BERRYS

PROPERTY | BUSINESS | PLANNING

ENVIRONMENTAL STATEMENT (V3)

IN RELATION TO

THE PROPOSED ERECTION OF THREE ADDITIONAL POULTRY BUILDINGS, EIGHT FEED BINS AND ASSOCIATED DEVELOPMENT AS PART OF AN EXTENSION OF THE MILTON FARM POULTY SITE

AT

SHOBDON AIRFIELD, HEREFORDSHIRE, HR6 9LB

ON BEHALF OF

M & M POULTRY LTD

October 2017

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RICS

ENVIRONMENTAL STATEMENT

APPLICANT'S DETAILS

M & M POULTRY LTD

PROJECT

The proposed erection of three additional poultry buildings, eight feed bins and associated development as part of an extension of the Milton Farm Poultry Site

ISSUED BY

Mr Graham Clark BA (Hons) DipTP MRTPI
Planning Consultant

[redacted]

APPROVED BY

Mr Ben Corbett BSc (Hons) MSc MRICS
Partner

[redacted]

BERRYS 1890

Newchurch Farm
Kinnersley
Herefordshire
HR3 6QQ
01544 598080
berrys.uk.com

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Hereford/HA24704
May 2017

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1 INTRODUCTION

The combination of a growing population and increasingly affluent consumers, means that demand for food in the UK is also increasing considerably.

The value of UK poultry production exceeds £2 billion per annum and the industry continues to grow to meet the demand of home grown produce. In response to this, a number of poultry enterprises have been developed at different locations around the UK during recent years.

The continued growth of the UK poultry sector has made an important contribution to the UK poultry meat production capacity. The proposed extension to the existing poultry site at Milton Farm, Pembridge, Leominster is part of this process. This is part of the development of the industry bringing us closer to being self-sufficient in poultry meat in the UK and reducing the need to import meat, reducing greenhouse gasses from fossil fuel in transportation and other associated pollution.

The proposed additional poultry buildings will operate as a broiler rearing site, with a maximum of 162,000 birds per cycle housed in the three new poultry buildings. The combined existing five poultry buildings and proposed three new units will house a maximum of 440,000 birds in total.

The existing poultry site for five poultry buildings was granted planning permission in August 2014 (Ref: P141766/F0) and has been operating for nearly two years.

The existing environmental permit (EPR/WP3334VW/V002) has been varied to allow for the proposed increase in bird numbers at the expanded site to a maximum of 440,000.

This submission has been prepared on behalf of M & M Poultry Ltd who own and operate the site.

The application has been based on advice received from Herefordshire Council following the submission of a pre-application enquiry and scoping opinion.

1.2 SITE LOCATION

The site is located at Milton Farm, approximately 1km south of the village of Shobdon and 2km north-east of the village of Pembridge.

The proposed development will be an extension to the existing poultry site, which has five poultry houses and associated infrastructure.

The proposed additional three poultry buildings will be situated to the west of the existing poultry site, forming an extension to the existing built form.

The site for the proposed development occupies an arable field of low ecological value and is screened to the south and east by existing buildings and mature trees. The closest residential property to the site is understood to be approximately 450m to the south-west. There are commercial premises (warehouse and office) approximately 75m south of the site which are part of the Kingspan facility.

The site is within a Nitrate Vulnerable Zone (NVZ) designated for surface water and groundwater but is not located within any statutory designations for landscape or nature conservation.

The existing access arrangement will be utilised to serve the proposed additional poultry buildings. The existing access is off the private industrial road that connects to the C1032 (between Milton Cross and Pembridge) via the main Kingspan entrance. This existing access is also used for the Anaerobic Digestion (AD) plant, which is located adjacent to the existing poultry units.

There is an existing footpath to the north-west of the site which will not be affected by the proposed development.

The proposed site can be seen identified on the Location Plan at Appendix 1 and Block Plan at Appendix 2.

1.3 The EIA Process and Scope

The Town & Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 (as amended) require that for certain developments an Environmental Impact Assessment (EIA) is required (hereinafter referred to as The EIA Regulations). The Regulations set out the types of development where an EIA is mandatory (Schedule 1) and when the need for an EIA will be determined if the development is likely to have significant environmental impacts by reason of factors such as the size, scale, location or other likely impacts (Schedule 2).

This EIA has been based on advice received from Herefordshire Council, along with Berrys experience of what has been required for similar applications recently submitted.
In addition to standard requirements the Council confirmed that the Environmental Statement must include reports/assessments on:

- Landscape Statement
- Ecological Assessment
- Transport Statement
- Flood Risk Assessment and Surface Water Drainage Proposals
- Odour Assessment

- Noise Impact Assessment
- Air Quality & Dust Assessment and Management

The objectives of the EIA are to identify potential environmental impacts of a proposed development and identify measures to mitigate any adverse impacts. The Environmental Statement (ES) will report the finding of the EIA. Schedule 4 of the Town & Country Planning (Environmental Impact Assessment) Regulations 2011 sets out the necessary information to assess impacts on the natural environment to be included in an ES, specifically:

- A description of the development – including physical characteristics and the full land use requirements of the site during construction and operational phases.
- Expected residues and emissions (water, air and soil pollution, noise vibration, light, heat, etc.) resulting from the operation of the proposed development.
- An Assessment of alternatives and clear reasoning as to why the preferred option has been chosen.
- A description of the aspects of the environment likely to be significantly affected by the development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including heritage, landscape and the interrelationship between the above factors.
- A description of the likely significant effects of the development on the environment – direct effects but also any indirect, secondary, cumulative, short, medium and long term, permanent and temporary, positive and negative effects. Effects should relate to the existence of the development, the use of natural resources and the emissions from pollutants. This should also include a description of the forecasting methods and where possible offset any significant adverse effects on the environment.
- A description of the measures envisaged to prevent, reduce and where possible offset any significant adverse effects on the environment.
- A non-technical summary of the information
- An indication of any difficulties (technical deficiencies or lack of know-how) encountered by the applicant in compiling the required information.

The EIA has been conducted in accordance with the latest Government regulations and advice on good practice and carried out taking due consideration to other guidance such as that contained in the Institute of Environmental Management and Assessment's (IEMA) 'Guidelines for Environmental Impact Assessment' (2004), and where appropriate specific guidance for individual issues.

Any impact identified is assessed by looking at the degree of alteration from the baseline state which can be predicted (the magnitude of the effect) and the sensitivity of the receptors. Significance of the impact is evaluated using the following criteria:

- The value of the resource (international, national, regional and local importance)
- The magnitude of the impact
- The duration of the impact (long/short term, temporary/permanent)

- The reversibility of the impact
- The number and sensitivity of receptors
- The nature of the impact
- Whether the impact is direct or indirect

The significance of the impact (positive or negative) is generally considered to be one of the following:

- No significance/negligible – beneath the levels of perception, within the normal bounds of variation or within the margin or forecasting error; a non-detectable change to a location, environment or species
- Minor significance – a detectable but non-material and non-noteworthy change to a location, environment or species at a local level, relevant quality standards not approached
- Moderate significance – a material and noteworthy but non-fundamental change to a location, environment or species of local or district importance, relevant quality standards may be approached
- Major significance – a fundamental change to a location, environment or species of district to regional importance, relevant quality standards exceeded
- Extreme significance – a fundamental change (e.g. loss) to a location, environment or species of national/international importance, relevant quality standards exceeded by a substantial margin on a regular basis.

The assessment of impact considers residual impacts following mitigation measures introduced to reduce, remedy or avoid any significant adverse impacts.

The EIA will describe the project and the key issues that arise. A non-technical summary of the findings has been provided which is produced at Appendix 2. The main body of the EIA will include the following:

- Introduction – background, site information and the EIA process and scope
- Development Description – details of the construction, use and physical nature of the development and it's use
- Policy & Legislation – summary of planning and legislative content of the proposals
- Alternatives – the alternative locations considered.
- Environmental Assessment Chapters to cover; air quality, health and climate; landscape and visual assessment; highways; amenities; ecology; noise; odour; ammonia and flood and drainage.
- Conclusion – an overview of the assessment

The EIA has been written by Berrys with the assistance of specialist consultants listed below:

Transport Statement – David Tucker Associates
FRA & Drainage – Hydrogeo Ltd
Landscape & Visual Assessment – Haire Landscape Consultants
Ecology – Greenscape
Odour Assessment – AS Modelling & Data Ltd

Noise Assessment – NVC Ltd

Copies of the Environmental Statement can be obtained from:

Berrys Newchurch Farm Kinnersley, Herefordshire, HR3 6QQ.

A charge will be made for each copy of the report provided, based on the cost of reproducing and posting the documents. A charge of £25 will apply for provision of the ES in paper form, or £15 for a copy on CD.

2 THE PROPOSED DEVELOPMENT

2.1 Proposed Development Overview

The proposed development comprises of the erection of three additional poultry units, eight feed bins and associated development. The three new units will house a maximum of 162,000 broiler birds per cycle. The proposed units will be located directly west of the existing five poultry units, which house 278,000 broiler birds per cycle. The combined number of birds per cycle would therefore be 440,000.

The birds are grown for 38 days with thinning taking place at day 33 when approximately 35% of the birds are removed. The remaining birds are removed at day 38 after which the units are cleaned. Including cleaning the total cycle is approximately 45 days leading to 8 cycles per year.

The proposed poultry buildings will be 6m to the ridge as per the existing poultry buildings, with a floor area measuring;

2 x poultry buildings at 110.1m x 24.6m x 6m to the ridge. Plus control room measuring 10m x 3m.

1 x poultry building at 97.9m x 24.6m x 6m to the ridge. Plus control room measuring 10m x 3m.

Eight feed bins measuring 8.6m in height.

The poultry buildings will be positioned adjacent to the existing units as per the location and block plan at Appendix 1.

The proposed poultry units will be of standard construction and consist of steel-framed, fully-insulated buildings clad externally with profiled sheeting. The poultry units and feed bins will be coloured juniper green to match the existing buildings.

The two larger poultry units will have 23 high velocity ridge fans and the smaller unit 21 high velocity ridge fans. These will disperse odour and keep internal temperatures to animal welfare standards.

2.2 Production Cycle

The cycle begins with day old chicks being delivered to the site and the birds being grown for 38 days. Thinning will take place at day 33 with approximately 35% of the birds being removed before the remainder are removed on day 38. The cleaning of the units and turn around period before the new crop is delivery usual takes 7 days, meaning that each cycle is approximately 45 days. This therefore leads to 8 crops per year.

The production cycle of standard broilers begins with cleaned and disinfected buildings before bedding is added, the buildings heated to the correct temperature and sufficient feed and water made available. Once the chicks are placed feeding input increases during the crop cycle, whilst heating requirements decrease.

At the end of the crop cycle the birds are collected at day 38 and the litter /manure is removed as per the existing regime. All spent poultry litter is transferred from the poultry houses to the adjacent AD plant storage building to the south of the site. There is sufficient capacity for the AD plant to take all the litter from the proposed and existing units.

The buildings are then washed down and prepared ready for the next crop of chickens. Including cleaning of the buildings each cycle will last about 45 days, which equates to 8 crops per year.

The law covering the welfare of broiler chickens is covered by The Welfare of Farmed Animals (England) (Amendment) Regulations 2010. This sets limits on stocking densities to include a maximum of 38kg/m2 where approved by the Secretary of State and the following conditions are met:

- That documents relating to the unit giving a detailed description of production systems and technical details of the house are maintained and available on request to the Secretary of State.

- The documents relating to the detailed description of production systems and technical details are kept up to date.

- Ensuring that each house is equipped with ventilation and, if necessary, heating and cooling systems designed, constructed and operated in such a way that –

i) The concentration of ammonia does not exceed 20 parts per million and the concentration of carbon dioxide does not exceed 3,000 parts per million, when measured at the level of the chickens heads;

ii) When the outside temperature measured in the shade exceeds 30 degrees, the inside temperature does not exceed the outside temperature by more than 3 degrees; and

iii) When the outside temperature is below 10 degrees, the average relative humidity measured inside the house during a continuous period of 48 hours does not exceed 70%.

The chickens will be grown for a food processing company that supplies chicken to the retail trade. In order to supply the retail trade, all farmers must, as a minimum, be members of the independently audited Red Tractor Farm Assured Chicken Scheme (formerly ACP). The scheme requires farmers to comply with strict management requirements such as stocking at a maximum of 38kg/m2. Some retailers now require the supply of 'Higher Welfare Chicken' (HWC), which includes those endorsed by the RSPCA Freedom Foods Scheme stocked to a

lower rate of 30kg/m2. However, as this is based on a 'worst case scenario' the higher stocking rate has been used to ensure the maximum stocking has been considered.

Before the chicks arrive the bedding is put in the buildings, which consist of wood shavings to a depth of around 2cm. The houses are warmed to a temperature of around 32 degrees at the beginning of the crop and is decreased to 21 degrees towards the end of the crop. The buildings will be heated via the on-site AD Plant with LPG as back-up. The temperature is reduced as the birds grow older and the ventilation rate conversely increases. The feed will be supplied by the processing company. It will be mixed according to the birds requirements at each stage of growth. The protein and phosphorous levels are reduced as the birds get larger. The water will be supplied by nipple drinkers, which offer water on demand but minimise spillage.

The birds are checked regularly and any mortalities removed on a daily basis. The dead birds will be stored in vermin proof containers to await collection by Animal health Approved contractors.

At the end of the production cycle, the birds are removed and transported to the processing site. The buildings then go through a thorough clean-out phase which involves dry-cleaning to remove organic material, wash down and disinfecting. The normal turn around period is around 7 days before the buildings can be re-stocked and the cycle starts again. The break between crops could be longer at certain times of the year such as Christmas or if clean-out is delayed.

2.3 The Built Development and Systems

The proposed poultry units will be of a portal framed construction with insulated box profile metal sheeting to the walls and box metal profile sheet roofs. The buildings will run in an east west direction.

The internal flooring will be a smooth, easily washable concrete floor on a damp proof membrane. The walls will be on a poured concrete foundation.

The roof construction typically consists of an internal steel box profile 'ceiling' with a minimum of 140mm but potentially up to 280mm fibreglass insulation between timber purlins with steel box profile sheeting external roof covering. Walls will be timber framed panels/battens with 100mm fibreglass insulation with external steel box profile sheeting.

The buildings will be insulated with fibre glass insulation to the walls and roofs to a U vale of <0.4 W/m2 degrees. This will eliminate condensation on the inner lining of the buildings and minimise any solar heat gain. The buildings will be ventilated by a computer controlled mechanical system.

The ventilation will be of a 'conventional' design with 23 roof mounted variable speed fans on the two larger units and 21 on the smaller unit. The fans will operate at a variable rate dependent upon the age of the birds. For the majority of the time (day-time and night-time) not all of the fans will be operating at the same time.

There will be a total of 8 feed bins situated to the front of the poultry units (eastern end) which are all accessible from the existing central yard. The feed bins will be 8.6m in height.

The poultry units will be heated via the on-site AD Plant.

Lighting on the site will be kept to a minimum to ensure the safe operation of the site but to reduce any light spill outside the unit. Each shed will have a low-wattage, low intensity light above the openings at the front of the units to allow safe working during normal working hours during the winter. The front of the proposed three units face the central yard where all activities will take place. As such it will only be the central yard where any lighting is required. There will be no use of high intensity lighting.

During hours of darkness the buildings will be lit internally to around 0.4 lux for bird welfare. As the buildings will be clad with high density metal profile sheeting there will be no light spill outside the building. The doors will be shut and windows shuttered at night to stop light escape.

A landscaping scheme will be implemented to help assimilate the development into the landscape and mitigate any adverse visual impact from the proposed development. This will also provide biodiversity benefits through the planting a new tress and hedgerows. The landscaping scheme has been informed by the Landscaping and Visual Impact Assessment prepared for the proposed development.

2.4 Site Construction

The poultry buildings are purpose designed for broiler production and generally take around four months to construct on site.

The buildings will be erected using specialist contractors with materials such as concrete and structural steelwork being imported on to the site. Steelwork will be erected using low loaders. The buildings will be fitted out by qualified electricians and plumbers.

To avoid causing disruption to local resident's construction will be limited to the hours of 07.00 to 18.00 Monday to Friday and 07.00 to 13.00 on Saturdays. No construction will take place on Sundays or Bank Holidays unless absolutely necessary. This will only take place with the consent of the Local Planning Authority.

2.5 Site Management

The management of the site will be overseen by the existing poultry manager and supported by existing staff who are suitably trained and experienced. The site operates 24 hours a day, 7 days a week as continual management and husbandry is required for livestock.

The feed will be mixed to the appropriate requirement at each stage of the production cycle. The feed will be blown from bulk feed Heavy Goods Vehicles (HGVs) into the feed bins and fed directly into the buildings. Nipple drinkers will be used with drip cups as they provide water on demand but minimise wastage. They also have benefits in terms of management, hygiene and odour control (due to the low spillages keeping the bedding dry).

The bedding will be wood shavings to a depth of around 2cm. This complies with the Red Tractor' Assurance Scheme Standards (formerly ACP) and will allow the floor to 'breathe'.

As previously stated all the chicken litter / manure from both the proposed and existing poultry units will be removed at the end of each production cycle and transported to the adjacent AD Plant.

In terms of drainage it is proposed to maintain the existing surface water run-off from the site in accordance with the Technical Guidance to the National Planning Policy Framework (NPPF) and good practices. The surface water from the proposed units will be discharged to the existing on site soakaway basin which has capacity to take the additional surface water.

Dirty water from the clean-out process will be collected through a dedicated sealed drainage system to underground dirty water tanks. These will be located underneath the central yard and be sized to adequately accommodate the volumes of water used in each production cycle. The dirty water will removed from the tanks and either spread in appropriate locations and conditions on the applicants holding or taken to third party land. When the cleaning out is taking place the dirty water and any contaminated rain water will be directed via drains into the dirty water tank.

A dry clean will take place to remove organic material before the sheds are washed down so there will be very little solid matter taken away with the wash water. The dirty water tanks will be of a size to ensure that they can take the volume of washings from the clean-out and also have the capacity to allow for any heavy rain falling on the outside yard areas. There will also be a level indicator to ensure that if the tank is becoming full it can be emptied using the farm equipment. The wash water will be diluted and have a low nitrogen content and can be spread at appropriate times of the year so does not need to be included in the calculation of nutrient loading for field applications. An isolating value will ensure that dirty water does not enter the clean water drainage system.

2.6 Environmental Controls

The existing poultry units already operate under an Environmental Permit (EPR/WP3334VW/V002). An application to vary this permit has been approved for the proposed additional three poultry units. This therefore allows for the proposed increase in bird numbers at the expanded site to be a maximum of 440,000 broiler birds per cycle.

The Environmental Permitting Regulations are regulated by the Environment Agency. This process requires a detailed assessment of the controls on air pollutants / air quality and also considers the impacts of ammonia on any ecological sites. The Environmental Permit (EP) aims to achieve integrated prevention and control of pollution arising from activities listed in Annex 1 of the European Council Directive 96/61/ED, leading to a high level of protection of the environment as a whole. It provides a system requiring operators and regulators to undertake an integrated, overall look at the polluting and consuming potential of the poultry development. Operators should take all appropriate preventative measuring against pollution, in particular through the application of best available technique enabling them to improve environmental performance. As well as the poultry units themselves, the EP will cover all

potential sources of emissions such as any back-up generators or oil storage facilities required.

Operating under an EP demonstrates that the site has demonstrated that 'best available techniques' will be used to minimise emissions to the receiving environment. This is defined in Article 2(11) of the European Directive as "the most effective and advances stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing the basis for emission limit values designed to prevent and, where that is not practicable, generally reduce emissions and the impact on the environment as a whole". The best available techniques to be applied to the poultry development are those set out in the European Commission's Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs known as the BREF document.

2.7 Energy Efficiency and Environmental Sustainability

The poultry houses will be constructed to high standards of energy and water efficiency. The houses will contain fibreglass insulation to reduce heat loss from the houses.

The new houses would use minimal energy through low level lighting, lighting movement sensors and would operate with greater environmental efficiency through the use of modern quality controlled equipment such as the proposed ventilation system.

The ventilation fans would be controlled by a temperature-controlled automatic system so that the number of fans operating at any one time depends on the monitored temperature. Therefore heating and cooling would be as required to maintain animal welfare levels and operations would be strictly monitored to avoid excessive energy use.

The drinker system will be fitted with drip cups to minimise wastage preventing excess moisture in the litter.

The poultry units will be heated via the on-site AD Plant.

Whilst natural resources are required for the new development the construction methods and systems briefly outlined above demonstrate that energy efficient and environmental sustainability can be achieve. The buildings will have a life of 40 – 50 years and most materials will be able to be recycled. The production of chickens from the site will for used in the UK, meaning that the requirement to import food will be reduced, therefore having sustainability benefits by reduced food miles and carbon foot-print.

2.8 Decommissioning

The site will be maintained during the lifetime of the development and materials not allowed to deteriorate so as to have the potential to cause contamination. The construction of the buildings will comply with all relevant legislation and standards and industry good practice. The impact of the decommissioning will be considered during the design and construction phase.

Before operations cease at the site, a Site Closure and Restoration Plan will be prepared. This will ensure that the site is decommissioned in an appropriate manner and restored to its former state. Much of the building material, particularly the concrete and metal, should be recyclable depending on market conditions and regulations at the time. The Site Closure and Restoration Plan will be prepared in consultation with the Environment Agency.

3 THE NEED FOR THE DEVELOPMENT

The combination of a growing population and increasingly affluent consumers, means that demand for food in the UK is increasing considerably.

The British Poultry Council's recent document, 'Economic Impact of the British Poultry Meat Industry 2015' states that "The UK poultry meat industry is estimated to support a £3.6 billion gross value added contribution to GDP through its direct, supply chain and wage consumption impacts".

The industry continues to grow to meet the demand of home grown produce and suppliers require sites. In response to this, a number of poultry enterprises have been developed at different locations around the UK including Herefordshire during recent years.

The continued growth of the UK poultry sector has made an important contribution to the UK poultry meat production capacity and the proposed expansion of the existing poultry enterprise at Milton Farm is part of this process. This is part of the development of the industry to bringing us closer to being self-sufficient in poultry meat in the UK and reducing the need to import meat, reducing greenhouse gasses from fossil fuel in transportation and other associated pollution.

4 ASSESSMENT OF ALTERNATIVE SITES

As previously stated there are five existing poultry units and an AD plant at the site plus other on-site infrastructure including an access road, concrete yard and soakaway basin. Given this situation and fact that the site forms part of the former airfield it was considered appropriate to expand the poultry enterprise.

Expanding the existing site is considered to be the best option rather than erecting three new poultry buildings on a completed new green field site. The proposed units will benefit from all the existing on-site infrastructure and will be built directly off the existing concrete yard. All poultry litter can be accommodated on the on-site AD plant and surface water can be directed to the on-site soakaway basin.

It was considered that any additional poultry units should be located to the west of the existing building as this would occupy land between the existing access road and built development rather than extending the site further north. A new northern boundary is in the process of being established to screen the existing units and this can be extended to also help screen the proposed buildings.

If the proposed units were built on a completed new site it would also be necessary to provide much of the infrastructure referred to above. The existing site also benefits from being approximately 450m from the nearest residential premises.

In conclusion it is considered that expanding the existing poultry site, which will utilise existing on-site infrastructure is the best and most appropriate option. It is also understood that the existing site has not generated any complaints.

5 PLANNING POLICY

5.1 National Planning Policy

5.1.1 Overview

The National Planning Policy Framework (NPPF) was published on 27 March 2012. The Framework replaces most former planning policy statements and guidance notes and is a key part of Government reforms to make the planning system less complex and more accessible, emphasizing sustainable development and planning for prosperity.

At the heart of NPPF is a presumption in favour of sustainable development, which should be seen as a golden thread running through both plan-making and decision-taking. Sustainable development proposals that accord with the development plan should be approved, without delay.

Paragraph 7 of the NPPF states that there are three different dimensions to "sustainable" development: economic, social and environmental. In the context of this application these three dimensions are considered below:

5.1.2 Economic Role

Paragraph 17 of the NPPF sets out a number of core planning principles which should underpin both plan-making and decision taking. Amongst these core principles is an objective to "proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local place that the country needs." Importantly it is stressed that "every effort should be made objectively to identify and then meet the business needs of an area".

Chapter 3 of the NPPF is dedicated to "supporting a prosperous rural economy", stating that planning policies should support economic growth in rural areas by taking a positive approach to sustainable new development. In promoting a strong rural economy, local plans should promote the development and diversification of agricultural and other land based rural businesses. Paragraph 19 of the NPPF states that "significant weight should be placed on the need to support economic growth through the planning system".

The applicant is a well-established farming business, which is looking to expand their existing poultry enterprise. In addition to helping to meet the demand for British chicken meat; the proposed development will help to preserve the viability of the business for future farming generations. In our professional view the proposed development complies with the national planning policy outlined here and weight should be given to the need to support such rural businesses, particularly in ensuring their longevity through sustainable reactions to farming markets.

5.1.3 Social Role

Paragraph 7 of the NPPF states that "development should support strong, vibrant and healthy communities….with accessible local services that reflect the community's needs and support its heath, social and cultural well-being".

Agriculture plays a significant role in the vibrancy of local communities across Herefordshire, performing a social function as well as an economic function. The farming community is a key part of community life and cohesion in our rural villages and towns. In addition, agriculture provides a key source of employment for local people, particularly in peak seasons such as the autumn harvest.

The proposed purpose built buildings will help to ensure that the farming business remains viable for future generations. A successful and growing business will also add value to the local economy and supply chain by creating further employment and wealth. As such, the proposed development should be supported.

5.1.4 Environmental Role

Paragraph 7 of the NPPF states that; "development should contribute to protecting and enhancing the natural, built and historic environment and, as part of this, helping to improve biodiversity, use natural resources prudently, minimise waste and pollution, and mitigate and adapt to climate change including moving to a low carbon economy".

In this instance the proposed development site is located outside any environmentally designated areas to included Areas of Outstanding Natural Beauty and Sites of Special Scientific Interest, although it is recognised that the site is within 2km of six Local Wildlife Sites, three of which are also designated as Ancient Woodlands. There are also three SSSI's within 5km. As such, full consideration has been given to the potential impact of the development on these sites.

It is considered that the existing landscape is capable of accommodating the development and additional mitigation works will further reduce any impact. Overall, the Landscape and Visual Impact Assessment concluded that following mitigation measures (additional woodland tree planting along the northern boundary) there would be no significant residual effects.

The proposed poultry units will be located on agricultural land understood to be Grade 2. Whilst it is recognised that planning policy seeks to protect the best agricultural land the site will remain in agricultural use and food production. The level of food production will be increased with the proposed development and in these circumstances the loss of this arable land is considered acceptable.

In light of the information provided above, it is our professional view that the proposed development complies fully with the policies contained within the NPPF. The proposed development makes a sustainable contribution to Herefordshire's rural economy and farming community, expanding an existing and well established agricultural business.

5.2 Local Planning Policy

5.2.1 Herefordshire Core Strategy

The Herefordshire Core Strategy (HCS) was adopted on 16th October 2015. The most relevant policies in respect of this application would appear to be RA6, SS5 –SS7, LD1-LD4, and SD1-4.

Policy RA6 – Rural Economy

This policy offers a broad-brush approach to the rural economy, supporting farming and expansion in principle, subject to appropriate environmental protection and mitigation.

The proposal presents a means for the applicant to expand the existing established business, which will in turn will support the local supply chain. It is considered to be appropriate in scale, (given the nature of the intensive poultry industry and the need for economic viability) and in its setting is also considered to be acceptable being well screened from views from the south, east and west of the site in particular. Any impacts will be further reduced with the proposed mitigation measures of additional woodland tree planting along the northern boundary.

Having regard to residential amenity the submitted technical reports, particularly those in respect of noise and odour demonstrate that the proposed development would not cause unacceptable adverse impacts to nearby residents, the nearest of which are located approximately 450m from the site. It is also considered that although there are some commercial premises (Kingspan) where people work approximate 75m south of the units at their closest point there will be no significant impact on their amenity.

Cumulative impacts of other poultry sites and known developments have been taken into consideration during the technical assessments and these reports form part of the Environmental Statement.

The impact of the proposed development has been considered within the submission documents and demonstrate that the proposal would not cause unacceptable adverse impacts to the amenity of nearby residents and workers by virtue of design, noise, dust, lighting and odour.

Policy SS5 – Employment Provision

This policy recognises that "land-based industries are seen as a strength of the county since they foster other business enterprises" and therefore, the policy states specifically that the "continuing development of the more traditional employment sectors such as farming and food and drink manufacturing will be supported".

It is suggested that the proposal represents a positive direct contribution to agricultural employment but more significantly represents a much larger means of supporting other local businesses and its employees. Implementation of the proposed development would represent a significant financial investment a large proportion of which is likely to support local suppliers, contractors etc. The operation of the units will also support other local suppliers. This support to the local economy helps support business, and safeguard and create jobs.

Policy SS6 – Environmental quality and local distinctiveness
This policy requires proposals to "conserve and enhance those environmental assets that contribute towards the county's distinctiveness" particularly where designated sites are affected and in terms of biodiversity improvements. It urges an "integrated approach", based on information to assess potential impacts on a variety of environmental components.

There are no designated sites affected by the proposals and mitigation measures are proposed that would help to protect and enhance the landscape and biodiversity of the site.

It is considered that the proposal is in compliance with this policy and the applicant is happy to provide such protection, mitigation and enhancement measures that are recommended in the Ecological Assessment and Landscape Plan.

The proposed woodland tree planting on the northern boundary of the site will help enhance the biodiversity value by providing habitat for various species.

Policies LD1 to LD4
These policies focus on the need to demonstrate that the landscape and biodiversity of the site and its surroundings have influenced matters such as site choice and design. They seek to protect and enhance geodiversity, biodiversity and habitats, with particular reference to designations and European Protected Species. Policies LD3 and LD4 are concerned with Green Infrastructure and Heritage Assets.

It is considered that the submitted Landscape and Visual Impact Assessment; Landscape Plan and ecological mitigation and enhancement measures demonstrate that the proposal is capable of meeting the relevant sections of these policies.

As stated above there will be additional woodland tree planting to create a strong northern boundary which will help enhance the biodiversity value of the site by providing habitat for various species.

The proposed development will not physically impact on the public right of way which is located to the west of the proposed units. In addition, any noise, odour, ammonia or dust will not adversely affect users of the footpaths. The emissions levels are low and any users of the footpaths are passing past the site rather than being static for longer periods.

Policies SD1 to SD4
These policies relate to;

- Sustainable design and energy efficiency
- Safeguarding residential amenity
- Renewable and low carbon energy generation
- Sustainable water management and water resources
- Wastewater treatment and river water quality

Policy SD1

The poultry houses will be constructed to high standards of energy and water efficiency. The houses will contain fibreglass insulation to reduce heat loss from the houses.

The new houses would use minimal energy through low level lighting, lighting movement sensors and would operate with greater environmental efficiency through the use of modern quality controlled equipment such as the proposed ventilation system.

The ventilation fans would be controlled by a temperature-controlled automatic system so that the number of fans operating at any one time depends on the monitored temperature. Therefore heating and cooling would be as required to maintain animal welfare levels and operations would be strictly monitored to avoid excessive energy use.

The drinker system will be fitted with drip cups to minimise wastage preventing excess moisture in the litter.

The poultry units will be heated via from renewable energy produced from the on-site AD plant, which in turn will be partly fuelled by the poultry litter produced from the site.

Whilst natural resources are required for the new development the construction methods and computerised mechanical systems to be used demonstrate that energy efficient and environmental sustainability can be achieve. The buildings will have a life of 40 – 50 years and most materials will be able to be recycled. The production of chickens from the site will for used in the UK, meaning that the requirement to import food will be reduced, therefore having sustainability benefits by reduced food miles and carbon foot-print.

Policy SD2

The submissions made within the application, (including the Odour Modelling Assessment and Noise Assessment which form part of the Environmental Statement) confirm that the development would safeguard residential amenity and would not cause unacceptable adverse impacts from odour, noise, light or air contamination or cause ground water pollution.
Policy SD3 relates to flood risk. The site is within flood zone 1.

An appropriate means of dealing with surface water run-off from the proposed development is proposed with the use of the existing on-site attenuation pond.

There are no significant impacts associated with the development in relation to drainage or flood risk.

An Environmental Permit has also been granted for the additional three poultry units. The Permit controls potential pollution sources including those referred to above.

Policy SD4

This policy concerns waste water treatment and river water quality. Dirty water from cleaning the poultry units will be collect in a sealed system and stored in an underground tank. This

dirty water will be taken off-site to be spread on farmland on the applicant's farm holding or third party farmland in appropriate conditions. The spreading of such dirty water on farmland is permitted provided that it is done in the correct way. DEFRA guidelines on spreading dirty water and manure is contained within the Nitrate Pollution Prevention Regulations 2015 so must be adhered to. DEFRA and the Environment Agency can sanction and potential prosecute those who do not comply with the regulations or pollute watercourses.

As previously stated all poultry litter produced from both the existing and proposed units will be taken to the on-site AD Plant. The resultant digestate will be spread on the farm holding in appropriate conditions as per the manure management plan, DEFRA guidelines and Nitrate Pollution Prevention Regulations 2015.

Clean surface water from the site will be discharged into the on-site attenuation pond which will filter out any particulates before soaking away. This sustainable system of reducing the surface water run-off rate and filtrating the clean water will ensure that local watercourse and designated protected rivers are protected.

The proposed poultry units do not require any foul water services and existing facilities are already available on-site.

5.3 Conclusion

It is considered that the scheme complies with the relevant policies of the Herefordshire Core Strategy and the broader policy objectives of the National Planning Policy Framework.

This is primarily because the site provides a suitable location for the size and scale of the proposal. Furthermore, as confirmed by technical reports, the proposed development is located a sufficient distance away from residential properties to prevent any harm to residential amenity or workers amenity.

Dirty water and clean surface water will be collected and attenuated to ensure that there is no negative impact on local water courses or rivers. The proposed landscaping will limit any impact on the landscape and limit visual impact. The proposed ecological mitigation and enhancement measures will ensure that no protected species are harmed and that the ecological and biodiversity value of the site and surrounding area is improved.

In our professional view significant weight should be given to the necessity to support and grow the rural agricultural economy which should be read in conjunction with Chapter 3 of the NPPF.

6 AIR QUALITY, HEALTH AND CLIMATE

6.1 Potential Air Quality, Health and Climate Effects of Poultry Buildings.

The main issue in relation to air quality, health and climate from poultry buildings is from the ventilation fans.

There is also potential for the development to affect air quality in the following ways:

- Dust generated during site construction - this is covered in full in Chapter 13 Amenity
- Dust generated from feed delivery – this is covered in full in Chapter 13 Amenity
- Airborne pollutants from extraction fans
- Potential for odour generation from the production, storage and application for poultry manure- this is covered in full in Chapter 13 Amenity and Chapter 11 Odour
- Emissions of Carbon Dioxide from fossil fuel sources of carbon which can affect climate change

The existing poultry site operates under an existing Environmental Permit from the Environment Agency. This permit has been varied to include the proposed additional three poultry units and as such the issued permit allows for the placing of up to 440,000 broiler birds per cycle. The Environmental Permit acts to regulate all of the operations in association with the poultry enterprise and provides assurance that the proposal would not pose an unacceptable risk to residential amenity. Furthermore, the Permit is enforceable by the Environment Agency.

6.2 Consultation and Legislation

6.2.1 Habitat Regulation Assessment

The application will be considered under the Habitat Regulation Assessment process in order to satisfy the Local Authority duty to adhere to the Conservation of Species & Habitats Regulations 2010 (known as the Habitats Regulations).

Natural England will be formally consulted on this planning application and the Local Planning Authority must have regard to their representations when making a planning decision. Planning permission can only legally be granted where it can be concluded that the application will not have any likely significant effects on the integrity of any European Designated site.

Dust generation and odour are covered in Chapters 11 and 13, and traffic implications are fully considered in Chapter 8 Highways.

Impact from ammonia and carbon monoxide has been covered below:

6.2.2 Ammonia Emissions

As part of the application to vary the Environmental Permit the Environment Agency assessed the ammonia impacts from the proposal to house a total of 440,000 broiler birds per cycle. The assessment confirmed that ammonia screened out and therefore detailed modelling would not be required.

The screening assessment has considered any Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites within 10km; any Sites of Special Scientific Interest (SSSI) within 5km and also any National Nature Reserves (NNR), Local Nature Reserves (LNR), ancient woodlands and local wildlife sites (LWS) within 2km of the farm.

A copy of the Environment Agency's ammonia screening assessment is attached at Appendix 3.

6.2.3 Carbon Dioxide

The proposed poultry development will result in very low emissions of carbon monoxide. Most carbon monoxide emissions associated with poultry houses are from the fuel used to heat the buildings. However, the buildings will be heated via the on-site AD plant. The buildings are well insulated and temperatures monitored so that the sheds are only heated when required, therefore preventing unnecessary heating.

Any carbon dioxide emitted from the poultry development would also be off-set due to the reduction in emissions from transporting poultry meat from elsewhere. Increasing the amount of home produced poultry meat will reduce the need for importing meat from abroad and hence help to reduce the level of transportation required.

6.2.4 Dust

The threshold criteria for PM10 in relation to poultry farms is where housing is in excess of 400,000 birds (if mechanically ventilated) and exposure within 100m from the poultry units. The proposed development will result in a total of 440,000 broiler birds being place at the site. The nearest residential property is over 400m from the poultry units. However, there are commercial premises (warehouse and office) at Torvale Industrial Estate (Kingspan) approximately 75m south at their nearest point to the poultry units where people work. As

these are places of work they are considered to be less sensitive receptors than a residential property.

However, a screening assessment has been completed using the DEFRA LAQM screening tool for PM10's. This has assessed the nearby working premises at Torvale Industrial Estate (Kingspan). The results are provided in the table below, which shows the calculated total 90.4th percentile daily mean PM10 concentration of 26.7ìg/m3 is below the 24-hour mean PM10 objective limit value of 50ìg/m3 for England.

Defra LAQM PM10 Screening	
Number of Chickens	440000
Distance to receptor (m)	75
Background Concentration (µg/m^3)	13.26058
PC (µg/m^3)	**26.70287**

The proposal is therefore below the threshold and as such no further assessment is required. It should also be noted that an Environmental Permit has been issued by the Environment Agency for the proposed expansion of the poultry operation at the site.

6.3 Conclusion

The nature of the receptors, nature of the development and environmental controls built into the development mean that emissions to air will not have a significant effect on air quality or the health of local people or designated wildlife sites. No further mitigated measures are therefore considered necessary.

7 LANDSCAPE AND VISUAL IMPACT ASSESSMENT

7.1 Introduction

Haire Landscape Consultants have assess the landscape and visual effects of the development. The assessment was carried out by Michael Haire, who is a Chartered Landscape Architect. The assessment was carried out in winter conditions in March 2017. The Landscape Statement is attached at Appendix 4.

7.2 Methodology

The landscape statement is based on an assessment in line with the Guidelines for Landscape and Visual Impact Assessment Third Edition (Landscape Institute & Institute of Environmental Management and Assessment).

Herefordshire Council (HC) as the 'Competent Authority' has not asked for a full Landscape and Visual Impact Assessment but has advised that the application should be supported by a Landscape Statement which should include detailed landscape plans. These should illustrate any existing mitigation in place as well as that proposed as part of any submission. The extension of the coppice which currently bounds the gravel pits, and the site to its north easterly corner, would serve to filter views of the site from the north. It would also offer the potential to act as a green corridor and would enhance biodiversity in the area, complying with policies LD3 and LD4 of the Core Strategy'.

This 'brief' has influenced the exact method employed by the landscape assessor and the scope of the study. As set out in GLVIA 3rd edition (3.11) any assessment should be proportionate to the size of the development. Given the nature, extent and context of this development a relatively basic assessment was undertaken.

The proposals were reviewed following initial field assessments to address the issues raised by the LPA and landscape mitigation measures were designed. The assessment was carried out based on these measures being implemented as part of the scheme.

Desk based study: this was undertaken to establish the context of the assessment and an outline of the landscape character and the visual baseline.

The Herefordshire Local Plan - Core Strategy (2011-2031) and Landscape Character Assessment Supplementary Planning Guidance (SPG) (2009) were consulted as was an earlier consultation response from HC.

Maps and aerial photographs were consulted to confirm the landscape description identified in the SPG and to understand the context of the site. This exercise also allowed the identification of areas from which the proposed development is likely to be visible in advance of undertaking fieldwork and the relative positions of potential receptors and screening elements.

Field work: this was undertaken to confirm the baseline landscape character and visual baseline. This was carried out by making field observations in good weather from locations around the site and from public footpaths and roads in the surrounding area.

The areas where it is expected that the development will be visible were identified during the desk study and initial site visit to establish a draft Zone of Visual Influence.

The assessment allows for seasonal changes to vegetation cover.

The visual assessment compares the quality of the existing view with the anticipated view on a summer's day 15 years in the future (2032), when the mitigation planting has become established.

7.3 The proposal site and its setting

The site is adjacent to an existing poultry facility, which lies to the east. This comprises five sheds and associated roads and hardstanding, and an anaerobic digester (AD) plant to the south. These structures are coloured dark green and lie immediately to the north of an extensive complex of industrial buildings (Kingspan).

The site and surrounding land is flat at around 98m AOD, with Shobdon airfield lying to the north and northwest and a complex of gravel pits extending for some 600m to the east. The part of the runway immediately to the north of the site is not used for aviation and piles of logs and organic matter were present at the time of assessment.

The gravel pits area is bordered with mature Black Poplar and there are significant areas of deciduous woodland and open water within this area. Lines of mature Cypress trees line the northern boundary of the industrial complex including both sides of the access road to the poultry facility and AD plant. There are areas of scrubby vegetation elsewhere around the

perimeter of the Kingspan complex. There is no vegetation close to the existing poultry complex or AD plant.

The flat land is associated with the broad valley of the river Arrow, which runs to the south of the site. To the north and west the land rises, ultimately to Shobdon Hill (326m) and Wapley Hill (329m) although these features are 3.5km distant from the site. Closer to the site the land rises to around 145m at the village of Shobdon. The sloping land north of the airfield comprises large arable fields separated by established hedges and small areas of woodland. The area of the sloping land closer to Shobdon village supports extensive orchards.

A minor road climbs gently from Milton Cross to Shobdon with another minor road extending from the crossroads to the entrance to the industrial estate and then south across flat land to the village of Pembridge.

Several houses are situated along these minor roads including Milton House (owned and occupied by the applicants) and isolated dwellings to the west of Shobdon. There are three houses close to the site entrance, due east of the development.

The Proposal

The proposal is for the addition of three poultry buildings and associated access infrastructure. These will be situated to the west of the existing poultry site, occupying an area of land between the existing five units and the north-eastern edge of the Kingspan factory site. The poultry buildings will measure 6m to the ridge, as do the existing buildings with the floor areas:

- 2 poultry buildings: 110.1m x 24.6m
- 1 poultry buildings: 97.9m x 24.6m

The units will be of standard construction and consist of steel-framed, fully- insulated buildings. The buildings will be clad externally with profiled sheeting coloured to match the existing buildings.

Access to the proposed additional poultry buildings will be via the existing track which leads from the private industrial road that connects to the C1032 (between Milton Cross and Pembridge) via the main Kingspan entrance.

The landscape mitigation proposals comprise a belt of mixed mainly deciduous woodland along the northern boundary and part of the western boundary of the proposed development (refer to Figure 2 in the appended Landscape Statement).

The planting belt will be substantial, being 5 metres deep. It comprises a mixture of medium and tall growing trees and includes small proportions of Poplar and evergreens to reflect the character and form of the surrounding plantations. The planting will be made up of a number of blocks of differing widths and species composition so that the established scheme will retain some visual interest in views from the north.

The marginal areas will be sown with wildflower grassland mix and managed to maximise species diversity.

7.4 Review of relevant Herefordshire Council Planning documents

Two documents are of particular relevance:

- Herefordshire Local Plan - Core Strategy (2011-2031)
- Landscape Character Assessment Supplementary Planning Guidance (2009)

Core Strategy (5.3 Environmental Quality)

The Environmental Quality section includes policies to support Local Distinctiveness. These are:

- LD1: Landscape and townscape
- LD2: Biodiversity and geodiversity
- LD3 Green infrastructure
- LD4: Historic environment and heritage assets

The proposal complies with these policies as detailed in the Landscape Statement at Appendix 4.

Supplementary Planning Guidance (SPG) and Design Rationale

The proposed development site lies within the 'Principal Settled Farmlands' character area.

The landscape character described does not recognise the presence of large industrial complexes within the predominantly agricultural landscape of Principal Settled Farmlands. Given the peculiar characteristics of this site within its context it must be considered an 'untypical site' as discussed in section 6.3 of the SPG. As advised here, the SPG 'does not replace the need for detailed site analysis and evaluation'. The landscape character description, forces for landscape change and management guidelines have been considered in the development of the mitigation proposals.

The site is located on the edge of an extensive industrial area and there is currently no defined boundary with the adjacent arable land. Although the land to the north comprises rich, arable

fields extending up the hill to the minor road west of Shobdon, this area is itself affected by the presence of the airfield and in particular the disused section of runway close to the site.

Apart from the area of orchards immediately to the south of Shobdon and north of the airfield buildings the existing planting around the site is not typical of the Principal Settled Farmlands landscape character type. The area is dominated by the formal lines of mature Poplars that surround the gravel pits, and the mature Cypress trees that line the approach road to the site. To the north, the small blocks of trees in the hedgerows that descend the slope and around Milton House contain a significant proportion of evergreen trees.

The landscape proposals will establish a strong and appropriate new 'edge' to the development. This will include tree species that are native to the area as well as a small proportion of Poplar and evergreen species to reflect the surrounding landscape character. The proposed scheme will also introduce biodiversity value and will contribute to green infrastructure.

7.5 Landscape effects

The landscape impacts resulting from the development will be the loss of an existing area of flat arable field and the impact on the landscape setting, which is part of the 'Principal Settled Farmlands' Landscape Character Area. As described in the preceding text, the area around the site displays very few of the characteristics identified as being typical of this landscape type.

The landscape impacts must be considered against the baseline of the existing poultry development at the edge of an established industrial complex.

The impacts considered include the construction of the sheds and the mitigation planting which will establish a new boundary between the industrial area and the adjacent arable landscape.

The assessment is based on the scheme with landscape mitigation measures established (15 years)

The landscape effects are assessed against the following tables which form part of the Landscape Statement at Appendix 4;

- Table 1: The Sensitivity of the Landscape Character and Views
- Table 2: The Magnitude of Predicted Change to Landscape Character and Views
- Table 3: Significance of Landscape and Visual Effects

The landscape setting can be said to be of **low sensitivity**.

The magnitude of the proposed change can be said to be **low**

Given that the proposed development will establish a new and appropriate woodland edge to the large industrial complex, and being of low sensitivity and low magnitude, when assessed against Table 3, the scheme can be said to have a **slight beneficial** effect.

7.6 Visual Effects

The visual impacts resulting from the proposed development are as follows:

- The construction of three more poultry buildings with feed hoppers (very similar in appearance to the existing development)

- The establishment of a strip of woodland between the development and the arable field to the north

The visual effects of the proposed development were assessed by making field observations from publicly accessible places and from locations that are visible from the site.

Receptors

The potential receptors of visual impacts are residential properties in the surrounding countryside and people using the nearby roads and public footpaths.

The potential visual receptors are identified in Fig. 1 in the Landscape Statement at Appendix 4.

Views from residential properties

There are very few residential properties that are sufficiently close and appropriately located to be receptors of visual impact. Because of the topography and the distribution of buildings (especially the existing industrial estate), hedgerows, trees and woodland, views are often obscured.

An oblique view towards the development will be possible from locations around the group of (3) houses located to the west of the site, close to the existing Kingspan site entrance. These dwellings are 500m distant from the development site. The gable end of one of the existing buildings is visible from this location although an existing non-residential building close to the road obscures most views.

Views of the development from this location will include the gable ends of two of the new buildings. The woodland planting as part of the landscape mitigation measures will obscure this view in time, effectively extending northward the existing woodland along the northern edge of the industrial estate. This will also have the effect of obscuring existing views of large industrial buildings associated with the airfield (1.4km distant).

It is unlikely that views of the development will be possible from Milton House (owned and occupied by the applicants) (750m distant) because it faces south west, away from the site and because of intervening vegetation (trees) close to this potential receptor. It is likely that views of parts of the development will be possible from locations within the grounds of this house although there is a block of woodland some distance to the south east that will also provide some screening.

Where views exist, the existing poultry development will be visible and the extent of this group of buildings will be extended by the new development. The mitigation planting will grow up and obscure both the new and existing buildings in time.

There is a bungalow (owned by the applicants) located 250m to the east of Milton House, on the north side of the minor road. Although this dwelling faces the site, its position on the north side of the road with the intervening roadside hedges and landform reduce the potential visual

impact of the proposed development. The mitigation planting will obscure both the new and existing buildings in time, effectively extending the woodland around the gravel pits to link up with the trees along the access road.

Further to the east, views of the development will be possible from the house that lies at the western edge of Shobdon village. This detached house is situated at the southern edge of its plot and faces towards the site from an elevated position. The existing view from this location is of the wooded gravel pits complex, with the existing poultry sheds, the AD plant and the Kingspan factory situated to the right.

The extension to the poultry facility will be very visible from this location but the proposed mitigation planting will grow up to obscure the new buildings and much of the existing development in time. The new planting will effectively link the gravel pits with the trees that line the access road, forming a complete belt of woodland around the northern edge of the complex of large buildings and this will be a beneficial change.

Two other houses lie immediately to the east of this dwelling but these are situated on the road side (northern) edge of their plots and so do not have the open view towards the site because of the landform and because of trees and shrubs in the gardens.

Views from dwellings closer to the centre of Shobdon are at least partially obscured by either landform or vegetation (including orchards) or both. The roofs of the existing sheds, AD plant and factory are visible from locations close to the shop and playground in the centre of the village. These views will be reduced slightly in time by the mitigation planting.

Views from highways

Two public roads are potentially affected by the proposed development. These are the road that runs east towards Shobdon from Milton crossroads and the road that runs south from Milton crossroads towards Pembridge.

The views from these routes are in places variously obscured by hedgerows, trees and landform but some views do exist towards the site. As described in relation to the dwellings situated along these roads, the existing poultry sheds and the AD plant are visible, as is the Kingspan factory. The Poplar dominated tree growth around the gravel pits dominates the eastern part of most views.

The proposed development will be as visible as the existing sheds in places where the latter are currently seen and the amount of visible arable field will be reduced. In all cases, the mitigation planting will obscure both the proposed and the existing buildings in time.

Views from public rights of way

There are two public footpaths from which the development will be visible. One of these runs north from the public road close to the entrance to the Kingspan factory, to a point on the public road immediately to the west of Milton House. The other runs through the western edge of the Kingspan factory complex, north-eastward to Shobdon.

The proposed development will be visible from both of these routes and in particular the latter, which runs within a few metres of its western edge.

The visual issues remain the same i.e. the baseline is an established industrial/agricultural facility with trees containing it on either side. The proposal will be visible but will be mitigated effectively by the proposed tree planting which will also mitigate the effects of the existing structures.

7.7 Conclusion

The proposal site is intimately associated with an existing industrial/agricultural complex in an area of Herefordshire that is itself unusual because of the presence of the airfield.

The landscape baseline varies from the landscape character type described in the SPG and comprises a unique 'pocket' of flat landscape that is of low sensitivity.

The scheme complies with guidance in SPG (untypical sites) and supports the core strategy of the Local Development Plan.

The receptors of visual impact are situated to the north and west of the site and the visual baseline is dominated by the existing buildings of the industrial/agricultural complex. The proposed scheme is consistent with the dominant adjacent land use and will occupy an area of flat farmland that is currently partly enclosed by these industrial land uses.

The landscape mitigation measures proposed will complete a 'wooded' northern edge to the industrial/agricultural complex and in time this will benefit the landscape setting by providing an appropriate edge to the remaining arable fields. It will also contribute to green infrastructure by providing a corridor of mainly deciduous woodland and marginal grassland that will link existing woodland areas.

The planting scheme will also be effective in mitigating the visual impact of both the existing and proposed development on receptors situated to the north and west.

As such the proposed development with mitigation is not considered to result in significant impacts on the landscape character or result in significant visual impacts.

8 HIGHWAYS

8.1 Introduction and Methodology

David Tucker Associates (DTA) have produced a Transport Statement (TS) which is attached at Appendix 5. The TS assessed the impact of the proposed 3 No. additional poultry units at Milton Farm, Pembridge. Planning permission was consented in 2014 for 5 No. poultry units at the site, which are fully operational.

The TS has been prepared in accordance with the NPPF and the Guidance on Transport Assessments (GTA) issued by DfT. Although the GTA document has been withdrawn, the methodology and guidance it contains is still relevant. The NPPF states that all developments that generate significant amounts of movements should be supported by a Transport Statement or Transport Assessment.

As such the TS includes the following information:

- Details of the existing conditions including:
  - Description of the current physical infrastructure and characteristics of the site and its surroundings; and
  - Baseline transport data including traffic flows and speed.
- Details of the proposed development including:
  - The scale, design layout and access arrangements for the development proposals;
  - Details of vehicular trip generation and impact.

The TS considers the potential transport and highways impact of the proposals including the impact of the development generated traffic on the capacity and safety of the surrounding road network. The report concludes that the proposals will have no adverse impact on the safety or capacity operation of the surrounding road network.

8.2 Existing Conditions

Site Description

The development site is located at Milton Farm, approximately 1km south of the village of Shobdon and 2km north north-east of the village of Pembridge.

Torvale Industrial Estate, comprising the Kingspan factories and other businesses, is located to the south of the site. The Shobdon Gravel Pit is located to the east of the site and Shobdon Airfield is to the north.

Surrounding Road Network

The site is accessed off the existing private industrial road that connects to the C1032 via a simple priority T-junction (between Milton Cross and Pembridge), using the main Kingspan entrance.

The C1032 is a single carriageway rural road with two-lanes. It has an approximate carriageway width of 6.5m at its junction with the existing Kingspan access road and is derestricted. Approximately 500m to the south of the C1032/ Kingspan access junction there is a 17 tonne weight restriction in force.

To the north-west of the C1032/ Kingspan access junction, there is a staggered crossroads which hatched overrun areas to facilitate HGV movements. To the south, access is provided from the C1032 towards Pembridge, Kington and Lyonshall, as well as to the A44 for HGV traffic. To the north, access is provided towards Shobdon and is signposted for 'All other routes' for HGVs. To the west, the C1032 is signposted as being unsuitable for HGVs.

Existing Traffic Flows

To understand existing traffic movements along the C1032, a 7-day automated traffic count (ATC) was undertaken between 25/03/17 and 31/03/17, and a summary of the five day weekday average flows is provided in the table below.

	Total Vehicles	HGVs	%HGV
Northwestbound	910	117	12.8%
Southeastbound	880	126	14.3%
Two-way	1790	243	13.5%

It can be seen in the table that HGV movements constitute between 13-14% of total vehicle movements. During the period of 25th to 31st March, there were 6 HGV feed deliveries to Milton Farm.

Existing Vehicle Speeds

The average and 85th percentile speeds for the C1032 based on the ATC data are summarised in below.

Summary of Average and 85th Percentile Speeds

	Average Speed (mph)	85th Percentile Speed (mph)
Northwestbound	45.0	52.8
Southeastbound	46.4	54.8

Personal Injury Collision Review

Herefordshire County Council (the County Council) was contacted to obtain the most recent 5 year personal injury collision (PIC) data for the local road network. The County Council confirmed that no PICs had been recorded within the area between 01/01/2012 and 31/12/2016. It is therefore concluded that there are no existing highway safety issues that would need to be addressed as part of the current application.

8.3 Traffic Generation

Existing Development Traffic Generation

The existing development comprises of 5 No. poultry unit buildings and produces 278,000 birds (55,600 birds per building).

The poultry houses are used for the rearing of broiler chickens from one day old chicks, through to their finished weight (38 days). They are then manually caught within the building and loaded into modules, which are then lifted onto HGV's for transportation to the processors.

The existing poultry units operate on an 11 hour basis between the hours of 07:00-18:00 for the majority of the flock cycle. During catching and the bird removal the poultry unit operates between the hours of 02:00 and 15:00.

Between flocks the buildings are cleaned and disinfected ready for the incoming birds. This takes place for 7 days once all of the birds have been removed. Following the removal of the manure, the building is washed with high pressure hoses. The inside of the buildings is drained into an underground dirty water containment tank. All dirty water from here passes into the AD Plant and/or emptied by vacuum tanker.

Spent litter (poultry manure) is removed mechanically and loaded onto sheeted trailers and transported to the on-site AD storage building. From here it provides feedstock to the AD Plant, and once digested is used as a sterile, odourless fertiliser on the applicant's arable land. Some dirty water from the cleaning out process is fed into the AD Plant. The renewable electricity, generated by the AD Plant, is also used for the poultry houses.

A breakdown of the existing vehicular movements from the site during the flock cycle is summarised in Table 3 below.

Table 3 – Existing Traffic Generation during a Flock Cycle

	Day	HGV Movements		Small Vehicle Movements	
		No. HGVs (two-way)	Purpose	No. Small Vehicles (two-way)	Purpose
Crop	1	8	Chick and Feed Delivery	2	Workers
	2	0		1	Worker
	3	0		1	Worker
	4	0		1	Worker
	5	3	Feed Delivery	1	Worker
	6	0		1	Worker
	7	0		1	Worker
	8	0		1	Worker
	9	0		1	Worker
	10	3	Feed Delivery	1	Worker
	11	0		1	Worker
	12	0		1	Worker
	13	2	Feed Delivery	1	Worker
	14	1	Dead Bin Collection	1	Worker
	15	2	Feed Delivery	1	Worker
	16	0		1	Worker
	17	3	Feed Delivery	1	Worker
	18	0		1	Worker
	19	1	Gas Delivery	1	Worker
	20	0		1	Worker
	21	3	Feed Delivery	1	Worker
	22	0		1	Worker
	23	1	Dead Bin Collection	1	Worker
	24	3	Feed Delivery	1	Worker
	25	0		1	Worker
	26	0		1	Worker
	27	0		1	Worker
	28	0		1	Worker
	29	0		1	Worker
	30	3	Feed Delivery	1	Worker
	31	1	Dead Bin Collection	1	Worker
	32	3	Feed Delivery	1	Worker
	33	12	Bird Collection (thinning)	3	Worker/ Catching Team
	34	0		3	Worker/ Catching Team
	35	1	Feed Delivery	1	Worker

	36	1	Feed Delivery	2	Worker/ Chemical Delivery
	37	1	Feed Delivery	1	Worker
	38	27	Bird Collection	6	Worker/ Catching Team
Cleaning and Preparation	39	1	Cleaners Transport	3	Worker/ Cleaners
	40	1	Dead Bird Collection	4	Worker/ Cleaners
	41	0		0	
	42	0		0	
	43	2	Shavings Delivery	1	Shavings and Feed Down
	44	0		0	
	45	1	Gas Delivery	0	
	Total	**84**		**57**	

It can be seen in Table 3 that on the busiest days of day 33 and 38 during catching and bird removal, the poultry unit operates between the hours of 02:00 and 15:00. At its peak on day 33, the development generates 12 two-way HGV movements (6 in, 6 out) and three two-way car/ van movements. On day 38 the development generates 27 two-way HGV movements (13.5 in, 13.5 out) and six two-way car/ van movements.

Proposed Development Traffic Generation

The proposals includes 3 No. additional poultry units, resulting in an increase of 162,000 birds over the existing operations. In total the development will produce 440,000 birds. The existing operations are based on a 38 day growing cycle, with 7 days at the end of each cycle, and this will continue with the additional buildings (45 day flock cycle in total).

The additional units will include:

- 3 poultry houses (2 buildings 110.1m x 24.6m, and 1 building 97.9m x 24.6m);
- Control room;
- Office/ store inside the front of the buildings;
- Feed bins;

A summary of the total number of movements generated for the site (including the 3 No. additional buildings) is summarised in Table 4 below.

Table 4 – Total Traffic Generation during a Flock Cycle

	Day	HGV Movements		Small Vehicle Movements	
		No. HGVs (two-way)	Purpose	No. Small Vehicles (two-way)	Purpose
Crop	1	11	Chick and Feed Delivery	2	Workers
	2	0		2	Worker
	3	0		2	Worker
	4	0		2	Worker
	5	4	Feed Delivery	2	Worker
	6	0		2	Worker
	7	0		2	Worker
	8	0		2	Worker
	9	0		2	Worker
	10	4	Feed Delivery	2	Worker
	11	0		2	Worker
	12	0		2	Worker
	13	4	Feed Delivery	2	Worker
	14	1	Dead Bin Collection	2	Worker
	15	4	Feed Delivery	2	Worker
	16	0		2	Worker
	17	5	Feed Delivery	2	Worker
	18	0		2	Worker
	19	1	Gas Delivery	2	Worker
	20	0		2	Worker
	21	5	Feed Delivery	2	Worker
	22	0		2	Worker
	23	1	Dead Bin Collection	2	Worker
	24	5	Feed Delivery	2	Worker
	25	0		2	Worker
	26	0		2	Worker
	27	0		2	Worker
	28	0		2	Worker
	29	0		2	Worker
	30	5	Feed Delivery	2	Worker
	31	1	Dead Bin Collection	2	Worker
	32	5	Feed Delivery	2	Worker
	33	20	Bird Collection (thinning)	4	Worker/ Catching Team
	34	0		4	Worker/ Catching Team
	35	2	Feed Delivery	2	Worker

	36	1	Feed Delivery	3	Worker/ Chemical Delivery
	37	1	Feed Delivery	2	Worker
	38	44	Bird Collection	10	Worker/ Catching Team
Cleaning and Preparation	39	1	Cleaners Transport	5	Worker/ Cleaners
	40	1	Dead Bird Collection	6	Worker/ Cleaners
	41	0		0	
	42	0		0	
	43	3	Shavings Delivery	1	Shavings and Feed Down
	44	0		0	
	45	1	Gas Delivery	0	
	Total	**130**		**101**	

The additional poultry units will generate an additional 46 two-way HGV movements and 44 two-way small vehicle movements over a flock cycle.

On the busiest days of the flock cycle; day 32 and day 38, the development will generate an additional 8 two-way HGV movements (4 in, 4 out) and one car/ van movement on day 32. On day 38 the development will generate an additional 17 two-way HGV movements (8.5 in, 8.5 out) and four two-way car/ van movements. The peak movements on day 32 and day 38 only occur once per flock cycle.

HGV Routing

Bird Removal/ Chick Delivery/ Feed Delivery

The existing development imports all of the birds as day old chicks from a hatchery in Shobdon. Finished birds are exported to Hereford.

In terms of local routing, HGV traffic arriving at the site from Shobdon travels south from the hatchery, before turning left on the C1032 and then left into the Kingspan access. HGV traffic departing the site for Hereford routes right out of the Kingspan access on to the C1032, before turning right. The route, which is shown in Figure 1 of the Transport Statement, comprise roads which are currently utilised by HGV traffic accessing Torvale Industrial Estate located adjacent to the development site. Their use by HGVs accessing the development would therefore be in keeping with their current traffic profile. No HGVs routes through Pembridge village.

There will be no change to the existing routing at the site.

Manure Removal

All poultry litter is transported to the on-site AD storage building. From here it is used as fertiliser on the applicant's land. There will be no change to the existing routing at the site.

8.4 Traffic Impact

Highway Impact

The additional poultry units will result in an extra 17 two-way HGV movements (8.5 in, 8.5 out) and four two-way car/ van movements on day 38.

The HGV movements will increase from 27 two-way HGV movements to 44 two-way movements, resulting in an increase of 17 two-way HGV movements over a 13 hour period. This would result in one extra vehicle every hour.

A proportional impact assessment has been undertaken using the increase in HGV movements (17 two-way movements) on the busiest day of the flock cycle (day 38). The proportional impacts are summarised in Table 5 below.

Table 5 – Summary of increase in flows on the C1032

	Existing Weekday Flows (Average Two-way)	Dev. HGV Flows (Average Two-way)	Percentage Increase
AM Peak (08:00-09:00)	187	1.3	0.70%
PM Peak (17:00-18:00)	169	1.3	0.80%
24 Hour Daily Flow	1,790	17	1.0%

It can be seen in Table 5 above that the increase in HGV movements are minimal with a 1.0% increase over the baseline daily flows, 0.70% increase during the AM peak and a 0.80% increase during the PM peak.

Given the relatively low traffic flows on the C1032 as shown in Table 5, the additional movements are minimal and are well within daily variations of traffic flows. A review of the personal injury collision data has confirmed there were no recorded collisions in the vicinity of the site in the last five year period.

The existing development has been operating for 2 years without any identified highway issues.

It is considered that the intensification of the site will **not result in a detrimental impact** on the operation or safety of the existing highway network.

8.5 CONCLUSION

The proposals include 3 No. additional poultry units which will increase total bird numbers at the existing poultry site to 440,000 birds per cycle.

The poultry houses are to be used for the rearing of broiler chickens from one day old chicks, through to their finished weight (approx. 38 days). On the busiest days of the flock cycle; day 32 and day 38, the development will generate an additional 8 two-way HGV movements (4 in, 4 out) and one car/ van movement on day 32. On day 38 the development will generate an additional 17 two-way HGV movements (8.5 in, 8.5 out) and four two-way car/ van movements. The peak movements on day 32 and day 38 only occur once per flock cycle.

It is considered that there are no existing road safety issues that would warrant mitigation measures as a result of the current proposals and it is concluded that the intensification of the site will **not result in a detrimental impact** on the operation or safety of the existing highway network.

9 ECOLOGY

9.1 Introduction

Greenscape Environmental Ltd have conduct a survey and produce a Phase I Environmental Appraisal, which is attached at Appendix 6 to determine the presence of protected species and potential for the damage or destruction of habitats of ecological value as part of the planning application for the construction of three additional poultry units at Milton Farm.

The report outlines the potential impacts as ascertained from the preliminary ecological assessment, and recommends measures to avoid, reduce or manage negative effects.

9.2 Methodology

The appraisal of the site included a desktop survey of the area, reviews of other surveys conducted in the area by Greenscape Environmental and a phase 1 environmental appraisal. Designated sites within 10km were considered as part of the Habitat Regulations Assessment. The phase 1 ecological appraisal was undertaken at the site, OS grid reference SO3929 6044 on 24th February 2017 by L Maggs BSc (Hons) who has 7 years' experience conducting ecological appraisals.

The aim of the survey is to locate and describe, as far as reasonably practicable, evidence of wildlife, including all protected and BAP species, which may be disturbed or lost in the event of development.

The purpose of the report is to:

1. Identify the key ecological constraints to the proposed development
2. Inform planning to allow significant ecological effects to be minimised or avoided wherever possible
3. Allow any necessary mitigation or compensation measures to be developed

The Local Planning Authority (LPA) have requested further information regarding an Environmental Impact Assessment.

Planning Policy

The relevant planning policy and legislation to the current development is:

The Wildlife and Countryside Act 1981(as amended) – as listed in:

- Schedule 1. Birds protected by special penalties at all times
- Schedule 5. Protected animals

- Schedule 8. Protected plants

The Conservation of Habitats and Species (Amendment) Regulations 2010 – as listed in:

- Schedule 2. European protected species of animals
- Schedule 5. European protected species of plants
- Countryside and Rights of Way Act (2000)
- Hedgerow Regulations 1997
- The Protection of Badgers Act 1992
- Natural Environment and Rural Communities Act 2006 (NERC 2006)
- National Planning Policy Framework (2012). Policy 11, Conserving and Enhancing the Natural Environment.
- Circular 06/2005: Biodiversity and Geological Conservation

9.3 Site Context and Location

The site is located outside of Pembridge in Herefordshire. It is set in a rural environment on land which previously formed part of Shobdon Airfield. The functioning part of the airfield is to the north, open countryside to the east, and factory units to the south and west. There is good connectivity to the surrounding countryside via the farm boundaries, although there is a significant amount of open land. Entrance to the site is currently gained from the private industrial road that connects to the C1032 via the main Kingspan entrance.

9.4 Desk Top Survey

The appraisal of the site included a desktop survey which took place in February 2017. Data was collected from the Herefordshire Biological Records Centre (HBRC) to ascertain the protected species that have formerly been recorded in the area.

A search on Multi Agency Geographic Information for the Countryside (Magic Maps) determined nearby designated areas. Previous surveys in the area were taken into consideration.

9.5 Field Survey

The phase 1 ecological appraisal was undertaken at the site, OS grid reference SO3929 6044 on 24th February 2017 by L Maggs BSc (hons).

Habitats

An assessment of habitats was conducted following the "Extended Phase 1 methodology (Institute of Environmental Assessment 1995) and broadly the JNCC Handbook for Phase 1 Surveys 2010. Target notes were used to identify potential for protected or notable species or habitats, and to give more detailed site descriptions.

Species

Surveys of the following species was undertaken; Bats, Badgers, Birds and Amphibians and Reptiles.

Constraints of the Survey

All areas were accessible for this survey. It was not conducted at an optimal time of the year for the assessment of flora and fauna, but this is not thought to be a constraint for this site due to its nature as an arable monoculture. Standard techniques were followed. No specific constraints have been identified.

9.6 Designated Sites

The map from Natural England presented in Appendix A indicates that the site is not within 1km of a designated area. The nearest SSSI is approximately 2.4km southwest of the site. This is the Moseley Common, Pembridge and is an area of marshland that has been unaffected by modern agricultural improvements and drainage.

Local Wildlife Sites (SWS/SINC) recorded within 2km of the site are:

- SO35/04 Disused railway, Kington to Leominster SWS
  - o The register states: "A disused railway line, overgrown with scrub and thus forming a good habitat for nesting birds." Date 1993

- SO35/25 River Arrow Leominster, Eardisland and Huntingdon
  - o The register states: "A fast flowing river with a rocky substrate in its upper reaches.
  - o There is a good margin of mostly alder, willow, holly and more notably black poplar. Aquatic and marginal plants include yellow water-lily, marsh speedwell and purple loosestrife. Various bryophytes grow on the rocks.
  - o The site is good for birds, heron, sand martin and kingfisher being amongst those recorded. Otter is known to frequent the river." Date 1993

- SO36/20 Shobdon Pools SWS
  - o The register states: "A group of six pools which forms a vitally important ornithological habitat. Old decoy Rough, an area of carr, is also of botanical interest." Date 1993

- SO46/02 Marsh Covert SWS
  - o The register states: "An ancient semi-natural woodland of various species, including oak, ash and alder" Date 1993

- SO46/16 Pinsley Brook SWS
  - o The register states: "A gravel-bedded, slow-moving stream. The stream supports a rich wetland flora, including yellow iris, greater tussock-sedge, and water avens. The sites forms a good habitat for birds and mammals: dipper and otter have been observed." Date 1993

9.7 Open Water

Scrutiny of the OS map (Appendix A) and a walk around the locality showed there are two ponds within 250m of the site. Given the nature of the site and the findings of the previous EIA for the site, no further survey with respect to great crested newts is considered necessary.

9.8 Phase 1 Description and Observations

The site comprises of an arable field with the existing poultry unit to the east, a track separating it from the industrial unit to the west and open farmland to the north.
The habitats on and around the site can be summarised as follows:

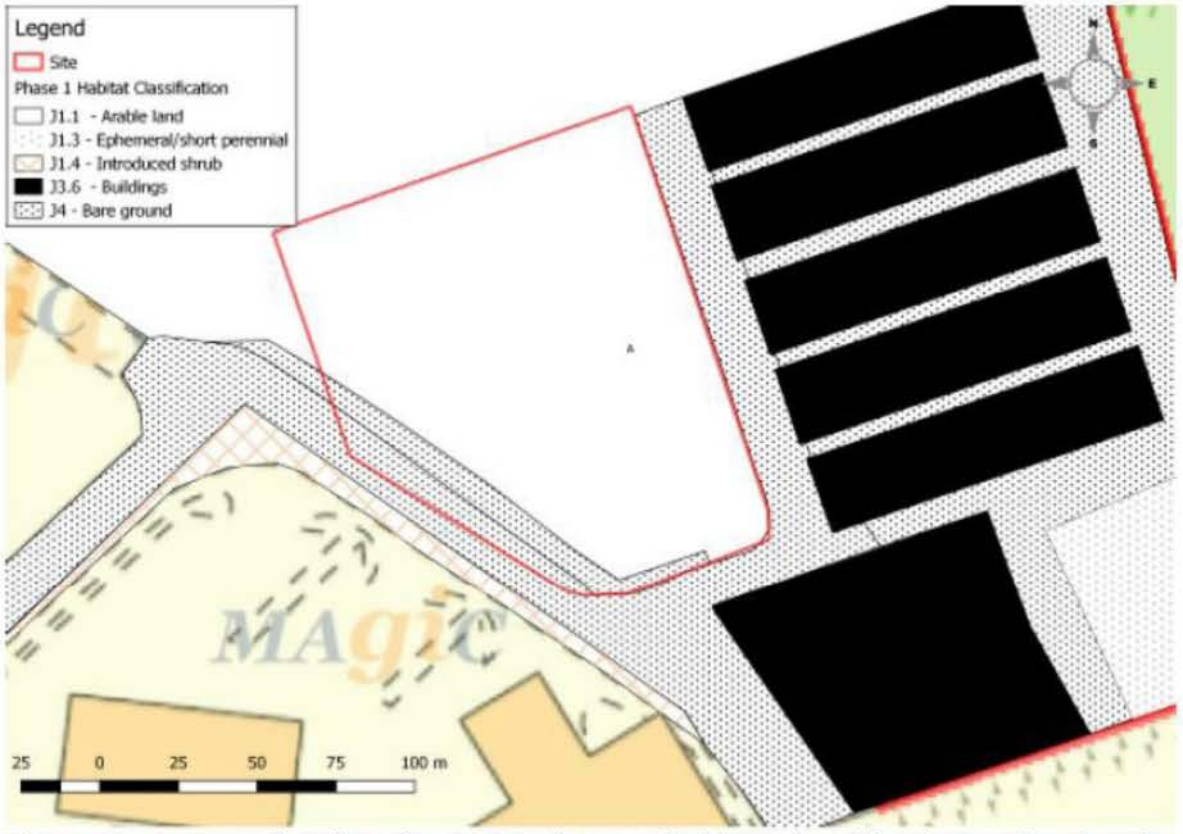


Figure 2. A map showing the JNCC phase 1 habitat classification codes for the site

The application site forms part of a larger arable field that is intensively managed. Along the western boundary of the field with the track is a strip of gravel shoulder with some larger stone blocks as a deterrent for driving. The underside of the larger stone blocks were examined for signs of amphibians or reptiles that might use them as a refugia, none were found.

East of the proposed development are the existing poultry units, these are five large metal buildings that are well insulated and sealed. An external examination was conducted looking for evidence of use by bats or nesting birds, none were found.

To the south is the anaerobic digestion (AD) unit and site office, as well as an area of hard standing for parking. To the east of the AD unit is a large soakaway designed to deal with run-off from the poultry units, this was found to be dry on the day of survey with terrestrial grasses growing on the base of it.

To the west there is an industrial complex separated from the site by a chain link fence, on the far side of the fence is an earth bund with screening planting along the top. A rabbit hole was found at the base of the fence.

To the north, the arable field continues with no boundary. The surrounds were examined for signs of badger but none were found, no evidence of nesting birds was found in the surroundings.

9.9 Habitat Regulations Assessment

Ancient Woodland

There are no areas of ancient woodland within 500m of the site, no impact on these would be expected. An ammonia screening assessment was conducted by the Environment Agency which looked at woodlands within 2km and found that the predicted ammonia levels were under the critical threshold as defined by the Environment Agency advice. This took into account the cumulative effect of the new units in addition to the existing. It was not considered necessary to conduct a detailed modelling assessment as the figures were far below the threshold. No impact on any ancient woodlands is expected from the additional poultry units on site.

National Designated Sites Within 5km

Site	Reason for Designation	Distance and direction from Site	Connection
Moseley Common, Pembridge SSSI	Marshland unaffected by modern agricultural improvements and drainage	2.4km Southwest	The SSSI is separated from the site by the River Arrow which flows west-east, away from the SSSI with respect to the proposed site. There is no direct connectivity between sites
Byton & Combe Moors SSSI	One of the few large areas of marsh grassland with associated woodland carr habitat remaining in Herefordshire	3.8km Northwest	There is no direct connectivity and the SSSI is uphill from the site
River Lugg SSSI	The River Lugg is considered to be one of the best British mainland examples of both a clay river and a river displaying a transition from nutrient-poor to naturally nutrient-rich water chemistry	4.5km North	There is no direct connectivity to the SSSI and hills are located between the site and the river minimising the risks of run-off

The main concern with a new poultry unit is contamination from the excreta of several thousand birds enriching various sites and altering the flora. The nearest major connective feature that could transport contamination is the River Arrow to the south. There is, however, at least 1.3km of land between the site and the river. Attention must, therefore, be paid to smaller connective possibilities. There are two bodies of water to the east of the proposed site, labelled on the OS map as gravel pits. If contamination were to be washed into these ponds, contamination may enter the ground water, and potentially rise through a spring, such as that 350m east of the large gravel pool. This spring, for example, feeds into Pinsley Brook, which later joins the River Lugg, at a point 8km east as the crow flies. It must be understood that the chances of contamination travelling such a distance and having a noticeable impact are slim, but must be considered nonetheless.

All poultry litter produced from the site will be used in the on-site AD Plant. Litter is initially stored in covered buildings before being transferred to the plant. The resultant digestate can be used as a fertiliser on farmland, being applied in accordance with the relevant guidelines and regulations. This will ensure no contamination of local water bodies.

There is still a possibility for accidental spillage. Sufficient spill kits or equivalent measures must be on site to deal with any eventuality that may contaminate the ground water.

It is considered highly unlikely that any SSSI will be impacted in any way from this development. The connectivity is very poor and the terrain will provide some level of protection to SSSIs that are uphill, such as the Byton and Combe Moors SSSI.

International Designated Sites Within 10km

There are no SAC/SPA sites within 10km of the site, no impact would be expected from this development.

Summary

The ammonia screening report from the Environment Agency looked at ancient woodlands within 2km, and determined that no negative impact is expected and a further detailed modelling assessment is not required. Therefore, airborne contaminants are not thought to be an issue.

There are only three nationally designated sites within 5km of the site. These were assessed in terms of the connectivity between the SSSI and the proposed development site.

Litter from all the proposed and existing poultry units will be used in the on-site AD Plant.

As previously mentioned, the main connective feature is the River Arrow, 1.3km to the south. This is flowing from west to east, and does not join with any SSSIs within the 5km search radius. Smaller connective features were considered, such as ground water contamination rising through natural springs. It is noted, however, that these are thought unlikely to be able to transport any spillage or contamination any great distance. A simple working practise of

keeping adequate spill kits or equivalent on site will minimise the risk via these small connective features. It is also worth noting that modern poultry units adhere to strict rules and laws which render contamination highly unlikely.
Elevation was also considered; the site sits at about 100m elevation while Byton and Combe Moors sits at about 130m, suggesting that any ground water contamination would be unlikely to reach a level which may affect the SSSI.

Greenscape Environmental does not anticipate any negative influence on any designated sites within the vicinity of this development.

9.10 Evaluation of Results

Potential Impacts on Designated Sites and Recorded Species

Designated Areas
There are three areas within 5km that have been designated as SSSI's.
Given the distance between the site and these SSSI's little to no impact is expected from this development.

Data Search for Protected Species
Protected species previously recorded within 1km include typical bat species, badger, otter and barn owl.

All these species were considered. The site offers no suitable roosting opportunities for bats, and limited foraging habitat. The same goes for barn owls.

There is no evidence of badger in the immediate vicinity of the site, with no signs of latrines, pathways or setts.

There is one record for otters on the gravel pits to the east, the proposed development site offers no suitable habitat for otter.

Habitats on Site

Determination of Ecological Value is based on the general criteria provided by IEEM (IEEM 2006).

Habitat type	Is the habitat capable of supporting protected species	Impact without consideration
Arable field	Monoculture of low ecological value	No negative impact
Gravel siding	Of low ecological value	No negative impact
Track	Of low ecological value	No negative impact
Buildings	Of low ecological value, offering no roosting or nesting potential	No negative impact

The field, gravel siding and access track are all of low ecological value, offering no suitable habitat for protected species. The existing buildings constructed offer no potential roost features for bats.

Ecologically Important Species

Species	Observations	Impact without consideration
Mammals		
Bats	No suitable habitat on site	No negative impact
Badgers	No evidence found around site	No negative impact
Water vole	No suitable habitat around site	No negative impact
Hazel Dormouse	No suitable habitat on site	No negative impact
Otter	No suitable habitat on site	No negative impact
Birds		
Barn Owl	No evidence in trees on site	No negative impact
Nesting birds	Some suitable habitat around site, no evidence seen	Low negative impact
Herpetofauna		
Reptiles	No suitable habitat around site	No negative impact
Great Crested Newts	No suitable habitat around site	No negative impact
Amphibian	No suitable habitat around site	No negative impact

9.11 Recommendations

To reduce or minimise negative impact on biodiversity, the following recommendations have been made.

Landscaping

1. It is recommended that the landscaping around the new buildings will include some hedging and tree planting to enhance the area for biodiversity.
2. Plants to use for landscaping will include locally sourced native species.

A new northern boundary to the site is to be established which includes woodland tree planting. This is discussed in more detail in the Landscape Chapter.

Enhancements for Bats

It is recommended that provision will be made for roosting opportunities for bats with the erection of at least one Schwegler 3FF bat box in the nearby trees or on the new buildings. These will be erected at a height of 3-4m and in a southerly, westerly or easterly facing direction, they will not be directly illuminated.

Reasonable Avoidance Measures

1. If a reptile is found, the ecologist will be informed, after which it will be carefully moved by hand and placed at the base of the bank to the east of the site
2. All cabins and equipment will be located on firm compacted ground
3. Stored material will be raised on pallets to reduce the potential they might act as a temporary resting place. This reduces the potential for damage or destruction of individual newts
4. All waste will be placed straight into skips to reduce the potential of creating refugia
5. A copy of this document will be kept on site at all times during the construction work.

9.12 Concluding Remarks

This development can proceed as planned without damage to, or loss of habitat for protected species. The method statements provided in this report will be followed, and works will be done at a suitable time of year. This will result in there being no ecological constraints to the development.

10 NOISE ASSESSMENT

10.1 Introduction

An Environmental Noise Assessment has been undertaken by Dean Kettlewell MSc MAE MIOA I.Eng of Noise & Vibration Consultants Ltd, which is attached at Appendix 7.

The noise assessment determines the likely noise contribution from the existing five poultry units at the nearest residential properties and the proposed additional poultry units. The development includes for three poultry units, feed bins and service yard area.

Noise levels have been considered and assessed during the construction and operational phase of the proposed development. Relevant and appropriate noise guidance and standards have been referenced and where appropriate amelioration measures advised to mitigate noise sources to acceptable and reasonable absolute levels.

Baseline sound levels were established for the original noise assessment study undertaken in 2014 for the existing poultry unit planning application. The survey was carried out adjacent to nearest sensitive receptors relative to the development and away from the influence of any existing poultry operations in the area surrounding the Milton Farm site.

The study benefits from a site inspection and survey of noise levels from the existing poultry units and other poultry units and development in the area around the site for the assessment of cumulative impacts.

Appropriate noise criteria for this type of development would relate to BS4142:2014 and WHO guidance and BS8233: 2014 for sleep disturbance criteria during night-time periods at the nearest residential properties.

10.2 Site Description

Milton Farm is situated in a rural area adjacent to Shobdon Aerodome, Kingspan site and an existing Anaerobic Digestion (AD) plant located southwest of the village of Shobdon and north of the village of Pembridge at a distance of approximately 2km. The site currently comprises five existing poultry unit buildings. The town of Leominster is situated east of the site at a distance of approximately 10km.

The site is accessed off the C1032 road via private industrial road. The farm entrance is already used by farm vehicles (e.g. tractors and HGVs) and will continue to accommodate traffic generated by the proposed additional poultry units.

The surrounding land is relatively flat and is adjacent to the AD plant and the relatively large industrial site occupied by Kingspan.

It is proposed that three new poultry units would be constructed at Milton Farm, which would complement the five existing poultry houses. The new houses would provide accommodation for up to 162,000 birds per flock cycle. The new houses would be ventilated by uncapped high speed ridge mounted fans, each with a short chimney.

Site Operation Hours
The site would operate continuously (i.e. 24 hours, 7 days per week) during the flock cycle. The total cycle length will be approximately 6.5 weeks leading to around 8 crops per year.

Nearest Receptors
In relation to the proposed development, there are some isolated residences around the site of the proposed additional poultry houses at Milton Farm. The nearest sensitive receptors (NSRs) are located east of the site off the C1032 road, which is approximately 450m. Nearest properties to the north to north east are approximately 820m distance. The NSR to an eastern direction are other poultry unit Manager dwellings at circa 670m. The NSR in a south eastern direction is circa 670m off the C1032 road.

The nearest commercial receptors relate to office/warehouse premises which form part of the Kingspan facility which is directly south of the site. As this office / warehouse are based within an industrial site; which in itself generates noise from existing plant; this receptor is not deemed to be particularly sensitive.

This study benefits from a site survey of existing fan noise levels emanating from the existing poultry building. Details of the survey results are detailed in the Noise Assessment report at Appendix 7.

The secondary noise source associated with the import and export of flock from site would relate to the occasional movement of HGVs travelling to and from the site.

10.3 Assessment Methodologies

The following methodology has been used to assess impacts from noise:

(a) For daytime and night-time periods, the application of BS4142: 2014 would be appropriate to ensure that there is no significant adverse impact arising from the operation of the development. The context of the specific noise should be considered by comparing baseline LAeq levels with site noise to establish whether there is likely to be any change in levels.

(b) Where background sound levels and rating levels are low absolute noise criteria would be considered to justify level of noise for night-time periods e.g.

sleep disturbance criteria would be referenced. The latest sleep disturbance criteria is found within the World Health Organisation document from 2009 entitled `Night noise guidelines for Europe' (i.e. <40dB LAeq8hrs) and internal bedroom noise limits within BS8233: 2014 with an open window would be relevant.

(c) The baseline noise survey has been carried out in accordance with BS4142 and BS7445: 2003 `Description and Measurement of Environmental Noise'.

(d) Construction noise would be calculated using BS5228: 2009 Part 1 `Code of practice for noise and vibration control on construction and open sites'. This refers to the application of best practicable means to control noise.

(e) For the impact of road traffic noise, the increase in noise level would be calculated using the methodology found within `Calculation of Road Traffic Noise' (CRTN): 1988. Where traffic flow volumes are very low (i.e. <50 vehicles per hour) then BS5228: 2009 methodology for HGVs on haul roads would be more appropriate.

Assessment of Significance

The significance of an effect is a function of the sensitivity or importance of the receiver, or receptor, and the scale or magnitude of the effect. In this case the significance of the effect has been determined by reference to existing guidance and standards that are explained below.

Three types of receptor have been identified:

- Residents of existing houses adjacent to the site who could experience construction noise.
- Residents of existing houses adjacent to the site who could experience site operational noise.
- Residents of existing houses who could experience additional road noise from the development.

The two principal criteria to predict the significance of potential noise impacts are:

- magnitude of the impact; and
- sensitivity of the receptors.

This assessment combines the above criteria to predict the significance of the noise impacts of the proposed development, which will include an assessment of the following key noise aspects;

- Construction Noise
- Operational Noise
- Road Traffic Noise

10.4 BASELINE SOUND LEVELS

Description of Baseline Conditions

An environmental baseline sound survey was carried out in April 2014 in the vicinity of nearest residential receptors relative to the development site to determine typical details of the existing sound climate. This provides data such that any impact on existing residential properties adjacent to the site can be assessed.

Receptor Positions

Background noise measurements were recorded in the vicinity of the NSRs relative to the location of the poultry units.

Noise measurements were undertaken on Thursday 24th to Friday 25th April 2014 in accordance with guidance given in BS4142: 1997 and BS7745, 2003 `Description and measurement of environmental noise'. Details of the equipment used and its calibration are given in Appendix 2 of the Noise Report at Appendix 7. The survey employed three fixed-point measurement positions.

The closest dwellings to the proposed development were identified as receptor positions due to their potential risk from changes in noise levels. The receptor positions are shown below.

Receptor Position (refer to Figure 1)	Description of location	Grid Reference
1	Residential property west of site adjacent to C1032 road	338779 260238
2	Residential property southwest (caravan site)	339930 261007
3	Properties east of the site	338953 259767

4	Caravans & properties northeast and north of site	340000 260330

The main source of existing noise affecting nearest sensitive receptor positions at the time of the survey relate to the movement of occasional traffic along local roads, noise from the airfield, industrial noise from Kingspan and birdsong.

The noise monitoring exercise was carried out over a daytime, evening and night-time period during the week.

Baseline Results

Position	Time Period	LAeq dB	LA10 dB	LA90 dB	Representative LA90 dB	LAmax dB
Position A (W)	Daytime (1615-2300)	47	47	40	37	53-80
Position A (W)	Night-time (2300-0700)	49	46	38	34	50-73
Position B (E)	Day-time (1800-2300)	57	59	42	42	70-87
Position B (E)	Night-time (2300-0700)	54	48	38	37	49-82
Position C (NE)	Daytime (0700-1500)	56	49	38	39	44-82
Position C (NE)	Night-time (2300-0700)	51	43	38	37	42-81

Baseline monitoring position `A' is deemed to be indicative of background sound levels at receptors 1 & 2 due to relative distance to the C1032 road. Monitoring position `B' is deemed to be indicative of background sound levels at receptors 3. Baseline levels at position `C' is indicative of receptor 4.

10.5 CONSTRUCTION PERIOD EFFECTS

In general, the level of noise in the local environs arising from the construction of a development site will depend on a number of factors. The most significant of which are as follows:

- The sound power levels (SWL's) or sound pressure levels (SPL's) of the plant or equipment used on site;
- The periods of operation of the plant on site;
- The distance between the source noise and the receiving position;
- The presence or absence of screening effects due to barriers, or ground absorption; and,
- Any reflection effects due to the facades of buildings etc.

The calculation method used in this study for construction noise is based upon theoretical noise propagation theory, which takes into account source position, distance, direction and frequency content in relation to the nearest residential property boundary positions. British Standard BS5228 methodology has been used to estimate construction noise levels at the nearest existing dwellings including source noise levels for construction plant.

Noise levels emanating from the Site due to construction works associated with the proposed development will vary from day to day. In order to give an indication of the probable noise levels generated by the works, a worst-case scenario has been considered.

Predicted Noise Levels: Construction

Receptor Position	Distance to receptor (m)	Activity	Noise Level, dB $LAeq_{1hr}$	Typical Residual Noise $LAeq_{1hr}$ dB	Total noise (residual + construction) $LAeq_{1hr}$ dB	BS5228 Threshold Value LAeq dB (daytime)
1. Residential property west of site	460-550	Soil Movement General site activities Infrastructure Building construction	42-44 42-43 37-41 45-47	47	48-49 48 47-48 49-50	65
2. Residential property southwest of site	670-770	Soil Movement General site activities Infrastructure Building Construction	39-40 38-39 33-36 41-42	47	48 48 47 48	65
3. Residential properties east of site	670-790	Soil Movement General site activities Infrastructure Building Construction	39-40 38-39 33-36 41-42	57	57 57 57 57	65
4. Residential properties north to northeast of site	820-920	Soil Movement General site activities Infrastructure Building Construction	37-38 36-37 31-34 39-40	56	56 56 56 56	65

The highest construction noise levels are likely to be created during the soil movements and the construction of buildings and infrastructure. This would however, be well within the level of noise normally found to be acceptable for an activity of this type and duration. The results show that for the construction period the noise level from construction activities at the existing properties will not exceed reasonable daytime absolute noise levels.

For the construction period noise generated by site activities will not exceed reasonable absolute noise criteria (i.e. 65dB(A) Leq). The results show that the threshold proposed by BS5228 would not be exceeded and therefore a **negligible impact magnitude** and **neutral impact significance.**

Mitigation of Construction Period Effects

The highest levels of construction noise would occur during short-term activities such as earth moving close to existing dwellings. To offset this short term impact the following mitigation is proposed:

- Restriction of construction hours to non-sensitive times of day would normally form part of the planning consent conditions.
- Sensible routing of the construction plant to avoid the nearest residential properties.

- Careful positioning of plant to minimise noise radiating in direction of nearest sensitive receptors.
- Applying` best practicable means' as described in BS5228 (wherever practicable).
- Use of mobile plant fitted with broadband noise type reverse alarms

Construction Period Residual Effects

The introduction of the proposed approach using `best practicable means' will provide further attenuation of site generated noise at the nearest residential properties. The effect of applying `best practicable means' has been assessed and Table 5.1 below details the resultant improvement in the highest levels predicted including the impact significance.

Noise Source and associated receptor	Time Period	Impact Significance (before mitigation measures)	Impact Description (before mitigation measures)	Residual Significance (after mitigation measures)	Impact Description (after mitigation measures)
Construction noise affecting existing homes	Daytime only	Neutral Effect	Possible short-term noise levels of up to 47dB $L_{Aeq\ 1hr}$	Neutral Effect	Some Negligible increase in general residual noise levels during peak noise events at receptors and well within acceptable limits

10.6 EXISTING POULTRY UNIT & AD PLANT NOISE

This study benefits from a noise survey to establish noise from the existing poultry unit fans and the adjoining AD plant facility to determine the noise contribution for cumulative impacts.

This study also benefits from a noise survey undertaken at the Cargill poultry units located south to southeast of receptor 3 and spot roaming noise measurements of poultry unit noise to the east of position 3 for cumulative impact issues.

The original baseline sound survey also included an assessment of noise from the Kingspan site.

The full results of these surveys are available in Appendix 2 of the Noise Assessment Report.

Summary of Noise Measurements at Existing Milton Farm Poultry Units

Position	Noise Level LAeq dB
10m Roof Fan	44-45
15m Roof Fan	43-44
AD Plant Boundary	45-64
10m AD Gas Engines	60-62

The noise contribution from existing poultry units in the area have been assessed based on near field noise monitoring which indicates the following noise levels.

Summary of Noise Measurements at Existing Poultry Unit Fans in the local area

Site	Location	Noise Level LAeq dB
Shobdon Farm poultry units	Roof Edge (all fans on)	51-55
Shobdon Farm poultry units	Close to building wall (all fans on)	50-53
Hangar Farm poultry units	Roof Edge (all fans on)	49-54
Hangar Farm poultry units	Gable End Fans	77-78 @ 1m
Hangar Farm poultry units	Gable End Fans	70-71 @ 5m

10.7 OPERATIONAL PERIOD EFFECTS

Background sound data obtained from the monitoring positions has enabled an assessment to be made of the likely impact on the existing residential areas in the vicinity of the development site from proposed noise sources.

The assessment of site operational noise due to the proposed development on existing residential areas was based on empirical test data obtained at the existing fan units, which maximises the accuracy of the noise predictions. The calculation method used to assess the noise contribution from the development and cumulative effect of existing poultry fans has used ISO9613-2 calculation methodology. The calculations have been carried out using CadnaA noise modelling software and verified using spread sheet calculations.

The assessment of the predicted increase in road traffic noise due to the proposed development on existing residential areas was based on the information provided within the traffic impact assessment. The normal method of calculation for road traffic noise and assessment is the Department of Transport `Calculation of Road Traffic Noise': Where there are very low traffic flow volumes, CRTN methodology can give pessimistic results and therefore reference is made to the BS5228: 2009 prediction method. For the assessment of impact the `Design Manual for Roads and Bridges', Volume 11, Environmental Assessment: 2011 would be appropriate.

Key Noise Source

The key source of noise associated with poultry houses relates to the operation of the ventilation fans. Each poultry house has 21 to 23 ridge ventilation fans with side inlet ventilation openings.

The fans do not operate continuously as they are controlled by a sophisticated temperature-controlled automatic system. During very high daytime ambient temperatures all the roof fans

could be in operation. To establish the highest likely noise levels it has been assumed that all roof fans would operate at night.

The air inlet to the poultry houses is formed by ventilation openings mounted in the side walls of the building and at roof level. These ventilation openings also incorporate a baffle or cowling fitted over the inlet opening, which reduces noise `break-out'. Based on the ventilation fans that are operating on the existing poultry unit buildings, the noise levels are provided in the table below.

Fan Type	Sound Pressure Level LAeq dB	Sound power level dB(A)
Ridge mounted roof	44-45 @ 10m 43-44 @ 15m	72-73 74-75

The number of fans that can operate at any one time will vary and is determined by the specific fan control system setting for each poultry house. The fans provide ventilation to control the temperature within the poultry houses for animal welfare.

When the birds are young it may only be necessary for a few fans to be operating in each poultry house.

During summer months, if the external temperature was relatively high and the birds were mature, then it may be necessary for all the roof fans to operate. However, the ventilation system is designed to handle an extreme maximum temperature that is rarely likely to occur. Any extreme temperatures would in any case occur during the daytime operating hours rather than at night. Additionally, the probability of the maximum ventilation being required by all the poultry houses simultaneously is even less likely.

Intermittent Noise Sources

During the daytime, there are likely to be some additional intermittent sources of noise associated with the operation of the poultry houses. Empirical noise data obtained from similar sites would indicate typical levels at 10 metres distance to be as follows:

Activity	Noise Level at 10m LAeq dB	Comment	Occurrence of event
Loading the Feed Hoppers	83	Steady noise level from lorry pump. It will take around 20 minutes to complete a load and the 1 hour Leq would be around 5dB lower.	Approx. 3 times per week
Catching of poultry	59	Based on 1 HGV arrival and departure in an hour (7 in total).	Approx. once every 6 to 7 weeks
Delivery/Loading of birds	74	Steady noise level from forklifts.	Approx. once every 6 to 7 weeks
Cleaning	78	Steady noise from tractor-powered diesel pump being used to clean poultry houses.	Approx. once every 6 to 7 weeks

Litter Removal	74	Steady noise level from loading shovel and tractor/trailer	Weekly carried out on site
Fuel Delivery	78	HGV delivery with pump	Twice every 6 to 7 weeks

Calculation Methodology

The calculation method used in this study for site operations is based upon ISO9613: 2, which takes into account source distance, screening effects, operating time and direction in relation to the nearest sensitive receptor.

Results of Noise Predictions

Fixed Noise Sources

The measured fan noise levels on site for the new fan units to calculate the expected resultant noise contribution at the nearest property boundary locations during different fan operational conditions.

The calculations allow for distance attenuation and the maximum number of roof fans operating relative to the residential receptor positions. The results of the prediction calculations with noise mitigation measures are provided below.

Predicted Noise Contribution from the Roof Ventilation Fans (maximum and typical daytime operations) with mitigation measures.

Receptor (refer to Figure 2)	Distance to new poultry house (m)	Predicted Highest Noise Level from Roof Fan System (with mitigation) [L_{Aeq} dB]	Predicted Typical* Noise Level from Roof Fan System [L_{Aeq} dB]
1. Residential property west of site	460	**23**	**20**
2. Residential property southwest of site	670	**19**	**16**
3. Residential properties east of site	670	**18**	**15**
4. Residential properties north to northeast of site	820	**18-19**	**15-16**

Predicted Noise Contribution from Roof Ventilation Fans (maximum and typical night-time operations) with and without further mitigation measures

Receptor (refer to Figure 2)	Distance to new poultry house (m)	Predicted Highest Night-time Noise Level from Roof Fan System [L_{Aeq} dB]	Predicted Typical* Night-time Noise Level from Roof Fan System [L_{Aeq} dB]
1. Residential property west of site	460	**23**	**17**
2. Residential property southwest of site	670	**19**	**13**
3. Residential properties east of site	670	**18**	**12**

4. Residential properties north to northeast of site	820	**18-19**	**12-13**

BS4142: 2014 Assessment:

BS4142 is used as guidance in the determination of the likely impact from an industrial or commercial noise source. Tables within the Noise Assessment Report provide an assessment of the highest fan noise conditions (i.e. all roof fans) at the nearest sensitive receptors during daytime, evening and night-time operating periods. Impacts at the other receptors would be lower due to distance and position relative to the local road network.

The assessment of noise generation during the daytime and night-time period at all receptors shows that the highest predicted noise levels from the development (with mitigation) would result in a **low impact magnitude**. In terms of semantic scales the impacts would be **negligible and neutral significance**. Noise mitigation measures would basically relate to the provision of similar fans to the existing poultry units on site.

The night-time assessment of noise using BS4142: 2014 would also indicate a **low impact** and **neutral impact significance.**

: Maximum Fan Noise Impacts in terms of Residual Noise Levels

Position	Time Period	Residual Noise Level LAeq dB	Maximum Noise from fans LAeq dB	Resultant Noise (i.e. residual + site noise) LAeq dB	Change in residual noise LAeq dB	Impact Magnitude IEMA Guidance (table 3.5)
1. Residential property west of site	Daytime Night-time	47 49	**23**	47 49	0 0	Negligible Negligible
2. Residential property southeast of site	Daytime Night-time	47 49	**19**	47 49	0 0	Negligible Negligible
3. Residential properties east of site	Daytime Night-time	57 54	**18**	57 54	0 0	Negligible Negligible
4. Residential properties north to northeast of site	Daytime Night-time	56 51	**18-19**	56 51	0 0	Negligible Negligible

The above table shows that with mitigation the maximum fan noise conditions at all receptors would present a **negligible impact** during daytime and night-time at all receptors according to IEMA38 guidance.

Event Noise Sources

Intermittent & Occasional Noise Sources

During the daytime periods occasionally there are likely to be some additional intermittent `event' sources of noise associated with the operation of the poultry houses. The only event likely to occur during night-time periods would be to collect birds once every 6-7 weeks (i.e. end of flock cycle) and around 0600 hours for bird deliveries also occurring once every flock cycle.

The results of noise predictions relative to intermittent noise sources are provided in the Noise Assessment Report but are summarised below.

Feed Hopper Filling

The assessment shows that the rating level relative to background sound according to BS4142 at receptors of high sensitivity indicates a **negligible impact**. Additionally, during this period whilst the background sound levels are relatively low, the residual sound (i.e. LAeq level) is much higher and therefore in context the noise level is insignificant. This is also a temporary and occasional noise source, which would not give rise to significant impacts.

The assessment shows that impact levels would be low when considering the noise contribution relative to the residual noise (i.e. the absolute noise level in context is not significant). According to the semantic scales the impact magnitude relative to the IEMA scale would be **negligible** in terms of changes in Leq.

Noise mitigation measures:

(i) Feed hopper fill alarm via text or telephone calls from central control, no audible alarms.

(ii) Wherever possible plan feed deliveries during less sensitive times of the day (i.e. 0800-1700 hours).

Litter Loading

The assessment shows that the rating level relative to background sound at receptors of high sensitivity according to BS4142 indicates a **negligible impact**. During this period whilst the background sound levels are relatively low, the residual sound are higher and therefore in context the noise level is also not deemed to be significant. This is also a temporary and occasional noise source, which would not give rise to significant impacts.

The impact levels would be low when considering the noise contribution relative to the residual noise (i.e. the absolute noise level in context is not significant). According to the semantic scales the impact magnitude relative the IEMA semantic scale is likely to be **negligible** in terms of changes in Leq .

Noise mitigation measures:

Avoid loading litter during evening and night-time periods.

Cleaning

The assessment shows **negligible impact** relative to background sound levels at receptors of high sensitivity and **neutral significance**, which would occur at the end of the flock cycle (i.e. 6 to 7 weeks). The predicted level (i.e. predicted noise excluding +3dB penalty) relative to the residual sound shows negligible impact. According to IEMA impact the results show a **negligible impact** and **neutral significance**.

Noise mitigation measures:

(i) Wherever practicable carry out cleaning during less-sensitive hours of the day (i.e. between 0800 to 1700 hours).

Catching of Poultry

The assessment shows **negligible impact** relative to background sound levels at the receptors of high sensitivity and neutral significance, which would only occur approximately once every 6 to 7 weeks. The predicted level (i.e. predicted noise excluding +3dB penalty) relative to the residual sound shows **negligible impact** and therefore in context with the general noise climate (in terms of Leq) is of **neutral impact significance** (refer to Table 3.5). This type of event is occasional and only occurs approximately once every 6 to 7 weeks and is therefore not deemed to be significant. The absolute noise levels are also relatively low and they comply with sleep disturbance criteria of 40dB LAeq and design limits for bedrooms with an open window according to BS8233: 2014. The impact relative to absolute noise limits indicates a **negligible impact**.

Delivery of Poultry

The above assessment shows **negligible impact** relative to background sound levels and neutral significance at receptors of high sensitivity, which would occur once every flock cycle. The predicted level (i.e. predicted noise excluding +3dB penalty) relative to the residual sound shows **negligible impact** and therefore in context with the general noise climate (in terms of Leq) is of **neutral impact significance**. This type of event is occasional and only occurs when once every 6 to 7 weeks and is therefore not deemed to be significant. The absolute noise levels are also low and they comply with sleep disturbance criteria of 40dB LAeq and design limits for bedrooms with an open window according to BS8233: 2014. The impact relative to absolute noise limits indicates a **negligible impact.**

Delivery of Fuel

The above assessment shows **negligible impact** relative to background sound levels at receptors of high sensitivity and **neutral significance**, which would occur once every 3 to 4 weeks. The predicted level (i.e. predicted noise excluding +3dB penalty) relative to the residual sound shows negligible impact and therefore in context with the general noise climate (in terms of Leq) is of **neutral impact significance**. This type of event is occasional and is therefore not deemed to be significant. The absolute noise levels are also low and they comply and within design limits for living rooms with an open window according to BS8233: 2014. The impact relative to absolute noise limits indicates a **negligible impact**. Noise levels at the applicant's property are shown to be substantial in terms of BS4142 but **negligible** in terms of IEMA semantic scales due to absolute levels being relatively low.

Conclusions of Event Noise

The above results show that with the site operating under the highest event noise conditions according to BS4142: 2014, this would result in occasional impacts which are shown to be **negligible** and in context with the residual noise levels (i.e. in terms of changes in LAeq) the increase is shown to be **negligible** and a **neutral significance**. The absolute noise levels generated by these events are below sleep disturbance criteria and within internal noise guidance limits within sensitive rooms of dwellings with an open window according to BS8233:

2014. The **cumulative impact** with all existing and proposed ventilation fans operating has been considered and does not change the event assessment conclusions.

Kingspan Office and Warehouse

The nearest existing office/ warehouse to the proposed development is at the Kingspan site which is south of the proposed poultry units. As these offices / warehouse are based within an industrial site, which in itself generates noise from existing plant, this receptor is **not deemed to be particularly sensitive**. The relevant guidance for this type of receptor however would relate to BS8233. The latest version of BS8233 was published in March 2014 and design noise limits for within offices are proposed at levels of around 35-50dB LAeq. For an open window situation this would equate to a design level outside the window of between 50-65dB LAeq8hrs. Single glazed windows in the closed position give between 22-30dB Rw reduction and double glazed 33-35dB Rw which would give an external design range of around 60dB to 70dB LAeq respectively. Existing ambient LAeq levels are likely to be typically around 52-62dB and therefore this range of external levels is not unreasonable.

The predicted highest external noise levels during maximum fan operations at the office locations is shown to be 35dB-36dB LAeq. The internal noise levels are therefore likely to be well below 25dB and therefore well within design limits according to BS8233: 2014 for an office environment in which it gives a design range guidance between 35dB and 45dB LAeq8hrs. During occasional event noise the predicted highest external noise levels are likely to range between approximately 30dB-43dB LAeq1hr which is well within a reasonable external design limit.

10.8 Cumulative Impact Assessment

The cumulative impacts of the development together with existing or proposed industrial development in the area surrounding the site has been considered. This includes existing poultry unit farms, Anaerobic Digestion facilities and the Kingspan industrial facility.

The likely noise contribution from these facilities have been predicted based on site noise measurements The results of the noise predictions from these additional noise sources together with existing noise levels and the proposed Milton Farm poultry units is provided below.

Location (refer to Figure 2)	Predicted noise contribution from Kingspan LAeq dB	Predicted noise contribution from all other Poultry units LAeq dB	Predicted noise contribution from adjacent AD plant LAeq dB	Resultant noise level non-site noise LAeq dB	Proposed poultry unit noise level LAeq dB	Overall level non-site & site noise LAeq dB	Change in noise level due to proposed site LAeq dB
1. Residential property west of site	38	23	27	**39**	**23**	**39**	**0**
2. Residential property southeast of site	35	25	30	**37**	**19**	**37**	**0**

3. Residential properties east of site	37	37	31	**41**	**18**	**41**	**0**
4. Residential properties northeast of site	30	29	26	**33**	**18-19**	**33**	**0**

The resultant noise level increase in terms of LAeq is shown to be zero and therefore no change. The noise contribution in terms of LAeq from the proposed poultry units is between approximately 14dB and 23dB below the cumulative effect of all noise sources on the area and would therefore **insignificant** in terms of cumulative impacts.

The cumulative effect of all poultry unit fans located at the Milton Farm site has been assessed together with the BS4142 assessment detail. Detailed result are provided in the Noise Assessment report.

The cumulative assessment of fan noise generation during the daytime and night-time period at all receptors shows that the highest predicted noise levels from the development (with mitigation) would result in a **low impact magnitude**. In terms of semantic scales the impacts would be **negligible** and **neutral significance.**

Road Traffic

The impact due to the proposed development for the daytime scenario shows a **minor magnitude** of impact in the short-term and in the long-term at the existing properties closest to the site and is therefore **not deemed to be significant**.

The impact due to the proposed development for the night-time scenario, which would only occur once every 6 to 7 weeks, shows a **negligible to minor magnitude** of impact at the existing properties along the local road to Site and is therefore **not deemed to be significant**.

The above assessment is based on a peak hour flow which provides a pessimistic view of impact.

10.9 MITIGATION & RESIDUAL EFFECTS

The results of the assessment have shown that the impact of any site-generated noise from the operation of the poultry units is **insignificant**. This assumes that the following measures are included in the design:

(i) Roof mounted fans to have a sound power level not exceeding LW 75dB(A). This is based on the type of fans fitted to the existing poultry units on site.
(ii) Feed hopper fill alarm via text or telephone calls from central control, no audible alarms.
(iii) Feed deliveries to take place during daytime hours.
(iv) Wherever practicable carry out cleaning during less-sensitive hours of the day (i.e. between 0800 to 1700 hours).

Site Generated Road Traffic Noise affecting existing dwellings

The results of the assessment have shown that the impact of any site-generated noise relative to HGV movements along the local road network is **not significant**.

Residual Effects and their Significance

Table below indicates the effect of the mitigation measures on the unmitigated effect. The introduction of the proposed mitigation detailed in the mitigation section ensures that the development would not give rise to any unacceptable noise impact.

Impact at Nearest Receptor Before and after Mitigation Measures

Noise Source and associated receptor	Time Period	Impact Significance (before mitigation measures)	Impact Description (before mitigation measures)	Residual Significance (after mitigation measures)	Impact Description (after mitigation measures)
Construction noise affecting existing homes	Daytime	Neutral Effect	Possible short-term noise levels of up to 47dB $L_{Aeq\ 1hr}$	Neutral Effect	Some Negligible increase in general residual noise levels during peak noise events at receptors and well within acceptable limits
Road traffic noise affecting existing receptors	Daytime & Night-time	Neutral to Minor Significance	No significant increase	Neutral to Minor Significance	Noise level increase not significant and minor impact only occurs occasionally due to bird collection events at night or when there are 4 HGVs movements in an hour during daytime
Effect of new development on existing receptors (**fan** noise)	Daytime	Neutral Significance	Noise does not exceed relevant standard during daytime periods	Neutral Significance and in context with residual sound levels is also deemed to be Neutral.	Noise levels not significant & within guidance and standards. Low impact shown according to BS4142:2014
Effect of new development on existing receptors (**fan** noise)	Night-time	Neutral Significance and in context with residual sound impact is Neutral.	Noise does exceed relevant guidance & standards	Neutral Significance according to relevant Standards and Guidance	Noise levels within guidance and standards. Absolute Noise levels not significant and well within night sleep disturbance criteria. Low impact according to BS4142:2014

Noise Source and associated receptor	Time Period	Impact Significance (before mitigation measures)	Impact Description (before mitigation measures)	Residual Significance (after mitigation measures)	Impact Description (after mitigation measures)
Effect of new development on existing receptors (**event** noise)	Daytime	Occasional impacts show a Neutral significance and in context with residual sound has a Neutral impact	Noise does not exceed background sound levels at all receptors and in context with residual sound and absolute levels is not significant	Occasional events Neutral significance relative to background and in context with residual sound at all nearest sensitive receptors.	Complies with all relevant standards and guidance. Events only occur occasionally.

Effect of new development on existing receptors (**event** noise)	Night-time	Events only occur once approx. every 6 to 7 weeks and a Neutral Significance relative to background and effect on residual sound levels.	Noise levels not significant and within guidance and standards.	Neutral Significance in terms of noise relative to background and in respect of changes in residual sound levels. Absolute levels are also very low.	Complies with all relevant standards and guidance including sleep disturbance criteria. Events only occur once in 6 to 7 week period.
Cumulative assessment from other noise sources adjacent to site and in local area	Daytime & Night-time	Neutral Significance	Noise does not cause any increase in residual levels or background sound	Neutral Significance and in context with residual sound levels are also deemed to be Neutral.	Residual or background sound levels would not increase and therefore no impact shown.

Noise generated by the development at the nearest Kingspan offices during the highest fan operations and occasional event noise is shown to be well within reasonable design guidance limits in accordance with BS8233: 2014.

11 ODOUR ASSESSMENT

11.1 Introduction

AS Modelling & Data Ltd., has been instructed by Berrys on behalf of the applicant, to use computer modelling to assess the impact of odour emissions from the existing and proposed broiler chicken rearing houses at Milton Farm, Pembridge, near Leominster in Herefordshire. HR6 9LB. The odour assessment report is attached at Appendix 8.

Odour emission rates from the existing and proposed poultry houses have been assessed and quantified based upon an emissions model that takes into account the likely internal odour concentrations and ventilation rates of the poultry houses. The odour emission rates so obtained have then been used as inputs to an atmospheric dispersion model which calculates odour exposure levels in the surrounding area. In addition, odour emission rates for four other nearby poultry units, along with the existing and proposed houses at Milton Farm, have been assessed and quantified and used as inputs to atmospheric dispersion modelling for a cumulative impacts assessment for the local area.

The Site

The site of the broiler rearing houses at Milton Farm is in a rural area, adjacent to Shobdon Airfield, around 1 km to the south of the village of Shobdon and 2 km to the north of the village of Pembridge. The land around the site, away from the airfield, is used predominantly for arable farming, there are commercial properties immediately to the south and west and a disused quarry to the east of the site. The site is at an elevation of around 95 m and there is higher ground to the north and east, with the land falling to the south to the River Arrow.

Currently there are five poultry houses at Milton Farm which provide accommodation for up to 278,000 broiler chickens. These existing poultry houses are ventilated by high speed ridge fans. Under the proposal, three new poultry houses would be constructed to the west of the existing poultry houses. The proposed new poultry houses would provide accommodation for up to 162,000 broiler chickens and would be ventilated by high speed ridge fans.

Cumulative Assessment

For the cumulative assessment, odours from Shobdon poultry farm, Hangar poultry farm, a proposed small scale poultry site to be developed on land to the east of Milton Farm and a poultry unit at Mountain View have been considered. Shobdon Farm, Hangar Farm and the proposed small scale poultry site provide, or would provide, accommodation for up to 500,305 broiler chickens and are, or would be, ventilated via high speed ridge fans. These sites come under an existing Environmental Permit. AS Modelling & Data Ltd. understands that the poultry unit at Mountain View provides accommodation for up to 40,000 broiler-breeder chickens and is ventilated by capped ridge fans.

Receptors

There are a number of commercial properties immediately to the south of Milton Farm on the Torvale Industrial Estate (Kingspan), which are considered to be less sensitive receptors. The closest residences to the site are Turnpike Cottage, Fox Hollow and Greenlands, which are approximately 450 m to the west. To the east, there are residences near Lady Pool, the closest of which is approximately 540 m away from Milton Farm. These are poultry manager houses connected to other poultry sites. There are further residences and commercial properties to the north of Shobdon Airfield and in the countryside further afield, and the village of Shobdon is 1.2 km to the north of Milton Farm.

11.2 Odour concentration, averaging times, percentiles and FIDOR

Odour concentration is expressed in terms of European Odour Units per metre cubed of air (ouE/m3). The following definitions and descriptions of how an odour might be perceived by a human with an average sense of smell may be useful, however, it should be noted that within a human population there is considerable variation in acuity of sense of smell.

- 1.0 ouE/m3 is defined as the limit of detection in laboratory conditions.
- At 2.0 – 3.0 ouE/m3, a particular odour might be detected against background odours in an open environment.
- When the concentration reaches around 5.0 ouE/m3, a particular odour will usually be recognisable, if known, but would usually be described as faint.
- At 10.0 ouE/m3, most would describe the intensity of the odour as moderate or strong and if persistent, it is likely that the odour would become intrusive.

The character, or hedonic tone, of an odour is also important; typically, odours are grouped into three categories.

Most offensive:

- Processes involving decaying animal or fish remains.
- Processes involving septic effluent or sludge.
- Biological landfill odours.

Moderately offensive:

- Intensive livestock rearing.
- Fat frying (food processing).
- Sugar beet processing.
- Well aerated green waste composting.

Less offensive:

- Brewery.
- Confectionery.
- Coffee roasting.
- Bakery.

Dispersion models usually calculate hourly mean odour concentrations and Environment Agency guidelines and findings from UK Water Industry Research (UKWIR) are also framed in terms of hourly mean odour concentration.

The Environment Agency guidelines and findings from UKWIR use the 98th percentile hourly mean; this is the hourly mean odour concentration that is equalled or exceeded for 2% of the time period considered, which is typically one year. The use of the 98th percentile statistic allows for some consideration of both frequency and intensity of the odours.

At some distance from a source, it would be unusual if odour concentration remained constant for an hour and in reality, due to air turbulence and changes in wind direction, short term fluctuations in concentration are observed. Therefore, although average exposure levels may be below the detection threshold, or a particular guideline, a population may be exposed to short term concentrations which are higher than the hourly average. It should be noted that a fluctuating odour is often more noticeable than a steady background odour at a low concentration. It is implicit that within the model's hourly averaging time and the Environment Agency guidelines and findings from UKWIR that there would be variation in the odour concentration around this mean, i.e. there would be short periods when odour concentration would be higher than the mean and lower than the mean.

The FIDOR acronym is a useful reminder of the factors that will determine the degree of odour pollution:

- Frequency of detection.
- Intensity as perceived.
- Duration of exposure.
- Offensiveness.
- Receptor sensitivity.

11.3 Environment Agency guidelines

In April 2011, the Environment Agency published H4 Odour Management guidance (H4). In Appendix 3 – Modelling Odour Exposure, benchmark exposure levels are provided. The

benchmarks are based on the 98th percentile of hourly mean concentrations of odour modelled over a year at the site/installation boundary. The benchmarks are:

- 1.5 ouE/m3 for most offensive odours.
- 3.0 ouE/m3 for moderately offensive odours.
- 6.0 ouE/m3 for less offensive odours.

Any modelled results that project exposures above these benchmark levels, after taking uncertainty into account, indicates the likelihood of unacceptable odour pollution.

11.4 UK Water Industry Research findings

The main source of research into odour impacts in the UK has been the wastewater industry. An in-depth study of the correlation between modelled odour impacts and human response was published by UKWIR in 2001. This was based on a review of the correlation between reported odour complaints and modelled odour impacts in relation to nine wastewater treatment works in the UK with on-going odour complaints. The findings of this research and subsequent UKWIR research indicated the following, based on the modelled 98th percentile of hourly mean concentrations of odour:

- At below 5.0 ouE/m3, complaints are relatively rare at only 3% of the total registered.

- At between 5.0 ouE/m3 and 10.0 ouE/m3, a significant proportion of total registered complaints occur, 38% of the total.

- The majority of complaints occur in areas of modelled exposures of greater than 10.0 ouE/m3, 59% of the total.

11.5 Choice of odour benchmarks for this study

Odours from poultry rearing are usually placed in the moderately offensive category. Therefore, for this study, the Environment Agency's benchmark for moderately offensive odours, a 98th percentile hourly mean of 3.0 ouE/m3 over a one year period, is used to assess the impact of odour emissions from the proposed poultry unit at potentially sensitive receptors in the surrounding area. The UKWIR research is also considered.

11.6 Quantification of odour emissions

Odour emission rates from broiler and broiler-breeder houses depend on many factors and are highly variable. At the beginning of a crop cycle, when chicks are small, litter is clean and only minimum ventilation is required; the odour emission rate may be small. Towards the end of the crop, odour production within the poultry housing increases rapidly and ventilation requirements are greater, particularly in hot weather, therefore emission rates are considerably greater than at the beginning of the crop.

Peak odour emission rates are likely to occur when the housing is cleared of spent litter at the end of each crop. There is little available information on the magnitude of this peak emission,

but it is likely to be greater than any emission that might occur when there are birds in the house. The time taken to perform the operation is usually around two hours per house and it is normal to maintain ventilation during this time. There are measures that can be taken to minimise odour production whilst the housing is being cleared of spent litter and there is usually some discretion as to when the operation is carried out; therefore, to avoid high odour levels at nearby sensitive receptors, it may be possible to time the operation to coincide with winds blowing in a favourable direction.

To calculate an odour emission rate it is necessary to know the internal odour concentration and ventilation rate of the poultry houses. For the calculation, the internal concentration is assumed to be a function of the age of the crop and the stocking density.

The internal concentrations used in the calculations increase exponentially from 300 ouE/m3 at day 1 of the crop, to approximately 700 ouE/m3 at day 16 of the crop, to approximately 1,800 ouE/m3 at day 30 of the crop and approximately 2,300 ouE/m3 at day 34 of the crop. These figures are obtained from a review of available literature and are based primarily on Robertson et al. (2002).

The ventilation rates used in the calculations are based on industry practices and standard bird growth factors. Minimum ventilation rates are as those of an operational poultry house and maximum ventilation rates are based on Defra guidelines. It is assumed that a continuous minimum ventilation rate is maintained, which provides for 2 to 3 air changes per hour of the poultry house, in order to maintain negative pressure and thereby minimise fugitive emissions and prevent the build up of odours within the poultry house. Target internal temperature is 33 Celsius at the beginning of the crop and is decreased to 22 Celsius by day 34 of the crop. If the external temperature is 7 Celsius, or more, lower than the target temperature, minimum ventilation only is assumed for the calculation. Above this, ventilation rates are increased in proportion to the difference between ambient temperature and target internal temperature. A maximum transitional ventilation rate (35% of the maximum possible ventilation rate) is reached when the ambient temperature is equal to the target temperature. A high ventilation rate (70% maximum possible ventilation rate) is reached when the temperature is 4 degrees above target and if external temperature is above 33 Celsius the maximum ventilation rate is assumed.

At high ventilation rates, it is likely that internal odour concentrations fall because odour is extracted much faster than it is created. Therefore, if the calculated ventilation rate exceeds that required to replace the volume of air in the house every 5 minutes, internal concentrations are reduced (by a factor of the square root of 7.5 times the shed volume/divided by the ventilation rate as an hourly figure).

Based upon these principles, an emission rate for each hour of the period modelled is calculated by multiplying the concentration by the ventilation rate. Both the crop length and period the housing is empty can be varied. An estimation of the emission during the cleaning out process can also be included. In this case, it is assumed that the houses are cleared sequentially and each house takes 2 hours to clear.

In this case, for the broiler units, it is assumed for the calculations that the crop length is 38 days, with thinning of the birds at day 33 and that there is an empty period of 7-10 days after each crop. For the broiler-breeder unit, it is assumed that the crop length is 126 days (18 weeks) and that there is an empty period of 14 days after each crop. To provide robust statistics, three sets of calculations were performed; at Milton Farm, the first with the first day of the meteorological record coinciding with day 1 of the crop cycle, the second coinciding with day 16 of the crop and the third coinciding with day 33 of the crop. It has been assumed that the first day of each of the crops at the other broiler units and the broiler-breeder unit are staggered to avoid coinciding with each other and Milton Farm. Summaries of the emission rates used in this study are provided in Tables 1a (broiler chickens) and 1b (pullet rearing). It should be noted that the figures in theses tables refer to the whole of the crop length whilst most figures quoted in literature are figures obtained from the latter stages of the crop cycle and therefore should not be compared directly to these AS Modelling & Data Ltd. figures. The specific odour emission rate used for the clearing process is approximately 3.35 ouE/bird/s for the broiler chickens and the 98th percentile emission rate for the broiler chickens at Milton Farm is approximately 1.2 ouE/bird/s. As examples, graphs of the specific emission rates over the first year of the meteorological record for each of the three crop cycles are shown in Figures 2a (broiler chickens – Milton Farm) and 2b (pullet rearing).

11.7 The Atmospheric Dispersion Modelling System (ADMS) and Model Parameters

The Atmospheric Dispersion Modelling System (ADMS) ADMS 5 is a new generation Gaussian plume air dispersion model, which means that the atmospheric boundary layer properties are characterised by two parameters; the boundary layer depth and the Monin-Obukhov length rather than in terms of the single parameter Pasquill-Gifford class.

Dispersion under convective meteorological conditions uses a skewed Gaussian concentration distribution (shown by validation studies to be a better representation than a symmetrical Gaussian expression).

ADMS has a number of model options including: dry and wet deposition; NOx chemistry; impacts of hills, variable roughness, buildings and coastlines; puffs; fluctuations; odours; radioactivity decay (and γ-ray dose); condensed plume visibility; time varying sources and inclusion of background concentrations.

ADMS has an in-built meteorological pre-processor that allows flexible input of meteorological data both standard and more specialist. Hourly sequential and statistical data can be processed and all input and output meteorological variables are written to a file after processing.

The user defines the pollutant, the averaging time (which may be an annual average or a shorter period), which percentiles and exceedance values to calculate, whether a rolling average is required or not and the output units. The output options are designed to be flexible to cater for the variety of air quality limits, which can vary from country to country and are subject to revision.

11.8 Meteorological data

Computer modelling of dispersion requires hourly sequential meteorological data and to provide robust statistics, the record should be of a suitable length; preferably four years or longer.

The meteorological data used in this study is obtained from assimilation and short term forecast fields of the Numerical Weather Prediction (NWP) system known as the Global Forecast System (GFS).

The GFS is a spectral model and data are archived at a horizontal resolution of 0.25 degrees, which is approximately 25 km over the UK (formerly 0.5 degrees, or approximately 50 km). The GFS resolution adequately captures major topographical features and the broad-scale characteristics of the weather over the UK. Smaller scale topographical features may be included in the dispersion modelling by using the flow field module of ADMS (FLOWSTAR). The use of NWP data has advantages over traditional meteorological records because:

- Calm periods in traditional observational records may be over represented, this is because the instrumentation used may not record wind speeds below approximately 0.5 m/s and start up wind speeds may be greater than 1.0 m/s. In NWP data, the wind speed is continuous down to 0.0 m/s, allowing the calms module of ADMS to function correctly.

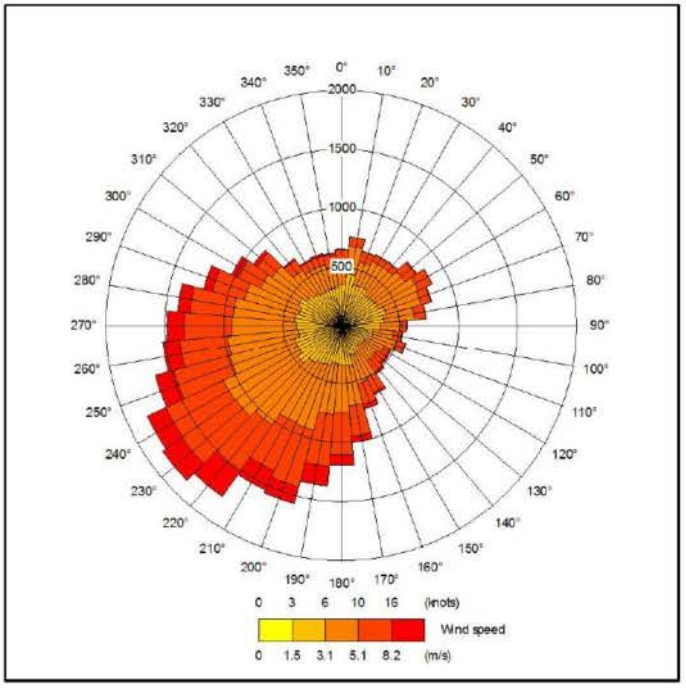
- Traditional records may include very local deviations from the broad-scale wind flow that would not necessarily be representative of the site being modelled; these deviations are difficult to identify and remove from a meteorological record. Conversely, local effects at the site being modelled are relatively easy to impose on the broad-scale flow and provided horizontal resolution is not too great, the meteorological records from NWP data may be expected to represent well the broad-scale flow.

- Information on the state of the atmosphere above ground level which would otherwise be estimated by the meteorological pre-processor may be included explicitly.

The wind rose for the raw GFS data at the site of Milton Farm is shown in Figure 3a.

Wind speeds are modified by the treatment of roughness lengths (see Section 4.7) and because terrain data is included in the modelling, the raw GFS wind speeds and directions will be modified further. The terrain and roughness length modified wind rose for the location at the existing and proposed poultry houses at Milton Farm is shown in Figure 3b. Note that elsewhere in the modelling domain the modified wind roses may differ more or less markedly and that the resolution of the wind field in terrain runs is 100 m.

The closest meteorological recording station that records all the parameters required for atmospheric dispersion modelling is at Shobdon, which is adjacent to Milton Farm. As it is so close to the site, modelling using meteorological data from Shobdon has also been considered. It should be noted that, for the meteorological data recorded at Shobdon, periods of light winds and calms cannot be properly modelled. Therefore, it is the opinion of AS Modelling & Data Ltd. that the results obtained using the GFS data, particularly when modified by using FLOWSTAR, should be given more weight when interpreting the results of the modelling.



11.9 Emission sources

Emissions from the chimneys of the uncapped high speed ridge fans that are, or would be, used to ventilate the existing and proposed poultry houses at Milton Farm are represented by three point sources per house within ADMS (EX1 to EX5 and PR1 to PR3; a, b and c).

Emissions from the chimneys of the uncapped high speed ridge fans that are, or would be, used to ventilate the existing and proposed poultry houses at Shobdon Farm (Site 2), the development farm (Site 3) and Hangar Farm (Site 4), as well as the capped ridge fans that are used to ventilate the existing poultry houses at Mountain View, are represented by three point sources per poultry unit within ADMS (Site 2 to Site 5; a, b and c).

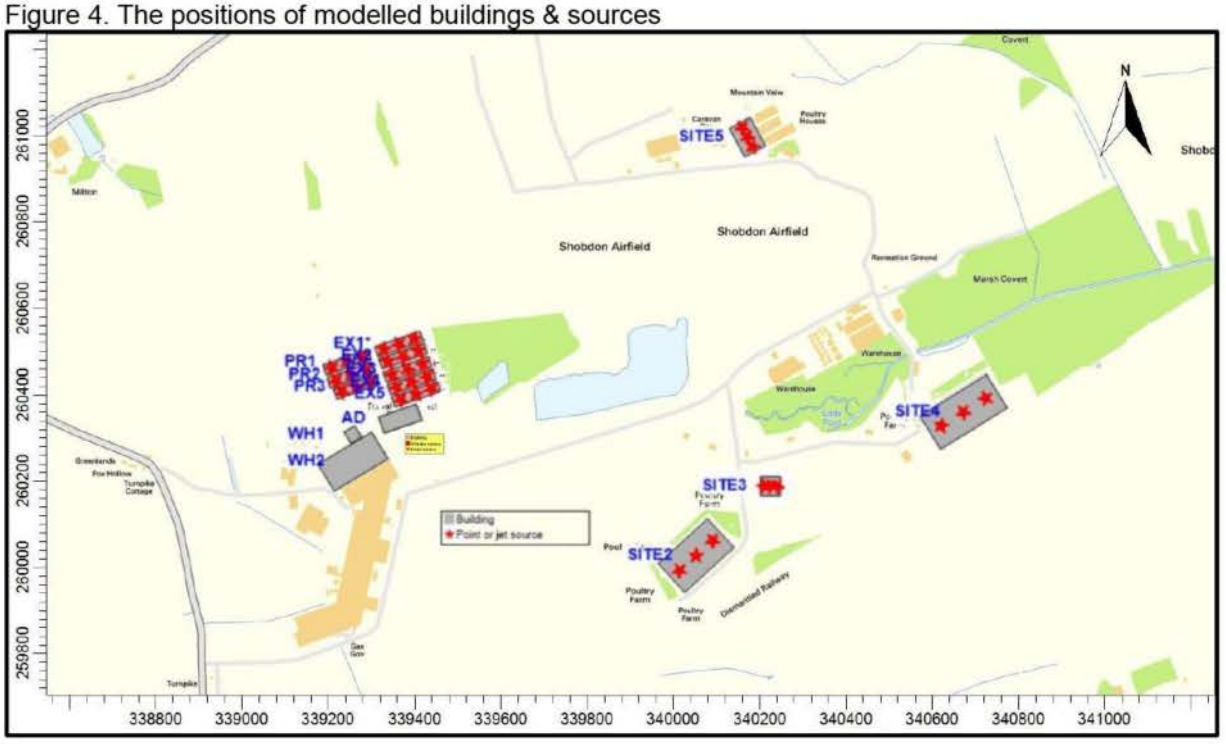
Details of the point source parameters are shown in Table 2 and their positions may be seen in Figure 4, where they are marked by red stars.

Table 2. Point source parameters

Source ID (Scenario)	Height (m)	Diameter (m)	Efflux velocity (m/s)	Emission temperature (°C)	Emission rate per source (ou_E/s)

EX1 to EX5; a, b & c (Development & Cumulative Impact)	7.5	0.8	14.0	Variable [1]	Variable [1]
PR1 to PR3; a, b & c (Development & Cumulative Impact)	7.5	0.8	14.0	Variable [1]	Variable [1]
Site 2 to Site 4; a, b & c (Cumulative Impact)	5.5	0.8	11.0	Variable [1]	Variable [1]
Site 5; a, b & c (Cumulative Impact)	5.5	2.0	0.1	Variable [1]	Variable [1]

Figure 4. The positions of modelled buildings & sources



Discrete receptors

Twenty discrete receptors have been defined at a selection of nearby residences and commercial properties. The receptors are defined at 1.5 m above ground level within ADMS and their positions may be seen in Figure 5a and Figure 5b, where they are marked by enumerated pink rectangles.

Figure 5a. The discrete receptors and nested Cartesian grid receptors – development scenario

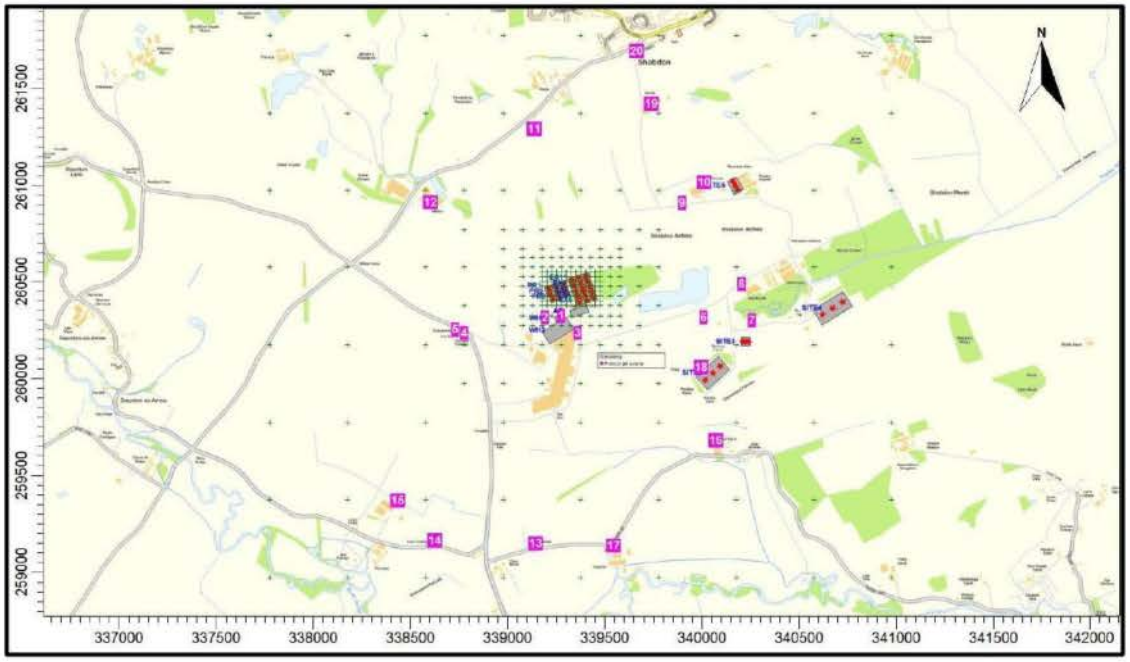
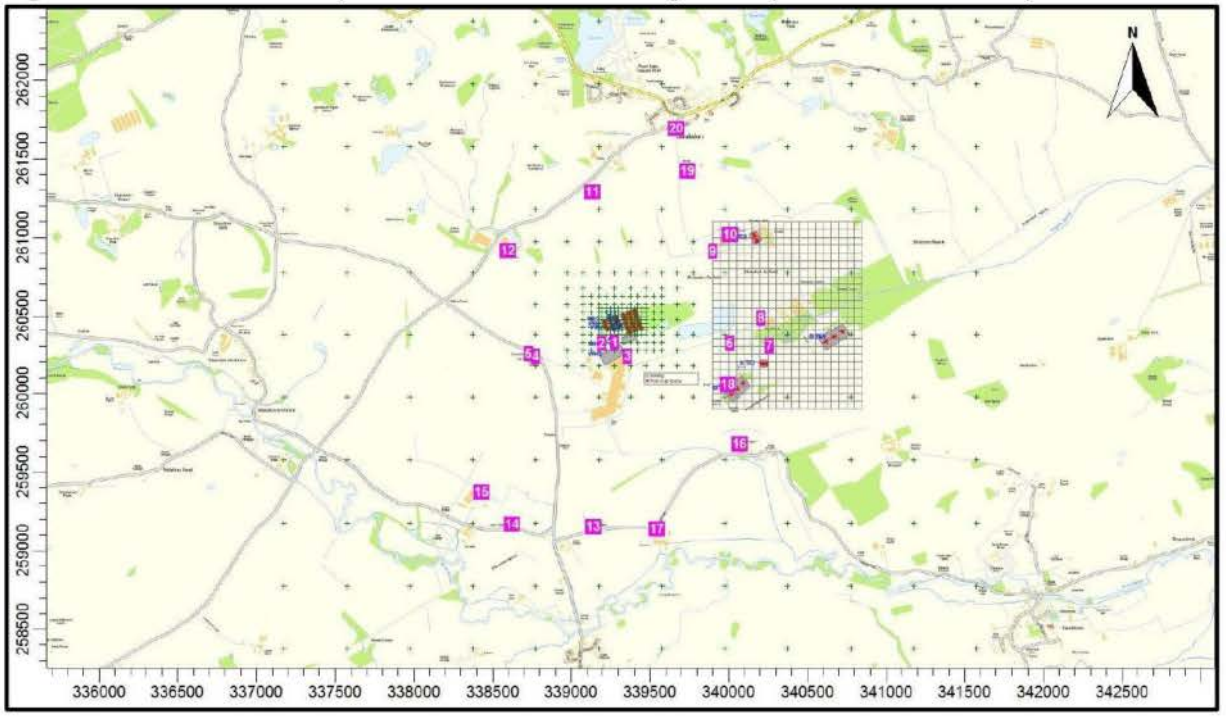


Figure 5b. The discrete receptors and nested Cartesian grid receptors – cumulative impact scenario



Nested and Regular Cartesian grids

To produce the contour plots, nested Cartesian grids and a regular Cartesian grid have been defined within ADMS, for the development scenario and for the cumulative scenario. The grid receptors are defined at 1.5 m above ground level within ADMS. The positions of the grid

receptors may be seen in Figure 5a for the development scenario and in Figure 5b for the cumulative scenario, where the nested Cartesian grids are marked by green crosses and the regular Cartesian grid is marked by grey lines.

Terrain data

There are some slopes that may affect wind flow and dispersion of odour in the area around the site; therefore, terrain has been considered in the modelling. The terrain data used are derived from the Ordnance Survey 50 m Digital Elevation Model. The terrain domain is 6.4 km by 6.4 km and FLOWSTAR is run at a resolution of 64 x 64 points; therefore, the effective model resolution is 100 m.

Other model parameters

A fixed surface roughness length of 0.25 m has been applied over the entire modelling domain. The GFS meteorological data is assumed to have a roughness length of 0.225 m. The effect of the difference in roughness length is precautionary as it increases the frequency of low wind speeds and the stability and therefore increases predicted ground level concentrations.

11.10 Details of the Model Runs and Results

For this study ADMS was run with the terrain module of ADMS (FLOWSTAR) and with the calms module of ADMS.

ADMS was effectively run twenty-four times, once for each year of the four year meteorological record, for each of the three crop cycles and for the development scenario and the cumulative impacts scenario. Statistics for the annual 98th percentile hourly mean odour concentration at each receptor were compiled for each of the model runs.

For the development scenario, a summary of the results of the modelling runs at the discrete receptors is provided in Table 3a where the maximum annual 98th percentile hourly mean odour concentration is shown. For the cumulative impacts scenario, a summary of the results of the modelling runs at the discrete receptors is provided in Table 3b. Contour plots of the maximum annual 98th percentile hourly mean odour concentrations for the development scenario, the cumulative impacts scenarios for the existing and proposed poultry units at Milton Farm, using the GFS model runs, are shown in Figure 6a, Figure 6b and Figure 6c, respectively.

In Table 3a and Table 3b, predicted odour exposures in excess of the Environment Agency's benchmark of 3.0 ouE/m3 as an annual 98th percentile hourly mean are coloured blue; those in the range that UKWIR research suggests gives rise to a significant proportion of complaints, 5.0 ouE/m3 to 10.0 ouE/m3 as an annual 98th percentile hourly mean, are coloured orange and predicted exposures likely to cause annoyance and complaint are coloured red.

Odours that arise during the clearing out process, although short in duration, can be quite intense. AS Modelling & Data Ltd. do include a peak in emissions when modelling broiler

rearing (See Section 3.5); however, as the duration of the emission is short, this has little effect on the predicted 98th percentile statistics, on which guidance on the acceptability or not of odour is based.

To address this, 99.5th and 99.8th percentile statistics, which the cleaning out process will have a more significant effect upon than it does on the 98th percentile statistics, have also been compiled for the development scenario. N.B. the 99.5th percentile is the value equalled or exceeded for 0.5% of the time and the 99.8th percentile is the value equalled or exceeded 0.2% of the time. These statistics for the proposed poultry unit at Milton Farm, for the development scenario, are presented alongside the 98th percentiles in Table 3a. No comment on the significance/acceptability is made as there is no guidance available; however, the descriptions in Section 3.1 of the main report may be useful when interpreting the results.

Table 3a. Predicted maximum annual 98th percentile hourly mean odour concentrations at the discrete receptors – development scenario

Receptor number	X(m)	Y(m)	Site	Maximum annual mean 98th percentile odour concentration (ou_E/m^3)		Maximum annual mean 99.8th percentile odour concentration (ou_E/m^3)	Maximum annual mean 99.5th percentile odour concentration (ou_E/m^3)
				GFS Calms Terrain	Shobdon Calms Terrain	GFS Calms Terrain	GFS Calms Terrain
1	339277	260322	Commercial	**8.30**	**6.78**	22.15	15.67
2	339194	260314	Commercial	**8.38**	**6.71**	18.11	15.90
3	339360	260233	Commercial	**6.00**	**5.23**	14.42	10.53
4	338777	260234	Turnpike Cottage	2.31	2.72	7.29	5.68
5	338731	260252	Greenlands	2.05	2.50	6.38	4.70
6	340010	260315	Residence	2.07	1.67	6.28	4.12
7	340256	260299	Residence	1.28	1.11	4.44	2.84
8	340206	260486	Warehouse	1.52	1.26	4.75	3.35
9	339899	260908	Aero Club	2.14	1.65	5.63	3.81
10	340012	261016	Caravan Site	1.63	1.19	4.27	3.08
11	339135	261290	Residence	0.91	0.45	3.21	2.12
12	338601	260915	Milton House	0.70	0.62	3.99	2.12
13	339143	259151	Fairfields	0.53	0.42	2.53	1.41
14	338625	259163	Leen Cottages	0.40	0.35	1.85	1.22
15	338433	259369	Commercial, Greenfields	0.45	0.34	1.79	1.29
16	340073	259678	Broome Farm	0.84	0.65	3.35	2.13
17	339547	259137	Twyford	0.55	0.33	2.31	1.55
18	339998	260056	Poultry Farm (non-residential)	1.36	1.21	4.02	2.62
19	339739	261420	Commercial	0.86	0.55	3.10	1.95
20	339665	261691	Residence, Bar Meadow	0.57	0.41	2.28	1.24

Table 3b. Predicted maximum annual 98th percentile hourly mean odour concentrations at the discrete receptors – cumulative impacts scenarios

Receptor number	X(m)	Y(m)	Site	Maximum annual mean 98th percentile odour concentration (ou_E/m^3)	
				Cumulative Impact Existing	Cumulative Impact Proposed
1	339277	260322	Commercial – Torvale Industrial Estate	**6.74**	**8.38**
2	339194	260314	Commercial – Torvale Industrial Estate	**5.11**	**8.54**
3	339360	260233	Commercial – Torvale Industrial Estate	**5.03**	**5.96**
4	338777	260234	Turnpike Cottage	1.84	2.83
5	338731	260252	Greenlands	1.65	2.50
6	340010	260315	Residence	**4.24**	**4.46**
7	340256	260299	Residence	**5.87**	**5.87**
8	340206	260486	Warehouse	2.75	2.97
9	339899	260908	Aero Club	2.33	2.97
10	340012	261016	Caravan Site	2.92	**3.25**
11	339135	261290	Residence	0.96	1.23
12	338601	260915	Milton House	0.83	1.08
13	339143	259151	Fairfields	1.17	1.31
14	338625	259163	Leen Cottages	1.05	1.22
15	338433	259369	Commercial, Greenfields	0.86	0.97
16	340073	259678	Broome Farm	**3.21**	**3.37**
17	339547	259137	Twyford	1.17	1.23
18	339998	260056	Poultry Farm (non-residential)	**14.63**	**14.63**
19	339739	261420	Commercial	0.95	1.19
20	339665	261691	Residence, Bar Meadow	0.65	0.81

Figure 6a. Predicted maximum annual 98th percentile hourly mean odour concentration – development scenario

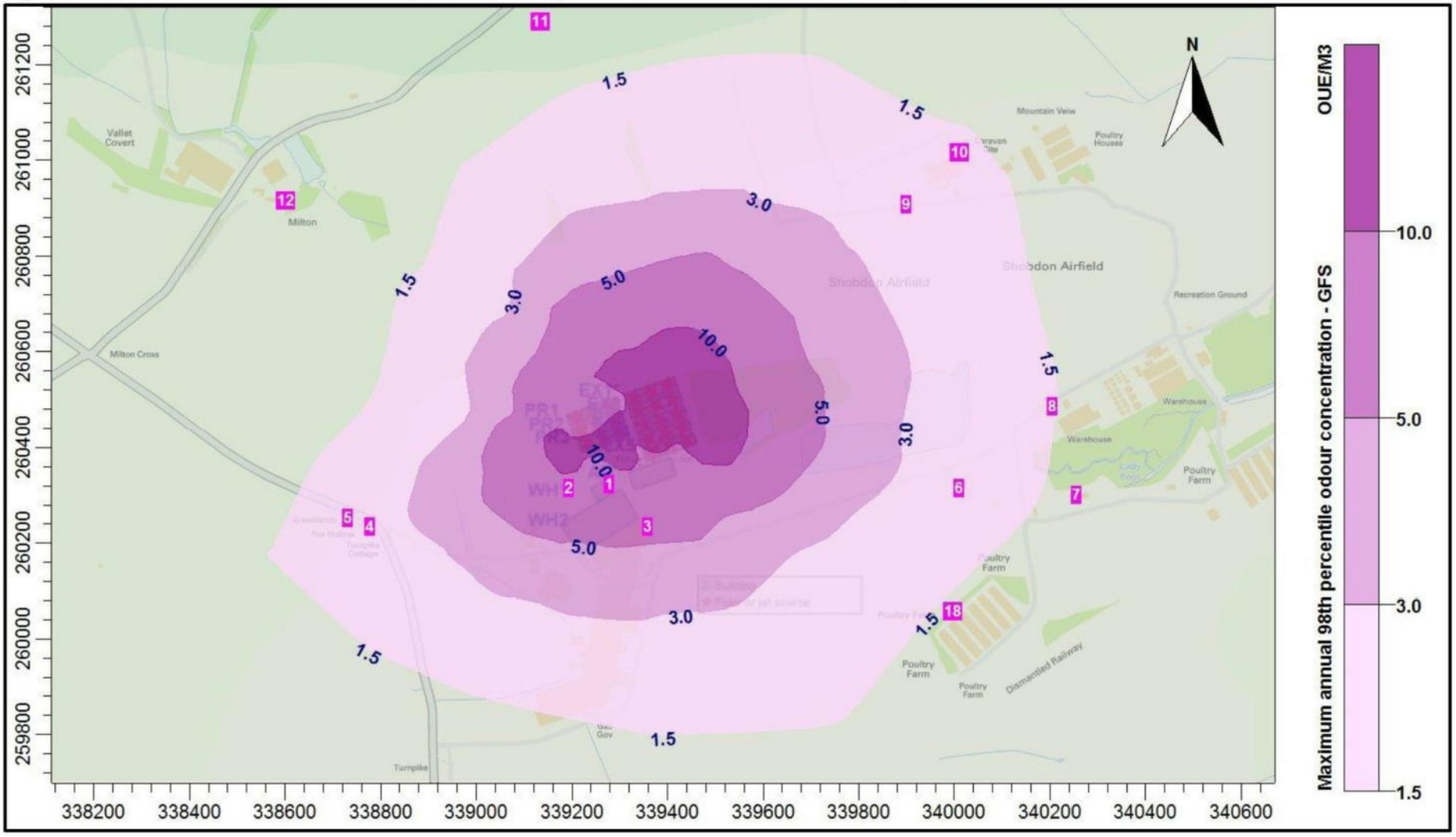


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Figure 6b. Predicted maximum annual 98th percentile hourly mean odour concentration – cumulative impacts scenario – existing

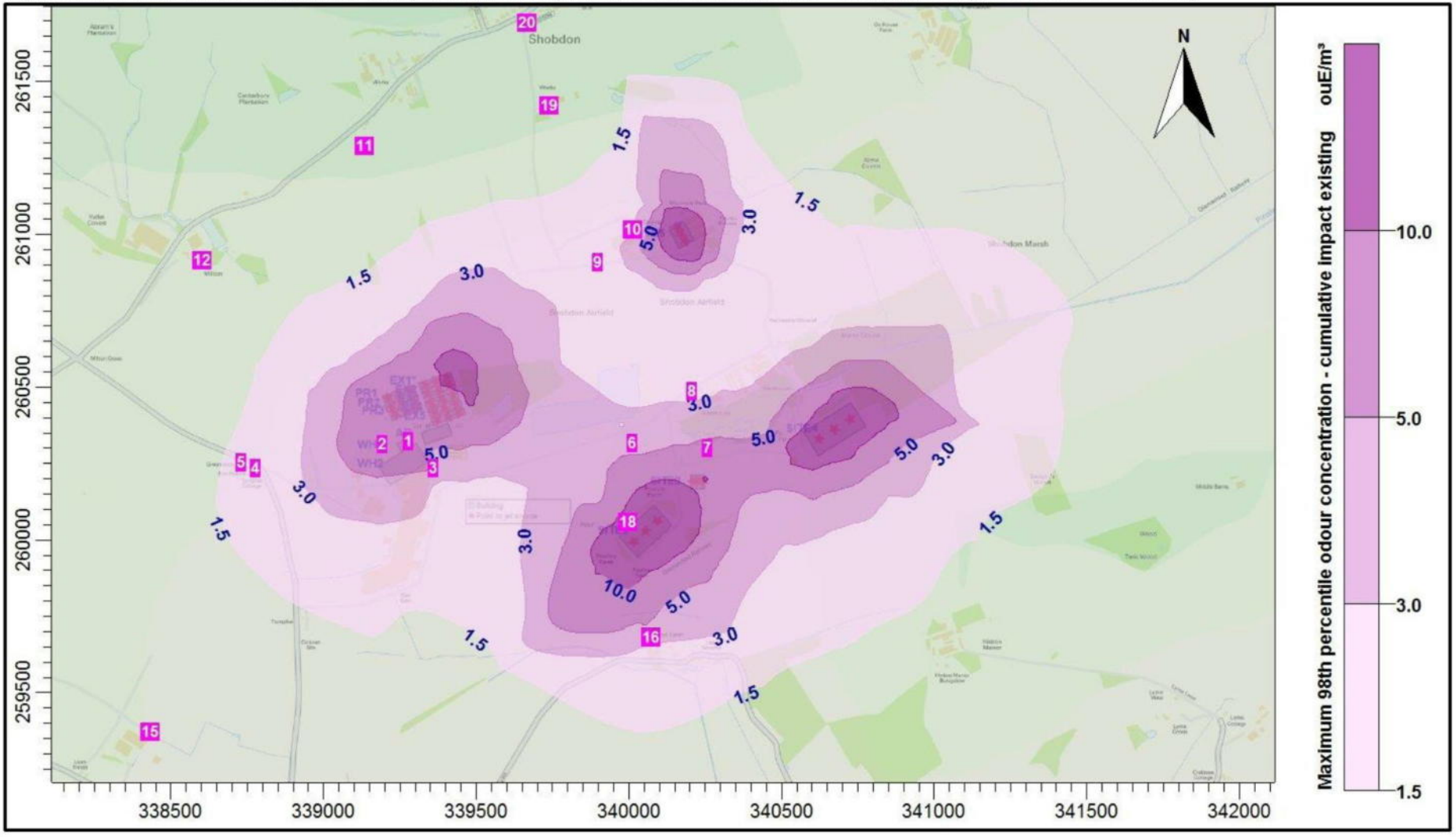

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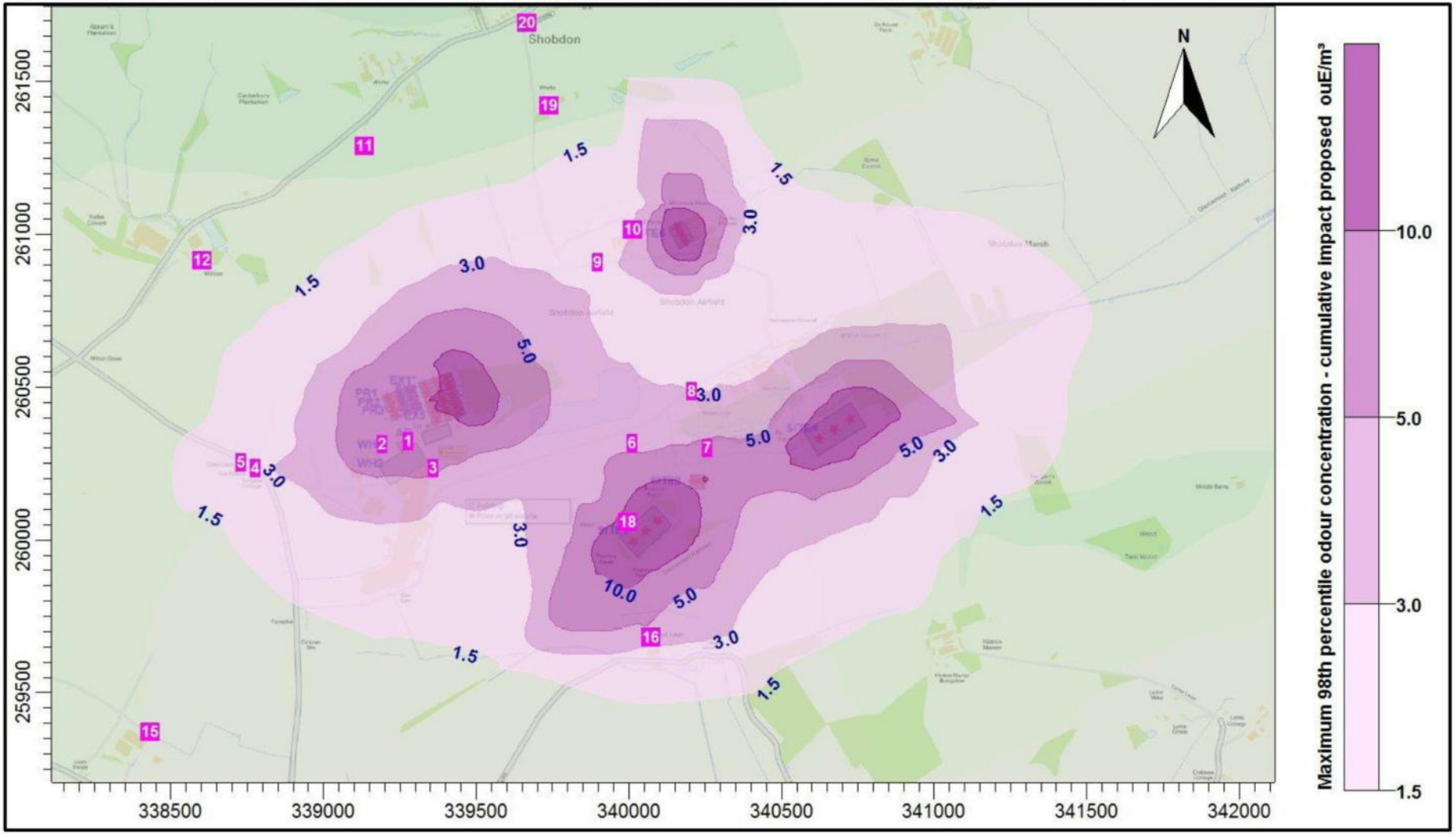
Figure 6c. Predicted maximum annual 98th percentile hourly mean odour concentration – cumulative impacts scenario - proposed



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11.11 Summary and Conclusions

Odour emission rates from the existing and proposed poultry houses have been assessed and quantified based upon an emissions model that takes into account the likely internal odour concentrations and ventilation rates of the poultry houses. The odour emission rates so obtained have then been used as inputs to an atmospheric dispersion model which calculates odour exposure levels in the surrounding area. In addition, odour emissions rates for four other nearby poultry units have been assessed and quantified and used as inputs to atmospheric dispersion modelling for a cumulative impacts assessment for the local area.

Development scenario

The modelling predicts that, at three nearby discrete receptors (receptors 1 to 3), the odour concentrations would exceed the Environment Agency's benchmark for moderately offensive odours, a maximum annual 98th percentile mean concentration of 3.0 ouE/m3. These three receptors are not residential, being located at commercial premises at Torvale Industrial Estate (Kingspan) and on this basis they are not considered to be the most sensitive receptors.

The highest level is 6.78 (Shobdon Calms) which is only slightly above the level 5 where the odour is judged as being recognisable, if known, but usually described as faint. It should also be noted that there is little to no change in odour levels when comparing the existing cumulative levels against the proposed.

At all other receptors considered, including all residences, the modelling predicts that 98th percentile odour concentrations would be below the Environment Agency's benchmark value for moderately offensive odours for the development.

Cumulative impacts scenario

The modelling of the existing poultry houses at Milton Farm, along with four other local poultry units, demonstrates that odours at some locations in the vicinity of the site are in exceedance of the Environment Agency's benchmark value for moderately offensive odours, a maximum annual 98th percentile mean concentration of 3.0 ouE/m3. This is the case at the commercial properties at Torvale Industrial Estate Kingspan), the residences near to Lady Pool, Broome Farm and a non-residential receptor which is located very close to the poultry houses at Shobdon Farm.

The impact of the proposed expanded poultry unit at Milton Farm is to increase odour concentrations locally, most notably at those locations close to Milton Farm, the commercial properties at Torvale Industrial Estate. Further away from Milton Farm, the impact of the development is very small, with only one instance of cumulative modelled odours from the proposal being increased beyond the Environment Agency's benchmark for moderately offensive odours, at the Caravan Site (receptor 10) to the north of the airfield. It must be noted that even in this case, the increase is small, with modelled odours for the existing scenario being very close to the benchmark already.

11.12 Odour Mitigation

The proposed poultry units at Milton Farm will operate under the Environmental Permit which has been approved by the Environment Agency.

The facility must be managed to ensure compliance with the EP which will include measures to reduce odour. The document 'how to comply with your environmental permit for intensive farming' (EPR 6.09) includes information on odour control.

EPR guidance 6.09 also provides some additional guidance in relation to house design and odour control. This guidance includes the following:

'The nature of intensive farming means that preventing odour generation at source is rarely possible as animals are inherently odorous. However, there are many things that can be done, often at low cost, to minimise odour or to prevent it reaching neighbours. Odour management is site specific - you will need to pick out those elements which most closely match your circumstances and add in any other sources or problems.

In most cases, attention to housekeeping and good operational practices should achieve a significant reduction in the level of exposure experienced at sensitive receptors.

In cases where all reasonable measures have been taken and have failed to reduce emissions to the point where the exposure of sensitive receptors is acceptable then 'end of pipe' abatement may need to be considered. This may require odour to be contained at source and extracted to an abatement system with minimum fugitive losses. Bio filters or absorption 'scrubber' systems (chemical or biological) are the favoured choice because of their effectiveness and ease of operation. This is obviously a more expensive option so all effort should be made to improve the housekeeping aspects of the operation.'

An Odour Management Plan will be submitted as part of the Permit application and will ensure that all measures are taken to reduce odour emissions. The EP guidance sets out guidance for minimising odour from poultry and their housing as follows:

Odour from litter and manure based systems may be minimised by increasing the dry matter content of the litter or manure, by both preventing spillages of water and providing a drying mechanism. If the dry matter content is 60% or above, ammonia emissions are minimal. New buildings should be able to meet this.

As part of the Odour Management Plan the below table lists odour minimisation by source;

Potential Source	Minimisation Technique	Review Date
Broiler Production Housing	• Full inspection of the buildings will be undertaken. • Litter to be kept as dry as possible. • Ventilation appropriate for bird welfare and to prevent a build-up in humidity. • Staged protein reduction in diets based on age. • Leak proof drinking system, this will be inspected twice daily as a minimum in order to prevent wet litter.	Annually-June

	• Additional bedding material will be applied during each cycle in order to maintain dry litter. • Early disease detection as sick birds can cause poor or wet litter conditions. • The bird's water consumption will be monitored daily along with humidity within the building. • Correct temperature will be maintained dependent on the stage in the production cycle. • The buildings integrity will be maintained in order to prevent water ingress. • Routine end of cycle maintenance. • Maintain site cleanliness, any spillages will be dealt with promptly and correctly. • Site clean and foul water drainage systems will be properly maintained and kept clean in order to reduce odour. • Adequate building insulation will be installed during construction.	
Carcases	• Mortalities will be collected daily and stored in sealed vermin proof containers until collected by a licensed agent. • Regular collection by a licensed agent, the frequency of which will be increased during the summer months in order to minimise odour issues. • Containers stored in a cool, safe place, out of direct sunlight.	Annually – June
Litter Removal	• Doors to be closed during initial clear out and only opened when trailers are being loaded. • Trailers parked as close as possible to the buildings doors in order to reduce the amount of dust being blown away. • Trailers will not be overfilled to avoid spillage. • Trailers carrying the litter will be sheeted to avoid dust and odour. • Litter removal not to take place during inappropriate weather conditions	Annually – June
Washing Operations	• All wash water will be adequately contained. • Terminal hygiene plan to be followed at all times. • Suitable chemical products will be selected and the correct dilution rates will be adhered to. • Limit washing operations at weekends and bank holidays where possible. • Washing operations not to take place during inappropriate weather conditions	Annually – June
Stored Litter	• Temporary field heaps sited away from sensitive receptors • There will be no litter stored on the site on or near poultry site. (litter will be used in the on-site AD Plant).	Annually – June
Litter/Waste Water Spreading	• Limit spreading at weekends and bank holidays • Limit spreading in still and humid conditions • Limit spreading close to neighbours • Compliance with manure management plan • Incorporate litter as soon as possible	Annually – June

In addition the Odour Management Plan contains the below table which list odour minimisation by activity in relation to the proposed development at Milton Farm;

Odour Related Issue	Potential Risks and Problems	Actions taken to minimise odour and odour risks
Manufacture and selection of feed	• Milling and mixing of compound feeds • The use of poor quality and odorous ingredients • Feeds which are unbalanced in nutrients, leading to increased excretion, litter moisture and emission of ammonia and other odour compounds to air	• No on site milling • Feed specifications prepared by feed compounders nutrients specialist • Feed supplied from UKASTA accredited feed mills so approved raw material used
Feed storage and delivery	• Spillage of feed during delivery and storage • Creation of dust during feed delivery	• Feed delivery systems sealed to minimise atmospheric dust • Any spillage of feed around the bin is immediately swept up • The condition of feed bins checked frequently so any damage or leaks can be identified
Ventilation system	• Inadequate air movement in the house leading to high humidity, wet litter and ammonia build up • Inadequate system design causing poor dispersal of odours	• Ventilation systems regularly adjusted according to the age and requirements of the flock • Ventilation system designed to efficiently remove moisture from the house • Ventilation system routinely checked to ensure efficient functioning to specification
Litter management	• Odours arising from wet litter (see above) • The use of insufficient or poor quality litter • Spillage of water from drinking systems • Disease outbreaks leading to wet litter	• Controls on feed and ventilation (see above) help to maintain litter quality. Additional controls include: • Use of nipple drinking systems which minimise spillage • Insulated walls and ceilings to prevent condensation • Concrete floors to prevent overcrowding • Use of a health plan with specialist veterinary input used as necessary
Carcass disposal	• Inadequate storage of carcasses on site • Carcasses left on site too long	• Carcasses are placed in sealed containers immediately after they are removed • Regular collection as detailed above
House clean-out	• Creation of dust associated with litter removal from houses • Use of odour products to clean the houses	• Doors are kept closed during clean out when possible. • Litter is carefully placed into trailers positioned at the entrance to each house.

		When full the trailer is covered/sheeted and not overfilled • Only approved and suitable products are used. • Clean-out not to take place in inappropriate weather conditions
Used litter	• Storage of used litter on site • Transport of litter and applications to land	• There is no storage of used litter outside the houses at any one time. • Yards are cleaned down at clear out. • Litter is used in the on-site AD Plant • Litter spread on land is done strictly in accordance with approved Manure Management Plan
Dirty water management	• Standing dirty water during the production cycle or at clean out • Applications of dirty water to land	• Areas around the house are concreted and remain clean during the production cycle • At clean-out dirty water is directed to sealed underground tanks for storage. • It is then spread onto land as weather conditions permit.

12 WATER RESOURCES

12.1 Introduction

Background

A Flood Risk Assessment (FRA) has been prepared by Hydrogeo Ltd, which is attached at Appendix 9. This FRA includes an assessment of the existing and proposed surface water drainage of the site.

Following a query raised by the Council's drainage consultant dated 10th August 2017 an addendum report has been prepared by Hydrogeo Ltd dated 18th September and an amended indicative surface water drainage plan. This additional information addresses the issue below;

Prior to the Council granting planning permission, the Applicant should demonstrate that the risk of surface water flooding has been mitigated within the design of the development (this should include stating the floor levels).

Full details of the additional information is provided on page 98 under the heading Surface Water (pluvial) Flooding.

Details of the previous infiltration testing undertaken close to the site in accordance with BRE365 have been submitted.

The FRA has been carried out in accordance with guidance contained in the National Planning Policy Framework (NPPF)1 and associated Planning Practice Guidance2. This FRA identifies and assesses the risks of all forms of flooding to and from the development and demonstrates how these flood risks will be managed so that the development remains safe throughout the lifetime, taking climate change into account.

It is recognised that developments which are designed without regard to flood risk may endanger lives, damage property, cause disruption to the wider community, damage the environment, be difficult to insure and require additional expense on remedial works. The development design should be such that future users will not have difficulty obtaining insurance or mortgage finance, or in selling all or part of the development, as a result of flood risk issues.

National Planning Policy Framework (NPPF)

One of the key aims of the NPPF is to ensure that flood risk is taken into account at all stages of the planning process; to avoid inappropriate development in areas at risk of flooding and to direct development away from areas of highest risk.

It advises that where new development is exceptionally necessary in areas of higher risk, this should be safe, without increasing flood risk elsewhere, and where possible, reduce flood risk overall.

A risk based approach is adopted at stages of the planning process, applying a source pathway receptor model to planning and flood risk. To demonstrate this, an FRA is required and should include:

- whether a proposal is likely to be affected by current or future flooding from all source;
- whether it will increase flood risk elsewhere;
- whether the measures proposed to deal with these effects and risks are appropriate;
- if necessary provide the evidence to the LPA that the Sequential Test can be applied; and
- whether the development will be safe and pass part c) of the Exception Test if this is appropriate.

12.1 Sources of Information

Discussion with Regulators

Consultation and discussions with the relevant regulators have been undertaken during the preparation of this FRA including with the Environment Agency, the Local Planning Authority (LPA), the Lead Local Flood Authority (LLFA) and Sewerage Undertakers.

Environment Agency

The Flood and Water Management Act 2010 gives the Environment Agency a strategic overview role for all forms of flooding and coastal erosion. They also have direct responsibility for the prevention, mitigation and remediation of flood damage for main rivers and coastal areas. The Environment Agency is the statutory consultee with regards to flood risk and planning.

Environment Agency Flood Risk Standing Advice for England, the NPPF and the Practice Guidance to the NPPF has been consulted and reviewed during this FRA. This has confirmed the level of FRA required and that a surface water drainage assessment is to be undertaken. Information regarding the current flood risk at the site, local flood defences and flood water levels has been obtained from the Environment Agency.

Herefordshire Council

Herefordshire Council is the LPA and the Lead Local Flood Authority (LLFA) and has responsibilities for 'local flood risk', which includes surface runoff, groundwater and ordinary watercourses. Planning guidance written by Herefordshire Council regarding flood risk was consulted to assess the mitigation policies in place.

The Herefordshire Council Strategic Flood Risk Assessment (SFRA) and Herefordshire Council Preliminary Flood Risk Assessment (PFRA) which cover the site have been

reviewed.

The advice contained in the Council's scoping opinion dated 11th January 2017 has been taken into account.

Dwr Cymru/Welsh Water

Dwr Cymru/Welsh Water is responsible for the disposal of waste water and supply of clean for this area. Information with regards to sewer and water main flooding contained within the Herefordshire Council SFRA and the Herefordshire Council PFRA have been consulted. All Water Companies have a statutory obligation to maintain a register of properties/areas which are at risk of flooding from the public sewerage system, and this is shown on the DG5 Flood Register.

12.3 Site Location & Development Description

Site Location

The site is located at Milton Farm, Pembridge, Leominster, Herefordshire, HR6 9LB in a rural area about 1km to the south of the village of Shobdon. The National Grid Reference (NGR) of the site is 339263, 260458. Access to the site will be via the existing private road that comes off the C1032 (between Milton Cross and Pembridge), via the main Kingspan entrance.

Existing Development

The site currently comprises an agricultural field adjacent to five existing poultry buildings. The five existing poultry buildings and associated impermeable areas which total 16,600m3 currently discharge surface water runoff into a soakaway basin which measures approximately 2,400m3 (see Appendix 1 of the FRA).

Proposed Development

The proposal is for the addition of three poultry buildings and associated development. The proposed additional poultry buildings will operate as a broiler rearing site, with a maximum of 162,000 birds per cycle across the three additional poultry buildings. Including cleaning of the buildings, each cycle will last about 46 days, which equates to approximately 7.90 crops per year. The combined existing five poultry buildings and proposed three units will house a maximum of 440,000 birds in total.

The proposed additional three poultry buildings will be situated to the west of the existing poultry site, forming an extension to the built environment. The poultry buildings will measure 6m to the ridge, as per the existing buildings with the floor areas measuring:

- 2 poultry buildings: 110.1m x 24.6m
- 1 poultry buildings: 97.9m x 24.6m

Ground Levels

The site rises from south to north from 96.914 metres Above Ordnance Datum (mAOD) to 99.296mAOD (see Appendix 2 of the FRA).

Catchment Hydrology

The Pinsley Brook flows within 700m of the south east of the site and the River Arrow flows to the south of the proposed development at approximately 1.35km away. The Shobdon Gravel Pit is located to the east of the site. The majority of drainage flows currently leave the site via infiltration into the soil and the underlying geology.

Geology

The British Geological Survey (BGS) Map indicates that the bedrock underlying the site consists of the Raglan Mudstone Formation – siltstone and mudstone, interbedded. Superficial deposits underlay the site comprising glaciofluvial sand and gravel deposits. BGS borehole records near to the site indicate that these are approximately 10m in thickness.

Groundwater

There is no Groundwater Source Protection Zone nor any Safeguard Zone for Drinking Water Protected Areas. There is a Secondary A aquifer underlying the site; these are permeable layers formerly classified as minor aquifers. They are capable of supporting water supplies at a local rather than strategic scale and are sometimes important sources or base flows for rivers.

Borehole records taken from Shobdon Industrial Estate and Torvale Industrial Estate are held by the BGS which both show rest groundwater level to lie around 5.00m below ground level (mbgl).

Soil

Information from the National Soil Resource Institute3 details the site area as being situated on slowly permeable seasonally wet acid loamy and clayey soils with impeded drainage. The Flood Studies Report WRAP soil map classification is Type 2: i) Very permeable soils with shallow ground water; ii) Permeable soils over rock or fragipan, commonly on slopes in western Britain associated with smaller areas of less permeable wet soils; (fragipan - a natural subsurface horizon having a higher bulk density than the solum above. Seemingly cemented when dry but showing moderate to weak brittleness when moist. The layer is low in organic matter, mottled and slowly or very slowly permeable to water. It is found in profiles of either cultivated or virgin soils but not in calcareous material); and iii) Moderately permeable soils, some with slowly permeable subsoils.

Permeability/Infiltration Rate

In determining the future surface runoff from the site, the potential of using infiltration devices has been considered. The range of permeability likely to be encountered at the site is moderate. Percolation tests were carried out by Draycott Consulting as part of the drainage plan for an Anaerobic Digester Plant that has been constructed directly adjacent to the proposed poultry houses. Herefordshire County Council have approved the Draycott drainage plan and stated that the percolation test results could be used when designing the soakaway

system for the poultry unit. The percolation trial pit data was analysed in accordance with BRE Digest 365 Guidelines which calculated an infiltration rate of 0.213m/hr.

These results indicate that the ground is suitable for soakaway drainage, SUDS methods such as soakaways will work at the site.

12.4 Flood Risk

Climate Change

Projections of future climate change in the UK indicate more frequent, short-duration, high intensity rainfall and more frequent periods of long duration rainfall. Guidance included within the NPPF recommends that the effects of climate change are incorporated into FRA. Recommended precautionary sensitivity ranges for peak rainfall intensities and peak river flows are outlined in the associated Planning Practice Guidance to the NPPF.

Sources of Flooding

All sources of flooding have been considered, these are; Fluvial (river) Flooding, Tidal (coastal) looding, Groundwater Flooding, Surface Water (pluvial) Flooding, Sewer Flooding and Flooding from Artificial Drainage Systems/Infrastructure Failure.

The key consequences of flooding are death/personal injury, extensive damage to property, properties uninhabitable for long periods, properties cannot be sold, insurance unavailable or too expensive, expense of installing flood resilience measures and business interruptions.

Fluvial (river) Flooding

The nearest watercourse to the application site is the Pinsley Brook that flows within 700m of the south east of the site. The River Arrow flows within about 1.35km of the south of the site. Therefore, the risk of flooding from the fluvial sources is considered to be not significant.

Tidal (coastal) Flooding

The site is not located within the vicinity of tidal flooding sources and the risk of tidal flooding is considered to be not significant.

Groundwater Flooding

Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

Groundwater flooding tends to occur sporadically in both location and time. When groundwater flooding does occur, it tends to mostly affect low-lying areas, below surface infrastructure and buildings (for example, tunnels, basements and car parks) underlain by permeable rocks (aquifers).

Site ground conditions suggest the risk from groundwater flooding is low. There are no historical records of groundwater flooding at or within the vicinity of the site. Also, no below

surface infrastructure and buildings are located or are proposed for the site. Therefore, the risk of flooding from groundwater flooding is considered to be not significant. The risk of groundwater flooding will be further managed and mitigated by using a number of property level protection measures to manage and reduce the overall flood risk at the site.

Surface Water (pluvial) Flooding

Surface water flooding tends to occur sporadically in both location and time such surface water. The site is not situated on and adjacent to areas of permeability and areas with geology which may result in surface water flooding.

The Environment Agency Surface Water flood map shows that the majority of the site has a very low risk of surface water flooding with a chance of flooding of less than 1 in 1000 years (0.1%) (see Drawing 2). However, a small proportion of the site has a low to high risk of surface water flooding years with a chance of between a 1 in 1000 (0.1%) and of greater than 1 in 30 (3.3%) years. This may result in water depths of less than 300mm and water velocities of greater than 0.25m/s.

Using a conservative estimate of water velocity of 0.30m/s and a maximum water depth of 0.30m any flooding would result in a 'low' flood hazard with a caution hazard with a flood zone with shallow flowing or deep standing water as per the Supplementary Note on Flood Hazard Ratings and Thresholds for Development Planning and Control Purpose - Clarification of the Table 13.1 of FD2320/TR2 and Figure 3.2 of FD/2321/TR1.

It should be noted that this is the most conservative estimate of flood risk posed by surface water flooding.

The risk of flooding from surface water flooding is considered to be of low significance. The risk from this source will be further mitigated by using a number of risk management measures to manage and reduce the overall flood risk at the site.

The Environment Agency Surface Water flood map shows that the top shed is not located within the low to high risk zone, it is only the middle and bottom shed which are located in this zone. Therefore, the top shed will not be inundated with floodwater, as shown in Figure 1 of the addendum report by Hydrogeo dated 18th September 2017.

The site is not situated near to large areas of poor permeability or areas with the geology and/or topography which may result in surface water flooding. The site surroundings are relatively flat and there are no large catchments that would tend to generate surface water runoff towards the site. Surface water flow flooding tends to occur sporadically in both location and time such surface water flows would tend to be confined to the hardstanding areas around the development.

It should also be noted that the surface water flood risk has only been indicatively mapped in the Environment Agency Surface Water flood map and does not take into account local drainage, local features or local topography. This means that Environment Agency Surface Water flood map may overestimate the surface water flood risk in an area. It is highly unlikely that surface water flooding would actually inundate the site.

Since the production of the Environment Agency Surface Water flood map a number of developments have occurred which will reduce the surface water flood risk.
Floodwater is shown to flow from the pond/woodland area to the north east of the site and would follow the local contours with ground levels falling from the north east to south west. The floodwater would follow the path of least resistance.

Located between the site and the flooding source are five existing poultry sheds and a piped drainage system. The existing poultry sheds have a 300mm twin wall pipe that runs across the north of the sheds and then down the back of the sheds to the existing soakaway basin. This pipe and the five existing sheds intercept any surface water flows from the north and north east. This will be extended across the northern boundary of the proposed poultry sheds. There is also a tarmac road located to the east of the site which will also intercept any flows with floodwater flowing down to the south.

The area of the site shown to be at risk of surface water flooding has also been filled in since the production of the Environment Agency Surface Water flood map. The LiDAR data used in the production of the surface water flood map was based on the previous ground levels. The topographical survey from pre-filling of the site shows that the ground levels are lower than the topographical survey from the post-filling of the site.

All of the above would result in any surface water flowing away from the site and would not result in inundation of the site from surface water flooding.

A conservative estimation of the surface water level for the site has been calculated by adding on a 300mm water depth onto the ground levels at the time of the surface water flood map production (i.e. pre-infilling of the site topographical survey), as shown in Table 1.

The proposed finished floor level of 98.00mAOD at the front of the sheds provides a minimum freeboard of 300mm above the calculated surface water flood level. This will prevent floodwater entering the front of the sheds, any floodwater will meet the front of the sheds first and will not enter the sheds at the front due to the raised finished floor levels.

The proposed finished floor level of 98.30mAOD at the rear of the sheds will reduce the internal flood depth to 147mm for the bottom shed and 200mm for the middle shed. The rear of the finished floor level at the rear of the sheds cannot be raised any higher. Therefore, to provide further protection against the surface water flood risk the following mitigation measures will be adopted, see below.

Table 1 - Floodwater levels and finished floor levels

	Front				Rear			
	Ground Level	Water Level (ground level + 300mm)	FFL	Freeboard (mm)	Ground Level	Water Level (ground level + 300mm)	FFL	Internal Water Depth (mm)
Bottom shed	97.40	97.70	98.00	300	98.17	98.47	98.30	147
Middle shed	97.40	97.70	98.00	300	98.20	98.50	98.30	200
Top shed	97.48	No flooding	98.00	No flooding	98.816	No flooding	98.30	No flooding

Surface Water Drainage

The existing poultry sheds have a 300mm twin wall pipe that runs across the north of the sheds and then down the back of the sheds to the existing soakaway basin. This intercepts any surface water flows from the north and north east. This will be extended across the northern boundary of the proposed poultry sheds to intercept any surface water flows from the north of the site.

Flood Resilience and Resistance

The development of the layout should always consider that the site is potentially at risk from an extreme event and as such the implementation of flood resilience and resistance methods should be assessed.

To make the buildings more resistant to seepage the following measures will be incorporated. Sealant will be used around external doors and windows. All external doors and windows will be constructed from durable materials and the walls of the buildings will be durable.

A solid concrete floor is proposed which will resist flooding and scour. Around the concrete base, on the south, north and west sides, will be 450mm high concrete wall, which will further protect the sheds against flooding by stooping the inflow of water. The wall will have a minimum freeboard of 250mm above the anticipated flood depths.

To improve the buildings resilience to flooding the following measures will be incorporated. All electrical wiring, switches, sockets, socket outlets, electrical, and gas meters etc. will be located a minimum of 900mm above the finished floor levels.

The concrete foundations will be a minimum of 750mm deep (and 600mm wide) based on the site soil conditions and Building Regulations. Any floodwater at the site would not be of high velocities, as the site is on the very edge of the flood zones. The soils are not particularly fine grained. The foundations are therefore, not at a high risk from scour.

The water depth outside the buildings will be low therefore, floor (and any lateral support they provide) will not need to be structurally designed to resist water uplift forces, as per BS 85500:2015. Fixings will be galvanized/stainless steel/copper (no mild steel to be used - cause rust/staining or walls). Hardcore and binding will have good compaction to reduce the risk of settlement and consequential cracking.

The sheds are designed to dissipate water quickly and efficiently as they are regularly internally washed down. Therefore, if the sheds do flood internally this will quickly dry out and be operational.

Flood Plan

A Flood Plan outlining the precautions and actions you should take when a flood event is anticipated to help reduce the impact and damage flooding may has been developed.
Sensible precautions would include raising electrical items, irreplaceable items off the ground. In addition, consider what actions you would take should the site need to be evacuated including practising using the access and egress routes and preparing a flood kit in advance containing warm clothing, medication, a torch, food and wellingtons.

The Flood Plan is a 'living' document and therefore should be periodically reviewed and updated to provide advice and guidance to staff in the event of an extreme flood. The Flood Plan will therefore reduce the vulnerability of the staff to flooding and makes them aware of the mechanisms of flooding at the site.

Conclusion

The clarification of the points will ensure that the development is safe in accordance with NPPF.

Sewer Flooding

Sewer flooding occurs when urban drainage networks become overwhelmed and maximum capacity is reached. This can occur if there is a blockage in the network causing water to back up behind it or if the sheer volume of water draining into the system is too great to be handled. Sewer flooding tends to occur sporadically in both location and time such flood flows would tend to be confined to the streets around the development.

There are no existing sewers located within the vicinity of the site; therefore, the site is not at risk of sewer flooding. The risk of flooding from sewers is considered to be not significant.

Flooding from Artificial Drainage Systems/Infrastructure Failure

There are no other nearby artificial water bodies, reservoirs, water channels and artificial drainage systems that could be considered a flood risk to the site. Drawing 3 in the FRA shows that the site is not at risk of flooding from reservoir failure. The risk of flooding from artificial drainage systems/infrastructure failure is considered to be not significant.

Historic Flooding

There are no records of anecdotal information of flooding at the site. The British Hydrological Society "Chronology of British Hydrological Event5" has no information on flooding within the vicinity of the site. No other historical records of flooding for the site have been recorded. Therefore, it has been assumed that the site has not historically flooded.

Existing and Planned Flood Defence Measures

No flood defences measures protect the site against flooding. Further risk management measures will be used to protect the site from flooding.

Environment Agency Flood Zones

A review of the Environment Agency's Flood Zones indicates that the majority of the site is located within Flood Zone 1 and therefore has a 'low probability' of fluvial flooding, with less than 1 in 1000 annual probability of river flooding in any year (<0.1%).

The Flood Zones are the current best information on the extent of the extremes of flooding from rivers or the sea that would occur without the presence of flood defences, because these can be breached, overtopped and may not be in existence for the lifetime of the development. The Flood Zones show the worst-case scenario.

Summary

The risk of flooding from all sources is considered to be **not significant** this will be further mitigated by the adoption of the risk management measures (see Section 6 in the FRA) for site.

The proposed development is classified as 'less vulnerable', 'less vulnerable' uses are appropriate within Flood Zone 1 after the completion of a satisfactory FRA.

In conclusion, the development will be situated in Flood Zone 1, with a low annual probability of flooding and from all sources. The chance of flooding from all sources each year is less than 0.1% (1 in 1000 years).

12.5 Surface Water Drainage

Surface Water Management Overview

It is recognised that consideration of flood issues should not be confined to the floodplain. The alteration of natural surface water flow patterns through developments can lead to problems elsewhere in the catchment, particularly flooding downstream. For example, replacing vegetated areas with roofs, roads and other paved areas can increase both the total and the peak flow of surface water runoff from the development site. Changes of land use on previously developed land can also have significant downstream impacts where the existing drainage system may not have sufficient capacity for the additional drainage.

A SUDS Strategy for the site proposals has been developed to manage and reduce the flood risk posed by the surface water runoff from the site. An assessment of the surface water runoff rates has been undertaken, in order to determine the surface water options and attenuation requirements for the site. The assessment considers the impact of the development compared to current conditions. Therefore, the surface water attenuation requirement for the developed site can be determined and reviewed against existing arrangements.

The requirement for managing surface water runoff from developments depends on the pre-developed nature of the site. If it is an undeveloped greenfield site, then the impact of the development will need to be mitigated so that the runoff from the site replicates the natural drainage characteristics of the pre-developed site.

The surface water drainage arrangements for any development site should be such that the volumes and peak flow rates of surface water leaving a developed site are no greater than the rates prior to the proposed development, unless specific off –site arrangements are made and result in the same net effect.

It should be acknowledged that the satisfactory collection, control and discharge of surface water runoff are now a principle planning and design consideration. This is reflected in recently implemented guidance and the recently released National Sustainable Drainage Systems (SUDS) Standards. It is necessary to demonstrate that the surface water from the proposed development can be discharged safety and sustainably.

Existing Surface Water Runoff Rates

In order to quantify any potential changes in surface water runoff, the pre-development runoff rates from the site must be determined. The rates of runoff have been determined using the current 'industry best practice' guidelines as outlined in the Interim Code of Practice for SUDS6.

The recommended methodology for sites up to 50 hectares in area is the Institute of Hydrology Report 124 method (IoH124)7. Table 5-1 below shows the greenfield surface water runoff rates pre-development. QBAR (rural) has been calculated to be 1.93 litres/second.

Table 5-1 Pre-application Greenfield Peak Flows.

Return Period (years)	Runoff Rate (l/s)
1	1.64
QBAR	1.93
30	3.38
100	4.20

Site Storage Volumes Assuming Infiltration

The provision of suitable storage on site to mitigate the flood risk resulting from the development of the site will be a key factor in the evolution of the site development layout. The provision of large volumes of attenuation can be achieved by a number of methods; however, not all systems can be assessed in direct comparison.

One of the aims of the NPPF is to provide not only flood risk mitigation but also to maximise additional gains such as improvements in runoff quality and provision of amenity and bio-diversity. Systems incorporating these features are often termed SUDS and it is the requirement that these are considered as the primary means of collection, control and disposal for storm water as close to source as possible.

At this stage, it is proposed that the impermeable areas of the site will be discharged to the existing soakaway basin. The five existing poultry buildings and associated impermeable areas currently discharge surface water runoff into a soakaway basin which measures 2,400m3 with a depth over 2.00m.

The post-development site will be constructed from 9,052m2 or 0.90ha of impermeable surfaces and the five existing poultry buildings and associated impermeable areas total 16,600m2 or 1.66ha. Therefore, the total impermeable surfaces will total 25,652m2 or 2.56ha.

An infiltration rate of 0.213m/hr has been used in the calculations within this report. The soakaway basin is located a minimum of 5.00m away from any buildings and roads. There needs to a minimum of 1.00m from the base of the soakaways to the seasonally high water table. Rest groundwater levels lie around 5.00mbgl.
The CIRIA 156 calculation procedure for a soakaway basin within the Masterdrain Drainage Software was used to demonstrate that the proposed surface water runoff volumes can be viably accommodated on site and drained by infiltration during the 1, 30, and 100 year storms with a 20% allowance for climate change with a void ratio of 100%.

The required half emptying time of 24 hours for each of the design storms is met and therefore this method of storm water disposal is appropriate for use on this site. The calculated storage

volumes are shown in the table below. The proposed Drainage Strategy is shown in Drawing 5 of the FRA.

Betterment will be further provided by collecting the 'washdown' water used for cleaning the poultry houses which will be collected into underground storage tanks. This system will be 'sealed system' with the dirty water being pumped out for use on the farm fields. This will provide an additional water storage capacity over and above the storage volume.

Return Period (years)	Impermeable Area (m^2)	Length (m)	Width (m)	Required Volume + CC (m^3)	Actual Volume (m^3)	Half Emptying Time (hr:min)
1 + 20%	25,652	50.00	30.00	193.05	2,400	00:21
30 + 20%				590.01	2,400	01:34
100 + 20%				882.38	2,400	02:28

Proposed SUDS Strategy

The objective of this SUDS Strategy is to ensure that a sustainable drainage solution can be achieved which reduces the peak discharge rate to manage and reduce the flood risk posed by the surface water runoff from the site. The SUDS Strategy takes into account the following principles:

- No increase in the volume or runoff rate of surface water runoff from the site.
- No increase in flooding to people or property off-site as a result of the development.
- No surface water flooding of the site.
- The proposals take into account a 20% increase in rainfall intensity due to climate change.

In line with adopting a 'management train' it is recommended that water is managed as close to source as possible. This will reduce the size and cost of infrastructure further downstream and also shares the maintenance burden more equitably. It is therefore recommended that the site provides its own attenuation, and one stage of treatment is required. This will be in the form of:

- Settlement of solids will be promoted by the SUDS measures, by using a soakaway basin.
- Further betterment will be provided by collecting the 'washdown' water used for cleaning the poultry houses which will be collected into underground storage tanks.
- For larger events storage in other areas such as landscaping, provided that it will not cause damage or prevent access.

The above manages and mitigates the flood risk from surface water runoff to the proposed properties from surface water runoff generated by the site development and to offsite locations as well the risk from surface water runoff generated offsite.

The size of the soakaway basin has been calculated such that the proposed development has the capacity to accommodate the 1 in 100 year rainfall event including a 20% increase in rainfall intensity that is predicted to occur as a result of climate change. Consequently, all areas drained have been designed to accommodate a 100 year (+20% climate change) storm event and will provide a minimum attenuation storage volume of 882.38m3.

The remainder of the site that is not formally drained, i.e. landscaped areas, will be permeable (grass). The majority of rainwater falling on these areas will soak into the ground. Surface water runoff would be directed to the drainage system. The design of the system will allow any silt and debris from the development an opportunity to settle. The soakaway will naturally filter potentially suspended solids contained in the surface water runoff from any hardstanding.

These methods will reduce peak flows, the volume of runoff, and slow down flows and will provide a suitable SUDS solution for this site. The adoption of a SUDS Strategy for the site represents an enhancement from the current conditions as the current surface water runoff from the site is uncontrolled, untreated, unmanaged and unmitigated.

Where SUDS are to be used, it must be established that these options are feasible, can be adopted and properly maintained and would not lead to any other environmental problems with a maintenance schedule or the lifetime of the facility and these issues should be considered at the detailed design stage.

In adopting these principles, it has been demonstrated that a scheme can be developed that does not increase the risk of flooding to adjacent properties and development further downstream.

Designing for Local Drainage System Failure/Design Exceedance

When considering residual risk, it is necessary to make predictions as to the impacts of a storm event that exceeds the design event, or the impact of a failure of the local drainage system. The SUDS Strategy applies a safe and sustainable approach to discharging rainfall runoff from the site and this reduces the risk of flooding however, it is not possible to completely remove the risk.

As part of the SUDS Strategy it must be demonstrated that the flooding of property would not occur in the event of local drainage system failure and/or design exceedance. It is not economically viable or sustainable to build a drainage system that can accommodate the most extreme events. Consequently, the capacity of the drainage system may be exceeded on rare occasions, with excess water flowing above ground.

The attenuation requirements have been designed to accommodate the 1 in 100 year storm event plus climate change (+20%). The design of the site layout provides an opportunity to

manage this local drainage system failure/exceedance flow and ensure that indiscriminate flooding of property does not occur.

There will not be an extensive sewerage network on the proposed development site and therefore any potential exceedance flooding would be contained within the highways. In particular, the landscaped areas will include preferential flow paths that convey water away from buildings. Surface water runoff would be directed to the drainage system through drainage gullies located around the perimeter of the buildings and through contouring of the hardstanding areas.

When considering the impacts of a storm event that exceeds the 1 in 100 year (+ 20%) event, there is safety factor for ponds, even under the design event conditions. Consequently, if this event were to be exceeded there is additional capacity with the system to accommodate this. If this freeboard was to be exceeded the consequences would be similar, if not less than for the local drainage system failure. Consequently, the impact of an exceedance event is not considered to represent any significant flood hazard.

The above manages and mitigates the flood risk from surface water runoff to the proposed properties from surface water runoff generated by the site development and to offsite locations as well the risk from surface water runoff generated offsite.

Off-Site Impacts

The proposed SUDS Strategy is designed to attenuate surface water runoff for all events up to and including the 1 in 100 year (+ 20%) event. Surface water runoff will discharge through a soakaway basin. The design of the system will allow any silt and debris from the development an opportunity to settle. Vegetation within will naturally filter potentially suspended solids contained in the surface water runoff from any hardstanding.

Surface water runoff from all hard surfaces will receive an appropriate level of treatment in accordance with the SUDS Manual which will minimise the risk of pollution to the local watercourses and off site locations.

This restriction in surface water runoff will also provide significant flood mitigation benefits to existing third party property and land downstream of the site that may be potentially at risk from flooding.

12.6 Foul Water Drainage

Foul Water Management Overview

There are no welfare facilities proposed as part of the application as they are already available on site. Dirty water will only be generated during times when the sheds are cleaned. The 'washdown' water used for cleaning the poultry houses which will be collected into underground storage tanks. It is proposed that an adequately sized foul water storage tank will be provided and this will be emptied when required.

As is standard practice during the cleaning out of the poultry houses after each batch of poultry has been removed, a diverter valve will divert yard water to the dirty water storage tank to reduce the risk of any contaminated water entering the stormwater drainage system. The dirty water will be spread on the farm holding as a fertiliser in appropriate conditions.

Standard pollution prevention procedures have been implemented based on industry best practice and Environment Agency Pollution Prevention Guidelines (PPGs), to mitigate potential impacts on the water environment.

12.7 Risk Management/Mitigation

Mitigation measures are required to ensure that any potential impacts are avoided or reduced to an acceptable and manageable level. The following section describes the mitigation measures which will be used to reduce the adverse effects.

During Construction

Standard pollution prevention procedures to be implemented during the construction phase based on industry best practice and the Environment Agency Pollution Prevention Guidelines (PPGs), to mitigate potential impacts on the water environment.

Systems and Plans

A Environmental Management System (EMS) will be operated. As part of the system, potential environmental risks posed are assessed and instructions provided to protect the environment. Relevant procedures will be adhered to during construction including operational safeguards for the prevention of accidental spills.

A site Pollution Prevention and Incident Plan (PPIP) will be implemented during all phases of the development.

The site will operate in line with Best Practice Guidelines thus reducing the potential for pollution to groundwater and surface water. Containment aspects relating to material storage and management of any incident will be contained within the Permit conditions, and managed through a separate Regulatory regime. Site specific Environment Work Practices (EWPs) will be operated to prevent contaminated runoff entering groundwater and surface water and take appropriate corrective actions, including: EWPs for dealing with non-permitted waste, spillage control and clean up, inspection and control of contaminated surface water.

Storage of Fuel and Oil

Where fuelling of large machinery is required, drip trays and absorbent mats and pellets will be used to contain or absorb accidental spillages. Plant maintenance will also be undertaken in a designated area and similar contamination prevention measures will be adopted.

Spillage and Emergency Procedures outlined in the Environmental Management Plan will be followed in the event of a pollution incident, and will be developed in consultation with the

Environment Agency. The plan will include the provision of appropriate emergency response equipment on-site and staff training in emergency procedures.

The Pollution Prevention Guideline, Number 21 – 'Pollution incident response planning' will be integrated into any emergency procedures. Best practice measures will be undertaken when working with fuels as detailed above.

Monitoring

On-going monitoring and management of the surface water management system will ensure that its integrity is maintained. Overall the site poses no significant risk to surface water/groundwater resources within the catchment area.

Residual Effects

It is concluded that the proposed mitigation measures will ensure that the proposed development will have only minor/negligible impacts, with no significant adverse long term effects on groundwater and surface water.

12.8 Summary and Conclusions

Introduction

This report presents a FRA in accordance with the NPPF for the proposed development at Milton Farm, Pembridge, Herefordshire. The FRA includes an assessment of the existing and proposed surface water drainage of the site.

Flood Risk

The risk of flooding from all sources is considered to be **not significant** this will be further mitigated by the adoption of the risk management measures for site.

The proposed development is classified as 'less vulnerable', 'less vulnerable' uses are appropriate within Flood Zone 1 after the completion of a satisfactory FRA.

In conclusion, the development will be situated in Flood Zone 1, with a low annual probability of flooding and from all sources. The chance of flooding from all sources each year is less than 0.1% (1 in 1000 years).

SUDS Strategy

The SUDS Strategy ensures that a sustainable drainage solution can be achieved which reduces the peak discharge rate to manage and reduce the flood risk posed by the surface water runoff from the site. The SUDS Strategy takes into account the following principles:

- No increase in the volume or runoff rate of surface water runoff from the site.
- No increase in flooding to people or property off-site as a result of the development.
- No surface water flooding of the site.

- The proposals take into account a 20% increase in rainfall intensity due to climate change.

In line with adopting a 'management train' it is recommended that water is managed as close to source as possible. This will reduce the size and cost of infrastructure further downstream and also shares the maintenance burden more equitably. It is therefore recommended that the site provides its own attenuation, and one stage of treatment is required. This will be in the form of:

- Settlement of solids will be promoted by the SUDS measures, by using a soakaway basin.
- Further betterment will be provided by collecting the 'washdown' water used for cleaning the poultry houses which will be collected into underground storage tanks.
- For larger events storage in other areas such as landscaping, provided that it will not cause damage or prevent access.

The above manages and mitigates the flood risk from surface water runoff to the proposed properties from surface water runoff generated by the site development and to offsite locations as well the risk from surface water runoff generated offsite.

The size of the soakaway basin has been calculated such that the proposed development has the capacity to accommodate the 1 in 100 year rainfall event including a 20% increase in rainfall intensity that is predicted to occur as a result of climate change. Consequently, all areas drained have been designed to accommodate a 100 year (+20% climate change) storm event and will provide a minimum attenuation storage volume of 882.38m3.
The remainder of the site that is not formally drained, i.e. landscaped areas, will be permeable (grass). The majority of rainwater falling on these areas will soak into the ground. Surface water runoff would be directed to the drainage system. The design of the system will allow any silt and debris from the development an opportunity to settle. The soakaway will naturally filter potentially suspended solids contained in the surface water runoff from any hardstanding.

These methods will reduce peak flows, the volume of runoff, and slow down flows and will provide a suitable SUDS solution for this site. The adoption of a SUDS Strategy for the site represents an enhancement from the current conditions as the current surface water runoff from the site is uncontrolled, untreated, unmanaged and unmitigated.

Where SUDS are to be used, it must be established that these options are feasible, can be adopted and properly maintained and would not lead to any other environmental problems with a maintenance schedule or the lifetime of the facility and these issues should be considered at the detailed design stage.

In adopting these principles, it has been demonstrated that a scheme can be developed that does not increase the risk of flooding to adjacent properties and development further downstream.

Conclusion

This FRA demonstrates that the proposed development would be operated with **minimal risk** from flooding, would not increase flood risk elsewhere and is compliant with the requirements of the NPPF.

The development should not therefore be precluded on the grounds of flood risk.

13 AMENITY

11.0 Amenity

11.1 Introduction

The proposed development at Milton Farm does have the potential to affect amenity issues in the surrounding area. The following issues have therefore been assessed in relation to the development; dust, odour, flies and vermin. Noise and odour issues have been covered in

separate chapters. The potential for nuisance caused by these issues could potentially impact on the local population.

The existing poultry units already operate under an Environmental Permit (EPR/WP3334VW/V002). An application to vary this permit has been approved for the proposed additional three poultry units. This therefore allows for the proposed increase in bird numbers at the expanded site to be a maximum of 440,000 broiler birds per cycle.

Paragraph 122 of the NPPF states the following (bold text is my emphasis);

In doing so, local planning authorities should focus on whether the development itself is an acceptable use of the land, and the impact of the use, ***rather than the control of processes or emissions themselves where these are subject to approval under pollution control regimes. Local planning authorities should assume that these regimes will operate effectively****. Equally, where a planning decision has been made on a particular development, the planning issues should not be revisited through the permitting regimes operated by pollution control authorities.*

The Environmental Permit (EP) aims to achieve integrated prevention and control of pollution arising from activities listed in Annex 1 of the European Council Directive 96/61/ED, leading to a high level of protection of the environment as a whole. It provides a system requiring operators and regulators to undertake an integrated, overall look at the polluting and consuming potential of the poultry development. Operators should take all appropriate preventative measuring against pollution, in particular through the application of best available technique enabling them to improve environmental performance. As well as the poultry units themselves, the EP will cover all potential sources of emissions including, air quality, dust, noise, odour, ammonia, drainage, vermin etc.

Operating under an EP confirms that the site has demonstrated that 'best available techniques' will be used to minimise emissions to the receiving environment. This is defined in Article 2(11) of the European Directive as "the most effective and advances stage in the development of activities and their methods of operation which indicate the practical suitability of particular techniques for providing the basis for emission limit values designed to prevent and, where that is not practicable, generally reduce emissions and the impact on the environment as a whole". The best available techniques to be applied to the poultry development are those set out in the European Commission's Reference Document on Best Available Techniques for Intensive Rearing of Poultry and Pigs known as the BREF document.

Statutory nuisances are regulated by Part III of the Environmental Protection Act (EPA) 1990. The powers allow for action to be taken by local authorities or individuals against statutory nuisance that exists or is likely to occur or recur. Statutory Nuisances include smoke, fumes or gases emitted from premise, any dust, steam, smell or other effluvia arising on industrial, trade or business premises, which are prejudicial to health or a nuisance. There is a defence of using Best Available Technique (BAT) to prevent the nuisance or counteract its effects together with reasonable excuse. The granting of planning permission is not a defence.

The NPPF sets out in Chapter 11 Conserving and enhancing the natural environment, that when considering the location of new development, the effects (including cumulative) of pollution on health, the natural environment or general amenity, and the potential sensitivity of the area or proposed development to adverse effects from pollution, should be taken into account.

In this Chapter, the types and sources of potential nuisances are identified and assessed against the potential sensitivity of individual receptors. This is based on the nature and proximity to the activity, and also general wind direction and nature of the receptor. This uses risk assessment tables to identify sources, receptors and pathways in relation to potential amenity issues. This is based on guidance relating to intensive livestock farming (from the Environment Agency's (EA's) 'Simple assessment of environmental risk for accidents, odour, noise and fugitive emissions (EPR – H1) – Version 080328 (March 2008)) and includes comprehensive management plans based on accepted guidance and Best Available Technique (BAT).

11.2 Baseline Environment and Sensitive Receptors

The application site lies directly east of five existing poultry units and AD Plant and forms part of the wider Shobdon Airfield site, which includes other poultry sites, the Kingspan facility directly and aerodrome. The application site and land to the north is currently arable land forming part of Milton Farm.

It is generally accepted that a 400m zone around intensive livestock development is the threshold for nuisance complaints relating to airborne emissions. There are no residential premises within 400m of the application site. Potentially receptive sensors within 400m of the site are as follows (based on site area not emission points, which may be further away);

Public Right of Way	Public Footpath approximately 65m east of the site (at its nearest point).
Commercial Premises	Kingspan warehouse/office – approximately 75m south of the site.

The prevailing wind direction is from the southwest as indicated in the Odour Impact Assessment produced by AS Modelling & Data Ltd.

11.3 Mitigation Measures

Standard noise, odour, dust, vermin and fly management controls have been put in place under the existing Environmental Permit. These are integral to the design of the poultry buildings and management operations will be as the 'best available techniques'.

Mitigation measures have been taken into account when considering potential amenity issues.

11.4 Flies

Well managed and efficient sites should not experience fly problems, primarily as most flies and larvae hatching in the litter are eaten by the hens. Flies can however be a problem outside the buildings when a site is not managed efficiently as set out below;

Feed storage – flies will be attracted to animal feed as breeding areas if it is stored in unsuitable buildings or storage bins. This will be designed out of the proposed development at Milton Farm by installing modern feed storage systems to meet the requirements of the Food Hygiene Regulations and the 'Red Tractor' Farm Assurance Standards.

Litter – The litter will be removed at the end of each production cycle and stored in the AD Plant storage building which is covered, before being transferred to the plant itself.

Manure storage – as detailed above it is proposed that all chicken litter produced from the site stored and used in the on-site AD Plant, which is already controlled by an Environmental Permit.

In conclusion, there should not be a risk of fly problems from the development itself.

The operation of the existing poultry site is not known to have result in any incidents of fly nuisance or infestations.

11.5 Vermin

The main issue with regard to the potential for vermin on the site is the storage of feed. This will be limited, however, through the installation of modern feed storage systems that meet the requirements of the Food Hygiene Regulation's and the Red Tractor Farm Assurance Standards. Vermin are not a problem on the existing farm. Regular inspections will be carried out around the buildings and site to safeguard against vermin. Daily inspections made by staff will also ensure that there are no signs of vermin in and around the buildings.

The main source for vermin is feed storage and the pathway is self-dispersal over land. The potential impact is general annoyance, the need for control and potential spread of disease. Mitigation will include storage of feed in sealed containers, maintenance of the feed containers to prevent deterioration, and fast removal of any feed spillages.

In conclusion, vermin are only a potential risk in close proximity to the source and it is expected that no significant vermin impacts will result from the proposed poultry development. The separation distance from the site and potential receptors will be too far to cause any loss of amenity and the development will therefore not have a significant impact.

The operation of the existing poultry site is not known to have result in any incidents of vermin nuisance or infestations.

11.6 Dust

The main sources of dust from poultry buildings are the birds themselves, the food and litter. Dust levels have found to vary depending on the number of birds, their age and the activity levels within buildings.

The particle size of the dust will also vary although in general, particles smaller than 2 microns (2 um) will account for around 70% of the number but only 5% of the mass. Larger particles of

greater than 5 um will account for less than 10% in number but between 40% and 90% of the dust mass. Dust particles can be emitted into the atmosphere through the ventilation systems so potential for impact is greater during the summer months when fans will be operating at a higher rate. Dust baffles can however be used over the ventilation fans to avoid any dust becoming airborne. The larger dust particles will tend either to not get into the ventilation fans, or if they are expelled from the building will be immediately deposited on the ground. Smaller particles can be carried in the wind. As the distance from the site becomes greater, the concentration of dust will fall to a level below air quality guidelines and become indistinguishable from normal background dust levels.

In addition there is the potential for dust from vehicles moving over dusty surfaces and the wind blowing over dusty surfaces as well as through the ventilation system. The pathway for the transportation of dust particles is in the wind with greater emissions of dust in stronger winds but is countered by greater dilution. Potential impacts of dust will be respiratory tract/eye irritation or the perception of health effects for sensitive receptors within 400m of the site. Mitigation available includes dust baffles over the ventilation fans, internal handling of manure and good practice during construction such as dampening down surfaces.

There are receptors within 100m of the proposed poultry units but it is considered unlikely that they would be significantly affected by dust.

Occupiers in the Kingspan warehouse and office are located south of the site so the prevailing wind direction would take any dust away from these premises.

The threshold criteria for PM10 in relation to poultry farms is where housing is in excess of 400,000 birds (if mechanically ventilated) and exposure within 100m from the poultry units. The proposed development will result in a total of 440,000 broiler birds being place at the site. The nearest residential property is over 400m from the poultry units. However, there are commercial premises at Torvale Industrial Estate (Kingspan) approximately 75m south at their nearest point to the poultry units where people work.

A screening assessment has been completed using the DEFRA LAQM screening tool for PM10's. This has assessed the nearby working premises at Torvale Industrial Estate (Kingspan). The results are provided in the table below, which shows the calculated total 90.4th percentile daily mean PM10 concentration of 26.7ìg/m3 is below the 24-hour mean PM10 objective limit value of 50ìg/m3 for England.

Defra LAQM PM10 Screening	
Number of Chickens	440000
Distance to receptor (m)	75
Background Concentration (µg/m^3)	13.26058
PC (µg/m^3)	**26.70287**

The proposal is therefore below the threshold and as such no further assessment is required. It should also be noted that an Environmental Permit has been issued by the Environment Agency for the proposed expansion of the poultry operation at the site.

Users of the footpath would be moving along its length would mean that they would soon pass the poultry units and therefore not be adversely affect by any dust.

Impact from vehicles will not have a significant impact as the poultry vehicles will not considerably alter the baseline level of dust. The access road is tarmac and the yard concrete. The greatest dust emissions are likely to arise during the construction and decommissioning phases for a short period of time and it is considered that no significant impact in terms of dust nuisance will occur.

11.7 Conclusion

The risk assessment suggests that significant adverse impacts on local amenity as a result of the proposed development are unlikely.

In terms of potential cumulative impacts from other poultry sites and other uses in the immediate locality it is understood that these operate under separate Environmental Permits which will control potential pollution sources and require the use of Best Available Technics.

14 SUMMARY & CONCLUSIONS

Summary and Conclusions
The following table summarises and concludes the previous technical assessment chapters with regards to the proposed poultry development at Milton Farm.

Key Issue	Potential Impact	Principal Mitigation	Residual Impact Significance

Air quality, health and climate	Effects on designated habitats and ammonia emissions and deposition	EA Ammonia Assessment impact screened out	Not significant
Landscape and visual impact	Direct impacts on landscape features	Choice of site, levels and landscape work, sensitive building design	Minor significance
	Landscape character	Choice of site, levels and landscape work, sensitive building design	Minor Significance
	Visual amenity	Choice of site, levels and landscape work, sensitive building design	Minor significance
	Lighting	Minimising light spill and timing of lighting	Not significant
Traffic	Increase in HGV traffic	New access created	Not significant
Amenity	Odour	Management practices and built in controls Best Available Technique to reduce odour from manure	Minor Significance
	Flies	Follow best practice guidance and ensure control measures in place	Not significant
	Vermin	Management practices and maintenance to prevent breach of stores etc.	Not significant
	Dust	Management practices and use of Best Available Technique to reduce dust	Not significant
Ecology	Arable and Improved Grassland Habitats	Choice of site and good design.	Not significant
	Trees and Hedgerows	Avoid direct disturbance to retained features and control of lighting. Gap up hedgerows.	Not significance
	Protected Species	No evidence found	Not significant
Noise and vibration	Operation of unit and plant and machinery	Noise management to form integral part of day to day management	Not significance
	Traffic noise and vibration	Sensitive timings of vehicle deliveries, managing peak flows.	Not significant

Cumulative Impacts	Permitted poultry sites to the east. Other industrial operations in the locality.	Operating on a different scale and production system. Environmental Permit	Minor significance
Water Resources	Construction and decommissioning – water quality (surface runoff/infiltration)	Use of appropriate bunding and storage, monitoring of operations and training staff in emergency procedures.	Not significant
	Operations – pollution by oils, hydrocarbons and dirty water (runoff, direct infiltration)	Adequate dirty water storage and operations to take place in buildings and hard standing Compliance with EA guidance and EP, use of bunded areas, storage of chemicals, oils etc. in appropriate bunded areas and tanks etc.	Insignificant impacts – low risk
	Flood risk	Sustainable Drainage Systems (SuDS).	Not significant
	Surface and groundwater pollution	Adherence to Nitrate Pollution Prevention regulations if applicable or Code of Good Agricultural and Environmental practices.	Not significant