

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Broadley Energy Limited

Broadley Copse Farm

Downs Road

West Stoke

Funtington

Chichester

PO18 9BT

Permit number

EPR/JP3332YL

Broadley Copse Farm

Permit number EPR/JP3332YL

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows:

The Installation is located approximately 400 metres (m) to the north east of the village of Funtington and 1.5 kilometres to the north west of the village of East Ashling. The installation is approximately centred on National Grid Reference SU 80946 08572.

The site is bordered to the east, south and west by agricultural land. To the north of the site is the neighbouring pig farm, Broadley Copse Farm Pig Unit, which is a permitted installation operated by Basil Baird (Fareham) Limited. The pig farm installation has the permit number EPR/NP3830RX.

The installation process up to 43,300 tonnes per annum (tpa) of feedstock. Approximately 25,500 tpa of this will be pig manure, with the remainder of the feedstock; straw from the neighbouring pig farm, dirty water from the pig farm and the Anaerobic Digestion (AD), maize and rye silage, and clean water from an attenuation pond to the south west of the site boundary.

The AD facility will comprise the following operations:

- AD plant (two digesters);
- Waste storage containers - two feed hoppers, a silage clamp and straw bunker;
- Two storage lagoons for digestate;
- A holding lagoon for dirty water;
- Combustion plant consisting of two combined heat and power (CHP) engines and an emergency flare; and,
- Other ancillary plant (pasteurisers, condensers, screw press, pipework, etc.).

There are a number of waste storage areas for the different wastes going into the AD process. Pig manure is transported from the adjacent pig farm and is stored in two steel feed hoppers. Maize and rye will be brought onto the site by vehicles, via the weighbridge, before being stored in two large silage clamps. The silage from the clamps will then be added to the pig manure in the two feed hoppers. From the feed hoppers, the silage and manure is fed into the mixing pump where it is mixed with recirculated digestate or rain water, before being pumped into either of the two digester tanks.

Straw is also transported from the pig farm and is then stored in a straw bunker. The straw is then passed through the shredder into an economiser. Dirty water that has originated from both the pig farm and AD site, is pumped from the intake tank into the economiser and mixed with the straw, before being fed into either of the two digester tanks.

The two digester tanks each have a gross volume of approximately 4,247m³, and a useable volume of 3,929m³. The residence time for the substrate is approximately 56 days. The digesters both have a double membrane gas accumulator roof to allow for the biogas produced to remain stored in the digester.

After reaching the residency period, the digestate is pumped through a shredder to the two pasteurisation tanks. After pasteurisation has occurred the digestate is transferred to a screw press to separate the liquid and solid fractions of the digestate.

The liquid digestate is pumped to the two digestate lagoons which have an aggregated available capacity of 16,950m³. The liquid digestate is stored in the lagoons until it is taken off site for use on agricultural land. The solid fraction of the digestate will be directed out of the screw press onto an open trailer, and will be utilised on agricultural land.

The biogas produced by the AD process is treated through cooling and condensation separation prior to being combusted in the CHP units to produce heat and electricity. The CHP engines have an aggregated thermal input of 4.264 MW. The heat and electricity is used to run the AD plant, with the excess electricity exported to the national grid. Biogas will be burnt in the site's flare only during emergency procedures, periods of breakdown, or maintenance of the CHP engines or auxiliary boiler.

Site surfaces will meet an appropriate standard taking into account the proposed plant and equipment to be used. All liquid tanks, whose emissions to water or land could cause pollution, will be contained in adequate secondary containment constructed in line with industry best practice standards, and sized to contain 110% of the contents of the largest tank within a bund.

The Kingley Vale SAC & SSSI is the closest statutory conservation site, located approximately 1,500m from the installation. There are a further five statutory sites within 10 kilometres of the installation, and an estimated ten non-statutory sites within 2 kilometres of the installation. Assessment by the Environment Agency shows that emissions from the operations at the Installation are unlikely to have a significant impact on the habitat sites. The site is located within a Nitrate Vulnerable Zone and the main activities of the site are adjacent to the Funtington Source Protection Zone 1.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application EPR/JP3332YL/A001	Duly made 01/08/17	Application for an anaerobic digestion facility with combustion of biogas.
Additional information received	17/08/17	Updated Odour Management Plan and Fugitive Emissions Management Plan.
Additional information received	19/09/17	Updated air quality modelling and confirmation of CHP stack height.
Additional information received	09/10/17	Additional BAT Assessment.
Additional information received	17/10/17	Statement of Operator responsibility for Broadley Energy Limited and Basil Baird (Fareham) Limited.
Additional information received	27/10/17	Report on construction of secondary containment.
Additional information received	29/11/17	Submitted BioConstruct GmbH Operational Manual and Maintenance Plan.
Additional information received	29/01/18	Revised Digestate Management Plan, Fugitive Emissions Management Plan and Environmental Management System.
Additional information received	31/01/18	Updated BAT Assessment.
Additional information received	09/02/18	Process Flow Diagram and Drainage Flow Diagram.
Additional information received	15/02/18	Updated air quality assessment.
Additional information received	20/02/18	Details on SCADA alarm system.
Additional information received	22/02/18	Updated Accident Management Plan.
Additional information received	23/02/18	Additional BAT Assessment.
Additional information received	08/03/18	Updated Odour Management Plan.
Additional information received	09/03/18	Confirmation of recalibration of CHP engine B, monthly air emission monitoring methods and revised site plan and permit boundary.
Additional information received	13/03/18	Updated air emissions assessment.
Permit determined Application EPR/JP3332YL (PAS Billing ref. JP3332YL)	20/03/18	Permit issued to Broadley Energy Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/JP3332YL

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Broadley Energy Limited (“the operator”),

whose registered office is

Hillcrest House

Bury Road

Lavenham

Suffolk

CO10 9QG

company registration number 10306226

to operate an installation at

Broadley Copse Farm

Downs Road

West Stoke

Funtington

Chichester

PO18 9BT

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Sam Haddock	20/03/18

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

- 1.1.1 The operator 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; and
 - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
 - (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
 - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
 - (b) it conforms to the description in the documentation supplied by the producer and holder.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.6 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.

2.4 Improvement programme

- 2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.
- 2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

- 2.5.1 The operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

- 3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 tables S3.1 and S3.2.
- 3.1.2 The limits given in schedule 3 shall not be exceeded.
- 3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

- 3.2.1 Emissions of substances not controlled by emission limits (excluding odour) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.
- 3.2.2 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Pests

- 3.5.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this

condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.5.2 The operator shall:

- (a) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution from pests;
- (b) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.6 Monitoring

3.6.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:

- (a) point source emissions specified in tables S3.1 and S3.2;
- (b) process monitoring specified in table S3.3.

3.6.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.

3.6.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.6.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.

3.6.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1 and S3.2 unless otherwise agreed in writing by the Environment Agency.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and
- (d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:
 - (i) off-site environmental effects; and
 - (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.2 Reporting

- 4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.
- 4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:
- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
 - (b) the annual production/treatment data set out in schedule 4 table S4.2; and
 - (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.
- 4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:
- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
 - (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
 - (c) giving the information from such results and assessments as may be required by the forms specified in those tables.
- 4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.
- 4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.3 Notifications

- 4.3.1 In the event:
- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
 - (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
 - (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

- 4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.
- 4.3.3 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.
- 4.3.4 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:
- Where the operator is a registered company:
- (a) any change in the operator's trading name, registered name or registered office address; and
 - (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.
- Where the operator is a corporate body other than a registered company:
- (a) any change in the operator's name or address; and
 - (b) any steps taken with a view to the dissolution of the operator.
- In any other case:
- (a) the death of any of the named operators (where the operator consists of more than one named individual);
 - (b) any change in the operator's name(s) or address(es); and
 - (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.
- 4.3.5 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:
- (a) the Environment Agency shall be notified at least 14 days before making the change; and
 - (b) the notification shall contain a description of the proposed change in operation.
- 4.3.6 The Environment Agency shall be given at least 14 days notice before implementation of any part of the site closure plan.

4.4 Interpretation

- 4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.
- 4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
AR1	S5.4 A (1) (b) (i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity 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. The total annual throughput shall be 44,300 tonnes [note 1]. Waste types suitable for acceptance are limited to those specified in Table S2.2.
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 the site where it is produced)	Undertaken in relation to Activity AR1. From the receipt of permitted waste to pre-treatment and despatch for anaerobic digestion on site. Storage of waste in two covered lagoons [as shown on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18]. 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	Undertaken in relation to Activity AR1. From the receipt of waste to despatch for anaerobic digestion on site. Pre-treatment of waste and raw material on an impermeable surface with sealed drainage system, including: - shredding of straw [point 12 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18]. - macerating pig manure and silage [point 22 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18]. - mixing dirty water and shredded straw [point 11 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18]. Post-treatment of digestate on an impermeable surface with sealed drainage system, including pressing for use as a fertiliser or soil conditioner.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
			Heat treatment (pasteurisation) of waste in 2 tanks for the purpose of recovery. Gas cleaning by biological or chemical scrubbing. Waste types suitable for acceptance are limited to those specified in Table S2.2.
AR4	Steam and electrical power supply	R1: Use principally as a fuel to generate energy	Undertaken in relation to Activity AR1. From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the release of combustion gases. Combustion of biogas in a combined heat and power (CHP) engine with a thermal input of 2.132 MWth [note 2].
AR5	Emergency flare operation	D10: Incineration on land	Undertaken in relation to Activity AR1. From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gases. The flare with a minimum residence time of 0.3 seconds at 1000°C. Use of an auxiliary flare required only during emergency procedures, periods of breakdown or maintenance of the CHP engine or auxiliary boiler.
AR6	Raw material storage	Storage of raw materials including lubrication oil, activated carbon and diesel.	Undertaken in relation to Activity AR1. From the receipt of raw materials to despatch for use within the facility.
AR7	Storage of non-waste feedstocks	Storage of non-waste feedstock	From the receipt of energy crops to pre-treatment and despatch for anaerobic digestion on site. Storage of maize and rye in two clamps on an impermeable surface with sealed drainage.
AR8	Gas storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced).	Undertaken in relation to Activity AR1. Storage of biogas produced from on-site anaerobic digestion of permitted waste in roof space of digesters. From the receipt of biogas produced at the on-site anaerobic digestion process to despatch for use within the facility.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
AR9	Digestate storage	R13: Storage of waste pending the operations numbered R1 and R3 (excluding temporary storage, pending collection, on the site where it is produced).	Undertaken in relation to Activity AR1. From the receipt of processed digestate produced from the on-site anaerobic digestion process to despatch for use off-site. Storage of processed liquid digestate in two covered lagoons.
A10	Surface water collection	Collection of roof and site surface water from operational areas.	From the collection of roof and site surface water from operational areas within a sealed drainage system only to re-use within the facility.
A11	Auxiliary boiler	Burning of oil	To only be used in the event of breakdown of CHP engine B, which provides heat to the digestate tanks, or to assist in the recovery from a failure in the digestion process, which requires re-establishing the tanks.
<p>Note 1 - After completion of pre-operational measure PO1, as referenced in Table S1.4 of this permit, the annual throughput shall not exceed 49,875 tonnes.</p> <p>Note 2 - After completion of pre-operational measure PO2, as referenced in Table S1.4 of this permit, combustion of biogas shall be in two combined heat and power (CHP) engines with an aggregated thermal input of 4.264 MWth.</p>			

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	Responses to Parts B2 and B3 of the application form. Site Drainage Report (reference: Detailed Site Drainage Report - Revision A, dated: April 2017).	Duly made 27/07/17
Additional information	Statement of Operator responsibility for Broadley Energy Limited and Basil Baird (Fareham) Limited (reference: Statement of Operator responsibility at Broadley Copse Farm).	17/10/17
Additional information	BioConstruct GmbH O&M Manual (reference: OM Manual_Chichester_SVST_171120). BioConstruct GmbH Maintenance Plan (reference: Maintenance Instructions_Chichester_Mika_171109)	29/11/17
Additional information	Digestate Management Plan (reference BEL-OD-07 Digestate Management Plan V1 280118_F). Fugitive Emissions Management Plan (reference: BEL-PROC-20 Fugitive Emissions Plan V1 280118_F). Environmental Management System - Monitoring and Maintenance Schedules 01-08. Environmental Management System - Procedures 17-27.	29/01/18
Additional information	BAT Assessment and referenced supporting documentation (reference: ETL_319_JSC_00224_R00260_FINAL_Broadley Copse AD Plant_BAT Assessment Report_BEL-OD-05_31	31/01/18

Table S1.2 Operating techniques		
Description	Parts	Date Received
	January 2018).	
Additional information	Process Flow Diagram (reference: ETL319_SPC0066_Process Flow Diagram_V1.0_BEL_January 2018 240118) Drainage Flow Diagram (reference: ETL00312_Drainage Flow Diagram_V1.0_BEL_January 2018 220118)	09/02/18
Additional information	Details on SCADA alarm system (email reference: 'Application Bespoke - SCADA Alarm Manual', report reference: Application Bespoke - SCADA Error list_Chichester_Mika_TG_180129)	20/02/18
Additional information	Accident Management Plan and referenced supporting documentation (reference: BEL-OD-03 Accident Management Plan V2 22.02.18 F).	22/02/18
Additional information	Additional BAT Assessment and referenced supporting documentation (reference: EPR-JP3332YL - BAT Assessment comments 23.02.2018 - Final).	23/02/18
Additional information	Confirmation of biogas interlock procedure (email reference: Application Bespoke Biogas Interlocking Procedure).	06/03/18
Additional information	BAT confirmation of basic energy requirements (reference: 'Electricity Generation and Consumption Table').	07/03/18
Additional information	Updated Odour Management Plan and referenced supporting documentation (reference: BRO07 Odour Management Plan).	08/03/18
Additional information	Monthly air emission monitoring approach (email reference: Application Bespoke - Gas Engine Emissions Monitoring). Updated site layout (reference: Proposed Site Layout 21443/004).	09/03/18

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	The operator shall install an enclosed biogas flare with a minimum residence time of 0.3 seconds at 1000°C in accordance with Best Available Techniques. The flare must incorporate appropriate flame arrestors to prevent flash back and automatic isolation valves.	Within 3 months of issuing the permit or otherwise agreed in writing by the Environment Agency
IC2	The operator shall submit a written Digestate Management Plan to the Environment Agency for approval. The plan must use operational data to provide: <ul style="list-style-type: none"> an estimate of the liquid and solid fraction of the digestate following separation; and, an estimate of the mass reduction of the material fed into the digesters. Based on calculations, the plan should provide a review of the available digestate storage capacity at the site, and the ability of the site to meet statutory Nitrate Vulnerable Zone requirements, and provide 6 months storage for the liquid digestate.	Within 6 months of issuing the permit or otherwise agreed in writing by the Environment Agency
IC3a	The operator shall compete and make available for inspection all documents which were identified in the Master Document Control File as being produced by April 2018 (reference: BEL-OD-10 Master Document Control File V2.2, dated: 09/03/18).	30 th April 2018 or otherwise agreed in writing by the Environment Agency.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC3b	The operator shall compete and make available for inspection all documents which were identified in the Master Document Control File as being produced by May 2018 (reference: BEL-OD-10 Master Document Control File V2.2, dated: 09/03/18).	31 st May 2018 or otherwise agreed in writing by the Environment Agency.
IC3c	The operator shall compete and make available for inspection all documents which were identified in the Master Document Control File as being produced by June 2018 (reference: BEL-OD-10 Master Document Control File V2.2, dated: 09/03/18).	30 th June 2018 or otherwise agreed in writing by the Environment Agency.
IC4	<p>The operator shall complete a gap analysis audit of the Environmental Management System (EMS). The findings of this analysis shall be submitted in a report to the Environment Agency for approval.</p> <p>The EMS shall cover all activities at the Installation and shall be in accordance with the Environment Agency Guidance – How to develop a management system: environmental permits and section 8.2.1 of the Environment Agency Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013).</p> <p>The documents and procedures set out in the EMS shall form the written management system referenced in condition 1.1.1 (a) of the permit.</p>	Within 3 weeks of issuing the permit or otherwise agreed in writing by the Environment Agency.
IC5	<p>The operator shall undertake monitoring of the emissions from CHP engine B. The monitoring shall be undertaken in accordance with the approach stated by the operator (email reference: Application Bespoke - Gas Engine Emissions Monitoring, dated: 09/03/18).</p> <p>The operator shall submit a written report to the Environment Agency detailing the monitoring undertaken and results obtained.</p>	Within 1 week of the first date of the operation of CHP engine B.
IC6	The operator will provide the Environment Agency the details of the feed plan and gas production as detailed in the procedure reference BEL-PROC-31 Gas Production under limited operation v1.0.	Until such time that PO2 has been signed off.

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC7	<p>The Operator shall undertake air emission monitoring in accordance with the Environment Agency guidance note M2 "Monitoring of stack emissions to air". The monitoring shall be for oxides of nitrogen (NOx), sulphur dioxide, carbon monoxide and total VOCs from emission points A1 and A2 (A2 after completion of pre-operational measure PO2), as defined in table S3.1.</p> <p>The monitoring schedule shall be designed to provide data representative of typical and worst case operating conditions.</p> <p>The Operator shall submit a written report to the Environment Agency detailing the monitoring undertaken, the results obtained, and contain a comparison with, and justification for, the data used in the Operators detailed air quality assessment of these emission points.</p> <p>Following completion of the monitoring exercise, the Operator shall use these detailed release data to produce a written report, providing a comparison of the efficiencies for CHP engines A and B.</p> <p>The Operator shall submit a written report which will either; justify that the current NOx limit for engine B can meet BAT, or, propose a new NOx emission limit with a BAT assessment of the running conditions of engine B.</p>	<p>Within 6 months of issuing the permit or otherwise agreed in writing by the Environment Agency.</p>

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO1	Increase the Anaerobic Digestion annual throughput limit to 49,875 tonnes per annum.	<p>The operator shall submit a written plan to the Environment Agency for approval. The plan should demonstrate that there are agreed, appropriate outlets for the off-site storage of digestate which would allow for the site to increase its annual throughput whilst continuing to meet statutory Nitrate Vulnerable Zone requirements and provide 6 months storage for the digestate.</p>
PO2	Use of CHP engine A.	<p>The operator shall submit detailed air quality modelling to the Environment Agency for approval to demonstrate the required stack height for CHP engine A and CHP engine B to be run in combination with no likely significant effect to the environment.</p> <p>A report shall be submitted to the Environment Agency for approval, demonstrating that the required improvements to the stacks have been undertaken.</p> <p>CHP engine A shall not be used unless the Environment Agency has given prior written permission under this condition.</p>

Schedule 2 – Waste types, raw materials and fuels

Raw materials and fuel description	Specification
Maize silage	Substantially free of non-vegetable matter

Maximum quantity	Annual throughput shall not exceed 25,500 tonnes (waste feedstock only). Wastes having any of the following characteristics shall not be accepted at the facility: <ul style="list-style-type: none"> • consisting solely or mainly of dusts, powders or loose fibres • hazardous wastes
Waste code	Description
02	Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning – vegetables, fruit and other crops
02 01 03	plant tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw) only
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment

Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 [Point 6 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18]. [note 6,8]	2.132 MWth CHP engine B stack [note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	440 mg/m ³	Hourly average	Monthly [note 4]	In house testing
					Annual	BS EN 14792
		Sulphur dioxide	350 mg/m ³		Monthly [note 4]	In house testing
					Annual	BS EN 14791
		Carbon monoxide	1400 mg/m ³		Monthly [note 4]	In house testing
					Annual	BS EN 15058
		Total VOCs	1000 mg/m ³		Monthly [note 4]	In house testing
		Annual	BS EN 12619:2013			
A2 [Point 6 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18]. [note 5,7,8]	2.132 MWth CHP engine A stack [note 2,5]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Hourly average	Annual	BS EN 14792
		Sulphur dioxide	350 mg/m ³			BS EN 14791
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	1000 mg/m ³			BS EN 12619:2013
A3 [Point 7 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18].	Emergency flare stack [note 2]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Hourly average	[note 3]	BS EN 14792
		Carbon monoxide	50 mg/m ³			BS EN 15058
		Total VOCs	10 mg/m ³			BS EN 12619:2013

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Backup generator [Point 21 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18].	Backup generator	No parameter set	No limit set	--	--	--
Pressure relief valves on digesters 1 & 2 [Points 29 on site plan referenced: Proposed Site Layout 21443/004 dated: 09/03/18].	Digesters 1 & 2	No parameter set	No limit set	--	Record of operating hours	--
Auxiliary boiler [Point 28 on site plan referenced: Proposed Site Layout 21443/004, dated: 09/03/18].	0.567 MWth Auxiliary boiler oil fired	No parameter set	No limit set	--	Record of operating hours	--

Note 1 - These limits are based on normal operating conditions and load - temperature 0°C (273K); pressure: 101.3 kPa and oxygen: 5 per cent (dry gas). The measurement uncertainty specified in section 4.5.1 of LFTGN08 v2 2010 shall apply.

Note 2 - These limits are based on normal operating conditions and load - temperature 0°C (273K); pressure: 101.3 kPa and oxygen: 3 per cent (dry gas). The measurement uncertainty specified in section 5.3.1 of LFTGN05 v2 2010 shall apply.

Note 3 - Monitoring to be undertaken 12 months after commissioning of the emergency flare. Following commissioning, monitoring to be undertaken in the event the emergency flare has been operational for more than 10 per cent of a year (876 hours). Record of operating hours to be submitted annually to the Environment Agency.

Note 4 - The monthly monitoring will continue until the improvement condition IC7, as referenced in Table S1.3 of this permit, has been signed off by the Environment Agency. Annual monitoring will continue after the completion of IC7.

Note 5 - Emission point A2 will not be used until the pre-operational measure PO2, as referenced in Table S1.4 of this permit, has been signed off by the Environment Agency.

Note 6 - CHP B has the heat exchanger for the digesters.

Note 7 - CHP A has the heat exchanger for the economiser.

Note 8 - Emission points A1 and A2 shall also be monitored in accordance with the improvement conditions IC5 and IC7, as referenced in Table S1.3 of this permit.

Table S3.2 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
Soakaway located south west of the permit boundary (as shown on site plan reference: Proposed Drainage For Construction 3000)	Uncontaminated site surface water from the access road.	--	--	--	--	--

Table S3.3 Process monitoring requirements

Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Biogas from Digesters	Flow	Continuous	In accordance with EU weights and measures Regulations	--
	Methane	Continuous	None specified	Gas monitors to be calibrated every 6 months or in accordance with the manufacturer's recommendations.
	Hydrogen sulphide	Daily	None specified	--
Digesters and all waste storage areas and tanks	Odour	Daily	Olfactory monitoring	Odour detection at the site boundary.
Digesters and all storage tanks	Integrity checks	Weekly	Visual assessment	--
Carbon filtration system	Key process parameters to include pH, temperature and air flow	In accordance with manufacturer's recommendations.	None specified	Odour abatement system shall be regularly checked and maintained to ensure appropriate temperature and moisture content. Carbon filters to be replaced when saturated in accordance with manufacturer's recommendations.

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.6.1.	A1, A2 [note 1].	Every 1 month for emission point A1.	01/01, 01/02, 01/03, 01/04, 01/05, 01/06, 01/07, 01/08, 01/09, 01/10, 01/11, 01/12. [note 2]
		Every 12 months for emission point A2 [note 1].	01/01
<p>Note 1 - Emission point A2 will not be used until the pre-operational measure PO2, as referenced in Table S1.4 of this permit, has been signed off by the Environment Agency.</p> <p>Note 2 - The monthly reporting will continue until the improvement condition IC7, as referenced in Table S1.3 of this permit, has been signed off by the Environment Agency. After completion of IC7 reporting for emission point A1 will be every 12 months.</p>			

Table S4.2 Annual production/treatment	
Parameter	Units
Electricity generated	MWh
Biomethane generated	tonnes or m3
Liquid digestate	tonnes or m3
Solid digestate	tonnes

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Total input to digestion tanks	Annually	tonnes or m3
Water usage	Annually	tonnes or m3
Energy usage	Annually	MWh
Raw material usage	Annually	tonnes or m3
Emergency flare operation	Annually	hours
Electricity exported	Annually	MWh
CHP engine usage	Annually	hours
CHP engine efficiency	Annually	%
Auxiliary boiler usage	Annually	hours

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	20/03/18
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	20/03/18
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	20/03/18
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	20/03/18
Waste returns	E-waste Return Form or other form as agreed in writing by the Environment Agency	--

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“ADQP” means Anaerobic Digestion Quality Protocol

“anaerobic digestion” means a process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for naturally occurring mesophilic or thermophilic anaerobes and facultative anaerobe bacteria species, which convert the inputs to a methane-rich biogas and whole digestate.

“animal waste” means any waste consisting of animal matter that has not been processed into food for human consumption.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“building” means a construction that has the objective of providing sheltering cover and minimising emissions of noise, particulate matter, odour and litter.

“digestate” means material resulting from an anaerobic digestion process.

“disposal”. Means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“impermeable surface” means a surface or pavement constructed and maintained to a standard sufficient to prevent the transmission of liquids beyond the pavement surface.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions

“Industry Standard Protocol” means “A standardised protocol for the monitoring of bioaerosols at open composting facilities” published by the Association for Organics Recycling and developed in conjunction with the Environment Agency.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“pests” means Birds, Vermin and Insects.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“sealed drainage system” in relation to an impermeable surface, means a drainage system with impermeable components which does not leak and which will ensure that:

- no liquids will run off the surface otherwise than via the system
- all liquids entering the system are collected in a sealed sump, except where liquids may be lawfully discharged to foul sewer.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste.

“year” means calendar year ending 31 December.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid fuels, 3% or 5% for gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

Schedule 7 – Site plan



Rev	Date	By	Checked	Description
0	19/01/18	OAJ		First Issue

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civil • structural • environmental • surveying

Client
Farm Renewables

Project
**AD Plant,
Broadley Copse, Downs Road,
Chichester, PO 18 9BT**

Drawing Title
Permit Boundary Plan

Scale	U.A.I.D.	Date	Drawn by
1:500 (A1)		Jan 2018	OAJ

Drawing No.	Rev
21443/ 2010	0

END OF PERMIT

Permit number
EPR/JP3332YL

Permit Number: EPR/JP3332YL Operator: Broadley Energy Limited

Facility: Broadley Copse Farm Form Number: Air1 / 20/03/18

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]

[1] The result given is the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed

Date.....

(Authorised to sign as representative of Operator)

Permit Number: **EPR/JP3332YL** **Operator:** **Broadley Energy Limited**

Facility: **Broadley Copse Farm** **Form Number:** **WaterUsage1 / 20/03/18**

Reporting of Water Usage for the year

Water Source	Usage (m3/year)	Specific Usage (m3/unit output)

Operator's comments:

Signed

Date.....

(authorised to sign as representative of Operator)

Permit Number: **EPR/JP3332YL** **Operator:** **Broadley Energy Limited**

Facility: **Broadley Copse Farm** **Form Number:** **Energy1 / 20/03/18**

Reporting of Energy Usage for the year

Energy Source	Energy Usage		Specific Usage (MWh/unit output)
	Quantity	Primary Energy (MWh)	

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments:
--

Signed

Date.....

(Authorised to sign as representative of Operator)

Permit Number: **EPR/JP3332YL** **Operator:** **Broadley Energy Limited**
Facility: **Broadley Copse Farm** **Form Number:** **Performance1 / 20/03/18**

Reporting of other performance indicators for the period DD/MM/YYYY to DD/MM/YYYY

Parameter	Units

Operator's comments:

Signed

Date.....

(Authorised to sign as representative of Operator)