course is due (set at <60 days from expiry) and the status of the training matrix is discussed during the monthly Safety Improvement Team meetings.

Members of the Emergency Response Team are trained against WS073 (Emergency Response Plan) to understand potential emergency scenarios and to discuss appropriate action in each case. Training recorded using form WS198 (Certificate of training) and a paper copy filed in personnel training folder.

1.4.2.3 Emergency Response Training

All staff are required to understand the following emergency response: raising the alarm, leaving the site in a timely manner and mustering at the roll call point; this information is covered in the new starter inductions, as well as contractor inductions.

The Emergency Response Team (ERT) are required to understand the necessary protocols in the Emergency Response Plan which includes following the emergency response principles detailed in the Fire Prevention Plan. The emergency response team consisting of the Site Duty Safety Officer, Fire Marshalls and First Aiders. The list of ERT and the requirements for the role and responsibilities are listed under the site's emergency response plan WS073 (section 7.0). Internal training is provided for the ERT (renewed every 3 years) and managed through the Role Specific Training Matrix (WS017).

1.4.2.4 Contractor Procedures

Contractors engaged to work at Biffa West Sussex are required to complete the contractor induction. The induction outlines and communicates the relevant Health, Safety, Environmental and Quality information needed at Biffa West Sussex MBT facility. Permits to work, method statements and risk assessments are all communicated to contractors prior to the commencement of work. It is the responsibility of the job sponsor or permit to work issuer to ensure that the contractor induction is completed and permit to work are issued.

1.4.3 Testing The FPP

Fire evacuations will be conducted at least once a year to ensure that staff are aware of correct procedures and their role responsibilities. Periodic joint exercises will also be carried out with local Fire and Rescue Services and any relevant learnings will be incorporated into the FPP.

1.4.4 Reviewing The FPP

This plan will be reviewed annually, and also if any changes are made to the site or operating procedures which directly impact the prevention of fire.

2. Activities At The Site

2.1 Site General Activities

The main purpose of the MBT facility is to fulfil the requirements of the West Sussex County Council Materials Resource Management Contract (MRMC) which requires the treatment and diversion from landfill up to 300,000 tonnes per annum of Municipal Solid Waste (MSW). The MSW is collected directly from households in West Sussex or via Household Waste Recycling Sites (HWRCs).

The facility does not manage recyclables which are segregated at source by householders. These are collected separately and managed entirely independently at other sites.

The installation comprises two main treatment elements which together make up the MRMC MBT facility.

1. Mechanical separation of wastes; and
2. Anaerobic Digestion (AD).

The combined treatment capacity is 327,000 tonnes per annum, of which approximately 120,000 tonnes per annum is treated via AD. The treatment outputs include refuse derived fuel (RDF), digestate in the form of compost like output (CLO), a number of separated recyclates and a small fraction of materials which are destined for final disposal.

The process also includes three combined heat and power (CHP) engines which combust the biogas generated by the AD process to generate up to 4.5MW electrical energy and thermal energy. Electricity is used to power the MBT and export to the national grid.

A new discrete waste storage and transfer area (known as Site Ha) is located to the west of the main MBT facility and will be used to manage the storage and export of treatment outputs (RDF and CLO).

The site surfacing mainly comprises concrete.

2.2 Main MBT Building

2.2.1 Building Structure

The purpose built MBT building is covered by steel sheet cladding on a braced steel frame. The ground floor slabs consist of reinforced ground bearing concrete. The building covers approximately 12,000 sqm over 4 floors.

The building is sub-divided into the areas below.

2.2.2 Waste Reception Hall

The reception hall is housed within the MBT building and accessed via automatic doors operated for vehicle access and egress to minimise the release of odours from the facility. The area is divided into two:

- Black bag municipal waste reception area comprises two 10m deep concrete pits designed to house approximately two days or approx. 5,600 m³ of incoming waste when operating at full capacity; and
- An offloading area for HWRC materials to be discharged directly onto the concrete floor – this area is approximately 28m x 14m x 3.5 m and holds around 1,372 m³ of material or approximately 1.7 days storage when operating at full capacity.

The reception hall also incorporates internal travelling grab cranes to feed the process shredder. The waste reception hall is built as a fire compartment with the fire walls between the reception hall and the processing plant being fire rated for 2 hours. In addition the reception hall has the following controls in place to reduce the risk of fire:

- storage pits for municipal waste and storage bays for HWRS waste are monitored by thermal imaging detection;
- the reception hall has a high level sprinkler system covering all areas:

- the reception pits and HWRS storage areas each have water cannon systems for suppression;
- there is under conveyor suppression units on the mechanical MPT plant;
- each of the three shredders is equipped with under and over conveyor suppression units; and
- hydraulics oils in each shredder has been replaced by a low flammability hydraulic fluid.

Rainwater from the roof is linked to the rainwater harvesting system.

2.2.3 Process Hall

The Process Hall is directly linked to the Waste Reception Hall by the conveyor systems, with penetrations through the 2 hour compartment wall being protected by the sprinkler system.

The process technology has been designed by Haase and includes shredding, screening, ballistic and near infra-red separation, overband magnets, eddy current separation, mixers and sand separation to achieve:

- Separation of ferrous and non-ferrous metals for recycling;
- Separation of high CV material into RDF for energy recovery;
- Removal of heavy materials to be sent to landfill; and
- Production of fine fraction to be used in the AD process.

In the mechanical pre-treatment plant, the waste is separated into several waste streams to enable recycling, recovery or disposal. By separating metals and high CV waste, a substantial amount of residual material is used for recovery and energy production. The organic fine fraction for the AD stage is also separated at this time.

Integrated into the process hall structure are the site welfare, control room and visitor viewing facilities. Placing the site welfare facilities in this location provides greater safety, by isolating pedestrian movement from the vehicular movements.

2.3 Anaerobic Digestion

The anaerobic digestion facility comprises the following process stages:

- Homogenisation is used to mix the pre-treated waste (fine fraction) with process water in order to suspend the organic waste and generate a pumpable slurry with a solid content of less than 10%;
- Sand separation processing enables inert material, comprising sand, glass, plastics and ceramics, to be separated in order to maximise the organic content, minimise the inorganic content and prevent the process tanks from silting in the subsequent treatment stages;
- Aerobic hydrolysis stage is used to break down long chain polymers into short-chained organic acids, alcohol, hydrogen and carbon dioxide and facilitates commencement of anaerobic digestion. Iron chloride is added in this stage which assists in the prevention of hydrogen sulphide production; this is performed in a closed system which provides controlled and optimised conditions, while preventing odour emissions;
- Anaerobic digestion, using microbial degradation, of the organic waste substances with simultaneous biogas production;
- Biogas power generation, using three Combined Heat and Power (CHP) engines to generate electrical and thermal energy;
- Compost dewatering, using a mechanical dewatering process, followed by thermal drying of the dewatered digestate using the exhaust heat from the CHP plant; and
- Process water is directed to a membrane bio-reactor (MBR) plant for treatment, and is then reused for slurring the organic waste fraction before digestion takes place.

2.4 Outputs Waste Storage and Transfer Area

The Site HA area is designed to store RDF, either loose or baled ready for future onward transport off-site for recovery in the UK or abroad, as described below:

- The site design is to manage up to 36 enclosed containers or curtain sider vehicles which will be used for the onward transport of either baled or loose RDF for further processing. The trucks will be delivered to site empty, and a full trailer will be collected.
- Alternate bays will be used for the full and then empty containers/trailers so the drivers will be informed by the weighbridge at the MBT to drop the empty container/trailer in bay 1 and collect the full container/trailer from bay 2. This way the MBT Operations and Logistics team will be able to control the trailers ensuring that there is a good rotation of the trailers.
- All trailers will either be sealed curtain-siders or contained ROROs or shipping containers . All loading of vehicles will take place in the MBT building.
- The RDF will be stored for a maximum 72 hours (i.e. from a Saturday pm to Tuesday am following a bank holiday).
- The area where the trailers will be parked will be controlled for run off into the site lagoon. Flow from the lagoon which will be tested to ensure it can be released to the surface water system. If that is not the case, then the run-off water will be transferred to the MBT for processing.
- It is also proposed to allocate a controlled area for the storage of containerised covered CLO, this material will be a by-product of the food waste process and will be taken to land spreading within the vicinity of the site during the week, Over the weekends CLO will need to be stored ahead of transport from the site. The rainwater run-off from this area will be contained and processed at the MBT. This is shown as the area as a magenta coloured box on drawing 21501-KP-GF-DR-S-3011 -01 (Appendix A).
- Total waste storage (daily max) is estimated at 450 tonnes of RDF and estimated 100 tonnes of digestate.

The area will not be utilised for any waste processing activities and will be constructed from concrete designed to relevant British Standards, with falls which facilitate surface water drainage.

2.5 Ancillary Areas

2.5.1 Weighbridge Office and Weighbridges

There are three 18m pit mounted weighbridges (two in and 1 out) located at different points along the one way system (Street One, Eastern Avenue and Street 3) each with an associated weighbridge office.

2.5.2 Site Roadways

Pavements, and roads are constructed from concrete designed to relevant British Standards, while pavements are laid to falls which facilitate surface water drainage

2.5.3 Site Parking

Car parking for staff and visitors is provided to the south of the main building and provides the following:

- 47 car parking spaces for employees and visitors including 2 disabled spaces;
- area for coach parking; and
- a bus shelter.

2.5.4 Visitor Centre and Office

The visitor centre and office building located to the south of the main MBT building is constructed with concrete frame and floors. The roof is a metallic profiled deck with mill finish aluminium standing seam finish. Walls are a steel stud/masonry system finished with proprietary panel cladding. Windows and

doors will be a proprietary aluminium system. Opening windows are top hung, all fitted with trickle ventilators.

Internal walls and partitions will be plasterboard on metal stud, with the exception of wet areas which will be blockwork.

A cycle shelter is located at the east side of this building.

2.5.5 Site Security

The operational area of the MBT site is enclosed by a continuous 2.4m high coated security fence. The entrance gate consists of a heavy duty double gate.

A Closed Circuit Television (CCTV) camera system consisting of static and pan tilt and zoom (PTZ) cameras monitor the site. CCTV images will be viewable from the Weighbridge Office and central control room.

2.5.6 Site Surface Water Drainage

Drainage is designed in accordance with all relevant local Building Regulations.

Clean surface water accumulating from non-waste storage and processing areas in the main MBT area drains to the site lagoon located adjacent to the southern boundary of the facility from where it is discharged to surface water in accordance with the provisions of consent issued by the Environment Agency (EPR/BB3399EE). Discharge is to Boldings Brook.

In relation to the new waste storage and transfer area, the area where the RDF trailers will be parked will be controlled for run off into a new site lagoon. Flow from the lagoon which will be tested to ensure it can be released to the wider surface water system for discharge under EPR/BB3399EE. If that is not the case, then the run-off water will be transferred to the MBT for processing.

2.5.7 Foul Water Drainage

Waste water from the MBT process is treated in a membrane bioreactor (MBR) and recycled back through the process. In the event that this water can't be reused then it is discharged to foul sewer under a trade effluent consent.

The rainwater run-off from the CLO storage and transfer area will be contained in dedicated drainage and transferred for processing in through the MBR plant at the MBT.

2.5.8 Fuel Oil and Additive Supply

Storage tanks for fuel include 2 above ground diesel tanks (10m³ capacity each) on street 3 which are used to supply site vehicles and mobile plant and 1 above ground tank (35m³ capacity) located by the chemical bund which is used to supply the boiler and other fixed equipment and plant.

Chemical storage tanks include iron chloride (30m³ capacity), sodium hydroxide (30m³ capacity) and acetic acid (30m³ capacity) have been designed in accordance with industry standards, and each are provided with level indication and alarms to minimise overflow risk, and pipe-work, valves and fittings are set within the containment bund;

Secondary containment is provided for all fuel and chemical storage tanks, the bunds for which are constructed in accordance with relevant standards and will be capable of holding 110% of the tank volume;

Daily site inspections check all containment bunds and plant areas for signs of leak or defect – repairs will be undertaken promptly and accumulated material in the containment bund will be removed to ensure that containment capacity is not compromised.

2.5.9 Utilities

The Brookhurst Wood MBT facility has:

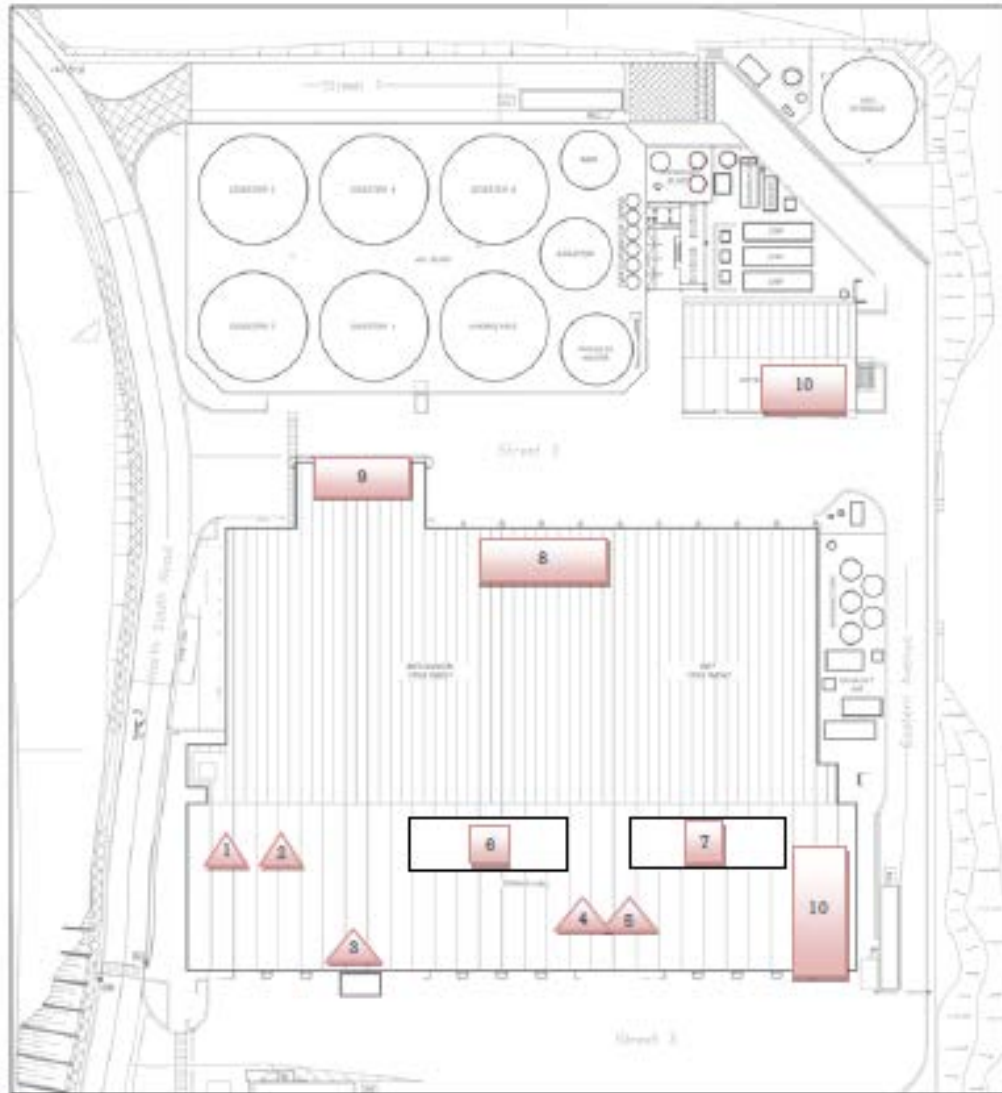
- 3 combined heat and power engines of which only 2 run at any given time, the third is on standby as backup. The thermal energy input of each engine is 3.5MW if at full load;
- Ground flare which is used if the gas engines are non-operational and the level of the biogas storage has reached the relevant limit value;
- a backup boiler 1 MW which is only used if not enough heat is produced from the engines;
- an emergency diesel generator which can create 1MW, however this is only in the event of a power failure; and
- connection to the national electricity grid for import/export purposes.

3. Types of Combustible Materials

3.1 Combustible Waste

The storage arrangements for combustible wastes (incoming and product) on site are shown on Figure 1 and in Table 1 on the following page.

Figure 1. Site Layout Showing Waste Storage Locations







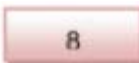





	HWRS Waste Pile Bay A (200T max)			Waste Pits: 30x8x10m. 1,250T max each pit
	HWRS Waste Pile Bay B (200T max)			MPT bins (26m ³): 2 x Fine rejects; 2 X Heavy Rejects; 4 X Metals; 2 x Organics
	Heavy Rejects /RDF Pile – 200T max			RDF Artic (32 m ³) x 1
	Fe Metals – 40T max			Digestate bins (26m ³): 2 x Dewatered (30% dry solids); 2 x Dried (70% Dry Solids).
	Fe Metals – 40T max.			

Table 1. Waste and Product Inventory

Waste/Product	Form	Risk	Storage Location	Maximum Stockpile Dimensions				No of Stockpiles	Quantity Received Daily	Max Storage Time	How Material is stored	Management Arrangements
				Height/Depth (m)	Length (m)	Width (m)	Max Volume Stored					
Internal Storage												
Incoming MSW Stock	Solid - Black bag and loose waste	Fire/ Environmental	Reception hall	12	10	8	1,250 T per pit (1400 m ³ /pit)	2	550 – 650 T	72 Hours	Reception pits No 1 and 2	Ongoing stock rotation.
Incoming HWRS Stock	Solid- Loose waste	Fire/ Environmental	Reception hall				400T (700 m ³)	2	90 – 140T	1 week	Designated HWRC bays 'A' and 'B'	Process all stock each week (Mon – Sat)
Heavies Stock	Solid - Shredder loose waste	Fire/ Environmental	Reception hall	8	8	8	400T (700 m ³)	1	100 – 200 T (from process)	1 week	Reception hall between bays 8 and 9	Ongoing stock rotation
Digestate Stock	Solid - Processed organic stock	Fire/ Environmental	Reception hall	-	-	-	150T (130 m ³)	Various	60 – 80T (from process)	3 – 4 days	RORO containers located in reception hall (Door 1). Some are dewatered and some are dry.	Collection arranged once full load capacity reached
Metals Stock (Fe and Non-Fe)	Solid - shredded loose waste	Fire/ Environmental	Reception hall	2	8	8	40T Fe 30T non-Fe	2	15 – 18T (from process)	7 – 10 days	Skips in reception hall	Stock rotation
MBT External												
Baled RDF stock	Solid from shredder, baled	Fire/ Environmental	RDF loading area	1	1	1	273 T (294 m ³)	Max 210 Bales	From process daily	1 – 2 days	Stored as bales in the RDF loading area	Ongoing stock rotation
Biogas (approx. 60 – 75% CH ₄)	Gas	Fire / Environmental / H ₂ S / Explosion	Gas Island/dome	12.6	16.8	-	1,050 – 2,100 m ³	N/A	13,000 m ³	N/A	Enclosed gas delivery lines to gas island dome.	Processed through CHP engines and flare
New Discrete Waste Storage and Transfer Area												
Baled RDF Stock per vehicle	Solid from shredder, baled	Fire/ Environmental	Site Ha storage and transfer area	2.7 (doubled stacked)	13.6	2.5	93 m ³ per trailer	Max 18 trailers with waste at any one time	23 – 28 T / trailer	72 hours	Curtain sided trailer	Ongoing stock rotation
Loose RDF Stock per vehicle	Solid from shredder, loose	Fire/ Environmental	Site Ha storage and transfer area	2.7	13.6	2.5	93 m ³ per bulk wagon		23 – 28 T / trailer	72 hours	Sheeted articulated trailer	Ongoing stock rotation
Digestate Stock per vehicle	Solid - processed loose organic	Fire/ Environmental	Site Ha storage and transfer area	2.7	13.6	2.5	93 m ³ per trailer	N/A	23 – 28 T / trailer	72 hours	Sheeted articulated trailer	Ongoing stock rotation

All external storage is managed within the designated storage areas shown in Appendix A. The actual layout of stockpiles within the area is fluid to enable efficient operational activities and to provide flexibility of stockpile volumes. Stockpile sizes and spacings will be in accordance with industry guidance and stock rotation managed locally to prevent spontaneous combustion.

3.2 Other Combustible/Hazardous Materials

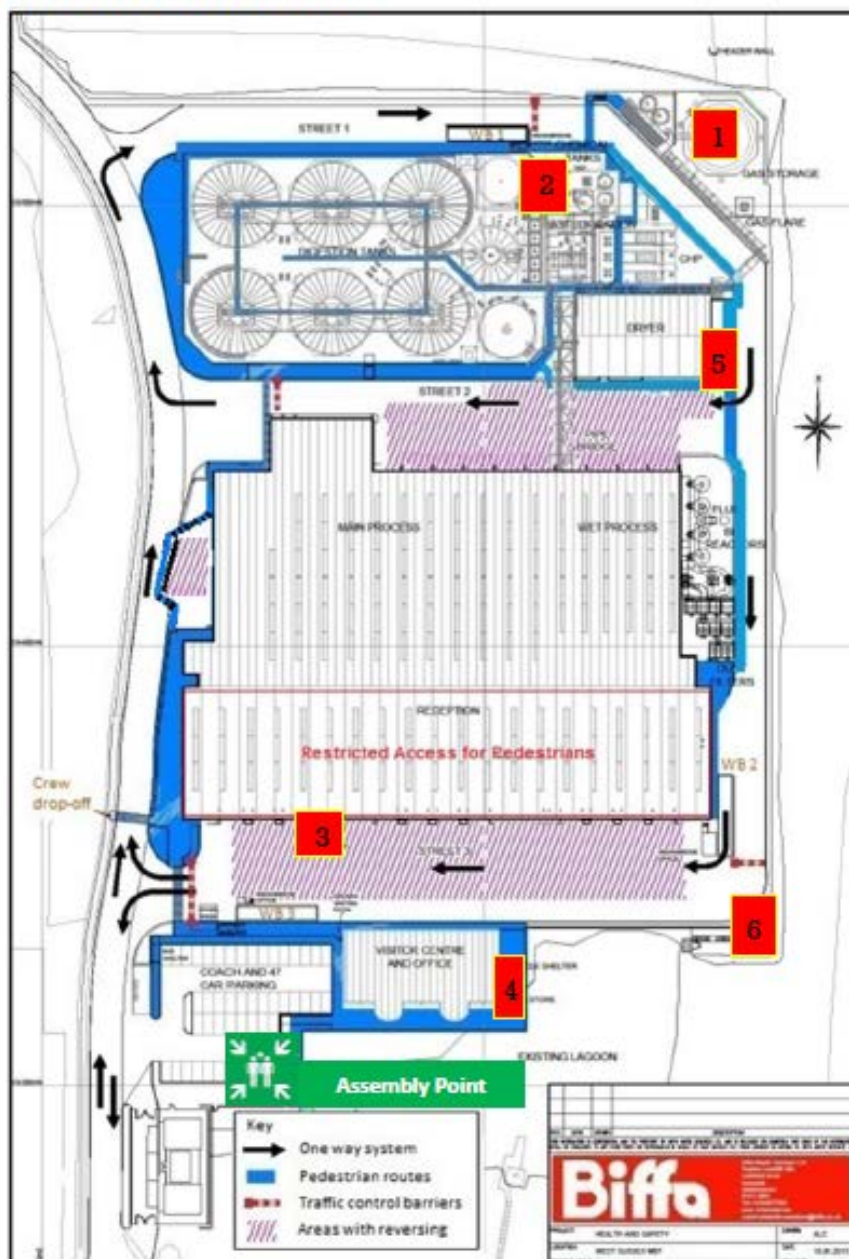
The storage arrangements for hazardous substances on site are shown and in Table 2 and on Figure 2 following page.

Table 2. Other Chemical Inventory

Product	State	Hazard	Max Quantity (Peak times)	Location	Control
Ferric Chloride (40%)	Liquid	Corrosive	30 m ³	Chemical bund	Fixed Storage Tank
Caustic Soda (25%)	Liquid	Corrosive	30 m ³ tank 1 x 1,000L IBC	Chemical bund in service bioreactor	Fixed Storage Tank
Acetic Acid	Liquid	Corrosive	30 m ³	Chemical bund	Fixed Storage Tank
Glycerine	Liquid	Corrosive	30 m ³	Parked - street 2.	HGV Tanker trailer
Citric Acid	Liquid	Corrosive	1 x 1,000L IBC 20 x 25L containers	Dryer building chemical store	Inside designated bunded chemical storage
Hydrochloric Acid (15%)	Liquid	Corrosive	1 m ³	IBC (Chemical Offloading)	Inside designated bunded chemical storage
Diesel	Liquid	Flammable – serious health & environment hazard	10 m ³ red 10 m ³ white	Tanks – street 3	Fixed Double Skinned Storage Tank
Diesel	Liquid	Flammable – serious health & environment hazard	35 m ³ red	Tank by emergency generator (CHP area)	Fixed Double Skinned Storage Tank
CHP Oil (clean & dirty)	Liquid	Serious health & environment hazard	3 m ³	Adjacent to CHP	Fixed Double Skinned Storage Tank
Dirty Oil	Liquid	Serious health & environment hazard	3 m ³	Eastern side of dryer building	Fixed Double Skinned Storage Tank
Propane & Acetylene	Gas	Flammable – as under pressure	2 cylinders of each gas	East side of visitors centre	Workshop gas bottle storage area – locked entry (padlock 504)
Oxygen	Gas	Flammable – as under pressure	2 cylinders	East side of visitors centre	Workshop gas bottle storage area – locked entry (padlock 504)
Nutrient buffer solution	Liquid	Corrosive	1,000 L	Bioreactors – east side of street 2	Bunded day tank
pH buffer solution	Liquid	Corrosive	1,000 L	Bioreactors – east side of street 2	Bunded day tank
Polymer flocculant	Liquid	health & environment hazard	1 x 1,800L tank 3 x 3,000 L IBC	Dryer building chemical store	Bunded day tank
Free foam / antifoam	Liquid	Low hazard	1 x 1,800L tank 4 x 3,000 L IBC	Dryer building chemical store. Street 1	Bunded day tank
Antiprex / antiscale	Liquid	Low hazard	1 x 500L tank 2 x 3,000 L IBC	Dryer building 'Door D'	Bunded day tank
Sodium bicarbonate	Powder	Low hazard	125 x 25kg bag 2 x 1T bag	Dryer building 'Door 36'	Dry product pelletised
Ferric Oxide	Powder	Low hazard	15 x 20kg bag	Inside wet pre-treatment	Bags on pallet
Ferric Hydroxide	Powder	Low hazard	15 x 20kg bag	Inside wet pre-treatment	Bags on pallet
Activated carbon	Solid	Low hazard	30 x 1T bags	Street 1	Ordered just in time and temporarily stored several days on curtain-sided trailer
Various lubricants, maintenance chemicals	Liquid	Low hazard	25 l containers	Chemical store on street 3	Inside designated bunded chemical storage

Figure 2. Hazardous Materials Storage Areas

1. Gas Bag
2. 35k diesel tank loading point (underground tank)
3. 2x 10k diesel tanks loading point
4. Acetylene gas cylinder storage area
5. Waste oil storage (max. 5000 ltr capacity)
6. Hazardous waste (rejected from process)



3.3 Persistent Organic Pollutants

The type of waste brought onto site should not contain items that contain Persistent Organic Pollutants, unless disposed of incorrectly by a member of the public. The Multi Skilled Operator (MSO) will undertake a visual inspection before placing waste into the shredder and, in the unlikely event that an item was encountered, it would be removed. These items would be removed from the Reception Hall

and placed in the designated Hazardous Waste cage outside Door 1 for removal to a suitable permitted facility for destruction or irreversible transformation by the Biffa Hazardous Waste team.

Smaller items such as batteries may be present in the black bag waste. Given the volumes of black bag waste received and the depth of the reception pits these are not able to be individually removed at the point of receipt, however these will be removed via the metals sorting process and will not be in the RDF output. Any batteries located and removed from the waste will be placed in an appropriate battery box/container and will be removed for offsite treatment by the Biffa Hazardous Waste Team.

4. Site Plans and Maps

The following site plans are provided in Appendix A

Table 3. Drawings and Plans

Drawing Number	Title	Description
Main MBT Area		
A.00.PL.XX.037	MBT Fire Strategy – Site Layout	Layout of main MBT showing layout of buildings including locations of materials storage (e.g. fuels, wastes, gas cylinders and chemicals), location of processing plant and where mobile plant is stored when not in use.
C.00.PL.XX.160	General Arrangement of main MBT	Main MBT area plan showing drainage runs, underground storage tanks and locations of drain closure valves.
C.00.SM.XX.FIG1	Surface Water Drainage	Schematic of the main MBT area surface water drainage including isolation
Site Ha Waste Storage and Transfer Area		
WZD230500	Waste Storage & Transfer Area Layout	Site Ha waste storage and transfer area showing layout of trailer storage bays and CLO storage area and lagoon.
WZD230700	Site Ha Drainage Plan	Drainage arrangements for site Ha waste storage and transfer area.
Site Wide		
WZD231000	Brookhurst Wood Site Access Routes	Shows the location of main access routes for fire engines, access point.
WZD231100	FPP – Sensitive Receptor Plan	Shows all sensitive receptors within a 1km radius along with predominant wind direction.

5. Sensitive Receptors

5.1 Site Location

The site is located approximately 1km to the north of Horsham and 1.5km north east of Warnham, with the village of Kingsfold around 2km to the north west as shown in Figure 3 below. The site has two discreet areas:

- The main MBT area occupies an area of 3.9 hectares at NGR TQ 1720 3480.
- The Site Ha waste storage and transfer area is located at grid reference National Grid Reference (NGR) E517105, N134659 and extends to an area of 1.5 hectares.

The main A24 and A264 roads run approximately 800 metres from the western and southern site boundaries respectively (nearest approach) and the Horsham – Dorking railway line runs about 200 metres from the western site boundary.

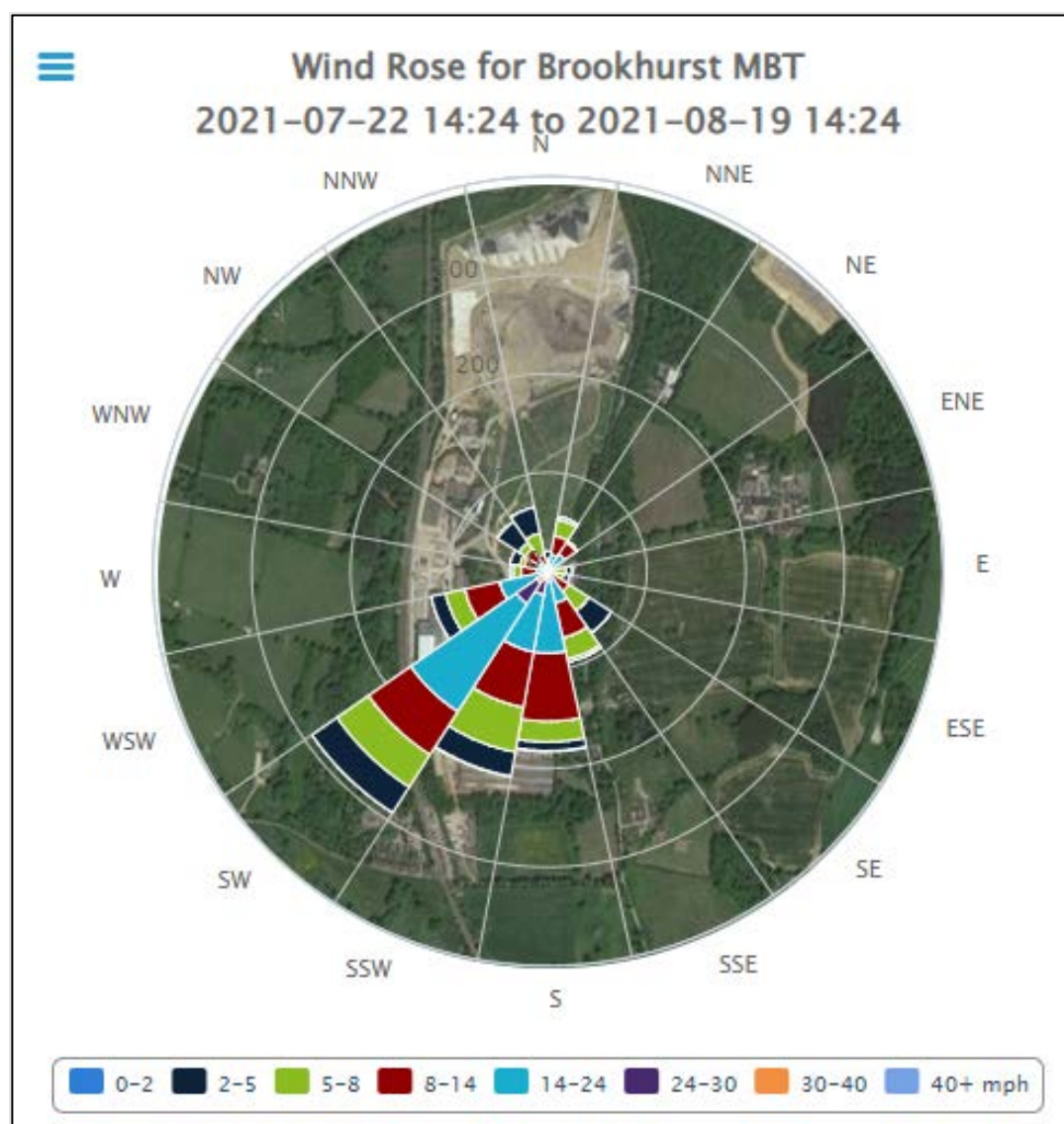
Figure 3. Site Location



5.2 Principal Wind Direction

Compass rose showing north and predominant wind direction (i.e. from the south-west) is presented in Figure 4 on the following page.

Figure 4. Windrose



5.3 Residential Receptors

The extent of residential receptors within a 1km radius of the site is shown on Drawing WZD231100 in Appendix A. The start of each main residential area and its proximity to the site is shown in the table below – the receptor ID is shown on the drawing for ease of reference.

Table 4. Residential Receptors

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R1	Graylands Industrial Park	Residential	619	E
R2	Graylands Lodge	Residential	309	E
R3b	Graylands Farm Residence	Residential	527	SSE
R4a/b	Andrews Farm	Residential	564	SSW
R5a/b	Lower Chickens Farm	Residential	782	WSW
R6	Cox Farm Lodge	Residential	570	W
R7	Cox Farm	Residential/Farm	338	W
R9	Orchard Lodge	Residential	605	NW
R10a/b	Durford Hill Farm	Residential/Farm	775	NNW

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R15	South Lodge	Residential	413	NE
R17	Langhurst Moat Cottage	Residential	341	SSE
R19	Gunborn Crossing Cottages	Residential	840	N
R20	Nowhere House	Residential	884	NNW
R21	Richmond House	Residential	945	NNW
R22a/b	Wood Farm	Residential/Farm	1,098	NNW
R23	Upper Chickens – Houses	Residential	1,113	NNW
R24	Highland House, The Mount & other residences	Residential	674	NW
R26	Geerings	Residential	908	W
R27	Police House & adjacent residences	Residential	869	SW
R28a/b	Westons Farm	Residential/Farm	794	SSW
R29	Lower Gate House	Residential	502	S
R30a/b	Pondtail Farm	Residential/Farm	816	SSE
R35	Wealdon	Residential	398	SSE
R40	Houses on Station Road	Residential	469	S
R41	Little London Hill	Residential	656	W

5.4 Community Receptors

Community receptors within 1km radius of the site are shown on Drawing WZD231100 in Appendix A and the closest are identified in the table below.

Table 5. Community Receptors

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R16	Boldings Brook Academy	School	613	NW
R37	Sussex Health Centre	Nursing Home	633	NW
R42	Vale Stud Riding School	Leisure	1,011	NNW

5.5 Other Workplaces

Other workplaces which are located within a 1km radius of the site are shown on Drawing WZD231100 in Appendix A. Those businesses which are closest to the facility and may be directly impacted by a fire at the facility are shown in the table below.

Table 6. Other Workplaces

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R1	Graylands Industrial Park	Commercial	619	E
R8	Sussex Camper Vans	Commercial	548	NE
R11	Fisher Clinical Services	Industrial	756	N
R12	Broadlands Business Centre	Commercial	1,055	NNE
R13	Weinerburger Brickworks and adjacent Business Park	Industrial	281	SSE
R18	Holmwood	Commercial	1,052	NNE
R23	Upper Chickens – Pet Supply Company	Commercial	1,113	NNW
R25	Dog & Duck Pub	Commercial	895	NNW
R31	Britaniacrest Recycling	Industrial	103	SE
R32	Biffa Landfill and ATRF	Industrial	173	E
R33	Panel 2 Panel & Greens	Commercial	415	S

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R34	Sewage Works adjacent to Farm	Industrial	423	SSW
R36	Denhams Auctioneers	Commercial	590	NW
R38	Male Journey	Commercial	653	NW
R39	White Cottage Cake Company	Commercial	698	NW

5.6 Sensitive Infrastructure

5.6.1 Roads

The site is bounded to the immediate east by Langhurstwood Road which also provides the only access point to the facility. Other main roads in the area include:

- A24 Dorking Road lies approximately 500m to the west;
- Mercer Road lies approximately 420m to the south;
- A264 lies approximately 835m to the south; and
- Station road lies approximately 885m to the south south west.

5.6.2 Railways

Railway line runs along the western boundary approximately 20m from of the site installation boundary and the Warnham station is located approximately 453 m to the south.

5.6.3 Power Supplies

There are some site power lines within the wider Brookhurst Wood site associated with the landfill gas compound.

The closest substations are located in over 1km from the site at Horsham (to the south) or Capel (to the north).

5.6.4 Wastewater Treatment

There is a Southern Water Sewage treatment plant approximately 423m to the south-south-west of the Warnham brickworks and the main London railway line. The treatment plant also discharges into Boldings Brook.

5.7 Sensitive Environmental Receptors

5.7.1 Habitats

- The application site does not lie in, or have any overlaps with, any statutory, non-statutory or international designated sites;
- The Warnham Site of Special Scientific Interest (SSSI) lies approximately 446m to the north-east of the site boundary and is designated for its national geological interest. The SSSI is represented by Langhurst Wood brick pit, which is an important exposure of the Lower Weald Clay Group above the Horsham Stone, and provides evidence of a range of depositional environments;
- The Warnham local nature reserve (LNR) lies approximately 943 m to the south of the site boundary;
- There are a number of Local Wildlife Sites (LWS) within 2km of the site, including; Benland Wood, Brookhurst Wood, Brookhurst Gill and Morris' Wood, Tickfold Gill and Warnham Mill Pond;
- There are three sites with non-statutory designations present within 2km of the site boundary. These are Sites of Nature Conservation Importance (SNCI) designated for their ecological value in a local context and are included in the Horsham District Local Plan:

- Brookhurst Wood, Brookhurst Gill and Morris' Wood, Horsham (SNCI H07);
 - Warnham SNCI (SNCI H51); and
 - Tickfold Gill, Kingsfold (SNCI H11).
 - Warnham SNCI is also designated as a Local Nature Reserve (LNR).
- There are areas of woodland within 1km of the site, in all directions as summarised in **Table 7** below.

Table 7. Habitats

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R43	Unnamed Woodland	Woodland	220	W
R44	Unnamed Woodland	Woodland	241	E
R45	Unnamed Woodland	Woodland	1,026	N
R46	Cox Farm Copse	Woodland	377	NW
R47	Unnamed Woodland	Woodland	224	S
R48	Unnamed Woodland	Woodland	700	SW
R49	Graylands Copse	Woodland	752	SE
R50	Unnamed Woodland	Woodland	427	SSE
R51	Graylands Plantation	Woodland	923	E
R52	Unnamed Woodland	Woodland	703	NNW
R53	Unnamed Woodland	Woodland	1,309	NNW
R54	Unnamed Woodland	Woodland	915	NNW
R55	Cox's Shaw	Woodland	1,102	NW
R56	Rat's Plantation	Woodland	877	SW
R57	Holbrook Plantation	Woodland	1,006	ESE
R58	Brookhurstwood	Woodland	887	NE

5.7.2 Hydrogeology and Hydrology

In respect of hydrogeology and hydrology, the site is:

- Situated on Weald Clay Formation, which generally has a negligible permeability and is regarded as a non-aquifer, which means that it is regarded as having insignificant quantities of groundwater. There are no sandstone or limestone bands evident within the clay which could act as a local groundwater source;
- Situated to the east of superficial Alluvium deposits which are designated as a Secondary A aquifer, meaning they can support local water supplies and provide a base flow source to rivers.
- Not located in a ground water source protection zone and no groundwater source protection zones within 2km of the site;
- Not located within 1km of any licensed groundwater abstraction sites;
- Not considered to be susceptible to fluvial/marine or marine flood;
- There are a large number of consents for trade /sewage/wastewater discharges into Boldings Brook, from surrounding industrial and residential sites.
- Surface water bodies within 1km are summarised in **Table 8** below

Table 8. Surface Water Receptors

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R58	Boldings Brook	Waterway	836	W
R59	Little Brookhurst Gill	Waterway	685	N
R60	Great Brookhurst Gill	Waterway	823	NE
R61	Geerings Gill	Waterway	416	SW

Receptor ID	Description	Type	Approx. Distance (m) at Closest Point	Direction from Site
R62	Durfield Gill	Waterway	824	NW

6. Common Causes of Fire - Prevention Measures

This section details the measures undertaken to minimize the risk of fire for the following common causes of fire.

6.1 Arson and Vandalism

In relation to the prevention of fire due to arson, the following measures are in place:

- The operational areas of the main MBT site are enclosed by a continuous 2.4m high coated fence and access is only achievable through the lockable main site entrance.
- Access to the Site Ha waste storage and transfer area is via lockable gates installed at the road entry to MBT. The area is bordered by fencing, brickworks, conveyor and the train tracks to the rear of a fire wall, which is only accessible across difficult, wild terrain.
- Site developed SOP (Safe Operating Procedures) and trained out shift supervisors in lockdown procedure.
- The MBT and Site Ha areas site are monitored by a closed circuit television (CCTV) system. The system is monitored by means HD monitors in the main control room.
- The site control room is manned 24 hours per day, 7 days per week..

6.2 Plant and Equipment

6.2.1 Plant and Equipment Use

The site utilises:

- Static MBT plant for the processing of the residual waste streams;
- Conveyors for moving waste through treatment processes and pipeline systems to transport materials such as reagents around the facility; and
- Mobile plant (loading shovels) for the handling of materials around the facility.

The site controls include:

- A maintenance and inspection programme for static and mobile plant and equipment has been developed based on manufacturers specifications. This is managed through a Pirahna Computerised Maintenance Management System (CMMS);
- Unplanned breakages are dealt with as soon as practicable. The site maintains critical spares which means that the mechanical and/or electrical engineer on each shift can fix most breakdowns without outside assistance. For more complex failures, Biffa have Service Level Agreements (SLA)s with many critical equipment suppliers which includes an agreed call out procedure and means that any equipment failure is rectified in a timely manner. Information on the arrangements for call-out and repair of critical equipment is included in the site Emergency Response Plan.
- Operators completing pre-use checks;
- Mobile plant and onsite vehicles are fitted with fire extinguishers; and
- Mobile plant that is not being used will be parked away from combustible waste. Operators will check when vehicles are being parked to ensure that no wastes have been trapped under or near hot exhausts.

6.2.2 Design Considerations

The design of the facility was subject to detailed HAZOP assessment to identify appropriate control measures and consideration was given to Dangerous Substance Explosive Atmospheres Regulations (DSEAR) requirements including:

- a. Hazardous area classification (zoning) – such areas are identified and signed;

- b. Controls such as spark detection/suppression, pressure release systems and water deluge systems or similar were included where appropriate; and
- c. Equipment within any identified zoned areas has the appropriate ATEX rating.

The ATEX zones (AD Bund and gas island) for the site are shown in Figure 5 on the following page.

6.2.3 Maintenance and Inspection

All plant items and equipment is serviced and maintained according to manufacturer's schedules and recommendations in order to minimise the risk of breakdown. This will include:

- A significant element of planned preventative maintenance will be incorporated to ensure high performance and availability of plant;
- Descriptions, along with procedural steps and responsibilities, will be allocated and records kept, with a sign-off document for any issues encountered;
- The maintenance scheduling will make reference to any statutory requirements and manufacturer's recommendations;
- Major maintenance work will be documented and records kept for inspection in the Pirana system;
- Mobile and fixed plant will be subject to a first use check on a daily basis to facilitate defect detection and reporting; and
- Defects will be logged and reported to the Biffa site-based maintenance team so that repairs can be scheduled; any repairs will be completed as soon as practicable. Defects will be logged with the mechanical and/or electrical engineer which form part of each shift team and who will undertake repairs as required. These items are logged on the End of Shift reports (EOS) as well as on the Near Miss Hazard Tracker (NMHT)

6.3 Electrical Faults

The electrical engineering services and systems were designed in accordance with the requirements and recommendations of the relevant section of the following standards:

- Building Regulations – current edition;
- Relevant British and ISO standard specifications and codes of practice;
- Electricity at Work Regulations;
- Current Edition of the IET Wiring Regulations; and
- Chartered Institution of Building Services Engineers Guides and Technical Memoranda.

Mains/electrical plant rooms are enclosed and constructed to appropriate fire resistance standards. The following measures have been employed:

- Sealing points where cables leave and enter mains rooms via ducts, tunnels, etc to prevent fire spread;
- Use of thermal imaging cameras in regular surveys to detect electrical faults early and reduce the risks involved;
- Control panels which are constructed to a suitable IP (protection) standard to prevent dust ingress; and
- Fitting electrical rooms with automatic fire detection, Fire suppression and manual call points.

Main switchboards and distribution boards are fitted with surge protection and circuit breakers. Each socket outlet is protected by a residual current breaker.

All site electrical supplies and installations have been completed by certified electricians.

All portable electrical appliances at site including hand tools and office equipment are subject to:

- Pre-use checks and defecting reporting as applicable; and
- Annual PAT testing by a competent electrician

6.4 Lightning Protection

The building will be provided with a lightning protection system designed and installed in accordance with the requirements of BS EN 62305: 2011.

6.5 Discarded Smoking Materials

The site has a no smoking policy except for the designated smoking area which is situated away from areas where waste or hazardous materials are stored, handled and used. No smoking is permitted in waste storage, treatment and transfer areas or on the internal roadways. Any Biffa staff observed smoking outside the designated area will be subject to disciplinary action through a formal HR process. Contractors will receive a warning and if they refuse to comply they will be banned from site.

Designated smoking points are equipped with suitable receptacles for the extinguishing and disposal of smoking materials. Each area will be checked during the working day to ensure no materials remain alight.

6.6 Naked Lights

No naked lights are permitted, and all lights will be protected by appropriate coverings.

6.7 Hot Works

Hot works such as welding, grinding, cutting and similar activities may be undertaken at the site in relation to maintenance and repair activities. All such works will be planned and undertaken in accordance with a defined risk assessment and method statement (RAMS which is subject to approval by the job sponsor before the work commences. Hot works will be completed in line with a Hot Works Procedure which includes:

- A permit to work (PTW) system to ensure appropriate controls will be in place before, during and after any hot works;
- Ensuring that fire extinguishers are present at the point of any hot work so that they can be used immediately should a fire occur. Extinguishers will be stationed adjacent to the pathway of escape from the work area and operators undertaking hot works will be trained in the use of fire extinguishers;
- Sources of combustible material will be removed from the area where hot works is taking place before work commences and where this is not possible then such materials including mobile plant hydraulic lines will be covered by a fire blanket/screen and/or damped down with water before work commences; and
- A fire watch will be present during all hot works and for a minimum of 30 minutes after such hot works have ceased to ensure that sparks from works are not smouldering.

6.8 Industrial Heaters

No portable heaters are used within the areas of the site where combustible materials are used.

6.9 Hot Exhausts

Storage areas for mobile plant at the main MBT will be located away from the waste stockpiles and checks will be undertaken when plant is parked to ensure that no wastes have been trapped under/near hot exhausts.

All waste stored at Site Ha is retained within covered trailers and no loose material will be stockpiled. Mobile plant will not be parked at the site Ha area.

6.10 Ignition Sources/Heat and Spark Prevention

There will be no naked flames, heaters or other sources of ignition introduced within 6m of combustible and flammable materials and waste.

Hot works which may introduce such sources will be controlled as outlined in section 3.5 above.

Oil burners and diesel generators will be equipped with their own fire detection and protection systems.

6.11 Batteries

6.11.1 Vehicle Batteries

The site will not accept end-of-life vehicles as part of its incoming waste streams.

Batteries may be periodically replaced within site mobile plant as part of maintenance activities. Such batteries will be stored in a designated weatherproof battery box/container undercover and kept separate from other batteries. These will be removed from site as soon as practicable.

6.11.2 Other Batteries

Batteries that have been incorrectly discarded by householders will be removed by the shredding and sorting processes at the MBT and batteries will be placed in a designated weatherproof battery box/container and removed from site as soon as practicable.

In the event that lithium batteries are identified and removed from the waste, these will be stored separate from other batteries and inert material such as sand will be placed in the container. In the event damaged lithium batteries are removed from the incoming waste stream.

6.12 Leaks and Spills

6.12.1 Fuel and Reagent Tanks

Fuel oil tanks and reagent tanks are stored in dedicated tanks as indicated in Table 2. The tanks will be equipped with the appropriate overfill protection and containment equivalent to 110% of the bund capacity.

Fuel oil and reagents will be delivered as necessary, but generally this will be via standard tanker vehicles. Surrounding the delivery areas, there will be a dedicated drainage collection system with interceptors.

All pipelines and storage tanks will be subject to programmed maintenance checks and inspections including checks on system integrity.

6.12.2 Lubricants and Other Small Volume Reagents

Lubricants or reagents which are used in small volumes will be stored in the dedicated containment bund in the chemical store on Street 3. Spillages which may occur during maintenance or from defective equipment will be contained and removed using appropriate absorbent materials.

6.12.3 Small Spills and Leaks

Spillages and leaks are most likely to arise from plant or vehicles which will be maintained in accordance with manufacturer's instructions. Plant operators and professional drivers are required to carry out a pre-start check on the equipment before each new shift and any faults which could cause an oil or fuel leak (or a spill) will be taken out of service immediately and repaired as soon as is practicable.

Should a vehicle cause an oil or fuels leak or spill, the liquid will be soaked up using the appropriate absorbent materials, and the resultant waste will be removed from site via the Biffa Hazardous Waste team. Spill kits are kept at designated points on the main MBT area and on Site Ha to deal with spill containment and housekeeping activities. The location of the spill kits is shown on Figure 6 on the following page and summarised in Table 10.

Figure 6. Location of Spill Kits and Emergency Showers

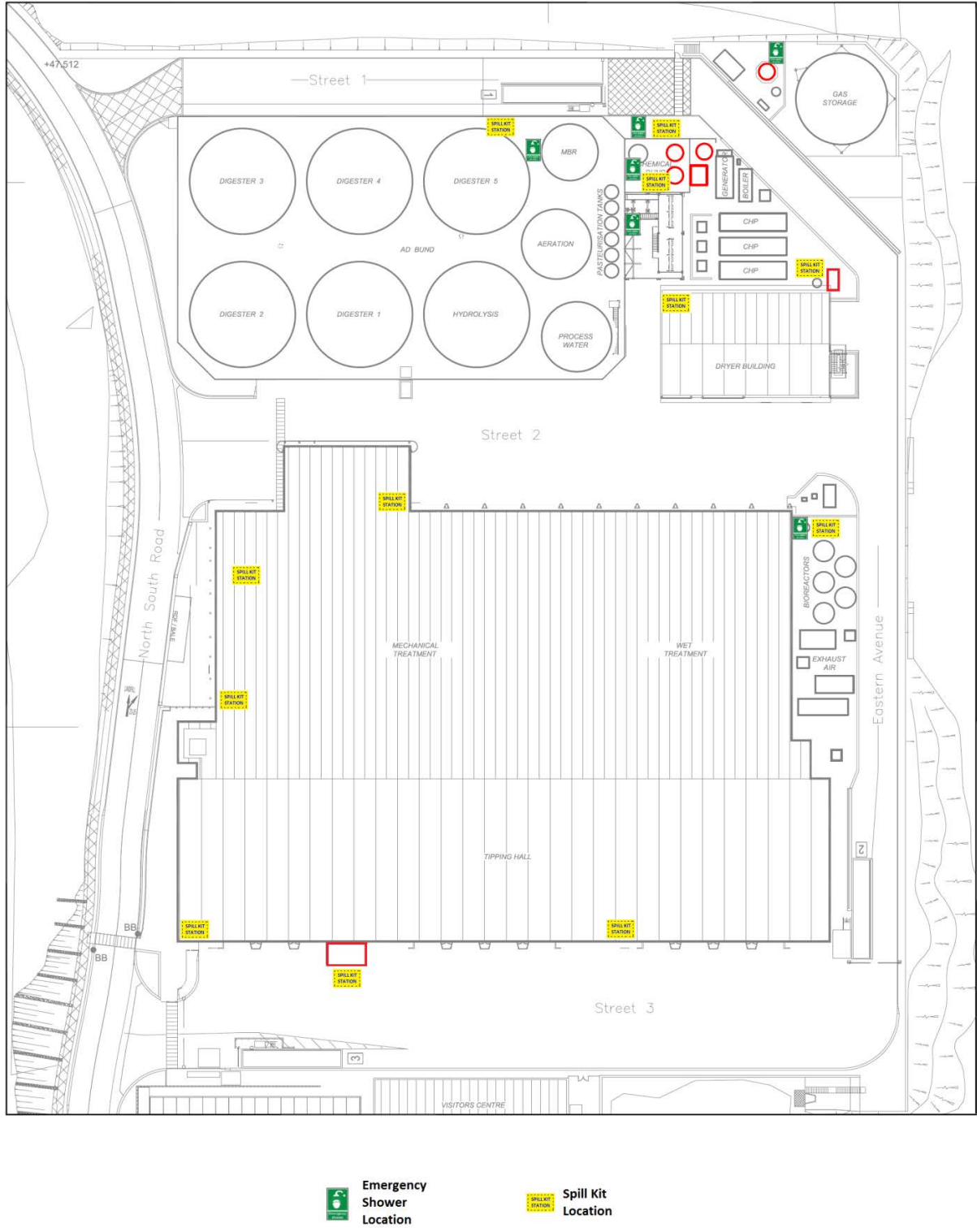


Table 9. Location and Contents of MBT Spill Kits

No	Location	Kit for	Contents of Kit
1	Chemical Offload	Bulk Chemicals: Caustic Soda 32% Ferric Chloride 40% Acetic Acid 50 - 80% Diesel	1x barrier tape 1x chemical gauntlets 1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
2	Chemical Bund	Bulk Chemicals:	1x barrier tape 1x chemical gauntlets

No	Location	Kit for	Contents of Kit
		Caustic Soda 32% Ferric Chloride 40% Acetic Acid 50 - 80%	1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
3	MBR	Caustic Soda 32% Hydrochloric Acid 40% OXY2 Conservation Fluid	1x barrier tape 1x chemical gauntlets 1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
4	CHP Oil Tank	Clean and Dirty Oil	1x barrier tape 3x nitrile gloves 1x chemical gauntlets 1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
5	Polymer Dosing	Liquid Polymer Antifoam	1x barrier tape 1x chemical gauntlets 1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
6	Bioreactors	Nutrient pH Buffer	1x barrier tape 1x chemical gauntlets 1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
7	RDF Bay	Oil leaks from vehicles, 'Bale Juice' Hydraulic Oil	1x barrier tape 3x nitrile gloves 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
8	Baler Area	'Bale Juice' Hydraulic Oil	1x barrier tape 3x nitrile gloves 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
9	Workshop	Various Oils and Lubes	1x barrier tape 3x nitrile gloves 1x chemical gauntlets 1x goggles 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
10	Reception Hall 1	Oil leaks from vehicles Hydraulic Oil	1x barrier tape 3x nitrile gloves 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
11	Reception Hall 2	Oil leaks from vehicles Hydraulic Oil	1x barrier tape 3x nitrile gloves 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads
12	Fuel Tanks Street 3	Diesel	1x barrier tape 3x nitrile gloves 10x hazardous waste bags 2x absorbent pillows 6x 3m spill containment socks 120x Spill absorbent pads

6.13 Gas Bottles and Flammable Items

The site does not accept gas bottles or flammable items as waste.

Gas bottles of welding and instrument compressed gases as identified in Table 2 will be labelled and stored in cages away from any ignition source. An inventory of these items will be kept in the site office.

6.14 Build-up of Combustible Materials

6.14.1 MBT Building

Daily housekeeping routines are maintained to include the clearance of waste spillages manually or by use of the site road sweeper. In line with Animal by-products Regulations, procedures are in place to ensure that the reception hall floor is free from spillages.

The reception hall is subject to a daily inspection and the daily housekeeping checklist for the reception hall is held as a hard copy on the weighbridge. The rest of the plant is monitored using Pre-Starts, Shift Supervisors Environmental Walk Around. Hard copies are held by the shift supervisor in the control room. Any issues are recorded on the Near Miss Hazards Tracker.

Quarterly deep cleaning will be undertaken by a contractor to minimise dust levels in the HWRS process line with the process building.

Every 6 – 7 months the waste in the one of the pits is emptied to facilitate the inspection of the condition of the pit. A visual inspection is conducted from outside as it is too dangerous to allow anyone to enter the pit. Any material from the pit being inspected will be placed on top of the material in the other pit and fed into the process. The inspection rotates between the pits so that one pit is inspected every 6 -7 month cycle.

6.14.2 Site Ha and External Areas

Site Ha and external areas will be cleaned regularly using the onsite mechanical road sweeper according to a set housekeeping schedule.

6.15 Reactions Between Wastes

Due to the nature of the wastes accepted at the Facility reactions between items of waste are not anticipated, however the MBT have written procedures for waste acceptance which will evaluate incoming waste streams to identify:

- Incompatible wastes which present a risk for reaction;
- Hot loads; and
- Wastes not permitted to be accepted by the facility.
- Highly contaminated waste streams

The weighbridge operator will visually check incoming loads for smoke through weighbridge 2 CCTV system and reject non-conforming loads as necessary. If loads are covered when entering the weighbridge these are checked by Multi-Skilled Operators (MSO) who visually inspect waste in the reception hall for unsuitable materials. This process acts as a additional check for open vehicle loads which are checked on arrival as stipulated above. If unsuitable materials are identified then at the discretion of the manager, they will be reloaded and rejected.

Site Ha waste storage and transfer area will only accept RDF and CLO materials from the MBT area so there should be no reaction between these materials.

6.16 Deposited Hot Loads

In the event that a hot load is discovered this will be moved (by redirection of the incoming vehicle if not yet tipped and / or using the crane/loading shovel for tipped materials) to an area outside the building which is at least 25m from the waste bunker and HWRS tipping areas.

As Site Ha waste storage and transfer area will only accept RDF and CLO materials from the MBT area, hot loads should not be an issue.

7. Prevent Self-Combustion

7.1 Manage Storage Time

7.1.1 Main MBT Plant

7.1.1.1 Incoming Waste

The MBT plant throughput is designed based on the historical municipal waste collections for the district and boroughs covered by the contract.

Incoming waste delivered by districts/boroughs and daily planners are discussed with key stakeholders: The incoming waste is processed within the timeframes indicated in Table 1 and following controls applied.

- Deliveries of MSW to the two waste pits located in the reception hall can be made from doors 2-8 depending on bay availability. Once tipping is completed, the crane driver will manage pit levels and ensure the material is fed into the plant via the MSW primary shredders. The waste in the one of the pits is removed every six months to allow for the pit to be inspected. HWRS (Household Waste Recycling Site) waste is tipped via door 9, 10 and 11 to either side of the HWRS primary shredder. The material is pre-sorted and loaded using wheeled loading shovel and wheeled materials handler.

During periods when the capacity of the main MBT plant is restricted (e.g during fire incidents), the MBT Plant Manager will instigate the contingency tipping plan arrangements to redirect incoming wastes to a suitable alternative waste treatment facility.

7.1.1.2 Outgoing Materials

Output loads and onsite stock are calculated based on plant throughputs, therefore hauliers and collections are reviewed every day to ensure stock on site is kept to a minimum.

Outgoing material is loaded inside the reception hall and collections arranged as part of the daily de brief session with logistics manager. Materials are retained on site in accordance with the timeframes shown in Table 1 which facilitates stock rotation and should prevent material being retained for periods which would result in self-heating occurring. Arrangements for each material are as follows:

- Ferrous and Non Ferrous metals are kept between bays 4 and 5, separated by containment walls for loading purposes. The material is processed through the MPT plant and metals output will be delivered directly here with onsite HGV's.
- Heavies reject waste which can contain combustibles such as paper, plastic, card and WEEE are removed the mechanical pre-treatment processes are stored in between bays 8 and 9 and loaded for export using the onsite mobile plant.
- Loose RDF is temporarily stored on the floor of the reception hall and loaded into enclosed containers for export from site. Material which can't be removed from site prior to the weekend will be loaded into the trailer in the reception hall and the trailer parked for up to 72 hours at the Site Ha storage and transfer area.
- Baled RDF is transferred to the RDF bale loading area where a maximum of 210 bales can be retained at a time. Bales are loaded onto a curtain-sided trailer for export on a first in, first out basis – this includes trailers loaded at the weekend which will park at the Site Ha storage and transfer area for periods of up to 72 hours.
- CLO is loaded into RORO or articulated bulk trailers for export either in the reception hall or dryer building – this includes trailers loaded at the weekend which will park at the Site Ha storage and transfer area for periods of up to 72 hours.

7.1.2 Site HA Waste Storage and Transfer Area

RDF and CLO materials will only be stored at Site Ha area for a maximum of 72 hours.

There are 12 separate fire wall parking enclosures (for 3x trailers each), each measuring W13.2m x D17.2m x H4.8m, with 3 parking bays each for trailers, however a maximum of 18 trailers will contain waste at any given time. Waste will be stored in alternate bays, keeping other alternate bays (with or without trailers) empty of waste. There is no set maximum for trailers carrying a particular type of waste. Trailers will also be removed from site by rotation, with the oldest waste always being removed next. This will be determined by the date and time when the trailer went out over the weighbridge to the trailer park; the weighbridge operator at the MBT will let the collecting driver know which trailer to pick up. Site Ha will not contain loose waste, therefore, there will be no pile sizes that are exceeded.

The weighbridge operator will record the trailer details upon arrival and after loading, whilst the tug driver will ensure that only alternate bays are used and that loads are placed in age order: therefore, achieving a day-to-day rotation of waste stock at the trailer park. As there are a finite number of bays containing waste and definite dimensions of trailers, the site will only be able to contain a maximum tonnage and volume as calculated in Table 1.

7.2 Record and Manage Waste Storage

Each fire alarm activation is logged and recorded on WS149 Emergency Response Record. Actions of the event must be recorded along with any further recommendation as a result of the event.

7.3 Stock Rotation Policy

The site operates a first in, first out policy as far as practicable for all materials. Load details (arrival, tipping, processing) will be retained and incoming loads and resultant treatment outputs will be processed in age order.

'First in, first out' is difficult to achieve on the MSW waste pits, however, one pit will be emptied every 6 – 7 months to facilitate inspection and material in the base of the pit will be placed on top of the material in the second pit so it can be processed.

7.4 Temperature Control

7.4.1 Monitor Temperature

7.4.1.1 Main MBT Area

Waste is stored in accordance with the retention times in Table 1 and as no waste is stored on site for longer than three months due to continued processing, the risk of fire from self-combustion is greatly reduced. The MBT main site is equipped with fire detection and fire protection throughout.

- The reception hall MSW (household) waste pits are monitored through 2x thermal imaging cameras.
- The HWRS (Household Waste Recycling Site) waste is monitored on a separate thermal imaging detection and protection system.

Both MSW and HWRS fire monitoring systems are linked to the site fire alarm panel system and capable of activating the water cannons

The thermal imaging set points are set for hotspots over 65 degree Celsius. For either MSW or HWRC waste the accommodating cannon will activate along with the site fire alarm system. All processes comes to a stop along with air extraction to the facility.

7.4.1.2 Site Ha Waste Storage and Transfer Area

There will be no measured monitoring or controlling of temperature as the site is open to the elements and there is a rapid stock turnaround. The site will be subject to a daily inspection and action would be taken to quench the load if signs of temperature increases (e.g. steam, smoke, odour of smouldering material) were noted.

Overnight the area will be monitored by CCTV from the MBT control room.

7.4.2 Control Temperature

The main techniques for controlling temperature are:

- allowing heat generated during shredding to be released so that the waste is cool before you form it into piles for storage;
- ensuring waste turnaround times are met;
- ensuring MSO are trained to detect and manage hotspots; and
- monitor the temperature as outlined in 7.4 above.

7.4.3 Dealing With Hot Weather and Heating from Sunlight

Waste stored internally should not be at risk of ignition due to hot weather/sunlight.

In relation to externally stored waste (RDF bale loading area and Site Ha storage and transfer area), no waste with spontaneous combustive properties will be stored in the external areas. Waste will not be held for longer than 72 hours which would diminish any effects caused by continued hot and dry weather. The concrete fire walls as well as the alternate spacing of waste will also diminish any adverse effects.

8. Manage Waste Piles

8.1 Waste Bale Storage

RDF bales will be stored in the designated RDF bale loading in accordance with the maximum times shown in Table 1. The main controls there area:

- No RDF bales will be stored on site for longer than 3 months; and
- RDF bales will be loaded and exported in age order line with the 'first in, first out' principle.

The site does not accept ELVs so there will be no ELV bales at the site.

8.2 Maximum Pile Sizes

Where practicable, waste will be stored in its largest form. The maximum 'pile' sizes of the combustible waste materials at the

Waste Type	Size Fraction	Comment
Incoming MSW	>150 mm / loose	<p>Incoming MSW is stored in one of two reception pits each of which hold up to 2,800 m³ of waste (1,250 tonnes of waste per pit). The volume in each pit is in excess of the recommended maximum pile size, additional controls to reduce the risk of fire include:</p> <ul style="list-style-type: none"> • Each pit is constructed from reinforced concrete which would assist retaining any fire. The fire resistance time of the concrete walls is 2 hours. • MSW will generally be stored for short periods only (< 7 days) therefore the risk of self-combustion is reduced. One waste pit is emptied for inspection every six months during which time material accumulated in the bottom of the pit is placed on top of the material in the second pit . • Waste bunkers are each equipped with a thermal imaging camera equipped with automatic scanning of the bunker area which can initiate automatic oscillating operation of water cannons to quench any ignited material.
Incoming HWRC	>150 mm / loose	HWRC is tipped and stored in two separate piles of approx. 700 m ³ volume (200T each). The areas are constructed from concrete, monitored by a thermal imaging system and material stored for up to 1 week.
RDF loose	>150 mm / loose	Loose RDF is stored in the reception hall in piles of approx. 700 m ³ volume (200T each). The areas are constructed from concrete, monitored by a thermal imaging system and material stored for up to 1 week.
RDF Baled	Baled	Max of 210 bales stored at any one time in an external storage area. Bales are typically 1.4 m ³ each so the area holds less than the max. recommended volume. Main controls are to minimise storage time on site and removing older stock first.
Metals	< 150 mm	Maximum of 80T stored on site which is less than the recommended max. storage volume.
Digestate/CLO	< 150 mm	Up to 130 m ³ stored within the reception hall which is less than the recommended max. storage volume.
Heavies	>150 mm / loose	Up to 200T stored with the reception hall area which is less than the recommended max. storage volume.

With respect of the Site Ha waste storage and transfer area there are no loose piles of waste so the maximum pile requirements do not apply.

8.3 End of Life Vehicles

The site does not accept ELVs and therefore no controls are required.

8.4 Waste Stored in Containers

8.4.1 Container Types

8.4.1.1 Main MBT Area

Within the main MBT area digestate and MPT outputs are stored in enclosed containers (e.g. shipping containers, ROROs, or similar).

8.4.1.2 Site Ha Waste Storage and Transfer Area

At the Site Ha waste storage and transfer area, all waste, no matter what type, will be stored within closed containers. These will either be curtain-sided trailers for baled RDF, or enclosed containers for loose RDF and digestate.

8.4.2 Container Accessibility

8.4.2.1 Main MBT Area

Containers within the MBT area are stored in an area which is equipped with automatic fire detection and suppression

8.4.2.2 Site Ha Waste Storage and Transfer Area

Access to waste inside the trailers stored at the Site Ha area to quench any fires will be either by drawing the curtain or pulling back the sheet. The containers are stored in open parking spaces with fire wall enclosures which allows for access to the front as well the tops of the trailers.

8.4.3 Moving Containers In a Fire

8.4.3.1 Main MBT Area

Containers within the MBT area are stored in an area which is equipped with automatic fire detection and suppression

8.4.3.2 Site Ha Waste Storage and Transfer Area

If issued, advice will be taken from the Fire & Rescue Service, however unless advised otherwise, containers will remain in situ during a fire and be allowed to burn out. After quenching and fire watch, the trailers will be dealt with as per Section 12.4.

8.5 Compost

The site does not undertake composting so no controls are required.

9. Prevention of Fire Spreading

9.1 Separation Distances

9.1.1 Main MBT Area

Waste piles are separated by material type and use containment walls as appropriate (see section 9.2 below).

9.1.2 Site Ha Waste Storage and Transfer Area

There are 12 separate fire wall parking enclosures (for 3x trailers each), however a maximum of 18 trailers will contain waste at any given time. Waste will be stored in alternate bays, keeping other alternate bays (with or without trailers) empty of waste. There is no set maximum for trailers carrying a particular type of waste.

9.2 Fire Walls and Bays

9.2.1 Main MBT Area

The incoming MSW waste which comprises the main volume of combustible waste held on site, is tipped into one of 2 reception pits (each is 30m x 8m x 10m). These pits are of concrete construction with 2 hour fire rating and are equipped with their own detection and suppression systems.

Other waste piles in the MBT building represent smaller volumes of individual waste streams separated by material type with containment walls are in place. The site has been built with internal fire walls to reduce the spread of fire throughout the plant – these walls are 2 hour fire rated. Doors in internal walls are also 2 hour fire rated.

Cable trays, openings, joints, imperfections of fit in or between designated fire barriers are fire stopped at compartment wall interfaces to maintain the fire wall integrity.

Fire curtains are used in the Control room and viewing gallery.

9.2.2 Site Ha Waste Storage and Transfer Area

Each alternate parking bay will not contain waste so as to create a natural firebreak and every three bays will be separated by a containment wall made of interlocking concrete blocks which hold an A1 fire-resistant classification according to EN 13501-2:2016-12 standards and will remain fire-resistant for at least 4 hours.

9.3 Quarantine Area

9.3.1 Main MBT Area

Incoming hot loads are normally addressed by redirection of the incoming vehicle prior to tipping to an external fire bay located next to the lagoon (see drawing WZD231000 in Appendix A) where the vehicle can be isolated, inspected and the load quenched.

An area of the reception hall will also be used for quarantine of identified tipped 'hot loads' which will be at least 6m from the waste bunker and HWRS tipping areas. The location of this area is dynamic and will be situated so as to achieve the relevant separation distance from combustible waste streams at the time of any incident. The quarantine area is designed to enable quarantined waste to be segregated from all incoming waste. It will be designed to allow the waste to be collected and loaded into appropriate road vehicles and removed from the site.

9.3.2 Site Ha Waste Storage and Transfer Area

There is no quarantine area at Site Ha for incoming waste as all waste received at this facility will already have been sorted and any unsuitable material removed prior to loading into appropriate closed trailers for temporary storage.

Individual bays within the fire walls will act as quarantine areas should a fire occur. Burning waste will remain in situ until quenched.

10. Fire Detection, Suppression and Fighting

10.1 Fire Detection Arrangements

10.1.1 Main MBT Area

The fire detection system has been designed in line with BS5839-1:2002. On activation of a fire detection device within any of the buildings (Process Building, Weighbridge 1&2&3, Dryer Building, AD Area, a zone LED will illuminate on the front of the fire alarm panels. Each zone number will have a text description located on the fire alarm panel front fascia.

The Fire Detection System has been designed as an open protocol analogue addressable fire detection system which includes the following: Kentec Syncro custom built 8 loop Hochiki protocol control panel, with 96 zone LED's and built in printer. Surface mounted, 500*650*137mm dimensions.

The above panel is standalone however a network controlled repeater panel is located within the process hall level 00 lobby. Provision has been made for all the above panels to be equipped with battery back-up for up-to 24 hours in a quiescent state and 30 minutes in an alarm condition.

The detection loops will incorporate provision for up to 126 uniquely addressed devices (subject to loop loading and distance). The Loop cable is wired in SR114H & SR114E type cable which meets the requirements of BS5839 P1 2002. External cables are steel wired armoured (SWA) protected. The General Building Cause & Effect Logic: (Refer to Cause and Effect Matrix YF-XX-DT-XX-4361) are outlined below

10.1.1.1 Process Building:

On activation of a single detector/manual call point the following happens:

1. The buzzer will operate on the fire alarm control panel along with the appropriate zone LED.
2. All loop powered and conventional across the site will operate.
3. Output to the visitor centre fire alarm system will change state.
4. Lift will drop to level 00 and doors open.
5. All door access interfaces will operate and unlock.
6. Fire curtains will close (if a fire is detected with the following areas: Tipping Hall, Dry Pre-Treatment, Wet Pre-Treatment, Level 02).
7. Common fire output to SCADA system will change state.

10.1.1.2 Dryer Building:

On activation of a single detector/manual call point the following happens:

1. The buzzer will operate on the fire alarm control panel along with the appropriate zone LED.
2. All loop powered and conventional across the site will operate.
3. Output to the visitor centre fire alarm system will change state.
4. All door access interfaces will operate and unlock.
5. Dryer fire output to SCADA system will change state.

10.1.2 Site Ha Waste Storage and Transfer Area

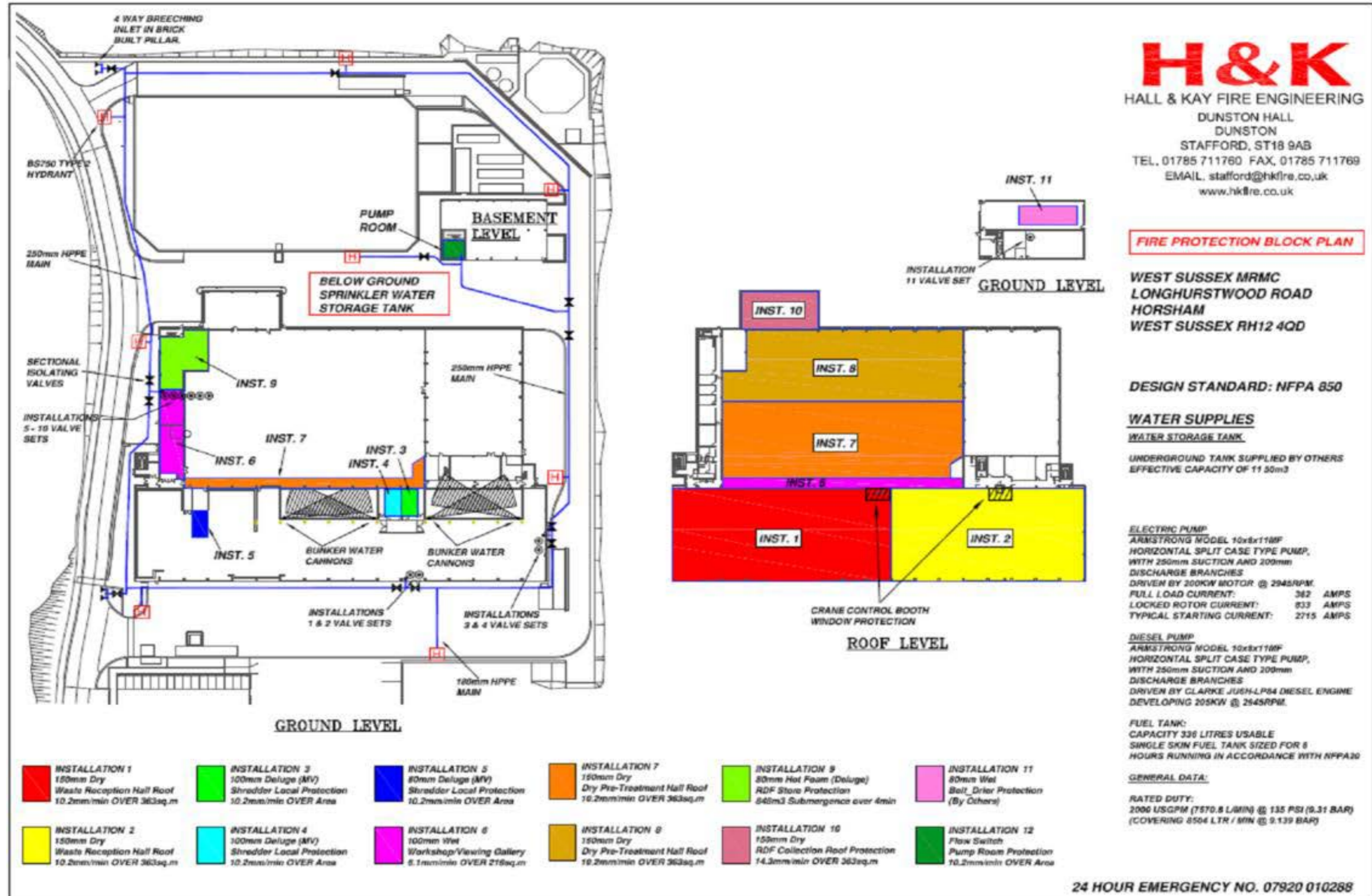
The site will be visually inspected daily by the onsite operative (MSO). Remote CCTV monitoring in place for out of hours management.

10.2 Suppression Systems

10.2.1 Main MBT Area

The fire protection zones are shown on Figure 7 on the following page.

Figure 7. Site Layout Showing Fire Protection Block Plan



10.2.1.1 MCC Room

The MCC room gas suppression systems have been designed in line with BS EN 15004:2008. Gas Suppression Cause and Effect Logic: On activation of a single detection zone within a FM200 protected room and the FM200 system in manual or automatic mode the following effects will occur:

1. The buzzer will activate on the local extinguishing panel and at the main fire alarm panel along with the appropriate zone LED. The LCD display will show pre-programmed device information.
2. The first stage sounder and beacons will operate in the risk.

On activation of two detection zones within a FM200 protected room and the FM200 system in automatic mode the following effects will occur:

1. The buzzer will activate on the local extinguishing panel and at the main fire alarm panel along with the appropriate zone LED. The LCD display will show pre-programmed device information.
2. The second stage fire bell will operate in the risk.
3. The second stage LED on the local panel will illuminate.
4. Site wide alarms will activate.
5. A 32 second countdown will begin on the local panel and associated status units.
6. Once countdown reaches 0 the solenoid will operate and the FM200 will be released into the protected space.

On activation of two smoke detectors within a FM200 protected room and the FM200 system in manual mode the following effects will occur:

1. The buzzer will activate on the local extinguishing panel and at the main fire alarm panel along with the appropriate zone LED. The LCD display will show pre-programmed device information.
2. The second stage fire bell will operate in the risk.
3. The second stage LED on the local panel will illuminate.
4. Site wide alarms will operate.

On activation of Manual Release Call Point within a FM200 protected room and the FM200 system in automatic or manual mode the following effects will occur:

1. The buzzer will activate on the local extinguishing panel and at the main fire alarm panel along with the appropriate zone LED. The LCD display will show pre-programmed device information.
2. The second stage fire bell will operate in the risk.
3. The second stage LED on the local panel will illuminate.
4. Site wide alarms will operate.
5. A 32 second countdown will begin on the local panel and associated status units.

Once countdown reaches 0 the solenoid will operate and the FM200 will be released into the protected space.

On activation hold off button within a FM200 protected room and the FM200 system in automatic or manual mode the following effects will occur (during the second stage countdown):

The countdown will be reset to 32 seconds. The countdown will pause at 32 until the button is released.

10.2.1.2 Foam Suppression Cause and Effect Logic

(As per gas suppression except the foam and water mix is released)

10.2.1.3 Shredder Deluge Cause and Effect Logic

(As per gas suppression except the high velocity water spray is activated)

10.2.1.4 Bunker Water Cannon Cause and Effect Logic

There is a thermal imaging camera covering each of the bunkers. On an alarm condition being detected on the left side of the bunk the left water cannon will operate. On an alarm condition being detected on the right hand side of the bunker, the right water cannon will operate.

10.2.1.5 Water cannons

The electrical automatic monitor system is composed by four electrical monitors, two for each pit. The four monitors are controlled by two identical Control Panels – each one handling two monitors – located in a Control Room where there is no clear vision of the pits and of the monitor themselves. As a standard, acting on the touch screen, the operator can:

- a. Program both the vertical and the horizontal oscillations, or even a more complex motion, just “recording” the various points the motion shall pass through. In particular horizontal or vertical oscillations can be adjusted anytime in terms of angle width, axis of symmetry’s position, waiting time from one end to the other, simply acting on the touch screen itself.
- b. Build a library of default automatic cycles to adapt to the fire scenario as identified by the operator himself or by the detection system (for instance, if the fire is detected in one half of the pit, both monitor can be adjusted to discharge in that area to maximize the effectiveness of the water stream). As a standard up to three default cycles can be defined.
- c. Receive a visual graphic indication, in real time, of the angle the monitor is oriented in both vertical and horizontal planes. This is particularly useful when it is not possible to see the monitor from the panel's position.
- d. Select the stand-by position of the monitor after any operation, to make sure that the initial discharge will be at the most likely position where the fire is expected.
- e. Control the monitor manually from “virtual joysticks” and push buttons. With this option special pushbuttons can be programmed to save operator’s time in emergency condition (for instance, move simultaneously the vertical and horizontal
- f. Motors to save time when approaching the “hot spot”). The panels are equipped with standard joystick, push buttons, and selector to secure a manual remote operation without using the touch screen.

10.2.1.6 Automatic Wet Sprinkler Systems

Closed sprinkler heads are installed above fire risks. Fixed installation distribution lines will supply water to the sprinkler heads, which shatter in the event of fire by temperature increase over 68°C. The entire sprinkler pipework is pressurized at all times. Pressure drop in the sprinkler pipework causes the alarm check valve to open and water flows to the open sprinkler head(s). When the fire is extinguished the systems have to be shut down manually by closing the main isolating valve.

Areas Protected (as shown on Block Plan): Workshop/Store, Plant Room, Viewing Gallery Sprinkler Protection. The fire protection sprinkler system is in line with BS EN 12845 with NFPA 13 overrides. Sprinkler Heads: Material Quartz Bulb, Shatter Temperature 68°C.

10.2.1.7 Automatic Dry Sprinkler Systems

Closed sprinkler heads are installed above fire risks. Fixed installation distribution lines will supply water to the sprinkler heads, which shatter in the event of fire by temperature increase over 141°C. The entire sprinkler pipework is pressurized with air at all times. Pressure drop in the sprinkler pipework causes the dry pipe valve to open and allow water to flow to the open sprinkler head(s). When the fire is extinguished the systems have to be shut down manually by closing the main isolating valve. Areas Protected (as shown on Block Plan): Waste Reception Hall Roof Protection, Dry Pre-Treatment Hall Roof Protection, RDF Collection Roof Protection.

The fire protection sprinkler system design is in line with BS EN 12845 with NFPA 13 overrides. Sprinkler Heads: Material Quartz Bulb, Shatter Temperature 141°C.

10.2.1.8 Automatic Spray Deluge System Electric detection

Open spray Nozzles are installed above fire risk areas. Fixed installed distribution lines will supply water to the Nozzles in the event of a fire. The deluge valves are held in closed position by the pressure in the release trim pipework. In the event of a fire a rise in temperature causes one or more of detectors to operate and will trigger the Fire Alarm Panel, this in turn will activate the solenoid in the release line and reducing the pressure on the diaphragm of the deluge valve. Pressure drop causes the valve to trip and

water will then enter the distribution pipework. When the fire is extinguished the system has to be shut down manually by closing the main isolating valve of the system concerned.

Areas Protected (as shown on Block Plan): Shredder Local Protection and Shredder Exit Conveyor up to 10m measured from the shredder(s) (3 off). The layout of the deluge systems is in accordance with NFPA 850.

10.2.1.9 Automatic Wet/MJC Sprinkler System

Open heads are installed above the risk. Closed sprinklers provide general protection.

The system consists of: Multi Jet Controls (MJC's), which allow a small group of open window drenchers to operate simultaneously. The system is pressurised with water up to the Multi Jet Control. The remainder of the system pipework is open. The MJC glass bulb will shatter in the event of fire by temperature increase over 68°C. allowing water to flow to the open drencher(s).

Areas Protected (as shown on Block Plan): Crane Operator Booth Windows. The fire protection sprinkler system is in line with NFPA 13/15. Multi Jet Control, Material Quartz Bulb, Shatter Temperature 68°C.

10.2.1.10 Automatic Foam system

The Foam System consists of: Flow control valve, Non latching, Solenoid activated. In the event of a fire a rise in temperature causes one or more of detectors to operate and will trigger the Fire Alarm Panel, this in turn will activate the solenoid in the release line and reducing the pressure on the diaphragm of the deluge valve. Pressure drop causes the valve to trip and water will then enter the distribution pipework. When the fire is extinguished the system has to be shut down manually by closing the main isolating valve of the system concerned. Atmospheric foam storage tank. The foam concentrate is stored in an atmospheric pressure container.

Areas Protected (as shown on Block Plan): RDF Store Protection. The high expansions system is sized according to NFPA 11 code.

10.3 Firefighting

10.3.1 Fire Extinguishers

Portable fire extinguishers compliant with BS 5306 will be provided in accordance with installation guidance codes of practice.

Staff will be trained in the use of such equipment; all extinguishers will be checked as part of the site inspection programme and will be subject to an annual maintenance inspection by Chubb or similar competent contract company. The location of the fire extinguishers at the main MBT plant are shown on the drawings in Appendix B.

10.3.2 Hose Reels

The manual system provides firefighting water at strategic positions around the Process and Dryer building. The feed pipework to hose reels is pressurised at all times up to the automatic control valve which integral to the hose reel. In the event of fire this hose should be pulled from the reel allowing water to enter the hose. Water from the hose is controlled by the control Nozzle at the end of hose.

The hose reel system is in line with NFPA 14.

A selection of 2-inch fire hoses will be available on 'Site Ha' to connect to the hydrant point in case of emergency. The minimum length of available 2-inch fire hoses needs to be at least 80 metres.

10.3.3 Fire Hydrants

Two underground 'BS 750 type 2' hydrants have been strategically placed at the facility in locations and indicated on the block plan in APPENDIX A (Diagram 1/B).

10.4 Maintenance of Fire Detection and Suppression Systems

10.4.1 Daily Inspections

Area visual inspections (main MBT and Site Ha) are carried out every 24hrs on fire hoses and fire extinguishers using form WS096 – this is recorded and handed to supervisor, followed by the operations manager.

An additional prestart check form is in place to visually check the fire pumps in the dryer building basement. Any issues and remedial actions will be followed up by operations manager.

10.4.2 Hydrants

10.4.2.1 Periodic testing requirements

These will be completed in accordance with the requirements specified in the Hall and Key Operating & Maintenance Manual.

10.4.2.2 Quarterly Inspection

Visually inspect the installation for the following:

- Physical damage to the surface box.
- Rubble or silt in the chamber preventing access to the hydrant.
- The plastic outlet cap is present and undamaged.
- Damage to or theft of the square top and outlet.
- Water leaking from outlet.

10.4.2.3 Yearly Testing

1. Fit a blanking cap to the screwed outlet, but do not tighten fully.
2. Open the hydrant slowly allowing the entrained air to be safely vented past the blanking cap.
3. When all the air is removed, shut the valve, and fully tighten the blanking cap onto the outlet.
4. Pressurise the valve by opening the hydrant.
5. Check for leaks between body and cover, from the stem seals and from the frost valve.
6. Count the number of turns to move from the valve stopper from the fully closed to fully open position (approximately 8 turns). This will ensure maximum flow-rate through the valve during operation.
7. Close the hydrant, then slacken and remove the blanking cap.
8. Check that the water retained in the hydrant is draining through the frost valve with valve closed.
9. Replace the plastic outlet cap

10.4.3 Fire Pumps and Associated System Parts

10.4.3.1 Weekly

Carried out internally using the Pirahna CMMS scheduler: record of findings submitted as part of the reporting.

1. Carry out weekly testing of the Alarm valve stations and fire pumps.
2. Visually check the position of all stop valves affecting the correct operation of the sprinkler installation.
3. Check and record pressure gauge readings, investigate any abnormal reading.

10.4.3.2 Quarterly

Carried out by an appointed competent contractor.

1. Exercise all valves, i.e. open/close or close/open, grease if applicable. Padlock into the correct position.
2. Exercise all electrical alarms, i.e. pressure switches, flow switches, level switches and unit switches. Check for correct response at the fire alarm panel.
3. Exercise the water storage tanks infill ball valve by depressing its arm to ensure supply of water under demand and closes on reaching the correct level.

10.4.3.3 Annually

Carried out by an appointed competent contractor.

1. Carry out period flow tests (as required by the Fire Insurers).
2. Overhaul the Alarm valves.
3. Overhaul the fire pumps.
4. Check and prove the operation of any trace heating.
5. Check condition of water storage tank.
6. Inspect all equipment to ensure:
 - a. Good condition, not bent/damaged
 - b. Free from deposits
 - c. Free from corrosion
 - d. Free from paint
 - e. Free from obstructions
7. Pipework should be inspected and kept in good condition, free from corrosion and damage.
8. Inspect brackets/hangers are in good condition and are providing support correctly.
9. Inspect the system to ensure that it is not impaired due to building changes/modifications.

11. Water Management

11.1 Water Supplies

11.1.1 Site Supply Sources

11.1.1.1 Firewater Tank

Firewater is stored in an underground MBT Sprinkler storage tank which has a capacity of 1,100 m³. The water is then drawn into the fire system by two fire pumps (one duty electric & one standby diesel) each rated nominally at 8500 L/Min @ 9.2 bars. These pumps are located in the basement pump room in the Dryer Building. Water supplied by these pumps is then distributed through a ring main that runs around the site and also to Site Ha feeding external underground hydrants and connections. Around the main, there are 10 underground isolating valves which enables isolation of sections of the main such that no more than two hydrants are out of service at any time.

The tank is provided with a level monitoring system including a local external water level indicator and a remote level control and alarm indication to the control room. The storage tank capacity is based on providing a 2 hour supply based on the sum of:

- The largest fixed fire suppression system demand or any fixed fire suppression system demands that could reasonably be expected to operate simultaneously during a single event; and
- A reasonable assessment of anticipated hose stream demand at not less than 1,890 l/min for 10 mins.

11.1.1.2 External Supply - Fire brigade inlet points

Two 4-way breeching inlet points installed for use whenever there is a deficiency in the onsite water supply. One located at the entrance and the other at opposite end of the site as indicated on the block plan, connecting into the external ring main.

11.1.1.3 Site Lagoon

The surface water lagoon is designed to collect surface water run-off from a number of areas surrounding the site including the MMRC, landfill, brickworks and land used for agricultural purposes. The lagoon has a capacity of approximately 17,100m³. Biffa is required to maintain a volume of 6,000m³ in order to:

- Provide Wienerberger Ltd abstraction capacity of 5,000m³ for its brick making process which can largely be recirculated back to the lagoon when the system is operating normally; and
- 1,000m³ to maintain the ecology within the lagoon.

11.1.2 MBT Area Requirements

The fire sprinkler and suppression systems are designed in accordance with the relevant British Standards.

11.1.3 Site Ha Waste Storage and Transfer Area

In this area stockpiles of waste are contained within trailers with a finite capacity of maximum 28t or 33m³ per trailer. In a 3-bay fire wall enclosure, only two trailers will contain waste at any given time, making the largest stockpile of waste without a fire break 66m³.

In relation to determining the volume of water that will be required to be provided in the event of a fire, the calculation in the EA FPP Guidance using the largest waste stockpile as a worst case scenario has been used. The determination of fire water requirements for the Site Ha is shown below:

Table 10. Water Requirements for Site Ha

Material in Largest Stockpile	Stockpile Volume (m ³)	Water Supply Rate ^(a) (l/min)	Volume Required for 3 Hours ^(a) (l)	% of Available MBT Sprinkler Tank Volume
Waste in single bay ^(b)	66	440	79,200	-7.2

(a) Based on the EA FPP Guidance of minimum 2000 l/min required for 3 hours for 300 m³ stockpile

(b) Incoming waste (2 trucks) to single bay was used for purposes of calculation as it is largest stockpile and assumed for the purpose of calculation to be formed solely of combustible materials.

However, should a worst-case scenario occur where all 12 fire wall enclosures were affected, 960m³ would be needed and could be drawn from the MBT Sprinkler Tanks which hold 1100m³.

11.2 Firewater Management

Firewater is managed via the site surface water drainage systems which can be isolated in the event of a fire to contain the firewater on site. Functional details of onsite penstocks and drainage pumps (n/o = normally open; n/c = normally closed) are summarised below. The locations can be seen on the drainage plans presented in Appendix A.

11.2.1 Main MBT Area

Penstock 1 (auto, n/o): Chemical Delivery Area – function is to contain a chemical spillage during offload: must be closed for chemical loading to start.

Penstock 2 (manual, n/c): Chemical Bund – function is to contain a chemical leak. Sump must be inspected and tested for pH before a decision is made to open the penstock to allow discharge to the AD Sump via surface water drainage.

Penstock 3 (manual, n/c): Gas Island sump – function is to contain a spillage of Ammonium Sulphate Tank. The Ammonium Sulphate tank has been taken out of service so this penstock is normally discharged to surface water as required.

Penstock 4 (auto, n/o): Transformer Bund by CHPs – function is to contain a transformer oil leak. Oil sensor will trigger SCADA to shut P4 if an oil leak is detected.

Penstock 5 (auto, n/o): Rainwater Harvesting Tank (RWH) function is to prevent contamination of Rainwater Harvesting Tank. Under SCADA control. Fire alarm will shut P5.

Penstock 6 (auto, n/o): Surface Water to Lagoon – function is to prevent discharge of contaminated fire water to lagoon. Under SCADA control. Fire alarm will shut P6.

Penstock 7 (auto, n/o): Transformer Bund by HV substation – function is to contain a transformer oil leak. Oil sensor will trigger SCADA to shut P7 if oil leak is detected.

Penstock 8 (manual, n/o): Heat Exchanger Area – manually closed to contain any spillages from cleaning or maintenance activities in the heat exchanger area.

Penstock 9 (manual, n/c): Bioreactor Bund sump (Condensate feed line) – Normally closed. If a spill has occurred in the Bio Reactor bund, P9 can manually be opened (while Penstock 10 remains closed) to allow drainage to Condensate Well 2. Condensate Well 2 is discharged by a submersible pump to the Hydrolysis Tank. (See Drawing P00069-C-00-PL-1060).

Penstock 10 (manual, n/c): Bioreactor Bund sump (Surface water discharge) - Normally closed. The sump must be inspected and tested for contaminants before a decision is made on where to discharge the contents. If the water is contaminated or if a spill has occurred, P9 can manually be opened (while P10 remains closed) to allow drainage to Condensate Well 2. Condensate Well 2 is discharged by a submersible pump to the Hydrolysis Tank. If the water is clean Penstock 10 can be opened (while P9 remains closed) to allow discharge to surface water.

AD Bund Sump Pumps (semi-auto) – controls the discharge of liquid from AD Bund. The sump must be inspected and tested for contaminants before a decision is made on where to discharge the contents.

If the water is contaminated or if a spill has occurred, the contents should be pumped to Hydrolysis Tank. If the water is clean it can be pumped to surface water drainage.

Southern Lagoon Sump Pumps (auto) – controls the discharge of surface water offsite (to culvert A). Discharge is governed by the levels of the lagoon and quality of the water.

11.2.2 Site Ha Waste Storage and Transfer Area

Site Ha lagoon Penstock: Catchment Lagoon to MBT surface water drainage system under manual control. Discharge is governed by the levels of the lagoon and quality of the water.

Fire water will flow away from the site via two slot drains in front of the parking bays. The drains flow towards a well at the centre of the drains. This then drains down to a silt/petrol interceptor and then into catchment lagoon. Depending on the level and quality of the water, this may then be released into the MBT surface water drainage system. Fire water will not be allowed to flow on to surrounding open ground. There will also be no temporary containment of the fire water.

11.2.3 Firewater Treatment

The floor of the process building has been designed to direct the flow of process water into drainage channels that direct the process water to an SBR/MBR treatment tank. The SBR/MBR treatment tank is located external to the process building as part of the AD facility and has a capacity of 500m³. The tank has appropriate containment and is equipped with leak detection, level indication and alarm to minimise the risk of overflow.

Pavements and roads are constructed from concrete designed to relevant British Standards and laid to falls that facilitate surface water drainage. Used firewater run-off will be contained within the closed site drainage system, which includes attenuation culverts and a lagoon. Used firewater run-off entering the surface water drainage system will be tested and directed to on-site treatment as appropriate.

In the event that on-site treatment cannot be effected then arrangements will be made to remove firewater by tanker for off-site treatment.

12. Contingency Measures

12.1 Fire Alarms

12.1.1 Main MBT Area

The fire detection and alarm system for the main MBT facility will be provided in accordance with the requirements of the Building Regulations, Technical Booklet E, Fire Safety and BS 5839: Part 1: Fire Detection and Alarm Systems for Buildings.

The system is designed to a P1 level of protection and includes:

- Automatic smoke/heat detectors; and
- Manual call points located at the exit from each floor level and at all final exits from the building.

Automatic detection in areas with ceiling heights greater than 10m will be through an aspirating system supplemented with automatic detection on the underside of access walkways.

The system will be monitored and controlled by a number of addressable fire alarm panels networked together. Alarm levels will meet the standards defined by BS 5839 and all sounders will also incorporate a red strobe light.

The fire alarm system will be interconnected with the intruder alarm system to provide a signal to a 24 hour remote monitoring station in the event that a fire signal is received at the control panel.

12.1.2 Site Ha Waste Storage and Transfer Area

Area visual inspections are carried out daily and the area is monitored by CCTV linked to the MBT control 24/7. In the event that fire is detected, the alarm will be raised via radio and phone.

12.2 Access for Emergency Services

The site is located in Brookhurst Wood, just off from Langhurstwood Road. Ease of access for any emergency vehicles as roads are designed to take articulated HGV's.

The Fire and Rescue Service will maintain site communication and familiarisation visit to ensure emergency response time is minimised.

In case of emergency a number of BWS personnel will be sent to key junctions towards Langhurstwood Road to flag down the emergency services and direct them to site / incident location.

12.3 Emergency Management

12.3.1 General Principles

Although the site does not fall within the COMAH regulatory regime, the site accident management plan, nevertheless, still reflects the broad principles of the COMAH guidelines, in that:

- Major accident hazards have been identified;
- The measures necessary to prevent major accidents and to limit their consequences for people and the environment have been taken;
- Adequate safety and reliability have been incorporated into the design, construction, operation and maintenance of the plant; and
- An on-site emergency plan will be developed.

12.3.2 Emergency Plan

An accident management plan has been developed, describing the techniques which will be implemented to minimise the risks posed to the environment. Activities affecting the health and safety of operatives, contractors and visitors will be separately managed in compliance with H&S regulation and the Contractor's H&S policy.

Environmental accident prevention is managed within the overall site health, safety, quality and environmental management programme. Management and procedures relating to emergency preparedness and response are documented within an Emergency Procedures Manual contained within the IMS (Integrated Management System).

The individual elements of the emergency plan are outlined below.

12.3.2.1 Incident Controller

The Site Duty Safety Officer is identified in the emergency response plan, and will have the responsibility to mobilise and co-ordinate a response team.

The Incident Controller must follow the site escalation plan and is responsible for all communications with the emergency services and regulatory body.

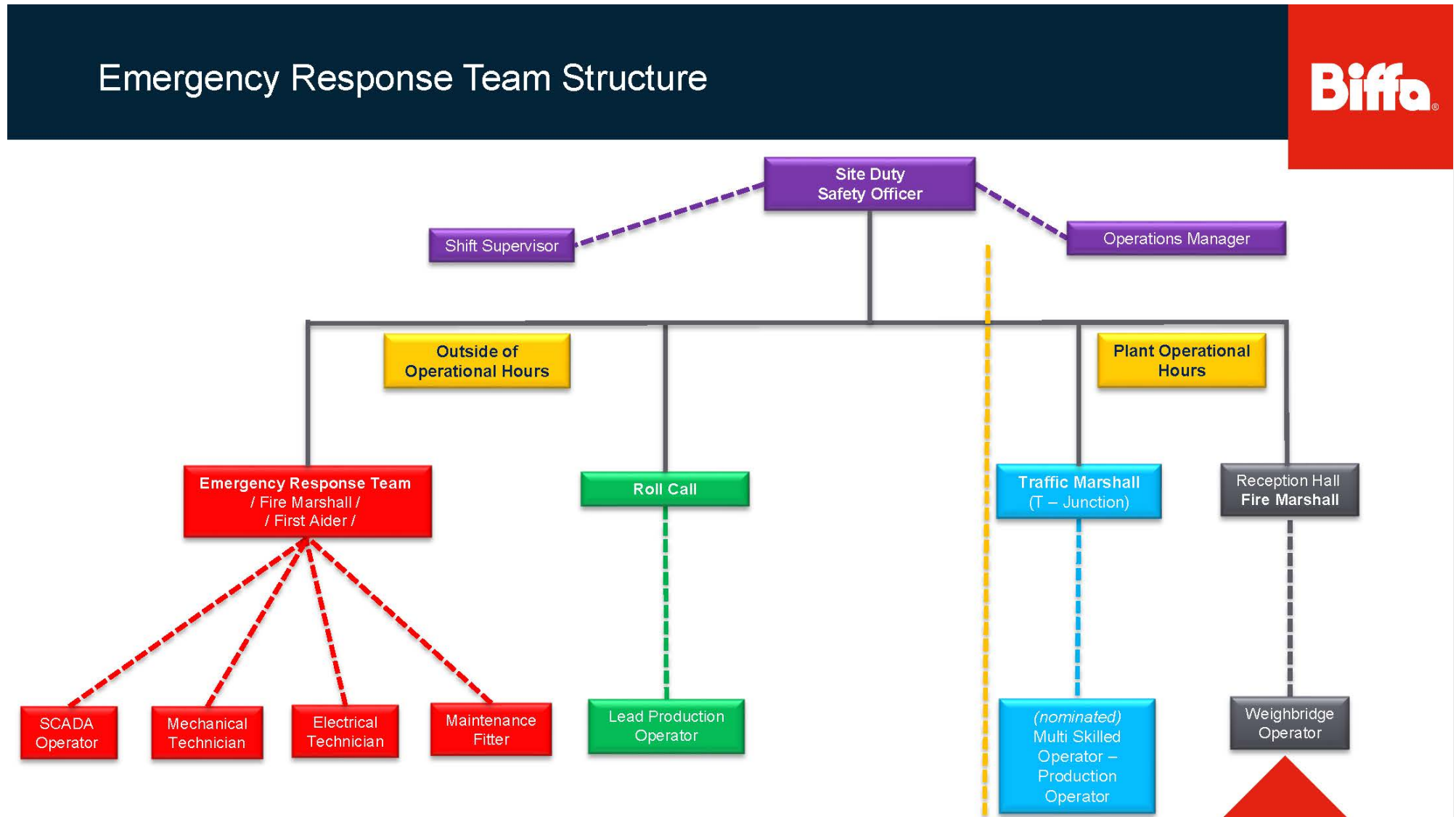
12.3.2.2 Response Team

The emergency response team is shown in the organogram on Figure 9 below and will comprise of:

- One or more field managers, depending on the size and scope of the event;
- Appropriate numbers of plant operatives; and
- A logistics manager and supporting staff will be responsible for co-ordinating communications with representatives of the councils and WCA's as appropriate.

The emergency response team will follow the relevant escalation plan with the main aim is being to ensure that normal operations and services were restored at the earliest opportunity. WSCC and WCA's will be notified as appropriate following implementation of the escalation plan.

Figure 9. Emergency Response Team



12.3.3 Emergency Procedures

The emergency procedures will be maintained within the site overall management plan and adequate stocks of suitable equipment retained at the Facility. Procedures will be present for managing all reasonably foreseeable incidents, including:

- Fire;
- Material spillage;
- Fume release;
- Personal injury; and
- Unintended reactions.

In the event of an accident or incident taking place, plant personnel will implement the actions detailed in the site emergency procedures.

12.4 Management Arrangements During and After a Fire

12.4.1 Contingency Tipping Arrangements

For incidents which affect the main MBT plant, the MBT Plant Manager will instigate the contingency tipping plan arrangements.

Table 11. Contingency Arrangements

MBT Plant Status	Britanniacrest Status	Redhill Landfill Status	Recommended Action
Ok	Ok	Ok	Keep running the plant as normal
Ok	Ok	Closed	Keep receiving waste. Stop processing. Follow the Escalation Plan.
Closed	-	Ok	Divert inputs to Redhill Landfill site. Divert outputs to Redhill Landfill site. Stop processing. Follow the Escalation Plan.
Closed	Closed	Closed	Refer to Business Continuity Plan. Follow the Escalation Plan.

For incidents affecting the Site Ha Waste Storage and Transfer Area the MBT Plant Manager will immediately cease sending trailers (full or empty) to Site Ha during a fire. The incoming waste will either be:

- Temporarily held in trailers on the MBT site until Site Ha has been made safe.
- Redirected for onward transmission to the final recovery site directly from the MBT (EfWs for RDF or land restoration sites for digestate)
- Stored in the MBT Front Hall loose for RDF or in enclosed containers for digestate.

12.4.2 Notifying residents and businesses

Small fire – put out quickly by site staff with no real damage: residents and nearby businesses will not be notified.

Medium fire – confined to one bay and put out within 30 minutes by site staff with minimal damage: residents and nearby businesses will not be notified.

Large fire – takes longer than 30 minutes to put out and Fire & Rescue Services (FRS) need to attend. Biffa West Sussex will follow the escalation protocols set out to both Biffa internal and WSCC external escalation of the event. If requested by the FRS and contact details are available at the MBT, residents and affected nearby businesses will be notified either by phone call if there is an imminent threat, or by e-mail after the event if there is potential damage to their property. Should the Fire & Rescue Services deem it best to allow a fire to burn itself out, then this should not take longer than 4 hours to burn out based on a maximum 2 trailers per bay, holding a maximum of 62 tons of waste at 10-15Mj/kg.

12.4.2.1 Clearing and decontamination after a fire

Following successfully dealing with a fire, the following actions will be taken to clear and decontaminate the site:

- a. Fire waters accumulated within the site boundary will be filter down into the site catchment lagoons via the site drainage system where it will be sampled and analysed. Once composition of water is known it will be discharged via the site surface water management system if the discharge parameters can be met otherwise the water will be either pumped to the site MBR treatment plant for treatment or into road tankers for removal to an offsite treatment facility.
- b. Site mobile plant will be used to move and manage solids and sludges generated during the fire – as the MBT does not process waste which could contain POPs, any burned waste will be placed into containers and brought to the MBT Reception Hall for onward disposal to either landfill or EfW facilities depending on the condition of the material. The material will then be sampled and tested and once analysis is known the route to deal with the generated wastes will be identified. .
- c. Once solids and sludges have been removed from the site with the relevant supporting duty of care/consignment documents, the affected areas will be washed down with wash waters being collected in the site drainage system. The intention would be to sample this material and arrange for its removal and treatment at a suitably licenced offsite facility.
- d. Damaged trailers will be removed from site for either commercial disposal if too badly damaged, or to the owner of the trailer for repair.

12.4.2.2 Making the site operational after a fire

Following clearing and decontamination as described above, the following steps would be followed in order to bring the facility and affected plant back into operation:

- Once the burned material has been removed from the damaged area of site, a visual inspection will be made to ensure that there are no residual embers that could ignite again. A touch inspection of the containment walls will also be carried out to ensure that these are cool enough.
- Depending on the severity of the fire, the containment walls will also need to be inspected by a suitable qualified contractor to ensure that they are safe and secure to allow movement within by both trailers and people.
- All site infrastructure and plant will be inspected to ascertain the extent of any damage or repairs and work to rectify any faults will be undertaken by suitably qualified personnel (site and/or external contractors). It is recognised that dependent on the level of damage some items of plant may be beyond effective repair and under these conditions, plant will be replaced as appropriate.
- Plant will be safely re-commissioned undertaking commissioning runs as appropriate dependent on any repair/replacement which has taken place. It is expected that one area of the process will be brought back online at a time – waste acceptance will resume in line with plant reinstatement programme.
- The cause of any fire will be investigated to confirm the cause and identify changes to onsite processes and practices. The investigation will be undertaken in association with the Fire Rescue Service to ensure that nothing is overlooked.
- The site FPP, emergency plan, management system and the physical processes and plant will be reviewed using the learning outcomes of the investigation and improvements made as appropriate. Fire reduction/detection/control measures will be reviewed and updated as relevant as part of this process.
- Site personnel will be retrained in any changes to site procedures and practices.
- The catchment lagoon will be tested for pH, ammoniacal nitrogen and suspended solids to ensure the water can be released into the MBT surface water drainage system should the need arise.

12.5 Reporting and Review

12.5.1 Incident Reporting

Details of all accidents, incidents and emergencies will be recorded in the site diary in line with IMS non-compliance reporting procedures.

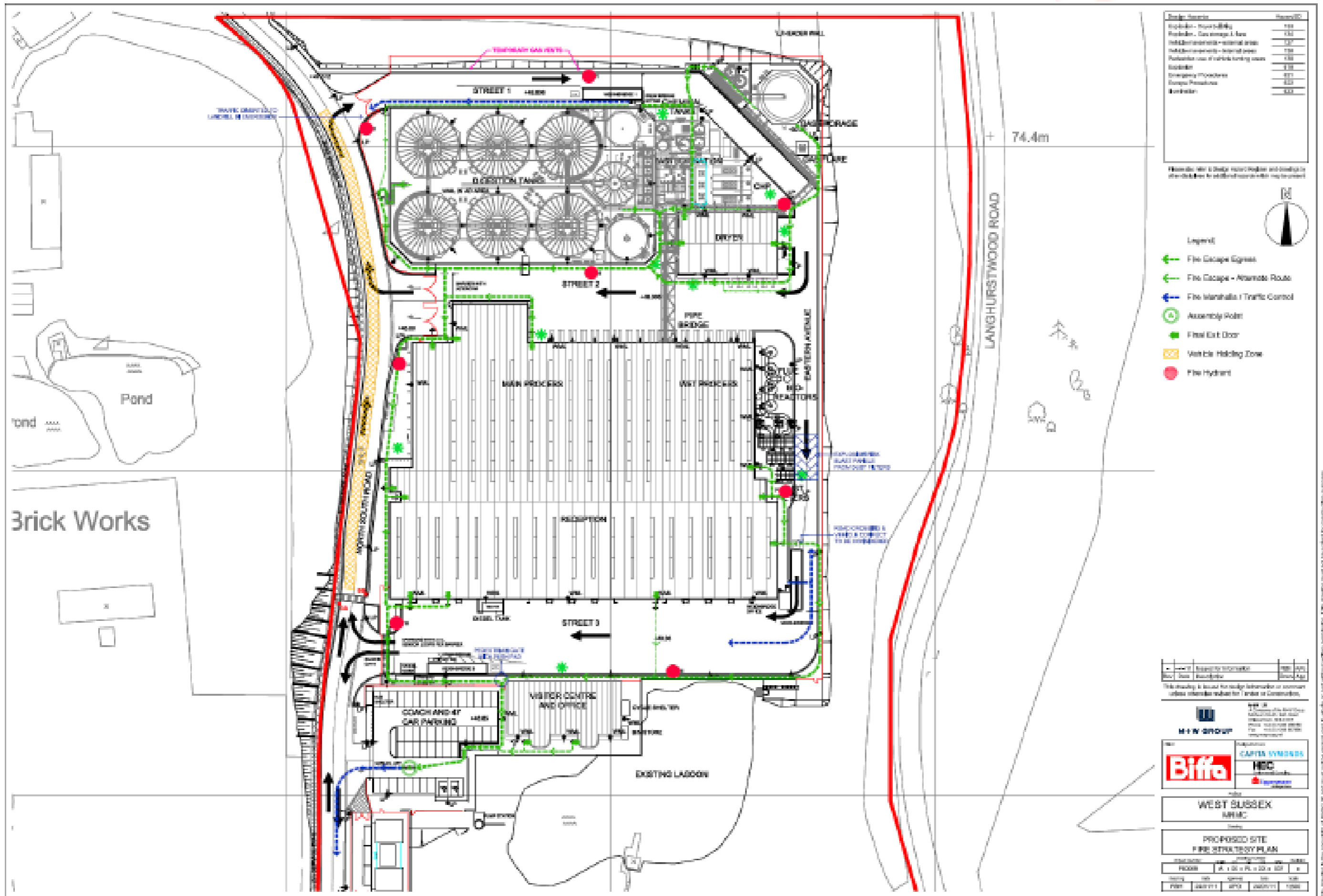
All emergency incidents involving fire, explosion or material release (fume/spillage) will be reported to the Environment Agency as soon as practicably possible. A written report detailing the nature of the incident, causes and remedial action will be sent the Environment Agency in line with the Environmental Permit reporting requirements.

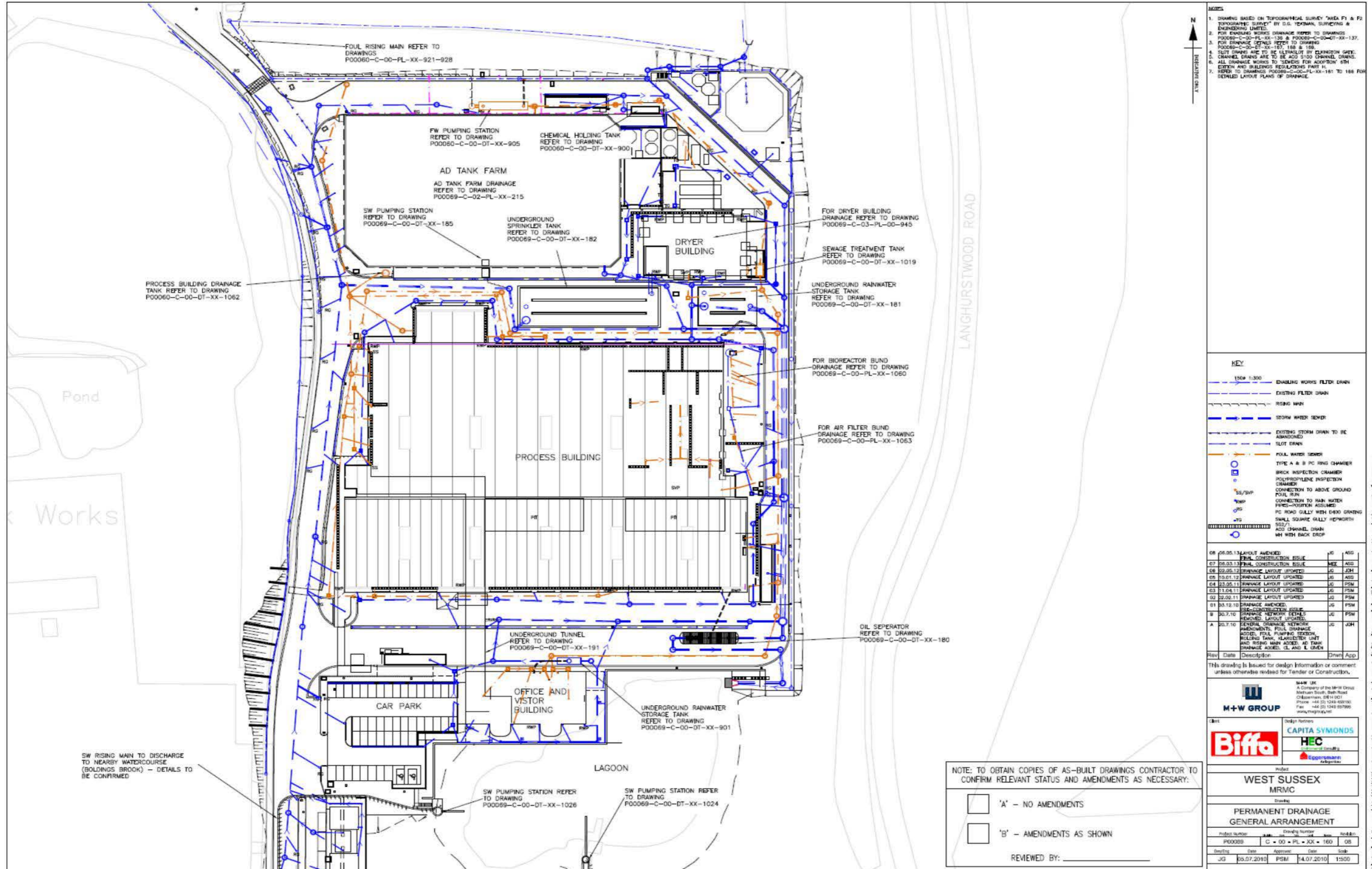
12.5.2 Emergency Plan Review

The effectiveness of the site controls will be reviewed at least annually during the audit process. However these will be also verified during any accident/incident investigation in order to ensure that the site system remains effective.

Appendix A Site Plans

MAIN MBT AREA DRAWINGS





- NOTES**
- DRAWING BASED ON TOPOGRAPHICAL SURVEY 'AREA P1 & P2 TOPOGRAHIC SURVEY' BY S.G. YEATMAN, SURVEYING & ENGINEERING LIMITED.
 - FOR ENABLING WORKS DRAINAGE REFER TO DRAWINGS P00069-C-00-PL-181-186 & P00069-C-00-PL-187-192.
 - FOR DRAINAGE DETAILS REFER TO DRAWINGS P00069-C-00-DT-XX-187, 188 & 189.
 - SLOT DRAINS ARE TO BE ULTRASLOT BY CLIMAXION SPEC.
 - CHANNEL DRAINS ARE TO BE ACC 5100 CHANNEL DRAINS.
 - ALL DRAINAGE WORKS TO 'DESIGNS FOR ADOPTION' WITH EDITION AND BUILDINGS REGULATIONS PART H.
 - REFER TO DRAWINGS P00069-C-00-PL-XX-181 TO 186 FOR DETAILED LAYOUT PLANS OF DRAINAGE.

KEY

1:500 1:300	ENABLING WORKS FILTER DRAIN
---	EXISTING FILTER DRAIN
---	EXISTING FLOOR DRAIN
---	EXISTING RISING MAIN
---	STORM WATER SEWER
---	EXISTING STORM DRAIN TO BE ABANDONED
---	SLOT DRAIN
---	POUL WATER SEWER
○	TYPE A & B PC RING CHAMBER
○	BRICK INSPECTION CHAMBER
○	POLYPROPYLENE INSPECTION CHAMBER
○	CONNECTION TO ABOVE GROUND POUL RUN
○	CONNECTION TO RAIN WATER PINE-POSTION ASSUMED
○	PC ROAD GULLY WITH 4000 GRATING
○	SMALL SQUARE GULLY 400X400
○	ACC CHANNEL DRAIN
○	MH WITH BACK DROP

Rev	Date	Description	Drawn	App
08	05.05.13	LAYOUT AMENDED	JG	ASG
07	05.03.13	FINAL CONSTRUCTION ISSUE	HEC	ASG
06	22.05.12	DRAINAGE LAYOUT UPDATED	JG	JH
05	10.01.12	DRAINAGE LAYOUT UPDATED	JG	ASG
04	23.05.11	DRAINAGE LAYOUT UPDATED	JG	PSM
03	13.04.11	DRAINAGE LAYOUT UPDATED	JG	PSM
02	22.02.11	DRAINAGE LAYOUT UPDATED	JG	PSM
01	03.12.10	DRAINAGE AMENDED	JG	PSM
B	30.7.10	DRAINAGE NETWORK DETAILS REWORKED LAYOUT UPDATED	JG	PSM
A	30.7.10	GENERAL DRAINAGE NETWORK AMENDMENTS POUL DRAINAGE AMENDED, PUL PUMPING STATION, HOLDING TANK, ALABASTER UNIT AND RISING MAIN ADDED. AD TANK DRAINAGE AMENDED, CL AND L UNEN	JG	JH

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Design Partner
CAPITA SYMONDS
HEC
Engineering
Eggsborough

Project: **WEST SUSSEX MRMC**

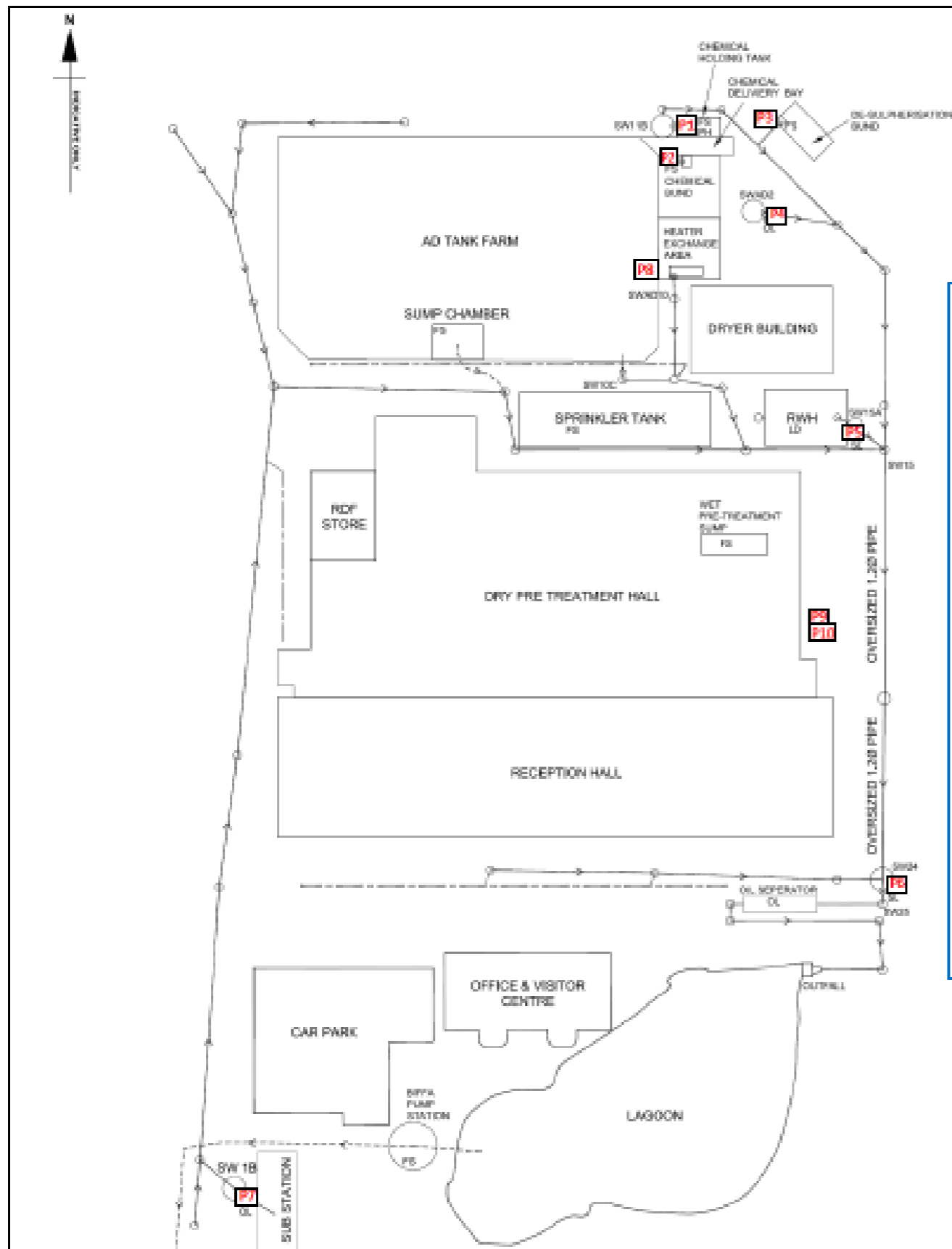
Drawing: **PERMANENT DRAINAGE GENERAL ARRANGEMENT**

Project Number	Drawing Number	Scale	Revision	
P00069	C - 00 - PL - XX - 180	1:500	08	
Drawn/Issued	Date	Approved	Date	Scale
JG	05.07.2010	PSM	14.07.2010	1:500

NOTE: TO OBTAIN COPIES OF AS-BUILT DRAWINGS CONTRACTOR TO CONFIRM RELEVANT STATUS AND AMENDMENTS AS NECESSARY:

- 'A' - NO AMENDMENTS
- 'B' - AMENDMENTS AS SHOWN

REVIEWED BY: _____



KEY

- PENSTOCK
- MANHOLE
- GRAVITY SEWER
- PUMPING LINES
- SLOT DRAIN
- FS LEVEL FLOAT SWITCH
- PH PH SENSOR
- LD LEVEL DETECTION SENSOR
- OL OIL LEVEL SENSOR
- SCADA LINE

FUNCTIONAL DETAIL: PENSTOCKS AND DRAINAGE PUMPS

(n/o = normally open; n/c = normally closed)

P1 (auto, n/o): Chemical Delivery Area – function is to contain a chemical spillage during offload: must be closed for chemical loading to start.

P2 (manual, n/c): Chemical Bund – function is to contain a chemical leak. Sump must be inspected and tested for pH before a decision is made to open the penstock to allow discharge to the AD Sump via surface water drainage.

P3 (manual, n/c): Gas Island sump – function is to contain a spillage of Ammonium Sulphate Tank. The Ammonium Sulphate tank has been taken out of service so this penstock is normally discharged to surface water as required.

P4 (auto, n/o): Transformer Bund by CHPs – function is to contain a transformer oil leak. Oil sensor will trigger SCADA to shut P4 if an oil leak is detected.

P5 (auto, n/o): Rainwater Harvesting Tank (RWH) function is to prevent contamination of Rainwater Harvesting Tank. Under SCADA control. Fire alarm will shut P5.

P6 (auto, n/o): Surface Water to Lagoon – function is to prevent discharge of contaminated fire water to lagoon. Under SCADA control. Fire alarm will shut P6.

P7 (auto, n/o): Transformer Bund by HV substation – function is to contain a transformer oil leak. Oil sensor will trigger SCADA to shut P7 if oil leak is detected.

P8 (manual, n/o): Heat Exchanger Area – manually closed to contain any spillages from cleaning or maintenance activities in the heat exchanger area.

P9 (manual, n/c): Bioreactor Bund sump (Condensate feed line) – Normally closed. If a spill has occurred in the Bio Reactor bund, P9 can manually be opened (while P10 remains closed) to allow drainage to Condensate Well 2. Condensate Well 2 is discharged by a submersible pump to the Hydrolysis Tank. (See Drawing P00069-C-00-PL-1060)

P10 (manual, n/c): Bioreactor Bund sump (Surface water discharge) - Normally closed. The sump must be inspected and tested for contaminants before a decision is made on where to discharge the contents. If the water is contaminated or if a spill has occurred, P9 can manually be opened (while P10 remains closed) to allow drainage to Condensate Well 2. Condensate Well 2 is discharged by a submersible pump to the Hydrolysis Tank. If the water is clean P10 can be opened (while P9 remains closed) to allow discharge to surface water.

AD Bund Sump Pumps (semi-auto) – controls the discharge of liquid from AD Bund. The sump must be inspected and tested for contaminants before a decision is made on where to discharge the contents. If the water is contaminated or if a spill has occurred, the contents should be pumped to Hydrolysis Tank. If the water is clean it can be pumped to surface water drainage.

Southern Lagoon Sump Pumps (auto) – controls the discharge of surface water offsite (to culvert A). Discharge is governed by the levels of the lagoon and quality of the water.

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Biffa

CAPITA SYNOBOS

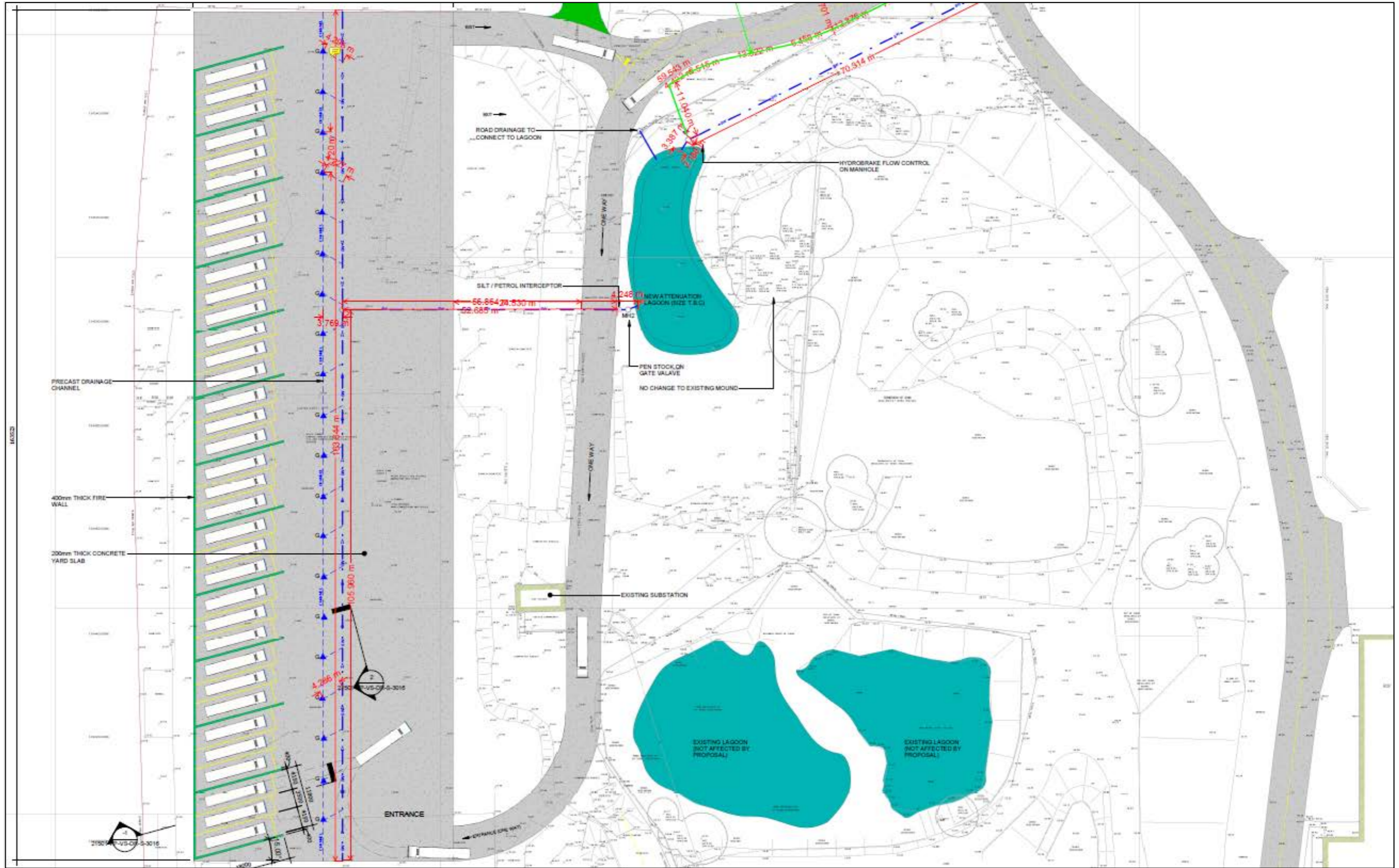
HFC

WEST SUBSEX
MMMC

SURFACE WATER SCHEMATIC
FIGURE 1

Project number: 60586541
Drawing number: P00069-C-00-PL-1060
Scale: 1:100
Date: 27/05/11
Author: [Name]
Check: [Name]

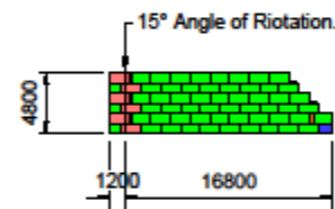
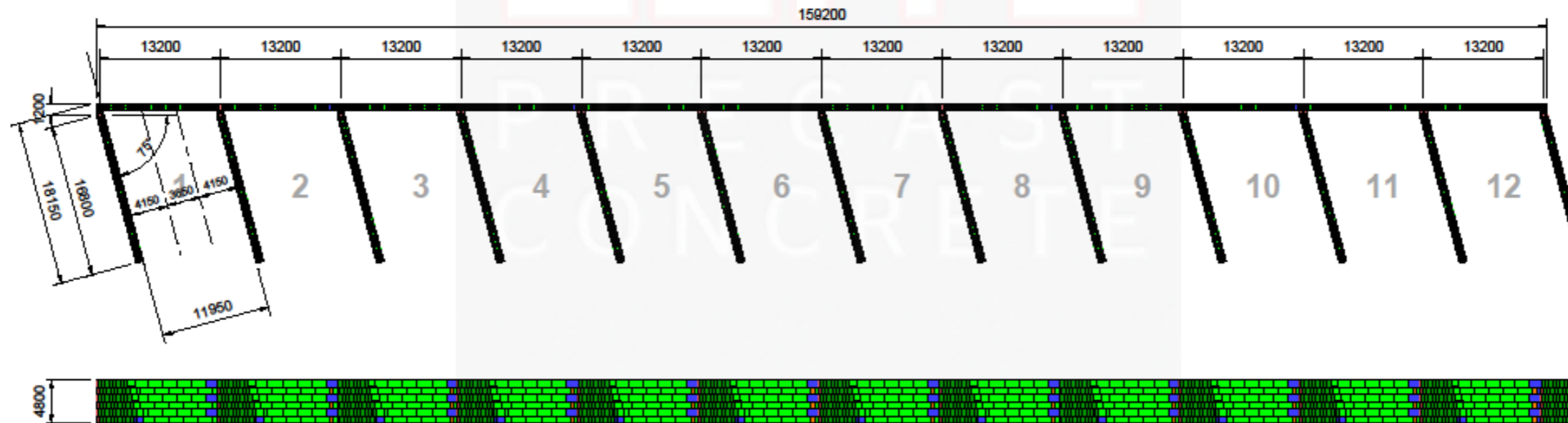
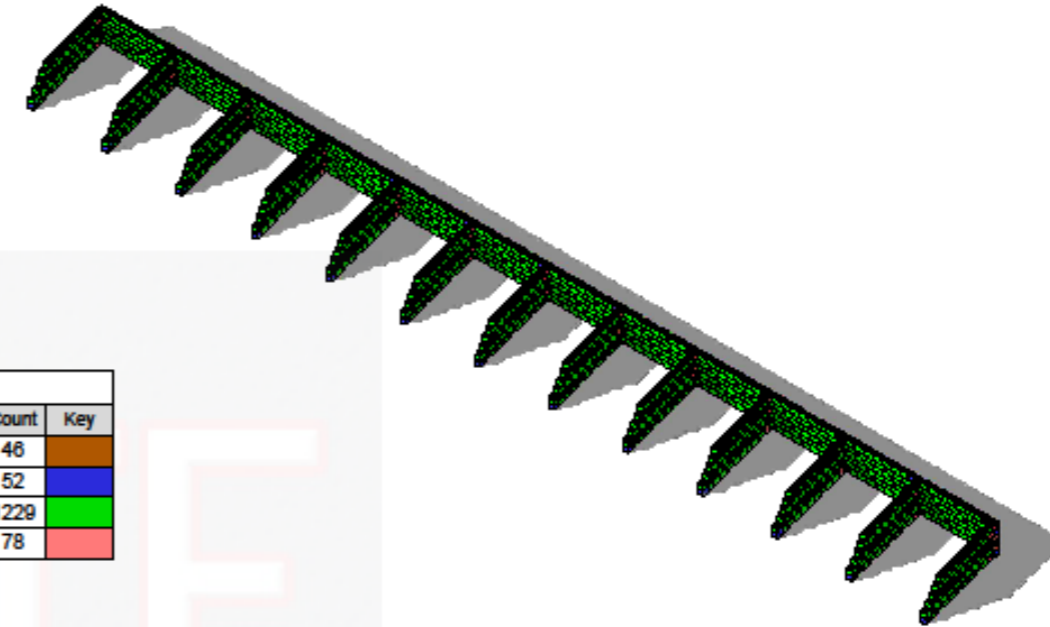
SITE HA AREA DRAWINGS



A3 - Scale 1:500

- It should be noted that this drawing has been provided as per the clients requirements, and **NO** structural calculations have been carried out. The client should satisfy themselves that the walls are fit for their intended use and that the slabs / ground are capable of safely carrying the loads from the walls.
 - The retained material should be allowed to naturally fall against the wall as it is stacked. **DO NOT** allow the retained material to stand up on its own as this could lead to catastrophic failure of the material and the wall.
 - The wall has **NOT** been designed to withstand the impact of the retained material suddenly falling against the wall due to incorrect loading.
 - Wall(s) have **NOT** been designed for either retained material to be compacted by vehicle(s) driving over or on top of the retained material, or by direct impact of the loading vehicle(s).
- (A reinforced concrete slab is required when the underlying ground has insufficient bearing capacity or significant settlement is anticipated).*
- The interlocking blocks are colour coded to help identify the different blocks that are typically used in a design, and are not representative of the actual colour of the blocks.

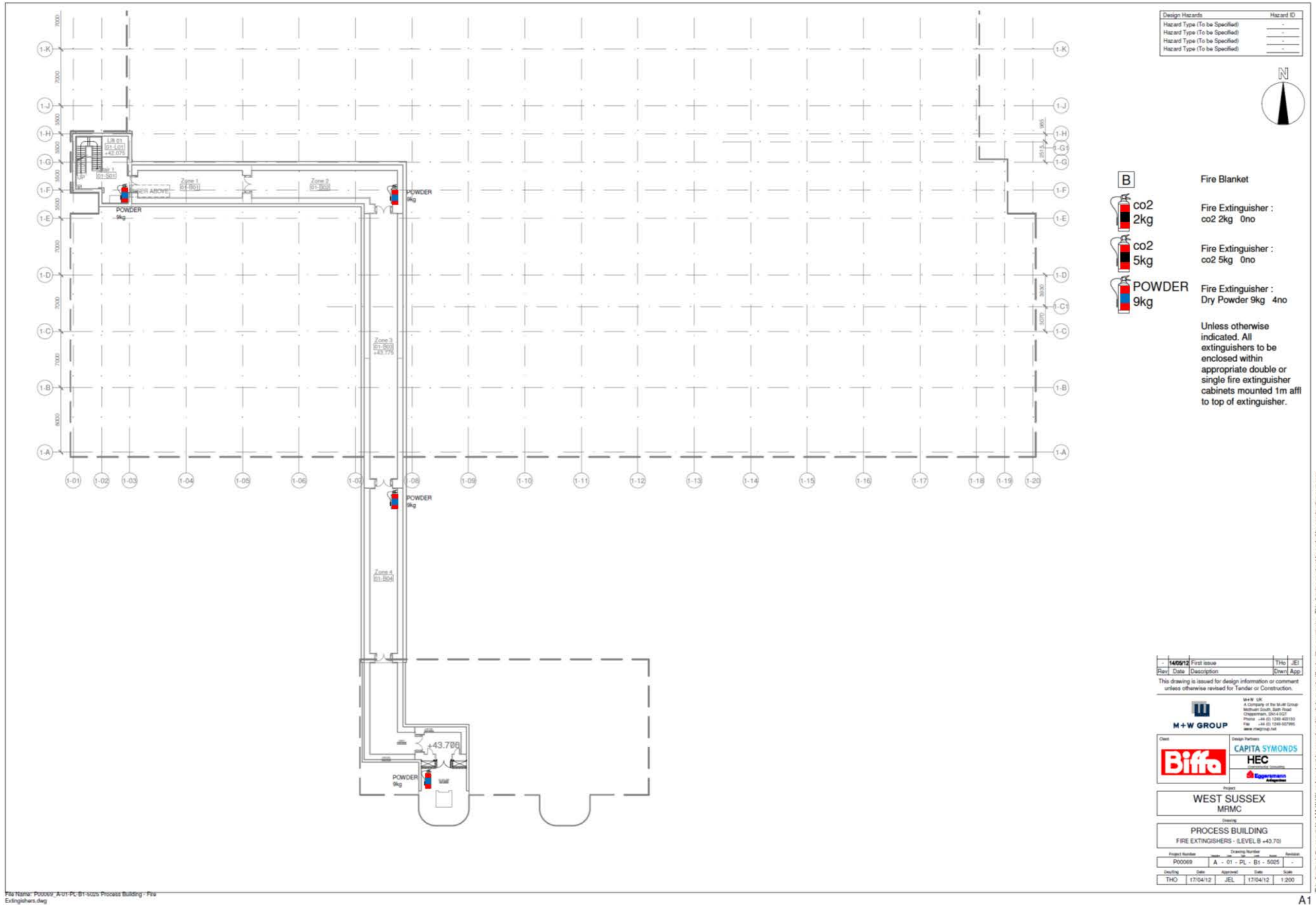
Legato® Block Proposal			
Code	Dimensions	Count	Key
LG2	400 x 800 x 800 x 0.6t	46	Orange
LG8	1200 x 800 x 800 x 1.8t	52	Blue
LG8	1600 x 800 x 800 x 2.4t	1229	Green
LG12	1500 x 800 x 800 x 2.24t	78	Red



EPC-LOT-1877 - Proposed 12 Bay Vehicle Parking Bunker - 13.2m wide x 17.2m deep (internal) x 4.8m high - Biffa - Brockhurst Wood - Horsham (Legato)





Drawn : CTC 08 June 2021

Appendix B MBT Plant Fire Extinguisher Locations



Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



-  Fire Blanket
-  Fire Extinguisher :
co2 2kg 0no
-  Fire Extinguisher :
co2 5kg 0no
-  Fire Extinguisher :
Dry Powder 9kg 4no

Unless otherwise indicated, All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m affl to top of extinguisher.

Rev	Date	Description	Drawn	App
1	14/09/12	First Issue	THO	JEL

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Design Partners: **CAPITA SYMONDS**, **HEC**, **Espermann**

Project: **WEST SUSSEX MPMC**

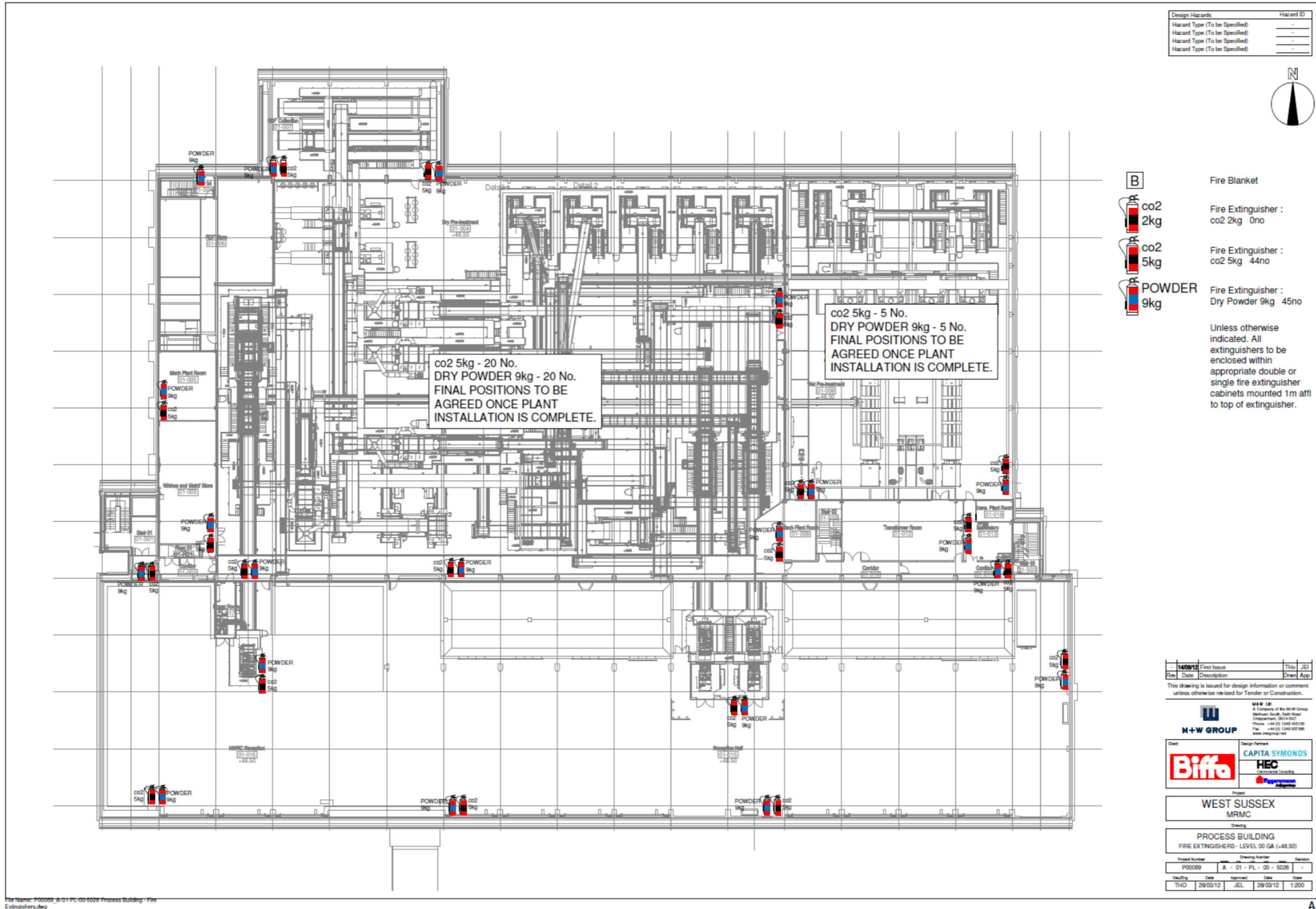
Drawing: **PROCESS BUILDING FIRE EXTINGUISHERS - (LEVEL B +43.70)**

Project Number	Drawing Number	Issue	Rev	Issue	Revision
P00069	A - 01 - PL - B1 - 5025	-	-	-	-

Designing	Date	Approved	Date	Scale
THO	17/04/12	JEL	17/04/12	1:200

File Name: Process_A-01-PL-B1-5025 Process Building - Fire Extinguishers.dwg

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Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



- B**
- CO2 2kg
 - CO2 5kg
 - POWDER 9kg
- Fire Blanket
- Fire Extinguisher :
co2 2kg 0no
- Fire Extinguisher :
co2 5kg 44no
- Fire Extinguisher :
Dry Powder 9kg 45no
- Unless otherwise indicated. All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m affl to top of extinguisher.

Rev	Date	Description	Drawn	App
-	14/09/12	First Issue	THO	JEL

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Design Partner: **CAPITA SYMONDS**
HEC
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Engineering Solutions

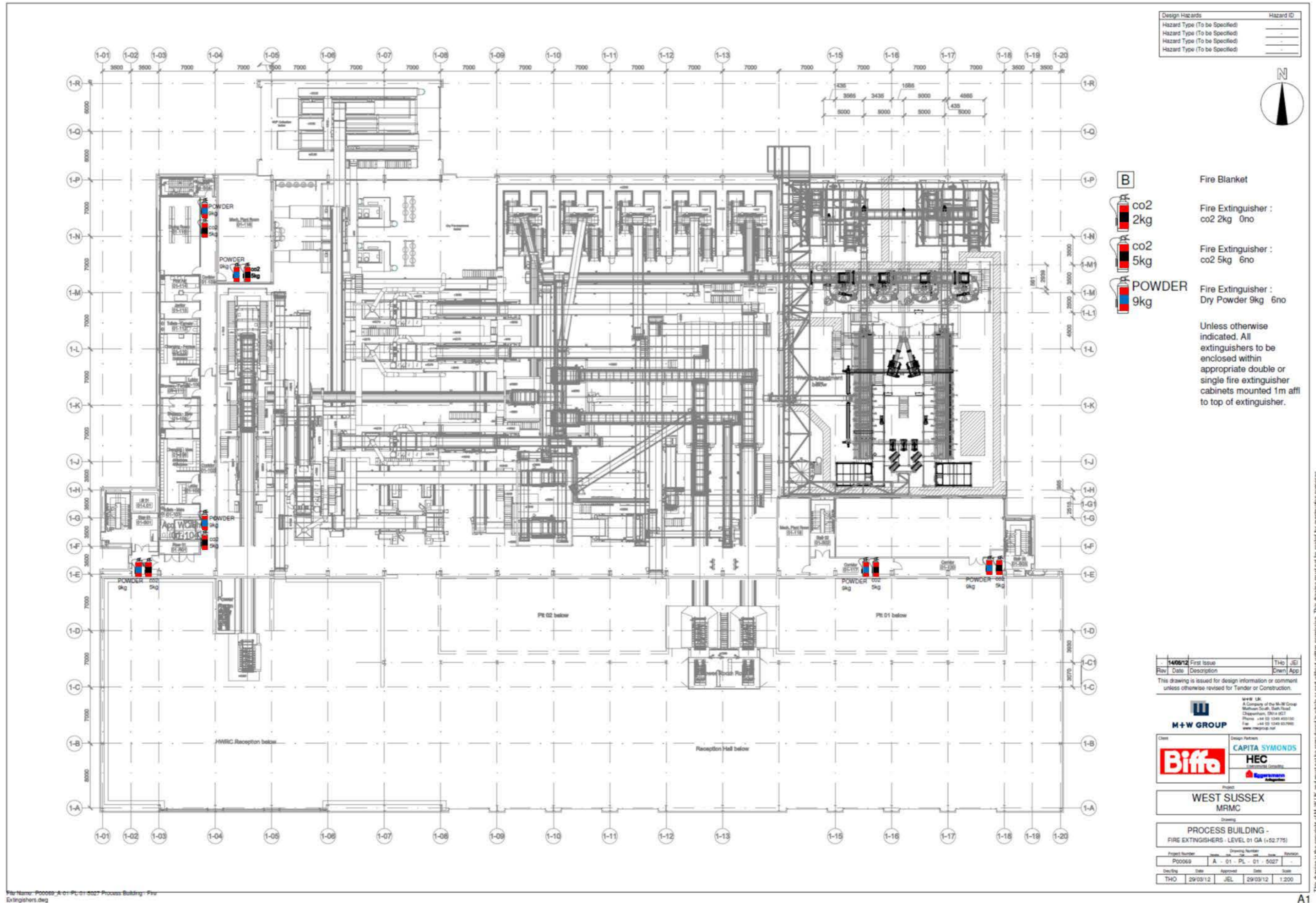
Project: **WEST SUSSEX MRM**

Drawing: **PROCESS BUILDING FIRE EXTINGUISHERS - LEVEL 00 GA (+48.50)**

Project Number	Drawing Number	Scale
P00089	A - 01 - PL - 00 - 5028	-

Check/Eng	Date	Approved	Date	Scale
THO	29/03/12	JEL	29/03/12	1:200

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Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-

- Fire Blanket
- Fire Extinguisher : co2 2kg 0no
- Fire Extinguisher : co2 5kg 6no
- Fire Extinguisher : Dry Powder 9kg 6no

Unless otherwise indicated. All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m afft to top of extinguisher.

Rev	Date	Description	Tho	JEL
140012		First Issue		

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Project:
WEST SUSSEX MRMC

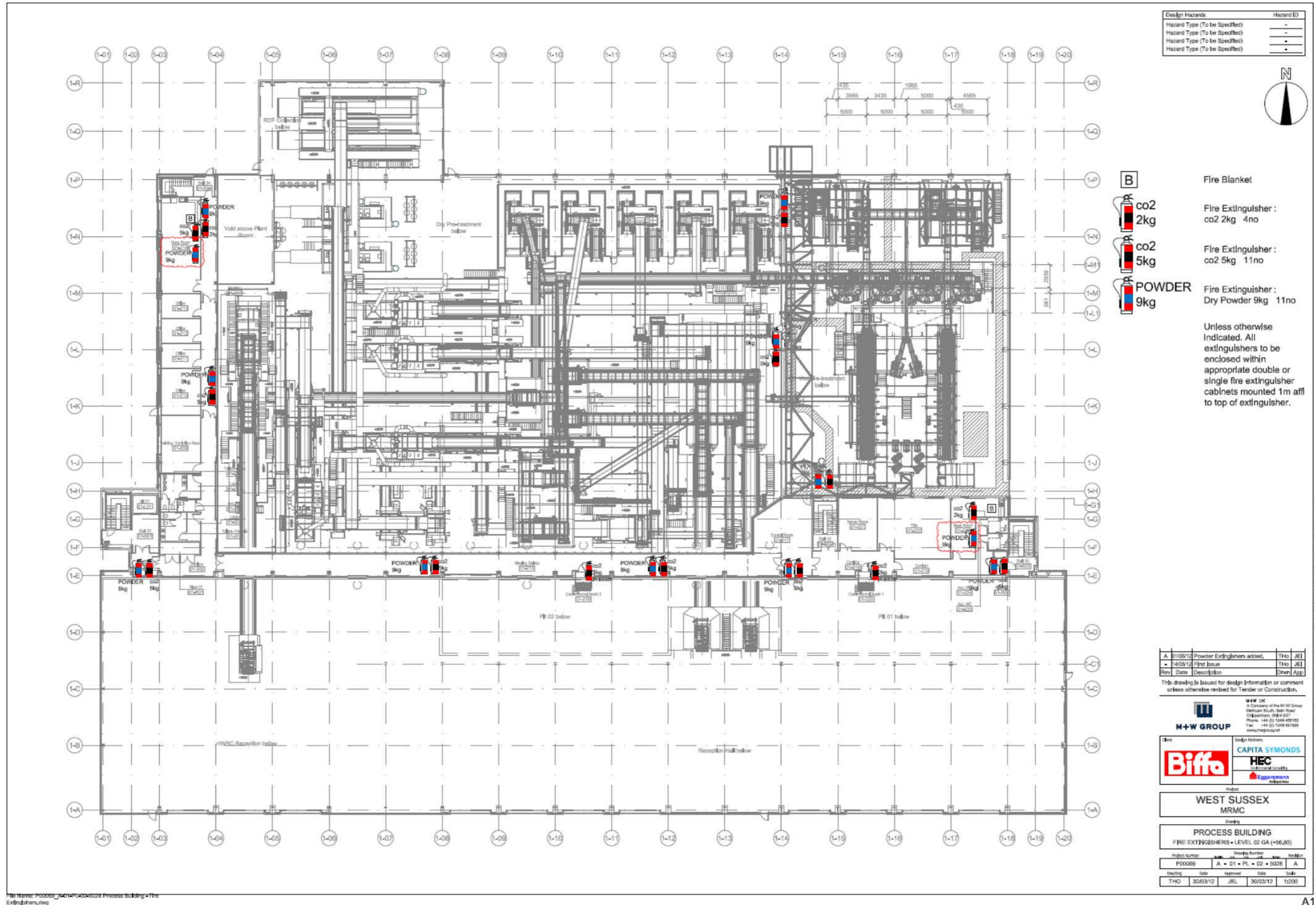
Drawing:
PROCESS BUILDING - FIRE EXTINGUISHERS - LEVEL 01 GA (1-52-775)

Project Number	Issue	Rev	Date	Scale	Revision
P00069	A	01	PL	01	5027

Des/Eng	Date	Approved	Date	Scale
THO	29/03/12	JEL	29/03/12	1:200

File Name: P00069_A-01-PL-01-5027-Process Building - Fire Extinguishers.dwg

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Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



- B** Fire Blanket
- Fire Extinguisher :
co2 2kg 4no
- Fire Extinguisher :
co2 5kg 11no
- Fire Extinguisher :
Dry Powder 9kg 11no

Unless otherwise indicated. All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m aff to top of extinguisher.

Rev	Date	Description	Drawn	Appr
A	01/08/12	Powder Extinguishers added.	THO	JEL
-	14/05/12	First Issue	THO	JEL

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Biffa Design Partner
CAPITA SYMONDS
HEC HEC
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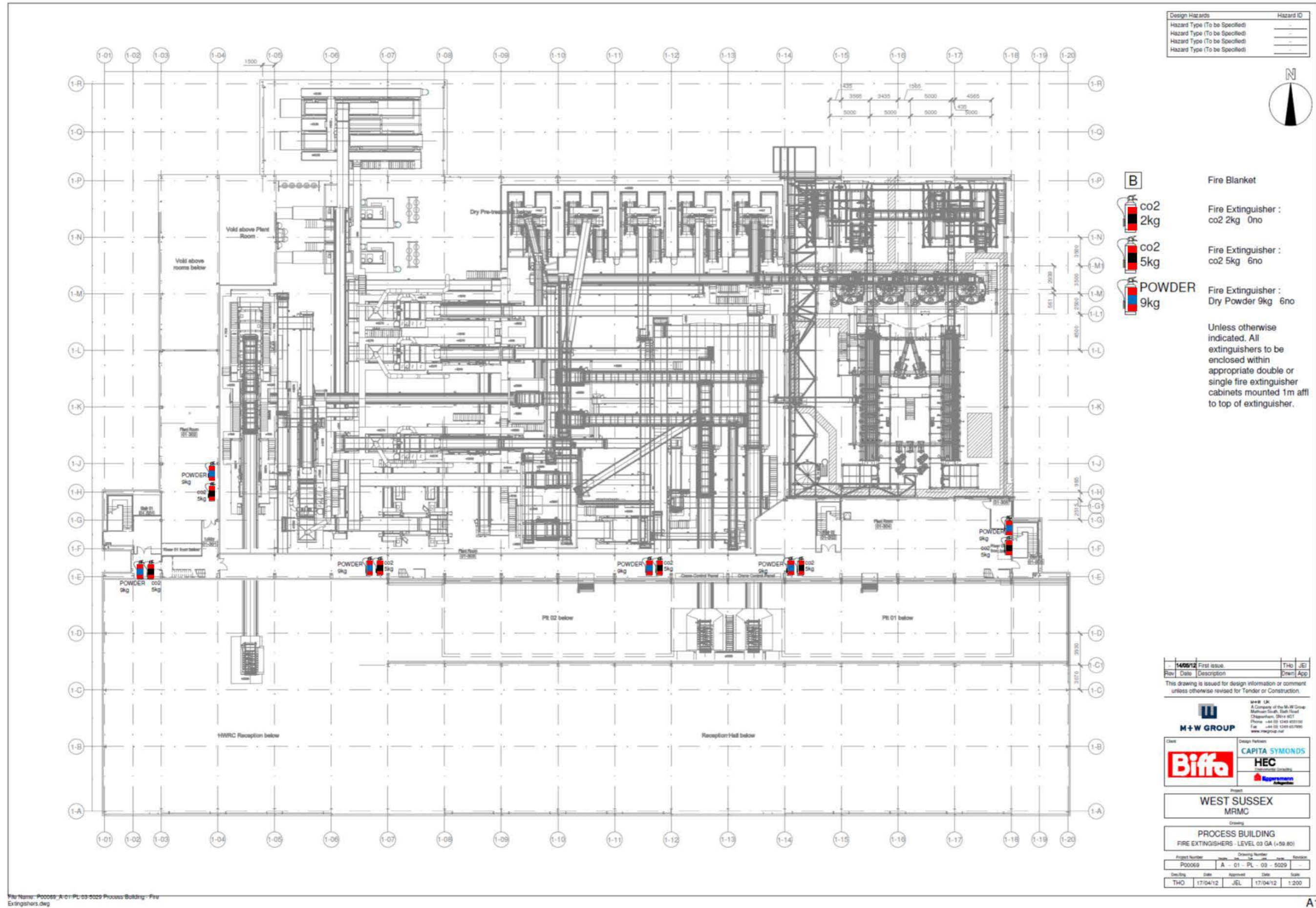
Project
WEST SUSSEX MRCM

Drawing
PROCESS BUILDING
FIRE EXTINGUISHERS - LEVEL 02 GA (+56.00)

Project Number	Drawing Number	Revision
P00066	A - 01 - PL - 02 - 002B	A
Drawing Date	Approval Date	Scale
THO 30/03/12	JEL 30/03/12	1:200

File Name: P00066_A01-PL-02-002B Process Building - Fire Extinguishers.dwg

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Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-

- Fire Blanket
- Fire Extinguisher :
co2 2kg 0no
- Fire Extinguisher :
co2 5kg 6no
- Fire Extinguisher :
Dry Powder 9kg 6no

Unless otherwise indicated, All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m affl to top of extinguisher.

Rev	Date	Description	THO	JEL
1	14/05/12	First issue.	THO	JEL

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Project: **WEST SUSSEX MRMC**

Drawing: **PROCESS BUILDING FIRE EXTINGUISHERS - LEVEL 03 GA (+59.80)**

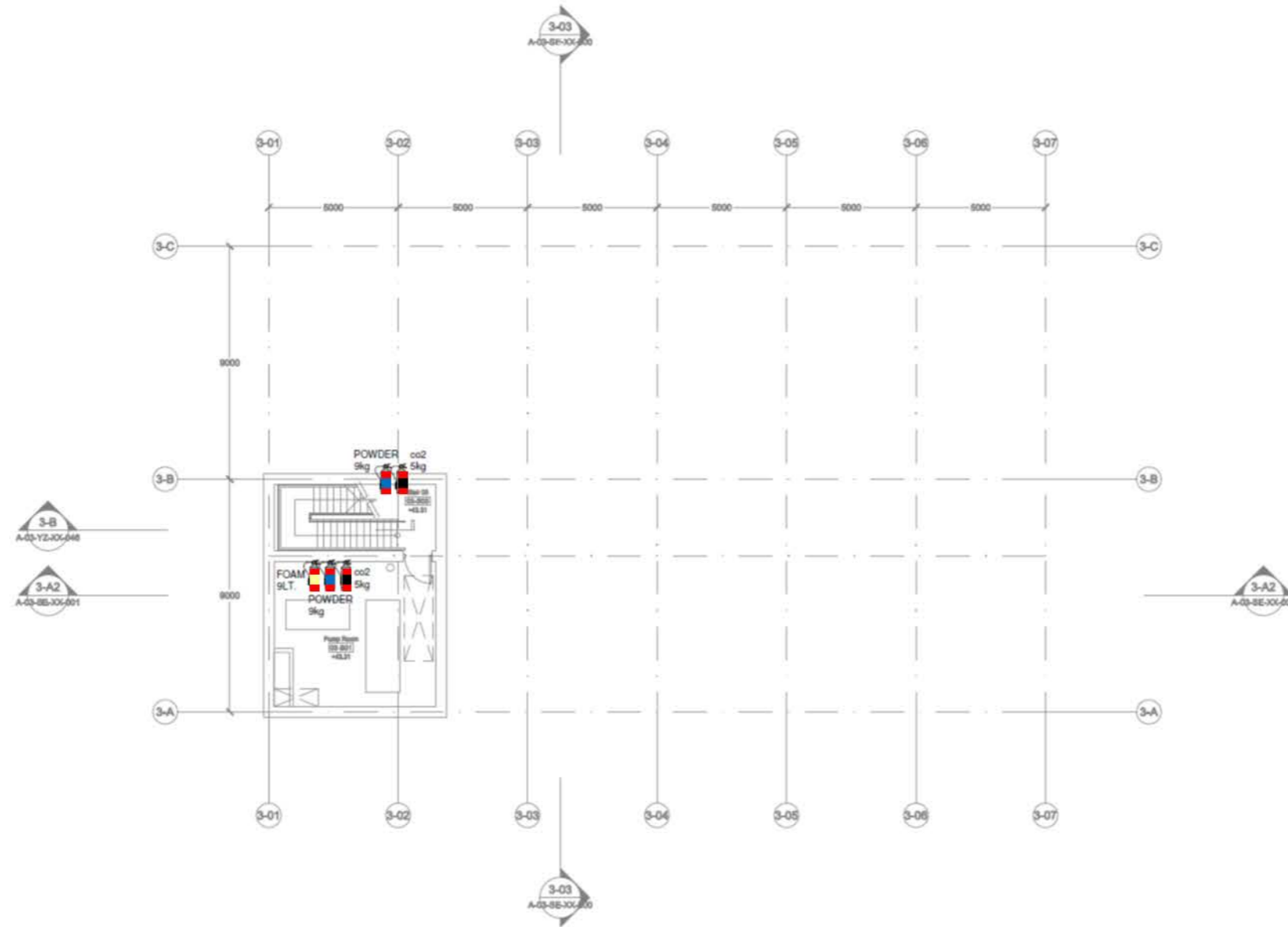
Project Number	Issue	Rev	Date	App	Scale
P00069	A	01	PL - 03 - 5029	-	-

Des/By	Date	Approved	Date	Scale
THO	17/04/12	JEL	17/04/12	1:200

File Name: P00069_A-01-PL-03-5029 Process Building - Fire Extinguishers.dwg

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Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



- FOAM 9LT.** Fire Extinguisher : Foam 9LT. 1no
- co2 2kg** Fire Extinguisher : co2 2kg 0no
- co2 5kg** Fire Extinguisher : co2 5kg 2no
- POWDER 2kg** Fire Extinguisher : Dry Powder 2kg 0no
- POWDER 9kg** Fire Extinguisher : Dry Powder 9kg 2no

Unless otherwise indicated. All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m affl to top of extinguisher.

Rev	Date	Description	Tho	JEL
1	14/05/12	First Issue		

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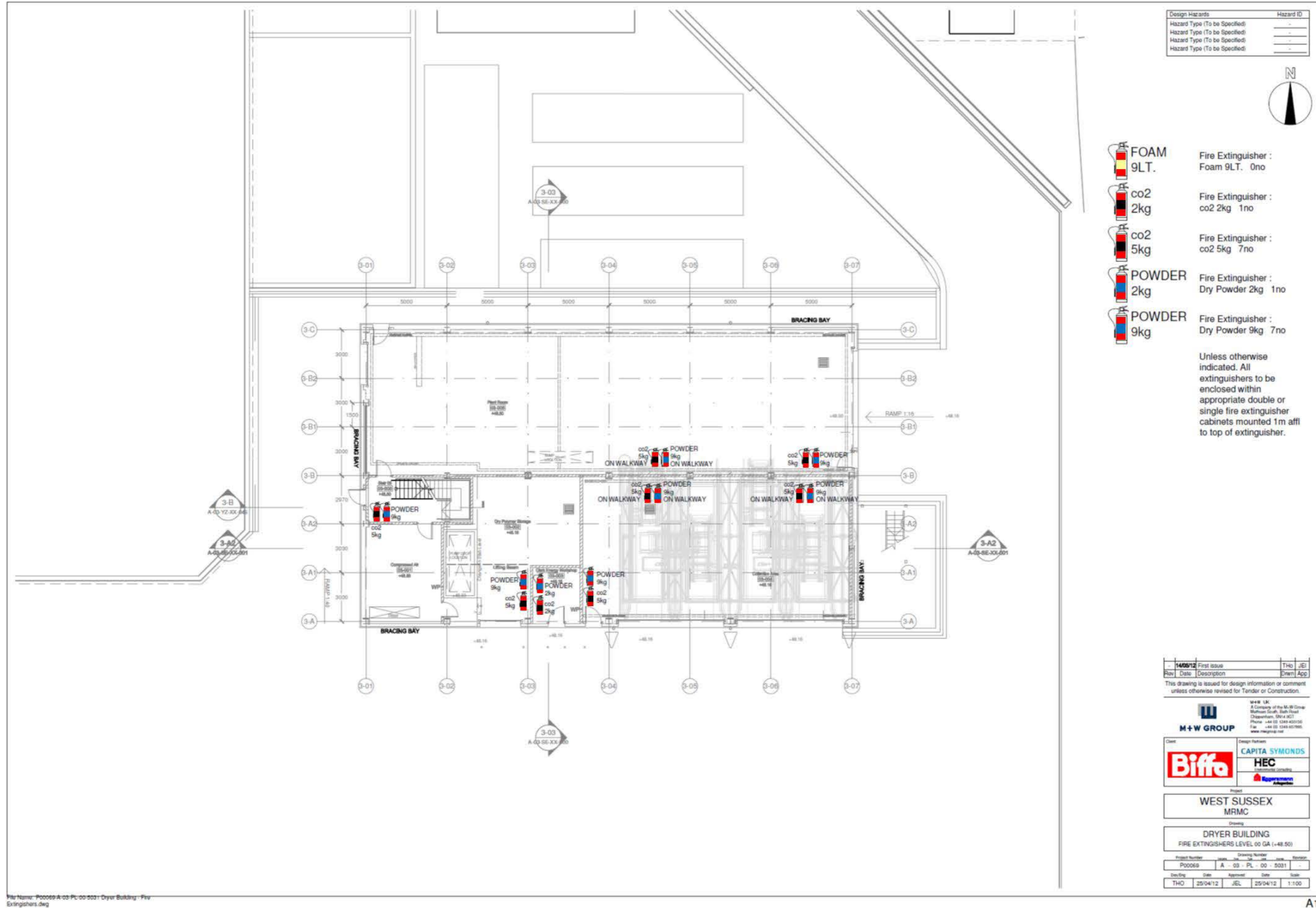
Project: **WEST SUSSEX MPMC**

Drawing: **DRYER BUILDING
FIRE EXTINGUISHERS LEVEL B1 GA (+4.31)**

Project Number	Issue	Rev	Rev	Rev	Rev
P00069	A	03	PL	B1	5030






Des/Drp	Date	Approved	Date	Scale
THO	25/04/12	JEL	25/04/12	1:100

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Design Hazards	Hazard ID
Hazard Type (To be Specified)	--
Hazard Type (To be Specified)	--
Hazard Type (To be Specified)	--
Hazard Type (To be Specified)	--



-  **FOAM 9LT.** Fire Extinguisher : Foam 9LT. 0no
-  **co2 2kg** Fire Extinguisher : co2 2kg 1no
-  **co2 5kg** Fire Extinguisher : co2 5kg 7no
-  **POWDER 2kg** Fire Extinguisher : Dry Powder 2kg 1no
-  **POWDER 9kg** Fire Extinguisher : Dry Powder 9kg 7no

Unless otherwise indicated. All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m aff to top of extinguisher.

Rev	Date	Description	THO	JEL
1	14/05/12	First issue	THO	JEL

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Project: **WEST SUSSEX MPMC**

Drawing: **DRYER BUILDING FIRE EXTINGUISHERS LEVEL 00 GA (-48.50)**

Project Number	Drawing Number	Revision
P00060	A - 03 - PL - 00 - 5031	-

Drawn	Date	Approved	Date	Scale
THO	25/04/12	JEL	25/04/12	1:100

File Name: P00060 A-03-PL-00-5031 Dryer Building - Fire Extinguishers.dwg

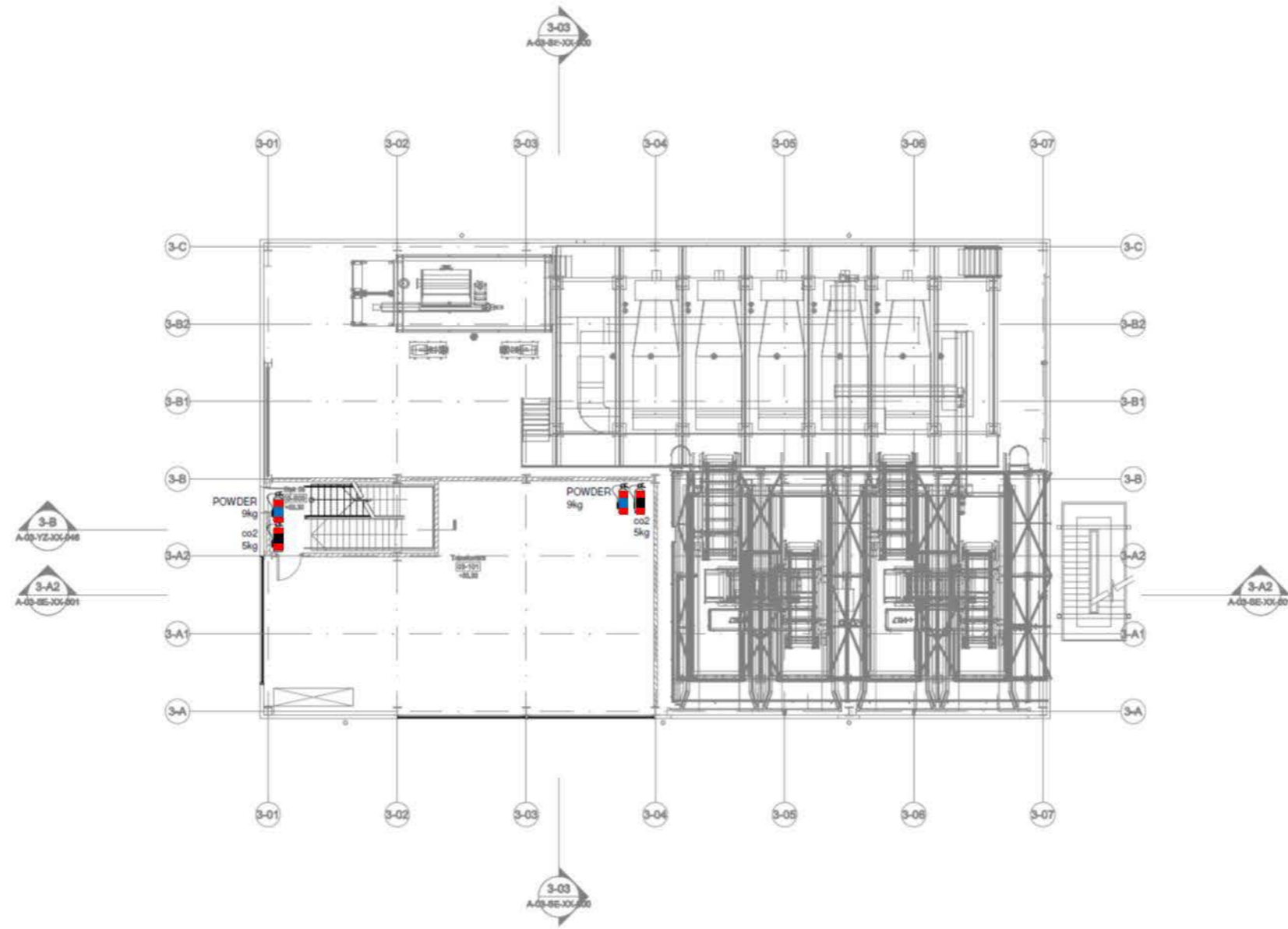
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Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



-  **FOAM** 9LT. Fire Extinguisher : Foam 9LT. 0no
-  **co2** 2kg Fire Extinguisher : co2 2kg 0no
-  **co2** 5kg Fire Extinguisher : co2 5kg 2no
-  **POWDER** 2kg Fire Extinguisher : Dry Powder 2kg 0no
-  **POWDER** 9kg Fire Extinguisher : Dry Powder 9kg 2no

Unless otherwise indicated, All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m aff to top of extinguisher.



Rev	Date	Description	THO	JEL
1	14/05/12	First issue	THO	JEL

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Project: **WEST SUSSEX MRMC**
Drawing: **DRYER BUILDING**
FIRE EXTINGUISHERS LEVEL 01 GA (53.30)

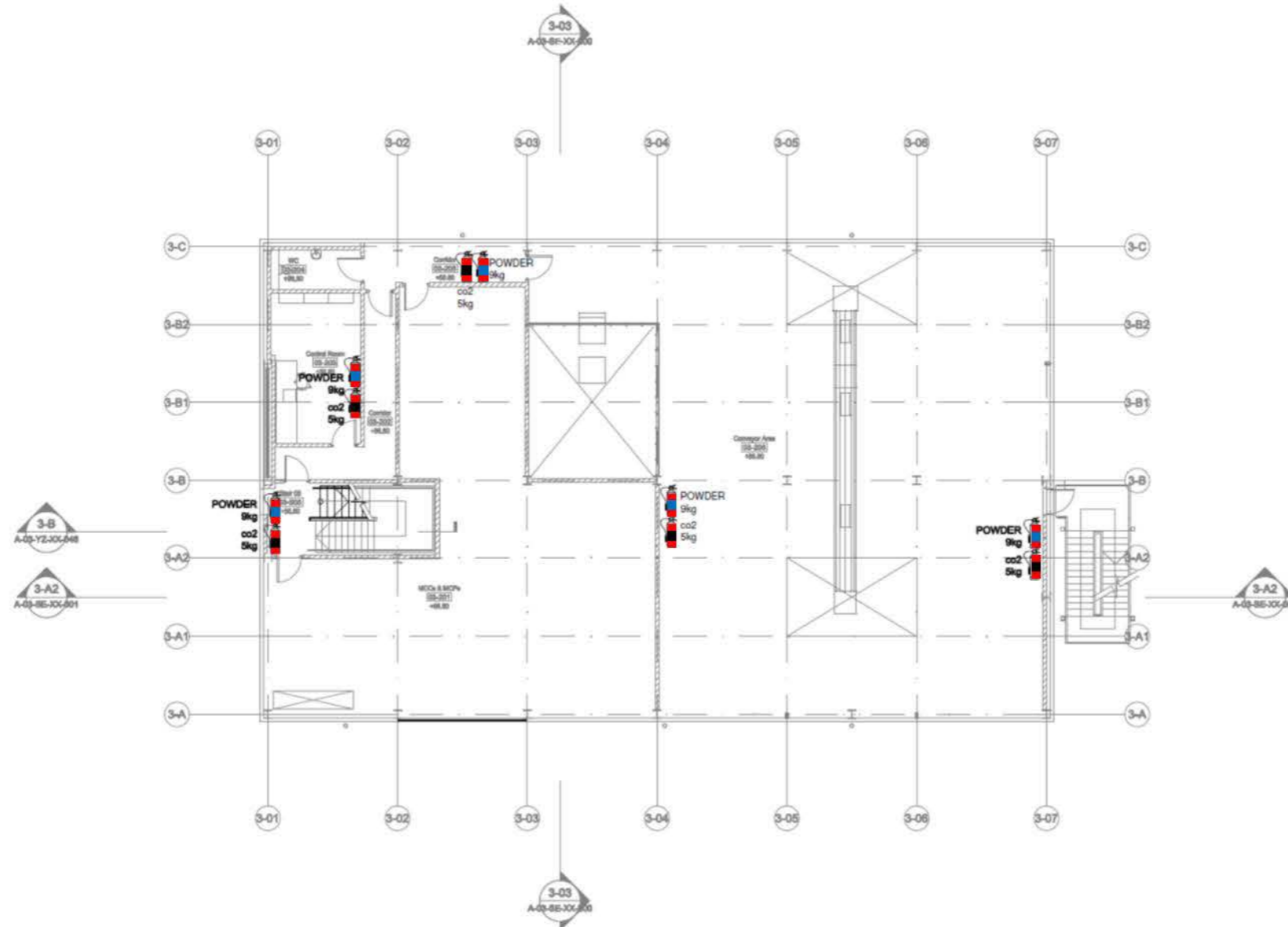
Project Number	00069	Issue	A	Discipline	PL	Sheet	01	Scale	5032
Design	THO	Date	25/04/12	Approved	JEL	Date	25/04/12	Scale	1:100

Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



-  **FOAM** 9LT. Fire Extinguisher : Foam 9LT. 0no
-  **co2** 2kg Fire Extinguisher : co2 2kg 0no
-  **co2** 5kg Fire Extinguisher : co2 5kg 5no
-  **POWDER** 2kg Fire Extinguisher : Dry Powder 2kg 0no
-  **POWDER** 9kg Fire Extinguisher : Dry Powder 9kg 5no

Unless otherwise indicated, All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m affl to top of extinguisher.



Rev	Date	Description	THO	JEL
1	14/05/12	First issue	THO	JEL

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Project: **WEST SUSSEX MRMC**

Drawing: **DRYER BUILDING FIRE EXTINGUISHERS**

Project Number	Issue	Rev	Date	Scale	Revision
P00059	A	03	PL	02	5033

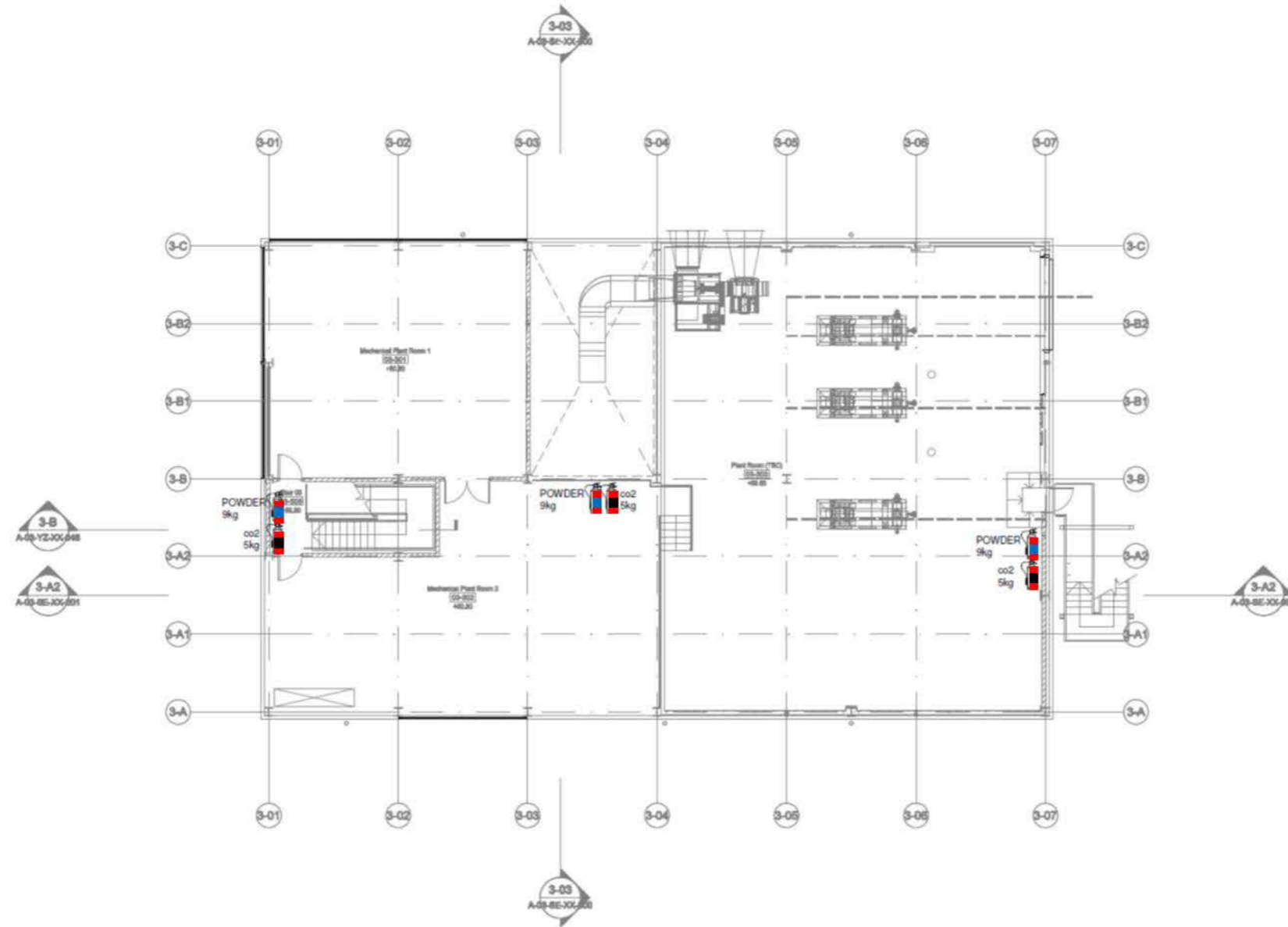
Drawn/Check	Date	Approved	Date	Scale
THO	25/04/12	JEL	25/04/12	1:100

Design Hazards	Hazard ID
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-
Hazard Type (To be Specified)	-



-  **FOAM** 9LT. Fire Extinguisher : Foam 9LT. 0no
-  **co2** 2kg Fire Extinguisher : co2 2kg 0no
-  **co2** 5kg Fire Extinguisher : co2 5kg 3no
-  **POWDER** 2kg Fire Extinguisher : Dry Powder 2kg 0no
-  **POWDER** 9kg Fire Extinguisher : Dry Powder 9kg 3no

Unless otherwise indicated. All extinguishers to be enclosed within appropriate double or single fire extinguisher cabinets mounted 1m affl to top of extinguisher.



Rev	Date	Description	Tho	JEL
1	14/05/12	First issue	Tho	JEL

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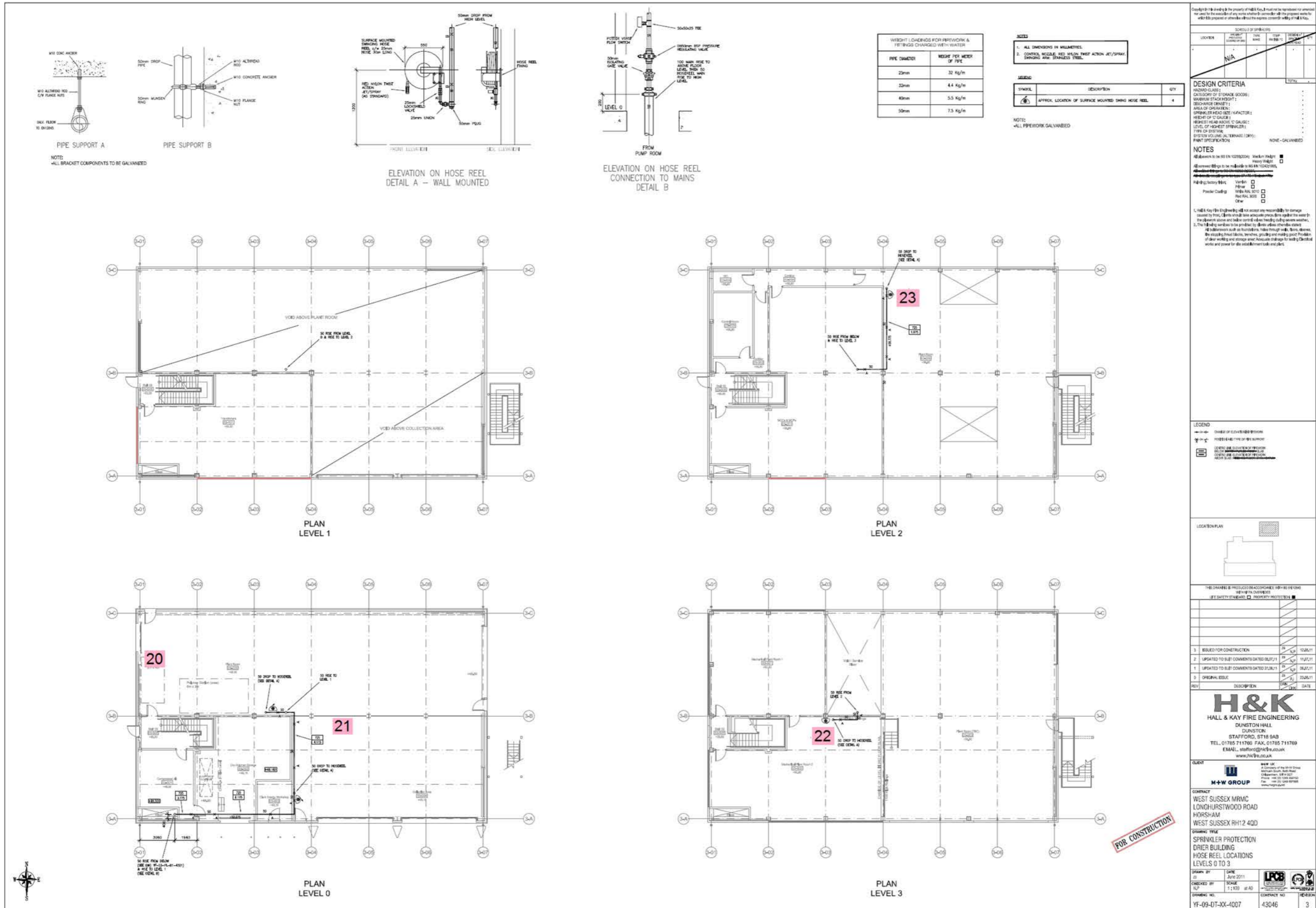
Client: WEST SUSSEX MPMC

Drawing: DRYER BUILDING
FIRE EXTINGUISHERS LEVEL 03 GA (+59.80)

Project Number	Scale	Rev	Date	Revision
P00069	A - 03 - PL - 03	5034	-	-

Design	Date	Approved	Date	Scale
THO	25/04/12	JEL	25/04/12	1:100

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