



Non-Technical Summary

Guy and Wright Ltd



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SITE DETAILS

The Vineries
Green Tye
Much Hadham
Herts
SG10 6JJ

OPERATOR DETAILS

Guy and Wright Ltd

The Vineries
Green Tye
Much Hadham
Herts
SG10 6JJ

PERMIT REFERENCE

EPR/PP3793EU/V005

DOCUMENT REFERENCE

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1. INTRODUCTION

This document is the Non-Technical Summary (NTS) that accompanies the application for a substantial variation at Guy & Wight Ltd, The Vineries, Green Tye, Much Hadham, Herts, SG10 6JJ ('the site'). The site is located at National Grid Reference TL 44251 18635.

The current permit (EPR/PP3793EU/V005) permits a non-IED Installation for an Anaerobic Digestion facility (under 100 tonnes/day), with the treatment of animal wastes limited to less than 10 tonnes/day. Storage of digestate is also permitted via on-site lagoons and biogas is burnt in 3 Combined Heat and Power Engines. The resultant heat is used within neighbouring commercial greenhouses. Waste types accepted are primarily organic wastes from the European Waste Catalogue Chapter 02 and Chapter 19. The quantity of waste processed at the site is no more than 100 tonnes/day.

The application has been prepared by Wiser Environment Limited on behalf of the applicant Guy and Wright Ltd.

This NTS summarises the proposed changes to the Environmental Permit and should be read in conjunction with the other supporting documents included within the application.

2. APPLICATION

This application is for a Substantial Variation and has been prepared under the Environmental Permitting (England and Wales) Regulations 2016 (as amended) for a Waste Installation.

The scope of this variation application is covered below. Enhanced Pre-application was sought prior to this application and has been included in Appendix A.

2.1. Variation Details

The variation seeks to:

- Vary from a non-IED waste anaerobic digestion facility to an Installation activity under Schedule 1, Section 5.4 Part A (1) (b), Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 100 tonnes per day if the waste treatment activity is anaerobic digestion, involving one or more of the following activities: i) biological treatment.
- Remove the daily tonnage limit on processing animal wastes so the site can accept and process more than 10 tonnes /day.
- Add two further digestate storage lagoons and associated boundary extension.
- Add a fourth Combined Heat and Power Engine ('CHP').
- Regularise within Table S1.1 relating to emission point A1 and A2. This is reflective of infrastructure that has been historically removed and replaced.
- Regularise Table S3.1 to correct the existing lagoon capacity. This should read 11,000m³ as opposed to 10,000m³.

2.2. Further Details

Table 1 provides further explanation of the proposed changes for clarity.

Table 1: Further details of variation.

Variation Requirement	Reason for Variation	Additional Information for Clarification
Vary to an Anaerobic Digestion Installation permit to process non-hazardous waste with a capacity exceeding 100/tonnes a day if the waste treatment activity is anaerobic digestion.	Capacity for animal waste processing on site now exceeds 10 tonnes/day and operator wishes to process more than 10 tonnes/day of this waste type. Re-calculation of treatment capacity within the digesters puts the site over the	There is no additional 'treatment' capacity being added as part of this variation. It uses existing permitted infrastructure only. Annual Throughput to change to 274t/day, giving 100,000t/year.
AND		

<p>Remove the daily tonnage limit on processing animal wastes so the site can accept and process more than 10 tonnes /day</p>	<p>threshold for an Installations permit.</p>	<p>There is no change to the waste types and EWC codes listed in Schedule 2 of the existing permit.</p>
<p>Add two further digestate storage lagoons.</p>	<p>To become more resilient to climate change, two further digestate storage lagoons (10,000m³ each) are to be constructed on site and the boundary extended to accommodate this.</p>	<p>Technical Details are included in the application for lagoon construction, technical drawings, operating techniques and covers. Boundary Extension is covered in the Site Plan (K163.1~20~040) and Site Condition Report (K163.1~09~006).</p>
<p>Add a fourth Combined Heat and Power Engine</p>	<p>A fourth engine is in operation at the site and requires permitting and adding as an emission point. Heat from the engines is used within onsite commercial greenhouses.</p>	<p>The engines meet the threshold for Medium Combustion Directive, therefore emission limits require changing to these limits. Further details, including emission modelling are included in the application.</p>
<p>Regularise within Table S1.1 relating to emission point A1 and A2. This is reflective of infrastructure that has been historically removed and replaced.</p>	<p>This is based on the emission points of an old gas turbine that was removed under previous variation and replaced with a CHP. CHP 1 does not have a scrubber associated with it</p>	<p>CHP 1 does not have a scrubber associated with it individually. Instead, all biogas is scrubbed through a common scrubber prior to combustion. There is no emission point for this scrubber.</p>
<p>Regularise Table S3.1 to correct the existing lagoon capacity</p>	<p>This is currently quoted as 10,000m³ and needs to be corrected to 11,000m³.</p>	<p>This is an existing lagoon which is remaining on site for its current purpose of digestate storage.</p>

2.3. Permitted Activities

Table 2 below covers the listed activities and Directly Associated Activities ('DAAs') required as part of this variation.

Table 2: Listed Activities and DAAs

Activity Reference	Activity listed in Schedule 1 of the Regulations	Description of the specified activity and WFD Annex I and II operations.	Limits of activity and waste types.
AR1	Schedule 1, Section 5.4 A(1)(b)(i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes (or 100 tonnes per day if the only waste treatment is Anaerobic Digestion) involving biological treatment.	R3: Recycling/ reclamation of organic substances which are not used as solvents.	From receipt of waste through to digestion and recovery of by-products (digestate). Anaerobic digestion of waste in two tanks followed by burning of biogas produced from the process. Waste Types suitable for acceptance are limited to those specified in Table S2.1
Directly Associated Activity			
AR2	Storage of waste pending recovery or disposal	R13 Storage of waste pending the operations numbered R1 and R3 (excluding temporary storage, pending collection, on a site where it is produced).	From the receipt of permitted waste to pre-treatment and despatch for anaerobic digestion on site. Storage of residual wastes from pre-treatment to despatch off site for recovery. Storage of waste in the reception area with an impermeable surface and sealed drainage and in dedicated storage tanks for liquid waste. Waste types suitable for acceptance are limited to those specified in Table S2.2

AR3	Physical Treatment for the purpose of recycling	R3 Recycling/ reclamation of organic substances which are not used as solvents.	<p>From the receipt of waste to despatch for anaerobic digestion.</p> <p>Pre-treatment of waste within an enclosed tanks and pit including maceration and mixing.</p> <p>Heat treatment (pasteurisation) of ABP wastes for the purpose of recovery.</p> <p>Gas cleaning via biological or physical (carbon filtration) and bio- scrubbing.</p> <p>Separation of digestate fibre from liquid digestate in an external area with impermeable surface connected to sealed drainage.</p>
AR4	Steam and electrical power supply		<p>From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the realise of combustion gases.</p> <p>Combustion of biogas in 4 CHP engines.</p>
AR 5	Emergency Flare Operation	D10: Incineration on land	<p>From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gases.</p>
AR6	Raw Material Storage	Storage of raw materials	<p>From the receipt of raw materials to despatch for use within the facility.</p>
AR7	Gas Storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending	<p>Storage of biogas produced from on-site anaerobic digestion or permitted wastes in digester roof space and</p>

		collection, on the site it was produced).	in separate gas storage dome. From the receipt of biogas produced at the on-site anaerobic digestion process to dispatch for use within the facility.
AR7	Digestate storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on site where it is produced)	Storage of whole digestate in a storage tank. From the receipt of processed digestate from the on-site anaerobic digestion process to despatch for use off site.

2.4. Site Location

The site is located 398m E from Green Tye village centre and 511m NE from the B1004. Residential housing is located within 150m of the site centre to the south, 192m to the southeast and 300m to the east. The immediate surrounding areas to the north and west are primarily agricultural land owned by Guy & Wright Ltd. Figure 1 shows the site boundary.

The Vineries is a site owned and operated by Guy and Wright Ltd and other operations on the same site as the Anaerobic Digestion Plant include commercial greenhouses and a small fruit packing building for greenhouse produce.



Figure 1 Aerial image of the site, showing the permit boundary in green

2.5. Environmental Setting

The environmental setting of the site is summarised in Table 1. A more detailed description of the site setting can be found in the Environmental Risk Assessment (ERA) (K163.1~09~004) within Section 4 of the application pack:

Table 1 Summary of Site Setting

RECEPTOR	DESCRIPTION AND LOCATION
Humans and Property	Site workers and visitors on site. Residential receptors include Ducketts Lane (90 m ESE), Glendale Cottage (120 m NW), Springs Farm (125 m NNE), Perry Green (395 m SSW) and wider residential areas within 1.7 km. Sensitive public uses include churches, village halls, galleries and education facilities within up to 1.5 km. Commercial receptors include local businesses and public houses within up to 1.7 km. Public rights of way present from 100 m from the site.
Surface Water	River Ash located approximately 920 m west of the site. The Bourne located approximately 1.7 km south-south-west.

RECEPTOR	DESCRIPTION AND LOCATION
Groundwater	Site underlain by Unproductive Superficial Deposits and Secondary A and Unproductive Bedrock Aquifers.
Designated Sites	No statutory designated ecological sites recorded within the immediate vicinity of the site.
Non-Statutory Designated Sites	Traditional orchards located within 150 m south of the site and at various locations within approximately 2 km.
Geology	Underlying geology comprises superficial and bedrock deposits classified as unproductive or secondary aquifers.
Flooding	Site not located within an area of significant flood risk.

3. PERMITTED OPERATIONS

3.1. Waste Acceptance

The Management System Summary (MSS) (K163.1~09~002) describes the Waste Acceptance Procedure for the site. All waste coming into the site is non-hazardous and in line with the EWC codes listed within Schedule 2, Table S2.1 of the existing permit.

Waste is accepted in the following manner:

- Solid, low odour potential wastes: directed to the reception area and inspected upon tipping to ensure it meets the transfer note description.
- Liquid, high odour wastes: directed to the liquid waste tanks. The transfer note is checked prior to off-load from the tanker and checked against the expected inventory for the day.

3.2. Waste Processing

Waste Inputs organic wastes, conforming to the EWC codes set out in Schedule 2, Table S2.1 in the existing permit. These waste types do not require any changes as part of this variation and are requested to remain the same.

Wastes will vary from low odour, solid wastes mainly from the Food and Drink production industry or from agricultural growing sources to liquid wastes that largely consist of Sludges from Effluent Treatment within the food processing industries, or ‘soup’ mixtures from other AD plants.

There will be no acceptance of hazardous wastes. Any non-conforming wastes are quarantined and re-loaded.

The annual throughput of the site seek to increase to 100,000 tonnes/ year to future proof the site. The site, however, is restricted by the Planning Permission’s traffic movements, therefore will not enact the increase unless the planning permission is varied in future. There is no intention to do this at present. The capacities of the treatment operations on site are covered in Table 3.

Table 3: Capacity Information of Treatment Operations under the listed activity.

Treatment Process	Capacity
Hydrolysis Tanks	100 tonnes/day
Pasteurization	23m ³ /day
AD Tank 1	30 tonnes/day

AD Tank 2	100 tonnes/day
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Note: Tank 1 and 2 operate part in parallel and in series, see Figure 2 Process Flow Diagram for further clarification.

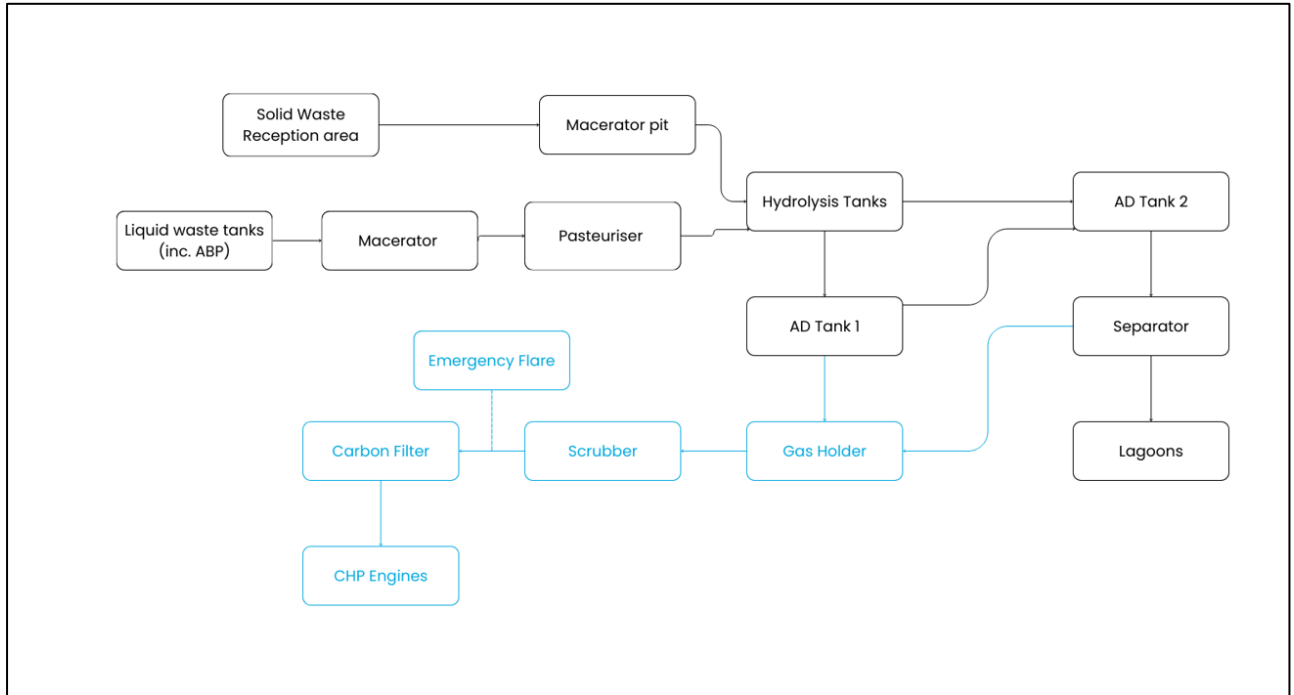


Figure 2: Non-technical process flow diagram.

Once wastes have been confirmed and accepted, the following occurs as part of the treatment process:

Maceration of wastes occurs within the pit area to form a liquid mix which is sent to the hydrolysis tanks. Liquid wastes (coming from separate, sealed liquid waste holding tanks) which require pasteurisation are sent through a pasteuriser and held at 72°C for 1 hour before being released into the hydrolysis tanks.

Hydrolysis tanks are to provide the initial stage of the Anaerobic Digestion Process to begin the breakdown of carbohydrates, proteins and lipids into sugars, amino acids and fatty acids.

Following Hydrolysis, the feedstock is pumped forward into either AD Tank 1 or AD Tank 2 (see Figure 2). 30m³/day of feedstock is pumped from AD Tank 1 into AD Tank 2 for further digestion.

Once feedstock has completed the digestion process, it is pumped from AD Tank 2 to the digestate separator to remove solids and fibres from the liquid digestate. Following this, digestate is pumped to the lagoon for storage prior to deployment to land.

Biogas produced from the digestion process is extracted under slight negative pressure into the gas dome on site. Biogas is then ducted into an enclosed scrubber to for gas cleaning to remove any hydrogen sulphide or other substances which may impact engine performance or emissions. A carbon filter is situated just prior to the CHP engines to perform a final polish of the biogas prior to combustion. An emergency flare is available at all times should the engines not be available. Engines are serviced according to the Manufacturers recommendations. Electricity from the CHPs is sent to the grid and heat is captured and used in the commercial greenhouses on site, also owned and operated by Guy and Wright Ltd for crop production.

The process is controlled by SCADA and is fully automated, with the exception of physical waste deliveries.

3.3. Digestate Storage

The two new lagoons are to ensure climate change resilience for operations going into the future and to ensure compliance with Farming Rules for Water. Wetter winters are becoming more common, therefore there is less land bank available to spread during these times.

The two new lagoons will be constructed to the CIRIA 736 standard for Earth Banked Lagoons.

Digestate is land spread under environmental permit EPR/ ZP3598VN (EAWML 105197)

3.4. Emissions Control

An Odour Management Plan has been prepared for this application and has been included within K163.2~09~008. Odour is an inherent risk from the operation, due to the waste types and process being undertaken. Odours are controlled by means identified within the Odour Management Plan.

Point source and fugitive emissions are listed in Table 4.

Emission Source	Emission Type	Descriptive Information
CHP engines	Point Source	Combustion Gases. No associated odours.
Hydrolysis Tanks	Point Source	Vent gases captured and combusted within the CHP engines.
Liquid Waste Storage Tank PVRV	Point Source	Emergency relief valve only

Emission Source	Emission Type	Descriptive Information
AD Tank 1 PVRV	Point Source	Biogas. Emergency relief valve only. Maintained and monitored via SCADA.
AD Tank 2 PVRV	Point Source	Biogas. Emergency relief valve only. Maintained and monitored via SCADA.
Biogas Holder PVRV	Point Source	Biogas. Emergency relief valve only. Maintained and monitored via SCADA.
Existing Lagoon	Fugitive Emissions	Digestate- crust cover. Fugitive emission may be experienced on stirring if crust broken. Residual Biogas Value low due to long retention time.
New Lagoon	Fugitive Emissions	Digestate. Full cover and gas extraction system.
Reception pit for solid wastes	Fugitive Emissions	Solid, low odour wastes in outdoor reception area. Processed within 24 hours.

Please note, the biogas scrubber is fully sealed and does not have an associated emission point as scrubbed biogas from the scrubber outlet is directed to the engines. The carbon filter used for the gas cleaning prior to combustion also does not have an associated emission point as all outlet gas is destined for the CHP.

Odour Dispersion Modelling has also been completed to demonstrate the site is low risk of odour.

Air Dispersion Modelling has been carried out on the CHP engines to demonstrate that emissions are of low risk to the environment and harm to human health.

3.5. Site Management

Guy and Wright Ltd, shall manage and operate the activities:

- a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents,

non-conformances, closure and those drawn to the attention of the operator as a result of complaints;

- b) using sufficient competent persons and resources, and
- c) with records demonstrating compliance.

Any person having duties that are or may be affected by the matters set out in the Environmental Permit (EPR/ PP3793EU/V005) shall have access to a copy of it.

The operator shall comply with the requirements of an approved competence scheme.

4. RISK ASSESSMENT & MANAGEMENT

An Environmental Risk Assessment (ERA) (K163.1~09~004) is included in Section 04 of the application pack. The ERA details the key management measures for the protection of the environment, with regards to emissions to surface water, groundwater, land, and air (including noise and odour).

The site is operated by Guy and Wright Ltd, a Management System Summary (MSS) (K163.1~09~002) has been developed and is included within in Section 2 of the application pack to reflect and control site operations, environmental management, emissions and monitoring. The MSS defines operational and maintenance procedures and details requirements in the event of an accident or incident.



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