Environmental Statement

Planning application for a free range egg production unit and associated works at;
Cae Mawr
Llanerch y Medd
Anglesey
LL71 8AN

Prepared for DB and BE Evans

Roger Parry & Partners

land & property professionals

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Client's Address

DB and BE Evans
Cae Mawr
Llanerch y Medd
Anglesey
LL71 8AN

DB and BE Evans

Erection of a free range egg production unit and associated works

Environmental Statement

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CONTENTS

APPENDICES

CHAPTER 1 - INTRODUCTION

Foreword

This Environmental Statement (ES) has been prepared for DB and BE Evans by Roger Parry & Partners LLP. It accompanies a planning application for a proposed free range egg production unit at Cae Mawr, Llanerch y Medd.

The proposals assessed for the Environmental Impact Assessment (EIA) are for a free range egg production unit with the capacity for 32,000 birds on site.

The footprint of the poultry unit is expected to cover 3,204m². The proposed buildings shall be 68.60m by 20m with a processing room 10m wide by 46m together with a roof pitch of 15°, internal eaves height of 3.1 metres. The building shall house 32,000 free range birds.

Hours of operation will be 24 hour seven days a week due to the fact that it is a livestock enterprise requiring continual husbandry. A site layout plan for the egg production unit is shown in Appendix 1.

The proposal is to enable DB and BE Evans that livestock on the farm have sufficient housing space to carry out their five freedoms.

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) (England and Wales) Regulations 2011. The ES is intended to enable the recipients (such as the Local Planning Authority) to understand the nature of the proposed unit 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.

Chapter 1
Introduction

Introduction

This chapter summarises the nature of the proposed unit 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 the free range egg production unit, DB and BE Evans 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 Unit

The proposal assessed for the EIA is for the erection of a free range egg production unit for 32,000 birds on site.

The poultry unit will be integrated into the applicant's agricultural enterprises on farm.

The proposed buildings shall be 68.60m by 20m with a processing room 10m wide by 46m together with a roof pitch of 15°, internal eaves height of 3.1 metres. The building shall house 32,000 free range birds. The total footprint of the building is 3,204 square metres.

Hours of operation will be 24 hour seven days a week due to the fact that it is a livestock enterprise requiring continual husbandry. A site layout plan for the poultry unit is shown in Appendix 1.

It is expected that, on the receipt of planning permission, the construction would commence in 2019 with operation commencing after a three month construction period.

The proposed unit is to be located at Cae Mawr, Llanerch y Medd, Anglesey, LL71 8AN

1.2.2 The need for the Proposal

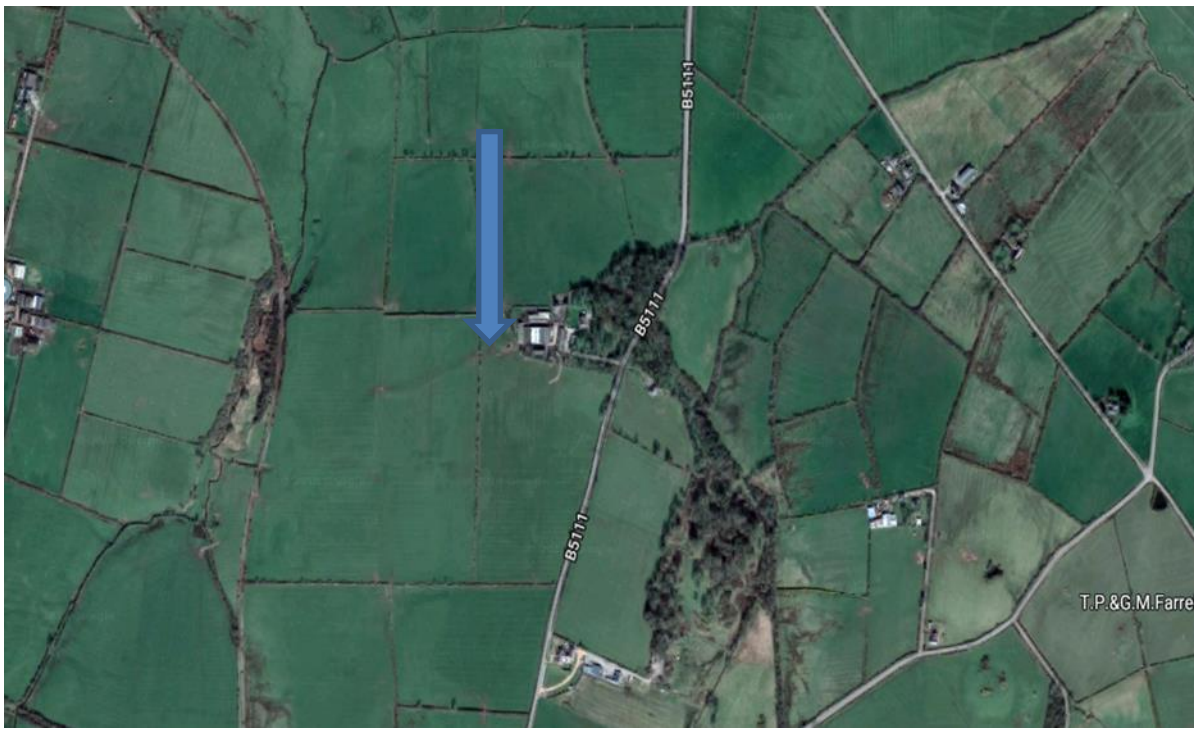
DB and BE Evans are proposing to erect a free egg production unit to ensure that livestock on the farm have sufficient housing space to carry out their five freedoms and also the space stipulated by the welfare standards of the RSPCA Freedom Food Standards. The proposal is proposed in order to support the existing livestock enterprises run on farm.

The proposal is a sustainable economic development that will contribute positively to the UK poultry sector. In addition to the wider national benefit, the unit will create full time employment position as well as indirectly contributing to the local economy through feed contracts, building contracts, veterinary employment etc.

1.3 Site Location

The proposal is for the creation of a free range poultry unit at Cae Mawr to provide accommodation for 32,000 free range birds.

Please see below photographs of the site:



Cae Mawr Farm is shown on the aerial photograph above. The farm lies to the north of the rural village of Llanerch y Medd.

The farm lies in a rural location with only limited residential properties having long distance views over the farmstead.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings. The site is located within two grassland fields adjoining existing farmstead, the building will require the removal of 95 meters of hedgerow. The hedgerow in question is not established and has large breaks in the boundary where there are no plants. A landscaping plan to restore hedgerows, plant trees and create a new hedgerow is submitted in support of this application. The building is positioned in this way to move it away from the highway and to allow birds free roaming on the farm land.

There are no public footpaths affecting the site.

1.4 The Applicant

The application is in respect of land at Cae Mawr, Llanerch y Medd, Anglesey, LL71 8AN and is submitted by DB and BE Evans.

Cae Mawr is a mixed enterprise farm with suckler cows and a large commercial flock of sheep. Cae Mawr extends to 310 acres of owner-occupied land. The farm is a developed unit, with a large range of modern steel portal framed farm buildings, together with retained traditional buildings. Buildings include silage clamps and manure stores also.

Mr Robert Evans and Mrs Kim Evans and their young family help run the family farm. The family runs a successful mixed enterprise unit. The business is now considering expanding its diversification on farm to a 32,000 free range poultry unit. The enterprise has been fully investigated by the business which they are more than confident that the free-range unit can be a success and supplement the current farm profits.

1.4.1 Business Evolution

The farm business trading as DB and BE Evans has been established and operating within the locality for a number of generations.

The partners of the business consider that the diversification expansion into egg production would replace the seasonal returns from beef and sheep and would maintain farm profits giving impetus to the farm business which would allow an additional full time employment position to be created in addition to providing additional employment for the family partnership.

1.5 Requirement for an EIA: Legislative Background

The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 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 Extension) and others which may require an assessment if they have the potential to give rise to significant environmental impacts (Schedule 2 Extension). Ynys Mon Council have requested an EIA is submitted in support of this application even though it is not mandatory.

CYNGOR SIR YNYS MÔN
ISLE OF ANGLESEY COUNTY COUNCIL

DEWI FRANCIS JONES MSc, M.R.T.P.I
Prif Swyddog Cynllunio – Rheoleiddio a Datblygu Economaidd
Chief Planning Officer – Regulation and Economic Development

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Cais Rhif / App. No. 25C210B/SCR

DEDDF CYNLLUNIO GWLAD A THREF 1990 / TOWN AND COUNTRY PLANNING ACT 1990

RHEOLIADAU CYNLLUNIO GWLAD A THREF (ASESIAD AR YR EFFAITH AMGYLCHEDDOL) (CYMRU) 2017 / TOWN AND COUNTRY PLANNING (ENVIRONMENTAL IMPACT ASSESSMENT) (WALES) REGULATIONS 2017

Barn Sgrinioi godi uned dofednod (ieir) rhydd (cynhyrchu wyau) yn cynnwys codi sied, gosod biniau bwydo a gwaith cysylltiedig yn /Screening opinion for the erection of a free range poultry unit (egg production) to include the erection of a shed, feeding bins and associated works at Cae Mawr, Llanerchymedd

RHYBUDD PENDERFYNIAD

Ceisiwyd barn sgrinio ymhellach i'r datblygiad arfaethedig uchod ar.

Wrth ffurfio barn sgrinio ar effaith sylweddol tebygol o ddatblygiad arfaethedig, rhaid rhoi sylw i Rhestr 3 o'r Rheoliadau Gwlad a Thref (Asesiad ar yr Effaith Amgylcheddol) (AEA) 2017 sydd yn nodi meini prawf dethol i'w hystyried. Nodir tri maen prawf bras:

- nodweddion y datblygiad;
- sensitifrwydd amgylcheddol y lleoliadau daearyddol sy'n debygol o gael eu heffeithio gan y datblygiad; a
- math a nodweddion yr effaith bosib.

Fel arfer bydd angen asesiad ar gyfer datblygiad os yw'n:

- ddatblygiad pwysig sydd a phwysigrwydd y tu i'r lleol;
- ddatyblygiad mewn lleoliad amgylcheddol sensitive iawn; a'n
- ddatblygiad sy'n cael effaith anarferol o gymhleth ac o bosib bergylus ar yr amgylchedd.

Wedi ystyried y datblygiad arfaethedig, a chadw mewn cof y wybodaeth a gyflwynwyd a'r meini prawf dethol Rhestr 3 o'r Rheoliadau yn fy marn i bydd y datblygiad yn cael effaith sylweddol ar yr ymgylchedd ac yn hyn o beth **BYDD ANGEN AEA.**

NOTICE OF DECISION

A request for a screening opinion in respect of the above proposed development was made on.

In formulating a screening opinion on the likely significant effects on the environment of a proposed development, regard is to be had to Schedule 3 of the Town and Country Planning (Environmental Impact Assessment) (EIA) Regulations 2017 which sets out the selection criteria to be taken into account. Three broad criteria are identified:

- the characteristics of the development;
- The environmental sensitivity of geographical areas likely to be affected by development; and

- the types and characteristics of the potential impact

EIA will generally be needed for development if:

- they are major developments of more than local importance;
- they are developments in particularly sensitive or vulnerable locations; or
- they are developments with unusually complex and potentially hazardous environmental effects.

Having considered the proposed development taking into account the information submitted and the selection criteria contained in Schedule 3 of the Regulations, my judgment is that the proposed development is likely to have significant effects on the environment and that **EIA IS** required.

DYDDIAD Y PENDERFYNIAD **20/02/2019** DATE OF DECISION

DEWI FRANCIS JONES
PRIF SWYDDOG CYNLLUNIO / CHIEF PLANNING OFFICER

Croeso i chi ddelio gyda'r Cyngor yn Gymraeg neu'n Saesneg. Cewch yr un safon o wasanaeth yn y ddwy iaith.
You are welcome to deal with the Council in Welsh or English. You will receive the same standard of service in both languages.

1.6 Objectives and Purpose of EIA

The objectives of EIA are as follows:

To identify the potential environmental impacts of a proposed poultry unit, taking into account the characteristics of the development and the local environment, and 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 poultry unit. This document describes the assessment process, the results of the assessment of the impacts of the proposed poultry unit, 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 poultry unit 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) (England and Wales) Regulations 2011, 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 extension comprising information on the site, design and size of the extension;
• 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 extension 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.

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 development. 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 unit. 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) (England) Amendment 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 phases have 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 proposed 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; and

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.

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.

1.9 Authors of the Environmental Statement

A number of organisations and specialist consultants have assisted with the preparation of this ES and provided input into the content of a number of individual technical chapters to a standard format (where possible) provided by Roger Parry & Partners LLP (who also collated the ES). The specific contributions with respect to the key chapters are listed in Table 1 below.

Table 1 - Contribution to the ES

Topic Area	Author
Introduction	Roger Parry & Partners
Scoping and Key Issues	Roger Parry & Partners
Alternatives	Roger Parry & Partners/ DB and BE Evans
Poultry Unit Description	Roger Parry & Partners / DB and BE Evans
Planning Policy Context	Roger Parry & Partners
Air Quality	Roger Parry & Partners/ A and S Modelling Data
Landscape	Roger Parry & Partners
Traffic	Roger Parry & Partners / DB and BE Evans
Amenity	Roger Parry & Partners
Ecology	Roger Parry & Partners/ Arbor Vitae
Noise & Vibration	Roger Parry & Partners
Water Resources	Roger Parry & Partners
Soils	Roger Parry & Partners
Summary & Conclusions	Roger Parry & Partners

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.

2.1 The Scoping Process

Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011 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 EIA should cover:

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

a) the existence of the extension;

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.

2.2 Summary of the Receiving Environment

2.2.1 General

Cae Mawr Farm lies to the north of the rural village of Llanerch y Medd.

The farm lies in a rural location with only limited residential properties having long distance views over the farmstead.

Surrounding land uses include agricultural.

2.2.2 Air Quality

There are no locally designated Air Quality Management Areas close to the site.

Local air quality is dominated by traffic sources.

2.2.3 Landscape

The proposal is for the creation of a Poultry Unit at Cae Mawr to provide accommodation for a 32,000 free range birds. The proposed building is to the south-west of the Cae Mawr farmstead and is seen in the same context as the farm buildings already situated on farm and is surrounded by extensive landscaping, in the form hedgerow and tree plantation.

The farmstead itself is largely developed with both modern and traditional farm buildings. The farm is approached directly off the council highway and an access drive which runs through the entire farmstead.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings. The site is located within two grassland fields which adjoin the farm buildings. The reason the unit is within two field parcels is to allow birds access to the range and to make sure the unit is not too close to the existing adjacent woodland on farm or county highway. Approximately 95 metres of hedgerow is required to be removed, however this is an existing failed hedgerow with many gaps throughout its length.

2.2.4 Highways

The proposed building shall be accessed using the existing internal farm road. The access shall be extended past the existing buildings to join onto a new internal track leading to the proposed building.

All vehicles attending the Poultry Unit would access the farm via the unclassified road which runs directly through the farmstead at Cae Mawr. The farm is approached through the village of Llanerch y Medd, a right turning is taken from the village centre to continue on the B5111 road for approximately 1.5 miles, Cae Mawr entrance is then indicated by a farm sign on the left hand side. It is not considered necessary to propose a routing plan for the poultry unit, given the low volume of additional vehicle movements to Cae Mawr.

Appendix 22 to the Environmental Statement shows the highways improvements proposed.

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 of Ynys Mon.

2.2.6 Noise

The noise environment in the area is dominated by road traffic sources from the surrounding highways. 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;

Ordovician Rocks (undifferentiated) - Mudstone And Sandstone, Interbedded. Sedimentary Bedrock formed approximately 444 to 485 million years ago in the Ordovician Period. Local environment previously dominated by shallow seas.

Setting: shallow seas. These sedimentary rocks are shallow-marine in origin. They are detrital, ranging from coarse- to fine-grained (locally with some carbonate content) forming interbedded sequences.

2.2.8 Ecology

No standing water is evident within 500 metres of the site and therefore no survey for Great Crested Newts or other amphibians was necessary. Other than the land, other noted habitats were the surrounding hedgerows and tree plantations.

2.2.9 Water Resources

The field drainage of the proposed site drains into an existing soakaway.

2.2.10 Cultural Heritage

The site itself has no archaeological potential however an Archaeological Management Plan has been prepared please see appendix 11.

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 2 below for construction, operation and decommissioning of the poultry unit respectively.

Table 2: Summary of key potential impacts

Potential receptors of impact		Activities & potential Impacts Construction Phase	Operation phase	Decommissioning Phase
WATER	Surface water hydrology and channel morphology	**Use of vehicles and machinery** - Increase in surface runoff from soil compaction **Works near watercourses** - Change in flow velocities - Increased flood risk **Earthworks** - Increased sedimentation of watercourses **Buildings and ancillary structures** - Changes to runoff characteristics and infiltration rates	**Use of vehicles and machinery** - Increase in surface runoff from soil compaction	
	Surface water quality	**Earthworks** - Pollution from suspended material **Materials management** - Pollution from spills or leaks of fuel, oil and construction materials	**Water and manure management** - 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** - Pollution from agricultural chemicals, spills or leaks of fuel and oil - Eutrophication of watercourses - Leechate from manure heaps entering watercourses - Runoff after manure spread on land affecting watercourses	
	Groundwater hydrology	**Earthworks and site drainage** - Reduction in water table	**Use of borehole for water supply** - Lowering water table	**Termination of abstraction** - Rebound of water table

Potential receptors of impact		Activities & potential Impacts Construction Phase	Operation phase	Decommissioning Phase
		- Changes to groundwater distribution and flow		
	Groundwater quality	**Materials management** - Pollution from spills or leaks of fuel, oil and building materials	**Land-spreading of waste** - Contamination from infiltration arising from over-application **Materials management** - Contamination from agricultural chemicals, spills or leaks of fuel and oil	
LAND	Landscape	**Excavation and earthworks** - Creation of a new landform - Change in character of landscape **Creation of housing** - Change in character of landscape	**Presence of poultry housing** - Change in character of landscape **Presence of feed bins** - Change in character of landscape **Presence of manure** - Change in character of landscape	
	Soils	**Use of vehicles and machinery** - Compaction **Earthworks** - Further erosion of exposed soil	**Spreading of animal manure** - Changes in soil nutrient levels and heavy metals **Use of vehicles and machinery** - Soil compaction - Soil erosion	
AIR	Local Air quality	**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	

Potential receptors of impact		Activities & potential Impacts Construction Phase	Operation phase	Decommissioning Phase
	Regional / global air quality	**Change in vegetation** - Changes in uptake of CO_2	**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** - harm to aquatic flora and fauna from oil, fuel or other substances entering watercourses	**Surface runoff** - pollution of watercourses by contaminated runoff - sedimentation of watercourses **Site drainage** - indirect effect on aquatic flora and fauna from ongoing changes to stream hydrology and morphology **Materials management** - direct and indirect effects from agro-chemicals, oil, fuel or other substances entering the aquatic environment	**Post-closure land-use** - changes in habitat type - opportunity for increase in uncultivated areas
	Terrestrial ecology	**Earthworks and excavations** - habitat removal, fragmentation or severance - disturbance to, or loss of species	**Storage / spreading of manure** - deposition of ammonia onto vegetation **Animal housing** - deposition of ammonia onto vegetation **Physical presence of building and ancillary structures**	**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
			- alteration or loss of terrestrial habitats - creation of new habitats **Manure spreading** - disturbance to, or loss of species	
HUMAN ENVIRONMENT	Socio-economic		**Farming operation** - continued flux of people away from or towards the farm	**Closure of farm** - movement of people away from the farm
	Health & Safety	**Negative publicity** - adverse reaction to perceived health issues	**Waste disposal operations** - risk of nuisance or harm from manure storage (e.g. consumption of contaminated groundwater) - risk of harm from land-spreading manure	
	Amenity		**Presence of building, ancillary structures and field boundaries** - possible alteration of rights of way or reduction in access **Vehicle movements** - increase in number and frequency of vehicles - noise and vibration from vehicle movements **Storage / spreading of manure / feed** - increase in flies and vermin	

2.4 Consultations

No consultation took place with Statutory or Non Statutory Consultees in order to inform the scope of the EIA, however as the application was previously submitted to the Local Planning Authority the pre consultation responses have been used to prepare the statement.

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.

- **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** – A Traffic Assessment is required which should assess the effects on the local road network of the development and include details of daily movements, operational hours and routing. Details of highway improvements should be included. Details of surface water attenuation should be provided in relation to increased surface water run-off affecting the A5(T)

- **Ecology and Conservation** – The ES should include a data search from the Ynys Mon Ecological Record and 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 dedicated to flood risk and include a sequential test and Flood Risk Assessment (FRA). The FRA must address drainage issues to ensure that there is no increase in runoff and should take a + 20% increase in precipitation to account for climate change.

- **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. 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.

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

Despite the Statutory Consultees not being consulted as part of the formal Scoping Process and application was presented to the Local Planning Authority for consideration without an Environmental Impact Assessment and responses were received from the Consultees as detailed below. The responses of the Consultees have been used to prepare this Environmental Statement and actions have been taken to amend the supporting documents as requested;

CYNGOR SIR
YNYS MÔN
ISLE OF ANGLESEY
COUNTY COUNCIL

MEMORANDWM MEWNOL / INTERNAL MEMORANDUM

Les Pursglove
Prif Swyddog Gwarchod Y Cyhoedd
Chief Public Protection Officer

CYNGOR SIR YNYS MÔN
ISLE OF ANGLESEY COUNTY COUNCIL
Swyddfa'r Sir
LLANGEFNI
Ynys Môn / Anglesey
LL77 7TW

Ffôn / Phone (01248) 752820

At/To Head of Planning Services F.A.O. Iwan Wyn Jones Planning Officer	Oddiwrth/From: Gwarchod y Cyhoedd/Public Protection 2820
Eich Cyf./Your Ref	Ein Cyf./Our Ref.: 013. 21.MLD/ MRJ
	Dyddiad/Date: 12: 10: 2018

Re: Planning Application No. 25C210A
Erection of a 32,000 Free Rang Poultry Unit at
Cae Mawr Llanerchymedd Anglesey LL71 8 AN.

The Public protection Section have the following observations to make regarding the above proposals:-

Environmental Protection

NOISE: The supporting design and access statement has not included a relevant noise assessment in accordance with the BS4142. Methods for Rating and Assessing Industrial and Commercial Sound.
It would be expected, that an assessment is provided in order to satisfy the Council that there is not likely noise impact on the nearest residential properties not in the ownership of the applicants.

ODOURS:
It is noted, that the proposed operation and management of manure removal from the proposed poultry houses, involves removal of manure every four days. It is the intention to spread to land and undertake on site storage when weather conditions do not permit land application.

The following observations are made in this respect.
The information provided suggests that odours from the actual poultry units themselves will be minimal, due to its modern design and type of operation. There is no information provided by the applicant to indicate whether odours can be anticipated from the repeated on-farm applications of poultry manures on the holding concerned and the potential odour impacts on the nearest residential properties. The applicant should be required to submit further information in this respect.

No information appears to be provided to indicate the type of facility on the farm, where manure will be stored whether covered or open and how odours will be minimised during storage.
In order to minimise against odour complaints from poultry manure, it would be advisable for all manure arising from the proposed units, to be transported for disposal to an anaerobic digesting plant.

DUST:
Where any dust complaints are received from the operation of the development, it will be the Public Protections intention to request a condition to be imposed, requiring the applicant to undertake a dust assessment and monitoring at their own expense and to submit its findings to the Council

MANURE WASTE MANAGEMENT:
Natural Resources Wales, should be consulted with regards to the proposed increases of manure applications to land at this location, with particular respect to potential impacts of pollution to ground / surface waters and the nearby Llyn Alaw Public Water Reservoir, which is within the water catchment area of Cae Mawr Farm. Dwr Cymru Welsh Water, should also be consulted in this same respect.
Natural Resources Wales should be consulted, with regards to the proposal to also transport waste to a local anaerobic digesting plant and whether there is local capacity to accommodate the intended waste disposal route

DISPERSION & DEPOSITION OF AMMONIA:
Natural Resources Wales and Dwr Cymru Welsh Water, should be consulted with regards to the anticipated deposition levels of Ammonia with particular respect to potential impacts of pollution to ground / surface waters and the nearby Llyn Alaw Public Water Reservoir, which is within the water catchment area of Cae Mawr Farm.

FLIES:
Whilst the proposals indicate that the management of manures from the poultry buildings will assist with fly control there is no information provided in the supporting statements regarding the potential or possible impacts from flies that could be attracted to the free ranging external pasture areas. Further information should be provided by the applicant in this respect.

EGG PACKING:
Further information should be provided to the Food Safety Team of the Public Protection section of the proposals to market / pack eggs in order to ensure that the proposals comply with respective requirements of the Food Safety Act 1990 and relevant regulations.

1. It would be prudent that Natural Resources Wales (NRW) are consulted on this application to enquire whether it requires and Environmental Permit.

Les Pursglove
Prif Swyddog Gwarchod y Cyhoedd - Rheoleiddio a Datblygu Economaidd
Chief Public Protection Officer - Regulation and Economic Development

Re: / Full application for the erection of a free range poultry shed together with the erection of feed bins and associated works at Cae Mawr, Llanerchymedd

Background
Documents consulted.

- Location Plans
- Design and Access Statement
- Extended Phase 1 Habitat Survey.

I have not been to the site in connection with this application, but have consulted the submitted and google images. Further to comments below a site visit with the agent/applicant would be useful.

Site Description
The site is with a large agricultural enclosure approached via the farm access through an areas of woodland protected by a TPO. It is located to the west of the highway on a gentle ridge when then slopes off further to the west.

It is with Landscape Character Area 5 – North West Anglesey. The LCA description does not note issues of particular relevance to this proposal.

The LANDMAP Overall Evaluation is Moderate as a '*Generally quiet pleasant rural landscape but no distinct landmarks'.*

The field boundaries are not present on the tithe map and therefore not ancient boundaries.

Policy Considerations – Landscape
AMG 3: Protecting and enhancing features and qualities that are distinctive to the local landscape character.
PCYFF 4: Design and Landscaping.

Main Issues - Landscape
Impact on traditional features and qualities
Integration of the site into the local landscape

The site is not within a designated landscape or one regarded as sensitive. A 95 metres stretch of hedge is to be removed. I have not found a clear justification for the proposed removal, but it appears to be related to pasture management rather than the shed's construction. The location of the section to be removed is not indicated within the location/redline plans and in order that it is covered by any consent, it needs to be clearly shown. While it is not an ancient boundary and appears to have gaps in parts, we would advise that if possible it be retained in order to better comply with policy AMG 3. The value of the feature relates to the clawdd as well as the hedgerow growing on top.

It should be clarified whether the current access is adequate in terms of visibility (Highway comments) and would allow for access of any vehicles larger than those that normally use it (effect on TPO trees).

Mitigation is proposed in the habitat survey although it is not stated where the hedge would be planted. Landscaping is further mentioned in the DAS 4.0 (applicant is willing to undertake a scheme if required).

Public viewpoints are greatest from a 400 metre stretch of the B5111 to the south on the approach to Rhosybol with the amount of roadside screening dependant on the season. From this approach, it would be seen against a backdrop of trees (and in winter) adjacent farm buildings.

No glazing is proposed to the south or east and rooflights are not a feature of the building - it is assumed therefore that there would be no light spill from internal lights. No hardstanding is shown – access around the building is presumably required.

Conclusion
Further details are needed on the proposed hedgerow removal. As well as providing mitigation for hedgerow loss, landscaping should help reduce public views and integrate the development into the surrounding landscape – by reinforcing the hedgerow boundary and/or planting closer to the building. These matters could be clarified in a site visit but will need professional input either as part of the submission or pre-commencement condition.

Details of any external track or hardstanding should be included.

Ed Henderson - Uwch Swyddog Tirlunio a Choed - Senior Landscape and Tree Officer
Built Environment & Landscape Section / Adain yr Amgylchedd Adeiledig a Thirwedd
Planning Service / Gwasanaeth Cynllunio
Gwasanaeth Rheoleiddio a Datblygu Economaidd / Regulation and Economic Development Service
Isle of Anglesey County Council / Cyngor Sir Ynys Môn
Council Offices / Swyddfa'r Cyngor, Llangefni, Anglesey / Ynys Môn, LL77 7TW
Tel: (01248) 752106 edhenderson@ynysmon.gov.uk

CYNGOR SIR
YNYS MÔN
ISLE OF ANGLESEY
COUNTY COUNCIL

HUW PERCY C.Eng., CEnv, MICE
Pennaeth Gwasanaeth - Priffyrdd, Gwastraff ac Eiddo Inte
Interim Head of Service - Highways, Waste and Property

CYNGOR SIR YNYS MÔN
ISLE OF ANGLESEY COUNTY COUNCIL
Swyddfa'r Sir
LLANGEFNI
Ynys Môn – Anglesey
LL77 7TW

ffôn / tel: (01248) 752300
ffacs / fax: (01248) 724839

MEMORANDWM MEWNOL
INTERNAL MEMORANDUM

At / To: DEVELOPMENT CONTROL
PLANNING DEPARTMENT

Oddi wrth / From: PENNAETH GWASANAETH : PRIFFYRDD, GWASTRAFF AC EIDDO INTERIM INTERIM HEAD OF SERVICE: HIGHWAYS, WASTE AND PROPERTY.

Eich Cyf / Your Ref: 25C210A

Ein Cyf / Our Ref: 027.89D.25.210
M042599

Dyddiedig / Dated: 26th September, 2018

Dyddiad / Date: 15th October, 2018

SWYDDOGOL SENSITIF / OFFICIAL SENSITIVE

RE: FULL APPLICATION FOR THE ERECTION OF A FREE RANGE POULTRY SHED, TOGETHER WITH THE ERECTION OF FEED BINS AND ASSOCITED WORKS AT CAE MAWR, LLANERCHYMEDD.

In reply to your consultation dated 26th September, 2018 my comments are as follows:-

13. Greater detail of intended disposal of surface water is required.

18. The proposal is outside the area served by public sewers and is to be served by a non mains sewerage system.

22. The surface water soakaways must be designed and constructed to comply with B.R.E. Digest 365, or similar approved method.

ADDITIONAL COMMENTS

a) The dirty water containment tank should be sited no closer than 10 metres to any adjacent boundary watercourse or ditch. In addition, the applicant should provide details of the mitigation measures which are to be employed to protect the environment and amenity of the surrounding land, from any spillages or overflow from the apparatus.

b) The proposed surface water soakaway should be located a minimum of 5 metres from a watercourse and the applicant should provide percolation test results to demonstrate that the ground conditions are suitable for this method of disposal.

Kevin Dogan

pp. HUW PERCY
PENNAETH GWASANAETH : PRIFFYRDD, GWASTRAFF AC EIDDO INTERIM INTERIM HEAD OF SERVICE: HIGHWAYS, WASTE AND PROPERTY.

Cynllunio,

Further to the above application, my comments are as follows:-

The applicant must submit full details of the exiting use of the site and detail what traffic is generated by that use for my review as I have concerns that the proposed increase in use will generate a significant increase in traffic onto the existing access which is substandard at present.

Also, The commencement of the Development shall not take place until there has been submitted to and approved in writing by the LPA, a Construction **Traffic Management Plan (CTMP).** The CTMP shall include:
(i) The routing to and from the site of construction vehicles, plant and deliveries, including any Temporary Traffic Management Measures and Traffic Regulation Orders necessary to facilitate safe construction of the scheme including any advance, preparatory and demolition works;
(ii) The type size and weight of construction and delivery vehicles to be used in connection with the construction of the development, having regard to the geometry, width, alignment and structural condition of the highway network along the access route to the site;
(iii) The timing and frequency of construction and delivery vehicles to be used in connection with the development, having regard to minimising the effect on sensitive parts of the highway network and construction routes to the site, including regard for sensitive receptors e.g. schools and network constraints;
(iv) Identification of the routing strategy and procedures for the notification and conveyance of indivisible "out of gauge" loads. This includes any necessary measures for the temporary protection of carriageway surfaces; for the protection of statutory undertakers' plant and equipment; and for the temporary removal of street furniture;
(v) Measures to minimise and mitigate the risk to road users in particular non-motorised users;
(vi) The arrangements to be made for on-site parking for personnel working on the Site and for visitors;
(vii) The arrangements for storage of plant and materials and the loading and unloading of plant and materials
(viii) Details of measures to be implemented to prevent mud and debris from contaminating the adjacent highway network;
(ix) Proposals for communicating information and advance notice relating to the approved plan to the Council and other stakeholders;
The construction of the Development shall be completed in accordance with the approved Plan
Reason: To ensure reasonable and proper control is exercised over construction and demolition traffic and construction activities in the interests of highway safety.
Regards,

John A Rowlands BEng. ***(Hons.)***
Peiriannydd Rheoli Datblygiadau – Development Control Engineer
Adran Briffyrdd - Highways Department
Gwasanaeth Priffyrdd, Gwastraff ag Eiddo – Highways, Waste and Property Service
Cyngor Sir Ynys Mon - Isle of Anglesey County Council
LL77 7TW.
(01248 752343
Ebost/Email: JPRHT@anglesey.gov.uk

Cyfoeth Naturiol Cymru
Natural Resources Wales

Ein cyf/Our ref: CAS-69278-V5C3
Eich cyf/Your ref: 25C210A

northplanning@cyfoethnaturiolcymru.gov.uk
03000 65 4682

23/10/2018

Annwyl / Dear Iwan Jones,

TOWN AND COUNTRY PLANNING ACT 1990
DEDDF CYNLLUNIO GWLAD A THREF 1990

BWRIAD / PROPOSAL:
Cais llawn i godi uned dofednod (ieir) (32,000) rhydd (cynhyrchu wyau) yn cynnwys codi sied, gosod biniau bwydo a gwaith cysylltiedig yn / Full application for the erection of a free-range poultry unit (egg production) to include the erection of a shed, feeding bins and associated works
LLEOLIAD / LOCATION:
Cae Mawr, Llanerchymedd, Ynys Mon

Thank you for consulting Natural Resources Wales (NRW) about the above, which was received on 26/09/2018.

It should be noted that NRW have no record of being consulted during the pre-application stage as noted in the PAC report submitted within the consultation documents.

We have significant concerns with the proposed development as submitted. We recommend that you should only grant planning permission if the scheme can meet the following requirements. We would object if the scheme does not meet these requirements.

Requirement 1: Revised detailed modelling assessment
Requirement 2: Revision of manure management plan
Requirement 3: Further information is required to demonstrate that the proposal will not pose an unacceptable risk to the water environment

Protected Sites and Aerial Emissions

Intensive agricultural units have the potential to impact protected sites through aerial emissions (ammonia and nitrogen deposition). We have assessed the proposal using the thresholds introduced in April 2017. NRW assesses the air quality impact a unit may have on European sites and Sites of Special Scientific Interest (SSSIs) within a screening distance of 5km of the unit.

We have reviewed the ammonia report (A Report on the Modelling of the Dispersion and Deposition of Ammonia from the Proposed Free-Range Egg-Laying Chicken Houses at Cae Mawr, near Llanerch y Medd, Anglesey (August 2018)) submitted in support of this proposal.

Tŷ Cambria • 29 Heol Casnewydd • Caerdydd • CF24 0TP
Cambria House • 29 Newport Road • Cardiff • CF24 0TP
Croesewir gohebiaeth yn y Gymraeg a'r Saesneg
Correspondence welcomed in Welsh and English

We note from the report that Llyn Alaw SSSI is the only site to have undergone detailed modelling, however, we disagree with the critical level of CLe 3µg/m^3 that has been assigned to this site, as that of the critical level assigned to Tyddyn y Waen SSSI.

In Table 5 (p19) of the report it shows values for Mynydd Parys SSSI as blue bold with the highest being 0.018 at receptor 21 which gives a screening value of 1.8%. Indeed, all of the blue bold indicate that the screening process contributions are over 1%, therefore, we require detailed modelling for all of those sites.

Requirement 1: Revised detailed modelling assessment

To conclude, Table 5 (p19) of the report shows screening values that are above 1% of the relevant ammonia critical level. Detailed modelling is required for the designated sites, particularly Mynydd Parys SSSI notified for its metallophyte lichens which are very sensitive to increases in ammonia and nitrogen. To clarify, the critical levels assigned to Llyn Alaw SSSI and to Tyddyn y Waen SSSI (Table 1, p6) are incorrect; it should be 1µg/m^3 due to the presence of Red Data Book bryophytes, and this should be amended in the revised detailed modelling for these sites.

Manure Management

We have reviewed the Manure Management Plan ('Manure Management Plan', by Roger Parry & Partners). The plan states manure will be spread on land at the farm, with the excess being exported to AD plants.

The area shown on the spreading plans, referred to in the Manure Management plan include areas very close to Llyn Alaw SSSI. As noted in the plan in accordance with COGAP buffer zones must be a minimum of 10m wide on each side of every stream or drain with the area, however, not all buffer zones have been indicated on plans. In addition, a number of areas are included within the spreading area despite being unsuitable including both wetland and woodland areas.

Requirement 2: Revision of Manure Management Plan

The areas detailed in Table 1* should be excluded from spreading zones and calculations regarding available land for manure disposal repeated.

*Please see the right-hand column of Table 1 in the appendix of this letter for detailed comments.

The manure management plan refers to spreading of manure throughout the year. We cannot accept this, particularly in such close proximity to an aquatic SSSI and water supply reservoir. No manure should be spread on the land during winter months when the nutrients will not be utilised by plant growth. Llyn Alaw, is a lake SSSI where high water quality is important to ensure continued growth of a representative suite of aquatic plants. The lake has already been impacted by raised nutrient levels leading to algal blooms in recent summers. Drainage from this development must be carefully managed to ensure no increased nutrients flow into the lake by any means. The stream from the spreading areas flow through an area of wetland before entering the lake: any increase in nutrients is likely to lead to a reduction in species diversity in the wetland and an increase in a limited number of species such as reedmace and flote grass. Therefore, we require a commitment that no spreading will take place in winter and either to have sufficient storage or arrange for disposal to the digester during this period: This should be stated in the revised Manure management plan.

We note that the manure management plan includes a contingency plan for the storage of manure when spreading to land is not possible, and states that contaminated wash water will be stored in containers separate from other manures and will be disposed of by a specialist contractor licensed to deal with such wastes.

If manures produced are not able to either be spread or stored in field heaps, then the applicant must ensure that the hard-standing areas used comply with the SSAFO regulations.

All wash water and manures arising from poultry units must be collected and stored in accordance with The Water Resources (Code of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (Wales) Regulations 2010 and spread according to the Welsh Government's Code of Good Agricultural Practice.

Foul Drainage

NRW note that disposal of foul sewage is "unknown" on the application form. Any new provision for foul sewage must be designed to ensure that nutrients are not discharged into the streams leading down to Llyn Alaw.

Requirement 3: Further information is required to demonstrate that the proposal will not pose an unacceptable risk to the water environment

We understand that the development is not served by the public foul sewer and that the application form indicates that the method of foul drainage is unknown. In these circumstances WG Circular 008/2018 advises that a full and detailed consideration be given to the environmental criteria listed under paragraph 2.6 of the Circular, in order to justify the use of private drainage facilities. In this instance, no information has been submitted.

The application does not, therefore, provide a sufficient basis for an assessment to be made of the risks of pollution to the water environment arising from the proposed development.

Clarification should be sought by the LPA to the method of foul drainage or if there is indeed an intention to operate a non-mains drainage system.

On receipt of the above information we will review our position and advise your Authority accordingly.

Ranging Plan

NRW note the submission of the Range Area Plan (ref: Cae Mawr Range Plan Jul-18). We are generally satisfied with the pollution prevention measures proposed.

Drainage Plan

The drainage plan (plan titled 'Location Plan, drawing no. GL/Evans/Caemawr/002/DP dated Jul-18) which shows the clean and dirty water being drained separately. The dirty water will be drained to an underground tank built to comply with the SSAFO standards, and the surface water will be piped to an underground tank with the surplus being discharged to watercourses.

Provided the drainage system is built in accordance with this plan, it is unlikely the proposal will cause pollution to the wider environment.

European Protected Species

We note that the extended phase one habitat survey submitted in support of the above application (Extended Phase One Habitat Survey. Land at Cae Mawr, Anglesey. August 2018. Arbor Vitae Environment Ltd) has identified that European protected species were not using the application site.

An assessment was carried out for bats, great crested newts, and otters. The survey concluded that no habitat of potential value great crested newts or otters would be lost. Exterior lighting could impact bat foraging behaviour and needs to be avoided or restricted. NRW concur with the report and advise that the recommendations of report are adhered.

Pollution Prevention Plan

We have reviewed the pollution prevention plan (Method Statement Pollution Prevention, Roger Parry & Partners) submitted in support of the proposal.

Provided the works on site are undertaken in accordance with this plan, the proposal is unlikely to adversely impact the surrounding environment.

Please do not hesitate to contact us if you require further information or clarification on any of the above.

Our comments above only relate specifically to matters that are listed in our 'Consultation Topics' document (September 2018) which is published on our

website: (https://cdn.naturalresources.wales/media/686847/dpas-consultation-topics-august-2018-eng.pdf?mode=pad&rnd=131819256840000000). We have not considered potential effects on other matters and do not rule out the potential for the proposed development to affect other interests, including environmental interests of local importance.

Advice to developer:

Environmental Permitting Regulations
The current advice relates to a proposed unit for 32,000 poultry rearing unit. Should the number of birds subsequently increase within the holding to over 40,000 birds an Environmental Permit under the Environmental Permitting Regulations 2016 would be required from Natural Resources Wales.

The grant of planning permission does not permit activities that require consent, licence or permit under other legislation. It is the applicant's responsibility to ensure that all relevant authorisations are obtained prior to any works commencing on site.

The written consent of NRW or registration for exemption by the developer will be required for any discharge (e.g. foul drainage to watercourse/ditch etc.) from the site and may also be required for certain discharges to land. All necessary NRW consents or exemptions will need to be obtained prior to works progressing on site.

Advice on Poultry Units
Advice on poultry units can be found in NRW's guidance document 'GN020 Assessing the impact of ammonia and nitrogen on designated sites from new and expanding intensive livestock units' and 'GN021 Poultry Units: planning permission and environmental assessment'.

Abstractions
Applicants intending to supply new units from ground or surface waters are advised to check the abstraction limits and apply for a permit to abstract if required.
https://naturalresources.wales/apply-for-a-permit/water-abstraction-licences-and-impoundment-licences/?lang=en

Discharges
The written consent of NRW or registration for exemption by the developer will be required for any discharge from the site (e.g. foul drainage to a watercourse) and may also be required for certain categories of discharges to land. All necessary NRW consents, or exemptions must be obtained prior to works progressing on site.
https://naturalresources.wales/apply-for-a-permit/water-discharges/discharges-to-surface-water-and-groundwater/environmental-permitting-for-discharges-to-surface-water-and-groundwater/?lang=en

The Applicant should be aware that to operate a non-mains drainage system, they will need to apply for an environmental permit or register an exemption with us. The Applicant must obtain any necessary permit or exemption prior to commencement of work on site. Septic

tanks and small sewage treatment works may be registered as exempt from the requirement to obtain an environmental permit if certain criteria is met. Please note, should a permit be required, further information may be required as part of that application and the Applicant is therefore advised to hold pre-application discussions with our Permitting Team on 0300 065 3000, at the earliest opportunity, to try to ensure that there is no conflict between any planning permission granted and the permit requirements. More information, including a step by step guide to registering and the relevant application forms are available on our website. Where private sewage treatment/disposal facilities are utilised, they must be installed and maintained in accordance with British Standards 6297 and Approved Document H of the Building Regulations. We also refer the Applicant to Pollution Prevention Guideline 4 which provides further information.

Silage, Slurry and Agriculture Fuel Oil) (Wales) Regulation 2010

The SSAFO built storage facilities must be built to comply with CIRIA, document C759a.

A WQE3 form must be filled for each SSAFO built structure - The Water Resources (control of pollution) (Silage, Slurry and Agriculture Fuel Oil) (Wales) Regulation 2010 "the SAFFO Wales Regulations" The applicant will need to contact the NRW 14 days before they bring the new SSAFO structure into use. NRW will visit the site and bring a WQE3 form which will assist in the process.

All fuel, oil and chemicals used on site should be stored away in a locked store which is bunded to 110% capacity of the total volume stored.

The applicant should be advised that, in addition to planning permission, it is their responsibility to ensure that they secure all other permits/consents relevant to their development.

Yn gywir / Yours sincerely

Siôn M. Williams

Uwch Gynghorydd Cynllunio Datblygu / Senior Development Planning Advisor
Cyfoeth Naturiol Cymru / Natural Resources Wales

APPENDIX

Table 1 – Manure Management Plan spreading area

Field Number	Field Size (Ha)	Spreadable Area (Ha)	Non Spreadable Area (Ha)	COMMENTS BY NRW
SH4185 6577	9.28	9.24	0.04	Stream along eastern margin needs minimum 10m buffer .
SH4185 7797	1.28	1.26	0.02	
SH4185 9269	8.80	8.79	0.01	
SH4186 8213	0.92	0.00	0.92	
SH4186 9177	3.30	3.24	0.06	
SH4186 9405	7.24	7.24		
SH4186 9943	5.39	5.34	0.05	
SH4187 3223	1.95	1.91	0.04	Southern boundary adjacent to the SSSI/water supply reservoir needs a buffer of at least 10m, preferably 20m .
SH4187 4730	7.09	7.01	0.08	
SH4187 6443	2.54	2.51	0.03	Includes areas of rushy pasture which should be excluded from spreading zone
SH4187 6603	3.62	3.50	0.12	Part of Cors y Bol No spreading due to wetland habitat
SH4187 7421	9.73	9.71	0.02	Stream along SE boundary needs minimum 10m buffer
SH4187 7952	3.02	3.02		Includes areas of rushy pasture which should be excluded from spreading zone

SH4187 8747	0.51	0.30	0.21	
SH4187 9235	3.73	3.73		Stream along SE boundary needs minimum 10m buffer
SH4187 9563	2.05	2.05		
SH4285 1357	4.19	4.18	0.01	
SH4285 1676	4.47	4.47		
SH4285 4389	4.51	4.51		Drain across southern boundary needs 10m buffer
SH4285 5888	3.75	3.69	0.05	Unsuitable for spreading at all due to woodland and other habitats.
SH4286 1054	0.88	0.86	0.02	
SH4286 1105	6.18	6.18		
SH4286 1435	3.43	3.43		
SH4286 1755	1.49	1.47	0.02	Stream along eastern boundary needs a 10m buffer on both sides.
SH4286 2901	6.20	6.20		
SH4286 3154	3.69	3.66	0.03	
SH4286 3535	4.68	4.68		
SH4286 4021	2.56	0.00	2.56	
SH4286 5107	1.19	1.19		
SH4286 5137	1.26	1.26		Drain along western boundary needs a 10m buffer on both sides.
SH4286 5213	0.44	0.00	0.44	
SH4286 5623	2.73	2.61	0.12	
SH4287 0441	3.71	3.71		Stream along SE boundary needs minimum 10m buffer

Gwasanaeth Cynllunio Archaeolegol Gwynedd
Gwynedd Archaeological Planning Service

Craig Beuno/Ffordd y Garth/Bangor/Gwynedd/LL57 2RT Ffon.Tel 01248 370926 Ffacs.Fax 01248 370925 ebost. email jenny.emmett@heneb.co.uk

11th October 2018 Our Ref: 1011je01/D3301

Iwan Wyn Jones
Gwasanaeth Cynllunio
Cyngor Sir Ynys Môn
Swyddfa'r Sir
Llangefni
Ynys Môn
LL77 7TW

Dear Colleague,

Planning Application: **25C210A and 25C210B/SCR**
Cae Mawr, Llanerchymedd

Thank you for consulting us on the above application. I have reviewed the details against the regional Historic Environment Record (HER) and found that the proposed development may have archaeological implications.

Existing information on the HER is relatively sparse for the landscape immediately surrounding the application site. This comprises records produced as part of structured historic map studies, for a 19th century outbuilding associated with the property now known as Meillion and the 19th century garden of Cae Mawr itself. Sites in the surrounding area include the scheduled monuments of Maen Chwyf burial chamber (Cadw ref. AN076) and Llys Einion standing stone (Cadw ref. AN077) and two possible enclosures, although doubt has been cast on the authenticity of all four of these sites. Evidence of later prehistoric settlement is provided by the recorded discovery of a collection of quern stones at Isfron Ceidio, immediately west of the site, and of medieval settlement by the parish church of St Ceidio (listed building ref. 5401), which was rebuilt in 1845 on the original medieval foundations and is reputed to have early medieval origin.

The scarcity of recorded archaeology is likely to be at least in part the result of a lack of previous archaeological investigation. This has been recently demonstrated by geophysical survey carried out by West Yorkshire Archaeology Services in connection with the proposed National Grid scheme approximately 1km-1.75km to the east of the application site. The technique has been effective, identifying two previously unknown enclosures within separate parcels along this section of the route.

The proposed development comprises substantial poultry accommodation with associated silos, drainage, fencing etc, and also entails the use of existing pasture as exterior free range provision for the chickens. The planning application appears to cover only the new build and drainage part of the proposals. This aspect of the development has the potential to expose and/or damage presently unknown buried archaeology, and a suitable mitigation response is recommended.

However, the scheme also has indirect potential for impacts on any buried archaeology that may be present. Archaeology can occur at very shallow depths (i.e. immediately below turf/ topsoil)

Archaeolegydd Rheoli Datblygiad - JENNY EMMETT - *Development Control Archaeologist*

and may be at risk of disturbance or damage by chickens' natural scratching behaviour or by associated activities, such as obtaining stone necessary for hardcore and track construction, particularly if vehicles are tracking across fields in wet conditions. Contamination of deposits with chicken manure could preclude future archaeological investigation on health grounds and could affect buried deposits, so that their decay may be accelerated or they may become unsuitable for analysis.

Having regard to the effects that may extend beyond the application red line boundary, it would be desirable for a geophysical survey to be carried out across the whole of the area to be included within the egg enterprise (as indicated on the 'Cae Mawr Range Plan', July 2018). This would provide information about the buried archaeological resource at the site so that possible impacts could be identified and addressed.

The area within the red line boundary is too small for geophysical survey or trial trenching to give meaningful results. A proportionate response to development of this smaller footprint would be a programme of archaeological mitigation termed *strip, map and record*, undertaken immediately prior to development.

In the light of these comments and in accordance with Planning Policy Wales (2016) and TAN24: The Historic Environment, it is recommended that the planning authority should require that appropriate archaeological mitigation is undertaken, if planning consent is granted. The following condition wording is suggested to secure such mitigation:

a) No development (including trial pitting, topsoil strip or other groundworks) shall take place until a specification for a programme of archaeological work has been submitted to and approved in writing by the Local Planning Authority. The development shall be carried out and all archaeological work completed in strict accordance with the approved details.

b) A detailed report on the archaeological work, as required by condition (a), shall be submitted to and approved in writing by the Local Planning Authority within six months of the completion of the archaeological fieldwork.

Reasons: 1) To ensure the implementation of an appropriate programme of archaeological mitigation in accordance with the requirements of Planning Policy Wales 2016 and TAN24: The Historic Environment.

2) To ensure that the work will comply with Management of Archaeological Projects (MAP2) and the Standards and Guidance of the Chartered Institute for Archaeologists (CIfA).

Please do not hesitate to contact me with any queries regarding the above.

Yours sincerely

Jenny Emmett
Senior Development Control Archaeologist

Ecoleg/ Ecology

9.10.18

25C210A Full application for the erection of a free range poultry unit (egg production) to include the erection of a shed, feeding bins and associated works at Cae Mawr, Llanerchymedd IWJ Grid Ref: 242318.46 386085.05

The proposed buildings are 100m from local Wildlife Site and Ancient Woodland. Open area around building is about 70m from the same. Access goes through the designations (existing road).

Proposed buildings are 1140m from SSSI, open area about 1110m. The range area is 880m from SSSI at closest point.

Coed Cae Mawr Local Wildlife Site – see citation following comments, below

AMG 6 is relevant (see below, for reference, following comments). The policy amounts to a robust protection for local sites of this kind.

PPW 9: states 5.2.9: 'Ancient and semi-natural woodlands are irreplaceable habitats of high biodiversity value which should be protected from development that would result in significant damage.'

Extended Phase One Habitat Survey:

5.1 refers to the *Ammonia Modelling Report*, as stating that ammonia concentration would exceed NRW lower threshold percentage of the precautionary Critical Level over half of the Ancient Woodland (east of Cae Mawr), but downplays impacts due to current quality of the site (non-natives dominate large areas).

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Comments: The ***Report does not appear to be with case documentation and I advise should be provided***.

Given the potential for damage, and Policy AMG 6, there appears to be a good case for requesting a more detailed assessment and understanding of potential ecological impacts on the LWS and AW than has been provided in the Phase One Survey, to inform the case.

A number of *Mitigation and Enhancement* measures are listed in Section 6 of the Phase One Survey. These are summarised below, with further notes added by myself:

6.1 Loss of 95 m to be mitigated by planting of at least 100m of native mixed hedgerow 'elsewhere' and restoration of an undefined remaining length of hedgerow A.

Comment: Clarification is required where these hedges and proposals are sited, then further details about species mix, fencing (including where the double fencing referred to is proposed), length of hedge to be restored etc. The mitigation should at least provide ecological value equivalent to the losses, and I would urge should show ecological gain.

6.2 States that proposals have been made to plant 0.5 ha new woodland as a sink for ammonia.

Comment: Details of where this is proposed to be (with planting list and rationale for use as ammonia sink) are required. Ideally, this would be continuous with the existing woodland.

Long-term sympathetic management of Cae Mawr woodland (local Wildlife site and also partly Ancient Woodland) is suggested.

Comment: Undoubtably, the adoption of a suitable Management Plan of conservation-related actions (with actions such as removal of non-natives to allow native ground flora to re-establish), would be desirable for the site. However, a more detailed assessment of the proposal impacts on the site would be helpful ahead of this. **This would help establish whether impacts on the site are of an order that could indeed be mitigated for** this way.

6.3 Any outside lighting to be minimal and bat-friendly. Hedgerow removal to be September-end February to avoid bird-nesting season.

Comment: These could be conditioned as appropriate.

6.4 Mentions native planting (again), also fencing; installation of bird boxes.

Comment: Plans showing the features would be required.

Conclusion:

For ecology, the information provided suggests some mitigation which may be appropriate. The favourable management of Coed Cae Mawr local Wildlife Site, along with new woodland

Ecoleg/ Ecology

planting and replacement hedgerow are the most significant suggestions. However, it is not at present clear whether ecological impacts of the proposal on the nearby sites (from ammonia, for example) could outweigh benefits of the suggested mitigation. A clearer assessment of impacts on the sites would therefore be required to inform understanding of feasibility of the mitigation.

For Information:

- Local Wildlife Site Citation:

J01 Coed Cae Mawr Grid ref 4286

A broad leaved woodland with smaller areas of dry and marshy grassland.

The woodland is composed of mature ash, beech, wych elm, sycamore and horse chestnut. Hawthorn, blackthorn, rhododendron and alder are present in the shrub layer. Bird cherry, a rarity on Anglesey, also occurs here.

The dry grassland has locally abundant sneezewort, devil's bit scabious and yellow rattle.

Rushes and Yorkshire fog dominate the species-rich marshy grassland, which has abundant water-pepper, water mint and meadow buttercup.

This site is valuable for bird life as woodland is scarce in this part of Anglesey.

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- POLICY AMG 6: PROTECTING SITES OF REGIONAL OR LOCAL SIGNIFICANCE
Proposals that are likely to cause direct or indirect significant harm to Local Nature Reserves (LNR), Wildlife Sites (WS) 1 or regionally important geological / geomorphologic sites (RIGS) will be refused, unless it can be proven that there is an overriding social, environmental and/or economic need for the development, and that there is no other suitable site that would avoid having a detrimental impact on sites of local nature conservation value or local geological importance. When a development is granted, it will be necessary to ensure that there are appropriate mitigation measures in place. It will be possible to use planning conditions and/or obligations in order to safeguard the site's biodiversity and geological importance.

Dave Cowley
Ymgynghorydd Ecolegol ac Amgylcheddol / Ecological and Environmental Adviser
2470

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 for the erection of a free range egg production unit. It also describes how the final location at Cae Mawr 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 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 instance the applicants considered other locations for the proposed poultry unit as shown below;
ALTERNATIVE SITE A

The above site was considered initially as the unit proposed would benefit from existing screening from the adjoining woodland and also the existing hedgerow adjacent to the county highway. The proposed site would also result in the creation of less internal roads to access the unit. The location was however ruled out through discussions with A and S Modelling Data who confirmed that the woodland was an Ancient Woodland.

ALTERNATIVE SITE B

The above site was originally considered as is located in close proximity to the existing farm complex, but providing a greater degree of separation from the county highway. The unit would also fit in one field parcel without removal of any boundaries. The poultry unit in this location is located to the east of the Llyn Alaw SSSI, in order to reduce the impact of the proposal on the protected site, this location was ruled out.

ALTERNATIVE SITE C

Alternative Site C was disregarded as it was too close to the ancient woodland as it was felt to not benefit from any existing landscaping to successfully allow the integration of the unit into the landscape.

No sites outside of the management control of the applicant were considered as this would have been cost prohibitive.

CHAPTER 4 –DESCRIPTION

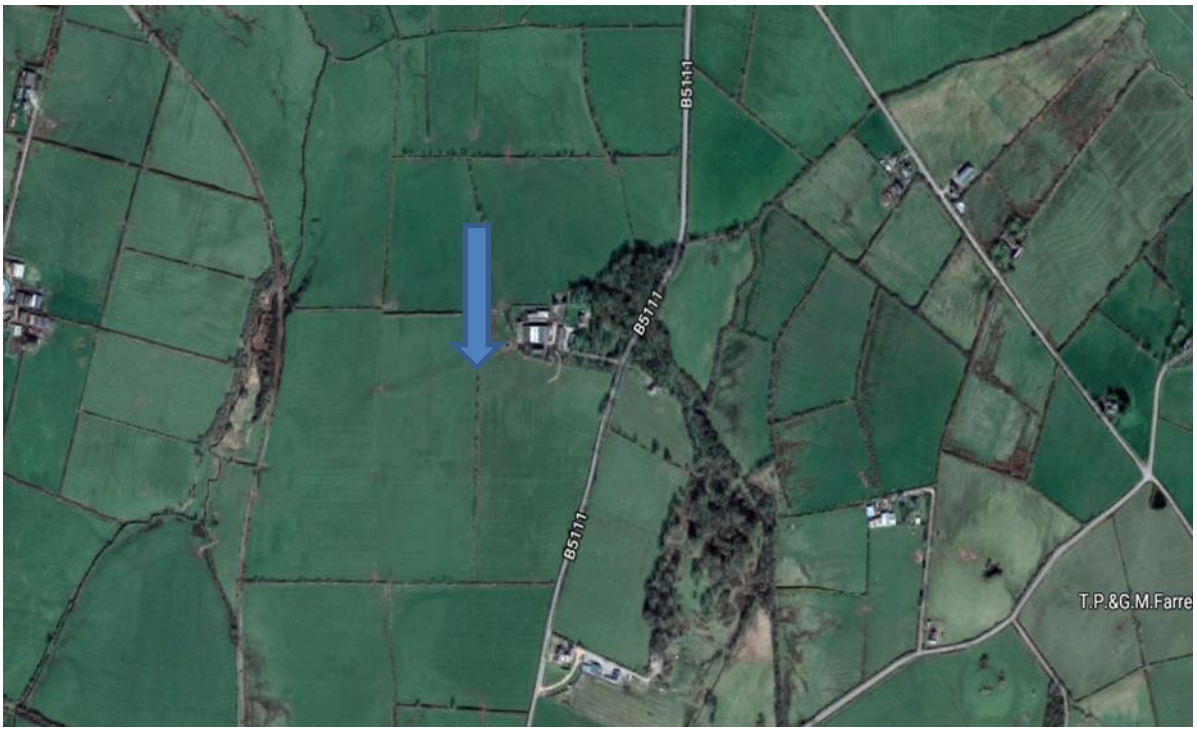
4. Description

This Chapter provides a description of the proposed free range egg production at Cae Mawr 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 unit. 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 chosen site is adjoining the existing site at Cae Mawr. Appendix 2 shows the site location in relation to the area.



Cae Mawr Farm is shown on the aerial photograph above. The farm lies to the north of the rural village of Llanerch y Medd.

The farm lies in a rural location with only limited residential properties having long distance views over the farmstead.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings. The site is located within grassland fields adjoining existing farmstead.

There are no public footpaths affecting the site.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings and also surrounding existing hedgerow boundaries and woodland which will provide screening to the development. The site is located within an improved pasture field.

4.2 Proposed Development

4.2.1 Overview

DB and BE Evans are proposing to erect a free range egg production unit for 32,000 birds on site.

The site is to be laid out as per the site layout plan on Appendix 1 and will include the following elements:

- One poultry unit
- Hard standing

The following sections include a description of 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

The proposal is for the creation of a Free Range Poultry Unit at Cae Mawr, to provide accommodation for a 32,000 free range birds. The location of the proposal is shown at Appendix 2 to this Environmental Statement.

The proposal is for the creation of a Poultry Unit at Cae Mawr to provide accommodation for a 32,000 free range birds. The proposed building is to the south-west of the Cae Mawr farmstead and is seen in the same context as the farm buildings already situated on farm and is surrounded by extensive landscaping, in the form hedgerow and tree plantation.

The proposed building shall be 68.6 metres long with a 10 metre wide egg room by 46 metres long with a roof pitch of 15°, internal eaves height of 3.5 metres. The building shall house 32,000 free range birds. The total footprint of the building is 3,204 square metres. The building shall be constructed of box profile steel sheeting to the walls and also to the roof, with UPVC double glazing windows. The box profile steel sheeting is juniper green.

The size of the proposed building is in line with the land availability surrounding the development, at a ratio of 2000 birds for every hectare of land. The maximum ranging distance associate with the building is 350 metres from building to the external perimeter of associated land.

The building proposed will be of the same design as many poultry units with the United Kingdom, the unit will have a small control room in front of the birds and all eggs will be conveyed to the existing state of the art packing room.

The birds shall have access to roam the land lying to the east and west of the proposed building which shall be dedicated pasture for the enterprise. The land will be fenced using electric fencing to keep predators out. Birds will be inspected at least once a day.

The building proposed operates a Multi-tier system, thus meaning birds can be housed in a smaller building than a Single tier system. The two tier system operates two tier perching decks for those laying hens within. The perching areas are slated to allow the manure to drop through the flooring system onto the manure conveyor belt. The manure conveyor belt is operated every four days and removes the manure from the internal conveyor belt to the external conveyor belt and the manure spreader parked outside ready to directly apply the manure to the land.

The birds are Free Range and have an opportunity each day to exit the building and enter onto the designated ranging ground. The birds will exit the building using pop holes which are included in the design of the building. The maximum stocking density for the unit is nine birds per square metre, and there must be 250cm square of litter area per bird. The perches internally for the birds shall allow a depth of 15cm per hen and there must be a minimum of 10cm of feeders per bird and one drinker per ten birds.

Feed for the 32,000 birds is proposed to be stored in four external feed bins. The feed bins shall be a juniper green colour. The feed will be automatically conveyed to the unit. The steel bins shall be located adjacent to the proposed building.

Free Range Birds are brought into the enterprise as young laying stock and remain in the unit for a fourteen month period. Following the end of the cycle for the laying stock all birds are removed and the building is thoroughly cleaned internally and the next flock introduced to restart the cycle.

The proposed building shall be accessed using the same internal farm road as the current farmstead, and then will be diverted off to a new farm access road leading directly to the poultry unit.

4.4 Site Layout

4.4.1 Main Buildings Design

The location of the building has been carefully considered, the application site is set adjacent to the existing farmstead and this would provide a low lying well screened site.

The site is located within two grassland fields adjoining existing farmstead, the building will require the removal of 95 meters of hedgerow. The hedgerow in question is not established and has large breaks in the boundary where there are no plants. A landscaping plan to restore hedgerows, plant trees and create a new hedgerow is submitted in support of this application. The building is positioned in this way to move it away from the highway and to allow birds free roaming on the farm land.

The proposed building shall be 68.6 metres long with a 10 metre wide egg room by 46 metres long with a roof pitch of 15°, internal eaves height of 3.5 metres. The building shall house 32,000 free range birds. The total footprint of the building is 3,204 square metres. The building shall be constructed of box profile steel sheeting to the walls and also to the roof, with UPVC double glazing windows. The box profile steel sheeting is juniper green.

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

Roofs

Box profile metal sheeting at 10 degree pitch. Eaves height: 3.5 metres.

Walls

Box profile metal sheeting.

Insulation

The free range unit 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 unit is 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 building design incorporates the use of mechanical ventilator extractor fans, the mechanical extractor fans will thermostatically control the building. Therefore, they tend to operate more frequently during hot weather. Efficient design of ventilation fans has minimised the number needed for this building. Fans will be maintained and inspected in accordance with the manufacturers or suppliers instructions. This will minimise mechanical noise from the unit and also dust escape. Automated feeding by internal conveyor with augers direct from the sealed external feed hoppers will minimise dust creation. The insulated construction of the walls and roof also reduce sound transmission.

Shed Colour

The sheds will be coloured to Local Planning Authority specification. Juniper Green is the applicant's preferred choice, in line with the first approved poultry unit.

4.4.2 Ancillary Structures & Description

Hard standing / Loading Area

The proposed unit will require a hardstanding/loading area which will be used to load and unload chickens, unload feed and remove manure.

4.5 Access

4.5.1 Site access

The proposed building shall be accessed using the existing internal farm road. The access shall be extended past the existing buildings to join onto a new internal track leading to the proposed building.

All vehicles attending the Poultry Unit would access the farm via the unclassified road which runs directly through the farmstead at Cae Mawr. The farm is approached through the village of Llanerch y Medd, a right turning is taken from the village centre to continue on the B5111 road for approximately 1.5 miles, Cae Mawr entrance is then indicated by a farm sign on the left hand side. It is not considered necessary to propose a routing plan for the poultry unit, given the low volume of additional vehicle movements to Cae Mawr. Please see appendix 22.

The proposed free range unit would require the following vehicular activity;

- Delivery and Removal of Birds. At the beginning of the cycle a rigid lorry would deliver all of the birds and then remove the said birds at the end of the 14 month cycle. The new proposal would generate two additional vehicular movement to the farm per annum (in and out of the farm 4 additional movements).
- The development proposal will require an upgraded vehicular access onto the publicly adopted highway, that is capable of safely accommodating both agricultural and HGV traffic movements.
- Food deliveries will take place via 6 or 8-wheeler HGVs three times a month, with the feed stored in silos.
- The egg collection will take place using 7.5 tonne vehicles three times a week
- Manure. Manure will be removed from the unit every four days, by tractor and trailer and shall be used on land in the ownership of the business if weather conditions permit and the nutrients are required otherwise it will be stored in a manure store on farm. There will be additional movements involving the application of manure however these shall be confined to the farming unit at Cae Mawr.

- Staff. The unit shall be run by Robert and Kim Evans, who currently reside on site resulting in no additional movements. An additional two members of staff shall be required to assist with the packaging of eggs and this employment will be sourced locally.

4.5.2 Routing

All vehicles attending the Poultry Unit would access the in the same manner as which the existing farmstead is approached and would be directed to the poultry unit through the farmstead. It is not considered necessary to propose a routing plan for the poultry unit, given the low volume of additional vehicle movements to Cae Mawr.

4.6 Equipment and Management

Feed

The feed will be supplied by a Local Feed Merchant. It will be composed of high-quality raw materials and will be designed to suit the nutritional needs of free range chickens. 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 by the flock is therefore calculated as 353.

Water

Water will be supplied to the birds via nipple drinkers; there will be a minimum of 1 nipple drinker per 10 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 for 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 free range unit 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 a building proposed on farm for the storage of 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. 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.

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.

Allowing for heavy rainfall on the outside concrete service area while the litter is being removed over perhaps a 3 day period the outside concrete area needs to be temporarily piped into the dirty water collection tank via a collection manhole.

As a worst case scenario the potential production of dirty wash water at the close of each crop will be 73.5 cubic metres.

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 Robat and Kim Evans. 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

Cae Mawr is a mixed enterprise farm with suckler cows and a large commercial flock of sheep. Cae Mawr extends to 310 acres of owner occupied land. The farm is a developed unit, with a large range of modern steel portal framed farm buildings, together with retained traditional buildings. Buildings include silage clamps and manure stores also.

Mr Robert Evans and Mrs Kim Evans and their young family help run the family farm. The family runs a successful mixed enterprise unit. The business is now considering expanding its diversification on farm to a 32,000 free range poultry unit. The enterprise has been fully investigated by the business which they are more than confident that the free-range unit can be a success and supplement the current farm profits.

The farm lies to the north of the rural village of Llanerch y Medd.

The farm lies in a rural location with only limited residential properties having long distance views over the farmstead.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings. The site is located within grassland fields adjoining existing farmstead.

There are no public footpaths affecting the site.

Appendix one of this statement shows visual images of the proposed site and the entrance to the farmstead. The site selected to develop to accommodate the poultry unit lies to the south-west of the farmstead in two improved pasture fields adjacent to the existing farm buildings. Further landscape works are required to accommodate the building into the landscape as detailed in the Woodland and Landscaping Report Appendix 5.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings and also surrounding existing hedgerow boundaries and woodland which will provide screening to the development. The site is located within an improved pasture field.

4.7.2 Landscape Plan

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.

Detail regarding Woodland maintenance and hedgerow retention and planting is provided in appendix 5 to this statement, being the report of Arbor Vitae.

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.

The building will require the removal of 95 meters of hedgerow. The hedgerow in question is not established and has large breaks in the boundary where there are no plants. A landscaping plan to restore hedgerows, plant trees and create a new hedgerow is submitted in support of this application. The building is positioned in this way to move it away from the highway and to allow birds free roaming on the farm land.

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 nature of the proposed poultry installation means that some light sources will be required to allow safe and effective activities within the site to take place. The assessment has identified that the site is located within a relatively dark, rural context with limited existing sources of light. However, the site is located in an intensively farmed area and as such field operations and other activities take place during hours of darkness and use intense lighting for visibility (rather than security purposes).

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. Lighting of the site would only be required during working hours in winter months and during bird catching where lighting would be kept as low as practically possible. Appropriate cowls/shielding of lights would be instigated, the light spread would be minimised through use of directional lighting and hours of lighting would be kept to a minimum to reduce disturbance.

There will be no round the clock external lighting of the site and no use of high intensity security lighting. All external lighting will be downward facing and protected with a cowl to reduce light spill to outside the unit.

During hours of darkness the poultry 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 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.

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

It is anticipated that the potential impact associated with this aspect of the proposed development will be minimal as there will not be round the clock security lighting and the area of lighting (the front gable ends of the buildings) is directed away from the main residential areas, this will respect the rural context of the site. Added to this the lighting will be directed downwards to reduce light escaping from the site plus the light will be protected with a cowl to avoid the lights lighting any areas outside of the site. The lighting has been sited and angled to provide the minimum illumination required by the applicant so as not to adversely affect road users, neighbours, the natural environment or wildlife.

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.

Surface Water from the proposed building will be captured within a rainwater harvesting facility together with soakaways. Soakaways shall be designed to comply with B.R.E Digest 365. A clean water storage tank has been installed for the existing unit. All dirty water will be routed and collected in a dirty water tank. The dirty water tank will be located in excess of five metres from any watercourse and this has been considered at the development stage.

4.10 Environmental Controls

4.10.1 Introduction

Environmental Permit Determination

The proposed operation is not required to apply for a licence to operate under the Environmental Permitting (England and Wales) Regulations 2010 as regulated by Natural Resources Wales as the proposed site shall house under 40,000 birds.

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 unit. 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 extension 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 free range unit at Cae Mawr 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 free range egg unit at Cae Mawr:

- 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 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 carcases

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 free range egg units. 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 recue odour concentration at sensitive receptors by between 30 and 90 percent (Bottcher, 2000).

The period during the egg 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 is attached at Appendix 6. is to be adopted and implemented prior to the operational phase of the proposed unit.

Appendix 8 is the Dust and Bioaerosol management plan.

4.10.3 Noise Suppression

In order to ensure that noise disturbance is minimised the applicants have detailed noise management measures in the design and access statement submitted in support of the application and these are to be adopted and implemented prior to the construction phase of the development though to beneficial use and thereafter. Appendix 7 is the Noise Assessment for the development.

4.10.4 Manure

The manure will be removed from the free range unit twice per week and will then be stored in the manure store proposed to be erected on farm before being applied to the land or sold off farm. As a worst case scenario field heaps will be used but this is not preferred by the applicants. 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 50 m 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 that 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

4.11 Construction

The exact methods employed to build the proposed free range 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 free range unit 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 free range unit will be in accordance with all relevant legislation and standards, and industry good practice. The proposed free range unit 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 free range unit. 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 NRW. 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.

All as building 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 free range unit.

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 free range egg production units at National, Regional and Local levels. It concludes that the proposal for the free range unit at Cae Mawr 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 free range unit at Cae Mawr '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 extension plans.

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

1)).

The section concludes with an overview of the proposed poultry unit 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 poultry unit are:

- The Environmental Permitting (England and Wales) Regulations 2011.

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

5.3 Environmental Permitting (England & Wales) Regulations 2011

The proposal at Cae Mawr will enable the farm to accommodate 32,000 birds, this is under the threshold of 40,000 birds and an Environmental Permit from Natural Resources Wales will not be required.

There shall be 32,000 birds on farm should planning be granted.

The Environmental Permit is effectively a licence to operate and will only be granted if an acceptable level of Pollution Control management systems are adhered to. Under the Environmental Permitting regime Natural Resources Wales 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 National Planning Policy Framework

Planning Policy Wales (Edition 10, December 2018) –

5.4.2 1.2 The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation. A well functioning planning system is fundamental for sustainable development and achieving sustainable places.

5.4.3 PPW promotes action at all levels of the planning process which is conducive to maximising its contribution to the well-being of Wales and its communities. It encourages a wider, sustainable and problem solving outlook which focuses on integrating and addressing multiple issues rather than on an approach which is fragmented, un-coordinated and deals with issues in isolation. It provides an opportunity to remove any actual or perceived problems in current approaches and stimulate and support innovative and creative ideas as well as high standards of evidence and assessment to underpin the preparation of development plans and strategies and individual proposals. Monitoring and learning from development outcomes so as to drive sustainable improvements in planning practice is also important.

5.4.4 Planning authorities should ensure that social, economic, environmental and cultural benefits are considered in the decision-making process and assessed in accordance with the five ways of working to ensure a balanced assessment is carried out to implement the Well-being of Future Generations Act and the Sustainable Development Principle. There may be occasions when one benefit of a development proposal or site allocation outweighs others, and in such cases robust evidence should be presented to support these decisions, whilst seeking to maximise contributions against all the well-being goals.

2.25 Key factors in the assessment process include:

Social Considerations
who are the interested and affected people and communities;
how does the proposal change a persons way of life, which can include: how people live, for example how they get around and access services;
how people work, for example access to adequate employment;
how people socialise, for example access to recreation activities; and
how people interact with one another on a daily basis

who will benefit and suffer any impacts from the proposal;
what are the short and long-term consequences of the proposal on a community, including its composition, cohesion, character, how it functions and its sense of place; and
how does the proposal support development of more equal and more cohesive communities.

Economic Considerations
the numbers and types of long term jobs expected to be created or retained;
whether, and how far, the development will help redress economic disadvantage or support regeneration priorities, for example by enhancing local employment opportunities or upgrading the environment;
the contribution the development would make to achieving wider strategies, for example the growth or regeneration of certain areas;
the contribution this economic activity will have to wider policy goals; and
how the proposal would support the achievement of a more prosperous, low carbon, innovative and resource efficient Wales.

Cultural Considerations
how far the proposal supports the conditions that allow for the use of the Welsh language;
whether or not the development protects areas and assets of cultural and historic significance;
have cultural considerations and their relationships with the tourism industry been appropriately maximised;
if the proposal protects areas known for their cultural value in terms of music, literature, sport and the arts; and
vibrant cultural experiences.

Environmental Considerations
will important features of the natural and built environment be protected and enhanced;
are the environmental impacts of development on health and amenity limited to acceptable levels and the resilience of ecosystems improved;
is environmental protection for people and natural resources, property and infrastructure maximised and environmental risks prevented or appropriately managed;
will high standards of restoration, remediation, decommissioning and beneficial after uses be achieved;
will the depletion of non-renewable resources be minimised, waste prevented and the efficient and most appropriate use of materials made and re-use and recycling promoted;
will the causes and impacts of climate change be fully taken into account through location, design, build, operation, decommissioning and restoration; and
does it support decarbonisation and the transition to a low carbon economy.

2.26 When considering planning applications, planning authorities should seek the views of all relevant local authority departments and external specialist public bodies, particularly those with responsibility for Economic Development, Housing, Transport, Regeneration, Culture, Heritage and Environment/ Biodiversity, as this can assist in the identification of multiple benefits and an integrated approach to balancing priorities against policy on an individual basis. This will also enable the full range of costs and benefits over the lifetime of development to be taken into account, including those which cannot be easily valued in monetary terms, and considerations relating to timing, risks and uncertainties addressed.

5.4.5 The construction of new buildings in a Green Belt or green wedge is inappropriate development unless it is for the following purposes:
justified rural enterprise needs;
essential facilities for outdoor sport and outdoor recreation, cemeteries, and other uses of land which maintain the openness of the Green Belt or green wedge and which do not conflict with the purpose of including land within it;
limited extension, alteration or replacement of existing dwellings; or
small scale diversification within farm complexes where this is run as part of the farm business.

5.4.6 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. They should also adopt a positive approach to the conversion of rural buildings for business re-use. Planning authorities should adopt a positive approach to diversification projects in rural areas. Additional small business activities can often be sustainably located on farms and provide additional income streams. Diversification can strengthen the rural economy and bring additional employment and prosperity to communities. Diversification activities come in many forms and include both agricultural and non-agricultural activities. Activities could include, for example, livestock and crop processing, non traditional livestock and crop farming, tourism projects, farm shops, and making and selling non agricultural products. Diversification can also include renewable energy proposals such as anaerobic digestion facilities or solar and wind installations, which will help to increase the viability of rural enterprises by reducing their operating costs. These schemes should be supported where there is no detrimental impact on the environment and local amenity.

5.4.7 Technical Advice Note (TAN) 6 – Planning for Sustainable Rural Communities (July 2010) supports and encourages the need for economic development. TAN 6 in its entirety recognises the importance of development.

5.4.8 TAN 6 confirms that "the planning system has a key role to play in supporting the delivery of sustainable rural communities."

5.4.9 'Strong rural economies are essential to support sustainable and vibrant rural communities. A strong rural economy can also help to promote social inclusion and provide the financial resources necessary to support local services and maintain attractive and diverse natural environments and landscapes"

5.4.10 TAN 6 states that "when considering planning applications for farm diversification projects, planning authorities should consider the nature and scale of activity taking a proportionate approach to the availability of public transport and the need for improvements to the local highway network."

5.4.11 Section 6 of TAN 6 discusses Sustainable Agriculture. "The Welsh Governments 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 sustainability of agriculture."

5.4.12 TAN 6 recognises that "farms vary considerably in size, type and farm business and layout. The loss of part of a holding can have important implications from the remainder. The effect of severance and fragmentation upon the farm and its structure may be relevant."

5.4.13 Technical Advice Note (TAN) 23 – Economic Development (February 2014) stipulates that "Sustainable development is essential to building strong rural economies and vibrant communities." "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 subsequently preferable site.

5.4.14 Development Plans and the economy should:

- include policies encouraging farm diversification and new rural development opportunities;

5.5 Local Planning Policy

5.5.1

- **Joint Local Development Plan (Anglesey and Gwynedd) Adopted July 2017**

Anglesey and Gwynedd County Council have a Joint Local Development Plan (JLDP) that was adopted in July 2017 that set out their planning policies;

Anglesey and Gwynedd aims to put plans and projects in place that will promote prosperous, healthy and safe communities. By 2026 aim that the JLDP will be one that where it's residents and businesses are able to grasp new transformational economic opportunities in order to thrive and prosper and which promotes economic activity amongst young people.

JLDP Strategic Objective 12 – Theme 3
Diversify the Plan area's rural economy, building on opportunities, offering local employment opportunities with good quality jobs that are suitable for the local community and respects environmental interests.

JLDP Strategic Policy 13 – Providing opportunity for a flourishing economy
4. Supporting economic prosperity and sustainability of rural communities by facilitating appropriately scaled growth of rural enterprises, extension of existing businesses and diversification by supporting the re-use of existing buildings, the development 'live work' units, working from home, and by encouraging the provision of sites and premises in appropriate accessible locations consistent with the Plan's Spatial Strategy and in line with Strategic Policies PS5 and PS6.

6.2.4 Within the context of rural protection however, this policy acknowledges that some types of developments are necessary if the plan is to address the area's social, economic or environmental needs. If a development is acceptable in principle, this Policy and other detailed policies in the Plan or national planning policies will ensure that the development will not threaten or harm the attributes of the countryside within the Plan area.

6.3.30 Gwynedd Council's key aim is to seek to ensure a geographical spread of employment opportunities. The rural economy has an important role in the area in terms of the agricultural sector, tourism and small rural businesses.

6.3.55 Tourism provides an important source of income to several towns and rural communities in the form of visitor spending on accommodation, food, drink, leisure activities and shopping, and also to local business supply chains and wholesalers. Tourism brings over £238 million into Anglesey's local economy and over £851 million into Gwynedd (including Snowdonia National Park) each year and supports over 4,000 and 15,819 local jobs, respectively.

6.5.56 The Councils consider that in some instances, some waste management facilities may be acceptable on agricultural land as part of farm diversification, particularly where it can be demonstrated that the waste is generated locally and the output is applied locally. The rural nature of the Plan area may also necessitate small scale facilities being located outside development boundaries to reflect existing transport infrastructure.

The following policies are applicable to the proposal to apply for full planning for the erection of a 32,000 bird unit at Cae Mawr;

Strategic Policy PS 5: Sustainable Development

Development will be supported where it is demonstrated that they are consistent with the principles of sustainable development. All proposals should:

1. Alleviate the causes of climate change and adapting to those impacts that are unavoidable in accordance with Strategic Policy PS 6;

2. Give priority to effective use of land and infrastructure, prioritizing wherever possible the reuse of previously developed land and buildings within the development boundaries of Sub Regional Centre, Urban and Local Service Centres, Villages or in the most appropriate places outside them in accordance with Strategic Policy PS 17, PS 13 and PS 14;

3. Promote greater self-containment of Centres and Villages by contributing to balanced communities that are supported by sufficient services; cultural, arts, sporting and entertainment activities; a varied range of employment opportunities; physical and social infrastructure; and a choice of modes of travel;

4. Protect, support and promote the use of the Welsh language in accordance with Strategic Policy PS 1;

5. Preserve and enhance the quality of the built and historic environment assets (including their setting), improving the understanding, appreciation of their social and economic contribution and sustainable use of them in accordance with Strategic Policy PS 20;

6. Protect and improve the quality of the natural environment, its landscapes and biodiversity assets, including understanding and appreciating them for the social and economic contribution they make in accordance with Strategic Policy PS 19;

7. Reduce the effect on local resources, avoiding pollution and incorporating sustainable building principles in order to contribute to energy conservation and efficiency; using renewable energy; reducing / recycling waste; using materials from sustainable sources; and protecting soil quality;

8. Reduce the amount of water used and wasted; reducing the effect on water resources and quality; managing flood risk and maximizing use of sustainable drainage schemes; and progressing the objectives of the Western Wales River Basin Water Management Plan.

Proposals should also where appropriate:

9. Meet the needs of the local population throughout their lifetime in terms of their quality, types of tenure and affordability of housing units in accordance with Strategic Policy PS 16;

10. Promote a varied and responsive local economy that encourages investment and that will support Centres, Villages and rural areas in accordance with Strategic Policy PS 13;

11. Support the local economy and businesses by providing opportunities for lifelong learning and skills development in accordance with Strategic Policy PS 13;

12. Reduce the need to travel by private transport and encourage the opportunities for all users to travel when required as often as possible by means of alternative modes, placing particular emphasis on walking, cycling and using public transport in accordance with Strategic Policy PS 4;

13. Promote high standards of design that make a positive contribution to the local area, accessible places, that can respond to future requirements and that reduce crime, antisocial behaviour and the fear of crime in accordance with Policy PCYFF 3.

Strategic Policy PS 6: Alleviating and Adapting to the Effects of Climate Change

In order to alleviate the effects of climate change, proposals will only be permitted where it is demonstrated that they have fully taken account of and responded to the following:
1. The energy hierarchy:
i. Reducing energy demand;
ii. Energy efficiency;
iii. Using low or zero carbon energy technologies wherever practical, viable and consistent with the need to engage and involve communities; protect visual amenities, the natural, built and historic environment and the landscape.

2. Reducing greenhouse gas emissions, help to reduce waste and encourage travel other than by car.

In order to adapt to the effects of climate change, proposals will only be permitted where it is demonstrated with appropriate evidence that they have fully taken account of and responded to the following:

3. Implementing sustainable water management measures in line with the objectives in the Western Wales River Basin Management Plan;

4. Locating away from flood risk areas, and aim to reduce the overall risk of flooding within the Plan area and areas outside it, taking account of a 100 years and 75 years of flood risk in terms of the lifetime of residential and non-residential development, respectively, unless it can be clearly demonstrated that there is no risk or that the risk can be managed;

5. Be able to withstand the effects of climate change as much as possible because of its high standards of sustainable design, location, layout and sustainable building methods (in line with Policy PCYFF 3);

6. Safeguarding the best and most versatile agricultural land, promoting allotments, support opportunities for local food production and farming in order to reduce the area's contribution to food miles;

7. Ensuring that the ability of landscapes, environments and species to adapt to the harmful effects of climate change is not affected, and that compensatory environments are provided if necessary;

8. Aim for the highest possible standard in terms of water efficiency and implement other measures to withstand drought, maintain the flow of water and maintain or improve the quality of water, including using sustainable drainage systems (in line with Policy PCYFF 6).

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.

CHAPTER 6 – AIR QUALITY, HEALTH & CLIMATE

6. Air quality, Health and climate

The potential effects of atmospheric emissions from the proposed free range egg unit 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 free range egg unit were assessed using screening tools where appropriate. In view of the emission integral to the design and operation of the free range poultry unit, 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 free range unit at Cae Mawr and is to be read in conjunction with Appendix 9, Cae Mawr ammonia modelling report produced by A and S Modelling Data.

The following assessments are presented in this chapter:

- Screening of potential effects of emissions on nearby Natura 2000 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 site of the proposed free range egg-laying chicken houses at Cae Mawr is in a rural area, approximately 1.9 km to the north of the village of Llanerch y Medd, in Anglesey. The surrounding land is almost exclusively pasture, but there are some isolated areas of semi-natural woodlands nearby. The site is at an elevation of around 58 m, with the land rising towards slightly higher ground to the south and falling gently towards the Llyn Alaw reservoir to the north-west.

Under the proposal, an adjoined pair of poultry houses would be constructed on land to the south-west of the existing farm buildings at Cae Mawr. The poultry houses would provide accommodation for up to 32,000 egg-laying chickens and would be ventilated via uncapped high speed ridge mounted fans, each with a short chimney. The chickens would have daytime access to outdoor ranging areas via a series of pop holes along the sides of the proposed poultry houses. Every four days, the birds' droppings would be removed by a belt collection system and stored temporarily, prior to being removed from site, or spreading to land.

There are five areas of remnant Ancient Woodlands (AWs) within 2 km of Cae Mawr. There are six Sites of Special Scientific Interest (SSSIs) within 5 km of the farm. There are no internationally designated wildlife sites within 5 km of the farm. Further details of the SSSIs are provided below.

- Llyn Alaw SSSI – at its closest point, approximately 1.1 km to the north-west.

- Llyn Hafodol & Cors Clegyrog SSSI – approximately 3.8 km to the north-west.
- Mynydd Parys SSSI – approximately 4.1 km to the north-north-east.
- Maen Gwyn SSSI – approximately 3.4 km to the south (designated for geological features).
- Tyddyn Y,Waen SSSI – approximately 4.8 km to the east-south-east.
- Nantanog SSSI – approximately 4.9 km to the south-west (designated for geological features).

The site location and surrounding sensitive receptors are shown on Appendix 9, the ammonia modelling report.

6.1.2 Potential Air Quality Effects of the Proposed Process

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

- Ventilation fans from bird areas of 32,000 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.
- The proposed free range unit, while resulting in emissions of Carbon Dioxide which derives from fossil fuel sources of carbon, would amount to an overall reduction as the eggs produced on site would be offset against imported eggs i.e. the environmental cost of producing eggs abroad for domestic consumption is higher than producing eggs in the UK for UK consumption.

These potential effects were assessed using the techniques and approaches set out in Section 6.2

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 free range unit.

These controls are set out in Chapter 4 –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

Environmental Permitting Regulations 2010

The proposed operation does not need to gain a licence to operate under the Environmental Permitting (England and Wales) Regulations 2010 as regulated by Natural Resources Wales as they have under 40,000 birds.

Habitats Directive

The Conservation of Habitats and Species Regulations 2010 transposes the Habitats Directive (92/43/EEC) into national law. The Regulations provide for the designation and protection of "European sites," and the protection of "European protected species." As part of the determination of the Environmental Permit, Natural Resources Wales is required to carry out an appropriate assessment to establish whether the proposed development would adversely affect the integrity of any such European sites.

The Appropriate Assessment must be undertaken by the competent authority, as defined in Regulation 7(1) of the Habitat Regulations, which includes any Minister, Government Department, public or statutory undertaker, public body of any description or person holding a public office (Natural England Guidance HRGN 1).

In situations where a plan or project requires the consent, permission or other authorisation of more than one competent authority then the Local Planning Authority are not required to assess any implications of a plan or project which would be more appropriately assessed by another competent authority as per Section 52 of the Habitat Regulations. In this instance, as emissions will be assessed during the processing of the environmental permit Natural Resources Wales are the relevant competent authority for the purpose of the regulations. This is especially relevant as the Environmental Permit and Planning applications are being "twin-tracked."

Other Conservation Considerations

Part II of The Wildlife and Countryside Act 1981, as amended, provides protection to Sites of Special Scientific Interest (SSSIs) in England and Wales. This includes provisions which apply to owners and occupiers who wish to undertake notified operations likely to damage the special interest of the site, but more important in this context are the requirements that apply to public bodies such as local authorities and Natural Resources Wales. Section 28G places a duty on such bodies to take reasonable steps, consistent with the proper exercise of the authorities' functions, to further the conservation and enhancement of special interest features of SSSIs. The Act also requires that they consult statutory nature conservation bodies before permitting (Section 28I) any operation likely to damage a SSSI.

The environmental permitting regulator has a duty to have regard to the purpose of conserving biodiversity in the exercise of its functions. This duty is provided by Section 40 of the Natural Environment and Rural Communities Act (1 October 2006) which extends the pre-existing duty on Ministers of the Crown, government departments and the National Assembly for Wales to all public authorities (this replaces Section 74(1) of the Countryside and Rights of Way Act 2000).

6.2.2 Local Planning Policy

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

6.3 Air Quality Assessment Methodology and Baseline Conditions

6.3.1 Ammonia Emissions – Screening Tool

Please see appendix 9 Cae Mawr Ammonia Modelling prepared by A and S Modelling Data.

6.3.2 Baseline Air Quality

In order to carry out the assessments it was necessary to compile background information regarding the background air quality and the existing situation.

Local factors potentially affecting air quality are:

- the applicant's application and storage of manure.
- other agricultural businesses in the area storing and applying poultry manure to the surrounding arable land.

6.3.3 Sensitive Receptors

The sensitive receptors around the site were identified. The following habitats are located in the vicinity of the proposed poultry unit.

Locations Where People May be Present

A 400 metre zone around intensive livestock developments is the generally excepted threshold for nuisance complaints relating to airborne emissions, the Health Protection Agency position statement relating to Intensive Farming states that intensive livestock farming subject to regulation under Pollution Prevention Control Regulation (now amended by the Environmental Permitting Regulations) may need to produce an odour management plan if there are local communities within 400 metres of the site boundary. This suggests that any beyond this zone nuisance from odour is not an issue.

The impact of the proposed development potentially could have an impact on local residential properties. Cae Mawr lies within a rural area where livestock farming and operations on the land are undertaken on a daily basis. Operations undertaken by the existing farm business would be the housing and feeding of livestock, application of manure to the land and storage of manure if required, both of the aforementioned activities could result in the potential for odour. The table below outlines sensitive receptors within the vicinity of the site.

The nearest local residential property is some 153 metres from the proposed unit, which is the home of the applicants, in between the properties the topography of the land changes very slightly and within the separating distance there are a number of hedgerows and trees which will act as a buffer to the sound.

Table 8: Sensitive Locations – Human

Sensitive Receptor – Name	**Distance – Metres**
Cae Mawr	153 occupied by Mr and Mrs R Evans
Merllyn	285
Graig	464
Bodelwen	605

6.3.4 Air Quality Standards and Guidelines

In the UK both statutory and non-statutory air quality objectives and guidelines exist. These are referred to in EA guidance as Environmental Assessment Levels (EALs). Air quality in compliance with these air quality objectives, guidelines and EALs is likely to have no significant adverse effects on health. Air quality above these objectives and guidelines could potentially have an adverse effect, although a considerable "margin of safety" is built into many of the guidelines (Environment Agency, 2003).

UK Air Quality Objectives

Table 10: EALs Relevant to this Study

Pollutant	Concentration (µg/m3)	Measured as
Ammonia	180[1]	Annual mean
	2500	Maximum 1 hour mean

In order to assess the impacts of ammonia gas on protected sites, the predicted contribution of ammonia from the poultry unit was assessed against the appropriate environmental benchmark – a Critical Level (CLe). Critical levels for habitat sites in the UK have been set by Natural Resources Wales. The critical level is generally defined as "the atmospheric concentrations of pollutants in the atmosphere above which adverse effects on receptors, such as human beings, plants ecosystems or materials, may occur according to present knowledge" (UNECE, 1996). Where pollutant concentrations exceed the critical level (referred to as critical level 'exceedance'), there is a risk of harm to the ecosystem. Critical levels are agreed by the United Nations Economic Commission for Europe (UNECE) Convention on Long-Range Transboundary Air Pollution (CLRTAP) and proposed by teams comprising international experts on air pollution impacts on ecosystems. New critical levels for ammonia were agreed by the CLTRAP ICP Modelling and Mapping Task Force in April 2007. Table 11 below provides details of the Critical Levels relevant to this study for the protection of vegetation and ecosystems. Post April 2017 new critical levels have been adopted by Natural Resources Wales.

Table 11: Critical Levels for the protection of vegetation and ecosystems

Pollutant	Concentration (µg/m3)	Measured as
Ammonia	1[2]	Annual mean for sensitive lichen communities & bryophytes and ecosystems where lichens and bryophytes are an important part of the ecosystem's integrity.
	3[2]	Annual mean For all higher plants (all other ecosystems)

The critical levels for the European designated habitat sites surrounding the site are have been provided by Natural Resources Wales and are detailed in the submitted Ammonia Modelling Report at Appendix 9.

The Environment Agency H1 Environmental Risk Assessment – annex b states that an emission is significant where Process Contribution (PC) is <4% of Critical Levels for SACs, SPAs and Ramsars, <20% for SSSIs, and <50% for local and national nature reserves, ancient woodland and local wildlife sites.

6.3.5 Cumulative Effects

It is understood that the main potential source of cumulative effects would be any cumulative issues associated with the proposed Cae Mawr free range site. In accordance with the Environment Agency's H1 Environmental Risk Assessment – annex b the impact of the poultry farm in relation to other nearby intensive livestock farms are only assessed if the farm fails the initial screening test and is required to carry out further assessment and ammonia emissions modelling.

[1] Derived from Health & Safety Executive, EH40/2001, Occupational Exposure Limits 2001, 8 hour reference period converted to annual mean.
[2] UN Economic & Social Council, Executive Body for the Convention on Long-Range Transboundary Air Pollution, ECE/EB.AIR/WG. 5/2007/3.

6.4 Assessment Results

6.4.1 Screening Inputs

Each free range unit is vented via ventilation fans. 8 high velocity ventilation fans on the roof of the poultry unit and eight in the gable ends.

An emissions factor of 0.034 kg NH_3/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 free range egg production facility has been undertaken using the EA ammonia modelling tool.

6.4.2 Ammonia Screening

The proposal is to create a new free range egg production unit.

The results indicate that the modelled ammonia concentrations are not likely to exceed the annual mean or hourly mean air quality guidelines for the protection of sensitive habitat sites at a nearby designated habitat site.

Please see Appendix 9, Air Quality impact assessment on ammonia emissions from Cae Mawr. The NRW response detailed in the scoping chapter of this Environmental Statement questions the modelling provided;

Protected Sites and Aerial Emissions

Intensive agricultural units have the potential to impact protected sites through aerial emissions (ammonia and nitrogen deposition). We have assessed the proposal using the thresholds introduced in April 2017. NRW assesses the air quality impact a unit may have on European sites and Sites of Special Scientific Interest (SSSIs) within a screening distance of 5km of the unit.

We have reviewed the ammonia report (A Report on the Modelling of the Dispersion and Deposition of Ammonia from the Proposed Free-Range Egg-Laying Chicken Houses at Cae Mawr, near Llanerch y Medd, Anglesey (August 2018)) submitted in support of this proposal.

We note from the report that Llyn Alaw SSSI is the only site to have undergone detailed modelling, however, we disagree with the critical level of CLe 3µg/m^3 that has been assigned to this site, as that of the critical level assigned to Tyddyn y Waen SSSI.

In Table 5 (p19) of the report it shows values for Mynydd Parys SSSI as blue bold with the highest being 0.018 at receptor 21 which gives a screening value of 1.8%. Indeed, all of the blue bold indicate that the screening process contributions are over 1%, therefore, we require detailed modelling for all of those sites.

Requirement 1: Revised detailed modelling assessment

To conclude, Table 5 (p19) of the report shows screening values that are above 1% of the relevant ammonia critical level. Detailed modelling is required for the designated sites, particularly Mynydd Parys SSSI notified for its metallophyte lichens which are very sensitive to increases in ammonia and nitrogen. To clarify, the critical levels assigned to Llyn Alaw SSSI and to Tyddyn y Waen SSSI (Table 1, p6) are incorrect; it should be 1µg/m^3 due to the presence of Red Data Book bryophytes, and this should be amended in the revised detailed modelling for these sites.

In response to the above it is confirmed by A and S Modelling Data that;

There are no such species in the citation for Llyn Alaw SSSI, is primarily designated for avian species.

Tyddyn y Waen SSSI, does mention a liverwort (bryophyte), so NRW are possibly right that this should be a Critical Level 1 site; however, it is well below 1% in the preliminary modelling.

Mynydd Parys SSSI screened out in the preliminary stage of modelling as below 1% (as shown by the fixed deposition runs); detailed modelling will give lower concentrations.

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 free range unit. 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 free range unit were within the relevant air quality guidelines.

It is concluded that the proposed poultry unit 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 unit. 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 free range unit, 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 free range poultry unit 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 free range poultry unit.

Carbon off-set

The poultry unit 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 free range unit mean that emissions to air will have no significant adverse effects on air quality or the health of local people or designated wildlife sites. Therefore, no further mitigation measures are required.

CHAPTER 7 – LANDSCAPE & VISUAL IMPACT ASSESSMENT

7. Landscape and Visual Assessment

This chapter of the ES has examined the potential impacts of the proposed unit on the landscape and visual amenity of the study area. It has considered the potential direct impacts on the fabric of the landscape and the potential impacts on the perception of landscape character. The assessment has also considered the potential impacts of the proposed free range unit on visual amenity. Overall, the assessment established that the proposed free range unit will change the baseline conditions in terms of both landscape character and visual amenity. Measures factored into the site selection and design process will reduce or minimise any potential adverse effects. Therefore, on balance it is considered that the proposed free range unit would be acceptable in this context.

7.1 Introduction

This chapter assesses the potential impacts of the proposed free range unit at Cae Mawr on the landscape resource and visual amenity. It addresses the following issues:

- Impacts on the landscape resource;
- Impacts on the perception of the landscape; and
- Impacts on visual amenity.

Landscape impacts are changes in the landscape resource and perception of the landscape, and differ from visual impacts, which relate to the appearance of these changes and the resulting impact on visual amenity. The landscape and visual assessment is organised into the following main sections:

- **Introduction**;
- **Scope and Method of Assessment** – an explanation of how the assessment has been carried out, with reference to a accepted published, methodologies and guidelines;
- **Context of the Development** – introduction to the study area used in the assessment and the planning context of the site and proposed poultry unit;
- **Project Description** – a description of the aspects of the poultry unit with the potential to cause an impact on landscape and visual amenity in the study area;
- **Assessment of Impacts** – including an assessment of impacts on landscape features, perception of the landscape and visual amenity. The potential cumulative impacts associated with other developments are also considered; and
- **Conclusion** – an overview of the landscape and visual impacts arising from the proposed poultry unit.

7.2 Scope & Method of Assessment

7.2.1 General Approach

The landscape and visual assessment (including elements relating to lighting), has been based on guidelines provided in the following publications:

- Guidelines for Landscape and Visual Impact Assessment (Landscape Institute and Institute of Environmental Assessment, 2nd Edition, 2002); and

The general approach to the landscape and visual assessment (LVA) includes the following key tasks:

- Desk study and preliminary site survey;
- Baseline landscape and visual assessment (consisting of desk study, field survey and reporting); and
- Assessment of residual landscape and visual impacts.

7.2.2 Baseline Assessment

The first stage of the assessment reviewed the existing landscape and visual resource of the study area in terms of its character, quality (i.e. condition) and sensitivity. The baseline assessment forms the basis against which the magnitude and significance of the predicted landscape and visual impacts arising from the proposals are assessed. The assessment is focussed on a 2km radius study area centred on the proposed poultry unit. The size of the study area has been also been based on the scale, context and likely visibility of the poultry unit.

The baseline assessment has three elements as follows:

- Description – the process of collecting and presenting information about landscape and visual resources in a systematic manner;
- Classification – analytical activity whereby landscape resources, in particular, are refined into units of distinct and recognisable character; and
- Evaluation – the process of attributing a sensitivity to a given landscape or visual resource, by reference to specified criteria.

The baseline assessment process comprises three stages: desk study, field survey and analysis.

7.2.3 Desk Study

As part of the desk study, the baseline landscape and visual resource was defined within a 2km radius study area and the main users of the area, key viewpoints and key features were identified. Existing map and written data about the application site and its environs within the study area were reviewed, including:

- Ordnance Survey map data;
- Detailed survey data for the application site; and
- Plans, elevations and cross–sections of the proposed poultry unit.

The desk study also identified and classified potential visual receptors according to their associated land use (settlements, footpaths, roads etc.) The aim of the baseline visual assessment was to ensure that a representative range of viewpoints were included in the visual assessment. The potential extent of visibility of the proposed poultry unit was identified by reference to Ordnance Survey map data and observations made in the field. Following this, potential visual receptors likely to be affected by the proposed unit were identified and a preliminary selection of viewpoints was made to ensure that the viewpoint assessment included a representative range in relation to the following criteria:

- Type of receptor – based on the above, and including different landscape character types;
- Elevation;
- Distance of receptor from proposed poultry unit; and
- Direction of the receptor from the proposed unit, with the aim of achieving a distribution from different compass points around the application site.

The desk study provided the basis for subsequent field survey work. It enabled the analysis of the potential zone of visibility, and identification of the principal viewpoints and receptors, which were subsequently confirmed during the field study.

7.2.4 Assessment of Residual Landscape and Visual Impacts

The impact assessment aims to:

- Identify systematically all the potential landscape and visual impacts of the proposed poultry unit taking account of the proposed mitigation measures;
- Predict and estimate their magnitude as accurately as possible; and
- Assess their significance in a logical and well–reasoned fashion.

The assessment describes the changes in the character and quality of the landscape and visual resources that are expected to result from the proposed unit. It covers both landscape impacts, i.e. changes in the fabric, character and key defining characteristics of the landscape; and visual impacts, i.e. changes in available views of the landscape and the significance of those changes on people.

In assessing landscape impacts, the potential direct impacts on the fabric of the landscape are considered, together with the potential impacts on the perception of landscape character. The latter depends on a number of factors:

- The nature of the landscape character type, including factors such as the nature of views and sense of enclosure;
- The extent of the potential visibility of the proposed poultry unit (e.g. the number and extent of the development seen);
- The proportion of the character type with potential visibility; and
- The distance to the proposed poultry unit.

The baseline landscape character assessment together with an assessment of the potential impacts on each character type, along with consideration of the extent of potential significant impacts on the landscape, is included in the assessment.

A visibility assessment has been carried out using Ordnance Survey data and field observations to ascertain the general extent of visibility of the proposed unit within the study area. The visibility assessment has concentrated mainly on publicly accessible areas such as the road network, public footpaths, residential and outdoor recreational areas.

7.2.5 Assessment Criteria

The aim of the environmental assessment is to identify, predict and evaluate potential key impacts arising from the proposed free range unit. Identified impacts are quantified wherever possible; however, the nature of landscape and visual assessment requires an element of interpretation using professional judgement. In order to provide a level of consistency to the assessment, the prediction of magnitude and assessment of significance of the residual landscape and visual impacts have been based on pre–defined criteria.

The **sensitivity of the landscape** is not absolute and varies according to the nature of existing landscape, the nature of the proposed unit and the type of change being considered. The determination of the sensitivity of the landscape resource to changes associated with the proposed unit is defined as high, medium, low or negligible and is based on professional interpretation of a combination of parameters, as follows:

- Landscape value – as reflected by local, regional or national landscape designations;
- Landscape scale – which is the relative size of the main landscape elements and components; and
- The nature of views – whether open, closed, long or short distance, simple or diverse.

Landscape sensitivity is defined as high, medium or low as set out in Table 14 below:

Table 14: Influence of Parameters on the Sensitivity of the Landscape

Landscape Value	Landscape Scale	Nature of Views	Sensitivity
High	Small	Panoramic, Long Distance	High
Medium	Medium	Open, Medium Distance	Medium
Low	Large	Closed, Short Distance	Low

The **sensitivity of visual receptors** is based on an interpretation of a combination of parameters as follows:

- The location of the viewpoint;
- The context of the view;
- The activity of the receptor; and
- Frequency and duration of the view.

Visual receptor sensitivity is defined as high, medium, low or negligible as follows:

Table 15: Definition of Visual Receptor Sensitivity

High sensitivity	e.g. users of outdoor recreation such as rights of way or communities where the development would result in changes in landscape setting or valued views.
Medium Sensitivity	e.g. people travelling through past the affected landscape.
Low sensitivity	e.g. people at their places of work.
Negligible	e.g. views from heavily industrialised areas

The **magnitude of change** arising from the proposed poultry unit at any particular viewpoint is described as substantial, moderate, slight or negligible based on the interpretation of a combination of largely quantifiable parameters, as follows:

- Distance of the viewpoint from the
- Duration of impact;
- Angle of view in relation to main receptor activity;
- Proportion of the field of view occupied by the unit;
- Background to the unit; and
- Extent of other built visible, particularly vertical elements.

Definitions of magnitude are given within Guidelines for Landscape and Visual Impact Assessment (2nd Edition 2002). Table 16 below provides the definitions of magnitude used for the purposes of this assessment.

Table 16: Definitions of Magnitude

Level of Magnitude	Definition of Magnitude
Substantial	Total loss or major alteration to key elements / features / characteristics of the baseline (pre–extension) conditions such that post extension character/composition of baseline would be fundamentally changed.
Moderate	Partial loss or alteration to one or more key elements / features / characteristics of the baseline (pre–extension) conditions such that post extension character/ composition/ attributes of baseline would be partially changed.
Slight	Minor loss of or alteration to one or more key elements / features/ characteristics of the baseline (pre–extension) conditions. Change arising from the loss / alteration would be discernible but underlying character / composition of the baseline condition would be similar to pre extension circumstances / patterns.
Negligible	Very minor loss or alteration to one or more key elements/ features / characteristics of the baseline (pre–extension) conditions. Change barely distinguishable, approximating to the "no change" situation.

The significance of any identified landscape or visual impact has been assessed as major, moderate, minor or no impact. These categories have been determined by consideration of the landscape or visual sensitivity and the predicted magnitude of change as described above, with the following matrix (Table 17) used as a guide to correlating sensitivity and magnitude to determine significance of impacts.

Table 17: Correlation of Sensitivity and Magnitude of Impact to Determine the Significance of Impacts

Landscape & Visual Sensitivity	Magnitude of Change			
	Substantial	**Moderate**	**Slight**	**Negligible**
High	Major	Major / moderate	Moderate	Moderate / minor
Medium	Major / Moderate	Moderate	Moderate / minor	Minor
Low	Moderate	Moderate /minor	Minor	Minor / none
Negligible	Moderate / minor	Minor	Minor / none	None

Where the landscape or visual impacts have been classified as major or major/moderate, this is considered to be a significant impact referred to in The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 2011. It should be noted that significant impacts need not be unacceptable or necessarily negative and may be reversible. The potential impacts associated with the proposed unit are referred to as adverse, neutral or positive where applicable.

The matrix is not used as a prescriptive tool, and the methodology and analysis of potential impacts at any particular location must make allowance for the exercise of professional judgement. Thus, in some instances a particular parameter may be considered as having a determining impact on the analysis.

7.2.6 Limitations of the Assessment

Given the degree of subjectivity inherent in landscape and visual assessment there are no methods to quantify effects. As such, the following assessment relies on professional judgement and experience.

7.3 Context of the Proposed Poultry Unit

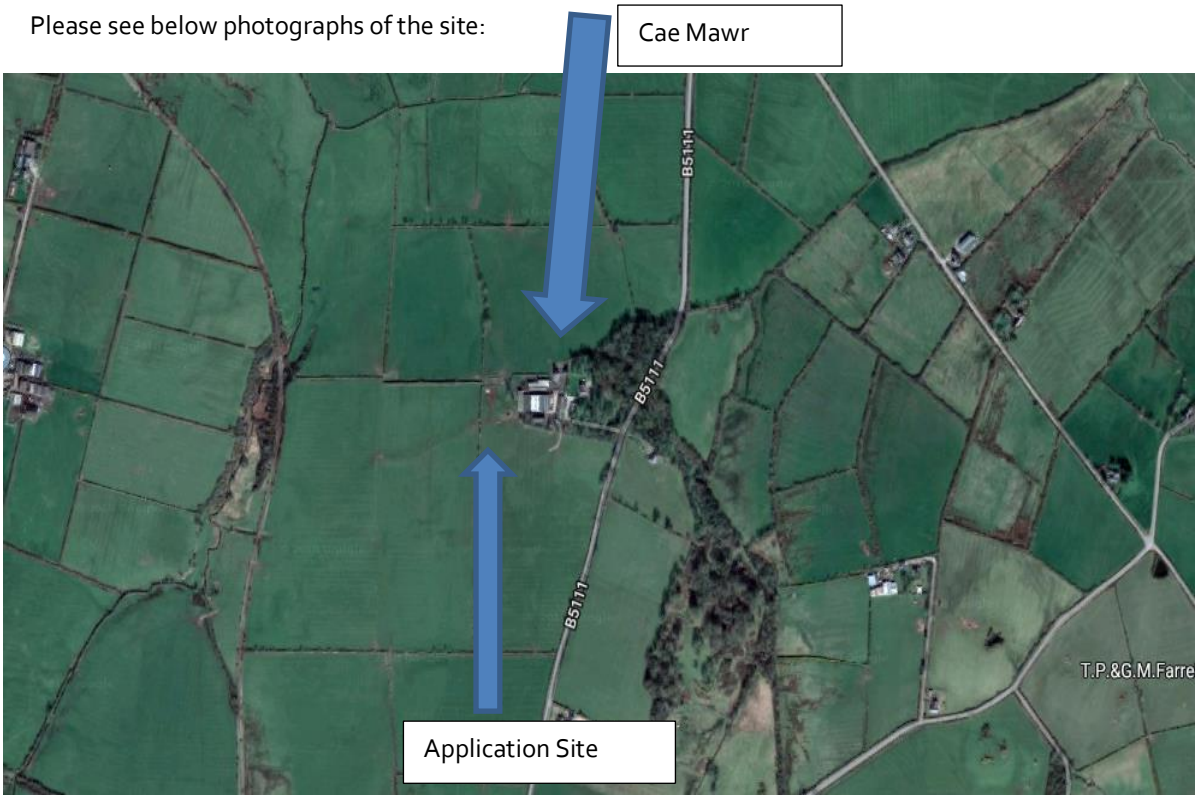
This section provides a general description of the landscape and visual context of the application site and study area.

7.3.1 The Application Site and Immediate Surroundings

The location of the site is illustrated on Appendix 2.

The proposal is for the creation of a Poultry Unit at Cae Mawr to provide accommodation for a 32,000 free range birds. The proposed building is to the south-west of the Cae Mawr farmstead and is seen in the same context as the farm buildings already situated on farm and is surrounded by extensive landscaping, in the form hedgerow and tree plantation.

Please see below photographs of the site:



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Cae Mawr Farm is shown on the aerial photograph above. The farm lies to the north of the rural village of Llanerch y Medd.

The farm lies in a rural location with only limited residential properties having long distance views over the farmstead.

Views of the site are frequently restrained by intervening hedgerow, mature trees and the surrounding topography. The site is seen from the highway in the same context as the existing unit, it is seen as an expansion of the existing agricultural buildings.

7.3.2 The Study Area

The study area is predominately rural.

Land Cover

Land cover is predominantly pasture farmland with large open fields indicative of the intensified farming activities.

Settlements

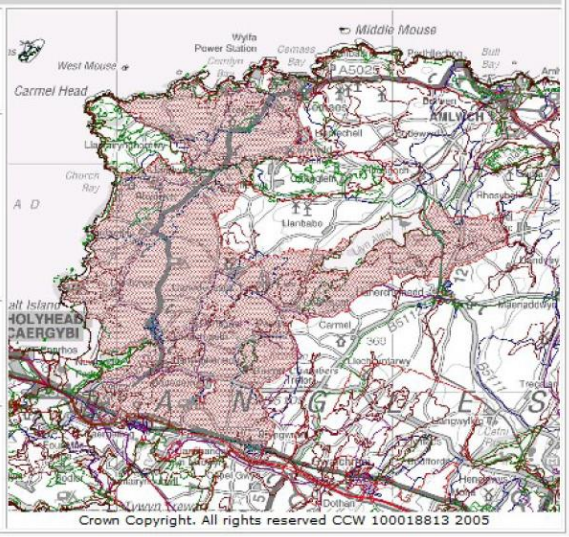
There are nearest settlement is Llanerch y Medd.

7.3.3 Landscape Character

Local

The local assessment of landscape character types confirms that the area is within the Landscape Character Area 5 North West Anglesey. The overall landmap evaluation confirms the area to be Moderate. Generally, quite pleasant rural landscape but with no distinct landmarks.

Visual and Sensory	
Aspect Area Name	**North-west drumlins**
Aspect Area Classification	**Lowland/Rolling Lowland/Open Rolling Lowland (Level 3)**
Aspect Area Code	**YNSMNVS008**
Date Of Survey : 25/01/2007	



Description	
Physical Form And Elements: Topographic Form?	Rolling/Undulating
Physical Form And Elements: Landcover Pattern?	Field Pattern/Mosaic
Aesthetic Qualities: Scale?	Medium
Aesthetic Qualities: Sense of Enclosure?	Open
Aesthetic Qualities: Diversity?	Simple
Aesthetic Qualities: Texture?	Medium
Aesthetic Qualities: Lines?	Curved
Aesthetic Qualities: Colour?	Muted
Aesthetic Qualities: Balance?	Balanced
Aesthetic Qualities: Unity?	Unity
Aesthetic Qualities: Pattern?	Organised
Aesthetic Qualities: Seasonal Interest?	Mixed
Other Factors: Level of Human Access?	Infrequent
Other Factors: Night Time Light Pollution?	Slight (from small settlements)
Other Factors: Use of Construction Materials?	Generally Appropriate
What materials? Give Details:	mixture
There are attractive views...	...both in and out (In from adjacent higher area (002). Out to distant Holyhead Mountain, Mynydd y Garn (002) and coast.)
There are detractive views...	....out (To Wylfa power station from northern parts of area)
Perceptual and Other Sensory Qualities	Tranquil Attractive Noisy Settled Safe
What is the sense of place/local distinctiveness	Moderate (Generally unremarkable rural area. Drumlins/basket-of-eggs landform distinct especially in north)
Evaluation	
Value:	Moderate (Generally quiet pleasant rural landscape but no distinct landmarks (except Wylfa - 086). Clear "basket-of-eggs" landform in parts. Intrusive elements - pylons and power station)
Condition:	Unassessed
Trend:	Constant (But possible future - more intrusion from Wylfa Newydd in north)

Recommendations	
Define the key qualities that should be conserved:	coastal views, quietness
Define the key qualities that should be enhanced:	
Define the key qualities that should be changed:	intrusion from jets
Define the key elements that should be conserved:	Wetlands, hedges, hedgebanks, stone walls. Small lanes. Ancient monuments. Coastal footpath.
Define the key elements that should be enhanced:	
Define the key elements that should be changed:	
Principal management recommendation:	Continued farming use
Tolerance To Change	
Are there any significant threats to the current integrity and condition of the visual & sensory features of the area?	Not known
Aspect Area Boundary	
To what level was this information site-surveyed?	Level 3
At 1:10,000, how much of the Aspect Area boundary is precise?	Most (Merges with adjacent rolling lowland to east (010) and south east (012))
What baseline information source was used for Aspect Area boundary mapping?	OS Raster
If OS Data was used, what was the scale?	1:25,000
What is the justification for the Aspect Area boundaries?	Coast to west and north. Rockier higher land in northwest corner (002) and part of east (009). Extent of domination by windfarms to east, and gradual change to less distinct drumlins landforms. 2014 - minor boundary change with Cemaes - new housing
Bibliography	
List the key sources used for this assessment	"Mon Mam Cymru - The Guide to Anglesey" by P. Steele & R. Williams 2006
Assessment	
Additional Assessments	
Additional Comments	
Evaluation Matrix	
Evaluation Criteria: Overall Evaluation	Moderate (Generally quiet pleasant rural landscape but no distinct landmarks (except Wylfa - 086). Clear "basket-of-eggs" landform in parts. Intrusive elements - pylons and power station.)
Justification of overall evaluation	Mainly moderate
Evaluation Criteria: Scenic quality	Moderate (Pleasant rural landscape but generally unremarkable)
Evaluation Criteria: Integrity	High (Generally unspoilt except for dual overhead electricity lines from Wylfa passing north/south.)
Evaluation Criteria: Character	Moderate (Quiet unexciting rural farmland)
Evaluation Criteria: Rarity	Low (Similar to much of Anglesey)

Description	
Summary Description	This extensive area, covering most of eastern part of north Anglesey, stretches from Cemaes and Llyn Alaw in the east to the north-west coast and the A55 in the west. The basket of eggs glacial landscape of smooth oval hillocks and damp hollows is typically covered with regular medium-sized fields with hedges, mainly pasture for sheep and cattle, with some arable land. There are numerous small villages, hamlets and scattered farms, linked with small roads, giving a settled character to this quiet, unremarkable but pleasant landscape, seen from the busy A55. Change detection 2014: boundary change with Cemaes - new housing. Adjacent Wylfa changing and potential new development into this aspect area - ground investigations being carried out
Physical form and elements: Settlement pattern	Scattered Rural/Farm
Physical form and elements: Boundary type	Mixture
Recommendations	
Guideline	Long Term (Conserve variety of habitats & vegetation cover - marshy areas, coastal grassland.) Long Term (Ensure coastal footpath management maintained) Long Term (Conserve small-scale field, road, scattered settlement patterns.) Long Term
Existing management	Generally Appropriate
Existing management remarks:	Mainly pastural farmland, with some arable.
Monitoring	
Has the information ever been verified in the field?	Yes (1:25000)
Does this area have a special or functional link with an adjacent area?	No
During which season(s) was fieldwork carried out?	Late Summer
Date of monitoring?	2015-02-06
Monitoring undertaken by	Stages 1, 2 and 3 change detection, field verification and amendment completed by Bronwen Thomas, in conjunction with the planning authority.Quality Assurance completed by White Consultants.
Has this record been updated following monitoring work?	This record has been updated following monitoring work, there was a real change in the aspect area
Change indicated by	OS Data, Aerial Photographs Fieldwork
What has changed?	

7.3.4 Landscape Designations

The application site at Cae Mawr does not occupy any areas of national landscape designation.

7.3.5 Relevant General Policy

National Planning Policy

7.3.5.1 Planning Policy Wales (Edition 6, February 2014) – Chapter 7 Supporting the Economy

7.3.5.2 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 construction and energy sectors are also important to the economy and are sensitive to planning policies.

7.3.5.3 It is essential that the planning system considers, and makes provision for, the needs of the entire economy and not just those uses defined under parts B1-B8 of the Town and Country Planning Use Classes Order. Particular policies on other economic sectors are also found elsewhere in Planning Policy Wales: in relation to Retail and Town Centres (Chapter 10); Tourism, Sport and Recreation (Chapter 11) and Infrastructure and Services (Chapter 12).

7.3.5.4 The planning system should support economic and employment growth alongside social and environmental considerations within the context of sustainable development. To this end, the planning system, including planning policies, should aim to ensure that the growth of output and employment in Wales as a whole is not constrained by a shortage of land for economic uses. Local planning authorities should aim to facilitate the provision of sufficient land required by the market, except where there are good reasons to the contrary. In addition, wherever possible local planning authorities should seek to guide and control economic development to facilitate regeneration and promote social and environmental sustainability. In so doing, they should aim to:

• co-ordinate development with infrastructure provision;

• support national, regional, and local economic policies and strategies;

• align jobs and services with housing, wherever possible, so as to reduce the need for travel, especially by car;

• promote the re-use of previously developed, vacant and underused land; and

• deliver physical regeneration and employment opportunities to disadvantaged communities.

7.3.5.5 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.

7.3.5.6 Development Plans and the economy should:

· Include policies encouraging farm diversification and new rural development opportunities.

Local Planning Policy

Several General Policies within the Local Plan are of relevance to the proposal. These include:

7.3.57 POLICY PCYFF 4: DESIGN AND LANDSCAPING
All proposals should integrate into their surroundings. Proposals that fail to show (in a manner appropriate to the nature, scale and location of the proposed development) how landscaping has been considered from the outset as part of the design proposal will be refused. A landscape scheme should, where relevant:
1. Demonstrate how the proposed development has given due consideration to the Landscape Character Area Assessment or Seascape Character Area Assessment;
2. Demonstrate how the proposed development respects the natural contours of the landscape;
3. Demonstrate how the proposed development respects and protects local and strategic views;
4. Respect, retain and complement any existing positive natural features, landscapes, or other features on site;
5. Identify trees, hedgerows, water courses and topographical features to be retained;
6. Provide justification for circumstances where the removal/loss of existing trees, hedgerows, water courses and topographical features cannot be avoided and provides details of replacements;
7. Provide details of any proposed new landscaping together with a phased programme of planting;
8. Demonstrate that any proposed new planting includes plants and trees of mainly native species of local provenance and does not include any non-native invasive species;
9. Ensure that selection of species and planting position of any trees allows for them to grow to their mature height without detriment to nearby buildings, services and other planting; and
10. Provide permeable hard surface landscaping.

7.3.5.9 POLICY AMG 3: PROTECTING AND ENHANCING FEATURES AND QUALITIES THAT ARE DISTINCTIVE TO THE LOCAL LANDSCAPE CHARACTER
Proposals that would have significant adverse impact upon landscape character as defined by the Landscape Character Areas included within the current Landscape Strategy for the relevant authority, must demonstrate through a landscape assessment how landscape character has

influenced the design, scale, nature and site selection of the development. A proposal will be granted provided it doesn't have significant adverse impact upon features
and qualities which are unique to the local landscape in terms of visual, historic, geological, ecological or cultural aspects. Measures should be taken to ensure that the development does not:
1. Cause significant adverse impact to the character of the built or natural landscape;
2. Fail to harmonise with, or enhance the landform and landscape;
3. Lose or fails to incorporate traditional features, patterns, structures and layout of settlements and landscape of both the built and natural environment.
Particular emphasis will be given to the landscapes identified by the Landscape Character Areas as being of high and outstanding quality because of a certain landscape quality or a combination of qualities. Additional consideration will also be given to development that directly affect the landscape character and setting of the AONBs or the National Park.

7.4 Project Description and Mitigation Measures

This section should be read in conjunction with the full description of the poultry unit in Chapter 4 of this ES. It summarises how the main aspects of the poultry unit may affect the landscape and visual amenity of the area, and describes the mitigation measures which have been incorporated through the iterative design of the poultry unit in order to prevent, reduce or offset potentially adverse landscape and visual impacts.

Construction

During the construction phase there would be a number of effects on the landscape resource and visual amenity. The ground would be levelled, and the new unit constructed. A number of vehicles would be used during this phase, including excavators, dump trucks and haulage lorries. All elements of the proposed free range facility would be constructed during this phase. The overall duration of the construction phase is anticipated to last three months within 2019.

Completed Poultry Unit

The full details of the completed free range unit are contained in the project description chapter of this ES (Chapter 4 –Description) and Design and Access Statement (included as part of the planning submission).

The proposed building shall be 68.6 metres long with a 10 metre wide egg room by 46 metres long with a roof pitch of 15°, internal eaves height of 3.5 metres. The building shall house 32,000 free range birds. The total footprint of the building is 3,204 square metres. The building shall be constructed of box profile steel sheeting to the walls and also to the roof, with UPVC double glazing windows. The box profile steel sheeting is juniper green.

Incorporated Mitigation

A number of measures would be incorporated into the proposed poultry unit to reduce and minimise the potential effect on landscape character and visual amenity.

Design Consultants have been involved from the beginning of formulation of proposals for the site. The proposed solution, set out in the Description (Chapter 4) and the Design and Access Statement has been designed to create an as minimal impact on the local area as possible. The design of the

poultry unit has been led by their functionality and the requirement to create little adverse impact on the surrounding area and to be in-keeping with the existing farm unit. The building height is as low as practically possible.

A sympathetic selection of materials is included in the proposed unit to complement the surrounding landscape; reflective materials and bright colours have been avoided wherever possible.

Lighting of the site would only be required during working hours in winter months and during bird catching, during bird catching lighting would be kept as low as practically possible. Appropriate cowls / shielding of lights would be instigated, the light spread would be minimised through use of directional lighting and hours of lighting would be kept to a minimum to reduce disturbance.

7.5 Assessment of Residual Landscape and Visual Effects

This section identifies the potential impacts on the landscape resource and visual amenity of the study area. It is subdivided into the following sections:

- Assessment of impacts on the landscape resource; and
- Assessment of visual impacts.

7.5.1 Assessment of Direct Impacts on the Landscape Resource

Cae Mawr Farm is shown on the aerial photograph above. The farm lies to the north of the rural village of Llanerch y Medd.

The farm lies in a rural location with only limited residential properties having long distance views over the farmstead.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings. The site is located within grassland fields adjoining existing farmstead.

There are no public footpaths affecting the site.

The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings and also surrounding existing hedgerow boundaries and woodland which will provide screening to the development. The site is located within an improved pasture field. The location of the proposed building has been carefully considered, to be as close as possible to the existing range of farm buildings. The site is located within two grassland fields adjoining existing farmstead, the building will require the removal of 95 meters of hedgerow. The hedgerow in question is not established and has large breaks in the boundary where there are no plants. A landscaping plan to restore hedgerows, plant trees and create a new hedgerow is submitted in support of this application. The building is positioned in this way to move it away from the highway and to allow birds free roaming on the farm land.

However, it is acknowledged that there would be a change in land cover of the site as a result of the proposed unit. The overall sensitivity of the site to direct changes resulting from new unit is low.

The magnitude of change associated with the potential direct impacts resulting from the unit of the site would be slight, resulting in a minor impact on the landscape resource. Therefore, it is anticipated that the direct effects on the landscape associated with the free range unit itself would not be significant.

7.5.2 Landscape Character

As described above, the unit would have an impact on the character of the application site itself. However, the impacts on the defining characteristics of the character type within which the site is located and also to each of the adjacent character types would be more variable. Effects on landscape character will be experienced differently in the various landscape character types affected. This will be due to factors such as landform, distance and relative elevation, combined with the context of established landscape features and the degree to which the new elements are perceived to have been added.

The proposed free range unit will be visible at some locations within the surrounding landscape particularly from the adjoining highway. The scale and nature of the poultry unit means this would be unavoidable. However, the nature of the surrounding landscape, particularly the surrounding topography and vegetation, would reduce the potential effect of the proposed unit.

Therefore the unit would result in some minor adverse effects on landscape character. However, it should be noted that adverse effects will be very localised and limited to locations in close proximity to the proposed poultry unit and the unit would be located adjacent to the existing farm buildings at Cae Mawr.

7.6 Assessment of Potential Visual Impacts

7.6.1 Visibility Analysis

Overview

It is anticipated that the potential visibility of the proposed unit throughout the study area would be variable. The study area is an area of oval hillocks and damp hollows meaning that in most instances intervening landscape features obscure the view unless at close proximity to the site. The woodland plantations, hedgerows and hedgerow trees combine to reduce visibility close at hand together with the presence of the existing farm complex surrounding the proposed poultry unit.

At locations in close proximity to the site such as the adjoining highway, the scale of the unit would mean that it would be clearly seen. However, as the separation distances between the viewer and the site increases the screening effect of intervening landform, buildings and vegetation has a greater effect.

Primary Roads and Railways

Sweeping views of the unit as travelling the highway, broken up by the presence of an established hedgerow on the roadside.

7.7 Night Time Lighting

The potential for the unit to have an adverse effect on landscape character and visual amenity has been highlighted in this chapter. The nature of the proposed free range unit means that some light sources will be required to allow safe and effective activities within the site to take place. The assessment has identified that the site is located within a relatively dark, rural context with limited existing sources of light. However, the site is located in an intensively farmed area, the nature of farming is such that field operations and harvesting activities take place during hours of darkness and use intense lighting for visibility (rather than security purposes).

New light sources are required during working hours in winter months to ensure safety within the site, lighting would also be required during bird catching some of which takes place during hours of low light intensity. It is anticipated that these proposals for the poultry unit would add to this baseline situation. However, it is anticipated that the potential impact associated with this aspect of the proposed unit will be minimal as there will not be round the clock security lighting and the area of lighting (the front gable ends of the buildings) is directed away from the main residential areas, this will respect the rural context of the site. Added to this the lighting will be directed downwards to reduce light escaping from the site plus each light will be protected with a cowl to avoid the lights lighting any areas outside of the site. The lighting will have a minor effect on the visual amenity of local residents and would therefore not be significant.

7.8 Potential Cumulative Effects

The proposed unit would add to existing agricultural extensions in the locality

7.9 Conclusions

This chapter of the ES has examined the potential impacts of the proposed poultry unit on the landscape and visual amenity of the study area. It has considered the potential direct impacts on the fabric of the landscape and the potential impacts on the perception of landscape character. The assessment has also considered the potential impacts of the proposed unit on visual amenity.

The study area was defined as extending to a 2km radius centred on the proposed site location. Within this area, both landscape and visual receptors were identified and recorded, in effect forming the baseline situation into which the proposed free range unit would be introduced and have the potential to affect. Planning policies relevant to the Landscape and Visual Assessment have also been considered. The assessment considered both the possible effects during the construction phase and the residual effects during the operational phase of the unit after mitigation measures have been incorporated. The visual assessment was carried out in context of the site in the first year of operation and the site following the establishment of the landscape scheme.

7.9.1 Existing Situation

The direct effects on the fabric of the landscape will be limited. The proposed unit will occupy intensively farmed pasture fields. No important landscape features or elements will be lost as a direct consequence of the poultry unit. As the site lies on an established agricultural land adjunct to the farm complex, the proposed unit will be compatible with the surrounding land uses.

7.9.2 Impacts on the Landscape Resource

With regard to indirect effects and the perception of landscape character, it is anticipated that the proposed unit will have no impact on the landscape character. The setting of the site in the context of the existing farm complex means that the overall effect on the perception of landscape character will change little.

7.9.3 Conclusion

Overall, the landscape and visual assessment has established that the proposed free range unit will have a limited effect on the baseline conditions in terms of both landscape character and visual amenity. The measures factored into the site selection and design process will reduce, minimise and even improve any potential adverse effects. Therefore, on balance it is considered that the proposed poultry unit would be acceptable in this context with regard to the potential effects on landscape character and visual amenity.

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CHAPTER 8 – TRAFFIC

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8. Traffic

This Chapter considers the Poultry Unit proposed 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 free range unit 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 free range unit principally during operation. This chapter should be read in conjunction with appendix 20, 21 and 22.

8.1.1 Scope of the Assessment

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 Unit

The proposed free range unit is expected to be operational in 2019. Hours of operation will be 24 hours seven days a week. A proportion of movements of birds from the site take 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.

It was identified that the free range egg production unit as a whole will need bulk food delivered to the farm by six or eight wheeler HGVs, the usual sized vehicle for agricultural use in this rural area. The feed will be delivered 3 times a month and stored in silos on site. Messrs Evans have a contract with a

company to supply the free-range eggs, which will collect the eggs in a 7.5 tonne lorry three times a week.

8.1.3 Site Access

All vehicles attending the Poultry Unit would access the farm via the unclassified road which runs directly through the farmstead at Cae Mawr. The farm is approached through the village of Llanerch y Medd, a right turning is taken from the village centre to continue on the B5111 road for approximately 1.5 miles, Cae Mawr entrance is then indicated by a farm sign on the left hand side. It is not considered necessary to propose a routing plan for the poultry unit, given the low volume of additional vehicle movements to Cae Mawr. Highways improvements are proposed please see appendix 22.

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.

Summary

The free range unit will promote the relevant Policies raised Nationally, Regionally and Locally by offering local employment opportunity. The proposed unit 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 extensions)

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 poultry unit was reviewed to provide information on associated traffic generation. Please see appendix 21 Transport Statement.

8.4 Baseline Conditions

8.4.1 Road Network

All vehicles attending the Poultry Unit would access the farm via the unclassified road which runs directly through the farmstead at Cae Mawr. The farm is approached through the village of Llanerch y Medd, a right turning is taken from the village centre to continue on the B5111 road for approximately 1.5 miles, Cae Mawr entrance is then indicated by a farm sign on the left hand side. It is not considered necessary to propose a routing plan for the poultry unit, given the low volume of additional vehicle movements to Cae Mawr.

8.4.2 Current Traffic Conditions

The farmland adjoining the proposed unit generates movements of agricultural traffic including deliveries of fertilisers, seeds and contractors and collection of grain and crops in HGVs.

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

	Vehicle Type	Historic Movements/Existing		Proposed Movements
Stock to Market	Rigid commercial lorry or vehicle and trailer	2 per week to livestock market/abattoir	104 per year	
Silaging	Tractor and Trailer		40 per year	
Silaging	Forage Harvester		4 per year	
Silaging	Mower		2 per year	
Silaging	Other harvesting equipment		8 per year	
Fertiliser and Spray	Tractor and Sprayer		8 per year	
Fertiliser Delivery	Rigid commercial lorry		6 per year	
Straw Delivery	Rigid commercial lorry or HGV		6 per year	

Hay Delivery	Rigid commercial lorry or HGV		2 per year		
Checking Livestock	Bike or Bike and Trailer – Daily Basis when stock out		182 Per year		
Existing Staff Movements/Family movements	Car or 4 x 4	2 per day	730 per year		
Manure Spreading	Tractor and Manure Spreader		20 per year		
Feed Lorry	Rigid commercial lorry	2 per month	24 per year	3 per month	36 per year
Bird Delivery	Articulated lorry				2 per year
Bird Collection	Articulated lorry				2 per year
Egg Collection	Rigid commercial lorry			3 times per week	156 per year
TOTAL			1,136 per year		196 per year

It is expected that the construction timescale will be approximately a month and a half to three months. It has been assumed that traffic levels during the decommissioning period would be similar to that during construction.

8.5.2 Operation – Generated Traffic

Due to the nature of the free range 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 laying cycle as bird weights increase.

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.

Chick Deliveries

The chicks would be delivered in one delivery every 14 months.

Feed Deliveries

Feed will be delivered 3 times a month and stored in silos on site.

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.

Bird Collections

A proportion of bird removal takes place during night time due to factory opening times and bird welfare. It is estimated that there will be four movements during night time.

Labour for catching birds during depletion of the units will be provided by the purchasing company. The labour force will arrive in a mini-bus at a rate of one minibus per bird removal day.

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.

8.5.3 Routing

All vehicles attending the Poultry Unit would access the in the same manner as which the existing farmstead is approached and would be directed to the poultry unit through the farmstead. It is not considered necessary to propose a routing plan for the poultry unit, given the low volume of additional vehicle movements to Cae Mawr.

8.6 Potential Cumulative Effects

There is no potential for cumulative traffic impacts.

8.7 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.

8.8 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.

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

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9. Amenity

This chapter deals with the potential for odour, dust and flies to be produced by the proposed free range poultry unit and 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 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 free range unit at Cae Mawr 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 free range unit 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.

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).

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.

9.4 Baseline Environment and Sensitive Receptors

In terms of other potential sources of amenity impacts, the Cae Mawr site lies within an area of livestock farming, where the land management operations includes application of poultry manure to the land and storage of manure including poultry manure in fields, 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.

The nearest local residential property is some153 metres from the proposed unit with increasing separation distances to the next closes receptors, there are a number of hedgerows and trees which will act as a buffer to the sound.

Sensitive Receptor – Name	**Distance – Metres**
Cae Mawr	153 occupied by Mr and Mrs R Evans
Merllyn	285

Graig	464
Bodelwen	605

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.

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 5 miles 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 laying 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 free range unit are generally not an issue. Within free range 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 um) account for around 70% of the number of particles, but only 5% of the mass. Similarly particles greater than 5 microns (5 um) 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 um 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 free range 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 free range site; due to the feeding habits of poultry any maggots that hatch in the bedding are soon eaten.

Fly problems at poorly managed free range 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 free range farms by installing modern feed storage systems to meet the requirement of the Food Hygiene Regulations.

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. 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 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.

Please consult appendix 12 to this Environmental Statement – Pest Management Plan.

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 unit.

9.8.1 Odour

Please see appendix 6.

If odour were to be released from on-site operations some limited receptors nearby could potentially be affected. However, this presupposes the regular emission of odours from the proposed free range unit. 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 free range units across Wales.

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 unit, a few may lie close enough to potentially be affected if odour were to be released in appreciable amounts.

Recreational areas such as footpaths are relatively low sensitivity as people are present for short periods only.

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 in incorporated into the soil within 24 hours of spreading.

9.8.2 Dust

Please see appendix 8.

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 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 free range poultry unit, 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 free range 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.

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. This conclusion is supported by the lack of EHO complaints made. 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.

Please see appendix 12.

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. This conclusion is supported by the lack of complaints made relating to vermin. 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.

Please see appendix 12.

9.8.5 Cumulative Impacts

There are no other similar poultry units within a five mile radius of the proposed site.

9.9 Follow Up Action

During operation the free range poultry unit 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. 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 free range unit are unlikely. It is predicted that the impacts of the proposed free range unit 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

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10. Ecology

This chapter deals with the potential impacts of the proposed free range unit 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 free range unit 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.

10.1 Introduction

This chapter assesses the likely significant impacts of the proposed free range unit on the ecology of the site at Cae Mawr, Ynys Mon and the wider area.

Schedule 4 of the Environmental Impact Assessment (EIA) Regulations states that an Environmental Statement (ES) should include a description of the aspects of the environment likely to be significantly affected by the poultry unit, including flora and fauna, although there is no statutory provision as to the form an ES should take.

To obtain information on the site's baseline ecology, the following have been undertaken:

- A desk based study and consultation; and
- Protected species surveys (great crested newt, bat, reptile, breeding birds, wintering birds and badger).

This chapter describes the findings of the field-based surveys, the desk-based study, considers the potential impacts arising from the proposed free range poultry unit and proposes appropriate mitigation measures.

10.2 Legislation

10.2.1 Designated Sites

Designated sites are areas of high nature conservation value which are protected to varying degrees by statute, international conventions, or local authority planning controls. The sites form a network of habitats which may be of global, international, European, national, regional or local importance.

Generally, the priority for the protection of designated sites is as follows:

1. Global/International/European/National sites (Special Areas of Conservation - SACs, Special Protection Areas (for birds) - SPAs, Sites of Special Scientific Interest - SSSIs);
2. Regional or local sites;
3. Other wildlife sites.

The protection afforded to sites by local authority designations, such as Sites of Biological Importance (SBIs), County Wildlife Sites (CWS), Local Nature Reserves (LNR) and Sites of Importance for Nature

Conservation (SINC), is normally significantly less than for statutory designations. Such designations are predominantly for planning purposes only and, while a local authority may have a stated policy of avoiding development in these areas, there is no statutory protection process.

10.2.2 Protected Species

In addition to habitats, a number of species are considered to be rare or subject to persecution and are also afforded protection through international/European and national law. Other species are considered to contribute to our 'quality of life'. Although these species do not benefit from legal protection, the possible effect that the unit may have on their habitat can be an important material consideration.

The Wildlife and Countryside Act (WCA), 1981, as amended, The Protection of Badgers Act 1992 and the Habitat Regulations 1994 are the main legislative frameworks for the protection of wild animals in the UK.

Proposers of a development must be able to show that all reasonable measures have been taken to ensure that protected species are not subject to disturbance. The habitats of all Schedule 2 species in the Habitat Regulations, WCA Schedule 1 and some WCA Schedule 5 species are also protected from disturbance and destruction. Again, all reasonable precautions should be taken to ensure that disturbance does not happen.

10.3 Planning Policy

The following sections briefly outline the policies that are relevant to the ecology of the Cae Mawr site at International, European, national and local levels.

10.3.1 International, European and National Legislation

The UK is bound by the terms of the Birds and Habitats Directives and the RAMSAR Convention. The Conservation Regulations 1994 (the 'Habitats Regulations') provide for the protection of 'European sites', which are Special Areas of Conservation (SACs) designated pursuant to the Habitats Directive, and Special Protection Areas (SPAs) classified under the Birds Directive.

The Regulations apply specific provisions of the Habitats Directive to candidate SACs (cSACs), SACs and SPAs which require special considerations to be taken in respect of such sites. The RAMSAR convention aims to protect wetlands of international importance for birds.

The protection and management of internationally designated sites are achieved by a combination of the provisions of the Habitats Regulations and Section 28 of the Wildlife and Countryside Act 1981, as amended by the Countryside and Rights of Way Act 2000.

10.3.2 National Planning Policy

Technical Advice Note 5 (TAN 5) provides the Governments advice on how the land use planning system should contribute to protecting and enhancing biodiversity and geological conservation. The principal aims of TAN 5 are:

The key principles of positive planning for nature conservation;

Nature conservation and Local Development Plans;

Nature conservation in development management procedures;

Development affecting protected internationally and nationally designated sites and habitats; and

Development affecting protected and priority habitats and species.

TAN 5 states that Biodiversity conservation and enhancement is an integral part of planning for sustainable development. The planning system has an important part to play in nature conservation. The use and development of land can pose threats to the conservation of natural features and wildlife. Past changes have contributed to the loss of integrity of habitat networks through land-take, fragmentation, severance, disturbance, hydrological changes and other adverse impacts. But development can also present significant opportunities to enhance wildlife habitats and the enjoyment and understanding of the natural heritage. Whilst the planning system needs to be watchful of the cumulative effects of a series of small, perhaps occasional, apparently insignificant losses from the natural world, which can combine to seriously deplete the natural heritage, including essential hydrological and ecological systems; small scale opportunities for habitat creation and enhancement can be significant and can build into major contributions over time. This TAN demonstrates how local planning authorities, developers and key stakeholders in conservation can work together to deliver more sustainable development that does not result in losses from the natural heritage but instead takes every opportunity to enhance it.

The key principles for the planning system to deliver nature conservation are appended below and covered within TAN 5:

work to achieve nature conservation objectives through a partnership between local planning authorities, Natural Resources Wales, voluntary organisations, developers, landowners and other key stakeholders (PPW 5.1.5 and 5.2.5);
integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time (PPW 5.1.3 and 5.1.4);
ensure that the UK's international and national obligations for site, species and habitat protection are fully met in all planning decisions (PPW 5.3.8-10);
look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally (PPW 5.1);
help to ensure that development does not damage, or restrict access to, or the study of, geological sites and features or impede the evolution of natural processes and systems especially on rivers and the coast (PPW 1.4.14, 2.2.1, 2.3.2 and 5.6.3);
forge and strengthen links between the town and country planning system and biodiversity action planning particularly through policies in local development plans and the preparation of supplementary planning guidance that adds value to Local Biodiversity Action Plans (LBAPs) by highlighting the ways in which the planning system can help to deliver the objectives of LBAPs in practical ways (PPW 5.4.2);
plan to accommodate and reduce the effects of climate change by encouraging development that will reduce damaging emissions and energy consumption and that help habitats and species to respond to climate change (PPW 2.2.1 and 2.3.2).

The Conservation (Natural Habitats etc) Regulations 1994 transpose the Habitats Directive (92/43/EEC) into national law. The Regulations provide for the designation and protection of "European sites," and the protection of "European protected species." As part of the planning process, the authority is required to carry out an appropriate assessment to establish whether a proposed development would adversely affect the integrity of any such European sites. Such a development could only be granted planning permission under very restricted circumstances.

10.4 Other Guidance

10.4.1 The UK Biodiversity Action Plan (UKBAP)

The UK Biodiversity Action Plan (UKBAP), published in 1994, sets out the UK's response to Article 6 of the European Convention on Biological Diversity. There are currently 391 Species Action Plans (SAP) and 45 Habitat Action Plans (HAP) that extend across the UK. These habitats and species are listed in Section 74 of The Countryside and Rights of Way (CRoW) Act 2000 and are those that the Secretary of State, following consultation with Natural England (NE), consider are of principal importance for the conservation of biological diversity in England. A UK BAP report identifies the following as the prime threats faced by priority habitats and species:

- **Habitat loss/degradation** (particularly due to agriculture or changes in management practice) continues to be a significant threat for a high proportion of species and habitats. Woodland management and loss of trees, and change in habitats due to succession, are also of particular concern for species;
- **Infrastructure extension** (mainly housing infrastructure and extension on the coast) is emerging as a particular concern for species and habitats. This underlines the importance of the protected sites network and the crucial role of the planning system in safeguarding biodiversity;
- **Global warming** is an emerging threat for a high proportion (47%) of habitats.

10.5 Methodology

10.5.1 Assessment Methodology

The proposed free range poultry unit has the potential to have a range of impacts on several ecological receptors. The primary methodology for this assessment has been based on the current Institute for Ecology and Environmental Management (IEEM) guidelines. This assessment methodology has been used to assess all construction, operation, decommissioning phases and direct and indirect impacts associated with the proposed poultry unit.

IEEM Methodology

Identifying and Valuing Ecological Features

In an EIA context, the starting point is to determine which ecological features or resources are of sufficient value that an impact upon them could be considered significant. These features include populations, species, communities, habitats and sites selected as likely to be impacted (in a positive or negative way) by the environmental changes caused by the proposed unit.

Ecological features can have two types of valuation:

- Biodiversity Value (see below); and
- Social/Community Value (e.g. a patch of bluebells in local woodland).

This chapter primarily concentrates on biodiversity value, with the social value also taken into account where appropriate.

Biodiversity Value

There are various characteristics that identify the ecological features and resources which are to be considered in an assessment. These are:

- Animal or plant species, subspecies or varieties that are rare or uncommon, either internationally, nationally or more locally;
- Ecosystems and their component parts, which provide the habitats required by the above species, populations and/or assemblages;
- Endemic species or locally distinct sub-populations of a species;
- Habitat diversity, connectivity and/or synergistic associations (e.g. networks of hedges and areas of species-poor pasture that might provide important feeding habitat for rare species);
- Notably large populations of animals or concentrations of animals considered uncommon or threatened in a wider context;
- Plant communities (and their associated animals) that are considered to be typical of valued natural/semi-natural vegetations types – including examples of naturally species-poor communities;
- Species on the edge of their range, particularly where their distribution is changing as a result of global trends and climate change;
- Species rich assemblages of plants or animals; and
- Typical faunal assemblages characteristic of homogeneous habitats.

The identified ecological features define the nature conservation interest and must be valued to provide a basis for assessing the impacts of the poultry unit. To identify the ecological features, it is first useful to consider the spatial extent of any potential impacts, i.e. establish the baseline zone of influence.

The value of an ecological feature can be determined and defined using the geographical frame of reference shown below:

- International;

- UK;
- National (i.e. England, Northern Ireland, Scotland, Wales);
- Regional;
- County (or Metropolitan – e.g. London);
- District (or Unitary Authority, City, Borough);
- Local/Parish; and
- Within Zone of Influence only (which might be the project site or a larger area).

Habitats and species may already have a statutory/non-statutory designation (e.g. a SSSI and the great crested newt (*Triturus cristatus*) are of national and international value, respectively) and can be attributed to the values above. A habitat/species with no designation would need to be valued using professional judgement and against published literature, e.g. Habitat / Species Action Plans, Natural Area Profiles, etc. where possible. It should also be recognised that even though a site that may have no apparent ecological features, it may perform an ecological function, e.g. act as a 'buffer zone' against any negative impacts on a more important habitat or species.

Predicting and Characterising Ecological Impacts

Impacts are assessed in the context of the predicted baseline conditions within the zone of influence of the project during the lifetime of the unit. Where possible, this is assessed in conjunction with the degree of confidence in the assessment of the impact on ecological structure and function. This can be assessed either qualitatively or quantitatively with the use of a four-point scale:

- Certain/Near Certain: probability estimated at 95% chance or higher
- Probable: probability estimated above 50% but below 95%
- Unlikely: probability estimated above 5% but less than 50%
- Extremely Unlikely: probability estimated at less than 5%

Where doubt as to which of the categories of probability best fits the level of professional confidence, the more conservative (higher) level is cited.

In order to fully characterise the likely change and impact, reference is made to the following characteristics:

- Positive or Negative;
- Magnitude;

- Extent;
- Duration;
- Reversibility; and
- Timing and Frequency.

Assessment of Ecological Significance

The significance of the impacts of a poultry unit is a product of the above characteristics of the impact and the importance of the receptor.

An ecologically significant impact is defined as an impact (negative or positive) on the ***integrity*** of a defined site or ecosystem and/or ***conservation status*** of habitats or species within a given geographical area. Positive impacts are likely to be rarer but are possible if ecological enhancements are included within a scheme's design at an early stage in the project.

The ***integrity*** of a site that has a been designated as a SPA or SAC is defined as "*...the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified/."* (ODPM 2005)

The value of any feature that will be significantly affected is then assessed in terms of control, policy guidance and legislation against the level at which it is valued.

However, when evaluating the significance of impacts on sites and ecosystems at sub-national levels of value, the description of the ecologically important characteristics of the site or ecosystem falls to the ecologists carrying out the assessment.

It is also appropriate to use Biodiversity Action Plan (BAP) guidance, where available, to draw reasonable conservation objectives for those important characteristics. Results from work on levels of ecological value and impact magnitude are both used to assess the significance of ecological impact.

The concept of ***conservation status*** can be used to determine whether an impact on a habitat or species is likely to be ecologically significant. This may be evaluated for any defined study area at any defined level of ecological value. The definition of conservation status for habitats and species used in this assessment is based on the EC Habitat Directive definition. It has been modified so that evaluation of conservation status can be applied to habitats and species within any defined geographical area. Therefore:

- for habitats, conservation status is determined by the sum of influences acting on the habitat and its typical species, that may affect long-term distribution, structure and functions, as well as the long-term survival of its typical species within a given geographical area;
- for species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

Level of Significance

A level of significance is deduced by making subjective links between receptor value and the characteristics of the impact whilst giving due consideration to relevant planning policies, conservation status, rarity and legal protection in conjunction with professional experience. The following nominal significance levels have been used in the impact assessment to describe the predicted impact upon the receptor in question, based on known ecological principles and systems:

- Very Major
- Major
- Moderate
- Minor
- Very Minor
- Negligible

10.5.2 Limitations

We are unaware of any constraints or limitations affecting this site.

10.6 Baseline Conditions and Ecological Evaluation – Appendix 10

10.6.1 Introduction

This section describes the existing baseline ecological conditions. For those ecological receptors that might change significantly before the development commences, this has been highlighted where appropriate, outlining any further data collection work that may be required to ensure representative, and up to date, baseline conditions are known at the time of construction.

10.6.2 Desk Based Study

Statutory Sites

There are five areas of remnant Ancient Woodlands (AWs) within 2 km of Cae Mawr. There are six Sites of Special Scientific Interest (SSSIs) within 5 km of the farm. There are no internationally designated wildlife sites within 5 km of the farm. Further details of the SSSIs are provided below.

- Llyn Alaw SSSI – at its closest point, approximately 1.1 km to the north-west.
- Llyn Hafodol & Cors Clegyrog SSSI – approximately 3.8 km to the north-west.
- Mynydd Parys SSSI – approximately 4.1 km to the north-north-east.
- Maen Gwyn SSSI – approximately 3.4 km to the south (designated for geological features).
- Tyddyn Y,Waen SSSI – approximately 4.8 km to the east-south-east.
- Nantanog SSSI – approximately 4.9 km to the south-west (designated for geological features).

10.6.3 Field Study

Ecological Assessment

Please see appendix 5 and 10 submitted in support of this application.

10.6.4 Ecological Evaluation

Statutory and Non-Statutory Sites

Please see appendix 5 and 10 submitted in support of this application

Habitats

Please see appendix 5 and 10 submitted in support of this application
Protected Species

Bats

Please see appendix 5 and 10 submitted in support of this application

10.7 Assessment of Potential Impacts

10.7.1 Potential Construction, Operational and Decommissioning Impacts

The potential ecological impacts arising from the proposed free range unit, in the absence of mitigation, are as follows:

Construction: Direct loss and or alteration of habitats for plants or animals, and consequently local loss of species as a result of the physical requirements;

Construction: Habitat fragmentation;

Construction: Direct loss to non-statutory designated sites as a result of the construction of the poultry unit;

Construction, Operation and Decommissioning: Temporary disturbance to surrounding fauna during construction and permanently during operations arising from noise, and human presence;

Construction, Operation and Decommissioning: Indirect or secondary accidental damage to surrounding habitats (including designated sites) as a result of construction/decommissioning or operational activities, including emissions, pollutants, storage of materials, spillages and site drainage; and

Operation: Indirect impact on statutory, non–statutory designated sites, habitats and species resulting from use of the proposed poultry unit (principally from atmospheric emissions and any releases to watercourses).

10.7.2 Predicted Impacts

Effect of the Poultry Unit on Statutory Sites

The effect on designated ecological sites has been assessed in Chapter 6.

Loss of Non Designated Habitats

Construction works will lead to direct habitat loss, through clearance works and earth moving activities. Disturbance to habitats may also occur via vehicle movements, lay down areas used for storage of materials and the siting of buildings for construction workers. The habitats to be lost are of low intrinsic ecological value and include a large area of arable land. This loss of habitat will have a certain negative impact of minor significance.

The proposed free range footprint includes an area of pasture land; these habitats are considered to be of low ecological value in terms of vegetation as intensive pasture land contains few species of note. The physical presence of the proposed free range unit may also affect species moving across the site. The operational phase of the proposed free range unit will have an indirect effect on habitats by affecting surface runoff, pollution from vehicles. Without mitigation this will have a certain negative impact of very minor significance.

Impacts on Protected Species

Badgers

There will be no impact on badgers other than the loss of a small area of potential low grade foraging area. This will remain undisturbed and therefore badgers in transit will be unaffected. However, the construction works are also likely to disturb badgers by increasing noise and vibration levels around the site. The movement of soil and other material around the site is also likely to impact on badger movements and foraging activities. Therefore the construction works are likely to have a probable adverse impact of minor significance without mitigation.

Bats

The bat survey concluded that bats may use the boundaries of the site, any bats present on the site are likely to be either over-flying (using natural features such as hedgerows for flight lines) or they will be associated with trees on adjacent land for roosting.

No trees will be lost on site and therefore no threat exists to potential roost sites.

The need for constant illumination for security purposes can have an impact on bat foraging behaviour. Lighting design should incorporate the needs of bats.

Great Crested Newts

Newts tend to be present at increasingly low density the further one looks from ponds. Further from ponds, there is a corresponding reduction in the scale of impact on populations. Given that GCN can disperse over 1km from breeding ponds, the potential for impact on GCN may seem vast, yet the probability of impact outside the core breeding and resting area is often rather small, and even if there is some impact, the effect on the population may be negligible.

Current guidance suggests that GCN are known to travel considerable distances when looking for potential breeding ponds but most GCN travel up to 250m between suitable ponds (English Nature 2000, GCN Mitigation Guidelines).

Otters

It is very likely that Otters will remain undisturbed and unaffected by the proposal.

Breeding birds

There will be no loss of habitat for breeding birds with the exception of a small area of pasture land which could be used by skylarks. Given the extensive areas of similar habitat nearby this loss is negligible.

All hedgerow and trees and herbaceous vegetation will remain undisturbed with the exception of a small area of hedgerow adjoining and therefore no breeding birds in these areas will lose habitat. The change of land use may represent minor impact on breeding birds due to low level disturbance to potential nesting habitats. However, this is limited and of minor local significance.

It will be necessary to avoid disturbance to breeding birds. This can be achieved by avoidance of ground clearance works during the breeding season.

10.8 Mitigation measures

A number of proposals have been put forward below to compensate and mitigate for any loss of habitat or general disturbance to species resulting from the proposed poultry unit.

- Ensure all works are carried out outside bird nesting season to avoid any disturbance to these species.
- All existing natural features including hedgerows, trees and water bodies will be protected from accidental damage through protective fencing or other indicative measures as appropriate.
- Allow surrounding boundary hedgerows to grow up to 2 metres and maintain at 2 metres width.
- Gapping up of existing failed hedgerows
- Planting of new hedgerows
- Creation of additional areas of woodland.

10.9 Follow Up

Special interest groups such as bat, badger and bird enthusiasts will be invited to monitor levels of activity at the site.

10.10 Summary & Conclusions

No impacts of major or intermediate significance on habitats are judged to be likely. There will be no loss of significant habitat either as a result of the proposals.

Disturbance to breeding birds will be minimised through the timing of works. The loss of a small section of breeding habitat may affect a Bird of Conservation Concern (song thrush) but this will be temporary and will be more than adequately compensated for by the maintenance of existing hedgerow and creation of new hedgerows.

CHAPTER 11 – NOISE & VIBRATION

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11. Noise & Vibration

This chapter assesses the noise and vibration impacts of the proposed free range 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 free range unit 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 (Description), sets out the detailed design for the proposed free range unit.

The operation of the proposed free range poultry unit 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 free range unit have not been considered further.

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

11.1.2 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.

11.1.3 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 free range unit (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. It is also common for grain drying to occur for long periods of time during the harvest; this is a significant source of noise emissions.

The noise climate in the area surrounding the Cae Mawr site 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 and grain drying.

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

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 LAeq,16hr = 50 to 55 dB

Living rooms (internal) LAeq,16hr = 30 to 40 dB

Bedrooms (internal) LAeq,8hr = 30 to 35 dB

Bedrooms (internal) LAmax = 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 LAeq,16hr = 50-55 dB

Internal LAeq,16hr = 35 dB

Night External LAeq,8hr = 45 dB

LAmax = 60 dB

Internal LAeq,8hr = 30 dB

LAmax = 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 LAeqT 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 free range unit facility to impact upon sensitive receptors along the roads on which they travel. The noise levels, with and without the proposed free range unit, 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

	Impact Magnitude			
Subject Area	Major	Moderate	Minor	Negligible
Nearby residents from construction/ decommissioning of proposed unit	Noise levels normally over 75dB(A)	Noise levels normally 65-75dB(A)	Noise levels normally 56 – 65 dB(A)	Noise levels normally less than 55 dB(A)
Nearby residents from operational noise	Noise Rating Level >10 dB(A) above Background Noise Level	Noise Rating Level equal to or above Background Noise Level (up to 10 dB(A)	Noise Rating Level up to 10 dB(A) below Background Noise Level	Noise Rating Level > 10 dB(A) below Background Noise 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	Impact Significance	
	Significant	Not Significant
Nearby residents from construction of unit	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 Baseline Position

11.3.1 Noise Monitoring Results

In rural areas, background levels may be between 38 - 42 dB adjacent to an existing farm this figure is likely to be towards 42 dB figure if not in excess of this.

11.3.2 Incorporated Mitigation

As part of the assessment the following has been assumed in terms of the features of the basic design and operation of the free range unit which assist in reducing noise emissions:

- Housing of most noise sources within buildings;
- Siting of buildings so that noise emitting areas face away from residential areas;
- Insulation of buildings and using double glazed windows;
- Using noise baffles areas around ventilation fans; and
- Restriction of vehicle movements other than those associated with bird removals to less sensitive periods (deliveries will take place between 07:00 and 21:00 on weekdays, 07:00 and 17:00 Saturdays and 09:00 and 17:00 on Sundays and Bank Holidays).

11.4 Assessment of Impacts

The details of the proposal at Cae Mawr are included in Chapter 4. The following elements of the proposal are considered to be noise emitting sources:

11.4.1 Internal Conditions

The sound from birds within the buildings will be transmitted to outdoors through the series of ventilation apertures in the elevations facing the receptors. The sound insulation of the composite material of which the buildings will be constructed is 25 dBA. The presence of ventilation apertures of

overall area 1% of the elevation gives an indoors to outdoors sound reduction of 20 dBA. Measured interior sound levels of comparable bird accommodation are no higher than 67dBA.

11.4.2 Vehicle Movements on Site

There will be three main categories of movement on site: first, movements of feed HGVs delivering feed; second, movements of tractors and trailers removing manure; and third, collection of eggs. The three categories will not occur simultaneously.

There will normally be no more than one delivery of feed in any 24 hour period. Unloading of the feed would take approximately 30 minutes. Measured noise levels of delivery vehicles arriving and unloading fluctuate between 66 and 75dB (applicable at 3 metres) and is broken down between arrival (2.5 minutes) at 69dB, blowing off feed (30 minutes) at 66dB and departure (0.5 minutes) at 75dB.

Tractors and trailers removing manure will be loaded by a loader scraping manure from within the building. One loader will operate continuously scraping the buildings, the tractor and trailer will park with the trailer adjacent to the building. Two tractor and trailer units will serve the loader. When not in use all engines will be switched off i.e. when the trailers are being loaded or when the second trailer is waiting to be loaded. Manure will not be removed from the buildings between the hours of 2300 and 0700; manure removal will take place from 0700 to 2100 each day during clear out (fourteen hours). The noise levels of the tractor scraping the sheds and the tractors carting manure will have a similar measured level as the delivery vehicles, therefore the $L_{Aeq\ (14h)r}$ at the garden edge of the closest sensitive receptor would be significantly more than 10 dB(A) below Background noise levels.

11.4.3 Traffic Noise and Vibration

From measurements of delivery vehicle pass-bys at speeds typical for those found on roads such as this, a delivery type vehicle is indicated as generating an L_{Amax} = 75 dB at 3 metres.

To enable an assessment to be made over a period of time, the Single Event Noise level (SEL) for each vehicular movement must be established. In practice this is limited to the time during which the actual noise is within 10 dB(A) of the maximum and may be approximated from:

$$SEL = L_{Amax} + \Delta_A$$

Where

$$\Delta_A = 10 \log (((t2 - t1)/2)tref)$$

And

t_1 and t_2 are the 10 dB down points of a vehicle drive-by and t_{ref} is one second. (Source - The Noise Council = "A guide to measurement and prediction of the Equivalent Continuous Sound Level").

The 10 dB down points can be calculated on the basis of vehicle speed and the attenuation with distance that would be experienced as a vehicle approaches and departs the reception point. For the vehicle speed of 32kph (20mph), Δ_A = 5 dB and the resulting SEL is 80 dB(A) at 3 metres.

The $L_{Aeq,T}$ can now be calculated from the equation:

$L_{Aeq,T}$ = SEL + 10 log n - 10 log T - 10 log $d_1/3$ – screening - 10 log (angle of view/180)

where

n	= number of events in the time period
T	= number of seconds in the time period
D_1	= distance from centre line of road to receiver
angle of view	= angle of view of the access road

HGVs collecting birds may collect birds during the recognised night time hours of 2300 to 0700. The Design Manual for Roads and Bridges States that:

> *"Research has been conducted into the relationship between sleep disturbance, as reported in social surveys, and noise exposure, as measured or predicted by acousticians. There tends to be a rather poor correlation between reported awakenings and recorded intrusive events and, similarly, rather poor correlations between reported sleep quality and observed behaviour such as awakening or changes in sleep stage patterns. Measurements of noise from roads in Britain and Germany both show that night-time traffic noise (ie, noise between 10pm and 6am on the following day) is on average 10 dB(A) less than daytime levels (Railway Noise and the Insulation of Dwellings, DoT, 1991).*
>
> *In 1982 Rice and Morgan produced a comprehensive synthesis of field and laboratory studies and suggested that sleep disturbance could be significant at quite low noise levels. In 1992, the Department of Transport completed a major study into aircraft noise and sleep disturbance. This study was based on collecting objective data on how people slept in their own homes under normal circumstances. This was done by using actimeters, a wrist-watch sized computer that is put on at night to measure limb movements (which correlate well with sleep disturbance). Data were collected on 400 subjects for 15 nights each. This was the largest set of such data ever collected.*
>
> *Aircraft noise has many characteristics similar to traffic noise at night. Movements by aircraft tend to occur at irregular intervals and the level of activity is far below normal daytime levels. The main findings of this study were that, once asleep, very few people living near airports are at risk of any substantial sleep disturbance due to aircraft noise, even at the highest event noise levels above100 dB(A). At outdoor peak noise levels below 80dB(a), average sleep disturbance rates are unlikely to be affected by aircraft noise. At higher levels, and most of the noise data on which the conclusions were based were in the range 80-95 dB(A) L max, the chance of the average person being awakened is about 1 in 75. Compared with the overall average of about 18 nightly awakenings from other causes, this probability indicates that even large numbers of noisy night time aircraft movements will cause very little increase in the average person's night awakenings. Therefore, based on expert opinion on the consequences of sleep disturbance, the results of this study provide no evidence to suggest that aircraft noise is likely to cause harmful after effects. (Report of a Field Study of Aircraft Noise and Sleep Disturbance, DoT 1991)"*

If the results of this study are broadly valid for road traffic then it would suggest that the risk if sleep disturbance from traffic noise at night is very small, and certainly well below the levels suggested by previous studies or analysis.

11.4.4 Construction Noise

The exact construction process will be determined by the successful contractor. It is therefore not possible to accurately calculate the likely noise and vibration levels during construction which would enable its impact to be fully ascertained.

It is considered unlikely that noise from traffic associated with the construction of the poultry unit will generate a significant impact. This is because HGV traffic levels associated with the construction phase of the poultry unit are predicted to be lower than the operational phase and will not be during night time hours. In addition, although there are likely to be additional car movements generated by construction workers travelling to and from the site, these movements are insignificant when compared to existing traffic levels and will have a minimal effect on a very small number of sensitive receptors.

11.4.5 Decommissioning

Noise from decommissioning would be similar to noise during the construction phase. As such, it is proposed that the noise controls will be put into place to ensure that the impact from decommissioning will not be Significant.

11.5 Mitigation

11.5.1 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 free range unit 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.

11.5.2 Operation

Noise limits for components of the proposed poultry unit 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 unit are minimised:

- The adoption of the noise management plan.
- 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.

11.6 Residual Impacts and Conclusions

A noise assessment of the proposed free range unit at Cae Mawr has been undertaken.

To get the distance correction from a single fan we have used point source distance attenuation (20lg 7/373). Then to determine the level of 32 operating fans we have log multiplied the level of one fan by thirty two.

We have used 153 metres in the calculation as this is the closest unrelated receptor to the Poultry Unit proposed at Cae Mawr.

The results are shown below;

1 fan at 153 m results in a noise level of 14.5 d B (A)
32 fans at 373 m distant results in a cumulative noise level of 29.5 d B (A)

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 free range unit are unlikely.

CHAPTER 12 – WATER RESOURCES

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12. Water Resources

This chapter deals with the potential impacts of the proposed free range unit 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 free range unit at Cae Mawr.

The chapter assesses the potential significant hydrogeological and hydrological impacts of the proposed free range unit. 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 free range unit 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 free range poultry unit.

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

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Table 31: Potential Impacts Resulting from 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, Natural Resources Wales 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 unit under Environmental Permitting Regulations will prevent pollution to recognised standards and make any 'significant' impacts unlikely.

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

12.3.1 Desk Study

The assessment predominantly entailed a desk study involving collation and assessment of the relevant information from the following sources:

- Ordnance Survey (OS) Landranger Map at 1: 50,000 scale
- Groundwater Vulnerability Map 1: 100,000
- Landmark Envirocheck Report on surface water and groundwater

12.3.2 Manure Management Plan

To assess the risks associated with the application of manure to the land and to estimate storage requirements a Manure Management Plan has been produced. The plan has been produced with reference to Guidance notes for the application of manure to agricultural land and includes a risk assessment and a calculation of land available for spreading.

12.3.3 Assessment Criteria (Contamination and General Risks)

The significance of any impacts of the proposed free range unit on baseline conditions is assessed as part of the impact assessment. The sensitivity of the receptor and the magnitude of potential impact combine to determine the significance of that impact. Magnitude, sensitivity and significance criteria were developed for the conditions and environments prevailing at the site.

Magnitude

The criteria used to determine the magnitude of a potential impact are defined in Table 33. Assessment of magnitude includes consideration of the amount and intensity of disturbance and duration (i.e. whether permanent or temporary). In this assessment, consideration of likelihood is incorporated into a final risk based assessment (see below).

Table 33: Impact Magnitude Criteria

Magnitude	Definition
Negligible	Unquantifiable or unqualifiable change in hydrological/hydrogeological conditions (including water quality).
Minor	Detectable but minor change to hydrological/hydrogeological conditions. Water quality/quantity standards less than threshold and unlikely to affect most sensitive receptors.

Magnitude	Definition
Moderate	Detectable change to hydrological/hydrogeological conditions resulting in non-fundamental temporary or permanent consequential changes. Some deterioration in water quality/quantity likely to temporarily affect most sensitive receptors.
High	Fundamental change to hydrological/hydrogeological conditions (including deterioration in water quality/quantity) resulting in temporary or permanent consequential changes.

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. a n Aquifer or nearby abstraction borehole should be considered more sensitive to any impact than a non-aquifer). The sensitivity criteria developed for this assessment are presented in Table 34.

Table 34: Sensitivity Criteria

Sensitivity	Definition
Negligible	Environment is insensitive to impact, no discernible changes e.g. non-aquifer where little or no effect on groundwater could occur.
Low	Environment responds in minimal way such that only minor changes are detectable e.g. surface water features present at some distance or groundwater resource with minimal sensitivity e.g. Minor Aquifer.
Medium	Environment clearly responds to effects in quantifiable and / or qualifiable manner e.g. reasonable proximity to a surface water course abstraction point, or Major Aquifer or sited on a Minor Aquifer.
High	Environment is subject to major change due to impact e.g. adjacent to or within 100m of a sensitive watercourse or sited directly upon a Major Aquifer / Source Protection Zone (SPZ).

Significance

The combination of magnitude and sensitivity logically combine to provide a matrix categorisation of significance. Significance levels are presented in Table 35.

Table 35: Significance Matrix

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

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, a water resource, 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 transport via run-off). 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. Therefore, the presence of a hazard at a site does not necessarily mean that there will be attendant risks.

Sources

Potential sources of contamination have been identified for the Cae Mawr site, based on a review of the proposed site uses, potential spillages from construction plant or operational chemical/waste storage etc). The nature, and the likely extent, of any contamination have also been considered, e.g. whether such contamination is likely to be localised or widespread.

Receptors

The varying effects that a hazard has on individual receptors are dependent largely on the sensitivity of the receptor. Receptors include any people, animal or plant populations, or natural or economic resources that are within the range of the potential spread of the source, and which are connected to the source by a transport pathway. Although in this instance the assessment is principally concerned with surface water and groundwater receptors.

Pathways

The mere presence of contamination 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 impact on the receptor. A pathway which transports the contaminants to the receptor, generally involves conveyance via soil, water or air, or, in some cases, direct contact.

Exposure Assessment

By considering the source, pathway and receptor, an assessment has been made for each contaminant type, on a receptor by receptor basis, with reference to the significance and degree of risk. In assessing this information, a judgement has been made as to whether the source contamination can reach a receptor, and whether it is of a major or minor significance. The exposure risks are assessed against the present Cae Mawr site conditions (i.e. the 'Do Nothing Scenario').

The assessment of risk that is presented within this report is 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 the 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 36 shows how the risk rating is achieved by combining the likelihood of the event and the degree of significance.

Table 36: Risk Assessment Matrix

		Significance			
		Insignificant	Minor	Moderate	High
Likelihood	Unlikely	Very Low Risk	Very Low Risk	Low Risk	Moderate / Low risk

	Significance			
Low Likelihood	Very Low Risk	Low Risk	Moderate / low risk	Moderate risk
Likely	Low risk	Moderate / Low risk	Moderate risk	High risk
High Likelihood	Low risk	Moderate risk	High risk	Very high risk

Under such a classification system the following categorisation of risk has been developed and the terminology adopted as shown in Table 37.

Table 37: Risk Criteria

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

The assessment of likely significant impacts of the proposed poultry unit, both from the site and outside the site, is initially based on potential impact before mitigation. Levels of assessed impact which are moderate or above will require mitigation/management to reduce the level of impact to negligible or low levels.

12.3.4 Assessment Criteria (Flood Risk and Drainage)

It is recommended by the EA, the Department for the Environment, Food and Rural Affairs (DEFRA) and the Welsh Assembly Government that the primary assessment tool within a flood risk assessment should be the sequential test as set out in Technical Advice Note 15 Development and Flood Risk (2004). Such an assessment, however, deals almost exclusively with the risks associated with tidal and fluvial sources and not the full range of flooding sources. In addition to this, the sequential test does not provide guidance for assessing the impact of mitigation and residual risk subsequent to development.

Therefore, in order to allow for the wider assessment of flood risk the following more generalised assessment methodology has been developed. It should be noted that where applied to fluvial and tidal sources the results of the assessment should be cross checked against the results of the sequential test.

Assessment Methodology

In line with guidance set out in Technical Advice Note 15 the key to the classification is that the designation of significance (or risk) is based upon the consideration of:

The sensitivity of the receptor – takes into account the nature of the development or receptor and its likely response to increased risk;

The magnitude of the potential hazard (i.e. severity) – takes into account the potential severity and nature of the flooding; and

The probability of occurrence (i.e. likelihood) – takes into account the anticipated frequency of occurrence but also considers both the presence of the hazard and receptor, and the integrity of the pathway.

- The sensitivity of the receptor – takes into account the nature of the development or receptor and its likely response to increased risk.
- The magnitude of the potential hazard (i.e. severity) – takes into account the potential severity and nature of the flooding.
- The probability of occurrence (i.e. likelihood) – takes into account the anticipated frequency of occurrence but also considers both the presence of the hazard and receptor, and the integrity of the pathway.

Sensitivity

When considering off-site impacts there is a general assumption that all developments are highly sensitive. The assumption can, however, typically be relaxed when considering 'Water Compatible' development or undeveloped land. Given this the sensitivity of the receptor is ranked as shown in Table 38 below:

Table 38: Classification of Sensitivity of Receptor

Sensitivity of Receptor	New Extension	Off site
Very Low	Flood Attenuation Features	-
Low	Water Compatible* extensions	-
Moderate	Less Vulnerable* extensions	Undeveloped Land
High	More Vulnerable* extensions	Other access routes
Very High	Highly Vulnerable* extensions	All built extension unless mitigating circumstances exist. Key access routes

Magnitude

To classify the magnitude of the potential effects it is necessary to look at the nature and scale of the individual impacts. These include, but are not confined to, the extent of flooding, the depth of flooding, the duration of flooding and the velocity of flood waters. For new developments the assessment is based on the likely post-extension situation, for off-site receptors it is based solely on these receptors' likely deterioration.

Given this the magnitude of the potential effect is then ranked as shown below in Table 39.

Table 39: Matrix for Determining the Significance of the Potential Effect

Magnitude of Hazard	New Extension/unit	Off Site
Negligible	No potential for flooding, or no identifiable impact of flooding	No likely increase in flood severity at any off site location
Very Low	Planned or permitted flooding that does not adversely impact the built unit	-
Low	All of the following criteria achieved: Flood depths below 0.3m, Likely flood duration below one hour Flood proofing measures planned	Likely but unquantifiable small increases of flood depths, durations, flow velocities or extent
Medium	Any one of the following criteria achieved: Flood depths between 0.3m and 1m, Flood flow velocity greater than 0.15m/s Likely flood duration in excess of 1 hour Any restrictions to access and egress	Any other measurable increase of flood depths, durations, flow velocities or extent
High	Any of the following criteria achieved: Flood depths greater than 1m, Flood flow velocities greater than 0.45m/s Likely flood duration in excess of 24 hours	Any marked increase (>10%) increase in flood depth, flood flow velocity or flood duration. Any change in flood extent that impacts additional properties including access

Classification of Probability of Occurrence

To classify the probability of occurrence for a potential effect, it is necessary to understand how regularly a given event or outcome is likely to occur. This can be assessed in a number of ways including assessments based on historical data, quantitative analysis, or experience from other similar sites. Often this assessment will be based on standard guidance. The probability of the potential effect is then ranked as shown below in Table 40.

Table 40: Classification of Probability of Occurrence

Probability of Occurrence	Potential Effect
Very Low	It is unlikely that any consequence will ever arise.
Low	It is unlikely that any consequence would arise within the lifetime of the unit. Equivalent to an annual probability of less than 0.1% or Flood Zone 1*
Medium	Circumstances are such that an event is possible in the medium term and likely over the long term, although not necessarily inevitable. Equivalent to an annual probability between 0.1 and 1% (0.1 and 0.5% for tidal) or Flood Zone 2*.
High	Any consequence would appear likely in the medium term and inevitable in the long term (lifetime of the unit). Equivalent to an annual probability of flooding of greater than 1% (0,5% for tidal) or Flood Zone 3*.

Risk Assessment

Once the magnitude of the potential effect and likelihood of occurrence have been assessed these are then combined using a risk matrix (41) to assess the flood risk of each potential effect.

Table 41: Risk Matrix

		Likelihood of Occurrence			
		Very Low	Low	Medium	High
Magnitude of Potential Effect	Negligible	Negligible	Negligible	Negligible	Negligible
	Very Low	Negligible	Very Low	Low	Low
	Low	Very Low	Low	Low	Moderate
	Moderate	Low	Low	Moderate	High
	High	Low	Moderate	High	High

Typically flood risks assessed as low, or less, are considered acceptable. If the assessment results in moderate or high risk, additional mitigation measure will be required to facilitate development.

In some situations, the risk assessment procedure will result in an artificially low assessment of risk. This is particularly the case in situations where consequences of very rare flooding (i.e. breech scenarios) are so extreme that any residual risk, however low, should not be allowed. In such instances the assessed risk should be elevated. Such decisions must always be accompanied by detailed justification.

12.4 The Receiving Environment and Sensitive Receptors

12.4.1 Geographical Context

The site is located at Cae Mawr in a rural area.

12.4.2 Mains Supply and Drainage

There are mains supply pipes are currently within the Cae Mawr site.

Mains Supply

Currently a mains supply services the farmhouse.

Surface Water Drains & Sewers

Surface water from the existing farm buildings is directed into the ditch. There are no other surface water drains on the site proposed to be developed.

Foul Sewers

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

12.4.3 Hydrogeology

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

12.4.4 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.

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

12.5.1 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 allow the accommodation of 32,000 birds.
- Uses of the individual hardstanding areas may include chemical storage.

12.5.2 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 – 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;

Receptors

Receptors that would be sensitive to changes in the hydrological regime on the Cae Mawr site and within the surrounding area include:

- Surface water –local drainage and associated ponds.
- Groundwater – Shallow groundwater and Principal Aquifer; and
- Public and private water supplies.

Impacts

The principal potential impacts are therefore considered to be as follows:

- Pollution of surface water by oil, fuel or chemicals during construction and decommissioning;
- Pollution of groundwater by oil, fuel or chemicals during construction and decommissioning;
- Pollution of surface water and groundwater water abstractions by chemicals or dirty wash water associated with operations;
- Obstruction of surface water courses causing flow alteration.

Potential impacts can be considered during three stages of development, the construction stage, the operational stage and during decommissioning.

Incorporated Mitigation

Several pollution prevention and drainage management features are inherent within the design of the proposed unit; 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 free-range unit 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 free range unit 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.

Table 42 provides a summary of the assessment of potential construction impacts prior to mitigation.

Table 42: Unmitigated Construction and Decommissioning Phase Impacts

Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
Water Quality	Surface water run-off	River Severn	Medium	Moderate	Moderate	Low Likelihood	Moderate / low risk

Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
	Direct infiltration to ground	Shallow Groundwater	Low	Minor	Minot Low Likelihood	Low Risk	
	Infiltration through overlying glacial till	Principal Aquifer	High	Minor	Moderate	Low Likelihood	Moderate / low risk

12.5.3 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 unit.

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.

Table 43 provides a summary of the potential operational phase pollution related impacts prior to mitigation.

Table 43: Unmitigated Operational Phase Impacts

Source	Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
Site (operation and storage)	Pollution by oils and hydrocarbon	Surface water run off	Drainage network and associated ponds	Low	Moderate	Minor	Unlikely	Very low risk
		Surface water run off	Local ditches	Medium	Moderate	Moderate	Unlikely	Low Risk
		Direct infiltration to Ground	Shallow Groundwater	Low	Moderate	Minor	Unlikely	Very Low Risk
		Infiltration through overlying glacial drift	Principal Aquifer	High	Minor	Moderate	Unlikely	Very Low Risk
	Pollution by dirty water	Surface water run off	Drainage network and associated ponds	Low	Negligible	Insignificant	Unlikely	Very Low Risk

Source	Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
			Local ditches	Medium	Negligible	Insignificant	Unlikely	Very Low Risk
			Shallow Groundwater	Low	Negligible	Insignificant	Unlikely	Very Low Risk
			Principal Aquifer	High	Negligible	Insignificant	Unlikely	Very Low Risk

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12.5.4 Impact Assessment

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

12.5.5 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 building, 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. Table 43 provides a summary of mitigated operational phase impacts to the water environment.

12.5.6 Assessment of Residual Impact Significance

Given the additional mitigation set out above, all significant impacts for the construction/decommissioning and operation of the proposed free range unit 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. The resulting post-mitigation impacts are set out below in 44 for the risks from the construction/ decommissioning phase and in Table 45 for the operational phase.

Following mitigation, all risks from potential impacts have been reduced to low (or less than) and likelihood is reduced to low likelihood or lower.

Table 44: Mitigated Construction and Decommissioning Phase Impacts

Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
Water Quality	Surface water run-off	Local ditches	Medium	Negligible	Insignificant	Unlikely	Very Low Risk
	Direct infiltration to ground	Shallow Groundwater	Low	Minor	Minor	Unlikely	Very Low Risk
	Infiltration through overlying glacial till	Principal Aquifer	High	Minor	Insignificant	Unlikely	Very Low Risk

Table 45: Mitigated Operational Phase Impacts

Source	Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
Site (operation and storage)	Pollution by oils and hydrocarbon	Surface water run off	Drainage network and associated ponds	Low	Negligible	Insignificant	Unlikely	Very low risk
		Surface water run off	Local ditches	Medium	Negligible	Insignificant	Unlikely	Very Low Risk
		Direct infiltration to Ground	Shallow Groundwater	Low	Minor	Insignificant	Unlikely	Very Low Risk
		Infiltration through overlying glacial drift	Principal Aquifer	High	Minor	Insignificant	Unlikely	Very Low Risk
	Pollution by dirty water	Surface water run off	Drainage network and associated ponds	Low	Minor	Insignificant	Unlikely	Very Low Risk
		Surface water run off	Local ditches	Medium	Negligible	Insignificant	Unlikely	Very Low Risk

Source	Nature of Impact	Pathway	Receptor	Sensitivity of Receptor	Magnitude of Impact	Significance of Impact	Likelihood	Risk
		Direct Infiltration to Ground	Shallow Groundwater	Low	Minor	Insignificant	Unlikely	Very Low Risk
		Infiltration through overlying glacial drift	Principal Aquifer	High	Minor	Insignificant	Unlikely	Very Low Risk

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12.6 Flood Risk

12.6.1 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 a flood zone indicating that the risk of flooding from major sources is low. As such the sequential test, used by planning authorities to direct areas of high flood risk, indicates that development of this area is potentially appropriate thus no mitigation or management is required.

12.6.2 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;

Table 46: Summary of potential flood source

Flood Type	Source	Potential Pathway
Fluvial	River Severn Drains on site	Blockage and exceedance of channel/retention area
	Ponds and drains off site	Blockage and exceedance of channel/retention area
Tidal	None	None
Drainage	Mains Supply	Pipe burst and overland flow
	Surface drains and sewers	Blockage and surcharge followed by overland flow
	Foul sewers	Blockage and surcharge followed by overland flow
Overland flow	None	None
Groundwater	Sandstone	High groundwater levels expressed at surface

12.6.3 Risk Assessment

12.6.4 The risk assessment methodology used is set out in section Table 46 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.

12.6.5 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.

12.6.6 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 the Cae Mawr site 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.

Overland Flow

The Cae Mawr site is on flat land with rising land to the south of the development. No potential pathways are therefore identified for flooding from overland flows.

Groundwater

The topsoil across the site is underlain by freely draining which have the potential to transmit large volumes of water, whist the site is flat it is at the bottom of a slope therefore soakaways will be created to retain and control any flow of groundwater. There is therefore a low potential for flooding to occur from groundwater seepage.

12.6.7 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. These are outlined in Table 47.

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 the development to proceed. All the risks to the poultry unit are assessed as being either low or very low. Thus, no further mitigation or management is required in respect of flood risk.

Table 47: Flood Risk Summary

Flood Source		Pathway	Sensitivity	Magnitude of potential hazard	Probability of Impact	Flood Risk
Fluvial	River and drains	Blockage and exceedance of channel/retention area	Moderate	Negligible	Low	Negligible
Drainage	Mains Water	Pipe burst and overland flow	Moderate	Negligible	Very Low	Negligible
	Surface Water Drains and Sewers	Blockage and surcharge followed by overland flow	Moderate	Negligible	Very Low	Negligible
	Foul Sewers	Blockage and surcharge followed by overland flow	Moderate	Negligible	Very Low	Negligible
Groundwater	Underlying glacial Drift	High groundwater levels expressed at surface	Moderate	Very Low	Very Low	Negligible
Increased impermeable areas		Increased surface water runoff	Moderate	Moderate	High	High

12.6.8 Internal Flood Sources

Increases in the area of the site covered by impermeable surfaces will lead to higher peak flows from the site and faster flows off the site. This will then discharge into the local drainage system and could contribute to an increased flood risk from the local watercourses and downstream of the site. The sensitivity of the receptor is classed as medium, and a medium magnitude of potential. The resulting impact is moderate. There is high probability of occurrence, with a resulting high risk of flooding of downstream receptors.

Increased surface water runoff from increases in impermeable areas poses a high risk of flooding to downstream receptors and will require mitigation.

12.6.9 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

Policy for site development 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 **Su**stainable **D**rainage **S**ystems (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.

12.6.10 Assessment of Residual Impact Significance

Although no significant flood risks have been identified appropriate SuDS will be deployed to ensure the poultry unit 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.

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12.7 Surface water / Groundwater Pollution – Application and storage of poultry manure

12.7.1 Introduction

This section of the report deals with the issues surrounding the impact of the proposed unit on water resources through generation, storage, transport and application to land of all dirty water, slurry and manure likely to be produced by the birds at the free range unit.

12.7.2 Legislative Framework

The leaching of nitrogen from fields to watercourses has severe implications upon water quality. Consequently the nitrate pollution prevention regulations 2008 have been introduced to implement the European Community's Nitrates Directive, to reduce nitrogen losses from agriculture to water. Cae Mawr is not within a Nitrate Vulnerable Zone.

12.7.3 Methodology

The application of animal manure, slurry and dirty water to land is planned using the principles laid out in the Defra Guidance notes for Farmers within Nitrate Vulnerable Zones derived from the Nitrate Vulnerable Zones Regulations 2008 which lays down quantitative limits for the application of nitrogen to land.

A Manure Management Plan has been produced in order to identify the risks associated with the application of poultry manure to the land. The plan is based on an understanding of the soils and climate of the area and the identification of spreading risks, calculation of manure and dirty water production.

First, a water features survey has been carried out to identify land where material should not be spread at any time. A ten-metre strip adjacent to all watercourses should be left untreated to avoid direct pollution of surface waters. Risk of pollution of vulnerable groundwater sources such as wells, springs and boreholes is reduced by designating a 50 metre radius non-spreading zone around such sources, variable according to the local geology and topography. Additional areas upon which materials should not be spread include very steep slopes with a risk of run-off all-the-year-round, areas such as SSSIs that are subject to management agreements.

The next stage is to match the quantities of nutrients supplied by the material to the area of land available for application. Current guidance is that there should be sufficient land available so that material can be spread within the requirement so that the total amount of nitrogen in livestock and other organic materials does not exceed a threshold of 250kg/ha/year. This figure includes manure deposited by grazing livestock. Furthermore, the amount of available nitrogen in organic material applied to crops should not be more than the crop needs.

The third stage is to assess the risk of pollution that might arise from the application of the material to land and estimate the number of months that these risks apply. Cropping and soil conditions might also limit land spreading because of the chance of damage. These limitations have been assessed by the production of the Manure Management Plan, the applicant having undertaken a survey of its own landholding in order to assess the risk of spreading material.

Land farmed by the applicant has been divided into three categories according to the criteria laid out in DEFRA guidance leaflet: *Leaflet 8 Guidance for Farmers in Nitrate Vulnerable Zones – Field application of organic manures* and are summarised in Table 48.

Table 48: Classification of Land Spreading

Classification	Restrictions on Application	Location of Area
Non-spreading areas (Red)	At all times of year	Within at least 10 metres of either side of any surface water including ditches, temporary dry ditches and piped ditches.
		Within at least 50 metres of any spring, well, borehole or open reservoir.
		Very steep slopes where run-off is a high risk throughout the year.
Non-spreading areas (White)	At all times of year	Non-farmed areas – buildings, roads, tracks
		Land use – e.g. woodlands etc
Very High Risk (Orange)	No solid or liquid effluent should be applied during the period of Field Capacity[2]	Fields or part fields next to a watercourse, spring or borehole when the surface is severely compacted[1] or waterlogged.
		Fields or part fields that are likely to flood sometime in most winters.
		Field or part fields next to a watercourse, spring or borehole when the soil is at field capacity (in winter) and there is: ▪ a steep slope ▪ a moderate slope and a slowly permeable soil (i.e. a clay soil or one through which water passes only slowly)
High Risk (Yellow)	No more than 50m³/hectare of liquid effluent should be applied at any one time whilst the fields are at Field Capacity and at least three weeks between applications	Field or part fields next to a watercourse, spring or borehole when the soil is at field capacity (in winter) and there is: ▪ a moderate slope and a well-drained soil ▪ a slight slope and a slowly permeable soil
		All fields or part fields with effective pipe or mole drains that are not already coloured red or orange[3] (see extra limitations below).
		Very shallow soils (less than 30 cm) over gravel or rock, e.g. limestone, chalk, slates and shales.
Low Risk (Green)	Most of the year	Areas with no mole drains or any of the above.

[1] *Severely compacted is when rain stays on the surface after rainfall.*
[2] *Field capacity is when the soil becomes fully wetted and more rain would cause water loss by drainage. This normally happens in autumn and lasts until the spring.*
[3] *Fields or part fields which in the last 12 months have been pipe drained, mole drained or sub-soiled over drains should not be used for spreading.*

12.7.4 Soils and climate of the area

The soils of the areas where manure will be spread are summarised in Table 49 below.

Table 49: Soil types across controlled land

Farm Name	Soil Characteristics
Cae Mawr	Extensive area occupying most of central Anglesey and characterised by a glacial clay covered surface (Quaternary: Pleistocene) without significant areas of drumlin development... Cover appears to be relatively thin, however, as the area has a broadly south-west , north-east gently rolling topography representing the trend of the bedrock outcrop below... In low areas and valleys, small craggy outcrops of Monian Supergroup metamorphic rocks are commonly present (Cambrian), although too small to be mapped as separate aspect areas... Ordovician rocks area also locally exposed... Many minor stream systems and drift filled depressions / former lakes, are also present.. Slowly permeable seasonally wet acid loamy and clayey soils

The majority of the land is under-drained and for the purpose of this plan it is assumed that all land is under-drained.

12.7.5 Identification of land available for spreading

The entire landholdings have been assessed on the basis of 250kg/ha. All surface water features have been surveyed and taken into account during the calculation of the land available for spreading.

12.7.6 Manure and Effluent Production

It is proposed that the whole of the free range unit will have 32,000 birds. 32,000 birds will produce 800 tonnes of manure per annum.

12.7.7 Dirty Water Production

Wash water from washing down is diluted wash water with a low nitrogen content and therefore can be spread directly on land at all times of the year and does not have to be included within the calculation of nutrient loading for the purpose of field application. Dirty water will be spread directly onto the adjoining land thereby eliminating the need to travel on the local highway.

12.7.8 Manure Storage

Crops will not require applications of poultry manure throughout the year due to growth stages and lack of ability of the crops to utilise the nutrients. Hence it is common practice to store the manure in triangular-shaped heaps ready for spreading on the fields and then for it to be incorporated immediately into the soil by cultivation. This practice minimises nutrient loss (nitrogen) and minimises the release of odour. It is in the applicant's best interest to utilise the manure to best advantage since it reduces the cost of purchased inorganic fertiliser and places organic matter into the soil to improve soil condition. The applicants will be placing the manure in a new purpose built building to be erected on farm.

12.7.9 Calculation of Nutrient Loading

Cae Mawr is not located within a Nitrate Vulnerable Zone, however in utilising the Nitrate Vulnerable Zone Wales Farmers Workbook, 2014 Edition the farm figures for nitrogen produced per annum are shown below. These figures are used as the most up to date Nitrogen figures available in Wales. The minimum amount of land needed for spreading slurry and manure is calculated in table 1 and is based upon the housing period of the livestock.

Suckler Cows at Cae Mawr are housed for six months of the year and are then out at pasture. The Sheep at Cae Mawr are housed for two months of the year. The Poultry shall be housed within the unit for the entire year but shall be grazing the poultry unit each day in rotation.

Type of Livestock	**Number of Stock**	**Total N produced by each unit of stock (kg/annum)**	**Total N produced per annum**	**Total N produced by type of livestock whilst housed**
Sheep	600	12	7,200	1,200
Cattle	50	60	3,000	1,500
Poultry	32,000	0.55	17,600 (per fourteen month cycle)	15,085 (per annum)
TOTAL				**17,785**

Total Land Farmed	125.81 hectares
Total Land available for Spreading	111.58 hectares
Total Nutrients Available	27,895 kg N
Total Nitrogen produced on Farm	17,785 kg N
Difference between Nitrogen	10,110 N

There is enough land for the application of manure therefore some of the nitrogen produced on farm shall be applied to the farm land at Car Mawr in line with the Codes of Good Agricultural and Environmental Condition, Cross Compliance Regulations. Manure will also be sold to local farmers and an Anaerobic Digestion plant.

The table above page shows the total nitrogen produced over the housing period.

Good agricultural practice publications advise that a maximum of 250/kg a hectare of total nitrogen is applied to the ground through manures.

12.7.10 Other Nutrient Leaching

Poultry manure is also a significant source of phosphorous, another essential plant nutrient. However, if applied excessively it will lock up other minerals thereby decreasing crop yields. Excessive phosphorous application can lead to eutrophication of watercourses, ultimately killing aquatic life. Current soil indices across the farm are significantly below 4.

12.7.11 Environmental Permitting Regulations

In addition to the measures detailed above, it is a requirement under the Environmental Permitting (England and Wales) Regulations 2011 that the site has a Permit to operate. Under the Environmental Permitting regime the emissions of the proposal to groundwater are assessed within the requirements of Best Available Techniques.

12.7.12 Discussion and Conclusions

The main limitation on stocking rates at the proposed free range unit is the availability of land. In order to maximise the efficiency of the farming operations and reduce the risk of pollution, manure arising from the proposed unit will be applied to the land with the recommendation of good agricultural practice on the land within the control of the applicant as appropriate.

Enough suitable land is available within the applicant's holding to enable manure to be applied to land in a way that is beneficial to crops and presents a minimal risk of pollution to surface waters in line with the Code of Good Agricultural Practice for protecting Water, Soil and Air.

12.7.13 Mitigation against Nutrient Overloading

Regular soil testing is carried out by the applicant across the land farmed by the applicant; nutrient (phosphate and nitrogen) levels of the soils are recorded and programmed into a Global Positioning System attached to machinery used for spreading organic fertiliser (manure) and inorganic fertiliser; the system applies nutrients at the necessary rate according to the soil tests and statutory loading limits.

12.8 Follow Up Actions

Short term surveillance monitoring will be undertaken to ensure that no detrimental impacts occur during site construction, decommissioning and operation. This short surveillance monitoring should include specific water quality monitoring for shallow groundwater and surface water monitoring and assessment of existing data regarding the biological health of the adjoining watercourses. Such monitoring will be carried out by the site operator.

12.9 Conclusions

A number of potential impacts on the local hydrology and hydrogeology have been identified as a result of the construction and operation of a free range unit at the site.

Potential impacts include the risk of groundwater and surface water contamination from oils and hydrocarbons and dirty water.

The operation of a free range unit on this site has the potential to negatively impact on the hydrology and hydrogeology of the area through the contamination of surface water and groundwater. Employing appropriate construction techniques and good design will ensure that these risks will be successfully mitigated.

The significance of such impacts has been systematically evaluated and mitigation measures for each of the impacts have been identified. Following mitigation, the significance of residual impacts is all reduced to a minor level or below.

CHAPTER 13 – SOILS

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13. 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 free range unit 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 free range unit 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 free range unit; 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 extension of the site as a free range unit. However, it does not necessarily follow that all these impacts would actuality occur.

Table 50: Potential Impacts Resulting from the Poultry Unit

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 free range unit	Leaks of potential contaminants. Examples include, but not limited to: manure leachates; dust; process	Soils	

Key Activities	Specific Element/Activity	Potential Impacts Potential Effect	Potential Receptors	Sensitive
		chemicals; oils etc.		
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	
Decommissioning	Removal of free range unit	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 free range unit 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 free range unit. 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 free range unit 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 Cae Mawr 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			
		Negligible	Low	Medium	High
Magnitude	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 Cae Mawr 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

		Significance			
		High	Moderate	Minor	Insignificant
Probability (likelihood)	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 free range unit 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
Cae Mawr	Extensive area occupying most of central Anglesey and characterised by a glacial clay covered surface (Quaternary: Pleistocene) without significant areas of drumlin development... Cover appears to be relatively thin, however, as the area has a broadly south-west , north-east gently rolling topography

Farm Name	Soil Characteristics
	representing the trend of the bedrock outcrop below... In low areas and valleys, small craggy outcrops of Monian Supergroup metamorphic rocks are commonly present (Cambrian), although too small to be mapped as separate aspect areas... Ordovician rocks area also locally exposed... Many minor stream systems and drift filled depressions / former lakes, are also present.. Slowly permeable seasonally wet acid loamy and clayey soils

13.5 Assessment of Impacts and Risk

13.5.1 Basis for Assessment and Incorporated Mitigation Measures

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

- The Cae Mawr unit will produce a maximum of 800 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 areas.

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

- Operation in accordance with Pollution Prevention Guidelines (PPGs) (see Chapter12 – Water Resources) and licensed by Natural Resources Wales 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 free range unit;

- 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}.

The magnitude of impact without mitigation would be moderate.

Veterinary Medicines

The only veterinary medicines routinely used in layer 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 free range 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 of Receptor	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 free range unit;	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

Source	Potential Impact	Receptor	Sensitivity of Receptor	Magnitude of Potential Impact	Resulting Significance (if realised)
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 free range unit;	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 the 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 Cae Mawr 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.

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.

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 and decommissioning of the proposed free range unit;	Contaminate Soils	Soils	Negligible	Negligible	Insignificant
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 60. 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.

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Table 6o: Risk Assessment Table – mitigated risks

				Likelihood			Risk		
Source	Potential mpact	Receptor	Resulting Significance (if realised)	Construction	Operation	Decommissioning	Construction	Operation	Decommissioning
Storage and use of inorganic and organic chemicals during the construction, operation and decommissioning of the proposed free range unit;	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 the unit	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 free range poultry unit on soils have been assessed as very low and no further mitigation or management issues need to be addressed. Therefore, the proposed unit is 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 – SUMMARY & CONCLUSIONS

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14. 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 free range unit. Even where significant impacts are identified many are effectively reduced to insignificant by the use of appropriate mitigation. Indeed, in some areas, negative impacts are altered to positive impacts via the application of mitigation and enhancement measures (particularly in relation to traffic and ecology). There are no impacts that remain significantly negative.

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