



CHARTERED SURVEYORS & PLANNING CONSULTANTS

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Environmental Statement for:

PROPOSED NEW POULTRY UNIT at LAND OFF BISHOPBRIDGE ROAD, GLENTHAM



Report prepared for:  
ESCO NRG



**MARCH 2017**

### **NAME OF ORGANISATION**

Acorus Rural Property Services Ltd – known as Acorus (Registered number 04514547)

### **OVERVIEW OF ORGANISATION**

Acorus Rural Property Services Limited are a privately owned firm of Chartered Surveyors and Planning Consultants specialising in Rural Development.

Acorus has offices nationwide of which the South and South East office operates from The Old Market Office, 10 Risbygate Street, Bury St Edmunds. Other offices are located in Wolverhampton and Exeter.

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## **TERMS OF REFERENCE**

ESCO NRG has asked Acorus Rural Property Services to collate an Environmental Statement to be used in conjunction with his proposed planning application to erect a poultry unit at Land off Bishopbridge Road, Glenthams, Market Rasen.

The report has been collated by Henry Doble BSc (Hons), and draws on technical information supplied by:

Brian Barrow – Acorus Rural Property Services Ltd

Steve Smith – A.S Modelling & Data Ltd (Odour Modelling)

C.E Davidson – Agricultural Building Designer

Graham Hinton – Landscape and Environmental Consultant

James Hodson – Ecocheck Ltd.

John Bailey – Acorus Rural Property Services



## **1. INTRODUCTION**

### **1.1 Purpose of report**

Acorus was requested by ESCO NRG to put together an Environmental Assessment looking at the potential environmental implications of a proposed broiler poultry unit.

The report is intended to:-

1. Establish existing conditions on the site and surrounding area.
2. Identify and assess the environmental impact of the proposed unit.
3. Identify any measures necessary to mitigate adverse effects if appropriate.

### **1.2 Scope of report**

This report looks at the potential issues associated with the proposal. The development is above 85,000 broilers so falls under schedule 1 of the Environmental Impact Assessment Regulations whereby an EIA is a mandatory requirement. A scoping opinion was requested, the contents of this assessment is based on comments received from that scoping opinion and other studies undertaken. A copy of the scoping opinion received is contained at appendix 1.

## **2. SUMMARY OF PROPOSAL**

It is proposed to construct 10 new poultry buildings housing 400,000 birds. The buildings measure approximately 24.3 metres x 91.4 metres. Details of the proposed buildings are contained at appendix 4.

### **3. BACKGROUND**

#### **3.1 Existing Site**

The existing site is bare agricultural land.

#### **3.2 Site History**

The site has been used for agricultural purposes with arable cropping.

### 3.3 Current Condition

There are currently no existing buildings on site. The proposal is a new build.

### 3.4 Supply Chain

The birds from the unit are likely to be supplied to the processing facilities operated by a national processor. However this is subject to contract arrangements as there are a number of facilities available.

## PHYSICAL CHARACTERISTICS

### 3.5 Site Soilscape

A check of the site against data provided from DEFRA shows the soil-scape of the site to be:

#### Soilscape (England)

**Reference**

18

**Name**

SLOWLY PERMEABLE SEASONALLY WET SLIGHTLY ACID BUT BASE-RICH LOAMY AND CLAYEY SOILS

**Main Surface Texture Class**

LOAMY

**Natural Drainage Type**

IMPEDED DRAINAGE

**Natural Fertility**

MODERATE

**Characteristic Semi-natural Habitats**

LOWLAND SEASONALLY WET PASTURES AND WOODLANDS

**Main Land Cover**

GRASSLAND AND ARABLE SOME WOODLAND

**Hyperlink**

[/Metadata\\_for\\_magic/soilscape\\_summary.pdf](#)

### 3.6 Local Landscape

A 2km search was undertaken from the site for relevant local designations as maintained from DEFRA databases.

DESIGNATION SEARCHED	DESIGNATION FOUND	DESIGNATION NOT FOUND
Ancient woodland		X
AONB		X
Community forests		X
Green belt		X
National parks		X
Nitrate vulnerable zones	X	
Registered common land		X
Registered parks and gardens		X

#### Breakdown of features found:

Nitrate vulnerable zone

#### Nitrate Vulnerable Zones (England)

**Zone ID**

69

**Type of NVZ**

Groundwater

**Zone ID**

356

**Type of NVZ**

Surface Water

National Character Area

## National Character Areas (England)

### Reference

44

### Name

Central Lincolnshire Vale

### Square km

819

### Hyperlink

[http://www.naturalengland.org.uk/publications/nca/central\\_lincolnshire\\_vale.aspx](http://www.naturalengland.org.uk/publications/nca/central_lincolnshire_vale.aspx)

### Reference

45

### Name

Northern Lincolnshire Edge with Coversands

### Square km

501

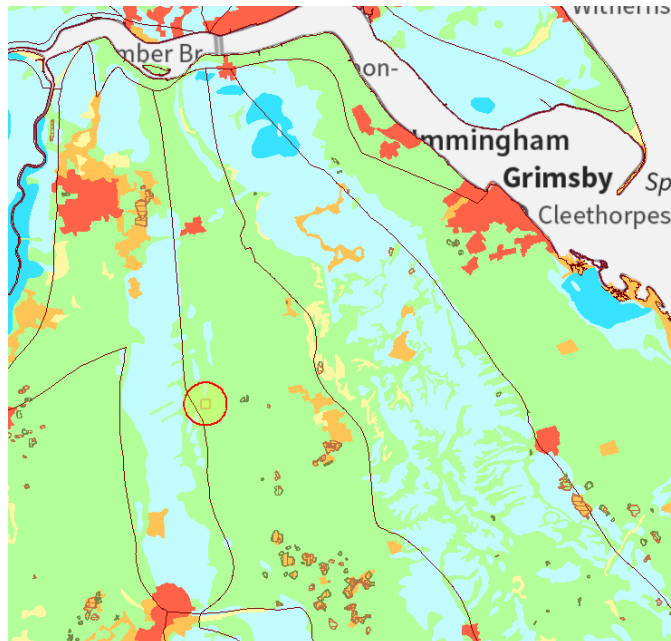
### Hyperlink


[http://www.naturalengland.org.uk/publications/nca/northern\\_lincolnshire\\_edge.aspx](http://www.naturalengland.org.uk/publications/nca/northern_lincolnshire_edge.aspx)

Further details are contained at appendix 2.








### 3.7 Land grading

Land surrounding the site is designated as grade 3 defined as Good to Moderate.



 Counties, Metropolitan Districts and Unitary Authorities (GB)

Agricultural Land Classification - Provisional (England)

 GRADE 1  
 GRADE 2  
 GRADE 3  
 GRADE 4  
 GRADE 5  
 NON AGRICULTURAL  
 URBAN

### **3.8 Present cropping**

The site is currently cropped used in an arable rotation.

### **NEARBY BUILDINGS AND DWELLINGS**

### **3.9 Surrounding properties**

The closes properties to the site are;

The Chestnuts – approximately 500 metres south west

Glebe Farm – approximately 600 metres south east

Barf Farm - approximately 750 metres south

Glenthams Grange– approximately 780 metres north east

### **3.10 Surrounding towns and villages**

The village of Glenthams is approximately 900 metres to the west.

## **ACCESS & ROAD NETWORK**

### **3.11 Road network**

The surrounding road network is of a good quality. The site is adjacent to the A631. It is approximately 5.5 kilometres to the A15.

### **3.12 Access**

The site is accessed directly from the A631. The access is of good quality with good visibility in each direction.

Details of the proposed access and lorry turning area are contained at appendix 4.

## **ECOLOGY**

### **3.13 Footpaths**

There are no footpaths directly associated with the site.

### **3.14 On site ecology (Phase 1 survey)**

A Phase 1 habitat survey has been undertaken by Ecocheck consultants and is contained at Appendix 3.

### **3.15 Local ecology (2km radius)**

A search of local ecological sites within 2 km was undertaken and this identified the following:

<b>SITE SEARCHED FOR</b>	<b>SITES FOUND</b>	<b>SITES NOT FOUND</b>
RSPB Site		X
National Nature Reserves		X
Sites of Special Scientific Interest		X
Sites of Special Scientific Interest Units		X

Special Areas of Conservation		X
Special Protection Areas		X
Woodland Trust Sites		X
World heritage Sites		X
Environmentally Sensitive Areas		X
Scheduled Monuments		X
RAMSAR Sites (10 KM search)		X
Ancient Woodland		X

### SSSI

There are no SSSI's within 2km of the holding.

There are two SSSI's up to 5km from the site;

### Sites of Special Scientific Interest (England)

**Name**

Normanby Meadow

**Reference**

1009462

**Natural England Contact**

PATERSON - CAROL

**Natural England Phone Number**

0845 600 3078

**Hectares**

4.18

**Citation**

2000465

**Hyperlink**

<http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s2000465>

**Name**

Kingerby Beck Meadows

**Reference**

1002855

**Natural England Contact**

PATERSON - CAROL

**Natural England Phone Number**

0845 600 3078

**Hectares**

5.52

**Citation**

1002988

**Hyperlink**

<http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1002988>

There are also further SSSI's and designated areas up to 10km from the site



### Sites of Special Scientific Interest (England)

**Name**

Cliff House

**Reference**

1002941

**Natural England Contact**

MILLARD - ANNA

**Natural England Phone Number**

0845 600 3078

**Hectares**

4.75

**Citation**

1002890

**Hyperlink**

<http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1002890>

### 3.16 Other designations (2km radius)

None

### PLANNING ADVISE & HISTORY

### 3.17 Planning history

Nothing of relevance to this application.

### 3.18 Planning applications in the locality

None were identified which were considered of relevance to this application.

### 3.19 Site History

It is understood that the site has always been used for agricultural purposes.

### **3.20 Planning policy**

#### **National policy**

March 2012 saw the publication of the Government's National Planning Policy Framework (NPPF). This document replaces all Planning Policy Statements. The document states that there is a presumption in favour of sustainable development.

Section 3 is entitled 'Supporting a Prosperous Rural Economy' and paragraph 28 states:

*Planning policies should support economic growth in rural areas in order to create jobs and prosperity by taking a positive approach to sustainable new development.*

In particular it goes on to state;

*To promote a strong rural economy, local and neighbourhood plans should:*

- *Support the sustainable growth and expansion of all types of business and enterprise in rural areas, both through conversion of existing buildings and well designed new buildings.*
- *Promote the development and diversification of agricultural and other land-based rural businesses.*

In considering suitable locations for development the document indicates that local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.

The policies within the NPPF apply from the date of publication, however for the 12 months from that date, decision makers can continue to give full or due weight to existing relevant policies in local plans in they were adopted after 2004.

Environmental issues are of major concern with all forms of development. Agricultural development which is deemed significant, such as the additional poultry housing proposed, has the potential to have an impact on the environment.

Hence major developments of this type were included within the Town and Country Planning (Assessment of Environmental Effects) Regulation 1988. Environmental issues tend to be site specific in relation to the importance of such issues as landscape impact, ecological issues, effect on water sources, highways and other important issues.

The Town and Country Planning (Environmental impact Assessment) Regulations 2011 are now the current version and identified further issues to be considered.

The above policy and regulations have been used as a basis for the preparation of this report with the major issues given the appropriate weight in initial consultations, and addresses accordingly.

### **Local policy**

Local policy can be found within the West Lindsey Core Strategy 2013;

Policy CL22 – Strategy for the Rural Area of Central Lincolnshire

The Central Lincolnshire Authorities and their partners will support the Rural Area of Central Lincolnshire through an integrated and sustainable approach to planning based on the Core Strategy's Vision and Objectives.

To achieve this, the Local Plan will:

- Promote and support the sustainability of rural communities, so that they are prosperous, balanced and resilient;
- Protect, enhance and expand existing services, facilities and other infrastructure across the Rural Area in line with the Infrastructure Delivery Plan, Sustainable Futures Study and the review of rural settlement roles proposed as part of the Local Plan review;
- Maintain and enhance the smaller towns (Market Rasen and Caistor) including their roles in supporting their surrounding areas;
- Seek to ensure that rural housing needs, including affordable housing, are met in line with the Spatial Strategy for Growth in Central Lincolnshire;
- Promote a sustainable rural economy, including support for innovation, diversification and use of local resources (locally produced food, biomass, timber and other renewable construction materials; etc). Opportunities to link the rural and urban economies and resource use in Central Lincolnshire will be promoted;
- Promote improved access to the countryside and sustainable rural tourism;

- Promote improved accessibility and public transport provision serving the Rural Area as part of the transport strategy for Central Lincolnshire;
- Protect, nurture and enhance the quality of the rural environment and countryside, including its natural and historic value, landscape character and local distinctiveness.

## **4. DETAILS OF PROPOSAL**

### **4.1 Description of the proposed sheds**

It is proposed to construct 10 new poultry buildings housing 400,000 birds. The buildings will measure approximately 24.3 metres x 91.4 metres. Details of the proposed buildings are contained at appendix 4.

Each of the new buildings will provide a total floor area of approximately 2221 m<sup>2</sup> (although the usable internal floor space will be slightly below this). The total floor space will be approximately 22210m<sup>2</sup>.

Eaves and ridge heights will be 2.6 metres and 6 metres respectively. Each of the new building will accommodate 40,000 broilers based on the maximum stocking density of 38 kg/m<sup>2</sup> with thinning. Therefore the number of birds housed in all the new buildings will be around 400,000 although the stocking for much of the time will be less than this with approx. 10 days empty each cycle.

The pair and the single house will be equipped with 4 x 20 tonne feed bins.

#### **4.1.1 Proposed Management Cycle**

Broilers will be purchased as day old chicks. There will be 40,000 in each house, and the birds will consist of a mixture of males and females. The houses will have been pre-warmed by propane gas space heaters.

The floor will have a suitable litter spread consisting of wood shavings/straw to a depth of 20 mm (<sup>3</sup>/<sub>4</sub> inch). Birds will be thinned at approximately 38 days of age and taken to be processed and males kept to approximately 42 days old when they will be removed.

The whole site will therefore be managed on an all in/all out basis over the 42 days. After the removal of all the broilers from the site, the litter will be loaded into trailers, covered and removed from the site. It will be disposed of sending it to one of the specialist power stations.

The whole site and equipment will be power washed, disinfected and then dried out before the cycle starts again.

When a 42 day growing period is used, the total cycle length including the clearing out and reinstatement period will take approximately 52 days. It is likely therefore, that there will be around 6.5 cycles/annum.

Rearing cycles can change slightly if different weight birds are needed but the stocking densities will remain similar. Bird numbers will be governed by the IPPC licence.

## **4.2 Layout of the site**

The site will be laid out as shown on the Site Plan at Appendix 4.

## **4.3 Building construction**

The new buildings will be of typical, modern construction comprising:-

### **4.3.1 Materials**

Each building will comprise of pre-cast concrete panel walls supported on strip foundations with an internal concrete floor poured over a continuous DPM. The insulated roof and side walls will be clad in profiled steel sheeting or timber in a colour to be agreed.

The pitch of the roof will be 15°. The height to the eaves will be 2.6 metres with a height to ridge circa 6metres.

### **4.3.2 Insulation**

The broiler house roofs will be insulated with 200 mm fibreglass and the walls with 100 mm to achieve a U-value not less than 0.4 W/m<sup>2</sup> °C thus eliminating condensation on the inner linings and minimising solar heat gain.

### **4.3.3 Floor**

The broiler houses will be erected with a smooth and easily washable concrete floor on a continuous damp proof membrane. The dwarf walls will be reinforced on a poured concrete foundation and contain all dirty water and prevent the ingress of ground water.

### **4.3.4 Ventilation**

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

- There will be inlets in each bay of the two side walls and these will open to a maximum of around 45 cm.
- There will be extractor chimneys in the roof
- There will be a number of 710 mm dia air extraction chimneys on the new sheds.
- 1,270 mm gable end fans will be incorporated as a back up in hot weather.

Use of such a system should result in a well controlled environment inside the house, with no condensation to cause litter to get wet. Good control of internal environment is the prime factor influencing litter quality, which in turn influences the amount of odour being emitted from a site. A drier litter is a less odorous one.

**In the event of a failure in the mains electricity supply or an equipment breakdown, an alarm system linked to a generator will operate, allowing ventilation to continue.**

The 710 mm fans have a sound measurement of 57 dBA, 4.5 amps and move 17,000 m<sup>3</sup> air. The 1,270 mm fans have a sound level of 80 dBA and move 43,000 m<sup>3</sup> air.

### **4.3.5 Windows**

Polycarbonate windows based on 3% of floor area to latest RSPCA Welfare Standards will be incorporated achieving a minimum U-value of 1.7 at 62% light transmission. Bringing natural light into intensive poultry houses is deemed a significant welfare advantage. The windows will be fitted with full black-out blinds to control the potential of night time light pollution.

## **4.4 Husbandry and equipment**

### **4.4.1 Stocking Rates**

The maximum stocking density will be in line with the figure of 38 kg live weight per square metre, although the unit may operate in line with a lower stocking density depending on markets to be supplied.

### **4.4.2 Drinkers**

The drinkers will be nipple drinkers with drink cups with rows running parallel to the long axis of each house.

The reason for choosing nipple drinkers with drink cups is not only for ease of management, coupled with good bird performance and maximum hygiene, but also to keep the moisture content of the litter as low as is practicable. A dry litter is a less odorous one and it is necessary to ensure that the risks of odours are minimised.

### **4.4.3 Feed**

The feed will be blown from bulk feed lorries into the bulk bins. A centreless auger will convey feed to pan feeders.

The feed will be supplied by either a regional or national compounder. It will be composed of high-quality raw materials, and be nutritionally tailored to the broiler's requirements. It 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 odours are reduced by this drier litter. Wheat feeding will be practiced.

### **4.4.4 Heating**

Thermostatically-controlled space heaters will be used for heating the new houses. Propane gas will be the fuel and there will be suitably sized storage tanks positioned on the site.

#### **4.4.5 Water**

Water for the site will be obtained from the mains supply.

A back up storage tank will be installed underground to be used in case of a problem with the mains supply.

#### **4.4.6 Mortalities**

These are removed from the houses daily if any occur and stored in sealed containers. A specialist contractor then collects them from site once a week.

#### **4.4.7 Pest Control (Rodents and Flies)**

Rats can be attracted to poultry units, but are rarely a problem on well managed modern broiler units because:-

- Modern building construction does not allow rats to enter the building easily, where as older sheds are more difficult to control, particularly timber.
- Bait points are provided at regular intervals replaced monthly which will control any rats that do appear.

Flies are not a problem with broiler units as the manure produced by the birds mixes with the litter within the house. The short cycle of 42 days does not give time for flies to breed, and in any case the birds themselves would eat anything in the litter.

#### **4.5 Labour**

There will be a manager with overall responsibility. In addition to the manager there will be up to 2 further employees on site, normally an assistant manager and a trainee/junior.

Additional specialist staff will be bought in for removal of the birds for processing and cleaning the sheds.



## **4.6 Litter**

### **4.6.1 Material**

Wood shavings will be used to a depth of 20 mm, this allows the floor to breathe and release moisture enhancing environmental conditions inside the poultry houses.

The litter will be taken and used as a renewable energy fuel.

### **4.6.2 Quantities**

It is anticipated that each 1,000 broilers will on average produce approximately 1.3 tonnes of used litter to be removed at the end of each crop. Using this figure, the total quantity of used litter produced from this proposal will be approximately 520 tonnes per crop.

## **5. ITEMS TO BE ASSESSED**

Reference to the scoping opinion received from East Lindsey District Council and the background information collected during the Environmental Impact Assessment process has identified the following issues.

- Clean and dirty water disposal and how this is handled particularly at the end of the cycle
- Litter and Muck disposal
- Airborne Pollution Impacts - noise, dust and odours
- Landscape Impacts
- Ecological Impacts
- Highway Impacts
- Archaeology and built heritage Impact
- Lighting Impact

These aspects are assessed in the following sections with the technical information at various appendices.

## 6. CLEAN AND DIRTY WATER DISPOSAL

### 6.1 Background

The unit is to be sited at the northern end of an isolated rectangular field surrounded by hedges to the west of Market Rasen. There are to be 10 new chicken houses arranged in 2 rows (one of 6 and one of 4) to either side of a 14m wide central service yard. The houses will run from north to south and will each measure 91.8 long x 20.1m wide. The farm is to be a broiler unit producing chickens on a 6-8 week cycle on an "all in all out stocking policy".

The land is at a height about 16m in the south east corner and so well out of the flood plain with ditches on the northern and eastern field boundaries running to the lowest point in the north east corner at a level of approximately 13m. They do not appear to be IDB ditches requiring a clearance gap of 8m to allow for ditch maintenance. The actual poultry site slopes by about 1.2m from west to east and by about 1.5m from south to north. The drainage therefore needs to run towards the north east corner.

The soil type is a heavy clay of the 711f Wickham 2 series – Drift over Jurassic and Cretaceous clay or mudstone – "Slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils. Small areas of slowly permeable calcareous soils on steeper slopes." Hence a surface drainage system as widely used in the area is the appropriate site drainage system.

This report aims to:-

1. Design and size an attenuation system for heavy rainfall.
2. Size a dirty water system for the houses, thereby keeping the clean roof water separate from the dirty washing water.

### PROPOSALS

The "new" hard impervious concrete area will measure:-

10 houses each 91.8m long x 20.1m wide	= 18,452 m <sup>2</sup>
Central service yard at the 170m long x 15m wide	= 2,548 m <sup>2</sup>
Extra for lorry turnaround at the western end 24m x10m	= 240 m <sup>2</sup>

---

Total 21,240 m<sup>2</sup>

There will be 6m grass strips between the new houses which will drain as now via the field drains. There will be stoned but not concreted access yards at the northern and southern ends of the unit together with connecting roads which will be porous to rainfall

and so not allowed for in the rainfall calculations. These, plus the entrance roadway, will be clean the whole of the time.

## **SOIL TYPE**

The soil type is a heavy clay of the 711f Wickham 2 series – Drift over Jurassic and Cretaceous clay or mudstone – “Slowly permeable seasonally waterlogged fine loamy over clayey, fine silty over clayey and clayey soils. Small areas of slowly permeable calcareous soils on steeper slopes.” Hence a surface drainage system as widely used in the area is the appropriate site drainage system.

## **6.2 Dirty water**

### **6.2.1 Cleaning out**

Clearing out and washing down will take 8-10 working days when parts of the service area at the front of each house will be dirty. The birds will come in and go out from this yard. At the end of each batch the spent litter based on wood shavings or chopped straw will be cleared out by Bobcats and loaded directly into lorries or large farm trailers parked just outside the doors. There is in practice little spillage. To ensure poultry disease guidelines are adhered to and for bio security the litter needs to be taken off the actual poultry site immediately. No manure will therefore be stored around the buildings, even for a short period. The remaining yard and roadway areas will be clean all of the time and drain to the ditch system via an attenuation pond.

When the central service yard and the lorry turnaround covering 2,788 m<sup>2</sup> is dirty it will drain in to one or two dirty water tanks as central as possible to minimise pipe runs and most likely sited between the houses. Such a tank(s) needs to be protected from being runover by a heavy lorry perhaps by a kerb and not for pollution reasons be within 10m of a ditch or the attenuation pond. This service yard will in general slope slightly towards the middle and away from the houses to a grid/manhole about 7m away from each set of doors. The grid covers a manhole housing a diverter valve. One position directs the dirty washing water in to a collection tank (when cleaning out) and the other setting diverts clean rain water on the pad into the clean water system and so the balancing/attenuation pond. Hence for only about 10 days in every 8 weeks will any part of the concrete be dirty.

### **6.2.1 Washing down**

With the power floated level unobstructed concrete floors and brushing down the floor after clearing out the litter there is very little solid matter to be carried away with the washing water. This will run out of the building on to the yard and into the manholes and so the dirty water tank(s). In practice most of the remaining solids settle out on the yard and can be swept up rather than being washed into the dirty water tank. Each of the houses will take about 8 hours to be fully washed down by a specialist contract gang. There are likely to be two pumps, one working in one house and one in another each operating 2 pressure washing lances. Each individual lance delivers about 15 litres per minute. They are likely to be running for 70% of the working time and so the total volume of water used in an 8 hour day will be approx. 20 cu. metres. In practice because of the warm temperature of the concrete floor inside the houses some of this water evaporates.

We also need to allow for possible heavy rainfall on the dirty service yard during the cleaning out period. If we all allow for 25mm of rainfall during the working day the volume needing to be contained is:-

$2,788\text{m}^2 \times 25\text{mm} = 70\text{m}^3$  plus the washing water ( $20\text{m}^3$ ) giving a total tank size of  $90\text{m}^3$  (19,800 gallons). With the long (180m+) yard and a risk of blockages it may be preferable to have two tanks each holding  $45\text{m}^3$  and serving 5 houses.

These tanks could be in glassfibre or concrete to BS 5502. If they are concrete sectioned tanks a removable top to periodically dig out any solids would be useful. A level indicator in the tanks, easily visible from the service area, would help to quickly identify that a tank needs emptying. The tanks will be emptied at the end of each day and taken away by the contractor to a safe site, most likely still on the farm. The farm, contractor's staff and the industry as a whole are well versed in this procedure with many other similar units.

## **6.3 Clean Water**

### **6.3.1 Ventilation**

The houses will have high velocity ridge outlets with side wall inlets. The high speed exhaust will be through the ridge so that stale air is carried upwards and is not deflected down the roof line which encourages dust to settle. From experience there is unlikely to be any measurable volume of dust requiring the house roofs to be periodically washed down. Any odours will also tend to be carried away from the site by the prevailing wind.

There will be no gutters and so the rainfall will runoff the eaves and be collected in stone drains with a perforated drainage pipe in the bottom. A balancing/attenuation pond needs to be installed to buffer heavy rainfall.

### 6.3.2 Land Drainage

The site has an annual rainfall of 617mm. Based also on the local soil type the greenfield site drainage figures obtained from [www.uksuds.com](http://www.uksuds.com) for these buildings and concrete area give runoff rates for the proposed site as follows:-

Estimated Site Discharge	IH124 results
1 in 1 year	5.44 l/sec.
1 in 30 years	15.31 l/sec.
1 in 100 years	22.24 l/sec.

The land is a medium to heavy silt/clay soil and so the houses and yards will rely upon the adjacent ditches backed up by the balancing or attenuation pond. If data for poor land drainage with a figure of 2 litres per second per ha over the 1.5 ha of hard area is considered, this gives a design site drainage figure of 3.0 litres/second. This is actually a little over the half the projected figure 1 in 1 year figure above.

### 6.3.3 Rainfall Data

As is standard 1 in 100 return period rainfall figures plus 20% for global warming will be considered.

#### Rainfall Volumes v Time

Storm Duration	Depth of Rainfall mm	Total Volume of Rainfall m <sup>3</sup> over 1.5 ha	Volume allowing an extra 20% for global warming	Restricted discharge 3l/sec m <sup>3</sup>	Storage Volume required m <sup>3</sup>
5 mins	12.1	181	218	1	217
15 mins	21.8	327	392	3	389
30mins	28.6	429	515	5	510
1 hour	35.9	539	646	11	634
2 hours	43.7	656	787	22	785
3 hours	48.4	726	871	32	839
6 hours	56.6	849	1,019	65	954
12 hours	65.3	980	1,175	130	1,045

24 hours	75.2	1128	1,354	259	1,095
36 hours	81.5	1223	1,467	388	1059
48 hours	86.2	1293	1,552	518	1,034
72 hours	93	1395	1,674	777	897
96 hours	99.9	1499	1,798	1,036	762
8 days	125.1	1877	2,252	2,074	178
25 days	183.6	2754	3,304	6,480	Nil

These figures are Meteorological Office figures.

### 6.3.4 Attenuation Pond

The most challenging period is at or around 24-36 hours requiring up to 1,550 m<sup>3</sup> of buffer capacity in the attenuation pond. As usual there are several periods where the volume peaks to a very similar figure. The intention is to form a rectangle shaped grassed balancing pond in the north eastern corner of the site (see sketch):-

Surface Area Length 85m x 17m wide = 1,445 m<sup>2</sup>

Slope on inner sides 1 in 1.0

Depth 1.25m

Base area 82.5m x 14.5m = 1,196 m<sup>2</sup>

Capacity **1,650 m<sup>3</sup>**

The calculations cover length v width v depth which is limited by the depth of the ditch so that the pond will be empty most of the time. A small 300mm lip will be formed around the balancing pond to make sure it holds the water and it does not flow out taking account of any small land level variations. The excess capacity will more than allow for rainfall on the pond itself. The attenuation pond needs to be separate from the ditch itself to avoid drawing in very large volumes of field drainage water be that from piped drainage or surface runoff. It also needs to be about 4m from the ditch to allow for a small digger to clean out the field boundary ditches in the future.

### 6.3.5 Hydrobrake

Based on a flow of 4.24 litres/sec. and a fall of 1 in 175 the nearest pipe size in to the ditch will need to be of a 115 mm internal diameter (Ref. Polypipe chart open Inlet corrugated plastic pipe). This is not a very small pipe, indeed most land drains entering a ditch will be much smaller without blocking. The pipe will be in use all of the time for the site drainage so any blockage should be readily spotted, especially as the pond will be close to the normal working area.

A purpose built and sized hydrobrake would further minimise the chance of a blockage (e.g. Ref Hydro International [www.hydrointernational.biz](http://www.hydrointernational.biz).) The intake pipes would need to be sized and specified at the design and manufacturing stage together with the required outflow of 4.24 litre/sec. Basically a hydrobrake consists of an inlet, an outlet and a baffled "volute" through which water is introduced

tangentially. The outlet opening is 3-6 times greater than for conventional flow thus reducing the chance of blockages. The outlet pipe to the ditch will be checked by the farm manager before the houses are cleaned out each time and so in this case it is not considered that a hydrobrake is really necessary.

### 6.3.6 Site Filter Drains

Drainage pipes laid with a 1 in 200 fall will deliver up to:-

75mm	1.8 litres/sec (6.48 cu. metres/hour)
85mm	2.25 litres/sec. (8.10 cu. metres/hour)
100mm	3.2 litres/sec. (11.5 cu. metres/hour)
115mm	4.5 litres/sec (16.2 cu. metres/hour)
135mm	7.0 litres/sec (25.2 cu. metres/hour)
155mm	9.5 litres/sec. (34.2 cu. metres/hour)
180mm	16 litres/sec ( 57.6 cu. metres/hour)
210mm	22 litres/sec. (79.2 cu. metres/hour)
250mm	31 litres/sec. (111.6 cu. metres/hour)
300mm	50 litres/sec. ( 180 cu. metres/hour)
350mm	76 litres/sec ( 274 cu. metres/hour)

Ref. Polypipe flow chart Restricted and open inlet –corrugated plastic pipes

The houses will have gutters leading to a drainage pipe in a trench under each eaves. There will be one drain for each eaves i.e. 20 in all, draining to the rectangular balancing pond. All will serve a half roof area of 91.8m x 10.05m = 922 m<sup>2</sup> plus a share of the central service yard/lorry turning area 2,788/20 = 140m<sup>2</sup> giving a total area of 1,062m<sup>2</sup>.

The design need is to cope with the 30 minute storm of rain 1 in 100 years. For these areas the volumes are therefore:-

### House Stone Drains

Storm Duration	Intensity mm/hr (Depth	Volume of runoff m <sup>3</sup>	Volume allowing an extra	Discharge through 180mm	Volume surplus if any	Discharge through 210mm pipe	Volume surplus if any
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	<b>of Water mm)</b>	<b>on roof area 1,062m<sup>2</sup></b>	<b>20% for global warming</b>	<b>pipe over this period m<sup>3</sup></b>	<b>m<sup>3</sup></b>	<b>over period m<sup>3</sup></b>	<b>this m<sup>3</sup></b>
15mins	87.2 (21.8)	23.1	27.8	14.4	13.4	19.8	8.0
30mins	57.2 (28.6)	30.4	36.5	28.8	7.7	39.6	Nil
1 hour	35.9 (35.9)	39.0	46.8	57.6	Nil	79.2	Nil

If void capacity within the stone trenches is allowed for e.g. 92m long x 750mm deep x 400mm wide and assume a 30% void within the stone a further 8.3 m<sup>3</sup> of holding capacity is to hand making a 180mm pipe adequate. This could be graduated as the 1<sup>st</sup> half 155mm and the second half 180mm. These will need to be linked to divert the rainwater across to the attenuation pond e.g. with these flows 2 x 180mm pipes can feed a 250mm pipe, 3 x 180mm pipes a 300mm pipe and 4 x 180mm pipes a 350mm pipe. For most of the time the attenuation pond will be empty more resembling a grassed depression.

Looking at the site the longest pipe runs from the far end of the southern houses to the balancing pond will be about 198, most considerably shorter. Hence a fall of 1 in 200 will be just over 0.5m. I am satisfied that a fall of 1 in 200 is adequate for these pipes laid in long sections with few joints and also with pipes of these large diameters. It will however mean when we get rainfall of this record intensity there is no option but for the water to back up within the pipes to an extent.

Hence the eaves drainage system for the site will be based on 115mm/180mm and 210mm and 250mm pipework running directly in to the attenuation pond. No realistic pipe sizes could fully cope with the short bursts (5-10 minutes) of very intensive rainfall. Stone underneath the outlet pipes into the attenuation pond will help to protect any erosion. In practice however when the soils are saturated much of the heavy rainfall on agricultural land will inevitably be shed from the surface with much surface ponding.

#### **6.4 Summary**

With the above drainage and attenuation pond in place the heaviest rainfall falling in 100 years can be safely contained and metered in to the ditch as the rainfall and surplus water subsides. The foul water when cleaning out and washing down will be fully contained.

## **7. FLOOD RISK**

### **7.1 Flood Risk Assessment**

A flood risk assessment is contained at Appendix 5

## **8. AIRBOURNE POLLUTION**

### **8.1 Odours**

#### **8.1.1 Litter Moisture/Odourants**

Research evidence suggests that odour emissions increase at the time of the growing period 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 the litter moisture reaches about 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 the aerobic bacteria that break down the excreta and allow moisture to be absorbed is reduced. There is a shift to an aerobic breakdown with the 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. It is often the older buildings with less efficient ventilation and insulation that lead to odour problems. Odour emissions will be less and performance, welfare and profitability enhanced.

**These problems can be avoided** and are certainly not anticipated at the application site with the new more efficient sheds. The MAFF booklet POULTRY LITTER MANAGEMENT (Ref: PD 1739) outlines the factors involved and how to avoid problems with litter quality.

Most poultry odours are believed to travel either absorbed into dust particulars or in solution within small water droplets. Ammonia is very soluble and can be carried outside the house within water droplets. It is likely to be further diluted by water in the outside atmosphere and is soon dissipated.

#### **8.1.2 Protection of Water, Soil and Air - A Code of Good Agricultural Practice for Farmers, Growers and Land Managers**

The revised Code of Practice was issued by DEFRA in 2009. It describes the main causes of air pollution from different agricultural activities and provides a practical guide to help farmers and growers avoid causing air pollution from odours,

ammonia, smoke and greenhouse gases. In the case of a broiler unit, the most important factors relating to potential air pollution are ammonia and odours and the terms of the code will be strictly adhered to in the management practices used on the proposed site. Paragraphs 322 outlines the importance of Best Available Techniques and paragraphs 325 - 328 Deep Litter Poultry Systems.

### **8.1.3 Odour Model**

AS Modelling and Data was commissioned to undertake an odour model for the new unit (see Appendix 6). The layout has changed slightly from the model layout but not in a way that would affect the general conclusions. The conclusions under the proposed scenario are that all properties are below the Environment Agency Guidelines.

## **8.2 Dust concentrations and emissions**

Within a poultry building, 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  $\mu\text{m}$ ) account for around 70% of the number of particles, but only 5% of the mass. Similarly, particles greater than 5 microns (5  $\mu\text{m}$ ) account for under 10% of the number, but between 40 and 90% of the dust mass.

The particles of dust inside the building are emitted to the atmosphere via the ventilation system. The amounts of dust emitted are influenced by the level at which the ventilation system is operating. In hot summer weather, for example, the ventilation system will be opening at high rate.

The larger dust particulars (5 microns/5  $\mu\text{m}$  and over) found within the building either tend to fail to migrate to the ventilation fans, or are expelled from the building and immediately deposited to the ground. The unit will employ high speed ridge ventilation so there will not be any large concentrations of deposited dust on the ground outside, therefore creating few deposits entering the water course via land or French drains.

Once released to the atmosphere the dusts 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 poultry buildings fall into a level below air quality guide-line values as laid down by the EU and eventually be indistinguishable from normal background dust levels.

Evidence indicates that annual average concentrations of poultry dust are not expected at distances exceeding 100 m from the source. Thus, only properties situated very close to a poultry building are in danger of exceeding either the EU and UK regulations on dust concentrations in air, or the tolerance threshold

values for dust deposition. Landscaping can help by trapping particles. Together with the high speed fans it is considered dust will not be an issue.

When examining the above factors it can be seen that dust should cause no problems to nearby protected dwellings because of distance.

### **8.3 Flies**

Flies are not a problem on a well managed and hygienically run broiler site. This applies to the proposed development as broiler litter is not a breeding ground for flies during the broiler's life and no dirty litter will be stored on the site thereafter.

### **8.4 Vermin**

Routine baiting and a well constructed site will ensure that there will be no risk of the broiler site becoming a breeding ground for rats or mice.

### **8.5 Noise**

There are a number of sources of noise in a broiler unit, including ventilation fans, lorries and other vehicles. The proposed sheds will have modern ventilation fans, most of which are contained within cowls directed upwards which limits noise.

Birds are sometimes removed at night. This is a quiet operation.

In addition the noise of feed being blown into the bulk bins might occasionally be heard. The noise of lorries and other vehicles may be heard in the vicinity, however this will be no different to the current scenario under the agricultural use.

These noises will not be unusual in an agricultural area, where other farms in the vicinity use similar equipment, and will last approximately 1 hour.

The report at appendix 7 contains noise readings for a similar sized farm to the one proposed during removal of birds at night and shows no noise issues in the locality.

## **9. ECOLOGY**

### **9.1 On and off site**

Poultry units can have an impact on ecology in three ways, namely:-

- a) The site of the new buildings removing habitat, especially any elements constructed on previously undeveloped land.
- b) The impact on species that might use the site temporarily or immediate surrounding area.
- c) The impact of emission on sites of ecological interest further afield, principally ammonia.

In terms of a) and b) a Phase 1 Habitat Survey and assessment has been undertaken and is contained at Appendix 3.

The main conclusion states that planning permission for this development should not be significantly constrained by ecological issues.

In terms of ammonia a screening opinion was obtained from the Environment Agency re the need for Ammonia Modelling. They confirmed in a letter dated 16/06/16 that no detailed modelling was required. A copy is contained at Appendix 8.

### **9.2 Arboricultural Implications**

There are no trees affected by the development.

## 10. TRAFFIC STATEMENT

### 10.1 Road network

The land is accessed off the A631. This is a good quality A class road which links the A15 to the west (Caenby Corner) to the A 46 in the east.

### 10.2 Site access

The access onto the A631 is currently a field access which is partly stoned. There is a good sized verge of approx. 3m wide. Either side of the access is a low hedge which doesn't restrict visibility. A proposed upgrade of the access is part of the scheme and is shown on the application plans.

### 10.3 Traffic movements

Proposed – 400,000 Birds

Commodity	Delivery/Collection	Week							Total
		1	2	3	4	5	6	7	
Gas & shavings	Delivery 25 tonnes	4	3						7
Feed	Delivery 38 tonnes	6	9	9	10	10	10		54
Chicks	Delivery 20 tonnes	8							8
Birds	Collection 21 tonnes						20	46	66
Litter	Collection 20 tonnes							26	26
Carcass	Collection 20 tonnes	1	1	1	1	1	1	1	7
Dirty Water	Collection							5	5
Total/Week		19	13	10	11	11	31	78	173

The average number of vehicles per week is 24.7 (49.4 movements).

It can be seen from the table that generally the predicted amount of traffic movements is low, apart from the relatively short periods at the beginning and particularly the end of each cycle when the mature broilers are taken away for slaughter.

The variety of vehicle types, loads and therefore starting points/destinations will mean that movements will be distributed fairly quickly on leaving the site. Given



this is an agricultural area where peaks and troughs in farm vehicle movements are common it is considered that the increase in movements will have little environmental effect.

There will be a reduction in agricultural traffic for the land taken from arable cropping. 12 acres for example under potatoes or sugar beet would involve approx. 20- 25 vehicles removing the crop.

In addition to the above HGV/tractor movements, there will be a requirement for staff to visit the site. There are likely to be 3 full time staff working on the unit plus specialist labour for catching and cleaning out.

#### **10.4 Mitigation**

Mitigation will be in terms of upgrading the access to a sufficient standard to serve the unit.

#### **10.5 Impact**

The road network is good in the vicinity and the proposed access point has good visibility. Assuming the upgrade is undertaken as proposed will mean the impact will be low.

#### **10.6 Impact on footpaths**

There are no footpaths, etc in the vicinity of the site, therefore no impact will be caused.

### **11. LANDSCAPE IMPACT**

A Landscape Assessment has been undertaken which is included at Appendix 9. It must be noted that the landscape assessment was based on an earlier version of the scheme, however for the purposes of the assessment it is thought there is no material difference.

The main conclusion from the report is that the impact is limited due to only distant views into the site.

The landscape is large scale and open and is not particularly sensitive, and should be able to accommodate the development without a detrimental impact on the landscape character.

New planting would screen the site and further reduce any visual impact, whilst still keeping the landscape character. A planting specification and plan are contained at appendix 9a.

## **12. LIGHTING IMPACT**

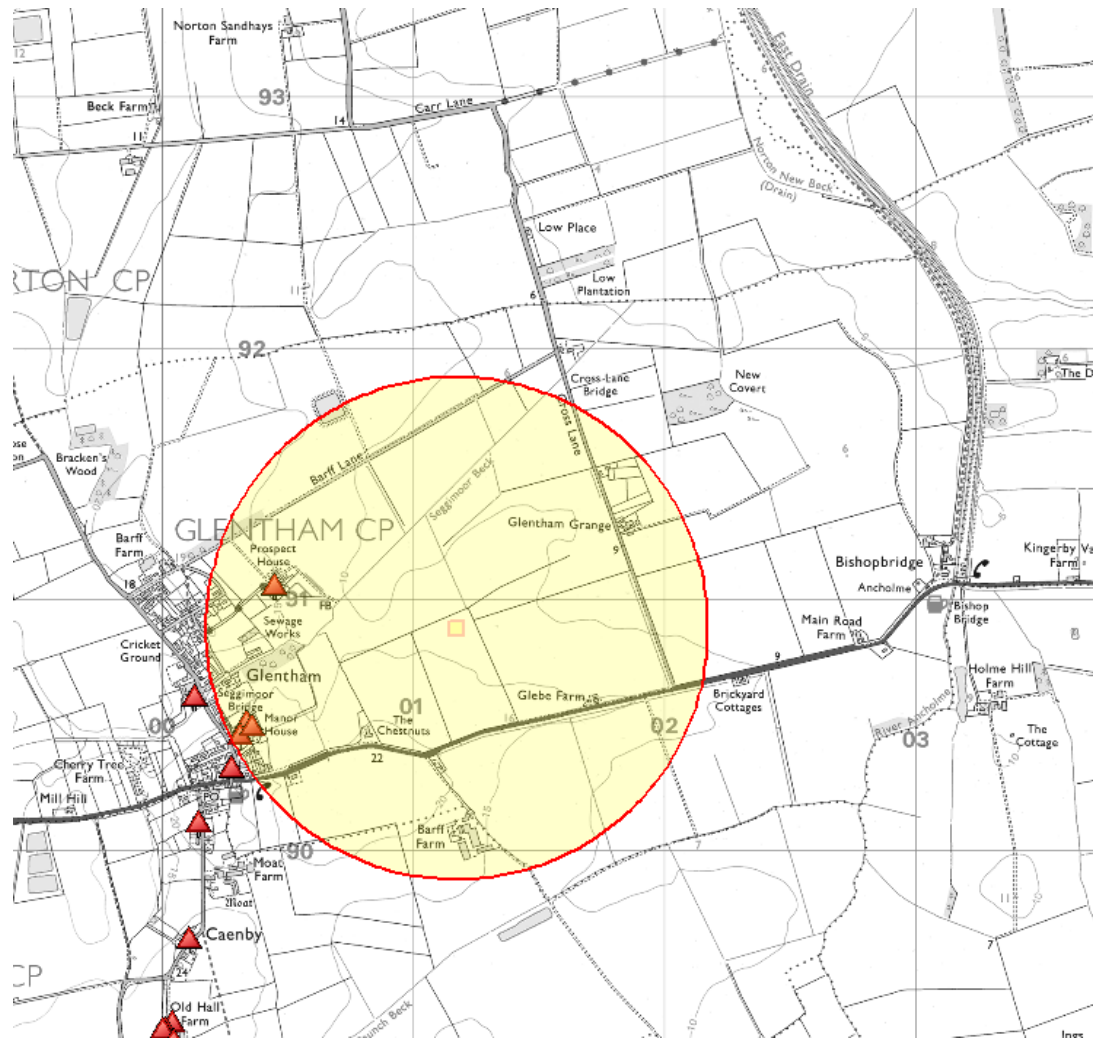
Details of likely lighting are contained at appendix 10. These are a mixture of floodlights over the main doors and personal lights beside each personnel door. The floodlights will be pointing towards the ground and so will have minimal impact on the wider environment.

## **13. PREVIOUS LAND USE AND CONTAMINATION**

The land has been farmed with arable cropping for many years. It is possible the site may have been grass and grazed historically but this would represent no greater risk than the arable cropping.

## **14 HERITAGE ASSETS**

A search of heritage assets was undertaken using the DEFRA database via Magic Maps (<http://magic.defra.gov.uk/home.htm>), from which the below information is taken.



There are not any listed buildings or scheduled monuments on the site. A 1km search from the site was undertaken using the DEFRA database via Magic Maps, this showed there was no scheduled monuments in the immediate locality and only a small number of listed buildings, as detailed below.

### Listed Buildings (England)

Name
MANOR HOUSE
Reference
1064186

**Grade**  
II  
**Date Listed**  
01/11/1966  
**Legacy UID**  
196776  
**Scale of Capture**  
1:2500  
**Easting**  
500336  
**Northing**  
390514.36084  
**Location**  
Glenthams, West Lindsey, Lincolnshire, LN8  
**Name**  
CHURCH OF ST PETER AND ST PAUL  
**Reference**  
1165045  
**Grade**  
I  
**Date Listed**  
01/11/1966  
**Legacy UID**  
196775  
**Scale of Capture**  
1:2500  
**Easting**  
500310.26  
**Northing**  
390462.83572  
**Location**  
Glenthams, West Lindsey, Lincolnshire, LN8  
**Name**  
TRAP HOUSE AT MANOR HOUSE  
**Reference**  
1165069  
**Grade**  
II  
**Date Listed**  
22/02/1985  
**Legacy UID**  
196777  
**Scale of Capture**  
1:2500  
**Easting**  
500358  
**Northing**  
390498.36084  
**Location**  
Glenthams, West Lindsey, Lincolnshire, LN8  
**Name**  
PROSPECT HOUSE  
**Reference**  
1165078  
**Grade**  
II

**Date Listed**

22/02/1985

**Legacy UID**

196780

**Scale of Capture**

1:2500

**Easting**

500447

**Northing**

391058.36084

**Location**

Glentham, West Lindsey, Lincolnshire, LN8

The closest listed building is Prospect House, approximately 700 metres from the site. This is a Grade II listed C17 farmhouse. Any impact is thought to be low due to the distances involved and the low sensitivity of Prospect House. In addition existing and proposed landscape planting will help mitigate any potential impact there may be.

Other listed buildings are in the village of Glentham and it is not thought that the proposal will have a significant impact on these due to distances, blocked views from other existing buildings, and the proposed landscaping.

The nearest scheduled monument is a D shaped Barrow approximately 1.5km north west of the site, it isn't thought there will be any impact from the proposal. The distance between the two sites is significant, with the village of Glentham, and so a large number of buildings between the two sites.

The Scoping Opinion result did not raise any requirement for heritage studies for this development.

## **15. ALTERNATIVE**

Alternative layouts have been considered however it is felt that the proposal makes best use of the site.

## **16. CONSTRUCTION PHASE**

The construction of the unit will involve the following phases:-

- a) Preparation.
- b) Strip soil and put to one side
- c) Formation of new bases on new sites and installation of new access
- d) Erection of frame and installation of services. The frame will be all pre designed and the erection process will take a matter of a few days.
- e) Concreting and building works.

In total construction is expected to take approximately 8 months

During construction there will be vehicle movements, but these will last for only a short period whilst materials are being delivered, particularly stone and concrete which make up 2/3 of the likely vehicle movements, although these will be over the first 3-4 weeks.

For the remainder of the period vehicles will mainly be vans with trades people plus delivery of equipment. The overall daily average will be 3 HGVs and 3 vans.

All framework and equipment will be delivered ready to fit so there will therefore be no concern noise wise at building erection phase.

There will, however, be some noise when finishing the concrete floor, although this will be for short periods.

## **17. CONCLUSIONS**

The background investigations and scoping opinion identified a number of aspects which may give rise to environmental effects of the development. The proposal consists of 10 poultry sheds and the conclusions on the various aspects are as follows:-

### **Clean, Dirty Water and Flood Risk**

A full containment system is proposed for the dirty water and this will then be removed from the site.

Clean water will be disposed of via a balancing system.

### **Airborne Pollution**

The issue of odours, dust and noise have been investigated including the involvement of Agromet specialists. These conclude that odours will be within guidelines.

### **Landscape Impact**

The main conclusion is that the proposed buildings will have a low impact in the landscape which can be mitigated through new planting to provide screening.

### **Highways**

While there will be traffic to and from the site as a result of this development, this will only be at certain times during each cycle, such as removing the birds and cleaning out.

The variety of vehicle types, loads and therefore starting points/destinations will mean that movements will be distributed fairly quickly on leaving the unit. Given this is an agricultural area where peaks and troughs in farm vehicle movements are common it is considered that the movements will have a low environmental effect.

### **Ecology**

The main conclusion states that planning permission for this development should not be significantly constrained by ecological issues.

**Noise**

The site is at a distance to residential properties so there are not considered to be any noise issues. Modern fans will be fitted in the roof and clearance of birds is a quiet operation.

**Heritage**

There are no listed buildings or scheduled monuments within the proposal site. There are a number of listed buildings within 1km of the site, however due to distance, planting and existing buildings it is thought that any impact is minimal.