
Environmental Statement

Planning application for an
intensive poultry installation at:
Land East of B4395, Llangadfan,
Welshpool, SY21 0PZ

Prepared for Mills Poultry Ltd

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land & property
professionals

Environmental Statement

Planning application for the erection of 2 intensive poultry installations, feed bins and associated works

Site Location

May 2019

Land east of B4395
Llangadfan
Welshpool
Powys
SY21 0PZ

Planning Authority

Powys County Council
Neuadd Maldwyn
Severn Road
Welshpool
SY21 7AS

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CHAPTER 1 - INTRODUCTION

Foreword

This Environmental Statement (ES) has been prepared for Mills Poultry Ltd by Roger Parry & Partners LLP. It accompanies a planning application for a proposed intensive poultry installation at Land east of B4395, Llangadfan, Welshpool, Powys, SY21 0PZ.




The proposal assessed for the Environmental Impact Assessment (EIA) is for an intensive poultry development which comprises of an installation which will have a capacity of up to 120,000 broiler places across two poultry houses.

The footprint of the poultry buildings is expected to cover approximately 6,200m². The buildings are to be 5.6 metres (m) at their maximum height and the associated feed bins 8m high. Hours of operation will be 24 hours seven days a week due to the fact that it is a livestock enterprise requiring continual husbandry. A location plan for the poultry installation is shown in the appendices.











The proposal is a farm diversification scheme for Mills Poultry Ltd and is a sustainable economic development as supported by national, regional and local planning policy. On a global scale the development amounts to an expansion of the UK poultry meat production capacity and a step closer to self-sufficiency in poultry meat therefore reducing the need to import foreign produced poultry meat and thus reducing greenhouse gas emission from fossil fuel consumption in transportation of meat across the globe – so called “food miles”.




The ES is the principal written output of the EIA process, and provides the required information on the predicted environmental impacts of the proposal. It has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) Regulations 2017. The ES is intended to enable the recipients (such as the Local Planning Authority) to understand the nature of the proposed development and to evaluate the likely environmental impacts in the light of proposed mitigation measures. The ES therefore represents an essential component of the decision-making process and presents information in a readily accessible form.

Technical Appendices accompany the ES and form part of the same document. Other documents making up the planning submissions include:

-  Local Planning Authority Application Forms;
-  Design and Access Statement
-  Ownership Certificates and Notices;

The following appendices are also submitted in addition to this ES:

-  Location Plan
-  Site Layout Plan
-  Site Location in Relation to Area
-  Aerial Photograph
-  Odour Report
-  Noise Management Plan
-  2km Study area
-  Drainage Plan
-  Non-Technical Summary
-  Landscape Plan
-  Highway Improvements Plan

-  Elevations & Floor Plan
-  Lighting Design Scheme
-  Method and Pollution Prevention Plan
-  Environmental Permit
-  Screening Air Quality Impact Results
-  LVIA Documentation
-  Manure Management Plan

Copies of the full documentation for this planning application have been placed on deposit at the following location, where they may be examined by members of the public during normal office hours: Roger Parry & Partners LLP, 1 Berriew Street, Welshpool, Powys, SY21 7SQ.

1. Introduction

This chapter summarises the nature of the proposed development and its location, introduces the basis for the planning application, explains the general basis and methods used for the Environmental Impact Assessment (EIA), sets out the structures of the Environmental Statement (ES) and introduces the authors of the ES.

1.1 Introduction to the Environmental Statement

As part of the process of making an application for an intensive poultry installation, Mills Poultry Ltd have employed Roger Parry & Partners to co-ordinate with the compilation of the associated planning application, including provision of an Environmental Impact Assessment (EIA) to be reported in an Environmental Statement (ES).

This chapter summarises the nature of the proposed development and sets out the purpose of the ES.

1.2 Summary of the Proposals

1.2.1 The Proposed Intensive Poultry Installation

The proposal assessed for the EIA is for a broiler meat production unit with the capacity for 120,000 broiler chickens per crop cycle.

The broiler unit will be integrated into the applicant's existing livestock enterprises to increase efficiency and sustainability. A broiler unit operating in association with livestock enterprises is a vertical integration of a production system whereby the manure produced is used to fertilise the land on the applicant's own farm. Any excess manure will be transported via covered trailers off the farmstead, in order to ensure that the manure remains dry and friable, and limited odour or pollution is occurred during its transportation.

The footprint of the buildings for the proposed intensive development will be 6,191m² set within an area of hardstanding totalling approximately 1.5 hectares (ha) within the site. The buildings will be 5.6 m high and the associated feed bins 8m high. Hours of operation will be 24 hours seven days a week due to the fact that it is a livestock enterprise requiring continual husbandry. A layout plan for the poultry installation is shown in the appendices.

The chickens will be grown in 7.6 42-day crop cycles per annum with seven-day turn around periods per crop. It is expected that, on the receipt of planning permission, the construction would commence in 2020 with operation commencing after a three to six-month construction period

The proposed intensive poultry installation is to be located at Land East of B4395, Llangadfan. Grid reference SJ0112 5221.

1.2.2 The need for the Proposal

DEFRA data shows that broiler production is in relatively rapid decline since 2005, the six-month rolling average at March 2009 was down to 120,000 tonnes per month from a peak of about 135,000 tonnes and production is now at its lowest since 1995. This is due in part to many existing broiler houses reaching the end of their productive life when production either ceases or suffers (Savills, 2009).

The proposal is a sustainable economic development that will contribute positively to the UK poultry sector. In addition to the wider national benefit, the development will create two full

time employment positions as well as indirectly contributing to the local economy through feed contracts, building contracts, veterinary employment etc.

The need for more poultry buildings in the UK is also being driven by the consumer demand for higher welfare chicken (HWC) meat; broiler meat produced for the Freedom Food Standards endorsed by the RSCPA requires 30% additional floor area than meat produced under the lower welfare standards of the Assured Poultry Meat Scheme.

1.3 Site Location

The proposed site is situated away from the existing farmyard due to the existing topography and lack of sufficient land to cater for the installation and its location within a village. The surrounding land is exclusively agricultural. The site is classed as open countryside in the Powys County Council Local Plan.

1.4 The Applicant

Mills Poultry Ltd have a current intensive broiler unit at Minffordd, Llangadfan, and are unable to add onto the site, given land ownership constraints and the fact its nearby residents.

1.4.1 Business Evolution

The farm business has made the decision to expand their existing poultry enterprise to enhance the business to create a sustainable future for themselves and their family. Hence, the business has to diversify to create and sustain jobs.

1.5 Requirement for an EIA: Legislative Background

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 require that for certain types of development an EIA must be undertaken. The Regulations prescribe the types of development for which EIA is mandatory (Schedule 1 Development) and others which may require an assessment if they have the potential to give rise to significant environmental impacts (Schedule 2 Development). The proposed poultry development is consistent with Schedule 1 of the Regulations (as it will accommodate in excess of 85,000 broiler chickens) and EIA is therefore mandatory. On this basis, no formal Screening Opinion was sought from the Planning Authority.

1.6 Objectives and Purpose of EIA

The objectives of EIA are as follows:

To identify the potential environmental impacts of a proposed development, taking into account the characteristics of the development and the local environment;



To interpret the nature of potential impacts;



To identify measures to mitigate adverse impacts; and



To report the results of the assessment in an ES for submission to the planning authority.

The purpose of an ES is to present the findings of the assessment into the likely significant environmental impacts of the proposed development. This document describes the assessment process, the results of the assessment of the impacts of the proposed development, assesses the significance of the impacts and describes mitigation measures proposed to reduce impacts to acceptable levels.

The ES is intended to enable stakeholders to understand the nature of the proposed development and to evaluate the likely significant environmental impacts. In the case of the local planning authority, they may use that knowledge in deciding whether to grant planning permission and, if so, what conditions might be appropriate. The ES therefore serves to aid the decision-making process and to present relevant information in a readily accessible form.

1.7 Method Statement and Assessment Criteria

The Town and Country Planning (Environmental Impact Assessment) Regulations 2017, require (as set out in Part II of Schedule 4) that an ES should include, as a minimum, the following information:


“A description of the development comprising information on the site, design and size of the development;


- A description of the measures envisaged in order to avoid, reduce and, if possible, remedy significant adverse effects;*
- The data required to identify and assess the main effects which the development is likely to have on the environment;*
- An outline of the main alternatives studied by the applicant or appellant and an indication of the main reasons for its choice, taking into account the environmental effects;*
- A non-technical summary of the information provided under paragraphs 1 to 4”.*





Part I of Schedule 4 expands in detail on the contents of an ES that would comply fully with the spirit of the Regulations. This is provided in the appendices.

Good practice advises that EIA should be treated as an iterative process rather than as a one-off, post-design environmental appraisal, and that interested parties be consulted at an early stage to identify key impacts and design appropriate mitigation. In this way, the findings from the EIA have been fed into the design process, leading to a project which achieves a ‘best fit’ within the environment. This approach has been used throughout the EIA of the proposed livestock installation. Where likely significant adverse impacts have been predicted, or sensitive environments were identified, the results of the EIA have been used to influence the construction, location and design of the poultry installation. Where it has not been possible to reduce or eliminate likely significant impacts through sensitive design alone, the preliminary results of the EIA have been used to develop appropriate mitigation measures.

This EIA has been conducted in accordance with the latest Government regulations and advice on good practice comprising:

 The Town and Country Planning (Environmental Impact Assessment) Regulations 2011;








 Circular 02/99 - Environmental Impact Assessment, Department of the Environment Transport and the Regions (DETR - 1999)

-  Amended Circular on Environmental Impact Assessment – A Consultation Paper (Department of Communities and Local Government - DCLG – June 2006);
-  Preparation of Environmental Statements for Planning Projects that require Environmental Assessment, A Good Practice Guide (Department of the Environment, 1995);
-  Environmental Impact Assessment: A Guide to Procedures (2000) (amended reprint 2001); and
-  Environmental Impact Assessment: A Guide to Good Practice and Procedures – a Consultation Paper (DCLG June 2006).


In addition the EIA has been carried out taking due consideration of other guidance such as that contained within the Institute of Environmental Management and Assessment's (IEMA) 'Guidelines for Environmental Impact Assessment' (2004), where appropriate, along with various guidance documents relating to the assessment of individual issues (see individual assessment chapters).





In order to evaluate environmental impacts, it is important that assessment criteria are identified. Any impact is assessed by a combination of the degree of alteration from the baseline state (both positive and negative) which can be predicted (i.e. the magnitude of the effect) and the sensitivity of the receptor(s) (e.g. the rarity of a species/habitat, the quality of a view, the type of land use, the presence of people etc.). The scoping and consultation phase has identified the likely impacts and the nature of the receiving environment.

Within this ES, thresholds of magnitude and sensitivity are used to make explicit the conclusion of the assessment process in terms of the significance of the impact. Significance is generally based on the structured evaluation of a number of primary criteria:

-  the value of the resource (international, national, regional and local level importance);
-  the magnitude of the impact;
-  the duration of the impact (whether long-term or short-term, temporary or permanent);
-  the reversibility of the impact;
-  the number and sensitivity of receptors;
-  the nature of the impact; and
-  Whether the impact is direct or indirect.

For the purposes of undertaking an EIA, the significance of any impact (positive or negative) is generally considered in terms of:

-  *No Significance / Negligible* - beneath the levels of perception, within normal bounds of variation or within the margin of 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.

This ES generally follows this theoretical approach. Full magnitude and significance criteria are provided in the individual topic assessment chapters as appropriate.

Impacts assessed to be moderate/major or above are considered to be significant. The assessment process considers residual impacts following the introduction of measures to reduce, remedy or avoid any significant adverse environmental impacts. Mitigation can be applied through the consideration of alternatives, physical design, provision of specific control equipment, project management or operation and other means. Mitigation generally incorporated into the design as standard and additional mitigation identified by the assessment process is set out within each technical impact assessment chapter of this ES.

1.8 Structure of the Environmental Statement

The key issues together with a clear description of the project and relevant planning policy form the main content of this ES.

This document is supplemented by a non-technical summary (NTS) of the findings of the EIA. The objective of the NTS is to provide an accurate and balanced statement of the key information presented in the ES.

The main body of the ES is set out as follows:

Introduction (Chapter 1) – setting out the background to, and location of, the development and the EIA process;









Scoping and Key Issues (Chapter 2) – summarising how the topics to be assessed and methods to be used were chosen via the initial application process;

Alternatives (Chapter 3) – describing the alternatives considered including the ‘Do-Nothing Scenario’ and alternative locations, in terms of their physical, operational, economic and environmental feasibility.

Development Description (Chapter 4) – describing the construction, use and physical nature of the proposed plant and its use, including delivery and access issues; and

Policy and Legislative Context (Chapter 5) – summarising the planning and legislative context of the proposals.

The Environmental Assessment Chapters – covering impacts associated with:

-  Air Quality (Chapter 6);
-  Landscape and Visual Impacts (Chapter 7);
-  Traffic (Chapter 8)
-  Amenity Issues (Chapter 9);
-  Ecology (Chapter 10);
-  Noise and Vibration (Chapter 11);
-  Water Resources (Chapter 12);
-  Soils (Chapter 13);

Each chapter sets out the types of impacts possible, summarises relevant legislation and policy (where appropriate), describes the existing background/baseline environment, the methodologies used to predict impacts and associated guidance (along with any limitations of the methodology or available data), magnitude and significance criteria, incorporated mitigation and the provision of additional mitigation, and the residual impact assessment. Where appropriate the assessment of individual sub-topics / sensitive receptors are assessed in discrete sections within each technical chapter. Also, combined impacts (e.g. one effect resulting in another effect, such as atmospheric emissions affecting habitats, is assessed in one chapter whilst cross referencing other relevant chapters as appropriate); and

Finally, **Summary and Conclusions** (Chapter 14) – provides an overview of the assessment.

Note that drawings are included within the chapters and technical appendices are provided as separate individual appendices.

A Design and Access Statement and other forms and certificates have been submitted separately.

CHAPTER 2 – SCOPING AND KEY ISSUES

2. Scoping and Key Issues

This chapter sets out the requirement for and process of scoping the Environmental Statement (ES), summarises the receiving environment in the vicinity, covers the scoping consultation process and indicates the results of the consultations, and provides the final scope for the ES. Finally, it sets out other permitted/proposed developments with which the proposed poultry installation could potentially create cumulative impact.

2.1 The Scoping Process

Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (see the appendices) specifies the general information that should be included within an Environmental Statement (ES) as best practice. An ES should identify, describe and assess the likely significant impacts of the development on the environment with reference to:

 *“Population;*

 *Climate;*

 *Flora;*

 *Fauna;*

 *Landscape;*

 *Soil;*

 *Air;*

 *Water;*

 *Material assets (including architectural and archaeological heritage); and*

 *Any inter-relationships between the above”*

The EIA Regulations also require that an EIA should cover:

“Direct effects and any indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative effects of the development, resulting from:

a) the existence of the development;

b) the use of natural resources;

c) the emission of pollutants, the creation of nuisances and the elimination of waste.”

Scoping (i.e. determining the amount of information on each of these principal subjects and effect types to be presented in an ES) is regarded as an important first step in the overall EIA process, although it is not necessarily a mandatory requirement of the EIA Regulations. The primary aim of EIA scoping is to facilitate the planning of a focused EIA that concentrates on the resolution of substantive potential importance and, where appropriate, excluding any non-issues from further consideration. It also allows primary concerns to be identified at an

early stage and informs developers of aspects of concern that they may not have been aware of. Surveys and assessment methodologies can also be agreed between all interested parties such that it is less likely that additional information is required after submission of the application.

Regulation 10 of the EIA Regulations allows potential applicants to ask the planning authority to state, in writing, the information that should be set out in an ES.

Issues that have been scoped out of the ES are set out in Section 2.4.

2.2 Summary of the Receiving Environment

2.2.1 General

The proposed site is located in the open countryside surrounded by land exclusively agricultural. The local authority is Powys County Council.

The closest settlement to the site is Llangadfan, which is relatively disbursed.

2.2.2 Air Quality

Local air quality is dominated by traffic sources. There are no Air Quality Management Areas within the vicinity of the site.

2.2.3 Landscape

The site lies within a rural area with the chosen site not being included within any areas designated for their landscape character and quality.

The site is an intensive agricultural field, located east of the B4395. The site is bound on all sides by hedgerows, and the landscape around slopes from North West to South East, with the buildings located in the natural valley of the field.

The population in the immediate surroundings is relatively dispersed with numerous small settlements such as Llangadfan, Llanerfyl and Foel. Other key receptors in the vicinity of the site include walkers, horse and cycle riders and road users.

2.2.4 Highways

The site is accessed off a minor road which serves a limited amount of properties. The site is accessed off the council-maintained highway, from a new proposed access, with sufficient width and visibility to meet highway standards.

2.2.5 Population / Socio-Economics


The site lies within the open countryside with limited isolated residential properties close by and small villages in the surrounding landscape. The site lies within the unitary authority area of Powys County Council and the community council of Banwy.

2.2.6 Noise

The noise environment in the area is dominated by existing agricultural activities and traffic movement. The surrounding community comprises of a mixture of scattered agricultural holdings with some residential dwellings within small settlements. Noise levels across the site are considered to be typical of a rural area.

2.2.7 Geology, Soils, Ground Stability and Contamination

Within the area surrounding the proposed site there is one predominant land type detailed below;

 The field in question is regularly ploughed and reseeded. The ground stability is good, with no contamination.

2.2.8 Ecology

The site is within the confines of field boundary, with no trees lost within the proposal. The field is improved grassland, with no sensitive habitat on site.

The adjacent trees may provide a bat roosting habitat. No trees are likely to require felling to accommodate the proposed development and as a result it is likely that any bats will not be significantly affected.

2.2.9 Water Resources

According to the Natural Resources Wales flood map, the proposed application site is not within a flood alert area.

2.2.10 Cultural Heritage

The chosen site itself has no apparent cultural heritage or archaeological interest with it being designated in landmap as just a rural landscape.

2.3 Summary of the Scoping Exercise

2.3.1 The aspects of the Proposed Development Considered to Have the Potential to Give Rise to Significant Environmental Impacts

Following consideration of the existing environment the potential sources of environmental impacts have been preliminary identified in Table 1 below for construction, operation and decommissioning of the development respectively.

Table 1: Summary of key potential impacts

Potential receptors of impact		Construction Phase	Activities & potential Impacts Operation phase	Decommissioning Phase
WATER	Surface water hydrology and channel morphology	Use of vehicles and machinery <ul style="list-style-type: none"> - Increase in surface runoff from soil compaction Works near watercourses <ul style="list-style-type: none"> - Change in flow velocities - Increased flood risk Earthworks <ul style="list-style-type: none"> - Increased sedimentation of watercourses Buildings and ancillary structures <ul style="list-style-type: none"> - Changes to runoff characteristics and infiltration rates 	Use of vehicles and machinery <ul style="list-style-type: none"> - Increase in surface runoff from soil compaction 	
	Surface water quality	Earthworks <ul style="list-style-type: none"> - Pollution from suspended material Materials management <ul style="list-style-type: none"> - Pollution from spills or leaks of fuel, oil and construction materials 	Water and manure management <ul style="list-style-type: none"> - Decrease in water quality from sudden releases (e.g. from tank failure or yard washing) or gradual seepage of contaminated water into nearby watercourses Materials management <ul style="list-style-type: none"> - Pollution from agricultural chemicals, spills or leaks of fuel and oil - Eutrophication of watercourses - Leechate from manure heaps entering watercourses 	

Potential receptors of impact		Construction Phase	Activities & potential Impacts Operation phase	Decommissioning Phase
			- Runoff after manure spread on land affecting watercourses	
Groundwater hydrology		Earthworks and site drainage <ul style="list-style-type: none"> - Reduction in water table - Changes to groundwater distribution and flow 	Use of borehole for water supply <ul style="list-style-type: none"> - Lowering water table 	Termination of abstraction <ul style="list-style-type: none"> - Rebound of water table
Groundwater quality		Materials management <ul style="list-style-type: none"> - Pollution from spills or leaks of fuel, oil and building materials 	Land-spreading of waste <ul style="list-style-type: none"> - Contamination from infiltration arising from over-application Materials management <ul style="list-style-type: none"> - Contamination from agricultural chemicals, spills or leaks of fuel and oil 	
LAND	Landscape	Excavation and earthworks <ul style="list-style-type: none"> - Creation of a new landform - Change in character of landscape Creation of housing <ul style="list-style-type: none"> - Change in character of landscape 	Presence of poultry housing <ul style="list-style-type: none"> - Change in character of landscape Presence of feed bins <ul style="list-style-type: none"> - Change in character of landscape Presence of manure <ul style="list-style-type: none"> - Change in character of landscape 	
	Soils	Use of vehicles and machinery <ul style="list-style-type: none"> - Compaction Earthworks	Spreading of animal manure <ul style="list-style-type: none"> - Changes in soil nutrient levels and heavy metals 	

Potential receptors of impact		Activities & potential Impacts		
		Construction Phase	Operation phase	Decommissioning Phase
AIR	Local Air quality	- Further erosion of exposed soil	Use of vehicles and machinery - Soil compaction - Soil erosion	
		Use of vehicles and machinery - Dust generation	Storage/spreading manure - Release of gases to the atmosphere - Ammonia emissions Animal housing - Ammonia emissions Use of vehicles and machinery - Exhaust emissions	
		Regional / global air quality	Change in vegetation - Changes in uptake of CO2	Storage / spreading of manure - Release of gases to the atmosphere - Ammonia emissions Animal housing - ammonia emissions Animal housing - increase in domestic production leading to reduction in greenhouse gas emissions through transportation of overseas produce
FLORA AND FAUNA	Aquatic ecology	Drainage works and use of vehicles - negative impact on flora and fauna from increased sediment loading of streams Materials management	Surface runoff - pollution of watercourses by contaminated runoff - sedimentation of watercourses	Post-closure land-use - changes in habitat type - opportunity for increase in uncultivated areas










Potential receptors of impact	Activities & potential Impacts		
	Construction Phase	Operation phase	Decommissioning Phase
	<ul style="list-style-type: none"> - harm to aquatic flora and fauna from oil, fuel or other substances entering watercourses 	<p>Site drainage</p> <ul style="list-style-type: none"> - indirect effect on aquatic flora and fauna from ongoing changes to stream hydrology and morphology <p>Materials management</p> <ul style="list-style-type: none"> - direct and indirect effects from agro-chemicals, oil, fuel or other substances entering the aquatic environment 	
Terrestrial ecology	<p>Earthworks and excavations</p> <ul style="list-style-type: none"> - habitat removal, fragmentation or severance - disturbance to, or loss of species 	<p>Storage / spreading of manure</p> <ul style="list-style-type: none"> - deposition of ammonia onto vegetation <p>Animal housing</p> <ul style="list-style-type: none"> - deposition of ammonia onto vegetation <p>Physical presence of building and ancillary structures</p> <ul style="list-style-type: none"> - alteration or loss of terrestrial habitats - creation of new habitats <p>Manure spreading</p> <ul style="list-style-type: none"> - disturbance to, or loss of species 	<p>Post-closure land-use</p> <ul style="list-style-type: none"> - changes in habitat type opportunity for increase in uncultivated areas
HUMAN ENVIRONMENT	Socio-economic	<p>Farming operation</p> <ul style="list-style-type: none"> - continued flux of people away from or towards the farm 	<p>Closure of farm</p> <ul style="list-style-type: none"> - movement of people away from the farm
Health & Safety	Negative publicity	Waste disposal operations	




Potential receptors of impact	Activities & potential Impacts		
	Construction Phase	Operation phase	Decommissioning Phase
	<ul style="list-style-type: none"> - adverse reaction to perceived health issues 	<ul style="list-style-type: none"> - risk of nuisance or harm from manure storage (e.g. consumption of contaminated groundwater) - risk of harm from land-spreading manure 	
Amenity		<p>Presence of building, ancillary structures and field boundaries</p> <ul style="list-style-type: none"> - possible alteration of rights of way or reduction in access <p>Vehicle movements</p> <ul style="list-style-type: none"> - increase in number and frequency of vehicles - noise and vibration from vehicle movements <p>Storage / spreading of manure / feed</p> <ul style="list-style-type: none"> - increase in flies and vermin 	

2.4 Consultations

No consultation with Statutory and Non-Statutory Consultees took place to inform the scope of the EIA.











The main points of the Scope of the Environmental Impact Assessment are set out below:

-  **Introduction and Project Description** – The ES should include a description of the site and its surroundings and details of its planning history. It should also include descriptions of the extent and duration of the construction works and longer-term day to day activities
-  **Planning Policy and Legislative Framework** – The ES should contain a section that considers the planning and legislative framework against which the proposals would be considered and assess whether the proposals accord with such policies and legislation.
-  **Air Quality and Climate** – The impact of airborne emissions likely to affect designated nature conservation sites should be considered to include odour.
-  **Noise and Vibration** – The assessment should cover the issues identified in the scoping exercise and include predicted noise levels from site operations and background noise monitoring at the nearest sensitive receptors including operation, construction plant and traffic noise and set out any proposed mitigation.
-  **Highways and Traffic** – See Highway plans
-  **Ecology and Conservation** – The ES should consider direct and indirect impacts on both statutory and non-statutory sites of biodiversity importance, determine the presence of protected species (bats and great crested newts) and include mitigation as necessary.
-  **Flood Risk, Surface and Groundwater Protection (Hydrology)** – The ES will need to include a section on the impact of the proposed development on Water Framework Directive (WFD) objectives. The ES will need to assess the current status of water bodies and proposed mitigation measures to ensure no deterioration to the status. Specifically, the ES should also consider eutrophication of watercourses, leachate from manure entering watercourses and general pollution and manure run-off into watercourses cumulatively to offer operations in this area including the current farming operations.
-  **Landscape and Visual Assessment** – The ES should consider the site and its surroundings and should assess the proposals in the context of the local landscape character. A Zone of Visual Influence (ZVI) exercise should show the views affected by the development. Plans of current site conditions and impacts on the quality of views as well as mitigation should be provided.
-  **Historic Environment / Archaeology** – The ES should focus on indirect impacts on the settings of nearby listed buildings and include any mitigation proposals.

-  **Soils**– The ES should include an assessment on the potential impacts on soils and risks associated the application of manure to agricultural land.
-  **Amenity, Material Assets, and Socio-Economics** - The ES should cover issues relating to odour flies and other potential nuisance issues caused by poultry developments.
-  The ES must be accompanied by a Non-Technical Summary.

2.5 Items not to be assessed

Issues scoped out from the assessment were as follows:

-  Public Safety during the Construction, Operational and Decommissioning as the site will be secure
-  Utilities / Services during the construction and decommissioning phase
-  Landscape features during the construction, operational and decommissioning stage
-  Night-time lighting during the construction and decommissioning stages
-  Archaeological during the construction, operational and decommissioning phases
-  Architectural interest during construction phase
-  Blight during decommissioning
-  Fugitive emissions during decommissioning
-  Water use during decommissioning
-  Archaeology during decommissioning

2.6 Cumulative Impacts

We have undertaken a search of the agricultural developments that have been submitted and approved since January 2016 within a 2km radius of the site. We are unable to find any substantial agricultural development within 2km of the site, and therefore the cumulative impacts of the scheme are not considered an issue.

CHAPTER 3 – ALTERNATIVES

3. Alternatives

This chapter sets out the requirement to assess alternatives in the Environmental Impact Assessment (EIA) process and describes the principal alternative sites considered during the development of the poultry installation proposals. It also describes how the final location for the proposal was ultimately reached.

3.1 Assessment of Alternatives

Where alternative approaches to development have been considered, paragraph 4 of Part II of Schedule 4 to the Town and Country Planning (Environmental Impact Assessment) Regulations 2011 requires the developer to include in an ES an outline of the main alternatives, and the main reasons for the choice. Although the Directive and the Regulations do not expressly require the developer to study alternatives, the nature of certain developments and their location may make the consideration of alternative sites a material consideration. In such cases, the ES must record this consideration of alternative sites. More generally, consideration of alternatives is widely regarded as good practice, resulting in a more robust application for planning permission.

Schedule 4 of the Town and Country Planning (Environmental Assessment) Regulations 2011 requires that the applicant provides *“an outline of the main alternatives studied by the applicant... and an indication of the main reasons for his choice, taking into account the environmental effects”*. The wording of this clause suggests that only those *“alternatives studied by the applicant”* should be addressed such that it is not mandatory to consider all possible permutations of a proposal. It is also necessary only to deal with alternatives in *“outline”* such that detailed environmental assessment of all alternatives, or combinations of alternatives, is not required. In addition, factors other than the environment may be taken into account such as: costs; engineering constraints; safety issues; practicability; operational requirements etc.

In this case the applicant considered alternative locations on the farm, however this was the only site which was practically available. This is the only large piece of land the applicant has got that could accommodate the installation. The current yard is full, with a few poultry units, with residence close by.

The land chosen, could accommodate 2 units without the removal of any trees or hedgerows. The site is in a natural valley, which ensures its views into the site is limited, and any views of it is seen with a backdrop of land, and not sky lined. The site is also a suitable distance away from any third party protected building, which ensures there are no amenity impact created to nearby residence.

CHAPTER 4 – DEVELOPMENT DESCRIPTION

4. Development Description

This Chapter provides a description of the proposed poultry installation at Land East of B4395, Llangadfan for which planning permission is sought. The description covers the site and its surroundings as well as the proposed buildings and structures that will constitute the proposed poultry installation. The chapter also describes the production cycle that will occur, providing information on the inputs and outputs from this process. There is also a summary of the construction and decommissioning phases of the development. This description sets the basis against which the Environmental Impact Assessment has been carried out.

4.1 Site Location

4.1.1 Description of Site

The proposed intensive poultry installation is to be located at land East of the B4395, Llangadfan. Grid reference SJ0112 5221. In the appendices shows the site location in relation to the area which is a rural district to the North of Llangadfan.

The site is surrounded by agricultural land, outlying land uses include residential to the South at Llangadfan and even further afield. Isolated farm units scatter the landscape. The surrounding village network and Aerial Photograph are in the appendices.








The site is within the vicinity of nearby farmsteads and is located adjacent to an existing agricultural storage building and ground that has accommodated timber, machinery and poultry manure for years. Site bunding, landscaping and choice of suitable cladding colours will minimise any visual impacts if any, of the development.


4.2 Proposed Development

4.2.1 Overview

Mills Poultry Ltd propose the development of an intensive poultry installation that will produce poultry meat for human consumption. The development will accommodate 120,000 birds per cycle.

The site is to be laid out as per the location plan on Appendices and will include the following elements:

-  Two poultry sheds
-  Four Feed bins
-  Generator store
-  Control Room
-  Tool Room
-  Hard standing to front of sheds for turning, loading and unloading
-  Vehicular access

 Area set aside for landscaping

The following sections include a description the production cycle followed by a description of the main buildings and ancillary works, operational arrangements and environmental controls.

4.3 Management Cycle and Stocking Rates

4.3.1 Background

The method of broiler production is described in the following sections. The production cycle described is used to produce “Standards” rather than “Roasters”, Standards are grown to a lower weight before slaughter over a shorter period. Standards are grown to 42 days with a 7 day turn around period (therefore approximately 7.6 crops per year).

Broilers will be purchased as day old chicks. There will be a maximum of 60,000 per shed and they will consist of a 50-50 mix of males and females.

The unit will be managed with a two wave clearout per crop: at 36 days the cockerels will be removed. The average weight of the cockerels at 36 days will be approximately 2.272kg (Aviagen, 2007). At 42 days the pullets will be removed. The average weight of the pullets at 42 days will be approximately 2.436kg (Aviagen, 2007).

As required under Best Practice for ES's, the worst-case scenario is considered therefore lower than average bird weights have been used which increases the number of potential bird places per crop.

4.3.2 Stocking Rates

There is no maximum stocking density for intensive chicken meat production currently set down in UK domestic law, the law covering the welfare of broiler chickens is covered by general animal welfare law and farmers are expected to comply with the relevant DEFRA Code of Practice. It is not however an offence to fail to keep to the DEFRA Code.







In 2010 EU legislation (Directive 2007/43/EC) came into force that sets new limits on stocking densities. The legislation is expected to be transposed into UK law and members of parliament are considering, when bringing forward secondary legislation to transpose the EU Broiler Chicken Directive into EU law, setting the UK maximum stocking density at 30kg per square metre. The Directive sets as a limit a figure of 33kg per square metre but lays down requirements where derogation up to a maximum of 42kgs per square metre could be implemented.

Despite the potential derogations from the standard stocking density applied by the Directive the commercial reality is that the industry as a whole is decreasing stocking rates in response to higher welfare expectations of consumers.

In order to supply the retail trade, all farmers must as a minimum, be members of the independently audited Assured Chicken Production (ACP) Scheme. The scheme requires farmers to comply with strict management requirements such as stocking at a maximum of 38kg/m². Many retailers now require the supply of ‘Higher Welfare Chicken’ (HWC), which includes those endorsed by the RSPCA Freedom Foods Scheme, and these farms are stocked at a lower rate of 30kg/m². For the purpose of this report a stocking rate of 38kg/m² has been used for calculating the maximum number of birds stocked on site.

4.3.3 Summary of Production Cycle

The production cycle will follow the same basic procedure as follows:

-  Chick placement on day one following pre-warming of the houses by propane space heaters and covering of the floor with wood shavings
-  Feed arrives for birds during growing cycle. Volume of feed consumed increases during the growing period.
-  Removal of Cockerels (50% of crop) on day thirty-five and day thirty-six.
-  Removal of Pullets (50% of crop) on day forty-one and day forty-two.
-  Remove all manure from sheds and move via covered trailers either to covered agricultural stores on the farm, taken straight to the anaerobic digester or spread on fields if weather permits.
-  All sheds power washed, disinfected and dried out prior to chick placement.

The turnaround period between crops will be 7 days on average; the length of time taken to clear the site will depend on many factors such as when the date on which the crop cycle ends, e.g. if the cycle completes before a bank holiday weekend the clearout may take an additional day to avoid disturbance over the holiday. For the purpose of this report a seven-day turnaround period has been used, this would result in producing 7.6 crop cycles per year or an 87.5% occupancy rate. This is higher than the industry norm for this type of cycle and therefore represents a *worst-case scenario*.

4.4 Site Layout

4.4.1 Main Buildings Design

It is proposed that two broiler houses are constructed. The poultry houses will each measure 125.4 metres x 24.7 metres. The total floor area for each shed will therefore be approximately 3100 m². Ridge height will be 5.5 metres. Each of the new houses will have the potential to accommodate 60,000 “standard” broilers.

The design of the new buildings will be typical of modern poultry sheds.

Roofs

Green Box profile metal sheeting.

Walls


Green Box profile metal sheeting.

Insulation

The broiler houses will be insulated with fibre glass insulation to the walls and roofs. The walls will be insulated with 100 mm insulant and the roofs with a 200 mm insulant. The U value will be <0.4 W/m² °C and therefore condensation on the inner lining of the buildings will be eliminated and the solar heat gain into the houses will be minimal.



Flooring

The houses are erected with a smooth easily washable concrete floor on a damp proof membrane. The walls will rest on a poured concrete foundation. The specification is as follows:-

-  100 mm concrete floor thickened to 200 mm thick below perimeter walls, 1,000ga DPM minimum 125 mm consolidated blinded hardcore.

Ventilation

The ventilation system will consist of a computer-controlled mechanical tunnel ventilation system.

-  There will be ten inlets in each gable end.
-  There will be mechanical extraction fans in the roof of each shed.

The ventilation system will be the same in all 2 houses, consisting of high-velocity open-topped roof extract fans, inlets along both side walls and gable end fans. The gable end fans will be used only when very high rates of ventilation are required and any dust from these will be collected in a covered catchment area.

Windows

Polycarbonate windows based on 3% of the floor area to RSPCA Welfare Standards will be incorporated and linked into automatic dusk till dawn sensors with a U value of 1.7 at 62% light transmissions. The windows will be 4 / 6 60mm 20mm / 4mm units with a quoted R_w of 29dB.

Shed Colour

The sheds will be coloured to Local Planning Authority specification. Juniper Green is the applicant's preferred choice. A sample will be provided to the Council.

4.4.2 Ancillary Structures & Description

Hard standing / Loading Area

A concrete apron will be constructed to the front of the buildings together with turning head; this area will be used for loading and unloading chickens and chicks, unloading feed, removing manure and parking.

Feed Bins

The two sheds will have four feed bins located between the sheds. The feed bins will have a 29-tonne capacity and will measure 8 metres high and will be 2.8 metres in diameter.

Control Rooms and Blending Rooms

The sheds will have a control room and blending room between them attached to the front of the buildings.

Housing for Chicken Production

- Housing design and management will be in accordance with the Sector Guidance Note (SGN) EPR6.09.
- All houses will have a damp proof course and will be insulated to reduce condensation and heat loss.
- All houses will have littered floors and will be fan-ventilated. The ventilation system in each house will consist of side wall inlets and open-topped exhaust fans in the roof, with additional fans in one gable end wall. This will allow ventilation to be adjusted from a conventional side inlet and open-topped ridge fan system, to a tunnel system with gable end fan outlets.
- All houses will have non-leaking nipple-type drinking systems.
- Systems will be planned and operated with the intention of ensuring that the litter is kept loose and friable. The quality will be regularly inspected. Steps as described in the SGN6.09 will be taken to rectify any litter quality problems.
- The temperature inside the houses will be maintained at pre-set levels in order to meet the health and welfare needs of the birds, according to their age.
- The bird area of each house will be accessed via a service room and this will help to prevent draughts, as well as facilitating good biosecurity.
- An indirect heating system will be used for maximum fuel efficiency and to help ensure a consistent temperature with no cold spots or extremes of temperature. Fans will be fitted with shutters to prevent draughts and unnecessary heat loss.
- The ventilation management system will be programmed to control the ventilation rates depending on the health and welfare needs of the birds and the outside weather conditions.

4.5 Access

4.5.1 Site access

The site is accessed off the county highway which leads from the B4395. The proposal includes an improved access to serve the site.

Feed HGVs will be coming from a local feed company. The access is to be 6 metres in width as indicated in the appendices. The first 15 metres of either end of the access will be finished with tarmac, the remainder will be stoned.

4.5.2 Routeing

Only routes used by HGVs, Tractor and Trailers and management (4 x 4s) are described below. All other traffic accessing the site such as engineers, vets etc will arrive in a small vehicle and will be too infrequent to discuss.



Route A: HGV movements will be restricted by design and management to connect to the Strategic Road Network.

4.6 Equipment and Management

Feed

The feed will be supplied by a local feed company. It will be composed of high-quality raw materials and will be designed to suit the nutritional needs of a broiler chicken. The feed will be blown from bulk feed HGVs into the bulk feed bins.

A Feed Conversion Rate (FCR) for the flock of 1.7 kg per kg produced (Aviagen, 2007) has been used for the purpose of this report. The number of tonnes of feed consumed per cycle by the flock is therefore calculated as 353.

Water

Water will be supplied via a borehole or mains water supply. It will be delivered to the birds via nipple drinkers; there will be a minimum of 1 nipple drinker per 10 to 20 birds as per ACP management requirements.

Nipple drinkers are used due to (a) ease of management, (b) good bird performance (c) maximum hygiene and (d) odour control; they keep the moisture content of the manure low as spillages are rare – dry manure is a less odorous and it is necessary to ensure that the risks of odours are minimised.

Electrical Power

Connection to the electricity grid will be made via the existing supply that is connected to the farm adjoining the site.

Mortalities

Mortalities are collected on a regular basis, stored in sealed containers and removed by a licensed operator – for the first three weeks of the production cycle the carcasses will be stored in a frozen store on site to reduce unnecessary vehicle movements. This report uses a figure of 3.5% of flock mortalities per crop, this is the industry norm.

Litter

Wood shavings will be used to a depth of 2 cm; this allows the floor to breath and release moisture enhancing environmental conditions inside the poultry house. This proposed depth of litter complies with the Assured Chicken Production (ACP) Scheme (Assured Chicken Production Ltd, 2009).

The spent litter based on wood shavings will be cleared out by a bobcat which will load the trailers directly inside the doors. The litter removal is carried out by staff at the poultry installation and in practice there is very little spillage of litter. To ensure poultry disease guidelines are adhered to and for bio security the litter will be taken off site immediately. It will go directly to be stored in covered buildings before being applied to the land as organic manure. No manure will be stored on site, even for a short period.

Dirty Water

After the litter is cleared the building and roofs inside and the walls are then blown down with compressed air. Washing water then passes via a pipe directly in to collection tanks between the houses. One tank will serve the sheds. Each tank holds 40 cu metres. Due to variants in the yard levels the tanks will serve a proportion of the yard area. The tanks will be made of concrete and will be to BS 5502 requiring no maintenance. When the cleaning out is in progress the dirty washing water and any contaminated rain water falling on the yard will be directed via drains to manholes and in to the tanks.

With the polished floors following a brushing down there will be very little solid matter to be carried away with the washing water. The sheds will take approximately 6 hours to be fully washed down. With the drains in the lowest corner of the sheds leading directly into the collection tanks and no water passing out on to the outside yard there can be no mistake over the position of the isolating valve (Described in Chapter 4) when washing down is taking place. The outside area can then be cleaned up when the litter has been taken away and also controlled in sections by the sloping concrete.

There will be a single pump with 2 pressure washing lances each delivering approximately 15 litres per minute. They are likely to be running for 70% of the time and so the total volume of water used in a 6-hour day will be approximately 7.56 cu metres. In practice because of the warm temperature of the concrete floor inside the houses some of this water evaporates.

As a worst case scenario the potential production of dirty wash water at the close of each crop will be 88.3 cubic metres; an annual production of 671.08 cubic metres, this uses the assumption clearing out will take five days.

Importantly the wash water from the washing down is diluted wash water with a low nitrogen content and therefore can be spread on land at all times of the year and are therefore not included within calculation of nutrient loading for the purpose of field application.

Labour and Hours of Operation

The proposed site will employ approximately three full time workers. There will also be a large amount of indirect employment created by the proposal.

The poultry site will operate 24 hours a day, seven days a week as it is a livestock enterprise that requires continual management and husbandry. Personnel operating the site will be required to be within a safe distance of the site at all times to repair equipment failure to avoid bird fatalities.

4.7 Landscaping Planting and Management

4.7.1 General

The proposed landscaping plan for the poultry site is designed to provide biodiversity benefits to the operational site whilst creating an attractive setting, softening the appearance and obscuring the proposed buildings from view. New planting will include suitable native species and shrubs from local stock, where appropriate, to provide screening and habitat areas for wildlife. Native woodland planted around the site boundary will provide nesting and foraging areas for birds.

4.7.2 Landscape Plan

Woodland Planting

It is proposed to create an area of native woodland planting to form a woodland tree belts of local landscape value.

The proposed woodland planting will use a native mix in order to retain local vernacular. It is proposed to plant the wood as a mixture of “timber trees” and “underwood”. The Underwood will be felled and allowed to grow again by coppicing or suckering on a seven to ten year

rotation. Many of the timber trees will stand for a number of cycles of regrowth before being felled when full-grown. When felling is undertaken it will be carried out on a rotation so that at all times a screen will remain relating to the length of the development.

Woodland is proposed along the boundaries of the site. This area of planting will include, Elder, Field Maple, Silver Birch, Holly.

Hedgerows

As part of the landscaping scheme the applicant proposes to maintain the existing mature hedgerows and to grow an effective screen of the development through hedgerow management.

Traditionally, hedgerows were used to enclose or exclude animals and to mark ownership boundaries and rights of way. The particular mix of shrub and tree species in a hedgerow, which reflects both the age and local management customs, contributes to local landscape character. Hedgerows are a living part of landscape history and provide a record of use of the countryside over the centuries. The particular planting mix within the new hedgerows will reflect the local vernacular it will include hawthorn and blackthorn as a base species but will include additional species found locally in ancient hedges.

Rough Grassland

Within the site boundaries on land that can no longer be cultivated as part of usual cropping, areas of rough grassland will be created. The provision of a grassy area will greatly increase the wildlife interest of an arable field. The provision of a natural grassy area, containing some grassland flowering plants and scrub will benefit wildlife including invertebrates, birds, reptiles and amphibians (if located) near to a water feature.

4.7.3 Landscape Management

The applicant will establish a site management plan to ensure the maintenance of the landscaping scheme. This is likely to include thinning the tree cover, where necessary, occasional scrub clearance and mowing to maintain the grassland areas.

4.8 Lighting

The main building's gable ends will be lit externally with a single low-wattage fitting of low intensity lighting during normal working hours in winter months. All external lighting will be downward facing and protected with a cowl to reduce light spill to outside the unit.

During the clear out and thinning periods the site will be lit by low wattage lighting while birds are being removed from the buildings, this operation will be carried out in low light conditions to minimise stress to the birds.

There will be no round the clock external lighting of the site and no use of high intensity security lighting.

During hours of darkness the broiler sheds will be illuminated internally to 0.4 lux. The buildings will be clad with high density metal profile sheeting and therefore no light will escape to the outside. Regular tests will be conducted to check the effectiveness of the light proofing. The windows will be shuttered to avoid light escaping to the outside.

4.9 Surface Water Drainage

The site drainage scheme has been designed using Sustainable Drainage Systems (SuDS) principles that aim to mimic natural systems on Greenfield sites.

The specific drainage scheme will be part of a SAB application and subject to a discharge of conditions application.

4.10 Environmental Controls

4.10.1 Introduction

Environmental Permit Determination




The proposed operation will be applying for a licence to operate under the Environmental Permitting (England and Wales) Regulations 2011 as regulated by the Environment Agency. The number of birds applied for in the permit exceeds the maximum potential of the proposed layout and therefore will act as a buffer if further expansion is applied for under the planning process in the future. In being issued with the operating permit, the site will be required to demonstrate that Best Available Techniques will be used to minimise emissions to all media. A detailed assessment of controls on air pollutants and any residual air quality effects are required as part of this process, the assessment considers impacts of ammonia on ecological sites.









The purpose of the Environmental Permitting is to achieve integrated prevention and control of pollution arising from activities listed in Annex 1 of the European Council Directive 96/61/EC, leading to a high level of protection of the environment as a whole. More specifically, it provides a system requiring operators and regulators to take an integrated, overall look at the polluting and consuming potential of the poultry installation. Central to this approach is the general principle that operators should take all appropriate preventative measures against pollution, in particular through the application of best available technique enabling them to improve environmental performance.

Best Available Technique

The term “best available technique” is defined in Article 2(11) of the European Directive as “the most effective and advanced 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 installation at Land East of B4395 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. The following systems within the BREF Document are applicable to the proposed poultry installation at Land East of B4395:

-  Good agricultural practice for environmental management
-  Best Available Techniques for nutritional management
-  Best Available Techniques for efficient use of water

-  Best Available Techniques for efficient use of energy
-  Best Available Techniques for the reduction of emissions from poultry housing
-  Best Available Techniques for housing of broilers
-  Best Available Techniques for the reduction of odour
-  Best Available Techniques for the reduction of emissions from storage
-  Best Available Techniques for the reduction of emissions from application of manure to land
-  Best Available Techniques to reduce noise emissions
-  Best Available Techniques for the treatment and disposal of residues other than manure and carcasses

The following sections provide more detail on incorporated environmental controls designed to avoid adverse effects on the living conditions of the local population.

4.10.2 Odour & Dust Suppression

Decomposing waste products such as manure, dust and bedding causes odours in intensive meat chicken buildings. Ventilation rate and temperature significantly influence the concentration of odorous compounds; inadequate air movement in the houses, leading to high humidity and wet litter causes poor dispersal of odours. The ventilation system is designed to efficiently move moisture from the house and to remove heat. The drinking system is also designed to eliminate spillage. The shed is also insulated to eliminate condensation. Other management controls include dietary manipulation; crude protein levels will be kept at a practical minimum keeping crude protein low. The feed will contain enzymes that enhance the digestion of the cereal components of the feed as a result of the improved digestion, the amount of water drunk by the birds is reduced, and this in turn leads to a lower moisture content of the litter. Consequently the risks of odour are reduced by this drier litter. The baffle area beyond the ventilation fans will enhance dispersion of odorants by directing odorous air upwards into the wind that is building wake effected leading to enhanced mixing conditions. This dilutes the odorous air reducing odour nuisance at sensitive receptors. Studies undertaken in 2000 showed that baffle areas can reduce odour concentration at sensitive receptors by between 30 and 90 percent (Bottcher, 2000).










The period during the bird production cycle at which odour and dust concentrations have the potential to cause nuisance is during the clearing of manure and spent floor litter from the sheds. The Odour Management Plan attached in the appendices is to be adopted and implemented prior to the operational phase of the development.

4.10.3 Noise Suppression

In order to ensure that noise disturbance is minimised the Noise Management Plan attached to the Appendices is to be adopted and implemented prior to the construction phase of the development. The attached noise assessment also confirms that the potential noise produced at the nearest sensitive receptors will be acceptable.

4.10.4 Manure

The manure will be removed from the poultry units following each crop cycle and will then be stored in the existing covered building on site or taken directly to the anaerobic digester. The regulations allow certain types of solid manure to be stored temporarily in field heaps, provided they are located and constructed in accordance with the following rules:

-  Poultry manures only to be stored in field heaps if they are solid enough to be stacked in a free standing heap and do not give rise to free drainage from within the stacked material
-  Poultry manures without bedding/litter which is stored in a field heap with an impermeable sheet
-  No storage within 10m of a surface water or land drain
-  No storage within 50m of a spring, well or borehole
-  No storage on land likely to become waterlogged
-  No storage on land likely to become flooded
-  No storage in any single position for more than 12 successive months
-  A two year gap to be left before returning to the same site
-  All sites to be located on a risk map

Although field heaps are deemed acceptable to all environmental bodies, the applicant will not look to do so.

4.11 Construction

The exact methods employed to build the proposed poultry development will be decided by the preferred shed contractor. The final construction methods and activities will be agreed with the relevant authorities prior to commencement.

Construction operations will take place between the hours of 0700 and 1900 Monday to Friday and 0700 to 1300 on Saturdays. Construction activities are unlikely to take place on Sundays and Bank Holidays and, if required, any significant work outside of these hours would be with the prior consent of the planning authority.

There will be no public access to the construction site and suitable fencing will be used to secure the site boundary.

4.12 Decommissioning

4.12.1 Introduction

The proposed poultry development will be operated and maintained to ensure there is no deterioration in the site conditions during the life of its environmental permit. Materials that will have potential to cause contamination or pollution will be managed so as to minimise that











potential. Environmental monitoring will be conducted throughout the operating life to review all emissions from the site.

Prior to the end of operations at the site a Site Closure and Restoration Plan will be prepared. It is anticipated that much of the proposed structure will be recyclable depending on market conditions at the time. In particular the concrete (for aggregate) and metal (for scrap) are likely to be readily recycled. It may also be possible for the buildings to be re-used for another purpose at the time of decommissioning.

4.12.2 Decommissioning Considerations for the Design

The design of the poultry development will be in accordance with all relevant legislation and standards, and industry good practice. The proposed poultry development will be designed to ensure it can be constructed, operated, maintained and decommissioned safely, in accordance with the Construction (Design and Management) Regulations.

Decommissioning issues to be considered during the design process include:


-  Safety of construction materials;
-  Robustness and durability of construction materials;
-  Consumables and materials used in operation;
-  Ease of access and procedure for dismantling;
-  Size, weight and location of equipment;
-  Appropriate storage of materials;
-  Prevention of accumulations of contaminated or hazardous wastes;
-  Ease of maintenance and cleaning;
-  Electrical systems;
-  Conveyance and control of liquids.





4.12.3 Decommissioning Considerations during Operation

Operational procedures will be adopted that will give due consideration to the ease and safety of decommissioning the poultry development. Staff will be trained to ensure these measures are understood and implemented.

4.12.4 Site Closure

When the site operation is due to cease, a Site Closure and Restoration Plan will be prepared in consultation with the EA. All techniques previously described for minimising or mitigating potential for contamination will be adopted, together with specific measures for Site Closure activities. The Plan will include the following information:

-  Site survey and ground investigation data, including soils testing and any proposed protection, decontamination and monitoring measures;

-  Details of the removal or flushing out of pipelines and tanks;
-  Plans of all underground pipes, tanks, services and foundations;
-  Details of the treatment and or removal of all potentially harmful materials;
-  Outline proposals for decommissioning, including method statements and risk assessment to be developed in detail prior to commencement of decommissioning of the plant.

In due course, a Closure Site Report will be drafted as part of the application to surrender the Environmental Permit.

All as built drawings and associated documents, Health and Safety files prepared under the Construction (Design and Management) Regulations and operating manuals will be collected together. Risk assessments and detailed method statements will be prepared to identify the hazards; required control measures specific procedures to be adopted during the decommissioning of the poultry development.

Consultation will continue as appropriate with the EA, Health and Safety Executive (HSE), Local Authority and Planning Authority to ensure requirements are met. The relevant Notice of Demolition will be required from the Local Authority, and other notifications required under Health and Safety at Work Act 1974 (or equivalent at the time) will be made.

CHAPTER 5 – POLICY & LEGISLATION





5. Planning Policy and other Legislation

This chapter briefly summarises the principal planning policies and legislation relating to the operation of poultry farms at National, Regional and Local levels. It concludes that the proposal for the poultry farm at Land East of B4395, Llangadfan is consistent with these policies and objectives.

5.1 Introduction

The purpose of this Chapter of the Environmental Statement is to provide an overview of how the proposed poultry development at Land East of B4395, Llangadfan 'fits' with the European, National, Regional and Local agricultural policy and legislative framework.

The chapter is structured around the hierarchical policy framework of:

-  European agricultural legislation and policy;
-  National agricultural strategy and planning policy guidance;
-  Regional agricultural strategy and regional spatial strategy; and
-  Local development plans.


The aims and objectives of these policies and plans broadly centre on the principles and practice of 'sustainable development'. The extent to which policies at the regional and local levels are being achieved is important to the delivery of the Government's sustainable development objectives (Planning Support Statement 1 (PPS1)).

The section concludes with an overview of the proposed development in the context of the key policy messages.


5.2 European

5.2.1 Introduction

Management of poultry sites for meat production in the UK is largely governed, directly or indirectly, by European law. In this context, much legislation and policy is derived from European Directives; the Directives of particular relevance to the proposed development are:

-  The Town and Country Planning (Environmental Impact Assessment) Regulations 2017.

The following directive is due to come into force in 2010 and governs the management of broiler chicken production. There is no specific domestic legislation governing the management of broiler farms only general animal welfare law:

-  The Directive on the protection of chickens kept for meat production; Council Directive 2007/43/EC

5.2.2 Directive on keeping chickens for meat production

The above Directive sets, among other matters, the minimum requirements for the keeping of chickens for poultry meat which includes details on maximum stocking densities and requirements for using higher stocking densities.






The welfare legislation has not been transposed into UK law; the UK law covering the welfare of broiler chickens is general animal welfare law, rather than specific legislation. There is a DEFRA code of Practice.

5.3 Environmental Permitting (England & Wales) Regulations 2010

The site will accommodate a maximum of 120,000 birds, this is over the threshold of 85,000 birds and an Environmental Permit from the Environment Agency is required.

The proposed operation has successfully applied for a licence to operate under the Environmental Permitting (England and Wales) Regulations 2010 as regulated by the Environment Agency and therefore all the considerations below have been deemed acceptable by NRW.

The Environmental Permit is effectively a licence to operate and will only be granted if an acceptable level of Pollution Control management systems is adhered to. Under the Environmental Permitting regime, the Environment Agency include the following key areas of potential harm when making an assessment for the Permit:

-  Management – including general management, accident management, energy efficiency, efficient use of raw materials, waste recovery and security.
-  Operations including permitted activities, operating techniques, closure and decommissioning.
-  Emissions to water, air and land including to groundwater and diffuse emissions, transfers off site, odour, noise and vibration and monitoring.
-  Information – records, reporting and notifications.
-  Poultry Production – including the use of poultry feed, housing design and operation, slurry and manure storage and spreading.

All of the above would be assessed within the requirements of Best Available Techniques (BAT).

5.4 National Planning Policy

5.4.1 Planning Policy Wales (Edition 10, December 2018) – Chapter 7 Economic Development

The Welsh Assembly Government states that:

For planning purposes, the Welsh Government defines economic development as development of land and buildings for activities that generate wealth, jobs and incomes.

Economic land uses include the traditional employment land uses (offices, research and development, industry and warehousing), as well as uses such as retail, tourism and public services. The constructions and energy sectors are also important to the economy and are sensitive to planning policies.

Local planning authorities are required to ensure that the economic benefits associated with a proposed development are understood and that these are given equal consideration with social and environmental issues in the decision-making process and should recognise that there will be occasions when the economic benefits will outweigh social and environmental considerations.

Local planning authorities should adopt a positive approach to development associated with farm diversification in rural areas, irrespective of whether farms are served by public transport. While initial consideration should be given to adapting existing farm buildings, the provision of a sensitively designed new building on a working farm within existing farm complexes may be appropriate where a conversion opportunity does not exist.

Local planning authorities should adopt a constructive approach towards agricultural development proposals, especially those which are designed to meet the needs of changing farming practices or are necessary to achieve compliance with new environmental, hygiene or welfare legislation. In addition, they should adopt a positive approach to the conversion of rural buildings for business re-use.

5.4.2 Technical Advice Note (TAN) 23

In the full context of PPW, therefore:

- Economic development is development (new or change of use) where the resulting space will be occupied by economic activities;
- An economic activity, or economic land use, is an activity which directly generates wealth (output), jobs and income;
- Generating jobs includes providing or sustaining existing jobs as well as creating jobs.

PPW advises that economic land uses include the traditional employment uses (Class B in the Use Classes Order) as well as retail, tourism and public services. This list is not exhaustive and amongst other activities, economic land uses also include agriculture, energy generation and other infrastructure. However, non B class uses and activities are subject to many separate policies and considerations set out in PPW and Technical Advice Notes (TANs), which in some cases will take precedence over the more general principles in PPW Chapter 7 and in this TAN.

Local planning authorities should recognise market signals and have regard to the need to guide economic development to the most appropriate locations, rather than prevent or discourage such development.

It should not be assumed that economic objectives are necessarily in conflict with social and environmental objectives. Often these different dimensions point in the same direction. Planning should positively and imaginatively seek such 'win-win' outcomes, where development contributes to all dimensions of sustainability.





There are two kinds of special contribution that are particularly relevant to rural development. Firstly, an economic development could make communities more sustainable, by improving the alignment of housing and jobs, encouraging people to work close to home. Secondly, the needs of established businesses or clusters may be very specific. When businesses expand or modernise, they may need to do so in situ; it may be highly inefficient or impracticable for them to relocate to a sequentially preferable site. Similarly new businesses aiming to join existing clusters may need to be close to existing businesses if they are to derive the benefits.

5.4.3 Technical Advice Note (TAN 6)

Planning for Sustainable Rural Communities (July 2010) recognises the need to allow for sustainable economic development. The Government's objectives outlined in TAN 6 broadly are:-

The purpose of this TAN is to provide practical guidance on the role of the planning system in supporting the delivery of sustainable rural communities.

The TAN provides guidance on how the planning system can contribute to:

-  Sustainable rural economies;
-  Sustainable rural housing;
-  Sustainable rural services; and
-  Sustainable agriculture.

Planning authorities should support the diversification of the rural economy as a way to provide local employment opportunities, increase local economic prosperity and minimise the need to travel for employment. The development plan should facilitate diversification of the rural economy by accommodating the needs of both traditional rural industries and new enterprises, whilst minimising impacts on the local community and the environment.

The Welsh Assembly Government's objective is a sustainable and profitable future for farming families and businesses through the production and processing of farm products while safeguarding the environment, animal health and welfare, adapting to climate change and mitigating its impacts, while contributing to the vitality and prosperity of our rural communities. The planning system can play an important part in supporting the future sustainability of agriculture.

5.5 Local Planning Policy

"The Powys of the future will offer residents, local businesses and visitors to the area: an improved and sustainable quality of life within a valued natural environment; high quality services and facilities; better and more diverse job opportunities; greater access to social, leisure and cultural activities"

This vision seeks to provide an environment in which future growth within Powys should, amongst other things, meet the economic and social needs of the people who live and work in the area; enhance the viability of existing villages and market towns; provide balanced communities with appropriate services and facilities; protect natural resources; conserve the

character of the countryside and provide a high quality of life for all. The challenge is to create a sustainable future for Powys.

*Thus within Powys there is both a demand and a need for an equitable distribution of growth amongst the main towns and the smaller communities, and this is reflected in the **LDP's strategic aims**:*

- a) To promote a diverse and sustainable rural economy;*
- b) To sustain modest growth and development, appropriate to individual locations;*
- c) To support the agricultural sector and rural economies and encourage sustainable diversification;*
- d) To direct large economic developments to the main towns and properly serviced locations;*
- e) To encourage the provision and creation of better quality and better paid jobs in the area, for example, adding value to existing local resources and enterprises and taking advantage of new and emerging technologies such as ICT (Information Communication Technology);*
- f) To encourage appropriate small scale economic developments and regeneration in rural areas;*
- g) To build on our strengths, such as the market town-hinterland pattern, tourism and leisure;*
- h) To retain more retail spend within Powys - to support local shops and shopping centres;*
- i) To support and improve community services and facilities e.g. rural schools, sub-post offices, GP's surgeries, neighbourhood shops, local businesses and community hospitals;*
- j) To address housing needs across the County including affordable housing for local need;*
- k) To strengthen communities and promote social inclusion for all;*
- l) To improve strategic road and rail communications, N-S and E-W;*
- m) To support and, where possible, develop public transport, rights of way and cycle facilities;*
- n) To conserve and enhance the environment, historical and archaeological assets and the countryside as a whole;*
- o) To plan positively for waste management and promote waste reduction;*
- p) To promote energy conservation and efficiency;*
- q) To encourage appropriate energy generation from renewable sources.*
- r) To strengthen design standards and promote good design across the County;*
- s) To plan for the sustainable extraction and recycling of minerals which meet Society's needs and, where appropriate, to safeguard valuable mineral resources for future generations.*

The Council's policies balance the conflicting demands of the need to ensure a buoyant rural economy and the need for the rural community to have access to a range of services and facilities. In order to achieve this, all the policies and proposals arising from the Local Development Plan are considered against the aim to "actively encourage a diverse and sustainable rural economy".

5.6 Policy Framework Overview

Examination of the current policy and legislative framework demonstrates that there is an acceptance that agricultural diversification has a continuing role in the rural area. The proposals are consistent with policies and objectives.

5.7 Conclusion

As a result of the development assimilating itself well within the landscape the extent of the harm the development will have on the surrounding area is limited; the buildings are in line with planning policy having been situated and designed in a way that minimises the landscape

and visual impact. The buildings will be designed and constructed of materials to take account of their surroundings. All roadways and other engineering operations have been integrated within the existing topography and landscape features.

CHAPTER 6 – AIR QUALITY, HEALTH & CLIMATE


6. Air quality, Health and climate

The potential effects of atmospheric emissions from the proposed poultry development were assessed. This took account of air quality standards and guidelines, potential health effects and effects on internationally and nationally designated conservation sites. The potential effects of the proposed poultry installation were assessed using screening tools where appropriate. In view of the emission integral to the design and operation of the poultry installation, it was forecast that all relevant air quality standards and guidelines will be achieved. It is concluded that emissions to air will have no significant adverse effects on air quality, the natural environment, or the health of local people.



6.1 Introduction

This chapter provides an assessment of the potential air quality issues associated with the proposed poultry installation at Land East of B4395, Llangadfan.

The following assessments are presented in this chapter:

-  Screening of potential effects of emissions on nearby SSSI habitat sites and national and local habitat sites.

The following areas are screened out of the EIA:

-  Assessment of the effect of additional road traffic on amenity as increases of traffic are insignificant.
-  Assessment of particulate matter (PM) as the Defra Technical Guidance LAQM.TG(09) on local air quality management requires detailed assessment of PM emissions from poultry units that house more than 400,000 birds if mechanically ventilated where there is relevant domestic exposure within 100m of the buildings. This proposal does not meet the threshold and hence air quality impact for PM would not require further assessment.

The following describes the site location and the potential air quality effects. The methods used to assess and manage these potential effects are described in the sections below, these set out the study results, with an assessment of impacts provided. The study conclusions are given at Section 6.6.

6.1.1 Site Location

The application site at Land East of B4395, Llangadfan is approximately 1.25km North of the village of Llangadfan in an agricultural area.

There are 10 Sites of Special Scientific Interest/Special Areas of Conservation within 5km of the site: Cors Llyn Coethlyn, Cors Lawnt, Coed y Lawnt a Coed Oli, Coed Copi'r Graig, Fachwen Isaf, Gweunydd Dyfnant, Gweunydd Pen-y-Coed, Bryn Coch, Berwyn & South Clwyd Mountains, Berwyn






The site location and surrounding sensitive receptors are shown in the appendices.

6.1.2 Potential Air Quality Effects of the Proposed Process

The proposed development comprises the following elements relevant to the air quality and health assessment:

-  Ventilation fans from bird areas housing 120,000 birds on site.

The proposed process has the potential to affect air quality and hence human health or the natural environment in the following ways:






-  Dust generated during the construction process could potentially cause a nuisance to local residents, unless properly controlled. This is addressed in Chapter 9 (Amenity).
-  Emissions of airborne pollutants from the extraction fans from the bird areas could potentially have an effect on designated ecological sites and human health. The substance of concern is ammonia.
-  Emissions of airborne pollutants from manure stored across the applicant's landholdings.
-  Odorous emissions from the production of poultry manure and the storage and application of. Odour issues are addressed in Chapter 9 – Amenity.
-  The proposed poultry development, while resulting in emissions of Carbon Dioxide which derives from fossil fuel sources of carbon, would amount to an overall reduction as the poultry meat produced on site would be offset against imported poultry meat i.e. the environmental cost of producing poultry meat abroad for domestic consumption is higher than producing poultry meat in the UK for UK consumption.

These potential effects were assessed using the techniques and approaches set out in Section

6.1.3 Incorporated Mitigation

In view of the potential for adverse environmental effects a raft of environmental controls on emissions to air will be implemented under the requirements for Best Available Technique (BAT) as detailed in the reference document on *Best Available Techniques for Intensive Rearing of Poultry and Pigs* published in July 2003. The controls will be an integral part of the design and management of the poultry installation.




These controls are set out in Chapter 4 – Development Description, and include the following:

-  Providing adequate ventilation
-  Controlling shed temperature and humidity
-  Dietary manipulation
-  Providing a Baffle area adjacent to the ventilation fans
-  Good Practice management of manure disposal and storage

6.2 Legislation and Planning Policy

6.2.1 Legislation

The key EU legislation and international protocols covering emissions into the atmosphere which have a bearing on this proposed development include;

-  Council Directive 2001/81/EC relating to national emission ceilings for certain atmospheric pollutants;
-  The 1999 UNECE Gothenburg Protocol to Abate Acidification, Eutrophication and Ground-Level Ozone; and
-  Part IV of the Environment Act 1993.

The National Emissions Ceilings Directive came into force in 2001 and was translated into English law through the National Emission Ceilings Regulations, which came into force in January 2003. The regulations require that in 2010 and each subsequent year emissions from the United Kingdom of sulphur dioxide, nitrogen oxides, volatile organic compounds (such as methane) and ammonia do not exceed the amounts specified in the Schedule attached to the Regulation. The Government is also required to prepare a programme for the progressive reduction of those pollutants, including a requirement that public authorities are to have regard to the programme when exercising any functions which significantly affect the level of emissions of those pollutants.

6.2.2 National Planning Policy

The Welsh Assembly Government has no specific Technical Advice Notes regarding Pollution Control as Planning Policy Statement 23 in England. Air Quality is covered under the Planning Policy Wales (2010) policy notes.

6.2.3 Local Planning Policy

There are no specific local policies that refer to Air Quality,

6.3 Air Quality Assessment

6.3.1 Ammonia Emissions

Detailed Ammonia and odour modelling has been carried out for the proposal, of which are attached in respective appendices.

6.4 Assessment Results

6.4.1 Screening Inputs

Each broiler house will be tunnel vented via ventilation fans.

An emissions factor of 0.034 kg NH₃/animal place per year was used as per the *Pollution Inventory reporting – Intensive farming guidance note* December 2009.

An assessment of predicted annual mean ammonia concentrations as a result of operation of the proposed broiler production facility has been undertaken using the EA ammonia modelling tool.

6.4.2 Ammonia Screening

Please see the appendices to find the Air Quality impact assessment on ammonia emissions from the development at Land East of B4395, Llangadfan. The modelling has been carried out for the permit which future proofed the site, and therefore considered 4 units and a maximum bird number of 250,000. This planning application is only for 2 units with a bird number of 120,000 but given a permit has been granted for 250,000 birds, this scheme is identifiably acceptable.

6.5 Impact Assessment

6.5.1 Dust Generated During the Construction Process

This is addressed in Chapter 9 – Amenity

6.5.2 Airborne Pollutants

Levels of airborne pollutants in the vicinity of the proposed facility have the potential for adverse health and environmental effects. Air quality standards and guidelines have been specified, which correspond to levels of airborne pollutants which do not have significant adverse health or environmental effects. The main focus of the air quality study was to assess levels of airborne pollutants against these air quality standards and guidelines.

Despite the worst-case approach adopted in the study, no air quality standards or guidelines are forecast to be exceeded as a result of emissions from the proposed poultry installation. Screening thresholds were not exceeded such that a consideration of the project in combination with other projects was necessary. Screened forecast rates of deposition of potentially hazardous substances due to emissions from the proposed poultry installation were within the relevant air quality guidelines.

It is concluded that the proposed development will have no significant effects on air quality. This indicates that there will be no significant adverse effects on human health or the environment as a result of the proposed development. The potential effects on human health for certain substances of particular concern are evaluated in more detail below.

6.5.3 Designated Habitat Sites

The contribution of emissions from the proposed process to nutrient nitrogen deposition at sensitive habitats is less than the relevant air quality standards and critical load values. It is concluded that emissions from the proposed facility will have no significant adverse effects on designated sensitive habitat surrounding the proposed poultry installation, and a more detailed assessment is not required.

6.5.4 Air Quality Benefits of the Proposed Scheme

This chapter has demonstrated that the potential adverse health and environmental impacts due to emissions to air from the proposed development would have no significant adverse effects. While these issues have been assessed on their own merits it is also worthwhile considering the impacts in the context of benefits that will accrue from the proposed poultry installation.

Carbon off-set

The poultry development would result in emissions of carbon dioxide. However, the fossil-origin carbon dioxide emitted from the proposed facility would be offset as a result of avoided emissions from a reduction of transportation via air travel using fossil fuels.

6.6 Conclusions

It is concluded that the nature of the development and environmental controls built into the proposed poultry installation mean that emissions to air will have no significant adverse effects on air quality or the health of local people or designated wildlife sites. This proposal has gone through the IPPC Permit rigours and been deemed acceptable. Therefore, no further mitigation measures are required, as the air quality, health and climate are all elements that will be controlled by the permitting regime, which is over and above any planning control.

CHAPTER 7 – LANDSCAPE & VISUAL IMPACT ASSESSMENT

7. Landscape and Visual Assessment

The site is currently laid out as fields in agricultural use which are grazed and farmed on a regular basis. The proposed development has been subject to a Landscape and Visual Assessment, which is attached in the appendices.

The LVIA was undertaken by Viento Environmental Limited who has provided a report a number of photomontages and Zone of Theoretical Visibility to fully assess the potential landscape, visual and heritage effects of the proposed development.

In terms of landscape character, whilst the introduction of the proposed building may be a noticeable addition within the landscape immediately surrounding the site, the limited height of the development, sloping landform of the site and the good levels of existing localised vegetation would assist in integrating the proposal into the local landscape. The proposed landscaping measures of sizeable woodland blocks would further assist with this integration. Overall it is considered that the proposal could be accommodated well within the local landscape context.

In landscape character and visual amenity terms, in combination with the landscape mitigation proposals, the proposed development would be a suitable fit within the context of its immediate surroundings and would result in limited changes to views and landscape character within the local area as illustrated by the viewpoints associated with this study.

In light of the above, the proposal should be considered acceptable in terms of landscape, visual and heritage elements.

CHAPTER 8 – TRAFFIC

8. Traffic

This Chapter considers the developments against National, Regional and Local Policy, and compares existing and future traffic generation and the impact on the local road network. A net reduction in vehicle movements is proposed in many villages across the locality, following this a positive benefit for existing and future users of the road network regarding safety will be realised. No significant effects on pedestrians, cyclists, horse riders or public transport are envisaged.





8.1 Introduction

This chapter of the Environmental Statement (ES) examines the environmental impacts of the proposed poultry installation in relation to traffic and transport and importantly the effect of traffic on local amenity. The assessment considers the potential impacts on traffic and transportation associated with the proposed poultry installation principally during operation.

8.1.1 Scope of the Assessment

This assessment has taken due regard of the scoping opinion received from Powys County Council. The key issue is not so much whether the local road networks can accommodate the traffic associated with the site (as the increases proposed would be less than 1% of the total traffic on the local road networks), but the effect on local amenity. As such, this assessment focuses on the traffic implication on individual villages affected by the proposal.

This assessment includes the following principal assessments:

-  Baseline traffic assessment
-  Trip generation and assignment (for bird / feed deliveries, manure / bird removals etc);
-  Assessment of traffic impact;
-  A routeing plan for the proposals.

Where appropriate, construction traffic has been covered within this ES chapter.

The assessment of other environmental effects associated with road traffic such noise can be found elsewhere in the ES at Chapter 11 – Noise and Vibration.

8.1.2 Proposed Development

The proposed poultry installation is expected to be operational in 2020. Hours of operation will be 24 hours seven days a week. A proportion of movements of birds from the site takes place between the recognised night-time hours of 2300 and 0700 due to factory operating times and bird welfare standards. This assessment assesses night-time movements to give a full assessment of the impact of future traffic generation.

8.2 Legislation, Planning Policy and Other Guidance

Relevant planning and transport policy is contained in a number of documents ranging from Planning Policy Guidance Notes; Government White Papers and Regional Spatial Strategies; to the detailed policies of the Local Development Plan and other supplementary documents. More detail on transport planning policy is provided in the Traffic Assessment.

8.2.1 White Papers and Statutes

Policies specific to the Transport Assessment are contained within the Government White Paper “A New Deal for Transport” (July 1998). This document emphasises the need to reverse the dispersal of development, improve access to jobs and services, reduce the need to travel and reduce the reliance upon the use of private cars.

The Road Traffic Reduction Act 1997 requires local authorities to assess traffic levels and forecast growth of traffic levels in their areas.

8.2.2 Planning Policy

National Policy

Current Transport Policies encourage the use of sustainable modes of transport, such as public transport, cycling and walking, in response to growing concerns with regard to environmental issues and problems associated with the need to reduce traffic and manage congestion. The transport system moves goods and people and helps to make the economy tick. Good transport is needed to get people to work and many jobs are based on extensive travel.

Transport is also a major contributor to the economy in its own right, currently employing around 1.7 million people. We rely on efficient transport to ensure that goods and services are distributed throughout the UK and overseas.

The principles contained in the White Paper are reinforced in Technical Advice Note 18: Transport – 2007.

Technical Advice Note 18 (Tan 18) – Transport 2007

National transport guidance is set out in TAN 18: ‘Transport’ and accepts that our quality of life depends on transport and easy access to jobs, shopping, leisure facilities and services; we need a safe, efficient and integrated transport system to support a strong and prosperous economy.

The TAN addresses the following:

- Integration between Land Use Planning and Transport;
- Location of Development;
- Parking;
- Design of Development;
- Walking and Cycling;
- Public Transport;
- Planning for Transport Infrastructure; and
- Assessing Impacts and Managing Implementation.

Local Policy

Regional Policies regarding Transport are set out within chapter 8 of the Powys County Council Unitary Development Plan 2001-2016

Summary

The broiler unit proposed will promote the relevant Policies raised Nationally, Regionally and Locally by offering local employment opportunity. The proposed development will ensure the viability of and long-term prosperity of the applicant and will assist in the continued diversity of the farm to ensure sustainable businesses in the rural areas.

8.3 Methodology

8.3.1 Introduction

Several assessments were undertaken within this assessment. The methodology is summarised below. This assessment is carried out in accordance with the DfT's 'Guidance on Transport Assessment' (2007).

8.3.2 Baseline Traffic Assessment and Safety Methodology (including cumulative developments)

Relevant existing traffic flow relating to the applicant's existing business was obtained from the applicants and verified by Roger Parry & Partners LLP using their experience of agricultural traffic generation from similar enterprises. All other movements associated with the business will remain unchanged and are not considered in this assessment.

The traffic assessment for this development was reviewed to provide information on associated traffic generation.

8.3.3 Traffic Generation and Assignment (Including Construction/Demolition Traffic Generation)





Under the subheading "Development and Trip Generation" within the DfT's *Guidance on Transport Assessment* (2007) 4.59 and 4.60 state:

"4.59 There is a range of trip rate database tools available that contain national, or in some cases more local, trip rates measured for typical land use sites. However, obtaining an accurate comparison is not always straightforward, especially for atypical developments. In these instances it is recommended that, unless there is a clear valid comparable situation, the assessment trips should be constructed from first principles based on a detailed analysis of the daily operation of the proposed development."

"4.60 In all cases, analyses of development-related trips by using an appropriate database or an alternative methodology should be agreed with the relevant authorities, as this will form the major element of the TA."

This proposed development is typical and no TRICS data exists, therefore the traffic / trip generation has been produced using details regarding expected worst case scenarios. The movements to be generated by the operation of the proposed poultry installation were derived principally from experience of existing poultry units for which planning permission was obtained by the applicant's agent including poultry units. Data from Defra and industry standards were also used to assess tonnes of feed consumed and bird outputs.

To ensure that generation estimates were robust and a worst case the following assumption were used:

-  When calculating total movements 7.6 crop cycles per year have been assumed.
-  When calculating manure production the highest Defra figures were assumed.
-  When calculating bird output the highest kilograms per square metres were assumed.
-  When estimating feed deliveries the highest Feed Conversion Rates were assumed.

Construction traffic was derived from estimating the maximum numbers of construction workers and material deliveries to the construction site given the nature of the proposals and the expected three-month construction programme. It was assumed that decommissioning traffic would be similar to that for construction.

8.4 Baseline Conditions

8.4.1 Road Network

The site is accessed off the minor county highway.

Feed HGVs will be coming from a local feed company using the A485 and B4395 and then as above. The access is to be 5.5 metres in width as indicated in the appendices. The first 15 metres of the access will be finished with tarmac, the remainder will be stoned.

8.4.2 Current Traffic Conditions

The farmland adjoining the proposed development generates movements of agricultural traffic

8.5 Prediction and Assessment of the Potential Impacts

8.5.1 Construction / Decommissioning – Generated Traffic

Estimates of construction traffic are summarised in Table 22.

Table 22: Traffic Movements for Construction

Type	Total Movements (Approx)
Stone	95
Concrete	88
Steel and shed materials	12
Feed Bins	2
Employees	Approximately 8 per day for month and a half during weekdays

It is expected that the construction timescale will be approximately a month and a half. It has been assumed that traffic levels during the decommissioning period would be similar to that during construction. As for operations, HGVs will access the site from Welshpool direction.

8.5.2 Operation – Generated Traffic

Due to the nature of the poultry enterprise it is not possible to give an accurate daily average as the movements are concentrated around certain activities during the cycle. Feed

movements increase during the crop cycle as bird weights increase. Manure removal takes place in a short period between bird removal and chick placement and the direction of the movements will vary. Bird removals take place in two waves each lasting two days during the crop cycle. On 23 days of the 48-day crop cycle there will be **no** movements and on a further 15 days of the crop cycle there will only be one vehicle visiting the site.

Bird removal at the close of the crop represents peak movements in any given 24-hour period. Bird removal may take place during night time, due to the factory opening times. Crop clearance / thinning will take place over a two-day period. The maximum number of movements per hour during the night time is estimated at 2. The maximum number of movements in a twenty-four-hour period associated with bird removal will be 14.

The following sections provide analysis of how the Trip Generation was derived:

Bedding

Wood shavings used as bedding material will be delivered at the beginning of the crop cycle at a rate of approximately 1.72kgs per square metre amounting to 10 tonnes per crop. Wood shavings are delivered in a maximum of 23 tonnes per load. There would therefore be one delivery / two movements per crop or 15.2 movements per year.

Chick Deliveries

The chicks would be delivered in 60,000-bird maximum load sizes. There would therefore be two deliveries / four movements per crop or 28 movements per year.

Feed Deliveries

Total feed consumed per crop would be approximately 530 tonnes. This amounts to 28 tonne loads amounting to 20 loads / 40 movements per crop or 280 movements per year.

Fallen Stock

For the first three weeks of the production cycle carcasses will be stored in a frozen store on site to reduce unnecessary vehicle movements. Thereafter the fallen stock will be collected on a once weekly basis by a small HGV. This will require three collections / six movements per crop amounting to 46 HGV movements annually.

Fuel deliveries

There will be one delivery / two movements of LPG per crop.

Bird Collections

Bird collections will be carried out in two waves: “thinning” at days 35 and 36 when all of the cockerels are removed and “crop clearance” at days 41 and 42. The thinning would be 9 lorries, so 18 movements per crop and the crop clearance would be 9 lorries so 18 movements per crop. Equating to 36 movements per crop.

Other movements

Other car and van movements (vet, inspectors, engineers, specialist cleaning teams and maintenance staff) can be attributed to the proposed unit, but numbers are small and of no significance as they are likely to be during the working day and on an infrequent basis with little potential to create disturbance.

Conclusion

The number of HGV Movements on an annual basis is approximately 325 vehicles with 649 movements which is considered to be very low, especially considering the bulk of movements (bird delivery and collection) occur only 14 times of the year, spanning 2 days.

8.6 Mitigation

A series of improvements are proposed in association with the planning application which are shown in the appendices.

For appropriate design standards, reference is made to the Design of Roads and Bridges (DMRB); Section 1 – Highway Link Design TD9/93 for Design Speeds and Section 2 – Geometric Design for Major/Minor Junctions TD 42/95 for visibility splays.

The new access will be to 6 metres in width and first 15m to be cement as indicated in the appendices.

No additional passing bays are considered necessary, given the existing number of them along the lane, and the negligible additional movements that would be created along the lane in comparison to the existing movements.

8.7 Potential Cumulative Effects

There is no potential for cumulative traffic impacts as a result of no existing or proposed (not committed) poultry developments in close proximity to the proposed development.

8.8 Residual Impacts

Sensitive routing of deliveries will ensure that impacts of traffic on residences are minimised. No significant impacts are expected regarding pedestrians, cyclists or public transport.

8.9 Summary and Conclusion

As a result of the proposal there will be a small increase in traffic in a limited number of settlements such that the baseline conditions including living conditions will change. The small increases in traffic are however considered negligible.

This assessment has demonstrated that the proposals are estimated not to have a significant effect on the surrounding highway network, and that the safety conditions of the network would not be made worse.

Based on the analysis provided in this assessment, there does not appear to be any significant transport related reason why these sites should not be granted Planning Permission.

CHAPTER 9 – AMENITY





9. Amenity

This chapter deals with the potential for odour, dust and flies to be produced by the proposed poultry installation which cause an impact in the local area. By conducting risk assessments, and analysing the recent nuisance complaint history of other sites in the area, the assessment concludes that no significant impacts are likely given the lack of complaints made for other such facilities, the isolated location of the proposal and the integral controls to be applied.

9.1 Introduction

9.1.1 Context

The proposed poultry installation at Land East of B4395, Llangadfan has the potential to affect amenity issues in the area. This chapter presents the findings of a series of risk assessments that have been carried out to assess the potential implications of the proposed poultry development on local amenity. The issues that have been assessed are:



-  Odour;
-  Dust (construction, operation (including bio aerosols) and decommissioning);
-  Flies; and
-  Vermin

It is acknowledged that noise could also be considered to be an amenity issue. However, rather than being assessed here, noise has been included as a separate chapter (Chapter 11 – Noise and Vibration) given the availability of advanced quantitative noise assessment techniques. The overall results are presented in this chapter.

9.2 Legislation, Planning Policy and Other Guidance

9.2.1 Legislation Regulating Nuisance

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 premises;
-  any dust, steam, smell or other effluvia arising on industrial, trade or business premises, which are prejudicial to health or a nuisance.

It should be noted that 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 planning and pollution control systems are separate but complementary. Pollution control is concerned with preventing pollution. The planning system is concerned with the development and use of land. It should focus on whether the development itself an acceptable use of the land is, and the impacts of those uses, rather than the control of processes or emissions themselves. Planning authorities should work on the assumption that the relevant pollution control regime will be properly applied and enforced.

9.3 Method of Assessment

9.3.1 Method

The risk assessment technique used in this assessment has been 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). This method was agreed with Powys Council Environmental Health Department. The methodology utilises a range of simple checklist tables to identify sources, receptors and pathways in relation to potential amenity issues.

The types and sources of potential nuisances are identified and the potential sensitivity of individual receptors is qualitatively assessed. This is based upon the nature of, and proximity to hazard generating activities, general wind direction frequencies and the nature of the receptor. In addition, the scope and efficacy of integral controls have been accounted for.

In addition to the above method, historic complaints made to the Environmental Health Department regarding other poultry sites in the vicinity have been analysed in order to judge the frequency of complaints in relation to the amenity issues being assessed at similar sites. Magnitude and significance have been assessed using professional judgement based on the general expected intensity and frequency of any potential impact against the number, nature and sensitivity of receptors potentially affected. For example, a major, long term, release of odour, dust or flies etc. affecting large numbers of residential receptors to a level that would be likely to cause nuisance and complaint, and which is assessed to be a probable occurrence, would constitute an impact of Major Significance. Conversely, a minor release, barely detectable by a very limited number of industrial receptors, and which is assessed as being unlikely to occur, would constitute an impact of Minor or Negligible Significance.

9.3.2 Difficulties Encountered

The nature of the issues being assessed (generally relating to highly variable, intermittent and, therefore, unquantifiable emissions and subjective human responses to them) does not allow reliable quantitative assessment to be carried out. As such, the following assessments are based upon professional judgement and qualitative risk assessment, as set out above, and the experience of the agricultural industry in Wales.

9.4 Baseline Environment and Sensitive Receptors

In terms of other potential sources of amenity impacts, the Land East of B4395, Llangadfan site lies within an area of livestock farming where the land management operations include application of poultry manure to the land and storage of poultry manure in fields, both of these activities are potential sources of flies and odour. However, in order to make a worst-case assessment of the potential impacts from the proposals, it has been assumed that no amenity issues currently affect sensitive receptors in the locality.

9.5 Incorporated Mitigation

Standard Odour, Dust, Vermin and Fly management controls will be put into place. These have been taken account of in the assessment as they are an integral part of the overall design and

proposed operations and are considered Best Available Technique; these management controls are detailed in Chapter 4 – Details of the Development.

9.6 Complaints History of local sites

9.6.1 Complaints History

No complaints have been made by the public to the Environmental Health Officer (EHO) for local sites within 2km that we are aware.

9.6.2 Odour

Generally complaints about odour from agricultural sources are common but the largest numbers of complaints arise from the spreading of manure. The original MAFF Code of Good Practice for the Protection of Air (The Air Code) since updated by *Protecting our Water, Soil and Air – A Code of Good Agricultural Practice for farmers, growers and land managers* states that there were about 9,000 complaints in England & Wales caused by agriculture in 1995/96, involving an estimated 3,646 farm premises. However odour is rarely an issue at an efficiently operated modern poultry unit.

Research evidence suggests that odour emissions at the time of the growing period during the flock cycle when litter moisture is also rapidly increasing or at high levels. It is known that when litter moisture exceeds 40% there is a progressive decline in the friability of the litter as the moisture increases. When litter moisture reaches 46% the litter becomes capped, i.e. a crust forms, often on top of more friable litter under it. Excreta and moisture accumulate on the capped litter with the result that the activity of anaerobic bacteria break down the excreta and allow moisture to be absorbed is reduced. There is a shift to an aerobic breakdown with consequence that the release of volatile odorants is increased. It is therefore desirable to put strenuous efforts into management practices and building design that lead to low litter moisture levels. Odour emissions will be less and performance, welfare and profitability enhanced. These problems can be avoided and are not anticipated at the application site and will be controlled at source through management practices to keep litter at optimum moisture content for keeping it friable. This will be achieved through management of the shed litter, providing adequate ventilation, controlling shed temperature and humidity, and through dietary manipulation. Odour causes most impact during the cleaning out period and spreading / storage rather than during the crop cycle.

Odour from spreading causes minimal nuisance as the manure is incorporated into the land with cultivation methods soon after being spread therefore the duration of the nuisance is minimal. The nutrient value of manure decreases the longer it is left exposed on field surfaces prior to incorporation. It is therefore a commercial incentive to incorporate rapidly thus reducing the duration of odour instances. Spreading practices are and will continue to be carried out in accordance with the Environment Agency Sector Guidance Note *How to comply with your environmental permit for intensive farming* (Version 2 January 2010), the DEFRA *Code of Good Agricultural Practice (CoGAP)*.

9.6.3 Dust

As for odour the dust / bio aerosols at an operational poultry installation are generally not an issue. Within poultry buildings the main sources of dust are the birds, their food and the floor litter. Measurements of dust concentrations have been found to be variable depending on the number and age of the birds as well as the level of activity within the buildings. The particle size of dust is variable too. In general terms, particles smaller than 2 microns (2 µm) account

for around 70% of the number of particles, but only 5% of the mass. Similarly particles greater than 5 microns (5 μm) account for under 10% of the number but between 40 and 90% of the dust mass.

The particles are emitted into the atmosphere through the ventilation system. The amount of dust emitted is influenced by the level at which the ventilation system is operating. In hot summer weather conditions, for example, the ventilation system will be operating at a higher rate.

Dust baffles will be erected adjoining the ventilation fans to avoid any dust or odour becoming airborne (See Chapter 4). The larger dust particles (5 microns/5 μm and over) found within the building either tend to fail to migrate to the ventilation fans, or are expelled from the building and are immediately deposited to the ground. Once released to the atmosphere smaller dust particles will be carried on the wind, with deposition continuing under the natural turbulent flow of the air. With increasing distance from the source there will come a point where the concentration of dust particles which originate from the poultry buildings fall into a level below air quality guideline values as laid down by the EU and eventually become indistinguishable from normal background dust levels.

9.6.4 Flies

Flies are not a problem on a well managed and hygienically run broiler site; due to the feeding habits of poultry any maggots that hatch in the bedding are soon eaten.

Fly problems at poorly managed poultry farms can occur in the following areas:

Feed Storage





Animal feed is attractive to flies as a breeding area. Problems mainly occur when feed is stored in unsuitable buildings or storage bins that do not function effectively.

These breeding areas are designed out of the majority of poultry farms by installing modern feed storage systems to meet the requirement of the Food Hygiene Regulations and the assured chicken production scheme standards.

Field Manure Storage

Managing poultry manure in such a way that it becomes unattractive as a breeding site is an effective way to keep the fly population under control. All flies go through four life stages; egg, larva, pupa, and adult. Eggs are deposited on the breeding media (frequently poultry manure) and larva (or maggots) hatch out in the moist or wet material where they remain until ready to pupate. Pupation may occur in a drier location than where the eggs hatch. Fresh poultry manure is approximately 60 to 80% moisture. If the moisture level can be reduced to approximately 30% flies will no longer find it an ideal site for laying eggs.

The storage of manure is one of the most important factors in preventing fly infestations. Manure that is produced, transported and delivered in a dry, fly free-state can in some cases become infested and cause problems. As good management practice, the applicant inspects existing poultry manure stores when delivered on a frequent basis to ensure that there is no fly activity. Section 4.0 in this Guide will be adhered to in order to avoid fly infestation. The Guide includes the following management principles for poultry manure storage to avoid fly nuisance:

-  Manure stores will be inspected frequently for signs of fly infestation and a record of the checks made will be kept for examination by the Local Authority.
-  At the first sign of fly activity on in field stores manure will be covered with suitable sheeting material; the sheeting raises the temperature inside the pile to a level which kills any flies or larvae.
-  Any manure covered in this way will remain covered for a minimum of ten days before it is used.
-  During the summer months from the beginning of May to the end of September manure will not be stored near to residential areas.

9.6.5 Vermin

Large quantities of stored feed and stored litter have the potential to attract a variety of animals that are considered vermin. The site will be inspected regularly to check for the presence of vermin and employees will be instructed to report the presence of any vermin immediately. The applicants will be fully trained and certified in vermin control and the companies for which the chickens are grown stipulate strict regimes for vermin control.

9.7 Potential impacts

9.7.1 Sources, Pathways and Potential Impacts

The principal sources of amenity impact, the pathways by which they can be transferred to receptors and their potential impacts are set out for each issue in Table 27.

Table 27: Amenity Issue, Sources, Pathways and Potential Impacts

Issue	Sources	Pathways	Potential Impacts	General Available Mitigation
Odour	Feed Delivery & Storage, Ventilation system, Litter management, carcass disposal, house clean out, used litter, dirty water management	Wind transport. Dispersal tends to be worst in stable night-time conditions in low winds.	Nuisance for walkers on footpaths within 400 metres of the site	Management controls to reduce moisture content of litter. Equipment checks to reduce likelihood of failure. Manure handling controls during cleanout to reduce spillage. Manure transporting controls (e.g. sheeting trailers)
Dust	Dust – vehicles moving over dusty surfaces, wind blowing over dusty surfaces. Dust emissions from within buildings through ventilation.	Wind transport. Tends to disperse more rapidly than gases due to vertical deposition under gravity (nuisance not generally experienced beyond 100m). Greater emissions of dust in high winds but counteracted by greater dilution.	Irritation of respiratory tract/eyes and/or perception of health effects for sensitive receptors on footpaths within 400m of the site.	Dust Baffle over ventilation fans. Internal handling of manure. Good practice during construction (e.g. dampening of surfaces)
Flies	Manure storage	Self dispersal through flight.	General annoyance, buzzing, requirement for swatting and control, and potential for spread of disease.	Storage of manure away from sensitive receptors. Regular inspection to identify infestations. Sheeting of manure heaps to increase temperature of manure heaps to kill flies and larvae.
Vermin	Feed storage	Self dispersal over land	General annoyance, requirement for control and potential spread of disease.	Storage of feed within concealed containers. Maintenance of feed storage containers to avoid damage / deterioration. Removal of feed spillages if they occur.

9.8 Risk Assessment Results

The results of the risk assessments are summarised below. Due to the nature of the proposed operations, the integral controls and the isolation of the facility from sensitive receptors, no receptor was considered to be more than moderately sensitive to any amenity issue potentially arising from the proposed poultry development.

9.8.1 Odour

If odour were to be released from on site operations some limited receptors nearby could potentially be effected. However, this presupposes the regular emission of odours from the proposed poultry installation. In reality, during normal operations odour emissions will be minimal due to the proposed management practices. As such, any odorous emissions, if present, would be minor, intermittent and rare. This conclusion is backed up by the low number of odour complaints attributable to modern poultry developments in this area.

At this location, for odour to be released in any appreciable amount at the level to cause a significant nuisance to the local population, serious operational failures would be required (e.g. total closedown of the ventilation whilst birds continue to be housed). The houses are alarmed and management personnel will always be within a 2 minutes response zone from the buildings to repair failed equipment as such a failure would result in multiple mortalities and in a worst case scenario entire crop loss.

The results of the risk assessments would suggest that, whilst the majority of potentially sensitive receptors lie some distance away from the proposed poultry installation, a few may lie close enough to potentially be affected if odour were to be released in appreciable amounts.

An odour management plan is to be adopted by the applicant prior to populating the broiler sheds, the management plan is provided in the appendices. This management plan is also included as part of the Environmental Permit application and the NRW will regulate the site and ensure that the site adheres to the plan.

The receptors surrounding the land on which the applicant is to spread the poultry manure may be affected for short periods of time during the year by odour nuisance. The risk assessment concluded that the overall risk would not be significant as the manure is incorporated into the soil within 24 hours of spreading.

There are neighbouring properties (sensitive receptors) within 400m of the site.

In accordance with the SGN EPR6.09 and the H1 assessment, an Odour Management Plan has been prepared (Appendices).

9.8.2 Dust

Similar to odour there are few sensitive receptors occurring close enough to be affected by any dust emitted (coarse dust tends not to travel in appreciable volumes further than 100 metres from any local source due to exponential reductions in concentration and deposition with distance). As such the receptors at any risk due to dust emissions are only likely to effectively include roads along which construction vehicles will travel. Such receptors are unlikely to be particularly sensitive to dust and the vehicle movements will not alter the baseline significantly. Also, the prevailing wind direction is not towards any receptors sensitive to dust.

In terms of dust emissions, the greatest risks are likely to occur temporarily and intermittently during the construction and decommissioning phases when loose materials are being handled. During the operational phase dust emissions will be controlled at source through management practices and all vehicles removing manure from the site will be covered.

Given that the greatest dust emissions are likely to occur in the relatively short construction and decommissioning phases and there are few sensitive receptors close enough to be effected, and those that are present are outside the prevailing wind direction from the proposed poultry installation, it is considered that no significant impact in terms of dust nuisance will occur. This conclusion is supported by the low level of complaints made at the other poultry sites in this area. The one complaint that was made regarding dust was in response to fears regarding Avian Flu. Nevertheless, there is still some minimal risk of dust impacts during construction which will require mitigation via best practice.

Compound feed will be stored in purpose-built feed silos located to the North and South sides of the sheds. The feed will be crumbed or pelleted, or supplied as whole wheat which reduces dust.

All feed will be delivered to the farm by lorry from the feed supplier. Feed will be blown directly from the lorry into the storage silos. It will then be piped from the silos to all houses, so minimising dust emissions.

Control of ventilation rates will avoid a build-up of dust and moisture in the houses, with rates being varied according to the age and weight of the birds and the weather conditions.

The houses will be managed to maintain litter in a dry and friable condition, as far as possible. Dust will be controlled through good management and regulation of air quality.

Some dust from the gable end fans in each house may be deposited into a covered catchment area. This will be collected and added to the used litter for land spreading.

Used litter will not be stored close to the poultry houses. During the removal of used litter from the houses, efforts will be made to minimise tip height in order to reduce dust emissions.

9.8.3 Flies

There is a slight occasional risk that the spreading of manure in summer could introduce a potential source of flies into the area that would not otherwise occur. However, with the proposed mitigation controls in place and with prompt incorporation of the manure into the soil it is expected that no significant fly impacts will result. The result of the risk assessment indicates that there would be a considerable number of sensitive receptors in close proximity to areas where manure spreading will take place, however the control measures will limit the effect of flies on these sensitive receptors.

Fly nuisance problems are considered unlikely because of the nature of the activities and because of the comparatively short cycle length. Appropriate actions will be taken should a nuisance problem arise.

9.8.4 Vermin

Vermin are only a potential risk in close proximity to the source. With the proposed mitigation and management controls it is expected that no significant vermin impacts will result. The results of the risk assessment indicate that the separation distance between the site and sensitive receptors would be too great to have any impact.

9.8.5 Cumulative Impacts with Other Developments

We do not believe there to be any cumulative impacts with other developments.

9.9 Follow Up Action

During operation the poultry installation management plans will be put in place to ensure that amenity issues do not become a problem. The site will be regularly inspected by the staff to ensure that no odour, dust, fly or vermin issues are arising. If complaints are received these will be logged and immediately followed up and assessed as part of the applicant's environmental management systems. The site will also be regularly inspected by the NRW as part of the Environmental Permitting system. Any significant releases of odour, dust, flies or vermin will be dealt with as appropriate at the time to ensure no repetition.

9.10 Residual Impacts and Conclusions

The qualitative risk assessments and complaints analyses carried out suggest that significant adverse impacts on local amenity as a result of the proposed poultry installation are unlikely. It is predicted that the impacts of the proposed poultry installation would be acceptable, given the distance between existing sensitive receptors and the nature of the proposed operations. However, it is acknowledged that the issues discussed in this chapter are sensitive to local people. As such, a range of standard mitigation measures, that have been highly successful in other similar operations, would be put in place to minimise any potential adverse impacts.

CHAPTER 10 – ECOLOGY

10. Ecology

This chapter deals with the potential impacts of the proposed poultry installation on designated and undesignated habitats and protected species. Habitats are generally of low value given the use of the site for intensive agricultural production. No protected species are known to use the site. Without mitigation the construction, operation and decommissioning of the proposed poultry installation may affect habitats and species via disturbance. However proposed mitigation measures (providing habitat including conservation strips, woodland planting and wetland areas and the use of sensitive construction methods) will ensure that impacts are minimal and biodiversity will be enhanced.

CHAPTER 11 – NOISE & VIBRATION

11. Noise & Vibration

This chapter assesses the noise and vibration impacts of the proposed poultry installation facility on nearby residential receptors. Impacts arising from construction, operation and decommissioning and associated traffic are assessed, where appropriate, using quantitative techniques. Using worst case assumptions regarding operational noise emissions, traffic levels and noise insulation levels of the building fabric, all predicted impacts are minor or negligible only. Impacts will be easily mitigated by incorporating appropriate noise baffling and insulation.

11.1 Introduction

11.1.1 Scope

There is the potential for noise from the proposed poultry installation to affect sensitive receptors around the site and, as such, the following impacts have been considered within this assessment. Sensitive receptors are predominantly residential properties around the proposed site.

Chapter 4 (Development Description), sets out the detailed design for the proposed poultry installation.

The operation of the proposed poultry installation is not considered to have the potential to generate significant sources of vibration. As such, the impacts from vibration during the operation of the proposed poultry installation have not been considered further.

For decommissioning of the poultry installation site, the resultant noise impacts would be likely to be similar to those for the construction phase.

11.1.2 Consultations

The Environmental Health Department of Powys Council have previously been contacted with regard to the scope of the assessment, methodologies used and sensitive receptor locations. The following assessment methodology and content has been agreed in this context.





11.1.3 Terminology

Relevant British Standards and planning guidance refer to noise in decibels (dB). The decibel scale is logarithmic rather than linear; hence a 3dB increase in the sound pressure level represents a doubling of sound energy present. Judgement of the loudness of a sound is subjective but, as a general guide, nothing less than a change of 10dB corresponds to a doubling of perceived loudness.

The A weighted sound level, dB(A), takes this response into consideration and is used for the measurement of environmental noise. It can be used to indicate the subjective human response to noise.

Environmental noise usually varies continuously from second to second. It is impractical to specify the sound level for each second. As such, human response has been related to various units, which allow for the fluctuating nature of sound.

These include;

-  **LAeq,t** – The A weighted equivalent continuous sound pressure level. A representation of a continuous sound level containing the same amount of sound energy as the measured varying noise over the measurement period, t.
-  **LA90,t** – The A weighted sound pressure level that is exceeded for 90% of the measurement period, t. This is commonly used as the background noise level for assessing the effects of industrial noise in the UK.
-  **LA10,t** – The A weighted sound pressure level that is exceeded for 10% of the measurement period, t. This is commonly used in the UK for describing traffic noise levels.
-  **LAMax** – The highest A weighted noise level recorded during a noise measurement period.

11.1.4 Legislation, Planning Policy and Other Guidance







Noise nuisance in the UK is principally governed under Statutory Nuisance legislation under the Environmental Protection Act (1990 – as amended). No legal standards regarding noise levels are applied; however, guidelines are provided both in British Standards (BS) and by the World Health Organisation (see later sections of this chapter). Noise nuisance is generally policed by Local Authority Environmental Health Departments.


TAN 11 Noise (1997) provides advice on how the planning system can be used to minimise the adverse impact of noise without placing unreasonable restrictions on development or adding unduly to the costs and administrative burdens of business. It outlines some of the main considerations which local planning authorities should take into account in drawing-up development plan policies and when determining planning applications for development which will either generate noise or be exposed to existing noise sources.


11.2 Methodology & Approach

11.2.1 Documents Consulted

The noise impact assessment has assessed the potential impact of noise and vibration from the proposed poultry installation (including both normal noise emissions and any occasional intense noise sources) and alterations to traffic flows during the construction, operation and decommissioning phases. The following guidance has been used for the assessment;

-  Technical Advice Note 11 – noise 1997
-  BS5228: 1997 ‘Noise and Vibration Control on Construction and Open Sites’,
-  BS4142: 1997 ‘Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas’,
-  BS7445: 2003 ‘Description and Measurement of Environmental Noise’,
-  Department of Transport ‘Calculation of Road Traffic Noise’ 1984
-  World Health Organisation ‘Guidelines for Community Noise’, 1999.

 Institute of Environmental Management and Assessment (IEMA), and Institute of Acoustics (IOA) 'Guidelines for Noise Assessment', 2002

 Highways Agency 'Design Manual for Roads and Bridges –Volume II', 1994

11.2.2 Baseline Noise Environment

The main sources of noise in this area are (a) road traffic (b) agricultural operations and (c) aircraft traffic (usually helicopter training). The agricultural traffic peaks during the harvest period (between May and October). During the harvest period it is common for movements of agricultural traffic to occur between the hours of 2300 and 0700.

The noise climate in the area surrounding Land East of B4395, Llangadfan is deemed to be typical of a rural area. The principal noise sources include road traffic noise, which is influenced by reasonably high levels of HGV's associated with local agricultural activities, as well as operational noise from the field work.






11.2.3 Impact Assessment Methodology

In relation to noise, general guidelines are provided in the relevant planning document Technical Advice Note 11 – Noise 1997.

Construction Noise

TAN11 provides detailed guidance on the introduction of noise sources into a noise-sensitive area, and gives recommendations that BS5228 should apply to noise from construction sites and to industrial operations.

BS5228 provides guidance relating to the prediction and control of noise and vibration from open sites where noise from fixed plant and mobile plant has the potential to be an issue with regards to the potential disturbance of residents. In particular, this document provides guidance that is relevant to this noise assessment relating to:

-  noise and vibration, and its potential for affecting neighbours of open sites;
-  the prediction of environmental noise levels associated with fixed and mobile plant;
-  criteria for setting noise control targets;
-  the control of noise emissions from open sites; and
-  the calculation of noise levels associated with plant which does not operate continuously.

Additionally, this document includes reference noise level data for various types of plant commonly associated with activities on construction sites. Noise and vibration levels generated by construction activities are regulated by guidelines and subject to local authority control. Guidance is contained within BS5228 but no fixed limits are suggested in the document.

Operational Noise

The impact of noise from a new source may be determined by comparing the noise level of the source with recommended, absolute noise limits contained within guidance documents. The relevant document in this instance is the World Health Organisation Guidelines.

The use of fixed limits is appropriate for the assessment of sources that are contained within a finite boundary, particularly where noise sensitive receptors are few or are grouped together. Thus, this assessment method is appropriate to the noise from site activity, such as that within the buildings, the fans and vehicle movements on the service pad to the front of the buildings.

There are a number of guidance documents that contain recommended fixed limits. These are discussed below.

TAN11 contains comprehensive advice on the subject of noise both in the circumstances of a residential development or a noise producing development.

The subject of commercial and industrial development, in this section, reference is made to BS 8233:1987 (now superseded by BS 8233:1999).

This Standard is principally intended to assist in the design of new dwellings; however, the Standard does state that it may be used in the assessment of noise from new sources being brought to existing dwellings.

The BS 8233:1999 limits may be summarised as follows:

Gardens	$L_{Aeq,16hr}$	= 50 to 55 dB
Living rooms (internal)	$L_{Aeq,16hr}$	= 30 to 40 dB
Bedrooms (internal)	$L_{Aeq,8hr}$	= 30 to 35 dB
Bedrooms (internal)	L_{Amax}	= 45 dB

BS 8233:1999 was based on the advice contained in a draft of World Health Organisation document "Guidelines for community noise". This document was released in final form in 2000.

The WHO advice is the most useful, comprehensive, and pertinent advice in this case, because it is not specific to the circumstances of the assessment. Instead, it provides guideline values at, for example, schools, dwellings and offices.

The WHO guideline values, set, are appropriate to what are termed "critical health effects". This means that the limits are at the lowest noise level that would result in any psychological, physiological or sociological effect.

It is important to appreciate that the WHO guideline values are very stringent and are not indicative of significant impact. Instead, a report compiled by the National Physical Laboratory for the DETR concluded that noise levels below the WHO guideline values indicate "negligible effects" and significant effects may not occur until much higher values are reached.

In this respect, the WHO values are much more robust than the national planning policy objective, this being to "avoid demonstrable [i.e. real] harm to interests of acknowledged importance" (ref TAN 11).

The WHO guideline values may be summarised as follows:

Day	External	L _{Aeq,16hr}	= 50-55 dB
	Internal	L _{Aeq,16hr}	= 35 dB
Night	External	L _{Aeq,8hr}	= 45 dB
		L _{Amax}	= 60 dB
	Internal	L _{Aeq,8hr}	= 30 dB
		L _{Amax}	= 45 dB

These criteria have been used in this case for the assessment of noise impact from site activity: ventilation fans, movements on the service pad. However, because some of these activities will vary widely, over the 16 hour day period or 8 hour night period, the L_{AeqT} index has been normalised over a peak 1 hour period in order to ensure that a robust assessment is undertaken.

Operational Traffic Noise and Vibration

There is also potential for noise from vehicles associated with the proposed poultry installation facility to impact upon sensitive receptors along the roads on which they travel. The noise levels, with and without the proposed poultry installation, have been calculated using the methodology in 'Calculation of Road Traffic Noise' CRTN. The level of any change has been used to assess the impact of noise and vibration generated by operational traffic on local sensitive receptors.

11.2.4 Assessment Criteria

The impact magnitude and significance has been defined using the criteria in Table 29 and Table 30 below. These criteria have been developed for use in this assessment based on the guidance set out in the draft 'Guidelines for Noise Impact Assessment' (IEMA/IOA, 2002).

Table 29: Magnitude Criteria

Subject Area	Impact Magnitude							
	Major		Moderate		Minor		Negligible	
Nearby residents from construction/ decommissioning of proposed development	Noise normally 75dB(A)	levels over	Noise normally 75dB(A)	levels 65-	Noise normally 56	levels 65	Noise normally 55 dB(A)	levels less than
Nearby residents from operational noise	Noise Rating Level >10 dB(A) above Background Noise Level	Level	Noise Rating Level equal to or above Background Noise Level (up to 10 dB(A)	Level	Noise Rating Level up to 10 dB(A) below Background Noise Level	Level	Noise Rating Level > 10 dB(A) below Background Noise Level	Level
Nearby residents from traffic noise and vibration	Change in noise level of more than 10dB(A)		Changes in traffic noise levels between 3 and 10 dB(a)		Change in traffic noise levels between 1 and 3 dB(A)		Changes in traffic noise levels of less than 1dB(A)	

Table 30: Significance Criteria

Subject Area	Significant	Impact Significance	
		Not Significant	
Nearby residents from construction of development	Long term (more than a few days) major or moderate impacts	Minor or Negligible Impact	
Nearby residents from operational noise	Major or moderate impact	Minor or Negligible impact	
Nearby residents from traffic noise and vibration	Major or moderate impact	Minor or negligible impact	







11.2.5 Limitations of the Assessment

As mentioned above, construction details to be used are not currently available to accurately estimate actual noise emissions from the proposed facility. Nevertheless worst case assumptions are utilised regarding emissions such that the following assessment is robust.

11.3 Mitigation



11.3.1 Construction and Decommissioning





In order to ensure that noise disturbance is minimised, the following noise mitigation measures shall be incorporated during the construction and decommissioning phases and implemented at all times:

-  Good maintenance of plant to ensure that excessive noise and vibration levels are not generated;
-  Limiting hours of delivery to avoid sensitive periods;
-  Regular integrity checks of noise mitigation measures fitted to items of plant. Such measures are likely to include silencers and engine covers. Where repair or replacement is required, the plant will, where possible, be taken out of service until repair or replacement of parts has been undertaken;
-  If plant or machinery is found to be generating excessive noise, unless bird welfare is at stake, the poultry installation will be taken out of service until repairs can be undertaken to reduce noise levels generated;
-  Plant should be switched off when not in use; and,
-  High revving of engines will be minimised.

11.3.2 Operation

Noise limits for components of the proposed poultry installation will be set to ensure that background (LA90) noise levels are not exceeded. The following noise mitigation measures will be incorporated into the detailed design to ensure that operational noise impacts from the proposed poultry installation are minimised:

-  The adoption of the noise management plan attached to the appendices.
-  Use of modern ventilation fans.

-  Regular maintenance and repair or replacement of noisy equipment.
-  Restriction of all vehicle movements other than bird removals outside the hours of 2300 and 0700.
-  Insulation of sheds and provision of double glazing.
-  Incorporating a noise baffle and fan canopy surrounding the ventilation fans.

11.4 Residual Impacts and Conclusions

A noise assessment of the proposed poultry installation at Land East of B4395, Llangadfan has been undertaken. Estimations have been used to construct a worst-case noise model of the likely effects of plant and noise. This data has shown that noise levels are predicted to be below existing background noise levels at all receptors. It is also predicted that with incorporated management controls the residual noise during the operational and decommissioning stages will not be significant. This impact of this level of change will not be significant. The impact of changes in vibration levels are closely related to the impact of changes in traffic noise levels. As such, the impact of changes in traffic vibration levels will also be minor or negligible and not significant. Added to this complaints analyses carried out suggest that significant adverse impacts on local amenity as a result of noise release from the onsite plant or HGV movements from proposed poultry installation are unlikely.

CHAPTER 12 – WATER RESOURCES

12. Water Resources

This chapter deals with the potential impacts of the proposed Poultry Installation on water resources including surface waters, groundwater and flood risk. The main risks identified with the proposal were the risks of pollution of groundwater and surface water from nitrates from spreading and removal of manure and dirty water, the increased in surface water runoff from the site. With the appropriate best practice mitigation in place (including the use of Sustainable Drainage Systems (SuDs) all risks are reduced to minor or less.

12.1 Introduction

This chapter forms part of the overall Environmental Statement (ES), which has been prepared to accompany the detailed planning application for the proposed Poultry Installation at Land East of B4395, Llangadfan.

The chapter assesses the potential significant hydrogeological and hydrological impacts of the proposed poultry installation. The assessment is based primarily on a desk-based survey of the existing hydrogeological and hydrological conditions within the area, using information from published sources and specific investigations. The sensitivity of receptors and magnitude of impacts are assessed and combined to determine the significance of each impact. Mitigation measures and the nature of any residual risks, post-mitigation are also discussed.

12.1.1 Overview of Potential Impacts on Surface and Groundwater

The potential hydrological and/or hydrogeological impacts of the proposed poultry installation relate to three main issues: nutrient pollution events through spreading of manure; chemical/effluent pollution events from on site; and alteration/interruption of surface and/or groundwater flows as set out below.

12.1.2 Nutrient pollution from spreading

The risks relate to the possibility of applying too much nitrogen or of raising soil phosphorus levels above recommended limits.

12.1.3 Chemical / Effluent Pollution

Oil / fuel / chemical pollution (e.g. from incorrect storage, containment, accidental spillage and malfunction of dirty water system) could affect aquatic ecology and could also impact on the quality of water abstracted from both surface and groundwater for drinking supply.

12.1.4 Alteration / Interruption to Flow

Any alteration of natural drainage patterns could disturb natural surface and subsurface water flows to either water dependent habitats or water supply abstraction points. Concrete hardstanding areas, buildings and bunds could provide new preferential pathways or prevent water ingress into soils and interfere with the retention of flows within catchments. Alteration of surface runoff due to increased areas of hardstanding could potentially cause flooding to receptors downstream of the site.

12.1.5 Summary of Potential Impacts

Table 31 provides a summary of the potential impacts that could occur as a result of the proposed poultry installation.

Although a number of potential impacts are identified in Table 31 it does not necessarily follow that they would actually occur.

Table 31: Potential Impacts Resulting from Development Activities

Key Activities	Specific Element / Activity	Potential Effect	Potential Sensitive Receptors
Construction	Use of vehicles / machinery during construction	Increase of surface run off due to compaction of soil	Surface water hydrology. Impacts on water flow which may lead to potential damage and or flooding
	Materials Management	Leakages of chemicals to ground	Principal aquifer groundwater abstractions and nearby rivers via baseflow, aquatic species / ecological systems
Operation	General Operations	Leakage of chemicals etc	Principal Aquifer, groundwater abstractions and nearby rivers via baseflow, aquatic species / ecological systems
	Building wash-down	Leakage of dirty water	Principal Aquifer, groundwater abstractions and nearby rivers via baseflow, aquatic species / ecological systems
	Application of manure to land	Nutrient concentrations exceed recommended limits	Principal Aquifer groundwater abstractions and nearby rivers via baseflow, aquatic species / ecological systems
	Use of vehicles	Spillage of Fuel	Principal Aquifer groundwater abstractions and nearby rivers via baseflow, aquatic species / ecological systems
	Presence of Hard Surfaces	Alteration to run-off flows	Flood risk, effects on catchments and river flows.
Decommissioning	Use of vehicles / machinery during demolition	Increase in surface run-off due to compaction of soil.	Surface water hydrology / channel morphology. Impacts on water flow regime which may lead to potential damage and flooding.
	Materials management	Leakage of contaminants to ground	Principal Aquifer groundwater abstractions and nearby rivers via baseflow, aquatic species / ecological systems

12.2 Legislation Planning Policy and other Guidance

12.2.1 Legislation

Guidance provided from the UK Technical Advisory Group (UKTAG) provides an overview of the environmental standards for water quality and hydromorphology arising from requirements set by the European Water Framework Directive (WFD). Consideration is given to these environmental standards throughout this assessment. The WFD was transposed into English and Welsh law in December 2003 through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

The Nitrate Pollution Prevention Regulations 2008 regulate the use of organic and inorganic fertilisers within Nitrate Vulnerable Zones.









12.2.2 Planning Policy

The planning policy framework in the context of this development comprises the national Technical Advice Notes (TAN's) and local plans. The TAN that particularly relates to water issues is Technical Advice Note 15 – Development and Flood Risk (2004).








12.2.3 Guidance


With regard to hydrology, management of water-borne pollution and protection of ecologically sensitive areas, the NRW has a statutory obligation to manage and control the pollution of water resources. Accordingly, it is reasonable to assume that the adoption of the EA's Best Practice Guidelines and licensing of the poultry installation under Environmental Permitting Regulations will prevent pollution to recognised standards and make any 'significant' impacts unlikely.

The EA's Pollution Prevention Guidelines (PPGs) are the principal documents used for guidance on preventing the contamination of surface waters from construction activities. The PPGs relevant to this development include:

-  PPG1: General Guide to the Prevention of Pollution;
-  PPG2: Above Ground Oil Storage Tanks;
-  PPG5: Works In, Near or Liable to Affect Watercourses;
-  PPG6: Working at Construction and Demolition Sites;
-  PPG7: Refuelling Facilities;
-  PPG8: Storage and Disposal of Used Oils;
-  PPG21: Pollution Incident Response Planning; and
-  PPG26: Storage and Handling of Drums & Intermediate Bulk Containers.

Other relevant guidance includes:

-  Guidance on the Groundwater Regulations 1998 (DEFRA);
-  The Control of Pollution (Oil Storage) Regulations 2001;
-  Control of Water Pollution from Construction Sites. Guidance for Consultants and Contractors C532 (CIRIA);
-  Environmental Good Practice on Site C650 (CIRIA);
-  Culvert Design Guide C168 (CIRIA);
-  Sustainable Drainage Systems. Hydraulic, Structural and Water Quality Advice C609 (CIRIA);
-  Sustainable Water Management in Landuse Planning C630 (CIRIA); and

 Control of Water Pollution from Linear Construction Projects: Technical Guidance C649 (CIRIA).

Guidance regarding the application of manure to agricultural land is regulated by the Nitrate Pollution Prevention Regulations 2008. A number of guidance notes in the *Guidance for Farmers in NVZs* series produced by Defra relate to the practical application of manure to the land. Where land is outside the NVZ there are no specific legal requirements, however the Code of Good Agricultural Practice for the protection of Water, Soil and Air should be referred to.

12.3 The Receiving Environment and Sensitive Receptors

12.3.1 Geographical Context

The site is located at Land East of B4395, Llangadfan in a rural area.

12.3.2 Surface Hydrology

A small brook runs to the East of the site

12.3.3 Mains Supply and Drainage

No mains supply pipes are currently within the site.

Foul Sewers

There is no foul sewer connection in the vicinity to the site.

12.3.4 Geology

The geology of the area surrounding the site consists of freely draining soils.

12.3.5 Hydrogeology

The site is not located within a designated Nitrate Vulnerable Zone (NVZ) under the Nitrates Directive.

12.3.6 Flood Risk

The site is not located within EA classified Flood Zone 1 and is not at risk of extreme flooding, from major sources, with an annual probability of flooding from rivers or the sea of 0.1%. Due to the site being in excess of 1ha it has been necessary to prepare a Flood Risk Assessment for this site (see below).

TAN 15 defines the flood zones as: -

Zone A – Considered to be at little or no risk of fluvial or tidal/coastal flooding;

Zone B - Areas known to have been flooded in the past evidenced by sedimentary deposits;

Zone C – Based on Environment Agency extreme flood outline, equal to or greater than 0.1% (river, tidal or coastal);

Zone C1 - Areas of the floodplain which are developed and served by significant infrastructure, including flood defences; and

Zone C2 – Areas of the floodplain without significant flood defence infrastructure.

The flood zones are based on annual probabilities of flooding. It is unlikely, but possible, that a flood with, for example, an annual probability of 1% will occur two years running. The flood zones show the flooding that would occur to land without the presence of flood defences.



12.3.7 Designated Sites

No water dependent nationally designated sites are located within 1km of the site.

12.4 Predicted Impact and Evaluation of Significance (Contamination and General Risks)

12.4.1 Assessment of Potential Impacts and Risk Basis for Assessment



The impact assessment has been undertaken according to the following basis regarding the nature and extent of the development:

-  The proposed development will house approximately 120,000 birds at any one time.
-  Uses of the individual hardstanding areas may include chemical storage.



12.4.2 Sources, Pathways & Receptors

A variety of sources, pathways and receptors have been identified as outlined below. These are generally associated with the release of chemicals, oils and fuels and dirty wash water.

Sources









-  Site development – storage and use of chemicals, fuels and oils, and concrete and sediment/silt associated with construction; and
-  Accidental release of dirty wash water or chemicals delivered to, and stored at, the site entering watercourses; and

Pathways

-  Seepage of chemicals to groundwater through permeable ground; and
-  Any chemicals/oils which seep into groundwater migrating via baseflow to nearby surface water courses;

Incorporated Mitigation

Several pollution prevention and drainage management features are inherent within the design of the proposed development; a number of these will provide protection to surrounding water features. These are detailed below. However, the main mitigation feature will be the carrying out of all operations within a building and on hardstanding.

-  The floors of the poultry houses will be constructed from reinforced concrete rendering it waterproof and so preventing potential of manure effluent seepage into groundwater.
-  During the washing down of the poultry houses all dirty water will be directed to a dirty water tank
-  Level indicators in the dirty water tanks will be easily visible from the hardstanding area to quickly identify when the tanks need emptying.
-  A diverter valve will be connected to the drainage system for the hardstanding area which will divert the yard water either to the Sustainable Drainage System or to the dirty water holding tanks. During wash down the outfall drain from the hardstanding will be diverted to the dirty water collection tanks.
-  All chemical substances and hazardous materials are to be stored in accordance with EA guidelines.
-  All diesel fuel and lubrication oils used during the construction period will be stored in bunded areas; diesel will be contained within double skinned tanks. Bunded areas will have a 110% capacity of the storage tank; and,
-  Additionally, the use of SuDS will assist with the attenuation of any polluting surface water runoff.
-  Finished Floor Levels (FFLs) are to be at least 0.3m above surrounding ground level reducing risk from flooding.

Construction and Decommissioning Phases

Impacts associated with construction will be similar to those associated with decommissioning and are considered together within this report. Potential impacts are:

Contamination of groundwater

Construction at the site will require the use and storage of a wide range of chemicals. The construction will also involve delivery of materials by heavy good vehicles and the use of construction plant on the site. Spillage or uncontrolled disposal of chemicals in any areas of the site could result in contamination of the shallow groundwater beneath the site.

Pollution of surface water

As with potential contamination to groundwater, construction will involve the use and storage of chemicals, along with the presence of delivery vehicles and mechanised construction plant. Spillage or uncontrolled disposal of chemicals in any areas of the site could rapidly lead to pollution of surface water runoff from the site from hard-standing surfaces infiltrating into the drainage system.

12.4.3 Operational Phase

This section of the assessment relates to both on-site and off-site impacts to the hydrological environment that could potentially arise from operation of the proposed poultry development.

Potential pollution impacts are:



Pollution of site runoff by oils and hydrocarbons

Routine use / presence of lorries and other vehicles across the site and on access routes and associated accidental spills or minor leaks all have the potential to contaminate runoff in the locality with hydrocarbons or other chemicals. This could then be flushed through the system during heavy rainfall or flooding events which could then lead to contamination of receptors downstream of the site.

If such contamination occurred, it could lead to degradation of water quality in the downstream receptors and associated ecological damage.



Contamination of groundwater

The operational phase will involve the wash down of the hard-standing area to the front of the buildings and the buildings themselves. Leakage of dirty water could occur if operational practices are not developed and managed efficiently.

Routine use of heavy goods vehicles, cars and other vehicles across the site and chemicals stored and utilised on site, all have the potential to create contamination which could then infiltrate into the shallow groundwater either through cracks in hardstanding, or through runoff onto non-developed or designed infiltration areas.

Given the permeability of the shallow geology it is likely that there could be some migration of any released contamination, particularly with regards to shallow groundwater.

12.4.4 Impact Assessment

Whilst some potential impact significances are as high as moderate all risks from the operation of the site are classed as low risk or lower.

12.4.5 Mitigation (Contamination and General Risks)

Construction and Decommissioning Phase

Mitigation measures during the construction/ decommissioning phase will help to manage any identified negative impacts deemed to be significant. If possible, works should be avoided, or sensibly managed, in accordance with adverse ground and/or weather conditions occurring such as heavy rainfall or waterlogged soils.

It should also be noted that a minimum 5m wide buffer zone should be left between any works associated with the construction of the proposed development, or the plant itself and any watercourses. Should any of the works during construction be likely to affect a local watercourse (e.g. diversions - whether temporary or permanent), permission will need to be sought from the EA under the Land Drainage Act of 1991 well in advance of construction commencing. At this stage it is not thought that this will be necessary.

Contamination of Groundwater and Surface Water

The storage of polluting materials will be kept to a minimum where practicable, and where less hazardous or inert materials are available these should be specified. For example, construction materials containing sulphides or cement which could potentially alter the pH of runoff will be avoided and the use of biodegradable hydraulic oils could be considered for construction plant. In addition, absorbent mats/pads, absorbent granules and sand will be made available, and site operatives trained in their use, to deal with any spillages.

Further measures to be adopted include locating mobile plant, batching plant, materials storage, topsoil storage, and waste disposal facilities at least 20m from water features. Further, the positioning of fuel storage tanks and other potentially polluting materials and maintenance facilities will be on bunded areas of hard standing with dedicated drainage systems. The bunded areas will be protected from direct rainfall by organic mulch or a temporary sward, and stored materials on site will be checked regularly for containment integrity (both primary and secondary), quantity stored and security of storage.

Construction of concrete structures during the construction phase would be monitored to prevent cementitious material entering any watercourses. Pre-cast work or permanent formwork will reduce the amount of in-situ concreting required adjacent and above the watercourses. Ready mix suppliers will be used in preference to on-site batching. Washing out of concrete wagons or other equipment used in concreting operations will be undertaken in designated contained washout areas. These should be located away from all watercourses, drains and groundwater protection zones, and should be impermeable.

Summary

Given appropriate mitigation as detailed above, the residual potential for impacts on both groundwater and surface water contamination occurring during the construction phase and the significance of any contamination will be minimised.

Operation

Pollution from Process Wastes

Management of manure removal will be undertaken with due caution to prevent pollution release. The SuDS system described below (re: Flood Risk) will also provide some level of protection from waste entering the water environment.

Pollution of Site Runoff and Groundwater by Oils and Hydrocarbons

Any operational activities that carry significant risk of oils/hydrocarbon spillage must comply with TAN15. Any operational activities that carry significant risk of oils/hydrocarbon spillage will be subject to a separate task specific environmental risk assessment under the Environmental Permitting Regulations regime and associated licences from the EA.

Implementation of these mitigation measures will ensure that residual impacts on the identified receptors and their significance are minimised.

12.4.6 Assessment of Residual Impact Significance

Given the additional mitigation set out above, all significant impacts for the construction/decommissioning and operation of the proposed poultry development will be mitigated to a minor level (or less) for all the identified potential impacts. The risks of impact are also reduced to low risk (or less).

All operations will occur on hardstanding within a building, significant protection from pollution incidents is provided to the underlying principal aquifer and surface waters. The mitigation measures specified will, therefore, minimise any potential impacts. Incorporation of standard best practice during the construction works and during operation will also ensure that no major pollution incidents occur and thus protect the aquifer and surface waters.

12.5 Flood Risk

12.5.1 Flood Risk Assessment

The Flood Risk Assessment was carried out in line with TAN15 for the proposed site as the site exceeds 1 ha. For any site larger than one hectare the EA's standing policy, in accordance with TAN15, states that an assessment must be undertaken. In addition to assessing external risk of flooding to the site, an assessment must demonstrate that the proposed development would not exacerbate flooding elsewhere. On Brownfield sites it is also necessary to demonstrate that peak rates of flow would be reduced back towards the levels that would be expected from a Greenfield site.

Flood Risk

The site is not located in flood zone 1 indicating that the risk of flooding from major sources is low. As such the sequential test, used by planning authorities to direct development away from areas of high flood risk, indicates that development of this area is potentially appropriate thus no mitigation or management is required.

Storm Water Management




Calculations indicate that 495 m³ of attenuation storage would be required to manage up to a 1-in 100 year rainfall event (including provision for climate change) if run off were to be completely managed using this method. Discharge at Greenfield rates could be made to the drainage line to the north and south of the development.

12.5.2 External Flood Sources

Within TAN15 it is recommended that a Flood Risk Assessment should consider all possible sources of flooding for a given site. The following sources of flooding are summarised in Table 46;

12.5.3 Risk Assessment

The risk assessment methodology used is set out in section above and is based on guidance provided in TAN15. The guidance recommends that flood risk is assessed through consideration of both the magnitude of potential impacts and the probability of occurrence. The magnitude of impact is dependent on two factors; the sensitivity of potential receptors and the severity of the flooding. There are therefore three criteria on which flood risk is assessed. These are:

-  Sensitivity of the receptor
-  Severity of the flooding; and
-  Probability of occurrence.

12.5.4 Sensitivity of Receptors

The proposed development is a building used for agriculture, thus, under the sequential test defined within TAN15 the development would be classified as a *“less vulnerable development”*. Given this sensitivity has been defined as moderate.

Development in general has the potential to impact the flood risk posed to off-site receptors. All off-site development is considered to have a very high sensitivity to any increase in flood risk and, therefore, it is important that any adverse off-site impacts on flood severity or frequency are avoided.

12.5.5 Severity and Probability of Flooding

The severity and probability of flooding are both fully defined above and the classification of these criteria is discussed in the following sections.

Tidal

Not relevant at Land East of B4395, Llangadfan given the distance from tidal watercourses.

Drainage and Mains Supply

The drainage and mains supply are a significant distance from the site that in the event of a system collapse the total volume of flood waters is not expected to be large enough to cause a flooding event at the site.

12.5.6 Summary of Risks

The probability and severity of each type of flooding has been assessed in line with the methodology and guidance set out above. This is then combined with the assessment of receptor sensitivity to define the level of flood risk on a scale ranging from negligible to high.

Typically risks assessed to be low or less are acceptable whereas risks assessed to be moderate or high require additional mitigation or management to enable development to proceed. All the risks to the development are assessed as being either low or very low. Thus, no further mitigation or management is required in respect of flood risk.

12.5.7 Flood Risk Mitigation

Site Drainage Systems

The proposals will result in approximately 80% of the site area being converted to an impermeable surface (hardstanding). This increase in impermeable surface area could have an impact on receptors downstream of the site and mitigation is required.

EA's policy for site redevelopments is that runoff from a site should not be increased. Drainage systems for the site should be designed based on the 1% annual probability design event. Additionally, potential increases in storm severity associated with climate change need to be considered (20% increase in rainfall depths).

Site drainage should be designed based on sustainable drainage principles as laid out in guidance documents including TAN15. The most preferable option for drainage receptors is infiltration drainage or, where this is not possible, or does not provide sufficient capacity; attenuated discharge to watercourses should be sought. Discharge to sewers should only be considered where the above options are not available.

Site drainage should be designed based on sustainable drainage principles as laid out in guidance documents including TAN15. The most preferable option for drainage receptors is infiltration drainage or, where this is not possible, or does not provide sufficient capacity; attenuated discharge to watercourses should be sought. Discharge to sewers should only be considered where the above options are not available.

Sustainable Drainage System

The EA's standing policy for site redevelopments is that runoff from a site should not be increased and that a decrease of site runoff towards Greenfield levels is desirable. Where possible, this should be done using **Sustainable Drainage Systems (SuDS)**.

A quantitative assessment of the anticipated increase in run-off has been undertaken by estimating the greenfield peak run-off rates and peak run-off rates expected upon completion of the development. The volumes of storage required to limit predicted runoff rates to original greenfield rates have been calculated.




The SPRHOST (standard percentage run-off) value of 15.1%, is indicated for the catchment in the Flood Estimation Handbook (Centre for Ecology & Hydrology, 1999), which is indicative of a sandy soil type. However, the client reports that soils at the site are a medium/heavy loam and the British Geological Survey map sheet 137 shows that the site is located on boulder clay over sandstone. For the purpose of the calculations, the soil type is therefore assumed to be 'loam/intermediate soils'.

12.5.8 Assessment of Residual Impact Significance

Although no significant flood risks have been identified appropriate SuDS will be deployed to ensure the development does not contribute to flooding of downstream receptors. With regards to flood risk, the application of SuDS will ensure runoff from the site will remain at Greenfield levels, resulting in no impact on flood risk.

12.6 Mitigation and Management







Mitigation and management of potential risks to the soils underlying Land East of B4395, Llangadfan and soils across the land on which manure will be spread are as follows:

-  Application of poultry manure will only take place when weather conditions are favourable and soil conditions would support machinery. The applicant employs the use of a penetrometer for assessing the levels of compaction; the information that the penetrometer presents is used to ascertain whether sub-soiling should occur.
-  Soils are regularly tested across land on which poultry manure is spread. Heavy metal concentrations would be detected and appropriate remedial action taken.
-  Defra project SP0129 (Anon, 2001b) concluded that reducing dietary trace element supplementation would be an effective strategy for protecting soils from long-term heavy metal accumulation. Strategies for reducing heavy metal excretion in broiler litter also include:
 - Lowering levels of supplementation through reducing EC maximum levels of inclusion and safety margins
 - Using feeds with higher bioavailability of Cu and Zn
 - Using chelated metals – if they are shown to have consistently higher bioavailability

12.6.1 Regulatory Guidance and Best Practice

There are a variety of best practices and recognised measures to mitigate the identified potential impacts, providing appropriate provisions are made in the construction planning and methodology (see below). These include management at the construction stage and monitoring.

The EA's Pollution Prevention Guidelines (PPGs) are the principal documents used for guidance on preventing contamination from construction activities. The PPGs relevant to this development concerning soil quality include:

-  PPG1: General Guide to the Prevention of Pollution;
-  PPG2: Above Ground Oil Storage Tanks;
-  PPG6: Working at Construction and Demolition Sites;
-  PPG8: Safe Storage and Disposal of Used Oils;
-  PPG13: Vehicle Washing and Cleaning; and
-  PPG26: Storage and Handling of Drums and Intermediate Bulk Containers (IBCs).

The significance of potential mitigated impacts is assessed from a combination of the sensitivity of the receptor and the magnitude of the impact. This is summarised in Table 59.

CHAPTER 13 – SOILS

13. SOILS

This chapter assesses the impact of the proposals on soils on site and soils to which poultry manure will be applied. No significant impacts upon soils are envisaged.





13.1 13.1 Introduction

13.1.1 Introduction to the Issues

This chapter considers the baseline soil conditions and of the potential impact to soils that may result from the construction, operation and decommissioning of the proposed poultry extension and the spreading of poultry manure on agricultural land.

13.2 Overview of Potential Impacts on Soils

In the absence of mitigation, the potential impacts to soils arising from the proposed poultry extension include, but are not limited to, the following:

-  Construction: Compaction of soils, and removal of surplus soil and isolated occurrences of soil contamination;
-  Operation – on-site: Contamination of soils from potential spillages and leaks on site including hydrocarbons and liquids originating from the poultry installation; and
-  Operation – off-site: Compaction of soils from spreading of manure, contamination from heavy metal inputs
-  Decommissioning: Contamination could arise during the decommissioning process from chemicals/materials stored on-site during operation and the exposure of soil as the hard standing is removed.

Impacts on soils may lead to secondary effects on groundwater, surface water and ecological receptors and therefore reference should also be made to Chapters 10 – Ecology, and 12 - Water Resources.

Summary of Potential Impacts

Table 50 provides a summary of the impacts that could potentially occur as a result of the redevelopment of the site as a poultry extension. However, it does not necessarily follow that all these impacts would actually occur.

Table 50: Potential Impacts Resulting from Development

Key Activities	Specific Element/Activity	Potential Impacts Potential Effect	Potential Receptors	Sensitive
Construction	Use of heavy Machinery	Compaction of soil, increased runoff	Soils	
Operation	Use of poultry installation	Leaks of potential contaminants. Examples include, but not limited to: manure leachates; dust; process chemicals; oils etc.	Soils	
Operation	Application of poultry manure to agricultural land	Compaction of soil, increased run off	Soils	
Operation	Application of poultry manure to agricultural land	Heavy metal and Veterinary Medicine input to soils	Soils	

Key Activities	Specific Element/Activity	Potential Impacts Potential Effect	Potential Receptors	Sensitive
Decommissioning	Removal of poultry installation	Leaks of potential contaminants. Examples include, but not limited to: manure leachates; dust; process chemicals; oils etc.	Soil	
Decommissioning	Removal of hard standing/buildings	Exposure of soils which could lead to leaching of any contaminants and increased sediment load	Primarily soils	

13.3 13.3 Methodology

13.3.1 Methodology and Relevant Guidance/Standards

The assessment of potential impacts on soils arising from the proposed poultry units has been undertaken by analysing any interactions between the construction, operational and decommissioning processes on soil conditions. This assessment is inevitably linked with the assessment of water resources (Chapter 12) and follows a similar methodology.

The assessment identifies the likely risks of soil contamination during the construction, operational and decommissioning phases of the poultry extension. This involves assessing the significance of any potential effects by determining the sensitivity of the receptor and the magnitude of the potential effect. A qualitative risk assessment has been undertaken to establish the significance of possible effects through consideration of the likelihood of an event and the severity of the hazard to the soil.

13.3.2 Assessment Criteria

The significance of any impacts of the proposed poultry extension on baseline conditions is assessed as part of the impact assessment. The sensitivity of the receptor and the magnitude of any potential impact combine to determine the significance of any impact.

Magnitude, sensitivity and significance criteria were developed for the conditions prevailing at the site and are detailed below. In this assessment, consideration of likelihood of the effect occurring is also incorporated into a final risk-based assessment.

Magnitude

The criteria used to determine the magnitude of a potential impact are defined in Table 51 below. Assessment of magnitude includes consideration of the amount and intensity of impact and the duration of that impact (i.e. whether permanent or temporary).

Table 51: Impact Magnitude Criteria

Magnitude	Definition
Negligible	Unquantifiable or unqualifiable change in soil conditions
Minor	Detectable but minor change to soil conditions. Soil quality standards less than threshold and unlikely to affect most sensitive receptors (e.g. a minor spillage)
Moderate	Detectable change to soil conditions resulting in non-fundamental temporary or permanent consequential changes. Some deterioration in soil quality likely to temporarily affect most sensitive receptors (e.g. a minor spillage).
High	Fundamental change to soil conditions (including deterioration in soil quality) resulting in temporary or permanent consequential changes (e.g. major spillage resulting in dangerous levels of contamination).

Sensitivity

Sensitivity criteria can be based both on the degree of environmental response to any particular impact, as well as the 'value' of the receptor (e.g. greenfield soils with an agricultural land use are more

sensitive than brownfield soils present on an industrial/commercial site). The sensitivity criteria developed for this assessment are presented in Table 52.

Table 52: Sensitivity Criteria

Sensitivity	Definition
Negligible	Environment is insensitive to impact, no discernible changes e.g. soils are not in use, the land has an industrial/ commercial land use and/or mainly covered by hard standing.
Low	Environment responds in a minimal way such that only minor changes are detectable e.g. landscaped areas
Medium	Environment clearly responds to effect(s) in quantifiable and/or qualifiable manner e.g. low grade agricultural land, recreational ground.
High	Environment responds to major change(s) e.g. agricultural land use for food production, allotments.

Significance

The combination of magnitude and sensitivity logically combine to provide a matrix categorisation of significance. Significance levels are presented in 53.

Table 53: Significance Matrix

		Sensitivity			
Magnitude		Negligible	Low	Medium	High
	Negligible	Insignificant	Insignificant	Insignificant	Insignificant
	Minor	Insignificant	Minor	Minor	Moderate
	Moderate	Insignificant	Minor	Moderate	High
	High	Insignificant	Moderate	High	Very High

13.3.3 Risk Assessment

Qualitative Risk Assessment Methodology

Risk assessment is the process of collating known information on a hazard or set of hazards in order to estimate actual or potential risks to receptors. The receptors may be human health, agricultural land, a water system, a sensitive local ecosystem or even future construction materials. Receptors can be connected with the hazard under consideration via one or several exposure pathways (e.g. the pathway of direct contact or indirect transport by wind/water etc). Risks are generally managed by isolating or removing the hazard, isolating the receptor, or by intercepting the exposure pathway. Without the three essential components of a source (hazard), pathway and receptor, there can be no risk.

Thus, the mere presence of a hazard at a site does not mean that there will necessarily be attendant risks.

Sources

Potential sources of contamination are identified for the site and agricultural land on which manure will be spread, based on a review of the proposed uses. Not only the nature but also the likely extent of any contamination is considered, e.g. whether such contamination is likely to be localised or widespread.

Pathways

The mere presence of a contaminant does not infer a risk. The exposure pathway determines the dose delivered to the receptor and the effective dose determines the extent of the adverse effect on the receptor. The pathway which transports the contaminants to the receptor or target generally involves conveyance via soil, water or air or may be direct.

Receptors

The varying effects of a hazard on individual receptors depend largely on the sensitivity of the receptor. Receptors include any people, animal or plant population, or natural or economic resources within the range of the source which are connected to the source by the transport pathway, although in this instance the assessment is concerned primarily with soils.

Exposure Assessment (Likelihood of Occurrence)

By considering the source, pathway and receptor, an assessment is made for each contaminant on a receptor by receptor basis with reference to the significance and degree of the risk. In assessing this information, a measure is made of whether the source contamination can reach a receptor, determining whether it is of a major or minor significance (as set out above).

The assessment of risk presented here has been based upon the procedure outlined in the Department for the Environment Transport and the Regions (DETR) Circular 02/2000. In addition, the DETR (now DEFRA) with the EA and the Institute of Environment and Health, has published guidance on risk assessment (Guidelines for Environmental Risk Assessment and Management). This guidance states that the designation of risk is based upon a consideration of both:



-  The likelihood of an event; (takes into account both the presence of a hazard and receptor and the integrity of the pathway); and
-  The severity of the potential significance (takes into account both the potential severity of the hazard and the sensitivity of the receptor).

Table 54 shows how the risk rating is achieved by combining the likelihood of the event and the degree of significance.

Table 54: Risk Assessment Matrix

Probability (likelihood)	Significance				
		High	Moderate	Minor	Insignificant
	High Likelihood	Very high risk	High risk	Moderate risk	Low risk
	Likely	High risk	Moderate risk	Moderate/Low risk	Low risk
	Low Likelihood	Moderate risk	Moderate/low risk	Low risk	Very Low risk
	Unlikely	Moderate/low risk	Low risk	Very low risk	Very Low risk

Under such a classification system the following categorisation of risk has been developed and the terminology adopted as shown in Table 55.

Table 55: Risk Criteria

Term	Description
Very High Risk	There is a high likelihood that severe harm could arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
High Risk	Harm is likely to arise to a designated receptor from an identified hazard at the site without appropriate remedial action.
Moderate Risk	It is possible that, without appropriate remedial action, harm could arise to a designated receptor. It is relatively unlikely that any harm would be high, and if any harm were to occur it is more likely that such harm would be relatively minor.
Low Risk	It is possible that harm could arise to a designated receptor from an identified hazard but it is likely that, at worst, this harm, if realised, would normally be minor.
Very low risk	The presence of an identified hazard does not give rise to the potential to cause significant harm to a designated receptor.

The assessment of likely significant impacts of the proposed poultry extension is initially based on potential impact before mitigation and is addressed in sections to follow. Levels of assessed impact which are moderate or above require mitigation/management to reduce the level of impact to

negligible or low levels. Proposed mitigation is discussed in Section 13.7 and the residual effects after mitigation are presented if required following this section.

13.4 The Baseline Environment and Sensitive Receptors

13.4.1 Geology and Soils

The site geology and the geology of soils on which application of manure is proposed is summarised in Table 56.





Table 56: Soil types across controlled land

Farm Name	Soil Characteristics	Geology
Land at Llangadfan	Freely draining slightly acid loamy soils	Geology is predominantly Silurian slate, shale and mudstone, with sandstones evident to the northern end of the area.




13.5 Assessment of Impacts and Risk

13.5.1 Basis for Assessment and Incorporated Mitigation Measures

The impact assessment for the proposed poultry unit on soils has been undertaken assuming the following:

-  The site at Land East of B4395 will produce a maximum of 2250 tonnes of poultry manure per annum.
-  Chemicals will be stored on the site for cleaning processes;
-  Soils will be excavated and re-graded to allow for a basement level;
-  The site will be covered with approximately 80% hard standing and 20% landscaped areas.




The impact assessment for the poultry unit on soils also assumes the following incorporated mitigation measures:

-  Operation in accordance with Pollution Prevention Guidelines (PPGs) (see Chapter 12 – Water Resources) and licensed by the Environment Agency (EA) under the Environmental Permitting regime;
-  All bulk storage tanks will be appropriately bunded and located on areas of hard standing;
-  All tanks, bunds, drains and hard standing will be inspected frequently for damage, maintained and remedial works conducted if necessary.




13.5.2 Potential Sources, Pathways, Receptors and Impacts

A variety of sources, pathways and receptors have been identified as outlined below. These are generally associated with the release of chemicals, fuels and oils and soil compaction.

Sources

-  Storage and use of inorganic and organic chemicals during the construction, operation and decommissioning of the proposed poultry extension;
-  Use of heavy machinery on site and during application of soil to land (compaction of soils); and
-  Heavy metal content of poultry manure, veterinary medicines within poultry manure.

Pathways




-  Leaching of inorganic and organic chemicals;
-  Building works affecting soil structure; and
-  Application of poultry manure to land.

Primary Receptors

-  Soils.

Potential Impacts

The principal potential impacts on soil considered in this assessment comprise:

-  The contamination of soils by inorganic and organic chemicals during construction, operation or decommissioning phases;
-  Contamination of soils through build up of heavy metals; and
-  Direct damage to the soils via compaction.

Soil Compaction from Spreading of Manure

The UK poultry flock (including layers and broilers) produces around 4 million tonnes of poultry manure per year (Chambers & Smith, 1998). This contains around 49,000 tonnes of nitrogen following ammonia losses (31,000 t of N) and losses to incineration (20,100 t of N). To comply with the Nitrate Pollution Prevention Regulations 2008, poultry manure applications to agricultural land should supply no more than 170 kg total N/ha per annum (except in some circumstances – for this assessment the lowest possible figure has been used to present a worst case scenario). Poultry manures are therefore spread across around 200,000 hectares of agricultural land. When this is spread in wet soil conditions it can potentially lead to soil compaction (Larsen et al., 1994).

The magnitude of impact without mitigation would be moderate.

Soil Compaction from Construction

The compaction of soils during construction may also increase surface runoff. This risk is assessed in Chapter 12 – Water Resources. Direct damage to the soils on-site via compaction is not considered significant as the site will require significant areas of made up ground. The soils also do not support important habitats and as such the issues of compaction from construction have not been assessed further in this chapter.

The magnitude of impact without mitigation would be moderate.

Heavy Metals

At the field level, zinc inputs from layer manure are higher than those from any other livestock manure, including pigs (Nicholson et al., 2003). Zinc inputs from layer manure to agricultural land in England and Wales amount to 2.7 kg Zn ha⁻¹ a⁻¹, while copper inputs amount to 0.4 kg Cu ha⁻¹ a⁻¹.

Heavy metal inputs from broiler litter are lower than those from pig and layer manure (Nicholson et al., 2003). Zinc inputs from broiler litter to agricultural land in England and Wales amount to 1.1 kg Zn ha⁻¹ a⁻¹, while copper inputs amount to 0.2 kg Cu ha⁻¹ a⁻¹.

The magnitude of impact without mitigation would be moderate.

Veterinary Medicines

The only veterinary medicines routinely used in broiler feed are coccidiostats, endogenous oestrogens.

Data available on endogenous oestrogens (Shore *et al.*, 1988) demonstrate that these compounds can be transported from poultry farms, via agricultural run-off to rivers and streams. Oestrogen (as an endocrine disruptor) can affect reproduction in fish species.

Increased concentrations of oestrogen can give rise to male fish gaining female characteristics, which could in turn impact on reproduction - this has been studied in Atlantic salmon and other species.

There is a scarcity of research about the impacts of poultry production on biodiversity.

The magnitude of impact without mitigation would be moderate.

13.6 Assessment of Impact Significance

The significance of potential impacts is assessed from a combination of the sensitivity of the receptor and the magnitude of the impact. This is summarised in Table 57.

The differences between construction, operation and decommissioning are not deemed relevant for this assessment. Differences in construction, operational and decommissioning phases will have an effect on the probability or likelihood of the impact being realised.

Table 57: Assessment of Significant Unmitigated Impacts

Source	Potential Impact	Receptor	Sensitivity Receptor	of	Magnitude of Potential Impact	Resulting Significance (if realised)
Storage and use of inorganic and organic chemicals during the construction, operation and decommissioning of the proposed poultry installation;	Contaminate Soils	Soils	Negligible		Moderate	Insignificant
Use of heavy machinery on site and during application of soil to land (compaction of soils); and	Compaction	Soils	Negligible		Moderate	Insignificant
Heavy metal content of poultry manure, veterinary medicines within poultry manure.	Contaminate Soils	Soils	Negligible		Moderate	Insignificant

13.6.1 Unmitigated Risk

The actual likelihood or probability of the above linkages being realised requires assessment so that the level of overall unmitigated risk can be qualified and the likely significant impacts identified. The overall risk assessment matrices are provided in Table 58. These have been developed based on the combination of the significance of the potential impact and the likelihood of that potential impact occurring.




The assessment of overall risk indicates that there is a low likelihood of many of the impacts has resulted in the risks being very low.

Table 58: Risk Assessment Table – unmitigated risks

Source	Potential Impact	Receptor	Resulting Significance (if realised)	Likelihood Construction	Operation	Decommissioning	Risk Construction	Operation	Decommissioning
Storage and use of inorganic and organic chemicals during the construction, operation and decommissioning of the proposed poultry installation;	Contaminate Soils	Soils	Insignificant	Likely	Low	Likely	Low Risk	Very Low Risk	Low Risk
Use of heavy machinery on site and during application of manure to land and construction of development	Compaction	Soils	Insignificant	Likely	Likely	Likely	Low Risk	Low Risk	Low Risk
Heavy metal content of poultry manure, veterinary medicines within poultry manure.	Contaminate Soils	Soils	Insignificant	n/a	Likely	n/a	n/a	Low Risk	n/a

13.7 Mitigation and Management







Mitigation and management of potential risks to the soils underlying the site and soils across the land on which manure will be spread are as follows:

-  Application of poultry manure will only take place when weather conditions are favourable and soil conditions would support machinery. The applicant employs the use of a penetrometer for assessing the levels of compaction; the information that the penetrometer presents is used to ascertain whether sub-soiling should occur.
-  Soils are regularly tested across land on which poultry manure is spread. Heavy metal concentrations would be detected and appropriate remedial action taken.
-  Defra project SP0129 (Anon, 2001b) concluded that reducing dietary trace element supplementation would be an effective strategy for protecting soils from long-term heavy metal accumulation. Strategies for reducing heavy metal excretion in broiler litter also include:
 - Lowering levels of supplementation through reducing EC maximum levels of inclusion and safety margins
 - Using feeds with higher bioavailability of Cu and Zn
 - Using chelated metals – if they are shown to have consistently higher bioavailability

13.7.1 Regulatory Guidance and Best Practice

There are a variety of best practices and recognised measures to mitigate the identified potential impacts, providing appropriate provisions are made in the construction planning and methodology (see below). These include management at the construction stage and monitoring.

The EA's Pollution Prevention Guidelines (PPGs) are the principal documents used for guidance on preventing contamination from construction activities. The PPGs relevant to this development concerning soil quality include:

-  PPG1: General Guide to the Prevention of Pollution;
-  PPG2: Above Ground Oil Storage Tanks;
-  PPG6: Working at Construction and Demolition Sites;
-  PPG8: Safe Storage and Disposal of Used Oils;
-  PPG13: Vehicle Washing and Cleaning; and
-  PPG26: Storage and Handling of Drums and Intermediate Bulk Containers (IBCs).

The significance of potential mitigated impacts is assessed from a combination of the sensitivity of the receptor and the magnitude of the impact. This is summarised in Table 59.

Table 59: Assessment of Significant mitigated Impacts

Source	Potential Impact	Receptor	Sensitivity of Receptor	Magnitude of Potential Impact	Resulting Significance (if realised)
Storage and use of inorganic and organic chemicals during the construction, operation	Contaminate Soils	Soils	Negligible	Negligible	Insignificant

Source	Potential Impact	Receptor	Sensitivity of Receptor	Magnitude of Potential Impact	Resulting Significance (if realised)
and decommissioning of the proposed poultry installation;					
Use of heavy machinery on site and during application of soil to land.	Compaction	Soils	Negligible	Negligible	Insignificant
Heavy metal content of poultry manure, veterinary medicines within poultry manure.	Contaminate Soils	Soils	Negligible	Minor	Insignificant

13.7.2 Overall Risk with mitigation

The actual likelihood or probability of the above linkages being realised requires assessment so that the level of overall risk can be qualified and the likely significant impacts identified. The overall risk assessment matrices are provided in Table 6o. These have been developed based on the combination of the significance of the potential impact and the likelihood of that potential impact occurring.

The assessment of overall risk indicates that there is a low likelihood of many of the impacts has resulted in the risks being very low.

Table 60: Risk Assessment Table – mitigated risks

Source	Potential Impact	Receptor	Resulting Significance (if realised)	Likelihood			Risk		
				Construction	Operation	Decommissioning	Construction	Operation	Decommissioning
Storage and use of inorganic and organic chemicals during the construction, operation and decommissioning of the proposed poultry installation;	Contaminate Soils	Soils	Insignificant	Unlikely	Unlikely	Unlikely	Very Low Risk	Very Low Risk	Very Low Risk
Use of heavy machinery on site and during application of manure to land and construction of development	Compaction	Soils	Insignificant	n/a	Low	n/a	Very Low Risk	Very Low Risk	Very Low Risk
Heavy metal content of poultry manure, veterinary medicines within poultry manure.	Contaminate Soils	Soils	Insignificant	n/a	Low	n/a	n/a	Low Risk	n/a

13.8 Residual Impacts and Conclusions

Following mitigation, the overall risks of the poultry unit on soils have been assessed as very low and no further mitigation or management issues need to be addressed. Therefore, the proposed units are unlikely to give rise to any significant adverse impacts on the soils of the site. Furthermore, the regular application of poultry manure to agricultural land can potentially improve soil quality and fertility (Bhogal et al., 2006; Haynes & Naidu, 1998; Hountin et al., 1997; Persson & Kirchmann, 1994; Van Meirvenne et al., 1996).

CHAPTER 14 – HERITAGE

14. Heritage

This chapter assesses the effects of the development on designated or un-designated heritage assets within the area surrounding the development site. There are no known designated or un-designated heritage assets within the proposed development site boundary. However the surrounding area contains a number of designated heritage assets and the impact on these is assessed in this chapter.

14.1 Heritage Legislation

Legislation relating to archaeology and to scheduled ancient monuments is contained in the Ancient Monuments and Archaeological Areas Act 1979.

Legislation regarding buildings of special architectural or historic interest is contained in the Planning (Listed Buildings and Conservation Areas) Act 1990.

Section 66 of the 1990 Act is of relevance in that it states that special regard must be given by the decision maker in the exercise of planning functions to the desirability of preserving a listed building and its setting. Section 72 of the 1990 Act provides protection for the character and appearance of conservation areas.

14.2 Assessment

A full heritage assessment is provided within the LVIA submission, which considers all scheduled and unscheduled heritage assets surrounding the site.

14.3 Conclusion

Overall, the heritage assessment has established that the proposed development will have a limited effect on any Scheduled Ancient Monuments or Listed Buildings within the 2km Study Area. Therefore it is seen that the proposed development will not cause significant damage to the setting of any Scheduled Monument, Registered historic park and gardens or listed buildings.

CHAPTER 15 – SUMMARY & CONCLUSIONS

15. Summary and Conclusions

It is clear that, in most cases, even without mitigation, impacts are generally insignificant. This has been achieved by appropriate location and design of the proposed poultry installation. Even where significant impacts are identified many are effectively reduced to insignificant by the use of appropriate mitigation. There are no impacts that remain significantly negative.

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