Summary, Technical Standards & Controls for EPR/HP3624MJ, Grove Farm Pig Unit, Grove Farm, Grove Road, Gissing, Diss, Norfolk, IP22 5XA

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3 Management systems

Table 1: Summary of environment management system for Grove Farm Pig Unit

EMS	• Implementing Environment Agency (2010) EPR 6.09 Sector Guidance Note: How to comply – Intensive Farming Version 2. • Stock movements and pig numbers onsite recorded as per statutory requirements in Nitrate Pollution Prevention Regulations 2015, and Pigs (Records, Identification and Movement) Order 2011. • Manure management complies with Nitrate Pollution Prevention Regulations. • Storage facilities comply with the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (England) Regulations 2010, (SSAFO). • AHDB Model Template B3.5 6a Environmental Risk Assessment • AHDB Model Template B3.5 8b Odour Management Plan • AHDB Model Template B3.5 8c 1 Noise Management Plan • AHDB Model Template B3.5 8c 2 Bioaerosol Management Plan • Staff are trained and aware of their own and contractors' responsibilities.
Normal operations	• Daily records are kept on all aspects of the farm's operation including: o Pig movements o Feed consumption and deliveries o Delivery of goods and materials o Medication o Mortalities o Temperatures of areas within pig housing. • Weekly records of water and fuel consumption are kept. • Staff carry out daily inspections to ensure all plant is operating correctly. • Operators frequently review information and operations with staff to identify any unexpected or abnormal changes in operation and agree suitable remedial action, if necessary.
Maintenance schedule and records	• A programme of planned preventive maintenance is carried out on all plant and equipment including: o ventilation equipment o sensors and detectors o feed and water systems. • Inspection & maintenance schedule based on manufacturer's recommendations. • Buildings and equipment on site are inspected weekly and checked for visual signs of leakage, corrosion and structural damage, security, and correct operation.

	• A record of all faults, maintenance work and inspections is kept in the farm office.
Incidents and abnormal operations	• Measures are in place to identify incidents and abnormal operations such as breakdowns, damage, etc. • Staff are trained to notice and respond to abnormal changes in operations by investigating the causes. They then either take steps to get back to normal operation and ensure the problem does not reoccur or report issues that cannot be immediately addressed. • A copy of the permit is available and accessible for staff to read. • Staff have been given training on the potential environmental impacts of the unit and their role in ensuring environmental impacts are minimised.
Complaints system	• Complaints relating to the farm's activity are logged and referred to the Operators for investigation and follow-up action (a copy of the forms to be used can be found in the Dust, Odour and Noise Management Plans). • A record is kept of any remedial action to prevent or minimise the causes, and staff also respond to concerns raised by the local community, as appropriate. • On receipt of the environmental permit, we will place a site identification notice at the entrance of the site clearly visible from a public highway in accordance with 'How to comply with your environmental permit for intensive farming Version 2; 2010 (EPR 6.09 SGN). The sign will notify neighbours and members of the public about the nature of the farm and who they can contact for further information or to notify a concern.
Accidents	• The Site has an Accident Management Plan which will be implemented if an accident occurs. • Events or failures that could damage the environment have been identified in the H1 Environmental Risk Assessment. • All staff are aware of the location and content and their responsibilities in event of an accident.
Training and qualifications	• All staff are suitably qualified to work at the installation. • All staff receive formal training from both operators and external training providers, which includes making them aware of their (and contractors) roles and responsibilities. • All staff will have received formal training on health and safety, the accident management plan and will be trained in the requirements of the environmental permit and pollution prevention. • New staff are mentored as part of their on-the-job training. • Staff and contractors have defined roles and understand what is required of them and what others will carry out.

	• Training and instruction of staff and contractors is recorded in the training plan which is kept in the farm office. • As a Red Tractor Assured farm, key staff are registered members of the Piig Industry Professional Register (PIPR).
Site security	• The site does not have a secure perimeter fence but is hidden from the nearby road by trees, hedgerows and other farm buildings. Located at some distance from the public highway and accessed via a private roadway. • Pig houses, sheds, stores, tanks, and equipment are securely locked at night. • The site gates are locked at night to prevent pedestrian and vehicle access out of hours. • The fuel oil tanks are secure and locked. • Signs are placed around perimeter to warn people against entering the site. • There is no public right of way through any part of the site.
Site closure/ decommissioning plan	• This plan indicates how buildings, infrastructure and any remaining manures and wastes will be dealt with when a site if closed or decommissioned. • The plan also includes a record of any pollution incidents, such as spillage of oil, leaking stores, etc that have occurred during the operation of the permitted site, together with the steps taken to remedy that pollution at the time. This will help to establish whether the site is in a satisfactory state when the permitted Schedule 1 Activity (pig production) ceases and the permit is surrendered. • A Site Closure/decommissioning plan will be created to apply to surrender the permit.

Table 2: Summary of climate change adaptation for Grove Farm Pig Unit

Climate change adaptation	Possible impacts and mitigation measures considered are in accordance with those on the government website at https://www.gov.uk/government/publications/adapting-to-climate-change-industry-sector-examples-for-your-risk-assessment/intensive-farming-examples-for-your-adapting-to-climate-change-risk-assessment
Summer daily maximum temperature	This may be around 7°C higher compared to average summer temperatures now, with the potential to reach extreme temperatures as high as over 40°C with increasing frequency based on today values. **Impact 1** The ventilation system may not be able to maintain temperatures within livestock housing. The mitigation for this could include a regular review

	to make sure ventilation is optimally maintained along with other measures such as reducing the stocking density before the summer months. **Impact 2** There could be an increased risk of fire in straw store. The mitigation for this would include storing less material on the farm and regularly checking stores.
Winter daily temperatures	This could be 4ºC more than the current average with the potential for more extreme temperatures, both warmer and colder than present. **Impact 1** There will be potential benefits such as warmer pig houses and less risk of water freezing and damaging pipes. **Impact 2** Increased risk of pipework freezing leading to water shortage. The mitigation for this could be to insulate exposed pipework. **Impact 3** Increased risk of snow and ice. This could cause travel disruption with delays to deliveries, site access difficulties for staff and heavy snow damaging structures. The mitigation for this will be to: • have adequate feed storage capacity and stocks onsite in winter to mitigate delays in feed deliveries • make sure roofs and structures are well maintained to withstand heavy snow • have equipment and materials available to clear snow and ice form the access to the site for delivery and staff vehicles.
Daily extreme rainfall	Daily rainfall intensity could increase by up to 20% on today's values. **Impact 1** Gutters may not be able to cope or could overflow. The mitigation for this will include clearing gutters of debris and changing guttering for larger gutters.
Drier summers	Summers could see potentially up to 40% less rain than now. **Impact 1** Stress on groundwater supply, which may become unavailable for use on farm for drinking water. The mitigation for this could be to ensure a mains water supply is available as back-up.

	Impact 2 Risk of disruption to the mains water supply for use on farm for drinking water and cleaning out. Mitigation for this could include: • installation of winter storage reservoir and treatment system so water can be used on farm • investigation of the feasibility of a borehole for groundwater abstraction • change house cleaning technique to use less water, such as dry cleaning.
Storms	Storms could see a change in frequency and intensity. The unique combination of increased windspeeds, increased rainfall, and lightning during these events provides the potential for more extreme storm impacts. Storms and high winds could damage building structures with increased potential for odour and dust emissions and loss of power. The mitigation for this will include: • reviewing the design of vulnerable structures and buildings • reviewing wind loading calculations, providing reinforcement if necessary • maintaining building integrity • having well maintained emergency back-up power • keeping the site tidy and secure any equipment or objects that could blow around.

5 Supporting information

5c non-technical summary of application

1. Grove Farm Pig Unit is located approx. 1.3km southeast of the village of Gissing in Norfolk on National Grid Reference TM 15497 85233. Comprises four pig houses with a combined capacity for 4,000 production pigs over 30kg . Operated with best available techniques for straw flow system on a solid concrete floor with natural ventilation with side outlets controlled with adjustable plastic curtains.

2. Pigs reared in batches, all-in-all-out for biosecurity. Supplied from third-party breeding farms for rearing from approx. 30kg to 120kg in 20-22 weeks then transported to a local abattoir. At end of rearing periods houses are destocked, and remaining solid manure and straw pushed out. Houses and equipment pressure washed, disinfected, and dried, before restocking. Typically, each house is 1 week empty for washing out in between batches so approx. 2.26 batches per annum.

3. Drainage systems to prevent pollution in any watercourse, underlying geology or groundwater. Gutters and downpipes on pig houses and manure barns convey clean, uncontaminated roof water into solid wall underground pipes and discharge into offsite ditches and a pond, tributaries of the River Waveney. Lightly contaminated surface water from the concrete apron in between houses conveyed into catchpits and solid wall underground pipes and intercepted in an onsite ditch and a pond before reaching surface water systems.

4. Straw bedding spread over lying areas prior to houses being stocked with pigs. Use sufficient straw to bind all the urine and dung to prevent ponding and minimise ammonia and odour. Dunging & laying areas pushed out regularly into manure barns and replaced with new straw. There is a separate slurry drainage system via sloping concrete, catch-pits, solid wall underground pipes and pump into above ground storage tanks covered with rigid, floating plastic plates to minimise ammonia emission. Solid manure and slurry exported offsite for spreading on operator's or third-party land to confer agricultural benefit. Drinking water provided via non-leaking drinkers to keep bedding dry and water consumption will be monitored.

5. Feed pigs with two-stage pelleted diet appropriate to pigs' nutritional requirements at each stage of growth. A lower percentage crude protein and phosphorous in the second diet. Both supplemented with essential amino acids, inorganic phosphates, and authorised additives to minimise nitrogen and phosphorous excretion. Store feedstuffs in package, fully enclosed silos and feed delivery equipment to minimise waste, dust, and odour and with kerbs or barriers as required to protect them from collision damage.

6. Pig mortalities removed from houses daily and recorded. Store carcasses in secure, covered containers to minimise odour and flies, and frequently removed under the National Fallen Stock Scheme.

7. Shelfanger Meadows Site of Special Scientific Interest (SSSI) within 5km but no International or European sites, and Tivetshall Wood Ancient Woodland (AW) and The Shrubbery AW to the northeast within 2km. Residential dwellings and agricultural premises are sensitive receptors for dust, odour and noise within 400m.

7 Emissions to air, water, and land

Table 2 Emissions (releases) at Grove Farm Pig Unit

Emission point description and location	Source
Point source emissions to air	
Side outlets for natural ventilation as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Pig houses 1-4
Side outlets for natural ventilation as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Manure barns
Vent from stand-alone diesel tank inside existing fuel store as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Diesel tank for farm vehicles
Point source emissions to water	
W1 at NGR TM 15540 85283 to onsite ditch tributary of the River Waveney as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from manure barns
W2 at NGR TM 15555 85199 to onsite ditch tributary of the River Waveney as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from pig house 1-3 and manure barns. Lightly contaminated surface water from concrete apron in between pig houses 1-3 (no mucking-out or washing)
W3 at NGR TM 15568 85202 to offsite ditch tributary of the River Waveney as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from pig house 1-3 and manure barns. Lightly contaminated surface water from concrete apron in between pig house 1-3 (no mucking-out or washing)
W4 at NGR TM 15381 85167 to onsite pond tributary of the River Waveney as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from pig house 4
W5 at NGR TM 15382 85164 to offsite ditch tributary of the River Waveney as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from pig house 4
Point source emissions to land	
Onsite ditch act as soakaway for W1 as shown on the Grove Farn Pig Unit Drainage	Uncontaminated roof water from manure barns

Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	
Onsite ditch act as soakaway for W2 as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from pig house 1-3 and manure barns. Lightly contaminated surface water from concrete apron in between pig houses 1-3 (no mucking-out or washing)
Onsite pond act as soakaway as shown on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ	Uncontaminated roof water from pig house 4
Point source emissions to sewer, effluent treatment plants or other transfers offsite	
None	

8 Operating techniques

Table 3 Technical Standards for Grove Farm Pig Unit

Schedule 1 activity	• Section 6.9; Part A(1)(a) Rearing poultry or pigs intensively at installation with more than – (ii) 2,000 places for production pigs (over 30kg)
Technical guidance	• Environment Agency (2010) EPR 6.09 Sector Guidance Note: How to comply – Intensive Farming Version 2. • Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs 2017.

Table 4 Main measures to control emissions from Grove Farm Pig Unit

Selection and use of feed Technical standard: you must take appropriate measures to provide a diet which minimises the excretion of nitrogen and phosphorous.	<u>Nitrogen & Phosphorous</u> • Protein and phosphorous levels in the rations are matched to the animals' needs by providing at least two different feed formulations. • Nutritionist to regularly review and reformulate diets - optimise production and minimise excretion of nutrients. • More detail on techniques used to minimize nitrogen and phosphorous excretion under Nutritional Management for BAT3 & BAT4 (below). <u>Buildings and associated infrastructure&</u> • All buildings and associated infrastructure, i.e., feed storage bins will be package bins, designed to allow at least a two-stage feeding regime.

Pig housing design and management.
 	
Technical standard: you must take appropriate measures in the design and management of housing to minimize the emissions from those systems
	<u>Appropriate measures for design</u>
	• Solid floor system comprising:
	  ○ Scraped areas that prevent ponding or build of urine.
	  ○ Dung passages and bedding areas are sloped to drain urine and prevent ponding.
	• Package nipple drinkers designed to prevent leakage (waste).
	
	<u>Appropriate measures for management</u>
	• Dunging and lying areas are clearly differentiated to ensure that the lying areas are kept clean and dry.
	• Scraped areas will be operated to prevent ponding or buildup of urine.
	• Dunging areas will be cleaned out by scraping regularly.
	• Bedded areas will have sufficient straw or other bedding material to keep the lying areas clean and dry, and to bind nitrogen to reduce ammonia emissions.
	• Floors will be kept free from urine or slurry puddles, either through:
	  ○ Provision of additional bedding material to soak it up, or
	  ○ Management to address puddles as they arise by scraping.
	
	<u>Ventilation</u>
	• Draughts will be avoided in lying areas.
	• Dunging areas in naturally ventilated buildings sited beneath air inlets.

	Temperature • The minimum temperature such that pigs do not need to huddle together will be maintained. General management • Floors and walls will be kept clean. • Keeping the pigs clean will help keep the walls clean. • Cracks and damaged areas of walls will be repaired.
Livestock numbers and movements	• Keeping a record of the capacity of the installation. • Record animal movements on and offsite and will be available on request.
Slurry spreading and manure management planning – offsite activity	*Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition.* • Solid manure and slurry will be exported offsite for: - • Spreading on land owned by the operator or a third party to confer agricultural benefit in accordance with a management plan in an NVZ. • We will maintain written evidence of the arrangements including: • Records of the quantities and date of transfers • Names and addresses and land acreage available where manure and slurry will be exported for spreading to land • Alternatively, where a third party accepts liability for removing manure or slurry from the installation, we will provide acceptable confirmation that: o as a minimum, the third party will ensure the manure is spread to land in accordance with the Code of Good Agricultural Practise; or o that the spreading will be in accordance with a manure management plan for the receiving land • There are contingency arrangements in place should the land become unavailable.
Slurry spreading and manure management planning – onsite activity	• No manure or slurry will be spread onsite.
Waste sent offsite	• Will be collected by a registered carrier with transfer documentation.
Fugitive emissions	Appropriate measures for preventing and minimising fugitive emissions. General building and site maintenance • We will maintain buildings in good repair to minimise water leaks into the houses which may increase the moisture content of the manure. • We will keep areas around buildings free from build-up of manure, slurry, or spilt feed. • We will maintain impervious surfaces and containment kerbs where these may be contaminated with potentially polluting substances. For

	example, concrete areas around buildings will be kept free from cracks (cracks in concrete yards can pose a risk to groundwater). <u>Management of drainage systems and runoff</u> • All drainage systems have been identified on the Grove Farn Pig Unit Drainage Schematic dated 08/10/2026 included with the application for EPR/H3624MJ. • Clean water systems will not be contaminated. Under no circumstances will slurry (including seepage from solid manure) be allowed to enter surface water drains or enter the ground. This will include: - o Designed separate clean water and dirty water systems: - o Uncontaminated roof water runoff conveyed via gutters, downpipes or French drains filled with stones into solid wall underground pipes, to prevent contamination, to offsite emission points. o Impermeable concrete apron prevents water entering into ground. o Reinforced concrete to prevent cracking under heavy vehicles. o Convey clean water runoff the concrete yard away from contaminated areas via slopes and kerbs into catchpits, solid wall underground pipes, which prevent contamination, to emission points o Minimised area of concrete yard for scraping and store solid manure. o Convey slurry from inside pig houses, from washouts and rainwater runoff from any areas likely to be contaminated by manure or slurry via slopes and kerbs into below ground slurry tanks and pumped into the slurry tanks. • Contamination of the yard area will be minimised to reduce the amount of contaminated water that requires disposal. This will include: o Keeping yards visibly clean o Keeping drainage channels clear o Cleaning up accumulations of spilt feed and dust. • Drainage from animal housing and water from cleaning out is slurry and will be collected in the slurry tanks prior to land spreading. • Drainage from yards likely to be contaminated by manure or slurry will be collected in the slurry tanks. • The collection system is constructed to deal with the volumes contained. <u>Disinfectant footbaths</u> • Disinfectant footbaths are designed not to overflow. • Spent disinfectants from footbaths will be added to the manure or slurry and exported offsite. <u>Feedstuff</u> • Store potentially dusty feedstuffs in package purpose-built silos. • Use package transfer systems with augers and pipes to automatically transfer feedstuffs from the storage silos direct into feeders in the houses.

	<u>Housing ventilation</u> • Ventilation systems will be operated to achieve optimum air quality conditions at each stage of growth in all weather and seasonal conditions. • Ventilation will be appropriate to the age, weight and health of animals. <u>Slurry storage (including pig slurry and wash water)</u> • New and substantially reconstructed and substantially enlarged packaged, slurry storage systems will: o conform with the technical measures detailed in the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) Regulations 2010, amended o be covered with rigid floating plastic plates. • Slurry storage facilities will have the following acceptable features: o Base of the storage tanks and all parts of drains to be impermeable o Base and wall of storage tanks and drains protected against corrosion as described in BS 5502 Part 50. o Slurry storage tanks designed to BS 5502 Part 50. o Minimum six months slurry storage tank capacity in a NVZ including allowance for rainfall. Designed to have a minimum 300mm freeboard o No part of the structure within 10m of a watercourse o Tank and channels designed for 20 years life with routine maintenance o Two valves in series on any outlet pipe to be locked shut when not in use (With adequate spacing between the valves) • Slurry storage covered with rigid floating plastic plates. • Management: o Package structures are designed to work without secondary containment with maintenance and regular inspections. <u>Manure storage</u> • Solid manure will be stored in barns and will: o have impermeable bases o provide a collection and containment system for the slurry runoff which meets the requirements of the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) Regulations 2010, amended o have a roof to reduce contaminated run-off. • Management: o Maintain effluent channels and slurry tanks to avoid blockage o Slurry tanks check regularly and are emptied when necessary, so they do not overflow. The slurry spread to agricultural land in accordance with the manure management plan. <u>Carcase management</u> • Frequently removed offsite under the National Fallen Stock Scheme by an approved transporter • Covered to prevent access by birds or rodents using lidded bins.

	Appropriate measures for bunding and containment Agricultural fuel oil and other chemical storage • Agricultural fuel oil, pesticides, and veterinary medicines will be contained in areas capable of retaining any spillage. • Package, agricultural fuel oil storage facilities will be bunded and meet requirements of the Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) Regulations 2010, amended • Pesticides and veterinary medicines will be kept in a store that is resistant to fire, dry, frost-free, and secure against unauthorised access. • Vermin control chemicals are brought onsite by a registered contractor for use as needed. • Package silos and delivery systems will be installed for feedstuffs to prevent spillages and minimise waste. • Silos for feedstuffs will be protected from collision damage by: ○ Careful siting relative to traffic flows with kerbs, barriers or other markers to stop reversing vehicles.

Q8a Technical standards contd. EC (2017) Best Available techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs at Grove Farm Pig Unit

The BAT conclusions[1] were published on 21st February 2017 and all new farms and any new or replacement housing or plant at existing permitted farms must be compliant with the BAT conclusions and meet associated emission limits from the date they are first permitted.

Included the Environment Agency summary of the decision-making process for each BAT conclusion and identifies how the requirements will be covered by the permit conditions and which requirements are new (*italic*) in Table 5: -

Table 5 Measures in accordance with EC (2017) Best Available techniques (BAT) Reference Document

BAT	Description	How is the site demonstrating compliance
BAT 1	**EMS** *In order to improve the overall performance of farms, BAT is to implement and adhere to an environmental management system (EMS) that incorporates all the following features [in the BAT conclusions document].*	*Operator already holding a written management system comprising a suite of documents to help identify and minimise the risk of pollution. These include an accident management plan, maintenance plan, staff training and where necessary odour and noise management plans. This is a requirement of the existing general management condition in the permit.* *By 21 February 2021, the operator will be required to update their management system to include an environmental policy statement and demonstrate their commitment of their management to the EMS. This will be checked during routine compliance inspections.* Operator will have an Environmental Policy statement in place.
BAT 2	**Good housekeeping** *In order to prevent or reduce the environmental impact and overall performance, BAT is to use all the techniques given [in the BAT conclusions document].*	*The operator is already required to manage their operation as set out in the existing general management and operating techniques conditions in the permit. In complying with these conditions, we expect the operator to use most of the techniques identified in BAT2.* Operator is using all of the techniques given: - • Proper location of the plant/farm and spatial arrangements of the activities in order to: o Reduce transport of animals and materials (including manure) o Take into account prevailing climatic conditions (e.g., wind and precipitation). o prevent the contamination of water. • Educating and training of staff, in particular for: o relevant regulations, livestock farming, animal health and welfare, manure management, worker safety, and operator and stockmen have formal qualifications. o manure transport and land-spreading o planning of activities o emergency planning and management

		○ repair and maintenance of equipment. • Prepared an emergency plan for dealing with unexpected emissions and incidents such as pollution of water bodies. This includes: ○ a plan of the farm showing the drainage systems and water /effluent sources ○ plans of action for responding to certain potential events for example fire, uncontrolled run-off from manure heaps, oil spillages, etc. ○ available equipment for dealing with a pollution incident for example spill kit for oil spillages. • Regularly check, repair, & maintain structures & equipment such as: ○ slurry stores for any sign of damage, degradation, leakage ○ slurry pumps ○ water and feed supply systems ○ silos, and transport equipment, ○ cleanliness of the farm, and pest management. • Storie dead animals in such a way as to prevent or reduce emissions.
Nutritional management		
BAT 3	*In order to reduce total nitrogen excreted and consequently ammonia emissions while meeting the nutritional needs of the animals, BAT is to use a diet formulation and nutritional strategy which includes one or a combination of the techniques given [in the BAT conclusions document].*	*Operator already required to have a nutritional strategy to reduce nitrogen and phosphorous. This requirement is incorporated into the existing operating techniques condition in the permit.* *In addition, the variation included a new condition requiring the operator to report annually the levels of nitrogen and phosphorous excretion per animal place to demonstrate compliance with the BAT-associated total nitrogen and phosphorous excreted. The operator will now need to submit monitoring to demonstrate they are compliant. If they are not compliant with the BAT-associated total nitrogen and total phosphorous excreted, they will be in breach of the permit and will need to revisit their nutritional management techniques. Based on our review, and engagement with industry, we expect all operators to meet the BAT-associated excretion levels.* *Where the BAT-associated total nitrogen and total phosphorous excreted level is not met the operator will be required to consider and adopt alternative diets or feed additives which enable them to meet the level.* Operator is using a combination of the techniques given: - • Reduce the crude protein content using a N-balanced diet based on the energy needs and digestible amino acids. Soya bean meal added during milling to increase crude protein and supplement

		otherwise low natural levels in cereal grains. Percentage of soya reduced as pigs grow. • Multiphase feeding with a diet formulation adapted to the specific requirements of the production period – a minimum of two diets will be provided for all pigs over the production cycle. The latter diet will have lower crude protein level. • Addition of controlled amounts of essential amino acids to a low crude protein diet – highly digestible amino acid analogues will be added into all feedstuffs during milling, including lysine, methionine, threonine, and valine to supplement otherwise low natural levels in cereal grains.
BAT 4	*In order to reduce total phosphorous excreted while meeting the nutritional needs of the animals, BAT is to use a diet formulation and nutritional strategy which includes one or a combination of the techniques given [in the BAT conclusions document].*	*As BAT 3.* Operator is using a combination of the techniques given: - • Multiphase feeding with a diet formulation adapted to the specific requirements of the production period – a minimum of two diets will be provided for all pigs over the production cycle. The latter diet will have lower phosphorous level. • Use of authorised feed additives which reduce the total phosphorous excreted. Specifically, 6-phytase enzyme will be added into all the feedstuffs during milling, otherwise pigs normally lack sufficient intestinal phytase. The enzyme degrades the bound phytate phosphorous in wheat grains and soya during digestion, making more of this naturally occurring phosphorous and other nutrients available to the pigs. • Use of highly digestible inorganic phosphates for the partial replacement of conventional sources of phosphorous in the feed.
BAT 5	**Efficient use of water** *In order to use water efficiently, BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*Operator is already required to minimise the use of water as set out in the existing efficient use of raw materials in the permit.* Operator is using a combination of the techniques given: - • Keep a record of water use. • Detect and repair water leakages. • Use high pressure cleaners for cleaning animal housing and equipment. • Select and use suitable equipment e.g. package nipple drinkers ensuring water availability (*ad-libitum*).

Emissions from wastewater		
BAT 6	*In order to reduce the generation of wastewater, BAT is using a combination of the techniques given [in the BAT conclusions document].*	*These requirements are fulfilled through existing permit conditions on general management, the efficient use of raw materials and emissions of substances not controlled by emissions limits.* Operator is using a combination of techniques given: - • Keep the fouled yard areas as small as possible. • Minimise use of water. • Segregate uncontaminated rainwater from wastewater streams that require treatment.
BAT 7	*In order to reduce emissions to water from wastewater, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	*The operator is already required to minimise emissions of wastewater through existing permit conditions on general management, operating techniques and emissions of substances not controlled by emissions limits.* *Where appropriate the operator is already expected to have dedicated slurry and/or wash water storage which is compliant with BAT standards (equivalent to the standards set out in The Silage Slurry and Agricultural Fuel Oil Regulations (SSAFO). These requirements also apply to reception pits, channels, underground tanks, and pipework and require that slurry is collected and contained.* Operator is using a combination of the techniques given: - • Drain wastewater to a dedicated container or to a slurry store • Land spreading wastewater [offsite].
BAT 8	**Efficient use of energy** *In order to use energy efficiently in a farm. BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*The operator is already required to minimise the use of energy through existing permit conditions on general management and energy efficiency.* Operator is using a combination of the techniques given: - • Insulation of the walls, floors and/or ceilings of animal housing. • Use of energy efficient lighting. • Apply natural ventilation.
Noise emissions		
BAT 9	*In order to prevent, or where that is not practicable, to reduce noise emissions, BAT is to set up and implement a noise management plan, as part of the environmental management system (see BAT 1).*	*A noise management plan (NMP) is in place when there are relevant receptors within 400m of the installation boundary or there have been substantiated complaints. This reflects our current approach, and no change is required.* *This conclusion is only applicable where we expect noise pollution, or it has been substantiated. We anticipate the potential for noise pollution within 400m of sites, and require operators with receptors located within this distance, or at sites where noise complaints have been substantiated at receptors outside this distance, to have an NMP.*

	BAT 9 is only applicable to cases where a noise nuisance at sensitive receptors is expected and/or has been substantiated.	*This is already detailed in the existing permit condition on noise and vibration in the permit. This condition allows for us to require a NMP if not previously in place. In the event of noise complaints or other evidence of risk of noise pollution beyond the installation boundary.* *The NMP needs to be regularly updated and reviewed to prevent noise pollution and ensure compliance.* Residential dwelling houses within 400m of Grove Farm Pig Unit are sensitive receptors. Submitted an NMP with application for bespoke permit which includes the following elements: • A protocol containing appropriate actions and timelines • A protocol for conducting noise monitoring • A protocol for response to identified noise events. Operator has no records or recollections of having substantiated any noise concerns or complaints, so a noise reduction programme to implement elimination and/or reduction measures is not considered necessary.

BAT 10	*In order to prevent, or where that is not practicable, to reduce noise emissions, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	*Nose minimisation has been considered in equipment location and operation in the permit determination stage.*
		
		The operator is already required to prevent and minimise noise through the existing permit conditions on general management, operating techniques and noise and vibration. The existing operating techniques permit condition already allows us to require the operator to update the NMP to introduce additional BAT measures to minimise the risk of noise pollution beyond the installation in the event of substantiated noise complaints at local receptors.
		
		Operator is using a combination of the techniques given: -
		
		• Equipment location, noise levels will be reduced by: -
		  o Increasing distance between the emitter and the receiver (by locating equipment as far away as practicable form sensitive receptors) e.g. feed silos and feed delivery equipment.
		  o Minimising the length of feed delivery pipes
		  o Locating feed silos so as to minimise movement of vehicles on the farm.
		• Operational measures include:
		  o Equipment operated by experienced staff
		  o Avoidance of noisy activities at night and during weekends if possible
		  o Provisions for noise control during maintenance activities
		  o Operate augers full of feed, if possible

		○ Keep outdoor scraped areas to a minimum in order to reduce noise from scraper tractors. • Low noise equipment. This includes equipment such as: ○ Pumps and compressors ○ feeding system which reduces the pre-feeding stimulus including use of package feeders and ad-libitum feeding in place. • Noise abatement. Noise propagation can be reduced by inserting obstacles between emitters and receivers for example raised earth banks at Grove Farm Pig Unit.
BAT 11	**Dust emissions** *In order to reduce dust emissions from each animal house, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	*Techniques are already in place to reduce dust generation inside sheds such as ad-libitum feeding.* *The operator is already required to minimise dust emissions through existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits.* Operator is using a combination of the techniques given: - • Use coarser long barley or wheat straw for bedding • Apply ad-libitum feeding • Use pelleted feed • Equip dry feed stores which are filled pneumatically with dust separators • Design and operate ventilation system with low air speed inside the pig houses.
Odour emissions		
BAT 12	*In order to prevent, or where that is not practicable, to reduce odour emissions from a farm, BAT is to set up, implement and regularly review an odour management plan, as part of the environmental management system (see BAT 1), that includes the following elements [in the BAT conclusions document].*	*An odour management plan (OMP) is in place when there are relevant receptors within 400m of the installation boundary or there have been substantiated complaints. This reflects our current approach, and no change is required.* *This conclusion is only applicable where we expect odour pollution, or it has been substantiated. We anticipate the potential for odour pollution within 400m of sites, and require operators with receptors located within this distance, or at sites where odour complaints have been substantiated at receptors outside this distance, to have an OMP. This is already detailed in the existing permit condition on odour in the permit. The condition allows for us to require an OMP if not previously in place, in the event of odour complaints or other evidence of risk of odour pollution beyond the installation boundary.*

		The OMP needs to be regularly updated and reviewed to prevent odour pollution and ensure compliance. Residential dwelling houses within 400m of Grove Farm Pig Unit are sensitive receptors. Submitted an OMP with application for bespoke permit which includes the following elements: • A protocol containing appropriate actions and timelines • A protocol for conducting odour monitoring • A protocol for response to identified odour events. Operator has no records or recollections of having substantiated any odour concerns or complaints, so an odour reduction programme to implement elimination and/or reduction measures is not considered necessary.

BAT 13	*In order to prevent, or where that is not practicable, to reduce odour emissions and/or odour impact from a farm, BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*Odour minimisation has been considered in equipment location and operation in the permit determination stage.*
		
		The operator is already required to prevent and minimise odour through the existing permit conditions on general management, operating techniques, and odour. The existing operating techniques permit condition already allows us to require the operator to update the OMP to introduce additional BAT measures to minimise the risk of odour pollution beyond the installation in the event of substantiated odour complaints at local receptors.
		
		Residential dwelling houses within 400m of Grove Farm Pig Unit are sensitive receptors. Submitted an OMP with application for bespoke permit which includes a combination of the techniques given: -
		
		• Use a housing system which implements a combination of the following principles:
		  o keeping the animals and the surfaces dry and clean (e.g. avoid feed spillages)
		  o reduce the emitting surface of manure
		  o removing manure frequently to an external (covered) store
		  o decreasing the air flow and velocity over the manure surface.
		• Optimise the discharge conditions of exhaust air from the animal house by using one of the techniques:
		  o Aligning the ridge axis of a naturally ventilated building transversely to the prevailing wind direction
		• Use a combination of the techniques for storage of manure:
		  o cover slurry or solid manure
		  o locate the store taking into account the general wind direction and/or adopt measures to reduce wind speed around and

		above the store for example raised earth banks at Grove Farm Pig Unit.
Emissions from solid manure storage		
BAT 14	*In order to reduce ammonia emissions to air from the storage of solid manure, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	*The operator is already required to prevent and minimise emissions of ammonia from solid manure through the existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits.* Operator is using one of the techniques given: - • Reduce the ratio between the emitting surface and the volume of the solid manure heap.
BAT 15	*In order to prevent, or where that is not practicable, to reduce emissions to soil and water from the storage of solid manure, BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*The operator is already required to prevent and minimise emissions to soil and water through the existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits.* Operator is using a combination of the techniques given: - • Store solid manure in barns • Storing solid manure on solid impermeable floor equipped with a drainage system and a collection tank for the runoff • Selected a storage facility with a sufficient storage capacity to hold the solid manure during periods in which landspreading is not possible
Emissions from slurry storage		
BAT 16	*In order to reduce ammonia emissions to air from a slurry store, BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*The operator is already required to prevent and minimise emissions of ammonia from slurry through the existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits.* Operator is using a combination of the techniques given: - • Appropriate design and management of the slurry store by using a combination of the techniques: o Reduce the ratio between the emitting surface area and the volume of the slurry store o Reduce wind velocity and air exchange on the slurry surface by operating the store at a lower level of fill • Cover the slurry store with a floating cover such as: o Floating covers such as geometrical plastic tiles.
BAT 17	*In order to reduce ammonia emissions to air from an earth-banked slurry store (lagoon), BAT is to use a combination of*	*The operator is already required to prevent and minimise emissions of ammonia from slurry through the existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits.*

	the techniques [in the BAT conclusions document].	No earth-banked slurry store (lagoon)
BAT 18	*In order to prevent emissions to soil and water from slurry collection, piping and from a store and/or an earth-banked storage (lagoon), BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*Existing permit conditions on general management, operating techniques and emissions of substances not controlled by emission limits will ensure this requirement is met.* Operator is using a combination of the techniques: - • Use stores that are able to withstand mechanical, chemical and thermal influences. • Select a storage facility with a sufficient capacity to hold the slurry during periods in which landspreading is not possible • Construct leak-proof facilities and equipment for collection and transfer of slurry (e.g. pits, channels, drains, pump stations) • Check structural integrity of stores at least once every year.
BAT 19	**On farm processing of manure** *If on farm processing of manure is used, in order to reduce emissions of nitrogen, phosphorous, odour and microbial pathogens to air and water and facilitate manure storage and/or land spreading, BAT is to process the manure by applying one or a combination of the techniques given [in the BAT conclusions document].*	No on-farm processing of manure.
Manure land spreading		
BAT 20	*In order to prevent or, where that is not practicable, to reduce emissions of nitrogen, phosphorous, and microbial pathogens to soil and water from manure land spreading BAT is to use all the techniques given [in the BAT conclusions document].*	*Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition.* No manure land spreading onsite.

BAT 21	*In order to reduce ammonia emissions to air from slurry land spreading, BAT is to use a combination of the techniques given [in the BAT conclusions document].*	*Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition.* No slurry land spreading onsite.
BAT 22	*In order to reduce ammonia emissions to air from manure land spreading, BAT is to incorporate the manure into the soil as soon as possible.*	*Spreading of manure and slurry on land outside of the installation boundary is not considered to part of the permitted installation. In the rare circumstances where spreading occurs within the installation boundary the requirements are covered by the existing operating techniques permit condition. The time delay between land spreading and incorporation into the soil is now a maximum of 12 hours.* No solid manure or slurry land spreading onsite.
BAT 23	*In order to reduce ammonia emissions from the whole production process for the rearing of pigs (including sows) or poultry, BAT is to estimate or calculate the reduction of ammonia emissions from the whole production process using the BAT implemented on the farm.*	*An operator complying with the relevant existing conditions in the permit will meet this BAT conclusion in so far as they will have reduced ammonia emissions compared to those they would have produced had they not implemented BAT. The operator is not required to report they are meeting the BAT-AELs annually.*
Monitoring of emissions and process parameters		
BAT 24	*BAT is to monitor the total nitrogen and total phosphorous excreted in manure using one or more of the following techniques [in the BAT conclusions document] with at least the frequency given [in the BAT conclusions document].*	*The operator will now be required to comply with a new permit condition which sets out a requirement to monitor nitrogen and phosphorous levels in livestock manure.* *This can be carried out using a mass balance of nitrogen based on the feed intake, dietary content of crude protein and animal performance or estimation by using manure analysis for total nitrogen content and the equivalent for phosphorous.* Operator will use one of the techniques given: - • Calculation by using a mass balance of nitrogen and phosphorous based on the feed intake, crude protein content of the diet, total phosphorous and animal performance. • Use the Pig Excreta Mass Balance Model available on the AHDB website at https://ahdb.org.uk/knowledge-library/environmental-permitting-regulations

BAT 25	*BAT is to monitor ammonia emissions to air using one of the following techniques with at least the frequency given [in the BAT conclusions document].*	*The operator will now be required to comply with a new permit condition setting out a requirement for annual reporting on ammonia emissions. This should not represent a new requirement as they already submit this in their Pollution Inventory return.* *We expect all operators will demonstrate compliance using emissions factors (one of the identified techniques) however they may choose to monitor ammonia emissions using a suitable and agreed monitoring protocol.* Operator will use one of the techniques given: - • Estimation by using emission factors • Use emission factors published on the government website at https://www.gov.uk/guidance/ammonia-emission-factors-for-pig-and-poultry-screening-modelling-and-reporting
BAT 26	*BAT is to periodically monitor odour emissions to air.*	*Routine monitoring (e.g., subjective 'sniff testing') is not expected in most cases, as we would expect the odour management plan to minimise and prevent any odour pollution. It will only be expected as part of ongoing odour management at sites where there have been substantiated odour complaints.*
BAT 27	*BAT is to monitor dust emissions from each animal house using one of the following techniques with at least the frequency given [in the BAT conclusions document].*	*The operator will now be required to comply with a new permit condition setting out a requirement for annual reporting of dust emissions. For pigs this is a new requirement.* *We expect all operators will demonstrate compliance using the emissions factors techniques.* For pigs, particulate matter is not normally expected. Unless operators have information to the contrary they can leave the column blank in the pollution inventory according to advice on the government website. Available at https://www.gov.uk/government/publications/pollution-inventory-reporting-guidance-notes/intensive-farming-pollution-inventory-reporting#part-2-releases-to-air
BAT 28	*BAT is to monitor ammonia, dust and/or odour emissions from each animal house equipped with an air cleaning system by using all of the following techniques with at least the frequency given [in the BAT conclusions document].*	*If an air scrubber or cleaning system is in place, the operator will be required to comply with this BAT conclusion. Air abatement systems are not common as they are costly and only work with closed housing systems so are not appropriate for a retrofit to older housing. Where such abatement is in place (for ammonia or odour abatement) the criteria has been met via process monitoring.* No air cleaning system.

BAT 29	*BAT is to monitor the following process parameter at least once every year: -* • *Water consumption* • *Electric energy consumption* • *Fuel consumption* • *Number of incoming and outgoing animals* • *Feed consumption* • *Manure generation.*	*The operator is already required to keep records for these parameters in their current permit through existing permit conditions on energy efficiency, efficient use of raw materials and operating techniques. These will be checked during routine compliance inspections.* Operator is monitoring most of the parameters: - • Water consumption • Electric energy consumption • Number of incoming and outgoing animals including deaths • Feed consumption • Manure generation.
BAT 30	**Ammonia emissions from pig houses** *In order to reduce ammonia emissions to air from each pig house, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	*We are confident that pig farm installations will be able to comply with the objective of BAT 30 via the usage of existing housing and operating techniques.* *This is based on the operator using techniques listed in this conclusion and achieving the BAT-AELs or by demonstrating the method used produces an equivalent level of protection. 'Equivalence' will need to be confirmed through emissions monitoring to show compliance with the BAT-AELs. Our review of housing types in England indicates that all operators should already be compliant with the techniques set out in BAT30. This will be checked during routine compliance inspections.* *The operator is required to comply with the new permit condition to carry out annual monitoring and reporting. The results will need to meet the associated BAT-AELs. We expect the operator will demonstrate compliance using emission factors.* *Compliance with AELs is covered under a new condition and associated process monitoring table.* Operator is using a combination of the techniques given: • Reduce the ammonia emitting surface • Increase the frequency of slurry (manure) removal to external storage • Straw flow system (in case of a solid concrete floor)
BAT 31	**Ammonia emissions from houses for laying hens, broiler breeders or pullets** *In order to reduce ammonia emissions to air*	Not applicable

	*from each house for **laying hens, broiler breeders or pullets**, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	
BAT 32	**Ammonia emissions from houses for broilers** *In order to reduce ammonia emissions to air from each house for **broilers**, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	Not applicable
BAT 33	**Ammonia emissions from houses for ducks** *In order to reduce ammonia emissions to air from each house for **ducks**, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	Not applicable
BAT 34	**Ammonia emissions from houses for turkeys** *In order to reduce ammonia emissions to air from each house for turkeys, BAT is to use one or a combination of the techniques given [in the BAT conclusions document].*	Not applicable

1. Commission Implementing Decision (EU) 2017/302 of 15 February 2017 establishing best available techniques (BAT) conclusions, under Directive 2010/75/EU of the European Parliament and of the Council, for the intensive rearing of poultry or pigs

8 Operating Techniques

Propose more houses and increase in capacity for production pigs in application for bespoke permit will increase the raw materials inventory.

Table 6 Raw materials inventory for Grove Farm Pig Unit

Raw materials inventory	Quantity stored onsite (litres/kg)	Quantity used per year (litres/kg)	Justification for use of this material
Biocides (includes disinfectants, wood preservatives, slimicides)			
Disinfectants for housing and equipment	40 litres	40 litres	Defra approved disinfectants for use in England, Scotland, and Wales.
Pesticides (including herbicides, vertebrate control products, biological pesticides)			
Rodenticide baits, often in proprietary bait boxes	20kg	20kg	HSE UK List of Authorised Biocidal Products
Veterinary medicines (excluding dietary additives)			
Provided only in accordance with a veterinary prescription as required	1 litre	1 litre	Pig welfare/disease/pest control. Normally incorporated into feedstuffs in the mill.
Bedding types			
Wheat straw.	40 tonnes	600 tonnes	UK industry standard, readily available, efficacy & cost. Barley straw is softer, more palatable and less dusty.
Fuels and oils			
Gasoline (red diesel) for tractors	5,000 litres	4,000 litres	Agricultural industry standard, efficacy & cost

Inventory will be reviewed every 4 years and updated if alternative products are available.

10 Resource efficiency and climate change

Proposed changes for Application Variation V003 for more houses and places for pigs will not significantly change energy use or the basic measures for improving energy efficiency.

Table 7 Energy use at Grove Farm Pig Unit

Energy source	Use
Grid electricity	Lighting, feed augers, water pumps, slurry pumps.
Red diesel	Tractors & scrapers.

Table 8 Basic measures for improving how energy efficient activities are at Grove Farm Pig Unit

Activity	Basic energy efficiency measures
Lighting	• Low energy LED lighting installed/proposed across the whole site
Tractors & scrapers	• Planned preventive maintenance for farm vehicles in accordance with manufacturer's instructions and keeping records.
Monitoring	• Supplier invoices, electricity meter readings for kWh used. • Supplier invoices for red diesel litres delivered. • Keeping records.
Climate change agreement	• Not proposing to enter into a climate change agreement on account use relatively low electricity kWh. Not cost effective on account of the high entry and annual administration fees in a CCA versus the savings from climate change levy discount on invoices.

Q10c How we avoid producing waste in line with Council Directive 2008/98/EC on waste at Grove Farm Pig Unit

1. Solid manure, slurry, and packaging waste arising from the pig rearing activities will be treated in accordance with the waste hierarchy referred to in Article 4. Waste will be segregated and securely stored for export offsite for recycling and recovery by land treatment to confer agricultural or ecological benefit.

2. Pig carcasses removed under National Fallen Stock Scheme will be treated in accordance with EU 142/2011 Commission Regulation implementing Regulation 1069/2009 of The European Parliament and of the Council laying down health rules as regards animal by-products 'The EU Implementing Regulation'.