

Title:	Installation Information					
Report Reference:	AH-R01-F1					
Client:	Quarry Farm					
Submitted To:	Environment Agency					
Date:	24	-01-2025				
Main Contributor:		ett – AWSM Recycling Limited				
	Report Reference	Details				
Report Issue History	AH-R01-ID1	11-11-24 Draft for internal review				
	AH-R01-D1	10-12-24 Draft for client review				
	AH-R01-F1	24-01-2025 Finalised for EA Issue				

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# 1 Introduction

# 1.1 Background

Quarry Farm are applying for an Intensive Farm Environmental Permit for their site located at Quarry Farm, Sandsprunt Lane, Ebberston, Scarborough, North Yorkshire. YO13 9PA. The farm will operate as a finisher pig unit. The National Grid Reference for the centre of the site is SE 90672 83887. The Environment Agency Pre-Application Refence Number related to this application is EPR/MP3629LC.

## 1.2 Summary of Permitted Operations

The existing piggery is to be extended to provide accommodation for a total of 3,800 finisher pigs over 30kg in weight. The sheds are equipped with roof ventilation greater than 5.5 metres high, with a fan efflux velocity at or greater than 11m/s, (gable end fans are used for heat extraction using the summer months). The sheds incorporate a fully slatted floor system, with frequent vacuum slurry removal to an on farm, above ground covered storage tank with floating cover and offsite store.

## 1.3 Permitting Requirements

The facility is required to apply for an Environmental Permit (EP) in order to comply with the Environmental Permitting (England and Wales) Regulations 2016, SI 2016/1154. The relevant sections of the Regulations to describe the prescribed processes are:

Table 1.1 – Permitted Activities				
EPR Schedule 1 Reference Description				
Section 6.9 A(1)	Rearing poultry or pigs intensively in an installation with more than-			
(a) (ii)	2,000 places for production pigs (over 30kg)			

### 1.4 Guidance

The following 'sector' guidance documents, and associated BAT requirements, have been considered when preparing this application:

- Environment Agency guidance Intensive farming: comply with your environmental permit;
- EC's Best Available Techniques (BAT) Reference Document for the Intensive Rearing of Poultry or Pigs. Industrial Emissions Directive 2010/75/EU (Integrated Pollution Prevention and Control).

# 1.5 Application Documentation

The following documents have been submitted in support of this Permit application:

- EA Application Forms.
- AH-R01-F1 Installation Information.
- AH-R02-F1 Environmental Risk Assessment.
- AH-R03-F1 BAT Assessment.
- AH-R04-F1 EMS Summary.
- AH-R05-F1 Site Condition Report.
- AH-R06-F1 Site Drawings.

- AH-R07-F1 Non-Technical Summary.
- AH-Dust and Bio Aerosol Management Plan.

# 1.6 Report Format

The report is structured as follows:

- Introduction.
- Process Description.
- Emissions and Monitoring.
- Raw Materials and Energy.
- Wastes and Animal By-Products.
- Fugitive Emissions.

# 1.7 Diagrams and Plans

Document reference AH-R06-F1 Site Drawings, includes drawings and plans such as the Site Layout and Sensitive Receptor Plan.

# 2 Process Description

### 2.1 Introduction

The existing farm is to be developed with the addition of new sheds to house a total of 3,800 pigs. This section of the report details the proposed process and ancillary activities covered by the Environmental Permit.

## 2.2 Places and Housing Systems

Table 2.1 below sets out the housing systems and number of livestock places covered by the Permit.

Table 2.1 – Livestock Places and Housing System						
Shed	Places	Housing System				
All Sheds	3,800 total	Fully slatted flooring system with frequent vacuum slurry removal. High velocity roof fans, with an efflux of 11m/s are installed in the roof which is in excess of 5.5 metres in height. The sheds operate on a 16-week cycle (112 days), 14 weeks housed, during which the average occupancy is 80% average occupancy and two weeks turn around.				

**Notes** – The Location of the sheds is detailed on the Site Layout Plan within the document referenced AH-R06-F1 – Site Drawings.

# 2.3 Housing Configuration and Features

The housing systems are designed to ensure animal welfare requirements are met, ease of handing livestock and ensure efficient clean down. The following measures have been incorporated within the design to ensure effective management of housing and thus minimising any associated emissions:

- Drinkers and feed troughs designed to prevent leakage / wastage.
- Fully slated floors with vacuum removal, designed to facilitate maximum transfer of slurry to the storage tank.
- Housing surfaces kept clean through high standards of management and effective control of environmental conditions.
- Ventilation systems controlled to ensure optimal housing conditions in terms of air changes and temperature.
- Occupancy calculated on floor space allowances ensuring compliance with associated welfare and assurance scheme standards.
- Regular inspection of sheds, including floors and walls to ensure any damaged is repaired in a timely fashion.

### 2.4 Process Description

Livestock will initially be brought onto farm from third party pig farms and / or direct from market. The pigs are then fattened on site, prior to dispatch for food production.

Feed and Water – Feed for the pigs is provided via a dry feed pellet system, fed via externally located hoppers. Further discussion regarding diet is provided in the sections below. Drinking water is supplied via water storage tank serviced by a borehole.

The pigs are housed on fully slatted floor systems. This allows for the slurry to be collected underneath which is then removed by vacuum and pumped to the covered storage tank detailed below.

The pig houses are washed down at the completion of each 16-week cycle using pressure washers following a clean down plan. The wash water is collected by the slurry system described above.

Fallen stock collected by stockmen is placed in a dedicated enclosed bin and collected by a licensed contractor.

## 2.5 Slurry Storage

Slurry production will be c.358m³ month. Surry is removed from the beneath the sheds by vacuum and pumped into an above ground storage tank. The slurry storage tank is designed and will be constructed and operated in line with SSAFO requirements has a capacity of 1,560m³ and is fitted with a flexible floating cover. In addition, slurry can be stored to a slat depth of <800mm, providing c 3,000m³ storage.

Contingency storage is available using 6,000m<sup>3</sup> store located at N.C. Buckton Limited, South Cattleholmes, Wansford, East Yorkshire, Post Code YO25 8NW.

## 2.6 Secondary Processes

# 2.6.1 Standby Generator

A 45 kVA / 36 kW standby generator, sized to meet the sites base electrical load is utilised in the event of mains electrical supply outage. The standard gas oil generator, with integrated bunded c.250 litres fuel tank is housed in an acoustic and weatherproof enclosure and fitted an industrial exhaust silencer. The Medium Combustion Plant Directive controls do not apply to the generator given the thermal input rating is below 0.5 MWth.

### 2.7 Design and Maintenance

Process equipment is designed and installed to operate effectively. Site staff will perform routine planned preventative maintenance (PPM), with support from competent engineers and contractors, as required.

Maintenance will take the form of reactive maintenance activities (reacting to breakdowns etc) and planned preventative maintenance (PPM), (to reduce breakdowns / down time and to maintain equipment efficiency). The site will utilise a PPM system detailing the frequency maintenance operations in line with the manufacturers' recommended inspection and maintenance schedules, will be used to log all items of equipment requiring PPM and record maintenance undertaken.

### 2.8 Incidents and Corrective Action

In addition to the PPM regime, site will implement a monitoring and inspection programme to detect any faults or deficiencies with the process and associated operations. Deficiencies encountered will be detailed as part of the Incident and Corrective Action Reporting structure implemented on site. This process ensures the appropriate level of management commitment to ensure any corrective actions / repairs are commissioned and undertaken in a timely fashion.

# 2.9 Site Staffing and Training

The Organisation Structure and Responsibilities document forms part of the EMS and details the roles and responsibility of staff and sets out the requirement for them to be trained in the appropriate work instructions and procedures.

Site management will ensure that there is sufficient staff, that they are adequately trained and competent including those aspects that could possibly lead to a pollution incident, dealing with accidents and the site's responsibilities under the Environmental Permit.

# 3 Emissions and Monitoring

### 3.1 Introduction

This Section of the report provides detail on the emission points associated with the Permitted activities and details any monitoring methods to be implemented.

The potential for environmental impact from the emissions identified below, have been assessed with the Environmental Risk Assessment (ERA) submitted in support of this Permit application, see document referenced AH-R02-F1.

### 3.2 Emissions to Air

### 3.2.1 Point Source Air Releases

Table 3.1 below describes the point source releases to air from site.

Table 3.1 - Point Source Emissions to Air								
Emission Point Reference	Source	Nature of Release	Fuel Source					
<b>A1</b>	Animal Housing Unit Vents	Ventilated air from animal housing. Fan efflux velocity at 11 m/s and shed height above 5.5 metres	N/A					
A2	Generator	Releases of combustion gases from generator.	Gas Oil					

#### Notes:

- The Emission reference refers to the release points marked on Site Layout Plan in the report referenced AH-R06-F1.
- No mill and mix.
- No incinerator.
- Slurry applied to land outside of the installation boundary.

### 3.2.2 Point Source Air Release Controls and Monitoring

To ensure optimal combustion performance the equipment will be routinely maintained and serviced in accordance with the manufacturer's recommendations. The ERA concluded that no further monitoring requirements are deemed necessary for point source releases.

### 3.2.3 Fugitive Releases to Air

Fugitive emissions to air from the installation are detailed within Section 6 below. The Environmental Management System implemented on site will include routine and documented inspections to ensure that any fugitive releases are identified and rectified accordingly. The ERA concluded that no further monitoring requirements are deemed necessary for fugitive releases.

## 3.3 Emissions to Ground / Water

### 3.3.1 Point Source Releases to Water

There are no point source releases to surface water. All clean roof rainwater drains to ground via soakaways as detailed in Table 3.2 below –

Table 3.1 - Point Source Emissions to Ground							
Emission Point Reference	Source	Nature of Release					
All Soakaways	Clean Roof Rain Water	Soakaways, taking clean roof water from the pig unit.					

## 3.3.2 Foul Water Discharges

There are no domestic sewage discharges from site.

## 3.3.3 Trade Effluent Discharges

There are no trade effluent discharges from site to sewer.

### 3.3.4 Fugitive Releases to Ground / Water

The Environmental Management System implemented on site will include a thorough infrastructure monitoring programme designed to ensure there is no loss of integrity to the systems designed to prevent fugitive emissions to land and controlled waters. The infrastructure monitoring programme will form part of the EMS and incorporate site infrastructure such as:

- Feed systems.
- Generator and associated fuel store.
- Site Surfacing.

Where deficiencies are encountered these will be reported as part of the EMS using the incident and corrective action structure and repairs instigated.

# 4 Raw Materials and Energy

### 4.1 Introduction

This Section of the report details the principal and ancillary raw materials used in the process, including the Raw Materials schedule for the installation.

# 4.2 Principal Raw Materials

### 4.2.1 Livestock

Table 4.1 details the principal raw materials processed at the Installation.

Table 4.1 – Principal Raw Materials									
Material	Composition	Annual / Throughput	Environmental Fate and Behaviour						
Livestock	Pigs	3,800 places / yr.	<ul> <li>Biodegradable. High organic content.</li> <li>Bacteriological and pathogenic content.</li> <li>Odour, noise, dust generating potential.</li> <li>Entry into a watercourse would increase the BOD.</li> <li>Entry into an aquatic environment would have potentially detrimental effect on aquatic life.</li> <li>Insignificant environmental risk due to storage and handling arrangements in place to meet animal welfare requirements.</li> </ul>						

## 4.2.2 Feed

Only dry feed is to be utilised on site. Feed will be delivered in pellet form to feed silos. The estimated quantity of feed to be consumed on site per production cycle is c.840t.

A typical feed ratio breakdown over the production cycle to show reduction in N and P levels within the feed has been shown in Table 4.3 below.

Table 4.3 – Feed Details									
SPEC%	Grower 22 (50kg per pig)	Grower 30(80kg per pig)	Grower 35 (80kg per pig)						
Protein	16.75	14.21	12.38						
Fibre	4.7	4.35	3.99						
Calcium	0.55	0.51	0.51						
Phosphorous	0.44	0.41	0.41						
Lysine	1.13	0.95	0.82						

# 4.2.3 Water Use and Efficiency

Water used on site is to be supplied from the following sources:

- Borehole supply supply is less than 20m³ / day.
- Main back up supply.

Water will be used on site for livestock drinking water and cleaning purposes. The following water efficiency controls are implemented –

- Having drinkers at the correct level and adjusting the flow pressure to ensure livestock utilise
  the water correctly, minimising wastage of water and maintaining bedding quality.
- Daily checks ensure issues are located and rectified efficiently.
- Clean down undertaken following the site-specific terminal hygiene plan, to meet welfare requirements. The plan details dilution rates for detergents and disinfectants used to optimise efficiency of raw material usage.
- Site Staff and cleaning contractors trained specifically in the requirements of the clean down plan.
- Livestock houses are fully insulated, with suitable ventilation systems to regulate temperature and maintain a healthy indoor environment. Providing a stable environment ensures optimal use of drinking water.

# 4.2.4 Energy Use

Energy is consumed on site in the form of mains electricity, with a standby-generator available on the adjacent farm holding.

The following items are the main sources of energy consumption on site -

- Livestock building ventilation.
- Livestock building lighting.
- Feed distribution systems.
- Slurry pumps.

### 4.2.5 Energy Efficiency

The energy efficiency measures implemented on-site include operational, maintenance and procedural controls. Control measures include:

- The generator installed in accordance with supplier's instructions.
- The generator forms part of the installation's planned preventative maintenance programme i.e. regularly inspected and serviced to ensure continued efficiency.
- Livestock buildings and water supply pipework are insulated and kept in good repair.
- Energy usage monitored and recorded to establish and monitor consumption trends.
- LED energy efficient lighting systems installed; lights are only in use when needed.
- Optimisation of ventilation systems.

### 4.2.6 Monitoring and Targets

Energy efficiency audits undertaken in line with Permit Requirements. Audits are designed to review energy consumption data and document whether there are opportunities to further improve energy efficiency on site.

# 4.3 Ancillary Raw Materials

Ancillary materials used in the process are listed in Table 4.3 below, forming a copy of the Companies Raw Material Inventory. This list details those materials stored, either externally in containers above 25 litres/25 kg or internally in containers above 50 litres/50 kg. Quantities smaller are deemed to be insignificant in terms of environmental risk and performance.

The materials listed in Table 4.3 are selected based on operating experience and applicable animal welfare legal standards and requirements. Section 4.4 below provides brief comments regarding alternatives considered.

Table 4.3 - A	Table 4.3 - Ancillary Raw Materials									
Material Properties				Material Characteristics				Site Configuration		
Substance	Composition	Purpose	State	CAS No.	Risk Phrases	Environmental Fate and Behaviour	Potential Pollution Risk	Storage Arrangements	Delivery and Handling	
Principal Rav	w Materials									
Livestock	Pigs	Pig Production	Solid	-	-	<ul> <li>Biodegradable.         High organic         content.</li> <li>Odour, noise,         dust         generating         potential.</li> </ul>	<ul> <li>Bacteriological and pathogenic content.</li> <li>Entry into a watercourse would increase the BOD.</li> <li>Entry into an aquatic environment would have potentially detrimental effect on aquatic life.</li> </ul>	Dedicated housing units.	Animals handled in line with welfare requirements.	
Water	H2O – Mians Supply	Livestock drinking / cleaning / wash down	Liquid	-	-	Non-hazardous.	None.	No onsite storage.	Borehole supply.	
Feed	Dry Feed	Feed	Solid	-	-	<ul><li>Soluble in water.</li><li>Potential for negative</li></ul>	Mild pollution potential.	Feed silos.	Bulk deliveries discharged into feed silos	

Table 4.3 - Ancillary Raw Materials										
Material Properties			Material Characteristics				Site Configuration			
Substance	Composition	Purpose	State	CAS No.	Risk Phrases	Environmental Fate and Behaviour	Potential Pollution Risk	Storage Arrangements	Delivery and Handling	
Generator Fuel	Gas Oil	Fuel – to operate	Liquid	68334- 30-5	R40 R65	environmental impact if left to degrade.  Dust generating potential.  Release of the product into	Toxic to aquatic organisms, may	Generator has integral 250	by supplier. Silo to pig feed delivery systems automated on site. Deliveries made by fuel	
		generator / Incinerator			R66	water will result in a film of hydrocarbons floating on the surface.  Due to low water solubility the predominant loss is through volatilisation.  Molecules with higher molecular weight will be absorbed on sediment.	cause long-term adverse effects in the aquatic environment.	litre bunded tank.	supplier. Wear appropriate personal protective equipment.	
Cleaning Mat	terials / Disinfe	ctants								

<b>Table 4.3 - A</b>	Table 4.3 - Ancillary Raw Materials									
Material Properties				Material Characteristics				Site Configuration		
Substance	Composition	Purpose	State	CAS No.	Risk Phrases	Environmental Fate and Behaviour	Potential Pollution Risk	Storage Arrangements	Delivery and Handling	

All cleaning materials, disinfectant, foot dip containers are anticipated to be less than 50 litres and are stored internally within a dedicated lockable store with no drain entries, providing secondary containment.

### **Veterinary Medicines**

Veterinary medicines are to be kept in a lockable store capable of retaining spillage, resistant to fire and are kept dry, frost free and secure.

### 4.4 Raw Material Review

The suitability of the raw materials to be used in the process have been considered with a view for using alternatives that are more sustainable and pose a reduced environmental risk. However, at present there is no scope for alternatives given:

- Water and feed are required to meet animal welfare requirements.
- Quantity of fuel used is minimal and capital cost for installation of renewable alternatives is cost prohibitive.
- Cleaning and disinfectant materials by their nature contain components that are harmful to the environment, given their purpose is generally to kill bacteria. Sourcing alternatives which are environmentally less damaging is not feasible, as this would result in less effective cleaning which would breach hygiene requirements.

# 5 Wastes and Animal By-Products

### 5.1 Introduction

The major sources of waste and animal by-products (ABP) to be produced at the installation have been detailed below and assessed within the Permit application's supporting Environmental Risk Assessment, see document reference AH-R02-F1.

### 5.2 Waste and ABPs

Table 5.1 below identifies the notable waste and ABP streams produced on-site, along with site handling and storage arrangements.

Table 5.1 – Sites Waste and ABP									
Waste / ABP <sup>1/2</sup>	EWC	EWC Description	Site Handling and Storage Arrangements <sup>3</sup>	Disposal / Recovery Method					
АВР									
Slurry / Wash waters from housing washdown.	02.01.06	Animal faeces, urine and manure (including spoiled straw), effluent, collected separately and treated off-site	Frequent vacuum removal from underground slats and pumped into dedicated above ground storage tank.	Transferred off site for spreading to land for agricultural benefit.					
Wastes									
Fallen stock carcasses form housing.	02.01.02	Animal-tissue waste.	Enclosed within dedicated fallen stock bin.	Transported off site for rendering by licenced contractor.					
Veterinary Medicines for animal welfare.	02 01 99	Wastes not otherwise specified.	Placed in sealed containers and stored in a lockable store. Store capable of retaining spillage.	Wastes are returned to supplier by removal off - site by the retained veterinary company.					
Plastic packaging from raw materials.	15.01.02	plastic packaging	Stored in secure containers.	Transferred off site for recycling.					

### Notes -

- 1. EWC and associated description for ABPs listed for completeness.
- 2. All wastes / ABP produced on site will be stored in containers that are durable for the substances stored.
- 3. Incompatible waste / ABP types will be segregated.

### 5.3 Documentation

Waste and ABP documentation control forms part of the EMS on site. In summary, all waste / ABP contractors transferring and / or receiving waste / ABP shall have appropriate licences and approvals in place. Copies of these licenses and approvals will be held in the records section of the EMS.

Duty of Care transfer documents will be generated to cover transfers of waste / ABP from site. Duty of Care documentation covering these transfers will be held on site or electronically for the following retention periods as a minimum –

- Non-Hazardous Waste Transfer Notes / Season Tickets 2 years.
- Hazardous Waste Consignment Notes 3 years.
- ABP Commercial Documents 2 years.

### 5.4 Recovery to Land

The majority of waste / ABP generated on site is exported for recovery to land outside of the Permit boundary. Written evidence will be maintained to:

- Record the quantities and the date of transfer for spreading to land.
- The names and addresses and land bank available where slurry is exported for spreading to land.
- Where a third party accepts liability for removing materials from the installation for spreading, the third party to provide acceptable confirmation that as a minimum, the material is spread to land in accordance with the Code of Good Agricultural Practice; or that the spreading will be in accordance with a manure management plan for the receiving land.

Other land banks or recovery outlets will be identified should land become inaccessible for a prolonged period, such as Anaerobic Digestion.

### 5.5 Waste Review and Monitoring

Waste audits will be undertaken in line with Permit Requirements. Audits are designed to review waste reduction measures and to ensure that waste produced by the activities is avoided or reduced where possible. Where waste is produced it is recovered whenever practicable or disposed of in such a manner to minimise its impact on the environment.

# 6 Fugitive Emissions

### 6.1 Introduction

The Environmental Risk Assessment (ERA) completed in support of this Permit Application, document referenced AH-R02-F1, demonstrates that fugitive emissions from the proposed installation are deemed to be insignificant.

The sections below outline the potential fugitive emission sources and control techniques for:

- Noise,
- Vibration.
- Dust and bio-aerosols.
- Odour.

### 6.2 Noise

### 6.2.1 Noise Sources

The installation is not inherently noisy, and the ERA concluded that noise emissions from the installation are anticipated to be insignificant. Table 6.1 details the sources of noise associated with the operation.

Table 6.1 – Noise Sources						
Source	Nature of the Source of Noise	Hours of Operation	Frequency	Assessed Contribution to Site <sup>1</sup>	Adopted Noise Control Techniques	
Livestock Transport	Heavy goods vehicle engines and associated livestock noise.	Deliveries scheduled.	Infrequent - housing cycle c.16 weeks.	Medium	Drivers requested not to excessively rev their engines. Engines of standing vehicles to be turned off. Livestock moved in compliance with animal welfare requirements to ensure stress and therefore noise levels of livestock are minimised.	
Livestock	Livestock in sheds.	24 hours	Constant	Medium	Animals housed in dedicated units.  Animal welfare regulations ensure animals are kept well looked after and stress levels minimised.	

Table 6.1 – Noise Sources						
Source	Nature of the Source of Noise	Hours of Operation	Frequency	Assessed Contribution to Site <sup>1</sup>	Adopted Noise Control Techniques	
Raw material / feed deliveries / waste and ABP Collection Vehicles	Heavy goods vehicles / Vehicle engine noise, including reversing alarm noise.	During all hours of process operations.	Intermittent	Medium	Drivers requested not to excessively rev their engines. Engines of standing vehicles to be turned off.	
Generator	Site Generator Engine	24 hours	In frequent - only during periods of loss of mains electricity.	Medium	Generator operated as per suppliers instructions and serviced under contract. Generator enclosed within acoustic housing.	
Notes						
1. Definitions						
High	Noise detectable and distinguishable from background, with significant possibility of causing nuisance					
Medium		Noise detectable and likely to be distinguishable from general background, but not expected to cause nuisance				
Low	Noise likely to	Noise likely to be undetectable and undistinguishable from general background.				

# 6.2.2 Noise Control Techniques and Surveys

As described above the site's principal noise reduction techniques are that:

- pigs are provided with dedicated housing units.
- drivers are requested not to excessively rev engines and to turn vehicle engines off when vehicles are standing.
- Standby generator housed within acoustic housing.

Combined with an effective planned preventative maintenance regime on site, further noise reduction measures are deemed unnecessary. In addition, owing to the low number of nearby receptors and the low noise generating potential of site activities, environmental noise surveys are deemed not necessary.

# 6.2.3 Noise Management Plan

This industry sector guidance documents require noise emissions to be given further consideration. It is noted that there is the potential for noise emissions from the installation. However, the ERA, has concluded that noise emissions from the site are anticipated to be insignificant. In addition, human occupied receptors are not within 400metres of the installation boundary. Therefore, a written Noise Management Plan is not required to be submitted with the Permit application.

### 6.3 Vibration

The installation is not anticipated to be a source of vibration noticeable off-site. In short, the installation does not use equipment of the type known to be a source of external vibration, therefore, there is no potential for vibration from site activities to be noticeable off-site.

### 6.4 Dust and Bio Aerosols

This industry sector guidance documents require dust and bioaerosols to be given further consideration. It is noted that there is the potential for dust and bioaerosols emissions from the installation. However, the ERA, has demonstrated that dust and bioaerosols emissions from the site are anticipated to be insignificant.

Human occupied receptors, including those associated with the farm, are within 100metres of the installation boundary. Therefore, a written Dust and Bio Aerosols Management Plan has been submitted with the Permit application.

#### 6.5 Odour

This industry sector guidance documents require odour emissions to be given further consideration. It is noted that there is the potential for odour emissions from the installation. However, the ERA, has concluded that odour emissions from the site are anticipated to be insignificant. In addition, human occupied receptors are not within 400metres of the installation boundary. Therefore, a written Odour Management Plan is not required to be submitted with the Permit application.