

DATE: December 2017	REVISION: 0	DOC #: HB-SWP	HRL-WP1
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Henley Biomass Ltd
Waste Water Treatment Plant
SITE ENVIRONMENTAL MANAGEMENT PLAN

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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Table of Contents

1. INTRODUCTION	3
2. PROCESS DESCRIPTION	4
3 ENVIRONMENTAL SETTING.....	12
4 SITE INFRASTRUCTURE.....	14

Annex 1: Environmental Procedures

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
--	--	---------------------------

1. INTRODUCTION

Henley Biomass Ltd (*'The Company'* hereafter) owns and operates a Waste Water Treatment Facility located at Browns Road, Daventry, Northamptonshire, NN11 4NS (*'The Site'* hereafter).

The proposed Installation will receive, accept and process approximately 45,000 tonnes per annum of non-hazardous landfill and compost leachate for treatment within the evaporative units. All waste water being received by the site will be pre-treated and processed to form a solid residue and clean water vapour. The water vapour will be discharged directly from the evaporator unit.

The facility will be permitted by the Environment Agency as a Part A(1) Installation and will be operated in accordance with the Environmental Permitting (England and Wales) Regulations 2016.

A separately operated Biomass Energy Plant will supply parasitic heat and power to the plant. All heat sales and electrical sales are contractually bound under the terms of a power purchase and heat sales agreement.¹

Neither the ownership nor operation of the Biomass Energy Plant will be by the Applicant and therefore the application is considered as a multi operator installation. The facility will be regulated by the Environment Agency as a Small Waste Incineration Plant (SWIP).

This document forms the working plan and has been prepared in accordance with the following requirements:

- The Environmental Permitting Regulations 2016; and
- Environmental Permit (*EPR/3835RU*).

This working plan has been prepared to provide an account of the operational practices and environmental considerations for the reception and handling of waste derived fuel feedstocks and the processes carried out by Henley Biomass Ltd.

A sign which provides the necessary site and operations information is positioned at the entrance to the site. The sign provides all the necessary site information, contact details and relevant waste codes as required by the sites Environmental Permit.

A copy of the Environmental Permit and the Management System plan will be kept in the site office at all times.

¹ The Biomass Energy Plant is a separate entity and separately operated by Pedigree Power LLP. The facility will be regulated by the Environment Agency as a Small Waste Incineration Plant (SWIP).

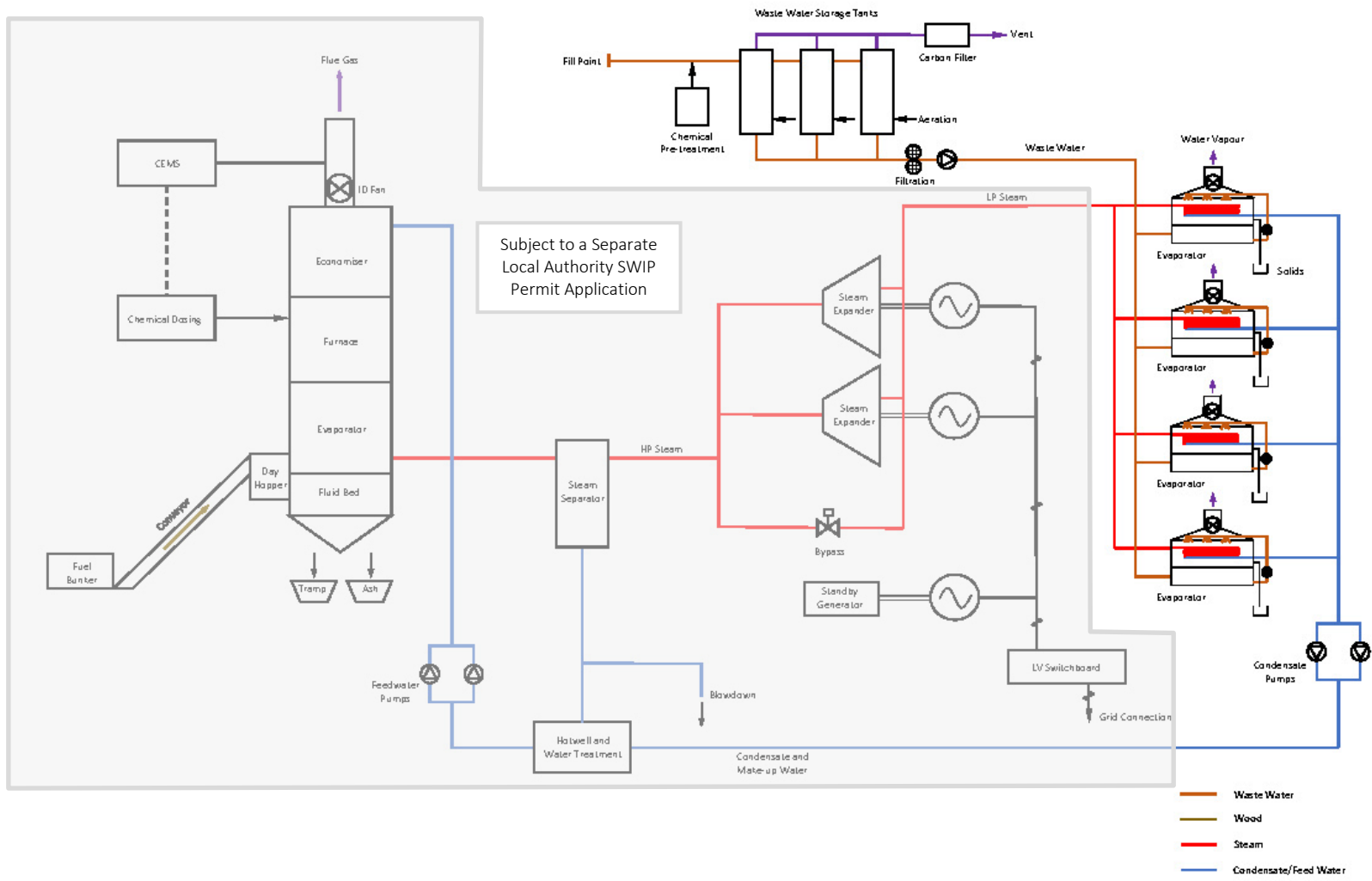
DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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2. PROCESS DESCRIPTION

2.1 Process Schematic

The schematic overleaf (Figure 2.1) provides a broad overview of the process flow through the Installation. Further detail of each stage is provided within each of the specific working procedures in use at the sites and within the further sections of this working plan.

DATE:	December 2017	Environmental Management System	Henley Biomass Ltd
REVISION:	0		
DOC #:	HB-SWP		



Subject to a Separate Local Authority SWIP Permit Application

DATE:	December 2017	Environmental Management System	Henley Biomass Ltd
REVISION:	0		
DOC #:	HB-SWP		

2.2 Site Layout

The schematic below (Figure 2.2) provides an overview of the layout of the installation indicating the location of the key plant and equipment, plant and process areas.

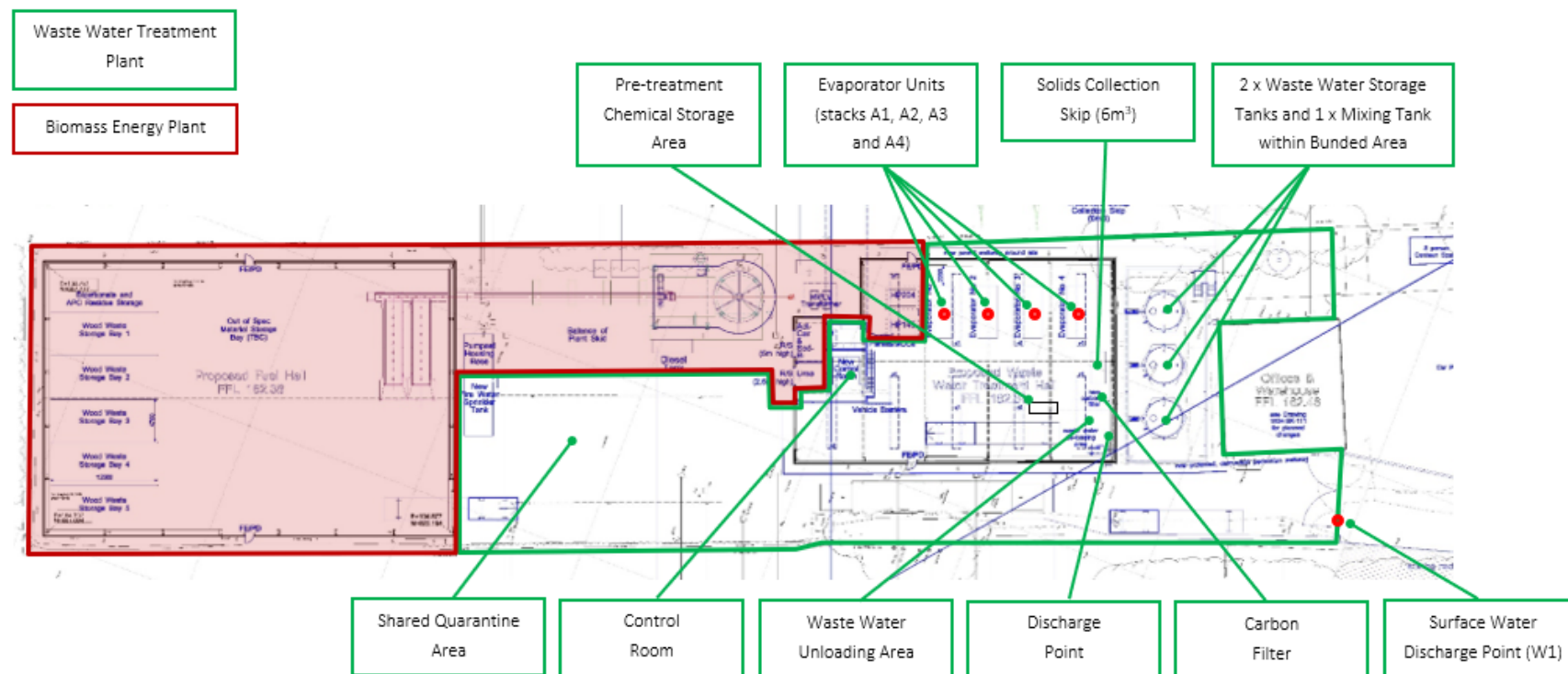


Figure 2.2 Site Layout Showing process locations

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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2.3 Specified Waste Management Activities

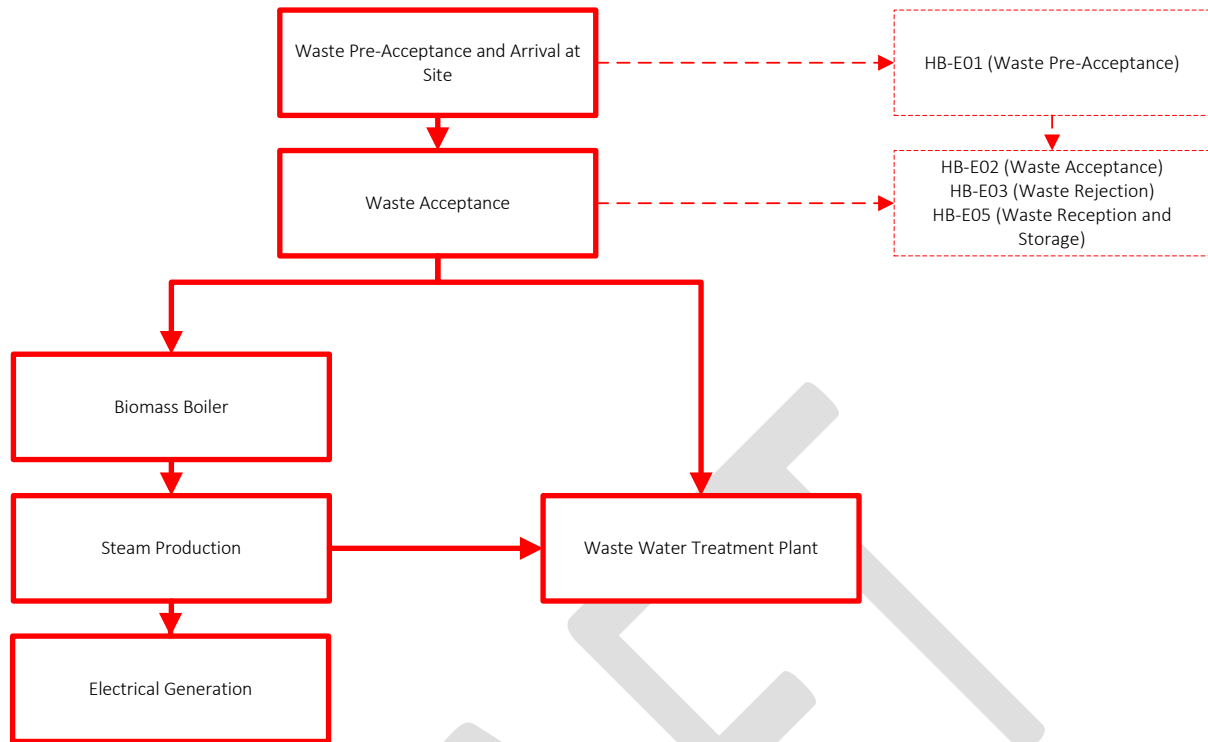
The wastes accepted onto site for processing will consist of non-hazardous landfill and compost leachate.

Table 2.1: Specified Activities

Site Address	Browns Road, Daventry, Northamptonshire, NN11 4NS	
National Grid Reference	OS X (Eastings) 455500 OS Y (Northings) 262500	
Site Manager	(Competent Person)	
PPC permit / WML Reference	EPR/3835RU	
Wastes accepted on site	19 07 03 landfill leachate other than those mentioned in 19 07 02 19 05 99 wastes not otherwise specified	
Specified Waste Management Activities	D9 Treatment	D15 Storage of Category D wastes
Throughput	The site can process a maximum materials as stated below: 45,000 tonnes per annum of landfill and compost leachate	
Permitted operation hours for waste acceptance / dispatch	07:00 – 18:00 (Monday to Friday) 08:00 – 13:00 (on weekends and Bank Holidays)	
Planning Permission	Daventry District Council Planning Permission	

Waste Management Operations can be represented diagrammatically in Figure 2.3 below according to Table 2.2 below:

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
--	--	---------------------------



Associated procedures for the above site processes are summarised within Table 2.2 overleaf.

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
--	--	---------------------------

Table 2.2: SWP Procedure & Guidance Map

Reference No:	Title	Purpose
HB-E01	Waste Pre-Acceptance	This procedure defines the upstream screening, checking and pre-acceptance of all incoming waste prior to its arrival on site.
HB-E02	Waste Acceptance	This procedure outlines the onsite controls and considerations that need to be applied when waste materials arrive on site for processing.
HB-E03	Waste Rejection	This procedure outlines the waste rejection process for all non-conforming wastes that cannot be processed on site. Acceptance of non-conforming wastes will be a direct breach of the permitted conditions of the sites Environmental Permit.
HB-E04	Off Site Waste Transfers	This procedure provides the necessary information to enable the assessment and off site transfer of non-conforming or untreatable waste streams.
HB-E05	Waste Reception and Storage	This procedure outlines the waste reception, storage processes for all incoming waste.
HB-E06	Environmental Records	This procedure defines the necessary Environmental Permit and Waste Records that are required to be managed by the site to ensure compliance.
HB-E07	Environmental Management and Monitoring Programme	This procedure provides an overview of all of the necessary environmental monitoring, management procedures and controls to ensure compliance with the Permit.
HB-E08	Infrastructure Management and Monitoring Programme	This procedure provides an outline of the inspection and cleaning requirements for the site.
HB-E09	Accident Management Plan	This procedure refers to the sites emergency plans and response requirements.
HB-E10	Odour Management Plan	This procedure refers to the sites odour management requirements.

The following associated procedures are appended to this document:

- HB-E01 – Waste Pre-Acceptance;
- HB-E02 – Waste Acceptance;
- HB-E03 – Waste Rejection;
- HB-E04 – Off Site Waste Transfers;
- HB-E05 – Waste Reception and Storage;
- HB-E06 – Environmental Records;
- HB-E07 – Environmental Management and Monitoring Programme;
- HB-E08 – Infrastructure Management and Monitoring Programme;
- HB-E09 – Accident Management Plan; and
- HB-E10 – Odour Management Plan.

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
--	--	---------------------------

2.4 Waste Processing

All waste arriving on-site is processed through pyrolysis activities, the key stages of which are summarised below (detailed process descriptions are contained within the relevant procedures highlighted in Table 2.2 and Figure 2.3):

- *Waste Reception:* Approximately 45,000 tonnes of non-hazardous waste water (landfill and compost leachate) will be delivered to site by road tanker and discharged into one of the 96,000 litre storage tanks.
- *Pre-Treatment:* The two storage tanks are fitted with re-circulation, aeration pumps and associated pipework. The 96,000 litre mixing tank located adjacent to the storage tanks takes leachate from each of the storage tanks on an hourly basis, also recirculating it around the mixing tank, resulting in further mixing and aerating the leachate. This volatilises and releases any VOC's, methane and non-methane gases in to the headspace of the tank which is subsequently treated within the carbon filter.

Additionally, hydrogen peroxide is dosed into the tanks to oxidise and remove the dissolved sulphides and reduce odour and bacteria levels within the liquor. The pH dosing reduces ammoniacal nitrogen and calcium carbonate concentrations within the waste water.

Finally, the pre-treated waste water will be filtered via a 500µm mesh filter prior to being pumped to the evaporators. The filtration of the effluent effectively removes 80 – 90 % of the solids content of the effluent significantly reducing the overall organic loading.

All liquids are then pumped to the four evaporators tanks on demand as a continuous processing cycle.

- *Evaporation:* The waste water will then be pumped into the holding tanks of one of the four evaporator units on site. The waste water is then pumped from the holding tank to a header above the evaporative heat exchanger where it is discharged above the tube bundles.

Steam from the adjacent Biomass Energy Plant will pass through the tube bundles of the evaporators resulting in sufficient evaporative energy being transferred to the waste water passing over the external surfaces. This forms water vapour through the process of thin film evaporation.

The water vapour will be discharged directly from the evaporator units via a dedicated flue. Solid matter in the holding tank is removed utilising slow moving paddles that wipe the material from the bottom of the tank and deposit it on a dewatering system comprising a conveyor and

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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rollers. The resultant sludge is discharged into a container before being transferred off site for disposal at a licensed waste management facility.

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DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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3 ENVIRONMENTAL SETTING

3.1 Geology and Hydrogeology

According to the BGS Geology of Britain Viewer, the site is directly underlain by the Bedrock Geology of the Marlstone Rock Formation. No superficial deposits have been recorded.

The site is considered to be situated in an area of moderate sensitivity with respect to groundwater resources due to the underlying aquifer. This sensitivity is mitigated somewhat by the absence of any groundwater abstraction (sensitive or otherwise) within 1km of the site (the closest groundwater abstraction being located 1398m south east) and the site not being directly located in a Groundwater Source Protection Zone.

3.2 Surface Water Features

There are no surface water features within 250m of the site.

The nearest river network is a Tertiary River located 408m to the south west of the site. There is no available information regarding the name or the quality of the river.

3.3 Sensitive Environmental Receptors

There are no SACs, SPAs or Ramsar sites within 10km of the site.

There are also no SSSIs, NNRs, LNRs, CWSs, PWSs or SINCs within 2km of the site. However, there are Local Wildlife Sites and Potential Wildlife Sites relevant to the assessment which are presented in Table 3.1 below.

There are also two areas of Ancient Woodland within 2km of the site. The details of which are shown in Table 3.2 overleaf.

Table 3.1: Records of Local Wildlife Sites / Potential Wildlife Sites			
ID	Receptor	Easting	Northing
ER1	Elderstubbs Farm Pasture LWS	454945	262526
ER2	Elderstubbs Farm Pasture LWS	455048	262449
ER3	Elderstubbs Farm Pasture LWS	455121	262345
ER4	Oak Spinney (Daventry) LWS	455799	261354
ER5	Pond Spinney LWS	455917	261185
ER6	Staverton Clump LWS	454907	261279
ER7	Staverton Wood LWS	455116	261523
ER8	Staverton Wood LWS	455329	261399
ER9	Stepnell Spinney LWS	455606	261537
ER10	Stepnell Spinney LWS	455718	261586
ER11	Elderstubbs Farm Pasture South PWS	455309	262421

DATE: REVISION: DOC #:	December 2017 0 HB-SWP	Environmental Management System	Henley Biomass Ltd
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ER12	Elderstubbs Farm Pasture South PWS	455324	455324
ER13	Elderstubbs Farm Pasture South PWS	455207	262384
ER14	Elderstubbs Farm Pasture South PWS	455331	262229
ER15	PWS	454908	263464
ER16	PWS	455094	263475
ER17	PWS	455493	263911
ER18	PWS	454105	262106
ER19	PWS	453646	261810
ER20	Staverton Golf Club Quarry PWS	454351	261745
ER21	PWS	455159	260777
ER22	PWS	456254	261247
ER23	PWS	456906	261274

Table 3.2 Records of Ancient Woodland within 2km of the Study Site

Name	Distance and Direction	Data Source
Unknown	1138m S	Ancient and Semi-Natural Woodland
Unknown	1186m S	Ancient Replanted Woodland

The site is not considered likely to have any significant effects on this designated site due to the limited nature of emissions from the site.

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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4 SITE INFRASTRUCTURE

4.1 Building Design and Layout

The following components are located onsite:

Waste Water Treatment Hall:

- 4 x Evaporator Units;
- Tanker Unloading Area with Discharge Point;
- Carbon Filter;
- Waste Water Treatment Solids Collection Skip (6m³);
- Pre-treatment Chemical Storage Area;
- pH Dosing skids;
- Aeration and recirculation pumps and pipework and
- Control Room / Control Panels.

Yard to Adjacent to the Waste Water Treatment Hall:

- 2 x 96,000 litre storage tanks located within concrete bunded area with 110% capacity of total water storage tank capacity;
- 1 x 96,000 litre mixing tank also located within the concrete bunded area; and
- 500 micron mesh filter.

4.2 Site Drainage System

The entire site is constructed on sealed concrete hardstanding with a sealed drainage system.

All surface water runoff drains to an underground attenuation tank (91.2m³). A penstock valve will then be used to enable the control of surface water from site in the following modes;

- Mode 1 – surface rainwater leaving the site (W1), at a controlled outfall rate of 2.2l/s;
- Mode 2 – surface rainwater being diverted from site into one of the waste water treatment plant reception tanks to dilute the leachate water being treated; and
- Mode 3 – in the case of a fire on site, any potentially contaminated fire water will be contained by closing the penstock valve. The firewater will then tankered off site.

The attenuation tank and surface water discharge system is shared with the neighbouring SWIP. There will be management procedures in place to ensure that there is no risk of pollution off site. However, only clean surface water runoff from both sites is collected in the attenuation tank and released off site (W1) so the risk of pollution off site is very low.

The waste water treatment hall has been constructed with measures to prevent water from escaping. Any spillage / washing down waters within the building will drain to one of the two 4m³ below ground concrete storage tanks. The water collected within these tanks will then be tankered off site or manually pumped back into one of the waste reception tanks.

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
--	--	---------------------------

Any water caught within the bunded waste water storage tank area will also be automatically pumped back into one of the water reception tanks.

No external activities will take place that have the potential to impact the controlled waters.

All site infrastructure (roads, concrete pads, drainage systems and buildings) are inspected on a weekly basis by the competent person.

Any faults and repairs will be carried out as soon as practicable and a note made of them in the site diary.

4.3 Site Security

The site will be manned 24/7.

A secure fence is erected around the parameter of the site to ensure security. The site has gated access which will be secured outside of normal working hours.

The site manager will inspect the site security at the start of each working day. Any defects or damage shall be made secure by temporary repair by the end of the working day and a permanent repair effected within seven working days and noted in the site diary.

The site entrance is equipped with lockable gates and an intruder alarm and is secured outside operating hours.

The entire site is equipped with digital Closed Circuit Television (CCTV) with pan, tilt and zoom capabilities. The CCTV system operates on a 24/7 basis, covers all process areas of the site and is monitored by the Site Manager.

Offices and storage buildings within the facility will be adequately secured out of operating hours.

4.4 Infrastructure Monitoring

The infrastructure monitoring of the site will take place in accordance with procedure HB-08 Infrastructure Management and Monitoring Programme.

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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5 TECHNICAL COMPETENCE & TRAINING

The Manager is defined as the Technically Competent Person for the site. The site manager holds all necessary qualifications to be defined as 'Technically Competent' as defined by the Environment Agency Operator Competence Scheme and WAMITAB Certificate of Technical Competence Schemes.

All personnel on site will have been trained in the site operation procedures and Working Plan according to Table 5.1 below.

The site manager is responsible for insuring that all operators and personnel receive training as required.

	Site Working Plan Manual HB-SWP	Waste Pre Acceptance HB-E01	Waste Acceptance HB-E02	Waste Rejection HB-E03	Off site Waste Transfers HB-E04	Waste Reception and Storage HB-E05	Environmental Records HB-E06	Environmental Monitoring HB-E07	Infrastructure Monitoring HB-E08	Accident Management Plan HB-E09	Odour Management Plan HB-E10
Site Manager											
Weighbridge Personnel											
Site Operatives											
Site Management											
Visitors											

DATE: December 2017 REVISION: 0 DOC #: HB-SWP	Environmental Management System	Henley Biomass Ltd
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Appendix 1

Operating Procedures

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