

Permitting decisions

Bespoke permit

We have decided to grant the permit for Broadley Copse Farm operated by Broadley Energy Limited.

The permit number is EPR/JP3332YL.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision making process. It:

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision checklist](#) to show how all relevant factors have been taken into account
- shows how we have considered the [consultation responses](#).

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

Technical Links to Broadley Copse Farm Pig Unit

The Broadley Copse Farm anaerobic digestion (AD) installation, hereinafter referred to as the "AD site", is approximately centred on National Grid Reference (NGR): SU 80946 08572. To the north of the AD site is the neighbouring pig farm, Broadley Copse Farm Pig Unit, hereinafter referred to as the "pig farm". The pig farm is a permitted installation operated by Basil Baird (Fareham) Limited (permit reference: EPR/NP3830RX).

The two permit boundaries for the pig farm and AD site do not overlap, as shown by the Proposed Site Layout (drawing reference: 21443/004, dated October 2016). The permit for the pig farm has had a partial surrender to ensure that the two permit boundaries do not overlap. This will allow for the operator responsibility to be easily determined for the two installations.

There are however technical connections between the two installations, where responsibility for the site areas and processes needed to be further defined. These have been outlined in the following section. The responsibility for these aspects has been agreed by both operators (reference: Statement of Operator responsibility at Broadley Copse Farm, dated: 17/10/17), and this has been incorporated into Table S1.2 Operating techniques, of the permit.

Manure and straw

Spoiled straw and manure from the pig farm will firstly be stored within the pig farm's permit boundary. The manure is transported onto the AD site where it is stored within the two feed hoppers. The straw is transported from the pig farm onto the AD site where it is stored within the straw bunker.

The transport of the manure and straw from the pig farm to the AD site, through the use of a telehandler, will cross both site's permit boundaries. The two operators will be responsible for their own site area should there be a spillage of the waste whilst it is being transported. Pre-acceptance procedures for the manure and straw will be the responsibility of Broadley Energy Limited.

Dirty water from the pig farm

All wash down water from inside the pig sheds will first be stored in the pig farm's dirty water reception pit, within the pig farm boundary. This dirty water is then directed via underground pipes to the AD site's intake tank or holding lagoon. Therefore the pipework transporting the dirty water between the two sites will cross the two permitted boundaries. The two operators will be responsible for their own site area should there be damage of pipework and corrosion of components. Any monitoring or planned maintenance of the pipework shall be outlined within the Environmental Management System of both operators.

Attenuation pond

The attenuation pond located within the permit boundary of the pig farm, as shown by the Proposed Site Layout (drawing reference: 21443/004, dated October 2016), will receive the clean water from the roof tops and yard areas of the pig farm. The water from the attenuation pond will then be used in the Broadley Energy Limited AD process. The water will be extracted from the attenuation pond and then fed into the AD site's mixing pump where it is mixed with manure and maize, prior to going into the primary digester.

The attenuation pond will be permitted as part of the pig farm, and therefore any compliance issues will be the responsibility of Basil Baird (Fareham) Limited. All pipework from the attenuation pond to the AD site's mixing pump within the AD site's permit boundary will be the responsibility of Broadley Energy Limited.

The pig farm clean water drainage pipes

The pig farm has clean water drainage pipes which run from the pig unit yard areas, under the surface of the AD site, to the attenuation pond. These pipes are shown in the drawing Proposed Site Drainage layout Overall (drawing reference: 21443/005, dated: October 2016). Although the underground pipes are within the AD site boundary, these underground pipes will be the responsibility of Basil Baird (Fareham) Limited.

Solid digestate

The solid digestate will remain the responsibility of Broadley Energy Limited under the AD site permit, until the point that it is removed from the AD site boundary. The application of the digestate to land for agricultural benefit will not be covered by either of the installation permits. This is in accordance with our guidance Regulatory Guidance Note No. 2 Understanding the meaning of regulated facility - Appendix 3 Interpretation of Intensive Farming Installations.

Contact procedures

The operators of both the pig farm and AD site have agreed to immediately contact the other operator should there be any of the following reasons which could affect the neighbouring installation; a pollution incident, compliance issue, an accident, a requirement for maintenance or repair, or a complaint from the public.

Emissions to Air

The applicant's assessment of the impact of site activities on air quality is set out in the Application. The assessment comprises the:

- dispersion modelling of emissions to air from the operation of CHP engines and emergency flare; and,
- study of the impact of emissions on nearby sensitive habitat /conservation sites.

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stacks and its impact on local air quality and conservation sites. These assessments predict the potential

effects on local air quality from the Installation's stack emissions using the ADMS (version 5.2) dispersion model, which is a commonly used computer model for regulatory dispersion modelling.

Recalibration of CHP engine B

The applicant initially applied to operate two CHP engines with NOx emissions of 500mg/m³ per engine. However the short term NOx impact and acid deposition were found to exceed the respective critical level and critical load at the nearest non-statutory local habitat. Therefore the applicant confirmed they would only use one CHP engine, and recalibrate the engine to have NOx emissions of 440mg/m³, to ensure that the emissions to air do not impact the habitat. The permit will therefore only allow for the use of CHP engine B on site.

The applicant has a pre-operational measure PO2 within Table S1.4 of the permit, to allow for the use of the CHP engine A. To allow this, the operator will be required to increase the stack heights to ensure that there is no predicted impact on the local receptors. This will need to be demonstrated through additional detailed modelling.

The majority of the results in the section below are based upon the original proposal to operate two CHP engines with NOx emissions of 500mg/m³ per engine, as it demonstrates that the results screen out in a scenario which has higher emissions that what will be permitted.

The results for short term NOx impact and acid deposition for non-statutory sites, are based on what has been permitted – the use of CHP engine B with NOx emissions of 440mg/m³.

The report modelled both normal and abnormal scenarios for use of the CHP units and the emergency flare. The results in the section below are based on the most conservative scenarios.

Meteorological data for the assessment comprises 5 years continuous monitoring (2013 to 2017) from Thorney Island. The applicant considered this weather station as the most suitable source of meteorological data due to its proximity to the facility (approximately 8.5 km from the facility). The impact of the terrain surrounding the site and buildings upon plume dispersion was considered in the dispersion modelling. As well as calculating the peak ground level concentration, the applicant has modelled the concentration of key pollutants at a number of specified locations within the surrounding area.

The pollutants considered in the assessment are those associated with combustion activities, namely nitrogen oxides, sulphur dioxide and carbon monoxide. We are satisfied that there is no need to consider any other pollutants.

Human receptors

Table 1 shows the maximum modelled concentration of nitrogen oxides, sulphur dioxide and carbon monoxide from the operation of the CHP engines and emergency flares at the most sensitive human receptor.

Table 1 Maximum modelled concentrations of nitrogen oxides, sulphur dioxide and carbon monoxide.

Pollutant	ES	Process Contribution (PC) Note[1]		Background concentration Note [2]	Predicted Environmental Concentration (PEC)	
	µg/m ³	µg/m ³	% of ES	µg/m ³	µg/m ³	% of ES
NO ₂ (annual)	40	7.35	18.4	8.02	15.4	38.4
NO ₂ (1-hour)	200	41.8	20.9	16.04	57.8	28.9
SO ₂ (15-min mean)	266	6.03	2.27	Note [3]	Note [3]	Note [3]
SO ₂ (1-hour mean)	350	5.42	1.55	Note [3]	Note [3]	Note [3]
SO ₂ (24-hour mean)	125	2.34	1.87	Note [3]	Note [3]	Note [3]
CO (8-hour mean)	10,000	189	1.89	Note [3]	Note [3]	Note [3]

Note [1] - PC at the most sensitive human receptor (Broadley Copse Farm Pig Unit).
 Note [2] - The background concentration is taken as twice the long term background level for Short Term Environmental

Quality Standard (EQS) / Environmental Assessment Level (EAL) standards referenced to an hourly averaging value.
 Note [3] - Where the PC is less than 1% of the long term Environmental Standard or less than 10% for a short term Environmental Standard, the impact is considered to be insignificant. In these cases, we consider that examination of the PEC is not necessary.

From the table above, nitrogen oxides cannot be screened out as insignificant, in that the process contribution exceeds 1% of the long term ES, and the short term process contribution exceeds 10% of the short term ES.

Although the pollutants did not screen out as insignificant, we consider that it is unlikely that the emissions will give rise to significant pollution in that the predicted environmental concentration (PEC) is well below 100% (taking expected modelling uncertainties into account) of both the long term and short term ES. We have scrutinised the applicant's proposals to ensure that they are applying the Best Available Techniques (BAT) to prevent and minimise emissions of all pollutants released from the facility into the environment.

Impact on Habitats sites, SSSIs and other conservation sites

The following Habitat sites (i.e. Special Areas of Conservation, Special Protection Areas and Ramsar) is located within 10 km of the Installation:

- Kingley Vale (SAC)
- Singleton and Cocking Tunnels (SAC)
- Solent Maritime (SAC)
- Rook Cliff (SAC)
- Chichester and Langstone Harbours (SPA & Ramsar)

The following Site of Special Scientific Interest (SSSI) is located within 2 km of the Installation:

- Kingley Vale

The following non-statutory local wildlife and conservation sites are located within 2 km of the Installation:

- Hounsom Firs (Ancient Woodland)
- West Copse (Ancient Woodland)
- Kingley Vale (Ancient Woodland)
- Oak Wood (Ancient Woodland)
- A further 5 unknown named Ancient Woodlands

Toxic contamination

Table 2 below shows the critical levels for the protection of vegetation and ecosystems based on the Environment Agency Guidance on Air Quality Assessment.

Table 2 – Critical levels for the protection of vegetation and ecosystems

Critical level	NO ₂ (µg/m ³)	SO ₂ (µg/m ³)
Long term	30	10 Note [1] , 20 Note [2]
Short term	75	--
Note [1] - annual mean for sensitive lichen communities & bryophytes and ecosystems where lichens & bryophytes are an important part of the ecosystem's integrity. Note [2] - annual mean for all higher plants (all other ecosystems).		

The applicant's comparison of process contribution against the relevant critical levels (CLE) for the protection of vegetation and ecosystems is shown for the worst case statutory habitat site in Table 3.

Table 3 – Maximum modelled concentrations of NO_x and SO₂ at Kingley Vale SAC & SSSI

Parameter	PC (µg/m ³) Note [1]	PC as % of CLe	Background concentration (µg/m ³)	PEC	PEC as % of CLe
NO ₂ (long term)	0.09	0.31	Note [2]	Note [2]	Note [2]
NO ₂ (short term)	0.97	1.29	Note [2]	Note [2]	Note [2]
SO ₂ (long term)	0.004	0.02	Note [2]	Note [2]	Note [2]
Note [1] - PC at the most sensitive statutory conservation site (Kingley Vale SAC & SSSI).					

Note [2] - Where the PC is less than 1% of the long term critical level or less than 10% of the short term critical level, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.

The modelling information provided by the applicant has predicted that emissions of NO_x and SO₂ are lower than 1% of the long-term, and 10% of the short-term critical level at the Kingley Vale SAC & SSSI. The emissions can therefore be screened out as insignificant.

Nutrient nitrogen enrichment

Table 4 below represents the predicted nitrogen deposition rates at the Kingley Vale SAC & SSSI, which is the worst case statutory designated habitat. The lower, more conservative range of the critical load (5 kgN/ha/yr) has been used to assess deposition at the habitat site. The background concentrations for nutrient nitrogen for Kingley Vale SAC & SSSI were obtained from the UK Air Pollution Information System (APIS) website.

Table 4 – Modelled nitrogen nutrient deposition rates for the protection of vegetation and ecosystems

Site	Critical Load (CLO) kgN/ha/yr	PC deposition kgN/ha/yr Note [1]	PC as % of CLO	Background N deposition kgN/ha/yr	PEC deposition kgN/ha/yr	PEC as % of CLO
Kingley Vale SAC & SSSI	5 kgN/ha/yr	0.019	0.06	Note [2]	Note [2]	Note [2]

Note [1] - PC for the most sensitive statutory conservation site (Kingley Vale SAC & SSSI).

Note [2] - Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.

The modelled process contributions to nutrient nitrogen deposition rates are below 1% of the indicative critical load at the worst case statutory designated habitat Kingley Vale SAC & SSSI. The emissions are therefore screened out as insignificant.

Acidification

Table 5 below represents the predicted acid deposition rates at the Kingley Vale SAC & SSSI, which is the worst case statutory designated habitat. The applicant obtained the acidity critical loads for the receptors representing the Kingley Vale SAC & SSSI through APIS.

Table 5 – Modelled acid deposition rates for the protection of vegetation and ecosystems at Kingley Vale SAC & SSSI

Site	Critical Load (CLO) keq/ha/yr	PC deposition keq/ha/yr Note [1]	PC as % of CLO	Background N deposition keq/ha/yr	PEC deposition keq/ha/yr	PEC as % of CLO
Kingley Vale SAC & SSSI	11.166	0.017	0.20	Note [2]	Note [2]	Note [2]

Note [1] - PC for the most sensitive statutory conservation site (Kingley Vale SAC & SSSI).

Note [2] - Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.

The modelled process contributions to acid deposition rates are below 1% of the indicative critical load at the worst case statutory designated habitat Kingley Vale SAC & SSSI. The emissions are therefore screened out as insignificant.

We are satisfied that the application is low risk. The Environment Agency can conclude no likely significant effect from exceedances of the relevant critical levels for NO_x or SO₂ and critical loads for nutrient nitrogen and acid deposition at the Kingley Vale SAC & SSSI.

Assessment of other conservation sites

Conservation sites are protected in law by legislation. The Habitats Directive provides the highest level of protection for SACs and SPAs. Domestic legislation provides a lower but important level of protection for SSSIs. Finally the Environment Act provides more generalised protection for flora and fauna rather than for specifically named conservation designations. It is under the Environment Act that we assess other sites (such as local wildlife sites) which prevents us from permitting something that will result in significant pollution; and which offers levels of protection proportionate with other European and national legislation. However, it should not be assumed that because levels of protection are less stringent for these other sites that they are not of considerable importance. Local sites link and support EU and national nature conservation sites together and hence help to maintain the UK's biodiversity resilience.

For SACs, SPAs, Ramsars and SSSIs we consider the PC and the background levels in making an assessment of impact. In assessing these other sites under the Environment Act, we look at the impact from the Installation alone in order to determine whether it would cause significant pollution. This is a proportionate approach, in line with the levels of protection offered by the conservation legislation to protect these other sites (which are generally more numerous than Natura 2000 or SSSIs) whilst ensuring that we do not restrict development.

Critical levels and loads are set to protect the most vulnerable habitat types. Thresholds change in accordance with the levels of protection afforded by the legislation, therefore the thresholds for SAC, SPA and SSSI features are more stringent than those for other nature conservation sites. We would generally conclude that the Installation is not causing significant pollution at these other sites if the PC is less than the relevant critical level or critical load, provided that the applicant is using BAT to control emissions.

The applicant has assessed the dispersion of important pollutants against critical level criteria for the protection of vegetation and ecosystems which is summarised in the following tables. The values shown represent the worst for any of the receptors for each pollutant.

Table 6 – Modelled concentrations of NO₂ and SO₂ for the protection of vegetation and ecosystems

Pollutant	CLe (µg/m ³)	PC (µg/m ³)	PC as % of CLe
SO ₂	20 (LT)	0.71 [1]	3.56
NO _x	75 (ST)	74.7 [2]	99.6
	30 (LT)	6.80 [1]	22.7

Note [1] PC is given as the worst case of results for all conservation sites within 2 km of the AD facility - Unnamed Ancient Woodland (x,y: 480975, 108519)

Note [2] PC is given as the worst case of results for all conservation sites within 2 km of the AD facility - Unnamed Ancient Woodland (x,y: 481021, 108492). The results are based on the use of CHP engine B only at a NO_x emission rate of 440mg/m³.

The applicant has assessed the critical loads for nitrogen and acid deposition against critical load criteria for sites as obtained from APIS which is summarised in the following table. The values shown represent the worst for any of the receptors for each parameter.

The tables above show that the PCs are below the critical levels or loads for the effects of SO₂ and NO_x. We are satisfied that the Installation will not cause significant pollution at the sites of conservation.

Table 7 – Modelled nutrient nitrogen and acid deposition rates for the protection of vegetation and ecosystems

Pollutant	CLo (kg N/ha/yr)	PC (kg N/ha/yr) [1]	PC as % of CLo
Nitrogen deposition	10	1.91	19.1
Acid deposition	1.915	0.26	13.6

Note [1] PC is given as the worst case of results for all conservation sites within 2 km of the AD facility - Unnamed Ancient Woodland (x,y: 480994, 108493). The results are based on the use of CHP engine B only at a NO_x emission rate of 440mg/m³.

The tables above show that the PCs are below the critical levels or loads. We are satisfied that the Installation will not cause significant pollution at the sites. As modelling and assessment has demonstrated

that the predicted ground level environmental concentrations of pollutants in the area even at a maximum will not compromise any Air Quality Standards, then we are satisfied that the operation of the AD facility will not compromise the integrity of the above sites.

Containment

Bunded Area

The site has a containment bund that encapsulates the liquid waste storage containers, including; the two digester tanks (each with a useable capacity of 3,929m³ and gross volume of 4,247m³), the Intake tank (capacity of 85m³), the feedstock mixing unit (capacity of 168m³) and the two pasteurisation tanks (each with a capacity of 18m³).

The capacity of the bund was calculated to be 5,496m³ greater than 110% of the largest tank volume and also greater than 25% of the combined volume of all tanks within the bunded area (reference: Detailed Site Drainage Report - Revision A, dated: April 2017).

The walls of the bund have a minimum height of 2.40m, which includes the required 250mm freeboard capacity, as stipulated in CIRIA C736 - *Containment Systems for the Prevention of Pollution - secondary, tertiary and other measures for industrial and commercial premises or other relevant industry standard (CIRIA C736)*. All of the bund walls are also designed to water retaining concrete specification.

The bunded area has an impermeable surface that drains to two sumps which are located adjacent to the south bund wall. The liquid within the drainage sump is routinely checked and tested prior to it being pumped back into the anaerobic digestion process, or in a flash flood event the water will be pumped into the holding lagoon.

The operator's maintenance regime will consist of daily visual leak inspections within the bund and weekly inspections of the containment bund structure. Weekly integrity checks of the digesters and all storage tanks is also a requirement of Table S3.3 of the permit. If any tanks are found to be leaking, repair works will be undertaken by trained personnel immediately to halt the contamination of liquid within the containment bund. All pipes, ducts and cables are above the concrete containment, so there is no penetration of the containment floor or walls.

In addition to the liquid waste storage within the containment area, there is also solid waste storage within the; straw bunker (approximately 7-10 tonnes capacity), two feed hoppers (each with a capacity of 88m³) and the solid digestate storage area (approximately 12-16 tonnes capacity). All of these waste storage areas will be on an impermeable concrete surface with sealed drainage.

The applicant has provided a report (reference: Pre Operational Condition and Site Maintenance Report, dated: September 2017) which reviews the construction of secondary containment. We are satisfied that all storage tanks will be appropriately bunded in accordance with the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion (Version 1.0) and CIRIA C736. We are further satisfied that the management system includes a plan for how the operator will inspect and maintain the surfaces and containment facilities.

Silage Clamps

The maize that is brought onto the site will firstly be stored in one of two silage clamps which are located outside of the main bunded area (as described above). The silage clamps both measure 20m wide, 56m long and 4.5m high, and have an overall aggregated capacity of 7,633m³. Each clamp is constructed with concrete walls and an asphalt base which provides an impermeable surface suitable for containing leachate. Leachate and dirty water from each clamp will be channelled to sumps which are of concrete construction with bitumen sealant to make them water tight. All the run-off water from the clamps will be pumped to the intake tank.

The intake tank and the holding lagoon will act as remote secondary containment to prevent the sumps from reaching full capacity.

We are satisfied that the silage clamps are in accordance with the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion (Version 1.0).

Digestate Lagoons

The liquid fraction of the digestate will be pumped from the screw press to either of the two lagoons. The capacity of Lagoon 1 is 13,855m³ (10,875m³ with 750mm freeboard) and lagoon 2 is 7,960m³ (6,075m³ with 750mm freeboard) giving a total site capacity of 21,815m³ (16,950m³ with 750mm freeboard).

The lagoons will be installed with two separate layers of HDPE liner for containment. They will also be fitted with a leak detection layer and a floating cover to reduce odour. The lagoons will be monitored on a daily basis to check for leaks.

The applicant has provided a report (reference: Pre Operational Condition and Site Maintenance Report, dated: September 2017) which reviews the construction of secondary containment. We are satisfied that the digestate lagoons are designed in accordance with the Environment Agency's Draft Technical Guidance Note for Anaerobic Digestion (Version 1.0) and CIRIA C736.

Capacity Limit

The site is required to provide 6 months storage for digestate. As the lagoons can hold 16,950m³ of liquid digestate, the site has a maximum throughput limit of 44,300 tonnes to ensure that there is sufficient storage. This limit has been included within Table S1.1 of the permit. This limit is based on the assumption that 85% of the digestate produced will be liquid digestate after being pressed, and that there is a 10% reduction in mass during the anaerobic digestion process.

The tank capacity would allow for an increase in the annual throughput of the site, however additional storage of the digestate would need to be confirmed prior to this limit being increased.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential. The decision was taken in accordance with our guidance on confidentiality.
Consultation	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consulted the following organisations:</p> <ul style="list-style-type: none"> • Local authority environmental protection department • Food Standards Agency • Health and Safety Executive • Public Health England and the relevant Director of Public Health <p>The comments and our responses are summarised in the consultation section.</p>
Operator	
Control of the facility	<p>We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.</p> <p>Please see the Broadley Copse Farm Pig Unit section of the key issues for further information.</p>

Aspect considered	Decision
The facility	
The regulated facility	<p>We considered the extent and nature of the facility/facilities at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation'.</p> <p>The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.</p> <p>Please see the Broadley Copse Farm Pig Unit section of the key issues for further information.</p>
The site	
Extent of the site of the facility	<p>The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. The plan is included in the permit.</p> <p>Please see the Broadley Copse Farm Pig Unit section of the key issues for further information.</p>
Site condition report	<p>The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.</p> <p>The Site Condition Report identifies that the site is within a Nitrate Vulnerable Zone. It notes that the core active parts of the site are adjacent to but not within the Funtington Source Protection Zone 1.</p> <p>The Site Condition Report identified that there was no recorded pollution events, and evidence of historical contamination was not provided as it notes the site has been in agricultural use for over 100 years. Baseline data has not been collected, however it has not been deemed as required as historical contamination at this site is unlikely.</p>
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>The Kingley Vale SAC & SSSI is the closest designated Habitat site, located approximately 1,500 metres from the installation. There are a further five designated Habitat sites within 10 kilometres of the installation, and an estimated thirteen non-statutory sites within 2 kilometres of the installation.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.</p> <p>Please see the air emissions section of the key issues for further information on the installations impact on the relevant SACs, SPAs, Ramsars and SSSIs.</p>
Environmental risk assessment	
Environmental	We have reviewed the operator's assessment of the environmental risk from the facility.

Aspect considered	Decision
risk	<p>The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.</p> <p>Please see the key issues for further information on air emissions and containment. See the Odour management section of the decision checklist for further information on odour.</p> <p><u>Noise</u></p> <p>Based upon the information in the application, we are satisfied that the appropriate measures will be in place to prevent or, where that is not practicable, to minimise noise and vibration and to prevent pollution from noise and vibration outside the site.</p> <p>The applicant provided an environmental risk assessment (reference: BEL-OD-01 EMS Manual 280118 DRAFT LR with apps - Appendix A - Site Specific Environmental Risk Assessment, dated: 29/01/2018) which identified the CHP engines as the main source of noise. As the CHP engines are housed, and there is a high bund wall surrounding this area, the risk of noise to sensitive receptors is expected to be low.</p> <p>The application did not contain a Noise Management Plan. We have therefore included condition 3.4.2 which requires the operator to, if notified by us that the activities are giving rise to pollution outside the site due to noise and vibration, submit to us for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration.</p>
Operating techniques	
General operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.</p> <p>The applicant has provided a BAT assessment (reference: ETL_319_JSC_00224_R00260_FINAL_Broadley Copse AD Plant _BAT Assessment Report_BEL-OD-05_31 January 2018, dated: 31/01/18) which assessed the proposal against the indicative BAT in the Draft Technical Guidance Note for Anaerobic Digestion Treatment (Version 1.0).</p> <p>The BAT assessments have been incorporated into Table S1.2 Operating techniques, within the permit to ensure that all techniques are used on site as described, through permit condition 2.3.1.</p> <p>The proposed techniques/emission levels for priorities for control are in line with the benchmark levels contained in the above technical guidance notes and we consider them to represent appropriate techniques for the facility. Key measures proposed by the applicant include:</p> <ul style="list-style-type: none"> • pre-acceptance of waste procedures • acceptance of waste procedures • storage of waste • treatment of waste • point source emissions to air • fugitive emissions to air, surface and ground water • odour management • accidents <p>The current flare on site does not meet the BAT requirements for the flare to be enclosed and to have a minimum residence time of 0.3 seconds at 1000°C. Improvement Condition IC1 has therefore been included within Table S1.3 of the permit requiring the operator to</p>

Aspect considered	Decision
	install a BAT compliant flare within 3 months of permit issue.
Odour management	<p>We have reviewed the odour management plan in accordance with our guidance on odour management.</p> <p>The anaerobic digestion of farm by-products can inherently have odour emissions from the process. The effective operation and management of the facility is therefore required to ensure odour emissions from the site are minimised.</p> <p><u>Sensitive Receptors</u></p> <p>The closest potential sensitive receptor is the pig farm installation which is located adjacent to the site. The closest residential properties are approximately 220m - 250m from the permit boundary to the south and west. There are additionally two properties, 1 & 2 Broadley Copse, within 250m of the site boundary to the north, but these are not deemed as sensitive receptors for odour, as one of the properties is owned by a site operator and the other has an associated agricultural occupancy condition.</p> <p>As shown in the plan below, sensitive receptors within 400m of the permit boundary are sparsely located, with the majority of the area agricultural fields. Approximately 400m to the west of the site boundary begins the densely populated village of Funtington. The prevailing wind direction is from the south west, away from the village of Funtington.</p>  <p><i>Note 1 – Numbers 1 & 2 Broadley Copse are not deemed as sensitive receptor for odour, as one of the properties is owned by a site operator and the other has an associated agricultural occupancy condition.</i></p> <p>The applicant has provided a written Odour Management Plan (OMP) referenced 'BEL-OD-04 Odour Management Plan V3 apps' and dated 19/04/2017. The OMP was developed in accordance with the Environment Agency guidance H4 Odour Management.</p> <p>The OMP has identified the main potential causes of odour emissions as; the transfer of manure and feed hoppers, the silage storage clamps, the straw storage bunker, digestate storage lagoons, and the digestate tanks. The OMP has not included the initial storage of the straw and manure on the pig farm, as this is a requirement of the permit for Broadley Copse Farm Pig Unit (EPR/NP3830RX). The pig farm installation also has an OMP which</p>

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	<p>covers this aspect of manure and straw storage.</p> <p>The AD site's OMP has provided details on:</p> <ul style="list-style-type: none"> • an inventory of feedstock and its odour potential; • the process design and controls; • odour sources under normal and abnormal operating conditions; • emergency and contingency measures; • community engagement measures and the complaints procedure; • a list of the closest sensitive receptors; and, • monitoring of emissions and review of procedures with the OMP. <p>Odour monitoring will occur daily at points across the site and a record of the monitoring will be made. If odour is detected during the monitoring then the operator will provide the Environment Agency with a written report identifying where further mitigation measures will be implemented to reduce the risk of odour emissions.</p> <p>Contingency Measures</p> <p>One of the potential odour sources is the feed hoppers which will store manure and silage. The operator will cover the manure with a 50cm layer of silage to prevent odour emissions. In the event that odour from the feed hoppers leads to complaints, the OMP has identified contingency measures including; the more frequent covering of manure with silage, and retrofitting covers to the feed hoppers to aid in containing odours. The success of the contingency will be measured through the ongoing site monitoring.</p> <p>Another of the potential odour sources is the storage of solid digestate on an open trailer. In the event that this practice leads to odour complaints, then the operator will cease to store waste on a trailer, and will store the whole digestate in the lagoons instead. If the operator chooses to separate the solid fibre again, this would need to occur within a temporary structure.</p> <p>We have assessed the applicant's proposals and consider that they are in accordance with our technical guidance note – H4 Odour management. We have approved the revised site odour management plan.</p>
Permit conditions	
Raw materials	We have specified limits and controls on the use of raw materials and fuels. Table S2.1 of the environmental permit limits the feedstock of maize silage and energy crops to be 'substantially free of non-vegetable matter'.
Waste types	<p>We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.</p> <p>We are satisfied that the operator can accept these wastes for the following reasons:</p> <ul style="list-style-type: none"> • they are suitable for the proposed activities; • the proposed infrastructure is appropriate; • the environmental risk assessment is acceptable; • it is considered amenable to biological treatment; • the waste stream is categorised as non-hazardous in the European Waste Catalogue; and, • the waste stream is unlikely to contain harmful components that cannot be safely processed at the Installation. <p>We made these decisions with respect to waste types in accordance with the Standard</p>

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	<p>rules SR2012 No9 list of accepted waste types, and Technical Guidance IPPC S5.06 – Guidance for the Recovery and Disposal of Hazardous and Non-hazardous Waste.</p> <p>We have limited the waste capacity of the AD facility to 25,500 tonnes per annum (tpa), and the total throughput to 43,300 tpa. This is based on the designed capacity of the Installation.</p>
Pre-operational conditions	<p>Pre-operational condition PO1 is included in Table S1.4 of the permit. This would allow for the operator to increase their annual throughput, if they can demonstrate that they have sufficient off-site storage of the digestate available to continue meet statutory Nitrate Vulnerable Zone requirements, and provide 6 months storage for the increased amount of digestate.</p> <p>The operator is only permitted to use CHP engine B. To use CHP engine A, 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. This has been included as pre-operational condition PO2 in Table S1.4 of the permit.</p>
Improvement programme	<p>Based on the information on the application, we consider that we need to impose an improvement programme.</p> <p>The current flare on site does not meet the BAT requirements for the flare to be enclosed and to have a minimum residence time of 0.3 seconds at 1000°C. Improvement Condition IC1 has therefore been included within Table S1.3 of the permit requiring the operator to install a BAT compliant flare within 3 months of permit issue.</p> <p>The Digestate Management Plan and the ability for the site to provide 6 months storage for the liquid digestate to meet statutory Nitrate Vulnerable Zone requirements, is currently based upon estimates for:</p> <ul style="list-style-type: none"> • the liquid and solid fraction of the digestate following separation; and, • the mass reduction of the material fed into the digesters. <p>Improvement Condition IC2 has therefore been included within Table S1.3 of the permit requiring the operator to review these assumptions using operational data. The operator will be required to provide a Digestate Management Plan to demonstrate how the site will meet the statutory Nitrate Vulnerable Zone requirements.</p> <p>Improvement condition IC3 is included in Table S1.3 of the permit and requires the Operator to provide all documents which were identified in the Master Document Control File (reference: BEL-OD-10 Master Document Control File V2.2, dated: 09/03/18) for inspection. The operator shall also complete a gap analysis audit of the Environmental Management System (EMS) and the findings of this analysis shall be submitted in a report to the Environment Agency for approval. This requirement has been included as improvement condition IC4 in Table S1.4 of the permit.</p> <p>As CHP engine B has been recalibrated to have NOx emissions of 440mg/m³, the operator must carry out monitoring of the CHP unit within 1 week of the first date of the operation of engine B. The operator shall then submit a written report to the Environment Agency detailing the monitoring undertaken and results obtained. This requirement has been included as improvement condition IC5 in Table S1.4 of the permit.</p> <p>As the operator is only permitted to operate using one CHP engine, they will be required to 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 pre-operational measure PO2 has been signed off,</p>

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	<p>and the second CHP engine can be used. This requirement has been included as improvement condition IC5 in Table S1.4 of the permit.</p> <p>The Operator shall undertake air emission monitoring for CHP engines A and B in accordance with the Environment Agency guidance note M2 "Monitoring of stack emissions to air". 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. This requirement has been included as improvement condition IC7 in Table S1.4 of the permit.</p>
Emission limits	<p>ELVs [and/or] equivalent parameters or technical measures [based on BAT] have been set for the following substances.</p> <p><u>CHP Engine Stack A</u></p> <ul style="list-style-type: none"> • Oxides of Nitrogen (NO and NO2 expressed as NO2) - 500 mg/m³ - hourly average • Sulphur dioxide - 350 mg/m³ - hourly average • Carbon monoxide - 1,400 mg/m³ - hourly average • Total VOCs - 1,000 mg/m³ - hourly average <p><u>CHP Engine Stack B</u></p> <ul style="list-style-type: none"> • Oxides of Nitrogen (NO and NO2 expressed as NO2) - 440 mg/m³ - hourly average • Sulphur dioxide - 350 mg/m³ - hourly average • Carbon monoxide - 1,400 mg/m³ - hourly average • Total VOCs - 1,000 mg/m³ - hourly average <p><u>Emergency Flare Stack</u></p> <ul style="list-style-type: none"> • Oxides of Nitrogen (NO and NO2 expressed as NO2) - 150 mg/m³ - hourly average • Carbon monoxide - 50 mg/m³ - hourly average • Total VOCs - 10 mg/m³ - hourly average <p>It is considered that the ELVs described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.</p> <p>The substances above have been set at the benchmark levels quoted in <i>LFTGN 08: Guidance for monitoring landfill gas engine emissions</i> and <i>Guidance for monitoring enclosed landfill gas flares</i> (LFTGN 05). We consider that emissions will be insignificant.</p>
Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These monitoring requirements have been imposed in order to demonstrate compliance with the conditions of the permit for operations requiring the management of air emissions. We made these decisions in accordance with <i>LFTGN 08: Guidance for monitoring landfill gas engine emissions</i> and <i>Guidance for monitoring enclosed landfill gas flares</i> (LFTGN 05) which are considered the most appropriate TGN for this activity.</p> <p>Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.</p> <p>As CHP engine B has been recalibrated to have NOx emissions of 440mg/m³, the operator must carry out monitoring of the CHP unit within 1 week of the first date of the operation of engine B. The operator shall then submit a written report to the Environment Agency detailing the monitoring undertaken and results obtained. This requirement has been included as improvement condition IC5 in Table S1.4 of the permit.</p>

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	The operator must also undertake monthly monitoring of the emissions from CHP engine B to ensure that it can meet the required limits. This is identified in Table S3.1 of the permit.
Reporting	<p>We have specified reporting in the permit.</p> <p>As the monitoring of point source emissions to air is only required annually, reporting is also required annually</p> <p>Reporting forms have been prepared to facilitate reporting of data in a consistent format. These reporting requirements are deemed sufficient and proportional for the installation. We made this decision in accordance with our guidance How to Comply with your Environmental Permit.</p>
Operator competence	
Management system	<p>There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.</p> <p>The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.</p>
Technical competence	<p>Technical competence is required for activities permitted.</p> <p>The operator is a member of an agreed scheme.</p> <p>We are satisfied that the operator is technically competent.</p>
Relevant convictions	<p>The Case Management System been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.

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Growth Duty	
<p>Section 108 Deregulation Act 2015 – Growth duty</p>	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Public Health England, 25/09/17
Brief summary of issues raised
<p>We recommend that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: effluent and waste emissions to groundwater, as the site is located within a source protection zone.</p> <p>The EA may also wish to ensure that a robust accident management plan which considers all hazards and risks onsite has been produced and that suitable control and mitigation measures are also in place.</p>
Summary of actions taken or show how this has been covered
<p>The site has a contained drainage system and where relevant activities are carried out on impermeable surfacing. All containment on site has appropriate storage to prevent emissions to groundwater. Please see key issues for further information.</p> <p>The applicant has submitted an Accident Management Plan. Having considered the plan and other information submitted in the Application, we are satisfied that appropriate measures will be in place to ensure that accidents that may cause pollution are prevented but that, if they should occur, their consequences are minimised.</p>

No further responses have been received.