

## **Dust and Bioaerosol Management Plan**

**Farm name:** Thurlby Farm      **Operator:** L J Fairburn & Son Ltd      **Permit number:** EPR/TP3221SS/A001

**Date:** July 2024      **Prepared by:** L Bentley

### **Introduction**

This bespoke Dust and Bioaerosol Management Plan has been prepared to support the overall Environmental Management System in place at Thurlby Farm. The overriding principle of this plan is to ensure the day-to-day activities are carried out in accordance with this document to help minimise the overall environmental impact. The nearest sensitive receptors are within 100m of the installation boundaries. There are two residential properties to the North of the installation and an agricultural property to the West. Both properties are owned and resided in by third parties.

There is no history of complaints regarding odour, noise or emissions.

### **Setting**

The installation is located at National Grid Reference TF 48323 75628. Please refer to Appendix 4.

Figure 1 shows the location of the sheds and of the receptors which have been considered in this management plan.

Figure 1: Buffer zone and sensitive receptors within 100m

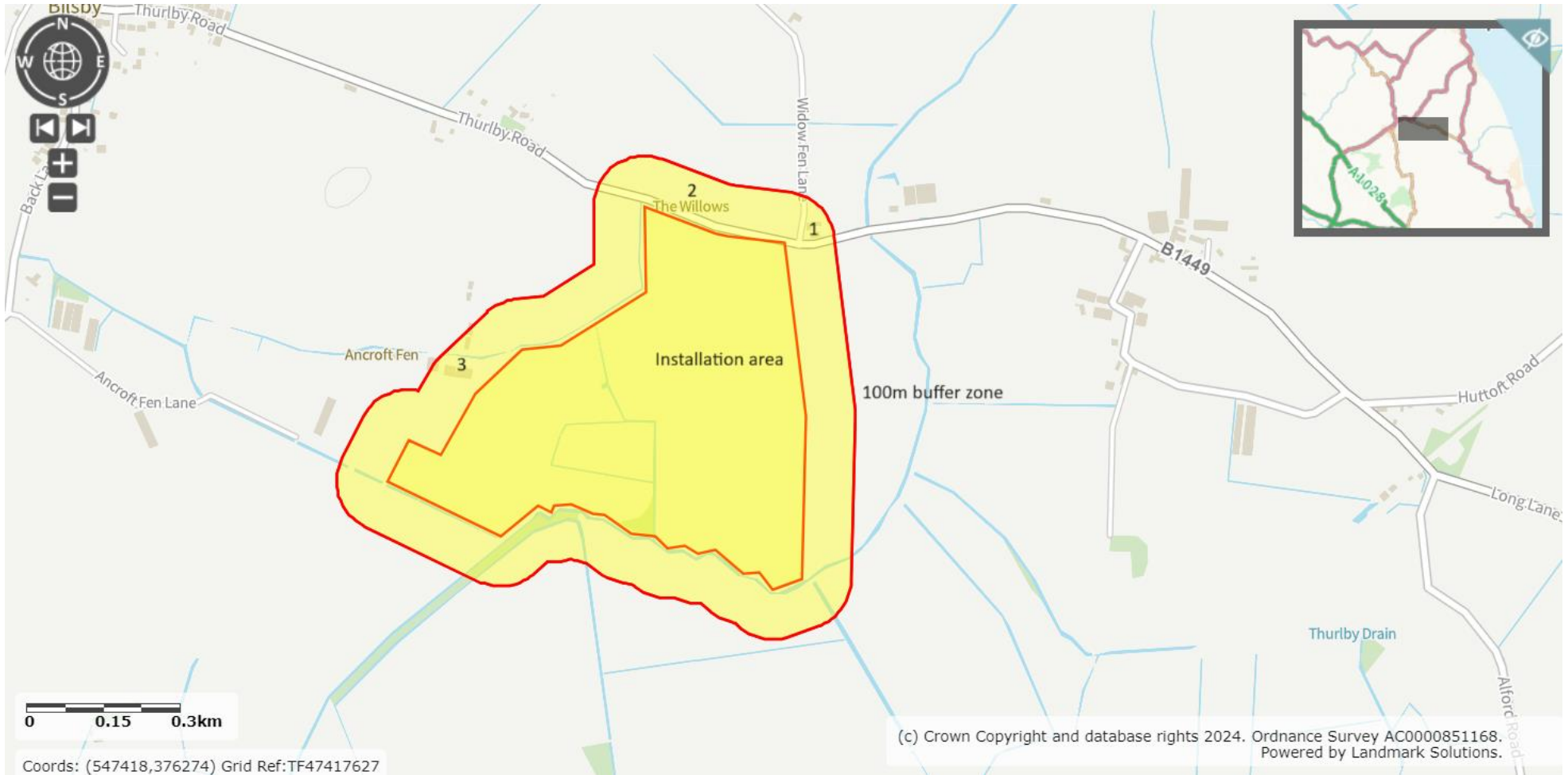


Table 1: Sensitive Receptor Locations

Grid Reference	X (Eastings)	Y (Northings)	Latitude	Longitude	Description (Click to Edit)	Address	Postcode
TF 48552 75993	548552	375993	53.260148	0.22558666	1	B1449, Moat Farm Cottage, Bilsby, East Lindsey, Lincolnshire	LN13 9JN
TF 48302 76043	548302	376043	53.260664	0.22186911	2	Thurlby Road, School House, Bilsby, East Lindsey, Lincolnshire	LN13 9JJ
TF 47838 75724	547838	375724	53.257924	0.21476666	3	Thurlby Road, School House, Bilsby, East Lindsey, Lincolnshire	LN13 9JJ

Table 2: Distance of Sensitive Receptors from Installation Boundary to nearest point of domestic curtilage

Reference	Description	Distance (m)
1	Widow Fen Lane (residential)	176m
2	The Willows (residential)	14m
3	Agricultural buildings used for storage	0m (adjacent property)

The purpose of this Dust and Bioaerosols Management Plan is to:

- Establish the likely source of dust and bioaerosols arising from the farm
- Set out procedures at the farm in order to mitigate or minimise the risk of dust/bioaerosols
- Formalise an effective method of dealing with any dust/bioaerosols complaints quickly and efficiently.

### **Potential dust/bioaerosol sources**

In accordance with Section 3 of H4 guidance, a risk assessment of dust/bioaerosols pollution was performed (Appendix 5).

As a result, the following sources have been identified as contributing to a potential *medium risk*:

- Dust/bioaerosol emissions from the birds (particularly feathers)
- Dust/bioaerosol emissions from feed selection
- Dust/bioaerosol emissions from feed delivery and storage
- Dust/bioaerosol emissions from poultry litter storage and removal
- Dust/bioaerosol emissions from yard areas
- Dust/bioaerosol emissions from housing
- Bioaerosol emissions from drinking water systems
- Dust/bioaerosol emissions from ventilation
- Dust/bioaerosol emissions from bird depletion
- Bioaerosol emissions from dirty water generation and storage (washout)
- Bioaerosol emissions from carcass storage and disposal
- Dust/bioaerosol emissions from dirty water/litter spreading
- Dust emissions from dust build up

## Pathways and receptors

The pathway for all of the above sources is via the atmosphere. With the most sensitive receptors being inhabitants of nearby residential dwellings, the wind direction will significantly influence how receptors are affected. We have not received any complaints from neighbours relating to dust/bioaerosols from the installation.

Dust/Bioaerosol related issues	Actions taken to minimise dust and bioaerosols	Completion date
Effects of diet on dust, odour and ammonia emissions (feed selection)	<ul style="list-style-type: none"> <li>• Feed composition is closely matched to the chickens' requirements</li> <li>• Feed specifications are prepared by the feed compounder's nutrition specialist. The nutritionist ensures that protein and phosphorous content is reduced as the rations change throughout the flock cycle.</li> <li>• Feed is only supplied by our own UKAS accredited feed mill, so that only approved raw materials are utilised in production.</li> <li>• A feed sample for every load of feed delivered to the site is left and documented for both quality assessment and traceability. Samples are kept on site for a minimum of 3 months.</li> <li>• Records of crude protein levels and diet formulation are kept in the site office.</li> </ul>	On-going
Feed delivery and storage	<ul style="list-style-type: none"> <li>• Dry feeds are stored in silos. No liquid feed storage.</li> <li>• Diets are ad-lib fed, via sealed systems, reducing potential for dust release to the atmosphere</li> <li>• Cyclone dust catchment systems will be in place on all silos</li> <li>• Any and all spillages are cleaned up immediately. We have our own vehicle for feed deliveries, so moving feed to another silo is within our control. For any major spillage greater than 500kg that is unfit for animal consumption the spillage will be cleared up in to skips and removed from site for disposal via the appointed waste contractor within 24 hours of the incident. For any spillage less than 500kg, feed would be cleared up using bags and placed in the onsite general waste container for disposal.</li> <li>• Internally, the feed never falls any great distance which reduces the dust plume effect. Any leaks are repaired quickly and any spillage cleaned up</li> <li>• Open surface of troughs/feeders kept to a minimum consistent with purpose in order to minimise exposed feed surface.</li> <li>• Waste feed removed and not allowed to accumulate. Feed protected from birds, flies and rodents.</li> <li>• The feed storage is checked by the site manager in accordance with the site's maintenance schedule.</li> </ul>	On-going
Ventilation techniques	<ul style="list-style-type: none"> <li>• The ventilation system is computer controlled and regularly adjusted to aid optimum internal environmental conditions.</li> <li>• The ventilation system is designed to efficiently control and, when required, remove humidity from within the buildings.</li> </ul>	

	<ul style="list-style-type: none"> <li>• Maintenance schedules are in place and are carried out in line with manufacturers' recommendation and guidance. This minimises the risk of any breakdowns during the flock cycle.</li> <li>• There is no exhaust out of the roof and they act as inlets only with fans that push air into the shed. All extraction fans are on the gables and sides of the building as per the attached drawing.</li> <li>• This will assist in the creation of a dry internal environment with a litter moisture content below 40%, thereby ensuring low odour/ ammonia emissions and conditions unsuitable for fly breeding.</li> <li>• As the roof fans are inlets, this results in no deposits of dust being made on the roofs. Roof water is therefore not contaminated.</li> </ul>	
Litter conditions and management	<ul style="list-style-type: none"> <li>• Controls on feed and ventilation help maintain litter quality</li> <li>• Bedding applied internally and at low level to reduce dust creation.</li> <li>• Use of nipple drinkers with drip trays to minimise spillage</li> <li>• Use of a veterinary health plan, with specialist veterinary input used as necessary, to mitigate risks of disease outbreak leading to poorly conditioned birds and excessive dropping.</li> <li>• All walls and ceiling voids have been insulated to prevent condensation and cold bridging. Continual Damp Proof Membrane (DPM) is laid under the concrete floors to prevent moisture being drawn up from the ground.</li> <li>• Water, feed and the controlled environment are monitored and recorded by computer control to maintain dry litter conditions, which minimizes ammonia and bioaerosol levels.</li> </ul>	
Carcass Disposal	<ul style="list-style-type: none"> <li>• Any mortalities are collected and recorded daily. The carcasses are then sprayed with blue stock marker spray and placed into a lockable bin. These bins are emptied weekly and the carcasses removed from the site by an approved contractor (A Hughes &amp; Son - Skellingthorpe) who incinerate the dead stock at correctly licensed premises.</li> </ul>	
Destocking of livestock	<ul style="list-style-type: none"> <li>• Ventilation controls to be used to control the release of bioaerosols while still maintaining optimum temperature control throughout the depletion process.</li> <li>• Machinery movements to be kept to a minimum to help avoid the churning up of damp litter</li> <li>• Replenishment of fresh bedding before depletion takes place.</li> </ul>	
Clean out (litter removal)	<ul style="list-style-type: none"> <li>• The poultry house has manure belts, and the manure will be collected from the farm every 3-4 days by tractor and trailer. No manure is stored on site.</li> <li>• At the end of the laying cycle the birds are removed from the shed and the manure is taken away in covered trailers by L J Fairburn. The shed is then blown down to remove any dry matter before being washed and then disinfected with Lion Code/</li> </ul>	

	<p>APHA approved chemicals. The dirty wash water that is generated in this process is collected in a waste water tank; the contents of which are spread on separately owned land in accordance with the Defra Codes of Good Agricultural Practice.</p> <ul style="list-style-type: none"> <li>• All internal areas are blown down using high pressure air lances to remove areas of trapped dust which, in turn, helps reduce the amount of dirty water generated.</li> <li>• Litter is removed efficiently and ventilation is required throughout to ensure the environment is clear of dust and ammonia build up. Once all the litter is removed and the floors mechanically swept, the ventilation system is powered down.</li> <li>• Only Defra approved disinfectants and detergents are used on site and are applied by trained personnel, in accordance with the manufacturer's guidance.</li> </ul>	
Dirty water storage	<ul style="list-style-type: none"> <li>• Areas around the houses are concreted and kept clean at all times throughout the flock cycle.</li> <li>• All dirty water is stored in underground sealed tanks, compliant with SSAFO regulations.</li> <li>• Dirty water is removed from site using vacuum tankers on a routine basis, with all removals documented and in accordance with a Manure Management Plan.</li> <li>• Unnecessary running of vacuum pumps avoided.</li> <li>• Routinely, the storage tanks are checked before and after wash down or following any prolonged rainfall.</li> <li>• Sealed system reduces bio-aerosol creation.</li> </ul>	On-going
Cleanliness of yard areas	<ul style="list-style-type: none"> <li>• Yard surfaces are properly maintained</li> <li>• The drainage system works effectively to prevent ponding of water. This is achieved by gradient and type of yard surface, ensuring effective drainage. Inspection and maintenance in the long term will ensure that this remains the case.</li> <li>• Housing, yards and equipment cleaned regularly to prevent dust build-up.</li> </ul>	On-going as part of the inspection and maintenance programme
All housing and management	<ul style="list-style-type: none"> <li>• Buildings are in line with BAT requirements, as will any future refurbishments be</li> <li>• All housing and stock are checked for cleanliness as part of daily welfare checks</li> <li>• All housing is cleaned out in accordance with written cleaning plan</li> <li>• Potentially odorous/dusty spillages (e.g. feed ingredients) are cleaned up promptly</li> <li>• Stocking density maintained at or below levels set out in Defra Welfare Regulations</li> <li>• Temperature and ventilation corresponds to animals' requirements to optimise the housed environment for the birds and air quality conditions.</li> <li>• Build-up of waste feed in front of feeders is prevented and waste feed is removed</li> <li>• Feeders and drinkers have been designed to prevent wastage and leaks</li> </ul>	On-going

	<ul style="list-style-type: none"> <li>• Floor and wall surfaces are constructed from non-porous smooth surfaces</li> <li>• Clean water from the site leaves the site via an attenuation soakaway</li> </ul>	
Spreading litter/dirty water	<ul style="list-style-type: none"> <li>• Applied to land in the locality owned and managed by the operator</li> <li>• Spreading is co-ordinated with local weather forecasts and follows regulations and Defra Code of Good Agricultural Practice.</li> <li>• Application techniques designed to reduce creation of bioaerosols.</li> </ul>	On-going
Dealing with complaints	<ul style="list-style-type: none"> <li>• Any dust or bioaerosol complaints will be reported to the permit operators who will log and investigate causes of all complaints; identifying the source of the issue and monitoring dust and bioaerosol levels at the site boundary as part of the investigation</li> <li>• The complaint details and subsequent investigation will be recorded on the site complaint form and a copy will be kept in the site office.</li> </ul>	On-going
General comments	<ul style="list-style-type: none"> <li>• Neighbours will be informed (where necessary) prior to activities which may cause dust/bioaerosols</li> <li>• Bioaerosol levels will be monitored on site by all staff. The source of abnormal dust/bioaerosol levels will be identified and appropriate action will be taken to reduce levels back to normal</li> <li>• The effectiveness of control measures will be reviewed at least once a year or sooner in the event of any complaint or relevant changes to operations.</li> <li>• <b>Site tours will be undertaken daily by the operators or their representative to ensure risks of bioaerosols are assessed.</b> Where there is potential for abnormal elevated dust/bioaerosol emissions, control measures will be put in place to mitigate the risk.</li> </ul>	



## Contingency Plan

Abnormal Scenario	Remedial Action	Time Limit
Damage to building	Damage would be repaired asap and, depending on nature of damage, area made safe and covered/contained in the meantime to prevent increased dust/bioaerosol emissions and/or destocked in the immediate area if necessary.	Depends on severity of damage and whether environment or animals are at risk.  Immediate action required to make safe.
Dirty water store damage or overflow	Significant contingency margin across more than one store so overflow risk low.  If risk of leak/overflow identified and a) can't be made safe immediately or b) can't be applied to land due to closed periods, weather, ground conditions or other factors; then the dirty water will be removed by tanker and exported to nearest alternative store.	If any risk of pollution, immediate action must be taken to remove risk.
Pipework damage	Stop or prevent flow of contaminated water and repair/replace damaged pipe.  Contain any leak as far as possible.  Contact the Environment Agency if there is any risk of pollution identified.	Immediately stop potential for leak.  Replace/repair pipe asap. Time frame depends on dependency on pipe.

## **Summary**

Dust and bio-aerosols are assessed daily by operators. Air quality within the buildings is also assessed (sensory assessment). Weather monitoring/forecasting, also help to assess the risks and take additional actions to mitigate them if necessary.

We have always worked hard to minimise our impact on our closest receptors. We continually assess management techniques to improve our control of emissions.

In accordance with guidance, we will review the effectiveness of our control measures at least once a year and in the light of any building and management changes and on the outcome of investigations into the causes of any future complaints, if any occur.

Any complaints will be recorded and investigated using the guidance from EPR 6.09 3.1 and 3.2 odour and emissions management on intensive livestock installations.

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