# HILL BARTON ENERGY GENERATION PLANT

**Fire Prevention Plan**

Prepared for: Stuart Partners Limited

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# 1.0 Introduction

## 1.1 Report Context

Stuart Partners Limited (SPL) have instructed SLR Consulting Limited (SLR) to prepare a Fire Prevention Plan (FPP) in support of an Environmental Permit (EP) Application for Hill Barton Generation Plant, Exeter, hereafter referred to as 'the Site'. The facility will be operated by Exeter Waste to Energy Limited (EWEL).

This report follows the Environment Agency (EA) guidance for FPPs[1] and details the required mitigation and management methods to prevent a fire of combustible materials stored on Site.

The information contained within this FPP aims to meet the 3 main objectives of the EA FPP Guidance:

- Minimise the likelihood of a fire happening;
- Aim for a fire to be extinguished within 4 hours; and
- Minimise the spread of fire within the Site and to neighbouring sites.

## 1.2 Site Location

The Site is located on the northeast side of the industrial Hill Barton Business Park in a predominantly agricultural and industrial area with a small number of discreet residential properties. The Site is centred on National Grid Reference SY 00404 91236. The Site is located approximately 895m west of the village of Farringdon, 2km north of Woodbury Salterton and 2.4km east of Clyst St Mary city centre.

A small parcel of woodland lies immediately north of the Site, followed by a vast expanse of agricultural land. A storage yard lies immediately east of the Site, beyond which lies Stuart Way road, a landfill, biomass energy plant, waste transfer stations and soil recycling/remediation units. The Hill Barton Business Park extends south and southwest of the Site, with the land immediately south of the Site occupied by an E.M.S waste transfer station site. The land immediately west of the Site is an asphalt plant operated by Tarmac, beyond which lies agricultural land.

Hill Barton Energy Generation Plant is easily accessible due to its location within an industrial estate.

The Site's location is illustrated on Drawing 001. The surrounding land uses and local receptors within 1km are illustrated on Drawing 003. Designated habitats sites within relevant screening distances of the Site are identified in the EA's Nature and Heritage Conservation Screening Report.

The immediate surrounding land use is described in further detail below.

### Commercial and Industrial

There are several commercial/industrial receptors in immediate proximity due to the Site's position within Hill Barton Business Park. Immediately to the east is a storage yard, to the south is E.M.S's waste transfer station and an asphalt plant to the west.

### Residential

There are a number of discreet residential properties located within 1km of the Site's boundary. The closest are residential properties located 220m to the south, 320m to the north and 380m to the northwest.

### Woodland/open ground/Agricultural

Areas surrounding the business park predominantly comprise agricultural land. Immediately adjacent to the north is an area of priority habitat woodland.

[1] Environment Agency - Fire Prevention Plans: Environmental Permits, January 2020.

### Open/Surface Water

There are a number of surface water features in proximity to the Site. The closest surface water receptor to the Site is a pond located approximately 40m east and a tributary to the River Clyst approximately 50m to the north of the Site.

### Local Road Network

The local road network lies adjacent to the south of the Site. The Site is accessed by Mushroom Road, which leads out of the estate onto Blackmore road and then the A3052.

### Recreational

Crealy Adventure Park is located approximately 570m to the south of the Site.

## 1.3 Ecology

The EA's Nature and Heritage Conservation Screening Report provided as Appendix 01 identifies the following designated habitats and protected species within relevant screening distances of the Site.

### 1.3.1 European/International Sites

The following European and Internationally designated sites are located within 10km of the Site:

- Exe Estuary – Ramsar and Special Protection Area (SPA): The Site is designated as a Ramsar site due to the large number of waterfowl present. The Site qualifies as a SPA because it regularly supports over 20,000 waterfowl over winter and is a site of strong scientific interest for the diverse array of waterfowl.
- East Devon Pebblebed Heath –Special Area of Conservation (SAC): The Site is designated as a SAC due to the range of habitats present within its extent including Northern Atlantic Wet Heaths and European Dry Heaths, as well as the presence of the Southern Damselfly.
- East Devon Heath – SPA: The Site is designated as an SPA due to the variety of bird species.

### 1.3.2 Nationally and Locally Designated Sites

Farringdon School Local Wildlife Site (LWS) is located approximately 1.4km to the northeast of the Site. Beautiport LWS is located approximate 2km to the north of the Site.

## 1.4 Cultural and Heritage

Searches on the MAGIC website[2] confirm that there are none of the following within 2km of the installation:

- Registered Battlefields;
- Scheduled Monuments;
- Registered Parks and Gardens; and
- National Trust Properties.

The search on MAGIC revealed 29 listed buildings within a 2km radius from the Site's boundary. The closest listed building identified was 'The Thatch' which is located approximately 310m to the south of the Site.

[2] https://magic.defra.gov.uk/, accessed May 2020.

## 1.5 Identified Receptors

Drawings 003 and EA Nature and Heritage Conservation Screening Maps illustrate the locations of receptors that have been identified as being potentially sensitive and could reasonably be affected by activities at the Site. The receptors identified are summarised in Table 1-1 below.

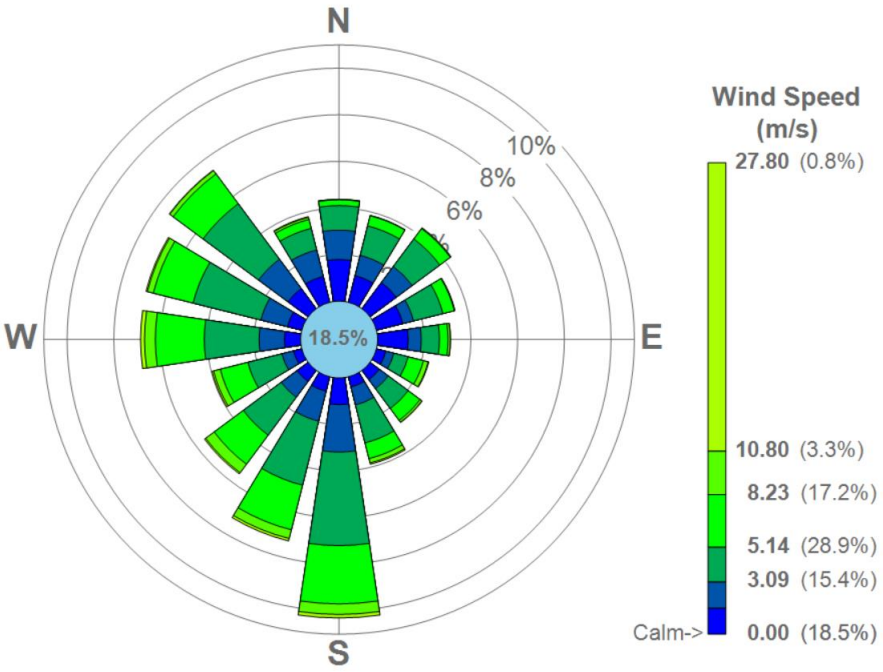
**Table 1-1**
**Identified Receptors**

| Receptor Name | Receptor Type | Direction from Site | Approximate Distance from Site Boundary at closest point (in metres) |
|---|---|---|---|
| Local receptors located within 1km of the EP boundary as shown on Drawing 003 | | | |
| **Woodland/agricultural/open ground** | **Ecological** | **North, east, south and west** | **Adjacent** |
| Redwood Travels | Industrial | East | Adjacent |
| Hill Barton Business Park | Industrial & Commercial | South and west | Adjacent |
| Tarmac Ltd Site | Industrial | West | Adjacent |
| Local Road Network | Local Road Network | West and south | Adjacent |
| **Ponds, Streams & Drains** | **Surface Water** | **North east, south and west** | **40** |
| Landfill | Landfill | East | 200 |
| Residential Properties associated with Stuart Way | Residential | South | 220 |
| Hill Farm | Commercial | West | 310 |
| **Cluster of Residential Properties associated with Denbow Farm** | **Residential** | **North** | **500** |
| Caravan Site | Commercial | Southwest and west | 550 |
| Crealy Adventure Park | Recreational | South | 570 |
| Ecology and Cultural and Natural Heritage identified within 10km of the EP boundary as shown on EA Nature and Heritage Conservation Screening Maps | | | |
| **Farringdon School** | **LWS** | **Northeast** | **1400** |
| **Beautiport** | **LWS** | **North** | **2000** |
| Exe Estuary | Ramsar, SPA | South | 4100 |
| East Devon Pebblebed Heaths | SAC | East | 4500 |
| East Devon Heaths | SPA | East | 4500 |

## 1.6 Wind Rose

Figure 1-1 shows the wind patterns during a 5-year average between the period 2013 to 2017 as identified by the Exeter meteorological station. The most prominent wind direction is from the south to the north. Winds from the west to east are relatively frequent with winds from all other directions are relatively infrequent. Receptors highlighted in bold in Table 1-1 above are likely to be affected in the event of a fire as they are located in the path of the prevailing wind.

**Figure 1-1**
**Exeter Meteorological Station, 5-year average -2013-2017**




## 1.7 Site Type

The Environmental Permitting (England & Wales) Regulations 2016 (As amended) require regulated facilities to be operated in accordance with an EP. EWEL are applying for an EP to undertake the following activities listed in Schedule 1 of the EPR:

- Schedule 1 Part 2 Section 5.1 Part A(1)(b) – the incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.
- Schedule 1 Part 2 Section 5.1 Part A(1)(b) – the incineration of non-hazardous waste in a waste incineration plant or waste co-incineration plant with a capacity exceeding 3 tonnes per hour.

This activity is regulated as an installation. The facility will have two lines capable of operating independently of each other, hence the repetition of the Section 5.1 Part A (1) b activity.

The definition of 'waste incineration plant' in the EPR 2016 means any stationary or mobile technical unit and equipment dedicated to the thermal treatment of waste, with or without recovery of the combustion heat generated, through the incineration by oxidation of waste as well as other thermal treatment processes, such as pyrolysis, gasification or plasma process, if the substances resulting from the treatment are subsequently incinerated.

In addition, the definition of 'waste incineration plant' in the Industrial Emissions Directive (2010/75/EU) includes all incineration lines, waste reception, storage, on-Site pre-treatment facilities, waste, fuel and air supply systems, boilers, facilities for the treatment of waste gases, on-Site facilities for treatment or storage of residues and waste water, stacks, devices for controlling incineration operations, recording and monitoring incineration conditions. As such, many activities which would normally be categorised as 'directly associated activities' (DAAs) or 'regulated facilities' for EPR purposes, such as air pollution control plant or Refuse Derived Fuel (RDF) drying, are included in the listed activity description.

As such, the only DAA which will be undertaken at the Site will be the generation of electricity using a steam turbine to recover energy from the flue gases.

The Site layout is illustrated on Drawing 002.

## 1.8 Waste Types and Quantities

The waste management activities to be carried out at the Site are as follows:

- R1: Use principally as a fuel or other means to generate energy; and
- R13 Storage of wastes pending any of these operations numbered R1 to R12.

A full list of individual waste types categorised in accordance with the European Waste Catalogue (EWC) codes is available in Appendix 02.

The Site will accept up to 87,000 tonnes per annum (tpa) of commercial, industrial and municipal RDF.

The Site will also generate Incinerator Bottom Ash (IBA) which will be discharged externally into storage skips and Air Pollution Control Residues (APCR) which will be stored within an enclosed silo. A maximum of 68 tonnes of IBA and 50 tonnes of APCR will be stored externally on Site at any one time. The storage locations are illustrated on Drawing 002. The IBA and APCR is not considered to be a combustible waste and therefore is not considered within this FPP.

## 1.9 Site Access

The Site will be accessed through Hill Barton Business Park via the A3052.

The closest fire station is Middlemoor Fire Station located to the west of the Site. Using Google directions[3] and mapping, the drive time is approximately 7 minutes. There is approximately 2.9 miles between the Site and the fire station.

The Site is operational and will therefore be accessible 24/7 to the Fire Service.

## 1.10 Environmental Management System

The Site will be managed in accordance with an approved Environmental Management System (EMS) that will cover all aspects of the Site. The EMS will ensure that:

- The risks that the activities pose to the environment are identified;
- The measures that are required to minimise the risks are identified;
- The activities are managed in accordance with the management system;
- Performance against the management system is audited at regular intervals; and
- The EP is complied with.

[3] www.maps.google.co.uk accessed November 2019

Consequently, operational procedures for the management of the facility will ensure that all appropriate pollution prevention and control techniques will be delivered reliably and on an integrated basis.

The summary of the Site's EMS is included as Appendix 03 in section 2 of the EP application.

# 2.0 Fire Prevention Measures

The following measures will be implemented on Site to minimise the causes of fires.

## 2.1 Waste Pre-Acceptance / Acceptance / Rejection

The Site will follow strict waste acceptance and rejection procedures to ensure that no non-conforming waste is accepted.

All waste will arrive at the Site pre-treated, from approved suppliers. The pre-treatment process will involve physical and mechanical sorting to remove unsuitable or recoverable waste, as well as shredding for size homogenization.

Only waste types specified on the list included as Appendix 02 will be accepted on Site.

Waste will be weighed and visually inspected. The accompanying documentation will also be verified. If deemed complaint, the delivery will be issued with a weighbridge ticket.

Waste will undergo further visual inspection as it arrives at Hill Barton Energy Generation Plant and the weighbridge ticket will be checked.

Hill Barton Energy Generation Facility will implement robust procedures to maintain quality control over waste input. Standard operating procedures and the Site EMS will be developed so that robust waste acceptance procedures are in place and only permitted wastes are accepted for treatment at the facility e.g. waste inspections and removal of oversize items.

Deliveries will be pre-notified to the Site. At the point of delivery to the Site, loads will be assigned unique identifiers and an associated record created. Associated with each load will be a record of the:

- Date and time of delivery;
- Customer;
- Source Site;
- Job reference;
- Description of waste;
- Tonnage;
- Sampling requirements;
- EWC code;
- SIC code;
- Pre-approval records including waste characterisation information,
- compliance testing and waste compliance assessment;
- On-Site verification undertaken; and
- Decision to approve / reject.

Records will be maintained within a database with links to associated documents such that information regarding any individual load can be readily called upon.

EWEL will implement a waste tracking system and inventory, including all pre-acceptance and waste acceptance procedures and records as part of the Sites operational management system.

### 2.1.1 Non-compliant waste

If non-compliant waste arrives at Hill Barton Business Park, it will be refused at the weighbridge office and the driver informed and therefore it would not reach the Site. In the event that the waste has arrived on Site and has already been deposited, the driver will be asked to remove it. If the driver has left the Site, the waste will be isolated and stored in the quarantine area until removal to a suitably licenced facility can be arranged.

## 2.2 Waste storage

The Site will accept up to 87,000 tpa of commercial, industrial and municipal RDF.

The Site will have capacity to store up to approximately 810 tonnes of waste feedstock at any one time as detailed in Table 2-1 below. Waste will be stored within a bunker before being delivered to a feed hopper by an overhead grab crane. The table shows the storage time and dimensions associated with the waste intake building's bunker. Waste will be stored for a maximum of 3 days within the waste intake building before being processed.

**Table 2-1**
**Waste Intake Building Storage**

| Max Storage Capacity | Location | Length (m) | Width (m) | Height (m) | Max Storage Volume ($m^3$) | Max Tonnage (t) |
|---|---|---|---|---|---|---|
| 3 Days | Intake building bunker | 29.5 | 12.5 | 4 below ground<br>4.8 above ground level | 3245 | 811.25[4] |

### 2.2.1 Intake Building Design

The location of the intake building is illustrated on Drawing 002. The intake building incorporates a bunker for waste storage and waste reception floor. Vehicle drivers will deposit waste on the waste reception floor for inspections before being discharged into the bunker.

The waste intake building will be constructed of reinforced concrete. The specification of the concrete will conform to BS 8500-2 – Concrete, which ensures the structure and composition of the concrete is of a high standard.

### 2.2.2 Stock Rotation

Stock rotation within the waste intake building will be carried out on a continuous sequence. Waste deposited within the waste intake building is deposited into a bunker. Waste will be placed in the bunker in a manner which enables the crane to grab it on a first in first out basis. This will prevent the storage of any load exceeding 3 days.

Continual stock rotation aims to minimize decomposition of the waste as this leads to undesirable reduction in fuel and the risk of potential odour generation.

### 2.2.3 Shut Down

In the event of a prolonged shutdown of the facility, waste deliveries to the Site will cease. Waste stored within the bunker will be removed from Site to a suitably licensed facility.

[4] Based on conversion factor of 250 kg/$m^3$.

### 2.2.4 External waste storage

There will be no waste stored externally. All waste will be stored in the intake building before being processed.

### 2.2.5 Non-waste materials

The Site will store non-waste materials that are not covered by the FPP Guidance but are considered in this FPP due to the potential for them to cause or increase the impact of a fire on the Site. The materials and their proposed storage arrangements are shown in Table 2-2 below and illustrated on Drawing FPP1.

**Table 2-2**
**Non-waste materials**

| Description of raw material | Storage arrangements (tanks, intermediate bulk containers (IBC), silos etc.) | Storage capacity |
|---|---|---|
| Sodium Bicarbonate | Monolithic Silo | 50 tonnes |
| Activated Carbon | 25kg bags | 3 tonnes |
| Urea (Prilled) | 1 tonne bags | 5 tonnes |
| Amine | 20 Litre Drums | 100 tonnes |
| Phosphates | 20 Litre Drums | 100 tonnes |
| Diesel | Tank | 6,000 litres |

## 2.3 Fire Detection

### 2.3.1 System Overview

SPL will have suitable procedures in place to detect a fire in its early stages to reduce its impact. Appropriate automated fire detection systems will be implemented, and all design, installation and maintenance will be covered in accordance with BS5839-1 2013 Category P1.

The system will comprise of a centrally controlled detection, suppression and alarm unit, located in the plant control room.

The alarm would be triggered by the Thermal Imaging Cameras, Flame Detection Device or manually by the Call Points located on all external personnel doors.

The Intake Building, Boiler Hall and Turbine Hall will all be supplied from this arrangement, but each building will be treated individually to suit its specific requirements.

### 2.3.2 Intake Hall

This area will be monitored by two thermal imaging cameras to provide total coverage at all times and remove any concerns regarding single point failure.

The cameras will be housed in stainless steel enclosures to ensure system longevity in harsh working environments.

Once an alarm has been triggered, a sounder and beacon will alert staff. The hotspot/fire will then be targeted by a Robotic Cannon.

Equipment Specifications:

- 2 x FTS246X Fire TIR Monitoring System with Stainless Steel Housing, Germanium Window, Temperature Control, Air Purge Nozzle, Mount.

### 2.3.3 Boiler Hall

This area will be monitored by three thermal imaging cameras to provide total coverage at all times and remove any concerns regarding single point failure.

The cameras will be housed in stainless steel enclosures to ensure system longevity in harsh working environments.

Once an alarm has been triggered, a sounder and beacon will alert staff.

Equipment Specifications:

- 3 x FTS246X Fire TIR Monitoring System with Stainless Steel Housing, Germanium Window, Temperature Control, Air Purge Nozzle, Mount.

### 2.3.4 Turbine Hall

This area will be monitored by a Flame Detection System and suppression by a water mist system, with appropriate third-party certification for use on local application power generation and associated machinery risks.

Equipment Specifications:

- Interact IR3 Flame Detection System

## 2.4 Inspections and Amenity Monitoring

The Site will be manned 24/7 by site operatives. Site operatives will remain vigilant at all times and look out for signs of fire throughout the Site. This 24/7 presence will ensure rapid detection of fires or fire hazards.

Staff will be trained in the identification of fires and fire hazards on Site. Staff will also receive training on the selection and use of appropriate fire extinguishers, site shut down procedures, fire safety and site evacuation. Training will ensure that staff are made aware of how to respond to abnormal conditions and the procedure for contacting relevant authorities.

All waste arriving on Site will be thoroughly inspected to ensure compliance with the EP and to reduce the potential for incompatible wastes or hot loads being accepted onto Site.

The waste intake building will undergo periodic turnover to prevent the build-up of waste, dust and debris and will be monitored 24/7 by site operatives for hot spots or signs of fire. Further details are provided in section 2.5 below.

Daily and weekly monitoring will be recorded in line with the requirements of the EP and the EMS.

## 2.5 Management of Hotspots within Stockpiles

### 2.5.1 Waste Intake Building

Waste will be stored for a maximum of 3 days on Site and as such the occurrence of hotspots is extremely unlikely. Nonetheless, to minimise the occurrence of hotspots waste will be routinely turned. Wastes will not be driven over by on Site plant to avoid compaction, which may contribute to a build-up of heat within the pile.

Additionally, operations will ensure a first-in first out procedure to ensure that waste that has been stored the longest is moved into the process first.

In conjunction with the stock rotation procedure, monitoring of hotspots within the waste bunker will be managed by an thermal imaging camera system. The temperature of the waste within the bunker will be monitored on a constant basis. If a hotspot is identified, the waste will be lifted and turned until the temperature decreases. Robotic cannons installed as part of the suppression system will be initiated and directed at the hotspot, if the temperature does not sufficiently decrease.

Suitably qualified Site personnel will carry out daily checks of the Site to identify the risks and inspect the waste intake building. This ensures that the Site does not reach a level of overcapacity in respect to storage.

The bunker will be managed as follows to minimise self-combustion:

- Storage times will be minimised;
- Risk factors (e.g. mixing of materials and heat generated during treatment) will be reduced;
- Bunker size will be minimised;
- Stored materials will be rotated, on a first in and first out basis;
- Hotspots will be detected and controlled by thermal imaging cameras, turning of waste and use of robotic cannons;
- Minimising external heating during hot weather by storing the materials inside away from light sources; and
- By avoiding ignition hot spots - mobile plant will not be stored in close proximity to waste storage.

### 2.5.2 Shutdown

In the event of a prolonged shutdown of the facility, waste deliveries to the Site will cease. Waste stored within the bunker will be removed from Site to a suitably licensed facility.

The fire detection and suppression systems will be fully functional throughout the shutdown ensuring early detection and handling of any potential hotspots.

## 2.6 Plant and Equipment on Site

The key items of process plant and equipment that will be used at the Site are detailed below. All items of plant and equipment will be maintained in accordance with the manufacturer's recommendations.

The key components will include, but not be limited to:

- Loading shovel;
- Telehandler;
- Masted Forklift;
- Intake Building with Waste Storage Bunker and Tipping Area;
- Feed Hopper;
- 2 x Feed Conveyors;
- 2 x Gasifier Infeed Hoppers with reciprocating stoker sections;
- 2 x Step Grate System Primary Combustion Chambers;
- 2 x Secondary Combustion Chamber;

- 2 x Ash Collection Skips;
- 2 x Boilers;
- 2 x Flue Gas Treatment Units;
- 2 x Residue Storage Facilities;
- De-aerator;
- Purified Water Generation and Storage;
- Boiler Feedwater Pumps;
- Compressed Air Generation;
- LPG Auxiliary Burners;
- Boiler Blowdown Quenching and Recycling;
- Flue Stack;
- Steam Turbine Generator Set;
- Electrical equipment associated with the facility and its connection to the national grid;
- CEMS; and
- Auxiliary equipment.

All mobile plant and vehicles will be fitted with a fire extinguisher.

The machinery will be maintained in line with the maintenance schedule recommended in the manufacturer's manual. All plant and equipment will receive annual Lifting Operations and Lifting Equipment Regulations (LOLER) and Provision and Use of Work Equipment Regulations (PUWER) inspections. Daily checks will be carried out on all mobile plant and any findings recorded in the Site diary. Any defects that might harm the environment will be entered into the management system records.

The Site will be operational 24/7, therefore mobile plant will be continuously in use. If required, mobile plant will be temporarily stored in a safe area at least 6m from any combustible waste or hazardous material storage.

## 2.7 Training

All staff will receive training on the selection and use of fire extinguishers, fire safety, shut down procedures and site evacuation. Staff will be trained to identify fires and fire hazards and to contact emergency services when appropriate.

Training will ensure that all operational staff are aware of relevant procedures relating to normal and abnormal operations and emergencies scenarios. All staff will be under the supervision of a technically competent manager at all times.

There will always be at least one trained fire marshal working on Site at any one time.

All staff and contractors working on Site will be made aware of the contents of the FPP and the procedures that are in place in the event of a fire on Site.

EWEL will conduct refresher training, in addition to maintaining a copy of this FPP in the Facility manager's office, to ensure that all staff members' knowledge is current and up to date. EWEL will test the FPP on an annual basis to ensure that the contents are still relevant and that all staff members' knowledge is current and up to date.

## 2.8 Security Measures

The Site will benefit from security fencing around the Site perimeter and lockable security gates which restrict unauthorised access onto the Site.

Regular inspections will be carried out across the Site to ensure Site security is upheld and any fires are detected rapidly, and the relevant authorities are contacted. If damage is identified to security measures, temporary repairs will be completed immediately and permanent repairs within 24 hours of identification.

The Site will be monitored by a CCTV system. CCTV cameras will be utilised in strategic locations around the Site. In addition to these security measures, site operatives will be manning operations on a 24-hour/7 days (24/7) a week basis.

## 2.9 Fire Sources and Prevention Measures

Table 2-3 below provides a summary of the potential causes of fire on Site and associated preventative measures and is taken from the FPP guidance.

**Table 2-3**
**Fire Sources and Preventative Measures**

| Cause | Preventative Measure |
|---|---|
| Arson and Vandalism | The Site will have a number of security measures in place to limit the likelihood of arson or vandalism including:<br>• Security fencing;<br>• Lockable site entrance gates;<br>• Security lighting;<br>• 24/7 CCTV in operation;<br>• 24/7 site operative's presence;<br>• Inspection and maintenance procedures for site security measures including daily perimeter checks; and<br>• A visitor sign in system.<br>All waste delivered to Site will be required to report to weighbridge and weighbridge office in the Hill Barton Business Park prior to arrival on Site for further inspection and delivery. In the event of a breach of security at the Site, an investigation will be launched, and appropriate mitigation measures implemented.<br>Records maintained will include inspections and maintenance of security fencing and gates, breaches of security, investigations and actions taken. |
| Self-Combustion | Effective stock management will limit the likelihood of the self-combustion of materials stored on Site. As such, EWEL have waste acceptance and stock management procedures which will be upheld by all employees at the Site, as detailed in Section 2.1.<br>Waste stored in the bunker will be continuously processed.<br>Only waste included in Appendix 02 will be accepted at the Site.<br>All fuel and oil will be stored at least 6m from any combustible waste or other hazardous materials. Non-waste materials that pose a risk of self-combustion will be stored as indicated in Table 2-2. |

| | |
|---|---|
| Plant or Equipment Failure | Plant and equipment will be maintained and inspected in accordance with the manufacturer's recommendations.<br>All plant will be fitted with a fire extinguisher.<br>Induction training and refresher training will be provided to staff on the safe operation of plant and equipment relevant to their role, in accordance with the EMS.<br>Inspection of plant and equipment will be undertaken prior to use to check for faults and ensure appropriate maintenance is undertaken.<br>When not in use, mobile plant will be stored at least 6m from any storage areas of combustible materials as shown on Drawing FPP1.<br>In the event of a failure or suspected fault with an item of plant or piece of equipment, the operator will ensure that the equipment is shut off in a safe manner and not used until the equipment can be repaired or replaced.<br>No industrial heaters will be utilised on Site.<br>Records of operator failure or failure of equipment will be kept on Site together with a summary of remedial action taken. |
| Electrical faults (Including Damaged or exposed electrical cables) | All electrics on Site will be fully certified by a qualified electrician and regular safety inspections will be carried out annually and in accordance with the Site's EMS. Records of faults and/or daily electrical maintenance will be recorded in the site diary. |
| Naked lights | All ignition sources will be kept a minimum of 6m away from the storage of combustible and flammable wastes. No naked lights will be permitted on Site. |
| Discarded Smoking materials | Smoking will not be permitted within operational areas of the Site. A designated smoking area will be identified that is at least 6m from the storage of combustible wastes and hazardous materials. |
| Hot works | Any hot works will be undertaken under a permit to work system and conducted in a cleared area of Site at least 6m from any combustible wastes. A site operative will perform a continuous fire watch during the hot work and for a minimum of 60 minutes after the work is completed.<br>No hot work will be undertaken by staff unless they are trained and have the relevant permit to work. |
| Hot Exhausts | Vehicles and mobile plant will be turned off when not in use.<br>Inspections will be carried out on all mobile plant and consideration will be given to the high-risk time for hot exhausts (one hour after switching off when dust can settle on hot surfaces).<br>Site operatives will keep a watch on the vehicles at regular intervals for signs of fire caused by the settlement of dust and also at the end of a shift.<br>Flammable/combustible materials will be stored in the designated areas ensuring they are located away from frequent vehicle movements. |
| Open Burning | Open burning will not be permitted on Site. |

| | |
|---|---|
| Reactions between incompatible materials | To ensure that incompatible materials or reactions do not take place, waste will be inspected at the Hill Barton Business Park weighbridge office before being transferred to Site where it will be offloaded, supervised by suitably qualified site operatives.<br>Only vehicles that are accompanied by the correct documentation will be accepted onto Site. Waste will then undergo another visual inspection once it arrives on Site.<br>Tanks containing fuel will be constructed so that any leaks/spillages are contained. Tanks will be surrounded by a leakage containment bund capable of containing at least 110% of the volume of the largest tank within the bund. Bunds will be impermeable and resistant to stored materials. |
| Neighbouring sites | The Site is located within an area predominantly occupied by commercial/industrial premises to the south and west and open ground/agricultural ground to the north and east.<br>The intake area is housed within a building. There is space between it and neighbouring properties that would prevent the spread of a fire.<br>Employees will remain aware at all times and report activities or behaviour which could represent a fire risk from neighbouring sites to the Site Manager. The manager will then take appropriate action to address the risk. |
| Incompatible Wastes (Including reactions between incompatible materials) | All waste arriving onsite will be checked in accordance with the waste acceptance procedure detailed in Section 2.1 to ensure no materials of unknown composition are accepted at the Site.<br>Spillages and leakages of fuels and oils will be handled to ensure containment. Spill kit absorbents will be deployed where necessary. |
| Hot loads deposited at site | No burning, reactive/reacting or visibly hot (producing steam or heat) loads will be accepted on Site.<br>In accordance with Section 2.1, all waste will be visually inspected upon arrival at the waste intake building, therefore minimising prohibited wastes and the acceptance of hot loads.<br>Instructions will be given to customers to ensure no hot loads are accepted on Site.<br>Should a hot load be deposited on Site, it will be handled via the procedures outlined in Section 3.4 of this FPP.<br>In the unlikely event that a hot load is delivered to Site, unburnt waste in the tipping area will immediately be separated from it. The hot load will be managed using the facility's automatic and manually operated fire suppression equipment. |
| Leaks and spillages of oils and fuels | All mobile plant and vehicles will be subject to planned preventative maintenance.<br>Spillages and leakages of fuels and oils will be handled to ensure containment and to isolate the spill and initiate the clean-up using spill kit absorbents as soon as practicable.<br>Spill kits will be located at various locations across the Site. |
| Build-up of loose combustible waste, dust and fluff | EWEL will adopt good housekeeping measures on site and daily and weekly monitoring will be undertaken.<br>The waste intake building will be subject to a deep clean during the annual planned shutdown. The deep clean will remove any fluff or dust build up from equipment and building structures not accessible during operational periods. |

# 3.0 Fire Management

## 3.1 Containing and Mitigating Fires

The building will be designed in accordance with BS9999:2008 – 'Fire Safety in the design, management and use of buildings'. This standard gives recommendations and guidance on the design, management and use of buildings to achieve reasonable standards of fire safety for all people in and around them. It also provides guidance on the on-going management of fire safety within a building throughout its entire life cycle. The waste bunker will be constructed of reinforced concrete and fire-retardant materials. A minimum of 2 hour fire protection will be provided to all buildings, rooms and panels around the waste bunker (excluding the tipping hall). The 2 hour protection will be applied to glass partitions and windows.

All procedures relating to emergencies on Site, inclusive of fires, will be held within the site office and be made easily accessible.

An up-to-date site plan will be on display in the site office and will identify:

- The site layout;
- Waste storage;
- The location of emergency muster points;
- The location of firefighting equipment; and
- Personal Protection Equipment.

## 3.2 Fire Suppression

The system will comprise of a centrally controlled detection, suppression and alarm unit, located in the plant control room.

A 60,000-litre water tank will be located between the Intake and Boiler buildings. This will be connected to the adjacent containerised pump house, which will supply water at high pressure (10 bar) to the plant.

The site is also served by a South West Water Hydrant, 90mm diameter and average pressure of 2.6 bar measured over a month.

The alarm would be triggered by the Thermal Imaging Cameras, Flame Detection Device or manually by the Call Points located on all external personnel doors.

The Intake Hall, Boiler Hall and Turbine Hall will all be supplied from this arrangement, but each Hall will be treated individually to suit its specific requirements.

### 3.2.1 Intake Hall

Providing a flexible solution to cover open areas with a radius of up to 45m at 360 degrees, the Robotic Cannon will be able to be used with water, AFFF or class A wetting agents.

The proposed Robotic Cannon will automatically target the highlighted area with 750 – 1200 l/minute.

The Robotic Cannon can also be used in fully manual mode, via a remote-control unit, for precise operation or cooling of hot spots.

Equipment Specifications:

- 1 x Unifire D50 Stainless Steel Robotic Monitor Package, fully automatic or manual intervention via remote control. 750 – 1200 l/minute, 360 degree, 45m radius.

- Pipework in 88.9mm Carbon Steel Vds, LPCB & FM approved for fire protection usage.

### 3.2.2 Boiler Hall

Once an alarm has been triggered, a sounder and beacon will alert staff. Due to the nature of the plant contained in this hall, this area will be provided with a high-pressure water (10 bar) ring main with numerous quick coupling offtakes.

These will allow quick connection to the 3 Portable Foam Trolleys stored in the hall.

Containing up to 130 litres of foam, they provide a highly mobile, cost efficient and highly effective firefighting solution, with one-man operation.

Equipment Specifications:

- 3 x DF130 Mobile Foam Trollies with inline inductor, 25m lay flat hose, firefighting adjustable brass nozzle, 130ltr AFFF 6% concentrate.
- Pipework in 42mm Carbon Steel Vds, LPCB & FM approved for fire protection usage.

### 3.2.3 Turbine Hall

Suppression in the turbine hall will be provided by a water mist system, with appropriate third-party certification for use on local application power generation and associated machinery risks.

Equipment Specifications:

- K6 FM Approved Nozzle System
- Pipework in 42mm Carbon Steel Vds, LPCB & FM approved for fire protection usage.

### 3.2.4 Pump House Assembly

Housed in a steel container, fully insulated and ply lined. Steel personnel door. Contains the Vds listed duty fire pump, manifold, foam dosing assembly and in line inductor.

Equipment Specifications:

- 1 x 1200 Litre/ minute @ 10 bar cvp, 30 kw 3ph 415v Vds listed Fire Pump
- DFI 50 Inductor Valve Assembly
- 60,000 litre fibreglass tank with PN16/ DN80 outlet.

### 3.2.5 Fire Extinguishers

Proposed locations see attached drawing FPP1.

- 36 x AFFF 20 litre capacity
- 10 x Carbon Dioxide

## 3.3 Emergency Contact Details

An emergency contact sheet is included as Appendix 04. The contact sheet details the phone numbers for the Fire service, EA, local businesses, the local sewage service, South West Water who will be contacted if necessary in the event of a fire, and additional relevant contact numbers for the Site.

## 3.4 Site Procedures

### 3.4.1 Small Fire

A small fire or area of smouldering waste in the intake building will be dealt with by the robotic cannons installed as part of the suppression system. Following detection, the cannons will be initiated and directed at the fire. as follows:

Once the small fire has been dealt with safely, the remaining waste pile will be immediately visually inspected by site operatives for any signs of smouldering/fire waste that remains within the waste pile. If further waste is found to be smouldering/on fire then the same procedure, detailed in this section, will be implemented.

### 3.4.2 Uncontainable Small Fire or Large Fire

The following procedure is in place on Site that will be followed in the event of a small fire becoming uncontainable or in the event of a major fire:

- The Site Manager and Fire Service will be contacted immediately. The local sewerage service and EA will be notified at the first opportune moment.
- If possible, waste that is unburnt will be dampened down to prevent the fire from spreading further and any contaminated runoff will be held within the bunker;
- The burning area will be isolated, and an attempt will be made to extinguish the fire utilising onsite firefighting equipment;
- The buildings and Site will be evacuated; and
- Following arrival of the Fire Service, all Site staff will take instructions from the Fire Service which may include any of the above.

### 3.4.3 Spillages and Leaks

In the event of any potentially polluting leak or spillage occurring on Site, the following action will be taken:

- Minor spillages will be cleaned up immediately, using sand or proprietary absorbents which are suitable for the purpose of managing spillages. The resultant materials will be placed into containers and will then be removed from Site and disposed of at a suitably permitted facility. The incident will be logged in the Site diary.
- Any dry wastes spilled on Site will be collected and transported to the appropriate area of the Site.
- In the event of a major spillage, which is causing or is likely to cause polluting emissions to the environment, immediate action will be taken to contain the spillage and prevent liquid from entering surface water or drains. Contaminated water and any resultant materials used for clean-up of the spillage will be cleared immediately and placed in containers for offsite disposal, and the EA will be informed.

## 3.5 Fire Waters

The Site will benefit from an engineered containment system with impermeable surfacing.

### 3.5.1 Waste Intake Building (primary firewater containment)

In the event of a fire within the waste intake building, any firewater generated will be contained within the waste storage bunker and under-slab foul connections. The waste storage bunker has a capacity to contain up to a volume of 1,520m$^3$ of firewater when empty. The use of water within the waste bunker is likely to be localised

however, due to the use of the water cannons. Therefore, large quantities of water are unlikely to be used, meaning the maximum containment capacity of the bunker will not be reached.

### 3.5.2 Secondary firewater containment

In the event that additional firewater containment is required, firewater would be directed via the Site's storm water drains into the attenuation pond to the north of the Site. The attenuation pond will have a capacity to hold up to 1,626m$^3$ of fire water. In the event of a fire, there is a valve on the outlet of the attenuation pond to prevent its flow to a tributary of the River Clyst.

There will be very little run-off generated under normal site operating conditions within the waste intake building. All surface water drains and overland run-off routes will be diverted and directed offsite to the attenuation basin.

### 3.5.3 Firewater Sources

Water sources for firefighting include:

- A 60,000 litre Water Storage Tank and associated pumps;
- A South West Water Fire Hydrant
- Attenuation pond;
- Recirculation of firewater contained in waste storage bunker or attenuation pond; and
- On board water supply from Fire Service vehicles.

The firewater tank will be connected to the local water supply and will be fitted with a flowmeter to ensure the required flow rate and performance can be tested.

The indicative locations of the fire water sources are illustrated on Drawing FPP1.

The available water sources on site are considered to provide sufficient availability of firewater in the event of a fire.

## 3.6 Management after a Fire Event

After a fire event, the following procedure will be implemented depending on the severity of the fire:

1. A small and containable fire that can be dealt with in-house using suitably trained staff and firefighting equipment located on Site.

The fire will be recorded in the site log book with the following details:

- Cause of the fire;
- Methods used to manage the fire;
- Disposal methods of any materials; and
- Clean up actions.

An assessment will also be completed to determine whether further mitigation measures could have prevented the fire. Any outcomes to be implemented onsite will be incorporated within this FPP and the Site's EMS as required. All staff will be notified of the cause of the fire and any new mitigation measures implemented.

2. A larger fire that requires the presence of the Fire Service.

If the site operatives have been told to evacuate or cease operations by the Fire Service, the Site will wait until told it is safe to re-enter and resume operations. An assessment will be undertaken by the facilities management

team with the assistance of any relevant insurance assessors, structural engineers and fire specialists. Any damaged buildings will be made safe and any severely damaged equipment or building materials will be removed. All building structures and equipment deemed to be safe will be cleaned as necessary.

Should damage be sufficient to prevent the Site from being able to treat and store waste, the Site will cease accepting waste and will divert to a suitably licensed facility. Depending on the extent of the fire and the levels of waste that will need to be diverted, the actual Site will be determined at the time.

The Site Manager will liaise with the EA to determine a plan-of-action to introduce normal operations back at the Site, and the timescales involved to achieve this.

## 3.7 Fire Damaged Waste

A visual assessment will be carried out by the Site Manager to determine whether the waste can be treated on Site. Wherever possible, unburnt wastes will be separated from fire damaged piles.

The Site Management in conjunction with the insurance company and other relevant experts will determine what decontamination measures will be required to be carried out proportionately to the impact caused by the fire. The period of time taken to restore the Site or affected part of the Site to operational status will be determined by the nature and extent of the fire. If the affected area does not impact the rest of the Site's operation, operations will re-start as and when appropriate.

After a significant incident, an assessment will be undertaken by a suitably qualified individual. Technically competent managers and/or engineers will assess the degree of damage caused by a fire and the residual risk from fire damaged waste, emissions or equipment. Burnt waste material will be kept on Site for a short period of time if required for a subsequent internal investigation. Following this, the material will be transferred off Site to a suitably licensed disposal facility. Once firewater and fire damaged waste have been removed, the Site will be cleaned using methods appropriate to the nature of the residues. This may include (but not be limited to) the following: on-site yard sweeping equipment, jet-washing or engaging a third part specialist cleaning company.

## 3.8 Quarantine Area

### 3.8.1 Waste Bunker

Due to the nature of the operations on site, it is not deemed necessary to supply a quarantine area that meets the requirements of the FPP guidance for waste stored in the bunker.

Burnt or burning waste will be kept within the bunker to ensure coverage by the comprehensive automated suppression system. Waste that typically would be moved to a quarantine area, as stated in the FPP guidance, will be managed within the bunker.

### 3.8.2 Tipping Area

There is sufficient space within the tipping area of the Intake Building to segregate burning waste as the quantities are likely to be small and the occurrence rare; for example, a hot load brought in by a vehicle. Burning waste will be doused in within the tipping area to ensure all firewater drains towards the waste bunker where it can be fully contained.

Unburnt waste can be separated if required and placed in to quarantine area as illustrated on Drawing FPP1.

### 3.8.3 Non-Compliant Waste Quarantine Area

The Site benefits from a quarantine area for non-compliant waste as shown on Drawing FPP1.

The quarantine area is located within the Intake Building, away from waste stored within the bunker.

In the event of non-compliant waste being identified within the waste load, the vehicle will be requested to remove the load off Site immediately. If the vehicle has already unloaded the waste, it will be moved to the non-compliant waste quarantine skip and removed off Site within 72 hours.

The proposals regarding quarantine of waste have been based on the following factors:

- It allows easy access by the Fire Service;
- Coverage by fire detection and suppression in the Intake Building;
- Proximity to combustible materials and fire sources; and
- Firewater containment – the quarantine area will be in the intake building benefitting from fire water containment within the waste storage bunker.

The Site Management will instruct all Site operatives when and how to move unburnt waste in the tipping area in the event of a fire and non-compliant waste to the quarantine area. The following procedure will be implemented on Site:

- When it is safe to do so, the waste will be moved by on site plant to the quarantine area;
- The movement of the waste will be overseen at all times by the Site Manager to minimise any spillages and ensure the area is not overfilled;
- To limit any spillages, plant will not be overfilled when moving the waste;
- The burning/smouldering waste will be doused using the relevant firefighting equipment;
- Burnt waste will be taken off Site to a suitably licensed facility within 48 hours.

All Site operatives will be trained to follow this FPP and all procedures listed in the above sections.

# 4.0 Conclusion

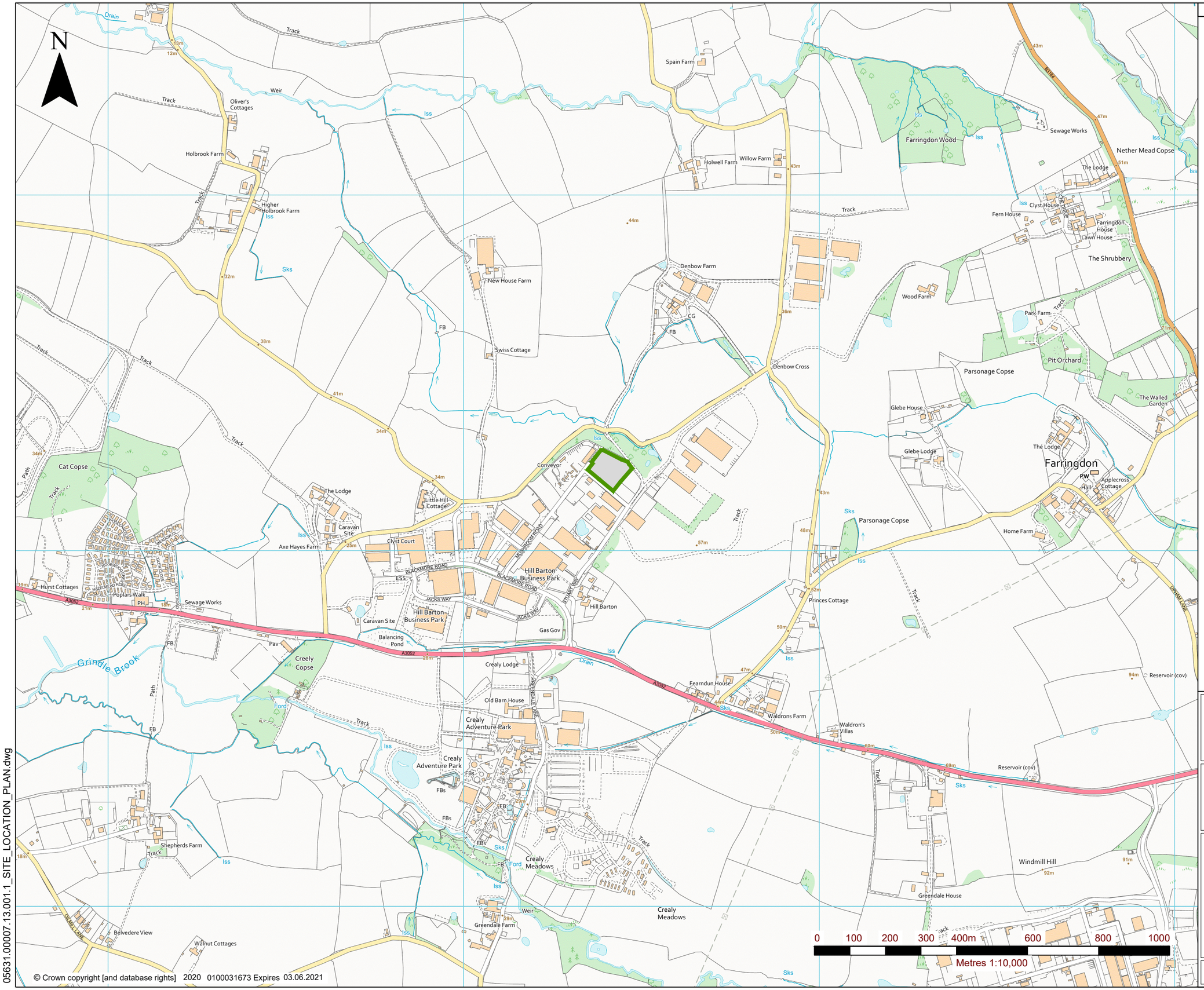
This FPP is considered to be a 'working' document that is reviewed and updated annually or as required should any of the following occur:

- A fire on Site;
- A change or review of legislation; or
- If the Site is instructed to do so by the EA.

It is the responsibility of the Site Manager or nominated person to maintain this FPP and to ensure it is adhered to in the event of a fire on Site.

The FPP illustrates that the Site meets the requirements of the EA's FPP guidance. Although there will be volumes of stored combustible waste on Site, management procedures, mitigation measures and fire monitoring procedures reduce the likelihood of a fire on Site. The Site will also be equipped with appropriate firefighting equipment and fire water management systems should a fire occur on Site.

# DRAWINGS

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LEGEND

ENVIRONMENTAL PERMIT BOUNDARY

stuart PARTNERS

SLR global environmental solutions

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# HILL BARTON ENERGY GENERATION PLANT

## ENVIRONMENTAL PERMIT APPLICATION

## SITE LOCATION PLAN

## DRAWING 001

| Scale | Date |
|---|---|
| 1:10,000 @ A3 | JUNE 2020 |

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N

S1

FURNACE LINE 1

BOILER LINE 1

BOTTOM ASH STORAGE

FEED HOPPER

SW1

Electrical Sub-Station

Plant Control Room

Fuel Intake Building

WASTE STORAGE BUNKER

MUSHROOM ROAD

INTAKE FUEL GRAB CRANE

A1

FLUE STACK

A2

FLUE GAS CLEANING

STORAGE SILO FOR AIR POLLUTION CONTROL RESIDUES

STORAGE SILO FOR SODIUM BICARBONATE

BOTTOM ASH STORAGE

INDICATIVE LOCATION OF EMERGENCY DIESEL GENERATOR AND ASSOCIATED DIESEL STORAGE

CONDENSORS

STEAM TURBINE / GENERATOR

STUART WAY

WB

0 5 10 15 20m 30 40 50

Metres 1:500

LEGEND

ENVIRONMENTAL PERMIT BOUNDARY

A1 — APPROXIMATE LOCATION OF POINT SOURCE EMISSION TO AIR

SW1 — APPROXIMATE LOCATION OF POINT SOURCE EMISSION TO SURFACE WATER

S1 — APPROXIMATE LOCATION OF POINT SOURCE EMISSION TO SEWER

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HILL BARTON ENERGY GENERATION PLANT

ENVIRONMENTAL PERMIT APPLICATION

**SITE LAYOUT PLAN**

**DRAWING 001**

Scale 1:500 @ A3

Date JULY 2020

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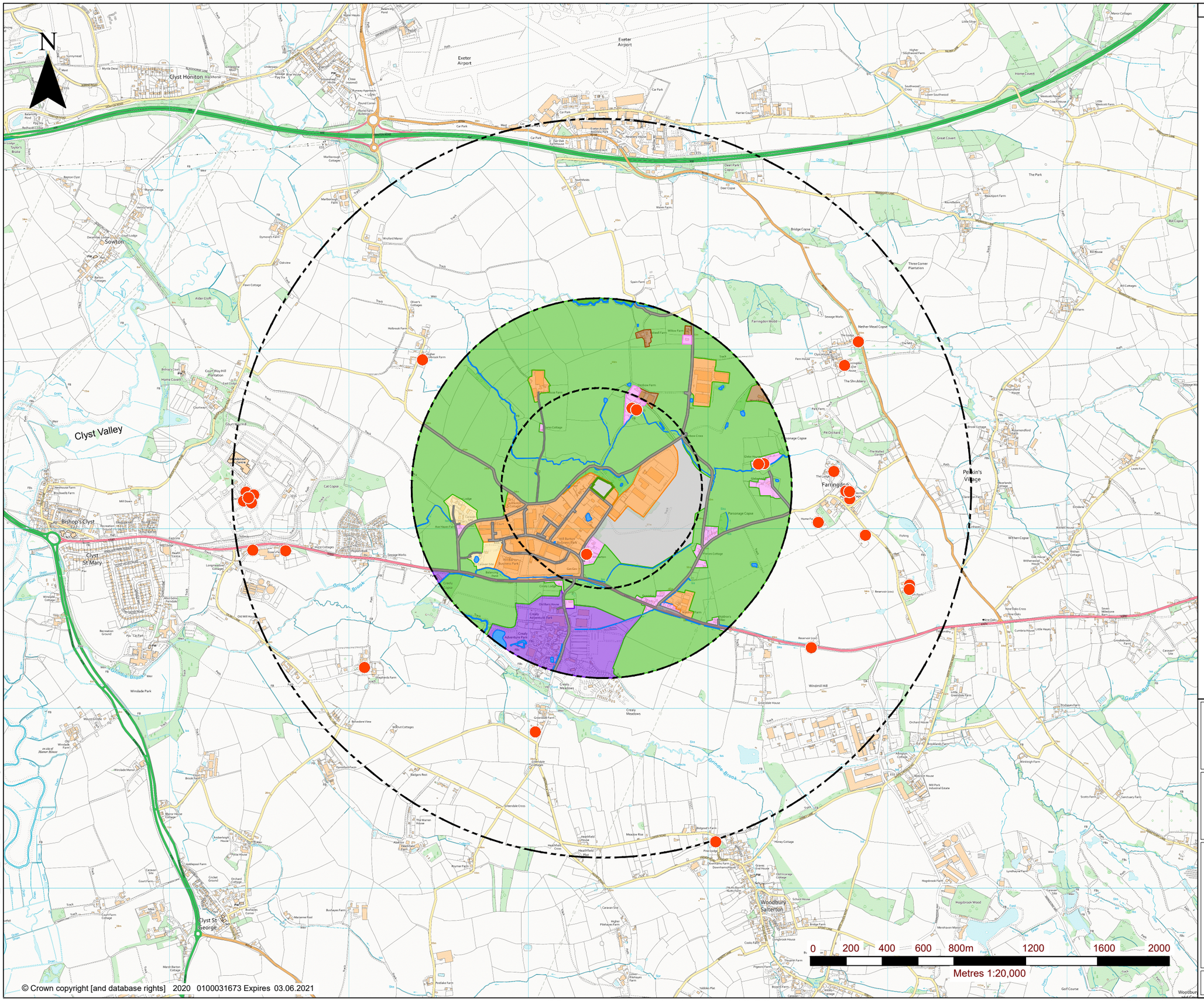


LEGEND

- ENVIRONMENTAL PERMIT BOUNDARY
- 500m OFFSET BOUNDARY
- 1Km OFFSET BOUNDARY
- 2Km OFFSET BOUNDARY
- COMMERCIAL / INDUSTRIAL
- RESIDENTIAL
- LOCAL ROAD NETWORK
- OPEN WATER / DITCHES
- WOODLAND / OPEN GROUND/ AGRICULTURAL
- LANDFILL SITE
- CARAVAN SITE
- RECREATIONAL
- FARM RESIDENCE / BUILDING
- LISTED BUILDINGS

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HILL BARTON ENERGY GENERATION PLANT

ENVIRONMENTAL PERMIT APPLICATION

**ENVIRONMENTAL SITE SETTING**

**DRAWING 003**

| Scale | Date |
|---|---|
| 1:20,000 @ A3 | JUNE 2020 |

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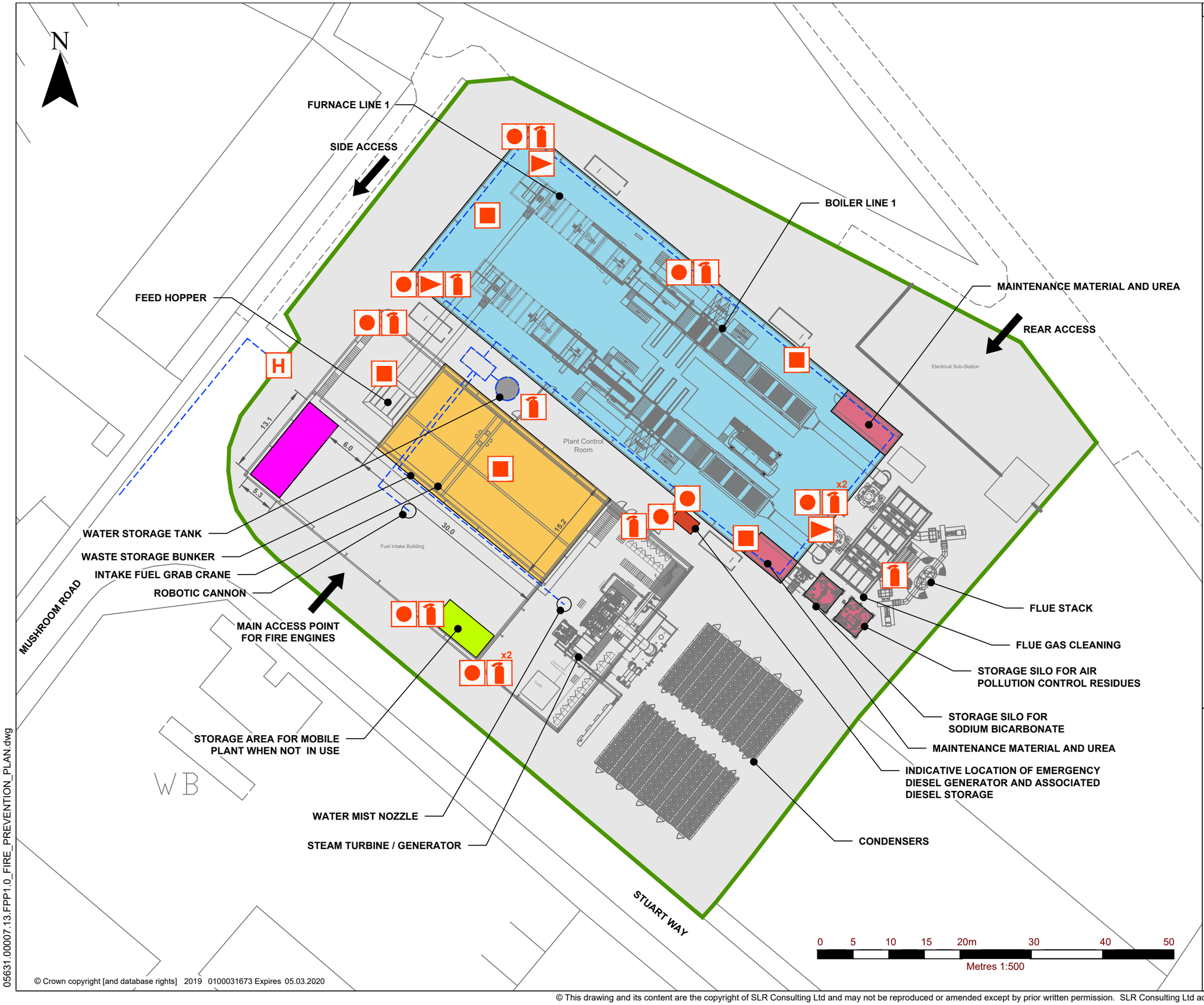


LEGEND

- ENVIRONMENTAL PERMIT BOUNDARY
- HARD STANDING
- CHEMICAL STORAGE
- COMBUSTIBLE WASTE
- PROCESS AREA
- MOBILE PLANT STORAGE
- WASTE STORAGE
- QUARANTINE AREA
- FIRE EXTINGUISHER
- MOBILE FOAM UNIT
- MANUAL CALL POINT
- THERMAL IMAGING CAMERA
- FIRE HYDRANT
- SPRINKLER SYSTEM

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HILL BARTON ENERGY GENERATION PLANT

FIRE PREVENTION PLAN

**FIRE PREVENTION PLAN DRAWING**

**FPP1**

Scale: 1:500 @ A3

Date: JUNE 2020

05631.00007.13.FPP1.0_FIRE_PREVENTION_PLAN.dwg

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Existing adopted foul pumping station (transfered to South West Water).

Foul flows from the proposed development to discharge to the existing adopted S105a foul sewer.

The as-built detention basin which serves the permited Waste Transfer Building (DCC Ref. DCC/3857/2016 and EDDC Ref. 16/1582/CM) will be extended to provide extra capacity to serve this proposed development. The existing flow controls will be updated to enable a cumulative greenfield discharge from both schemes.

Waste Transfer Station (WTS) draining to existing detention basin. (DCC Ref. DCC/3857/2016 and EDDC Ref. 16/1582/CM)

Existing substation to be retained.

Proposed grass lined swale to convey development runoff to the extended detention basin.

Existing 450Ø surface water drain to be diverted around the proposed buildings. The diverted drainage must not receive any water connections from the proposed development.

Key:

- Application Boundary (Proposed WTE)
- Existing WTS Boundary
- Impermeable Catchment

Existing Drainage:

- Private Surface Water Drain
- Private Foul Water Drain
- Adopted S105a Foul Sewer
- Adopted S102 Foul Rising Main
- Private Surface Water Drain to be diverted

Proposed Private Drainage:

- Surface Water Drain
- Surface Water Inspection Chamber
- Rainwater Down Pipe
- Conveyance Swale
- Basin Extension
- Foul Water Drain
- Foul Water Inspection Chamber
- Indicative Under Slab Foul Connection
- Overland Flood Flow Routes

Notes:

1. The proposed development has been assessed in line with the National Planning Policy Framework, to allow the planning application to be progressed and to show that the development can be undertaken in an acceptable manner from a flood risk perspective.
2. The Environment Agency's flood mapping suggests that the site lies within the 'low risk' Flood Zone 1 and is at 'very low risk' of pluvial flooding.
3. To ensure the development is safe throughout its lifetime, the surface water strategy accounts for runoff in up to the 100 year return period.
4. The strategy also safeguards against the upper end allowances for climate change (40%), providing betterment over undeveloped conditions, where the rate and volume of runoff would continue to increase due to climate change.
5. Surface water from the proposed development will discharge through a new conveyance swale, towards the existing attenuation basin currently sized to serve the Waste Transfer Station. All SuDS earthworks are to be 1:3 max.
6. The existing detention basin will be extended to provide the additional attenuation requirements, with existing controls modified to reflect the allowable discharge from the total drainage catchment.
7. In accordance with CIRIA C753 Tables 26.2 and 26.3, the SuDS mitigation indices from the proposed drainage scheme exceed the pollution hazard indices for developments of 'medium' or 'large' pollution hazard levels and therefore the scheme offers sufficient treatment.
8. During exceedance events runoff will be directed towards the detention basin where any residual attenuation storage can be utilised.
9. Foul water will be routed toward the existing South West water s105a sewer and connect into the existing network.
10. All on-site drainage will be retained under private ownership and will be designed and built in accordance with Building Regulations Part H, any specific manufacturer guidance and where applicable, CIRIA C753 - The SuDS Manual.
11. The operation and maintenance of all site drainage, including proposed SuDS features, will be undertaken by the site operator or an appointed management company, in accordance with 'CIRIA C753 - The SUDS Manual, Chapter 32 - Operation & Maintenance'.
12. As the development will be safe from flooding throughout its life time and will actively reduce flood risk to properties within the downstream catchment, it is recommended that the Lead Local Flood Authority advise the local planning authority that they have no objections to the proposed development.

Area Summary

| | |
|---|---|
| Existing impermeable catchment from Waste Transfer Station (WTS) | 1.800 ha |
| Proposed impermeable catchment from Waste To Energy (WTE) | 0.600 ha |
| Total impermeable catchment to basin from WTS+WTE | 2.400 ha |

Discharge Summary

The greenfield runoff rates have been assessed for the proposed impermeable catchment, as per the 'Sustainable Drainage Systems: Guidance for Devon', using the ICP SuDS Method, which is based on the IH124 Method, but for catchments of less than 50ha. The calculation excludes large areas of open space which will remain undeveloped.

| Return Period | Greenfield Rate (l/s/ha) | Existing Waste Transfer Station Greenfield Rate (1.8ha site) (l/s) | Proposed Waste To Energy Greenfield Rate (0.6ha site) l/s | Total Allowable (l/s) |
|---|---|---|---|---|
| 1yr | 4.47 | 8.0 | 2.7 | 10.7 |
| 30yr | 11.18 | 20.1 | 6.7 | 26.8 |
| 100yr | 13.94 | 25.1 | 8.4 | 33.5 |

Attenuation Summary

The MicroDrainage Source Control Module has been used to determine the storage requirements within the detention basin for the Waste Transfer Station with the addition of the proposed Energy from Waste site. This has been sized to accommodate runoff in up to the 100 year return period with allowances for climate change.

Attenuation Summary

| | |
|---|---|
| Attenuation Type | Basin |
| Ownership | Private |
| Imp. Catchment | 2.4 ha (1.8ha for Existing WTS and 0.6ha for the proposed WTE) |
| Sideslopes | 1:3 |
| Hydraulic Controls | Hydrobrake (or similar approved) @ IL +0.000m<br>Ref. MD-SHE-0154-1070-0700-1070<br>84mmØ Orifice @ IL+0.700m |
| 100 yr +40% CC Depth | 1.8m (excluding 300mm freeboard) |
| Proposed total 100yr +40% CC Peak Vol. | **1625.9 m³** |
| Previous WTS 100yr +40% CC Peak Vol. | 1211.7 m³ |
| Additional 100yr +40% CC Peak Vol due to WTE site | 414.2 m³ |

| REV | DATE | DESCRIPTION | BY | CHK | APD |
|---|---|---|---|---|---|
| A | 26.11.2019 | INITIAL ISSUE | IW | TMR | ARW |

DRAWING STATUS: PLANNING APPLICATION

CLIENT: STUART PARTNERS LTD

PROJECT: WASTE TO ENERGY SITE, HILL BARTON BUSINESS PARK

TITLE: PRELIMINARY DRAINAGE LAYOUT

| PROJECT No: | DRAWING No: | REV: |
|---|---|---|
| 0118 | PDL-301 | A |

SCALE @ A1: 0 1:500 25 metres

DESIGN BY:

awcockward partnership
Awcock Ward Partnership, Kensington Court, Woodwater Park, Pynes Hill, Exeter, EX2 5TY
Tel: 01392 409007 Web: www.awpexeter.com

# APPENDIX 01

Nature and Heritage Conservation Screening Report

# Nature and Heritage Conservation

## Screening Report: Bespoke installations

| | |
|---|---|
| Reference | **EPR/EP3105BJ/A001** |
| NGR | **SY0042391238** |
| Buffer (m) | **63** |
| Date report produced | **25/02/2020** |
| Number of maps enclosed | **4** |

### The nature conservation sites identified in the table below must be considered in your application.

| Nature and heritage conservation sites | Screening distance (km) | Further information |
|---|---|---|
| Special Areas of Conservation (cSAC or SAC)<br>**East Devon Pebblebed Heaths** | 10 | Joint Nature Conservation Committee |
| Special Protection Area (pSPA or SPA)<br>**Exe Estuary**<br>**East Devon Heaths** | 10 | Joint Nature Conservation Committee |
| Ramsar<br>**Exe Estuary** | 10 | Joint Nature Conservation Committee |
| Local Wildlife Sites (LWS)<br>**Farringdon School**<br>**Beautiport** | 2 | Appropriate Local Record Centre (LRC)<br>Appropriate Wildlife Trust |

Unfortunately we cannot provide you with the details of all protected species. This is because we either have not been given permission by the owner of the species data, or they have asked us not to identify the species as they are vulnerable. In these instances you must contact the relevant organisation listed above. A small administration charge may be incurred for this service.

Where protected species are present, a licence may be required from Natural England or the Welsh Government to handle the species or undertake the proposed works.

The relevant Local Records Centre must be contacted for information on the features within local wildlife sites. A small administration charge may also be incurred for this service.

**Please note** we have screened this application for protected and priority sites, habitats and species for which we have information. It is however your responsibility to comply with all environmental and planning legislation, this information does not imply that no other checks or permissions will be required.

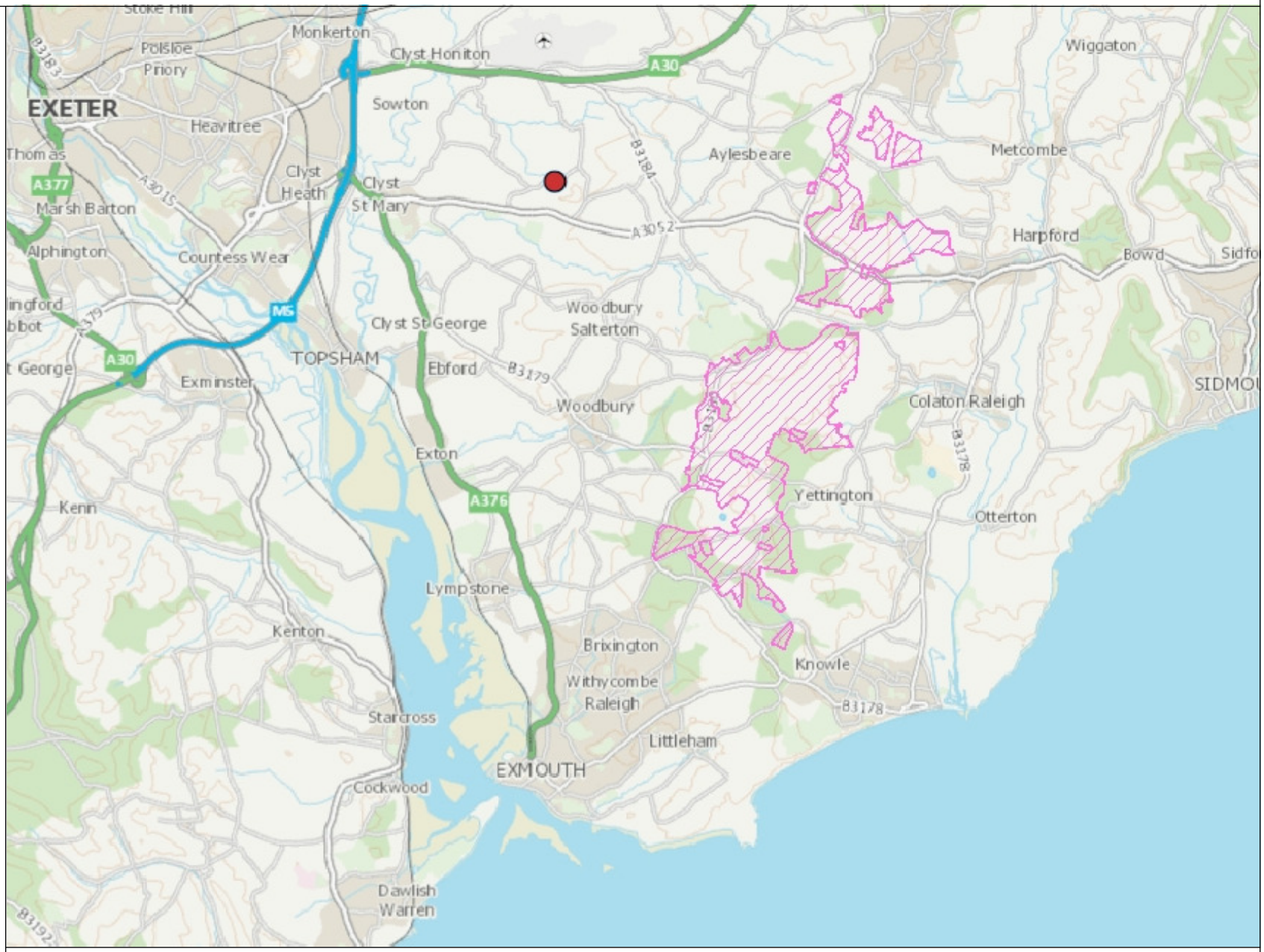
**Please note**, the enclosed pre-application map(s) is valid for a period of **6 months**. If you plan to submit your application more than 6 months after the map(s) was generated, you must request that the screen is re-run. This will ensure that you have used the most current information on heritage and nature conservation interests in your application.

# SAC

Environment Agency

Legend

SAC (England)




1: 100,000

0 2,500

Metres

N W E S

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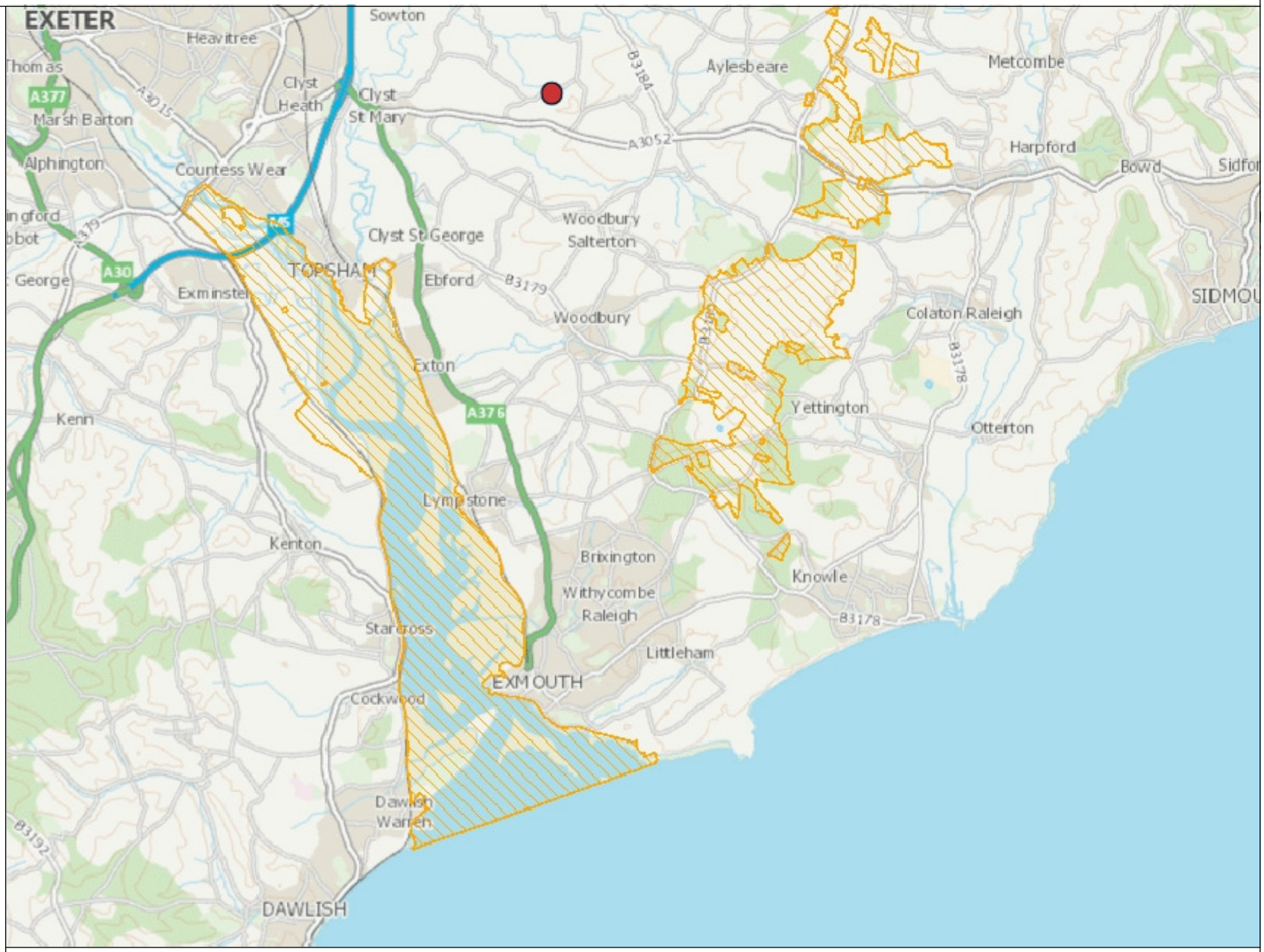
# SPA

Environment Agency

Legend

SPA (England)




1: 100,000

0 2,500

Metres

N W E S

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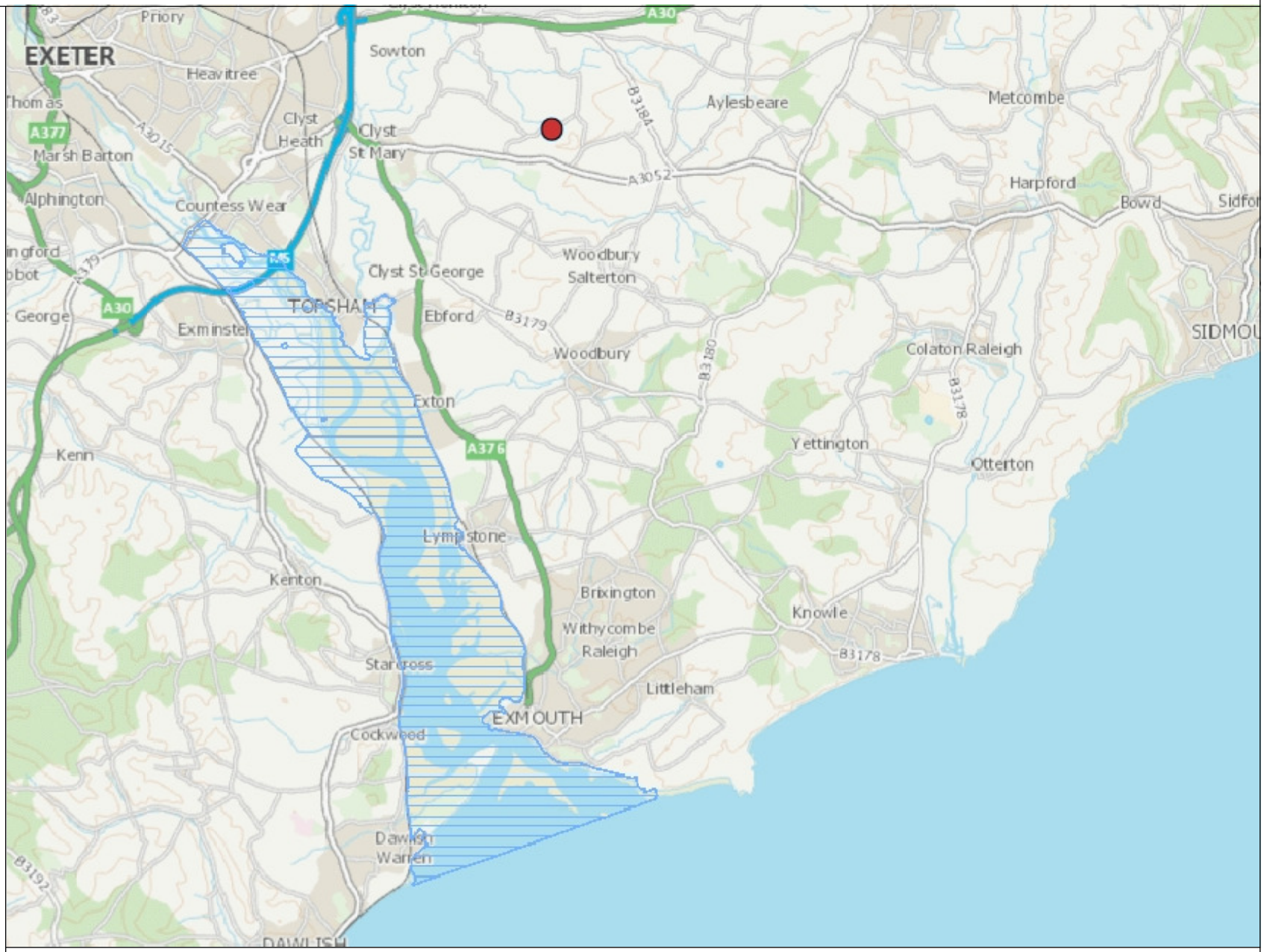
# Ramsar

Environment Agency

Legend

Ramsar (England)




1: 100,000

0 2,500

Metres

N W E S

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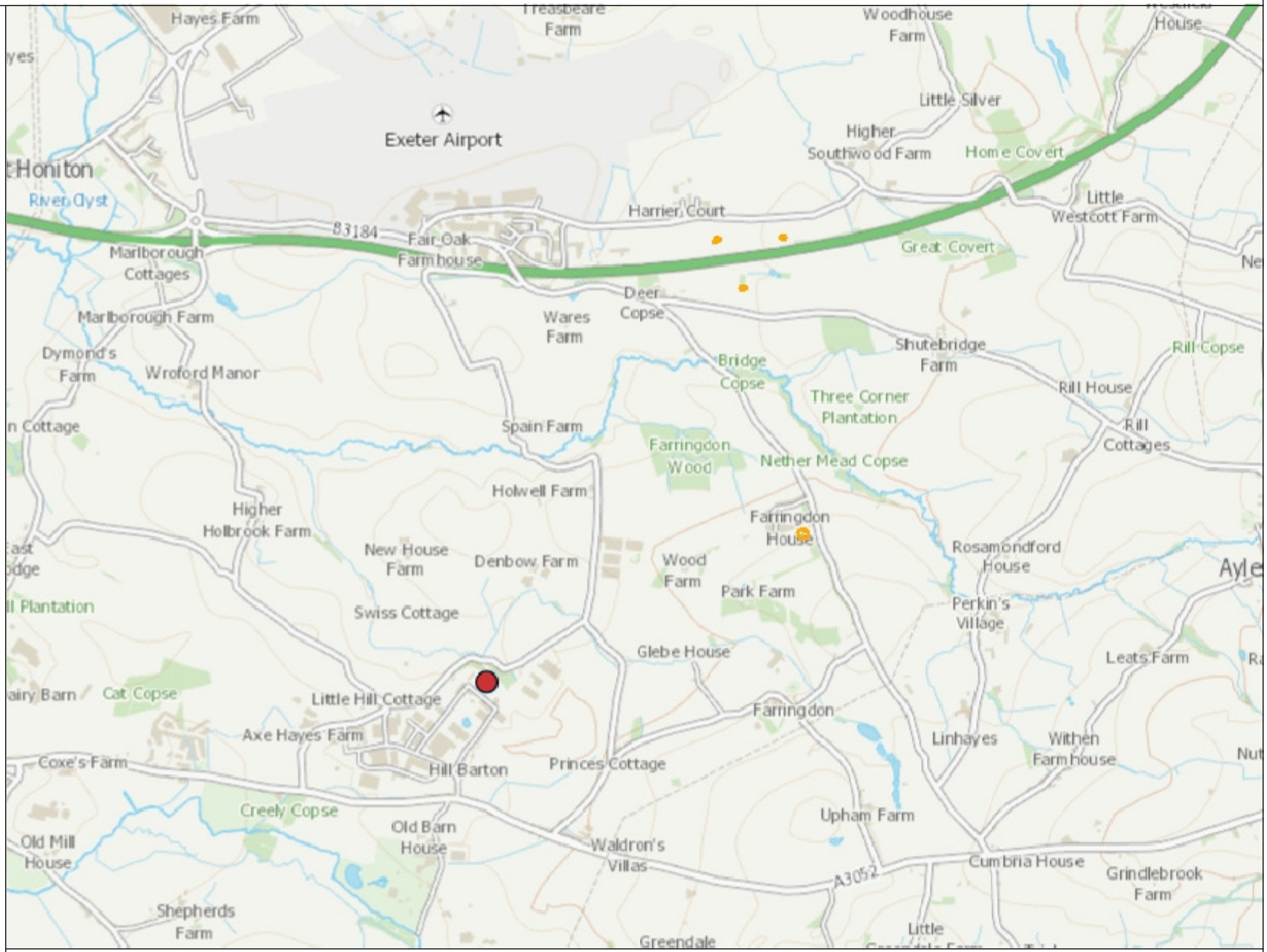
# Local Wildlife Sites

Environment Agency

Legend

Local Wildlife Sites




1: 25,000

0 625

Metres

N W E S

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# APPENDIX 02

List of Wastes

# APPENDIX B3.1

## List of Waste Codes

## Exeter Waste to Energy Limited

| European Waste Catalogue Code | Description of Waste |
|---|---|
| 17 | CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES) |
| 17 09 | Other construction and demolition wastes |
| 17 09 04 | Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03 |
| 19 | WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE |
| 19 12 | wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified |
| 19 12 10 | Combustible waste (Refuse Derived Fuel) |
| 19 12 12 | Other Wastes (Including mixtures of materials) from mechanical treatment of wastes, other than those mentioned in 19 12 11 |
| 20 | MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS |
| 20 03 | other municipal wastes |
| 20 03 01 | Mixed municipal waste |

| European Waste Catalogue Code | Description of Waste |
|---|---|
| 17 | CONSTRUCTION AND DEMOLITION WASTES (INCLUDING EXCAVATED SOIL FROM CONTAMINATED SITES) |
| 17 09 | Other construction and demolition wastes |
| 17 09 04 | Mixed construction and demolition waste other than those mentioned in 17 09 01, 17 09 02, 17 09 03 |
| 19 | WASTES FROM WASTE MANAGEMENT FACILITIES, OFF-SITE WASTE WATER TREATMENT PLANTS AND PREPARATION OF WATER INTENDED FOR HUMAN CONSUMPTION AND WATER FOR INDUSTRIAL USE |
| 19 12 | wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified |
| 19 12 10 | Combustible waste (Refuse Derived Fuel) |
| 19 12 12 | Other Wastes (Including mixtures of materials) from mechanical treatment of wastes, other than those mentioned in 19 12 11 |
| 20 | MUNICIPAL WASTES (HOUSEHOLD WASTE AND SIMILAR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL WASTES) INCLUDING SEPARATELY COLLECTED FRACTIONS |
| 20 03 | other municipal wastes |
| 20 03 01 | Mixed municipal waste |

# APPENDIX 03

EMS Summary

# Exeter Waste to Energy Limited

## Environmental Management System Summary

Exeter Waste to Energy Limited will operate the site in accordance with an Environmental Management System (EMS) accredited to ISO14001 Standard. The EMS will be certified within 12 months of the site becoming operational.

The management system will ensure that:

- the risks that the activities pose to the environment are identified;
- the measures that are required to minimise the risks are identified;
- the activities are managed in accordance with the management system;
- performance against the management system is audited at regular intervals; and
- the environmental permit and other legal requirements are complied with.

The management system will be reviewed at least once every four years or in response to significant changes to the activities, accidents or non-compliance. The management system will be supplemented by the BATOT document which outlines the proposed operating techniques at the site and demonstrates conformance with the requirements of Environment Agency (EA) guidance.

The EMS will include procedures as outlined in the EA's Develop a management system: environmental permits guidance (December 2019) and those specified as BAT as outlined in the BAT Reference document for Waste Incineration (2019). Accordingly, the EMS will include:

- Senior Management Commitment Statement
- Environmental policy (including commitment to the continuous improvement of the environmental performance of the installation)
- Planning and establishment of the necessary procedures, objectives and targets, in conjunction with financial planning and investment;
- Environmental Risk Assessments (including the Amenity and Accidents Risk Assessment, Air Emissions Risk Assessment, Noise Impact Assessment & Global Warming Potential Assessments submitted in support of the environmental permit application).
- Fire Prevention Plan
- Site Infrastructure Plan
- Site Operations Procedures
- Waste Storage Plan
- Site and equipment maintenance plan
- Contingency plans
- Accident prevention and management plan
- A changing climate plan
- Complaints procedure
- Staff competence and training records
- Record keeping
    - permits issued to the site
    - other legal requirements
    - risk assessments

    - management system plans
    - operating procedures
    - staff competence and training (for example qualifications, courses attended)
    - emissions and any other monitoring undertaken (for example emissions to air data)
    - compliance checks, findings of investigation and actions taken
    - complaints made, findings of investigation and actions taken
    - audits of management system, findings (reports) and actions taken
    - management reviews and changes made to the management system
    - certification audit reports and any actions carried out
    - Waste Duty of Care records
- Site Condition Report
- Management System Review by senior management, of the EMS and its continuing suitability, adequacy and effectiveness ollowing the development of cleaner technologies
- Site Closure Plan including consideration for environmental impacts from the eventual decommissioning of the installation at the stage of designing a new plant, and throughout its operating life.
- Checking performance and taking corrective action, paying particular attention to:
    - monitoring and measurement;
    - corrective and preventative action;
    - maintenance of records;
    - independent (where applicable) internal and external auditing in order to determine whether or not the EMS conforms to planned arrangements and has been properly implemented and maintained;
- Application of sectoral benchmarking on a regular basis.
- Waste stream management plans;
- Residues management plan including measures aiming to:
    - minimise the generation of residues;
    - optimise the reuse, regeneration, recycling and/or recovery of the residues;
    - ensure the proper disposal of residues;
- Other Than Normal Operating Conditions (OTNOC) management plan

When implementing the EMS' procedures, Exeter Waste to Energy will pay particular attention to:

- structure and responsibility;
- recruitment, training, awareness and competence;
- communication;
- employee involvement;
- documentation;
- effective process control;
- planned regular maintenance programmes;
- emergency preparedness and response;
- safeguarding compliance with environmental legislation;

# APPENDIX 04

Emergency Contact List

# Emergency Contact List

## Fire Service (in the event of a major fire)

- 999 or 112

## Environment Agency Hotline (24-hour service)

- 0800 80 70 60

## Local Businesses (with associated directions)

- East - Redwoods Travel - 01823 680 288
- South - Hill Barton Business Park, Stuart Partners – 01395 232800
- West - Tarmac - 0121 787 5001

## Sewage Service – Southwest Water Emergency Number (24-hour service)

- 0843 504 0096

## Hill Barton Generation Plant

- John Harrison – 07808 062 969
- Main Office - 01395 232800

## EUROPEAN OFFICES

### United Kingdom

**AYLESBURY**
T: +44 (0)1844 337380

**BELFAST**
T: +44 (0)28 9073 2493

**BRADFORD-ON-AVON**
T: +44 (0)1225 309400

**BRISTOL**
T: +44 (0)117 906 4280

**CAMBRIDGE**
T: + 44 (0)1223 813805

**CARDIFF**
T: +44 (0)29 2049 1010

**CHELMSFORD**
T: +44 (0)1245 392170

**EDINBURGH**
T: +44 (0)131 335 6830

**EXETER**
T: + 44 (0)1392 490152

**GLASGOW**
T: +44 (0)141 353 5037

**GUILDFORD**
T: +44 (0)1483 889800

**LEEDS**
T: +44 (0)113 258 0650

**LONDON**
T: +44 (0)203 691 5810

**MAIDSTONE**
T: +44 (0)1622 609242

**MANCHESTER**
T: +44 (0)161 872 7564

**NEWCASTLE UPON TYNE**
T: +44 (0)191 261 1966

**NOTTINGHAM**
T: +44 (0)115 964 7280

**SHEFFIELD**
T: +44 (0)114 245 5153

**SHREWSBURY**
T: +44 (0)1743 23 9250

**STAFFORD**
T: +44 (0)1785 241755

**STIRLING**
T: +44 (0)1786 239900

**WORCESTER**
T: +44 (0)1905 751310

### Ireland

**DUBLIN**
T: + 353 (0)1 296 4667

### France

**GRENOBLE**
T: +33 (0)4 76 70 93 41