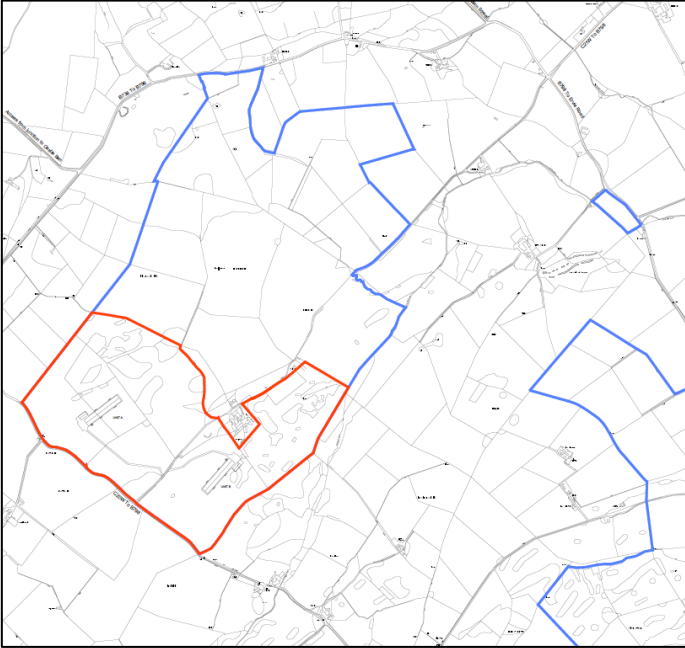


Proposed Egg Production Plant, Mains of Dhuloch, Kirkcolm, Stranraer, DG9 0RF



Odour Management Plan

784-B067657
19th December 2024

PRESENTED TO

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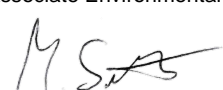
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DOCUMENT CONTROL

Document:	Odour Management Plan (OMP)
Project:	Proposed Egg Production Plant, Mains of Dhuloch, Kirkcolm, Stranraer, DG9 0RF
Client:	Mark Buchanan, Aitken Turnbull Architects, 32 George Street, Dumfries, DG1 1EH
Job Number:	784-B067657
File Origin:	\\ds-dc-vm-101\Data\Projects

Issue:	1	Status:	First Issue
Date:	19 th December 2024		
Prepared by: Dr Zhiyuan Yang Principal Environmental Consultant 		Checked by: Matthew Smith Associate Environmental Consultant 	Approved By: Nigel Mann Director PP. 

Issue:		Status:	
Date:			
Prepared by:		Checked by:	Approved By:
Description of revision:			

Issue:		Status:	
Date:			
Prepared by:		Checked by:	Approved By:
Description of revision:			

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1.0 INTRODUCTION

1.1 BACKGROUND

This odour management plan (OMP) details the information how odour control will be controlled and minimised, in support of a PPC permit application for a proposed egg production plant at Mains of Dhuloch, Kirkcolm, Stranraer, DG9 0RF.

1.2 SITE LOCATION

The central Grid Reference of the proposed egg production plant site is approximately 198400, 566210. The application site is bounded to the south and south-west by Bridge of Aldouran (Road); to the northwest by Mains of Dhuloch farm; and to the northwest and southeast by open farmland.

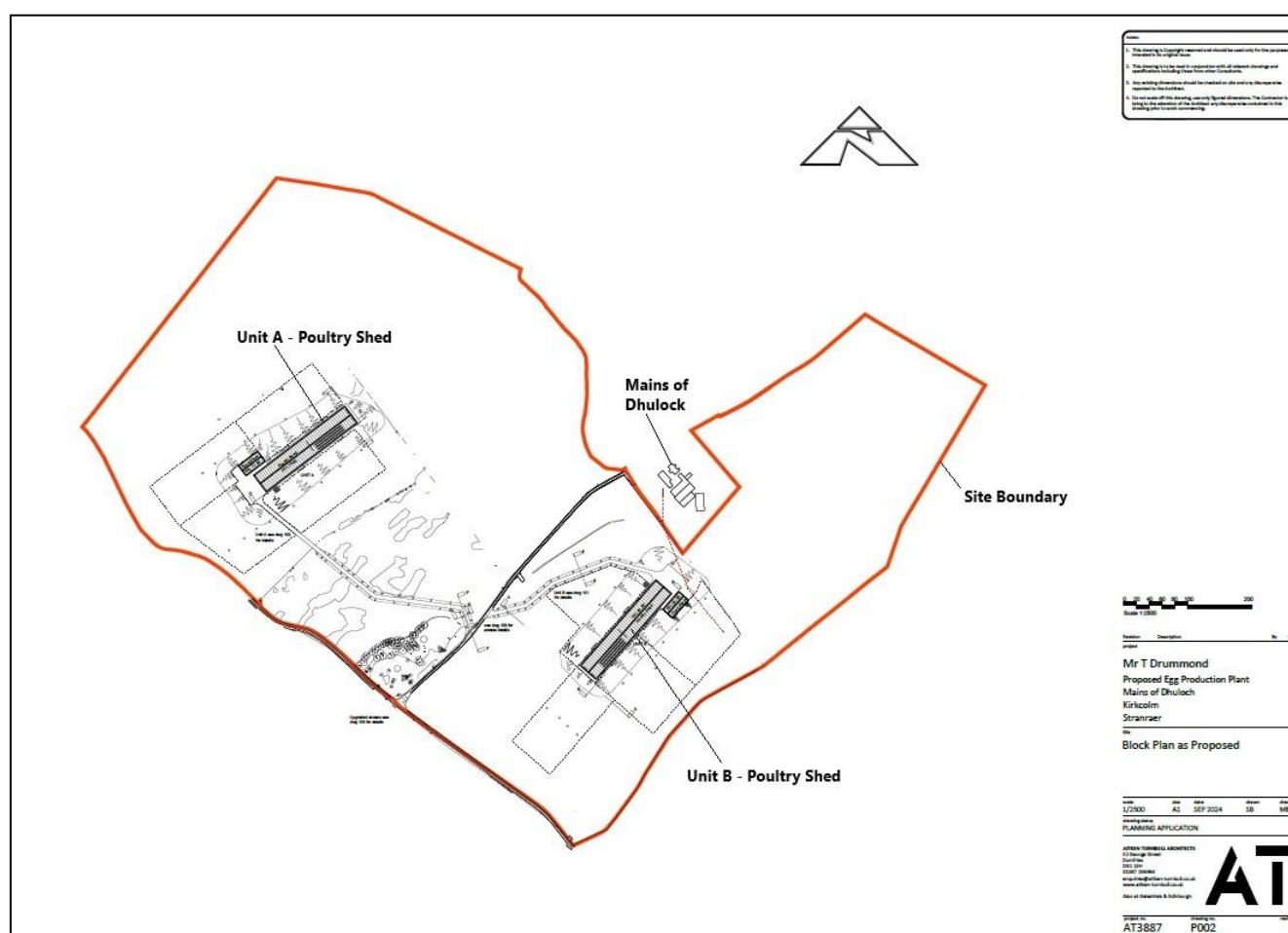
Reference should be made to **Figure 1-1** for a map of the application site and surrounding area.

The site layout plan is presented in **Figure 1-2**.

Figure 1-1. Site Location and Surrounding Area



Figure 1-2. Site Layout Plan



1.3 PRE-APPLICATION CONSULTATION WITH SEPA

As the proposed development falls into PPC the applicant, a pro-application consultation has been undertaken with the Scottish Environment Protection Agency (SEPA).

SEPA has responded with following comments:

- “Noise and Odour management (no requirement to model or measure for noise and odour for PPC but maybe at planning. For PPC we use Noise/odour Management Plans with details of systematic assessment and control mechanisms).”

Therefore, this OMP has been produced to meet the SEPA’s requirements.

1.4 OMP CONTENT

This OMP has been produced using “SEPA’s guidance of Pollution Prevention and Control (Scotland) Regulations 2012 (PPC), Intensive Livestock Installations, Standard Farming Installation Rules (How to Comply), Incorporating PPC Permit application guidance, April 2013.” The OMP used the OMP template that are presented in Appendix 4 of above guidance.

The content of the OMP consists of the following:

- Introduction.
- Potential Odour Sources.
- Identifications of Receptors.
- Odour Monitoring Plan.
- Odour Complaint Procedure.
- Full Odour Impact Assessment.
- Odour Monitoring Plan Review.
- Odour Monitoring Plan Review.

2.0 POTENTIAL ODOUR SOURCES

The proposed egg production facility consists of 2 x poultry houses (158.9m x 30.6m each) and associated infrastructure.

There are a number of potential odour emission sources, and they are:

1. Bird House No.1 (Unit A);
2. Bird House No.2 (Unit B);
3. Manure storage area associated with the Bird House No. 1;
4. Manure storage area associated with the Bird House No. 2;
5. Unit A free range areas; and
6. Unit B free range areas.

2.1 POTENTIAL ODOUR EMISSION SOURCES – BIRD HOUSES

The environmental conditions within the bird house buildings are controlled by a ventilation system and the ventilation system for each bird shed consists of:

- A heat recovery unit which contains two wall fans – 1 fan blowing in to the shed and 1 fan exhausting air out. The two fans are operating under same pressure and each fan has a capacity of 30,000 m³/hour. The heat recovery unit will be installed on the ground level next to the bird house.
- 4 roof fans which exhaust air out of the house. Each roof fan has a capacity of 36,700 m³/hour pulling air out of the house/shed. These will be high velocity chimneys with an air speed of 15 m/s.

Therefore, there will be 5 potential odour sources – 4 roof fan stacks and 1 heat recovery unit fan stack.

2.2 POTENTIAL ODOUR EMISSION SOURCES – MANURE STORAGE

The manure storage area associated with the Bird House No. 1 and the Bird House No.2 is approximately 550 m² each.

The potential fan stack locations and the manure storage areas are illustrated in **Figure 2-1**.

2.3 POTENTIAL ODOUR EMISSION SOURCES – FREE RANGE AREA

It is assumed that 10% of birds will be reared in free range. The free-range areas are located adjacent to the Unit A Shed and the Unit B shed and surrounded by the bird paddock fencing.

The potential free-range areas are illustrated in **Figure 2-1**.

Figure 2-1. Potential Odour Source Locations



3.0 IDENTIFICATION OF RECEPTORS

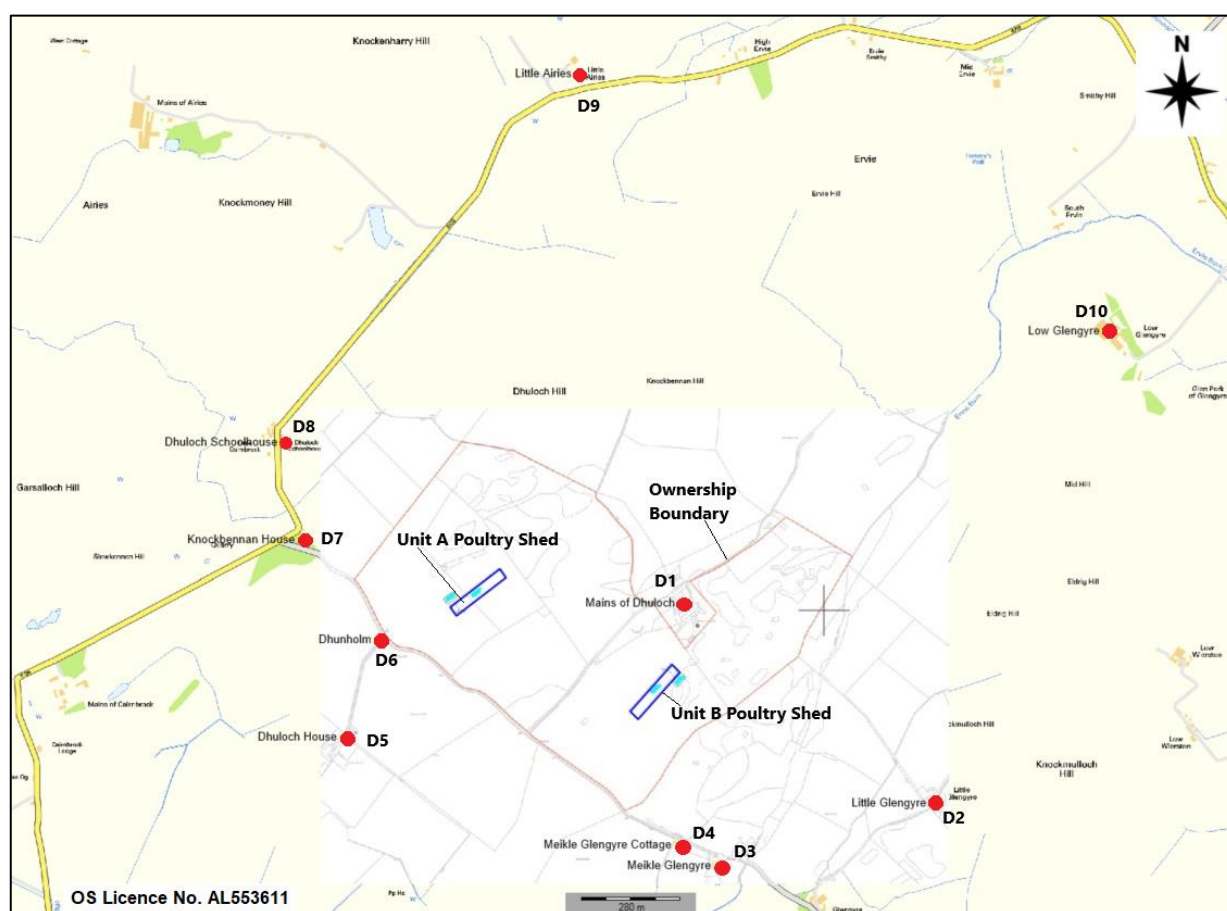
The identified sensitive receptors are primarily located adjacent to the proposed development.

The receptor locations are summarised in **Table 3-1** and the spatial locations of all of the receptors are illustrated in **Figure 3-1**.

Table 3-1. Sensitive Receptor Locations

Existing Sensitive Receptor	Type	X	Y	Bearing from site	Approx. distance from the nearest site boundary (m)
D1	Mains of Dhuloch	199019	566177	Surrounded by the boundary	20
D2	Little Glengyre	199733	565606	E	550
D3	Meikle Glengyre	199122	565428	S	300
D4	Meikle Glengyre Cottage	199011	565488	S	150
D5	Dhuloch House	198056	565794	S	300
D6	Dhunholm	198152	566072	S	20
D7	Knockbennan House	197938	566358	W	190
D8	Dhuloch Schoolhouse	197885	566634	W	400
D9	Little Airies	198723	567685	N	1,080
D10	Mains of Dhuloch	200228	566951	NE	950

Figure 3-1. Sensitive Receptors Location



4.0 ODOUR MANAGEMENT AND CONTROL

4.1 ODOUR MANAGEMENT IN POULTRY REARING

Odours from Poultry Housing

Odours from poultry sheds come from a number of sources. They are mainly caused by the breakdown of droppings and litter. Other sources of odour are from animal feed and waste food spilt onto floors. The following factors contribute to the emission of odours from poultry sheds:

- Build-up of slurry or manure on concrete around buildings;
- removal and disposal of dead animals;
- drain maintenance;
- bedding cleanliness;
- management of drinking systems, with particular emphasis on frequently adjusting nipple and drip cups to bird eye level to avoid spillage and wet litter;
- stocking density;
- litter moisture content;
- insulation of the buildings and the long-term maintenance of that insulation;
- ventilation and heating system;
- type of heating; and
- composition of the feed, particularly its oil and fat content and its protein content.

Minimising Odour Arising from Animals and their Housing

The odour associated with livestock housing tends to be related to ammonia although hydrogen sulphide can also be present. High ammonia concentrations usually accompany high odour concentrations in broiler buildings where litter is in poor condition (too wet). However, ammonia should only be seen as a component of the overall odour. Many of the actions taken to minimise odour will also minimise ammonia.

The following odour control measures have been planned to control the odour:

1. Using mechanical ventilation system:

The ventilation system for each bird shed consists of:

- A heat recovery unit which contains two wall fans – 1 fan blowing in to the shed and 1 fan exhausting air out. The two fans are operating under same pressure and each fan has a capacity of 30,000 m³/hour. The heat recovery unit will be installed on the ground level next to the bird house.
 - 4 roof fans which exhaust air out of the house. Each roof fan has a capacity of 36,700 m³/hour pulling air out of the house/shed. These will be high velocity chimneys with an air speed of 15m/s.
2. Using the belt dry techniques to reduce ammonia emissions. The techniques can in turn reduce the odour emissions. A consultation with the SEPA confirmed that the belt dry techniques may reduce the ammonia emissions by about 60%;

3. Using good housekeeping practices to ensure dust deposits around ventilation discharge points are cleared on a regular basis to prevent excessive build up to reduce odour.

Odour and Manure Management

Odour arises primarily from the biological changes which take place as manure decomposes. Strong odour also arises as a result of cleaning and disinfection of sheds - from the removal of accumulated manure. Storage of manure is also a source of odour.

The following odour control measures have been planned to control the odour from manure management:

1. Manure/dung storage area to be covered by a building to significantly reduce odour escaping to the atmosphere.
2. Roadways will be cleaned and kept free of manure.
3. Bird shelter areas will be cleaned regularly to reduce odour.

5.0 ODOUR MONITORING PLAN

Odour sniff testing (to check ambient air on or off site) will be undertaken daily between 09:00 and 12:00 or in response to complaints.

5.1 IDENTIFY SOURCES OF ODOUR AND/OR COMPLAINTS ON OPERATIONS

Odour Monitoring Types

Carry out an assessment 'walk around' (or sniffing test/survey) to identify where odours are coming from. This type of assessment does not involve measuring or predicting emissions - instead it relies upon a subjective assessment of whether odour is present or not, and how strong it is.

Walk around the installation and think about where odours come from:

- How much does odour increase during occasional operations such as animal loading, shed cleaning and removal of waste? Are complaints related to these activities?
- Is manure spread on the farm?
- Are there deposits of manure or feed etc. on roadways or in yards?
- Are there uncovered skips or bins?

A scale of increasing odour intensity will be used in the sniff testing:

1. No detectable odour;
2. Faint odour (barely detectable, need to stand still and inhale facing into the wind);
3. Moderate odour (odour easily detected while walking & breathing normally);
4. Strong odour (strong but bearable); and
5. Very strong odour (very offensive, possibly causing nausea, particularly if not accustomed to this odour).

5.2 IDENTIFICATION OF ODOUR EXTENT

Spending at least 3 minutes at the point(s) nearest to housing and, if odour is detectable consider which of the following best describes the extent of the odour:

1. Local & transient (only detected on the installation or within the permitted installation boundary during brief periods when wind drops or blows).
2. Transient as above, but detected outside of the permitted installation boundary.
3. Persistent, but fairly localised.
4. Persistent and pervasive up to 50m outside the permitted installation boundary.
5. Persistent and widespread (odour detected >50 m from the permitted installation boundary).
6. The results (1-5 for intensity and 1-5 for extent) should be recorded against the time and date and the appropriate monitoring location. The name of the person undertaking the assessment should be recorded. The cloud cover, wind direction and wind speed should also be noted using the Beaufort scale in **Table 5-1**.

Table 5-1. Beaufort Scale for Wind Speed

Force	Description	Observation	km/hr
0	<u>Calm</u>	Smoke rises vertically	0
1	Light air	Direction of wind shown by smoke drift, but not wind vane	1-5
2	Light breeze	Wind felt on face; leaves rustle, ordinary vane moved by wind	6-11
3	Gentle breeze	Leaves and small twigs in constant motion	12-19
4	Moderate breeze	Raises dust and loose paper; small branches are moved	20-29
5	Fresh breeze	Small trees in leaf begin to sway, small branches are moved	30-39
6	Strong breeze	Large branches in motion; umbrellas used with difficulty	40-50
7	Near gale	Whole trees in motion; pressure felt when walking against wind	51-61

5.3 SNIFFING TEST LOCATIONS

The sniffing test will be undertaken at the locations shown in **Figure 5-1**. The sniffing test will be undertaken at the 4 site boundary locations No. 1 to No. 4, which are at site boundary close to the farm houses or a road.

Figure 5-1. Odour Sniffing Test Locations



5.4 SNIFFING FORM

An odour sniffing report form is presented in Appendix A.

5.5 CORRECTIVE ACTION PLAN

If odour has been identified outside of the site boundary, for example, a 'moderate odour' intensity was observed at any of the 4 sniffing locations, or there are complaints received, the following corrective actions will be undertaken:

1. Identify each odour problem/source.
2. Reviewing whether the actions detailed in Section 4 have been followed.
3. If all the actions in the Section 4 have been complied with, the odour management plan will need to be revised, and additional odour mitigations will be needed to control odour.
4. Identify whether odour increase/odour complaints received occurs during the operation of shed cleaning:

If yes, suggested action:

Avoid the shed cleaning activities when wind is blowing toward the closest residential farm houses.

5. Identify whether odour increase/odour complaints received during occasional operation of removal of waste:

If yea, suggested action:

Avoid the removal of waste when wind is blowing toward the closest residential farm houses.

6.0 COMPLAINTS PROCEDURE

The complaints record form will be completed when receiving a complaint and the following actions will be taken:

1. The form will be completed, signed and dated by a staff member.
2. The caller will be asked for their name, address and telephone number (They may not be willing to provide this information but this does not invalidate the complaint).
3. Each complaint will be given a reference number.
4. The caller will be asked to give details of:
 - the time the odour was detected;
 - how long it lasted;
 - how often it occurs; and
 - the nature of the odour – what sort of odour was it? What did it smell like?
5. The staff number will then, if possible, make a note of:
 - the weather conditions at the time the odour was detected – usually wind direction and a note of the conditions (light wind, no wind, strong breeze, or use the Beaufort scale in **Table 5-1**, clear, full cloud cover etc.); and
 - the activity on the installation at the time the odour was detected, particularly anything unusual.
6. The reason for the complaint will be investigated and a note of the findings added to the log to identify any activity that may have led to the complaint.
7. The caller will then be contacted with an explanation and any actions being taken to minimise the odour in future.

Following complaints, it is appropriate to review the odour management plan. The complaints record should be made available to SEPA upon request.

An odour complaints report form is presented in Appendix B.

7.0 FULL ODOUR IMPACT MODELLING ASSESSMENT

Odour impact modelling assessment of odour emissions from the operations of the proposed plant has been undertaken. An odour assessment report has been produced with reference number: 784-B067657, dated on 7th November 2024.

The objectives of the odour assessment are (1) to evaluate potential odour impact on the local area; (2) to determine whether the odour impacts from plant emissions meet the odour assessment criteria; and (3) to avoid causing potential adverse impacts on the amenity of sensitive receptors.

Odour emissions from following sources/areas have been included in the assessment.

- Poultry Shed (Bird House) Unit A.
- Poultry Shed (Bird House) Unit B.
- Dung Store (Manure storage area) associated with the Poultry Shed Unit A.
- Dung Store (Manure storage area) associated with the Poultry Shed Unit B.
- Odour Emissions from free range birds associated with the Poultry Shed Unit A.
- Odour Emissions from free range birds associated with the Poultry Shed Unit B.

Odour Impact Assessment Results

The odour impact assessment results indicate that the maximum odour concentration at the identified receptors does not exceed the odour assessment criteria. The odour effects on the sensitive receptors are considered to be 'negligible'. Therefore, the predicted odour emissions from the plant are considered acceptable.

8.0 OMP REVIEW

The OMP will be reviewed annually and in the event that odour control measures fail. The reviews will take into account compliance records, complaints history, site records and any recent sensitive developments on neighbouring land. The plan will be amended as necessary, including any changes to the control measures.

The finalised OMP will be stored in the site office. Relevant training on effectively implementing the OMP will be delivered by the site manager for all staff/site operatives, as well as during the employment induction.

APPENDIX A ODOUR SNIFFING FORM

Form 1 – Odour Sniffing Test Report

Date and Time							
Weather Conditions							
Wind direction & Wind Speed							
Assessor							
Location	Time		Odour				
	Start	Finish	Y/N	Intensity	Extent	Description	Source
1 – on the southern boundary adjacent to Dhunholm							
2 – on the southern boundary adjacent to Bridge of Aldouran (Road);							
3 – on the Southern corner adjacent to Meikel Glengyre Cottage							
4 – on the boundary next to Mains of Dhuloch							

A scale of increasing odour **intensity** will be used in the sniff testing:

- 1) No detectable odour;
 - 2) Faint odour (barely detectable, need to stand still and inhale facing into the wind);
 - 3) Moderate odour (odour easily detected while walking & breathing normally);
 - 4) Strong odour (strong but bearable); and
- Very strong odour (very offensive, possibly causing nausea, particularly if not accustomed to this odour).

If odour is detectable consider which of the following best describes the **extent** of the odour:

1. Local & transient (only detected on the installation or within the permitted installation boundary during brief periods when wind drops or blows);
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3. Persistent, but fairly localised;
4. Persistent and pervasive up to 50m outside the permitted installation boundary; and
5. Persistent and widespread (odour detected >50 m from the permitted installation boundary).

Beaufort Scale for Wind Speed

Force	Description	Observation	km/hr
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APPENDIX B ODOUR COMPLAINT REPORT FORM

Odour Complaint Report Form

Odour Complaint Report Form			
Installation to which complaint relates:		Date recorded:	Reference number:
Name and address of caller:			
Tel no. of caller:			
Location of caller in relation to installation:			
Time and date of complaint:			
Date, time and duration of offending odour:			
Caller's description of odour, e.g. comparison with other odours, strong/weak, continuous, fluctuating:			
Has the caller any other comments about the offending odour?			
Weather conditions (e.g. dry, rain, fog, snow):			
Wind strength and direction (e.g. light, steady, strong, gusting) or use Beaufort scale (see Table 1):			
Any other previous complaints relating to this odour?			
Any other relevant information:			
Potential odour sources that could give rise to the complaint:			
Operating conditions at the time offending odour occurred – e.g. removing manure from housing, deliveries, feeding:			
Follow-up Date and time caller contacted:			
Action taken:			
Amendment requirement to Odour Management Plan:			
Form completed by:		Signed:	