Proposed Anaerobic Digester
Wormslade Farm, Clipston Road
Kelmarsh, LE16 9RX

Dust Management Plan

Commissioned by:
RAW Energy
Taylers Farmhouse
Aldsworth
Nr. Cheltenham
Gloucestershire, GL54 3QX

May 2016

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1. Introduction

This document sets out the measures taken to reduce the likelihood of dust being emitted from the operation of the anaerobic digestion facility at Wormslade Farm. It supports Application No. 15/00090/ made to Northamptonshire Council in November 2015 and sets out relevant issues, measures to reduce the risk of dust nuisance and subsequent monitoring. If and when the plant is established this plan will be kept up to date by being reviewed either in the event of any complaints, or every four years.

This report has been commissioned by the applicant; Mr Stuart Homewood of Raw Biogas Ltd.

2. Location and activity

The site at Wormslade Farm is in a rural area: the only dwelling within 400m of the site is the farmhouse. The site lies between the villages of Clipston to the west and Arthingworth to the east, each just under 2km away, with Great Oxendon around 1.5km to the north. The prevailing wind direction in this location is from the southwest, so any dust emitted is likely to travel in a north-easterly direction. The nearest dwellings in this direction are in Braybrooke, 3.5km away.

The site is not within, or near, any Air Quality Management Areas (AQMA). The nearest AQMA is at Rugby, around 20km to the west, and the nearest AQMA designated for PM10s is the West Midlands, over 40 km away to the west.

The activity that is the subject of this planning consent is operation of an anaerobic digester, which is not in itself an activity likely to generate dust. Dust could be generated from two sources on the site: traffic movements and materials handling. Potential sources of dust from these activities are summarised here, with more detail in the table below where control measures are identified.

3. Possible sources of dust on the site

Apart from landscaped areas of trees and some grass and the surface water attenuation pond, the site is hard-surfaced reducing the risk of dust being generated by traffic. Access to the site is via concrete driveway from the site entrance on the unclassified road to the north of the site.

Traffic to and from the site will be for deliveries of feedstock, removal of digestate, staff movements and a small number of other deliveries. Of these movements the most significant from the point of view of dust will be delivery of feedstock, particularly deliveries by agricultural vehicles, generally tractors and trailers. Deliveries by road vehicles are unlikely to create dust nuisance because both the site and the approach road are, or will be, concreted.

Deliveries from agricultural vehicles may lead to dust nuisance if mud is deposited on site from their tyres, allowed to dry on the approach road or on the site and then moved into the air by site traffic. This risk will be minimised by good housekeeping on the site, for example providing for mechanical sweeping of all metalled surfaces on site, including the access, and carrying out sweeping whenever it is required. The area around the technical building, where feedstock is handled, will be kept rigorously clean with regular sweeping or washing down as appropriate.

Materials handling on site could lead to dust being generated when dry materials containing fine particles are handled without due care. As the all the materials used as feedstock for the digester,
various types of silage and cattle slurry, are relatively high in moisture content there is little risk of dust being generated from materials handling.

4. Dust monitoring

The risk of nuisance levels of dust arising from the site is relatively small, however dust levels will be monitored by a daily visual cleanliness check on the site and a monthly check of planting to the northern and eastern side of the site. The results of the monthly check will be recorded in the site environmental management system. Given the prevailing winds if there is any significant amount of dust lost from the site, it will be visible on vegetation on the upwind side of the site. If monitoring shows an issue practices on the site will be reviewed and changed as needed.
1. Risk Assessment

<table>
<thead>
<tr>
<th>Source</th>
<th>Pathway</th>
<th>Receptor</th>
<th>Managing the risk</th>
<th>Assessing the risk</th>
<th>Probability of exposure</th>
<th>Potential consequence without management</th>
<th>What is the overall risk with management</th>
</tr>
</thead>
</table>
| Mud and/or dust on the ground on site or on the drive way | Air / wind | Vegetation | • Trafficked areas of the site are all hard surfaced  
• Roads and concreted areas cleaned regularly  
  o Approach road monitored daily and cleaned as needed  
  o Area draining into the ‘black’ water store brushed and / or washed clean daily  
  o Feeders cleaned daily to minimise the risk of dust  
• Review the amount of mud brought onto the site and consider whether to introduce a wheel wash  
• Use a water spray to damp down dust if it becomes an issue in prolonged dry weather | Low      | Slight loss of amenity  
Damage to vegetation | Very low

Slight loss of amenity  
Damage to vegetation  
Very low
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Noise Management Plan

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1. Introduction

This document sets out the measures taken to reduce the likelihood of noise from the anaerobic digestion facility at Wormslade Farm causing nuisance to neighbours around the site. It supports Application No. 15/00090/ made to Northamptonshire Council in November 2015 and sets out relevant issues, measures to reduce the risk of dust nuisance and subsequent monitoring. If and when the plant is established this plan will be kept up to date by being reviewed either in the event of any complaints, or every four years.

The document will set out aspects of the operation and setting relevant to noise management, consider the relevant aspects of the process, summarise measures to reduce the risk of noise nuisance and describe how any complaints will be recorded and responded to. It is in accordance with the Environment Agency Guidance H3 – Noise Management adapted for the relatively simple process at Wormslade Farm. It will be kept up to date and reviewed either in the event of any complaints, or every four years.

This report has been commissioned by the applicant; Mr Stuart Homewood of Raw Biogas Ltd

2. Site and setting

The site at Wormslade Farm is in a very rural area: the only dwelling within 400m of the site is the farmhouse. The site lies between the villages of Clipston to the west and Arthingworth to the east, each just under 2km away, with Great Oxendon around 1.5km to the north. The prevailing wind direction in this location is from the southwest, so any noise issues are more likely to be audible in a north-easterly direction. The nearest dwellings in this direction are in Braybrooke, 3.5km away.

This picture shows the area around Wormslade Farm. The circle is 450m in radius so, allowing for the size of the farmyard, shows the area 400m from the site boundary.
3. Noise risks from the site

There are three areas of activity to be considered to reduce the risk of noise nuisance: running the anaerobic digester itself, activity on the site and deliveries to / collections from the site.

Anaerobic digestion is a process where organic material is broken down by bacteria within a sealed vessel. The process itself is silent, noise could come from pumps adding and removing feedstock and digestate, pumps moving digestate to the lagoon, and from agitating the digestate during the process.

Other noise could result from traffic arriving and leaving the site for delivery of feedstock and removing digestate; and on site activity such as movement of machinery for loading feedstock into the digester; filling silage clamps; maintenance and cleaning.

This Noise Management Plan sets out the control measures that will be used at various stages in the process to reduce risk of noise becoming a nuisance.

4. Operating the digester

The digester itself is silent in operation: very little noise is created even when agitation is happening. We will minimise any noise risk by ensuring that motors and pumps are well maintained and by providing sound insulation or baffles if needed.

5. Traffic arriving at and leaving the site

Deliveries and collections will be made by normal road vehicles, mostly lorries, and by agricultural vehicles, mostly tractors and trailers. Deliveries will include feedstock for the digester: crops for silage and slurry; as well as other necessities e.g. propane gas and staff traffic. Collections will be for the removal of solid and liquid digestate. Numbers of vehicle movements are set out in the traffic plan. Vehicle noise will be in the context of traffic on the A508 Harbourogh Road, which runs around 350M to the east of the site, and the unclassified road adjacent to the site, so will not be a new element of the noise landscape.

Control measures will include:
- Ensuring that as far as possible deliveries and collections will be scheduled for normal working hours: there may be a seasonal exception to this if weather conditions force longer working days at harvest time but this will be minimised where possible
- Requiring that all vehicles routinely visiting the site are well maintained for quieter running and that all exhaust systems are in good condition
- Deliveries will be either tipped or pumped from lorries / trailers and tankers, there will be no deliveries from blower lorries

6. On-site working

The majority of noise from on-site working will come from machinery handling feedstock. We will reduce the risk of noise nuisance by:
- Ensuring all moving machinery is kept well maintained, especially exhaust systems
- Quieter reversing alarms will be fitted where they are available for the relevant vehicles
- On site work with machinery will be restricted to normal working hours except in exceptional circumstances such as late working at harvest periods or if the digester has to be loaded during a bank holiday. These exceptions will be kept to a minimum.
The site will be landscaped with extensive tree planting, which will help to attenuate any noise leaving the site. These measures are summarised in the table below
# Risk assessment

<table>
<thead>
<tr>
<th>What do you do that can harm and what could be harmed</th>
<th>Managing the risk</th>
<th>Assessing the risk</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Source</strong></td>
<td><strong>Pathway</strong></td>
<td><strong>Receptor</strong></td>
</tr>
</tbody>
</table>
| Operating the digester                                | Air               | Local residents   | • Motors and pumps to be well maintained  
• Provide sound insulation / baffles if needed  
• Landscaping attenuates noise levels | Very low | Slight loss of amenity | Very low |
| Traffic arriving at and leaving the site              | Air               | Local residents   | • Deliveries are in normal working hours  
• Well maintained vehicles – especially for routine deliveries  
• Deliveries either tipped or pumped | Low | Loss of amenity | Low |
| On site traffic                                       | Air               | Local residents   | • Well maintained machinery  
• Quieter reversing alarms where available  
• Work kept to normal working hours as far as possible | Low | Slight loss of amenity | Low |
| Site design and layout                                | Air               | Local residents   | • The site is designed for efficient operation minimising traffic movement to reduce costs as well as noise  
• The site is landscaped with extensive tree planting to the north and east between the site and local roads, which will also attenuate noise. Higher ground to the south and west will tend to reduce noise travelling in those directions. | Low | Low | Low |
8. **Procedure for dealing with complaints**

In the event that there any complaints regarding noise, despite the precautions set out above, we will investigate any complaints promptly and take appropriate remedial action. We will:

a) Record the details of the complaint including date, time and location  
b) Make our own assessment of the severity of the noise being complained of and record our findings  
c) Identify any causes on the site  
d) Record the steps we have taken to investigate, any causes that were discovered and remedial action taken  
e) Tell the complainant and anyone else likely to have been affected what has been done to resolve their complaint.  
f) Review noise management to minimise the risk of problems in future
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Odour Management Plan

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May 2016

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1. **Introduction**

   This document sets out measures to reduce the likelihood of odours from the anaerobic digestion facility at Wormslade Farm, which might cause nuisance to neighbours around the site. It supports Application No. 15/00090/ made to Northamptonshire Council in November 2015. It sets out aspects of the site setting relevant to odour management, considers the relevant aspects of the process, summarises measures to reduce the risk of odour nuisance and describes how any complaints will be recorded and responded to.

   The document is in accordance with the Environment Agency Guidance H4 – Odour Management adapted for the relatively simple process at Wormslade Farm. It will be kept up to date and reviewed either in the event of any complaints, or every four years.

   The preparation of this report has been commissioned by the applicant; Mr Stuart Homewood of Raw Biogas Ltd

2. **Site and setting**

   The site at Wormslade Farm is in a very rural area: the only dwelling within 400m of the site is the farmhouse. The site lies between the villages of Clipston to the west and Arthingworth to the east, each just under 2km away, with Great Oxendon around 1.5km to the north. The prevailing wind direction in this location is from the southwest, so if there are any odour issues they are most likely to be noticed by receptors in a north-easterly direction. The nearest dwellings in this direction are in Braybrooke, 3.5km away.

   The following picture shows an aerial view of the area around Wormslade Farm. The circle is 450m radius, so, allowing for the size of the farm yard, shows the area 400m from the site boundary.
3. Odour risks from the process of anaerobic digestion

Anaerobic digestion (AD) is a biological process that takes place under oxygen-depleted conditions, so by definition is in an enclosed system. As a result, under normal circumstances there are no releases of odour from the process itself.

Odour risks occur from the delivery, storage and loading of feedstock for the digester, from cleaning the biogas produced, or from the handling, storage, export and use of the resulting digestate.

This Odour Management Plan sets out the control measures that will be used at various stages in the process to reduce risk of odour becoming a nuisance to nearby receptors, i.e. residents.

4. Feedstock Delivery and Storage

Feedstock for the digester will be silage from locally grown crops and cattle slurry from local farms. The majority of the input will be silage made from crops of grass, maize or hybrid rye grown locally. Crops harvested for silage would be delivered to the site by tractor and trailer during harvest periods, stored in the purpose-built silage clamps and covered by sheeting. As these crops do not have strong odours, and since silage must be sealed to prevent air getting in, there will be little or no odour from the silage during harvest or storage.
Slurry will be delivered to the site by tractor and agricultural tankers, all of which are sealed. It will be delivered on an as needs basis so there is no need for on-site storage of odourous materials. It will be pumped through a sealed system into the input feed tank for the digester.

Any spillage from deliveries will be cleared up promptly and the area kept clean by sweeping or washing down as relevant. The delivery area drains to a dedicated, covered, ‘black’ water tank. The collected black water will be used in the system as far as possible: it can be injected into the digester through the sealed system, as and when needed by the process. Sealed tankers will be used to remove any excess black water for disposal at licensed facilities.

All deliveries will be pre-arranged and scheduled for normal working hours.

5. Loading the digester

Silage and any other solid inputs will be loaded into the digester within the technical building, reducing the already low risk of odour nuisance from solid feedstock. Loading will be carried out during normal working hours as far as possible. Since this is a continuous process it will at times be necessary to load the digester during Bank Holidays, although we will avoid this as far as possible. All feedstock will be carefully handled as set out below.

Silage: silage clamps will be opened in succession so that only one clamp at a time of each type will be open. This will reduce odour risk by minimising the area open at any one time. The covering sheets over the silage will be managed to expose only the minimum necessary area, since allowing rain to get in would spoil the silage. Wet silage would also be more odourous, so this careful control will also reduce odour risk. Any spilt silage is collected promptly and added to the digester.

Silage effluent: will be captured in a sealed reception pit and added to feedstock for the digester.

Slurry: All slurry will be pumped from closed delivery tankers through a sealed system via the liquid intake tank into the digester.

Delivery and input area: spills of any feedstock are cleared up immediately, with wash down of the black area if needed to ensure there is no accumulation of odourous material in the delivery area. In particular slurry pumping equipment and the surrounding area will be kept very clean.

6. Digestion

As explained above, the digester is a sealed unit, so there is no odour from the digestion process itself. The process will be carefully managed to ensure that any venting of gas is kept to a minimum. This is essential for the efficient operation of the digester as venting gas amounts to throwing away the product from the system.

7. Handling and storage of solid and liquid digestate

Whole digestate will be pumped from the digester, into a separator, then the liquid portion will be pumped into storage in a sealed bag, held within a secondary containment system. The three storage bags in the system provide a total of 15,000 m³ of storage, which is sufficient for around six months production of liquid digestate. On removal, digestate is pumped through a sealed system either directly into sealed agricultural tankers to be used on land locally, or into road tankers for transport to more distant end users.

Solid digestate that cannot be removed immediately will be stored on site, in a sheeted heap within
the clamp area, which drains to the ‘black’ water store. It will be removed as soon as possible and delivered to end-users.

8. **Removal and use of solid and liquid digestate**

Digestate will be removed from site for use on the land where feedstock crops have been grown and on other farms locally.

Where liquid digestate is provided to other farm businesses we will encourage the use of low emission technology, which reduces the loss of valuable nitrogen as ammonia and minimises odour emissions. Since in practice liquid digestate is most often applied by specialist contractors, who all use low emission techniques, these odour reduction controls are very likely to be in place wherever the digestate is used. Solid digestate is used as a soil conditioner, to provide valuable organic matter to the soil. This would be as part of normal agricultural practice, and would displace the use of more odourous farmyard manure so that odour issues are reduced.
### 9. Risk assessment

<table>
<thead>
<tr>
<th>Source</th>
<th>Pathway</th>
<th>Receptor</th>
<th>Risk Management</th>
<th>Probability of exposure</th>
<th>Potential consequence without management</th>
<th>What is the overall risk with management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Delivery and use of slurry</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>All slurry is pumped from closed delivery tankers through a sealed system into closed tanks. Any spillage when pipes are disconnected is cleaned up promptly and the ‘black’ area of the site is washed down if needed. Transport vehicles will be kept clean to minimise odour and pollution risk.</td>
<td>Medium</td>
<td>Loss of amenity, possible nuisance</td>
<td>Low</td>
</tr>
<tr>
<td>Storage and use of silage effluent</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Silage effluent will be generated from grass and rye silage. The vast majority is generated in the first ten days after ensiling, and will be collected in a sealed tank before being fed into the digester as it is a valuable feedstock.</td>
<td>Very low</td>
<td>Slight loss of amenity</td>
<td>Low</td>
</tr>
<tr>
<td>Storage and use of ‘black’ water</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>‘Black’ water is rain or wash water drainage from areas of the site that may be contaminated by silage / slurry / solid digestate. This run off will be stored in a separate covered bag and used within the digestion process as needed. Any excess will be tinkered off site for safe disposal.</td>
<td>Low</td>
<td>Loss of amenity</td>
<td>Low</td>
</tr>
<tr>
<td>Storage and use of silage</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Raw materials for silage are not inherently odourous. Silage will be made following agricultural good practice: it will be stored in tightly sealed clamps and opened as needed to feed the digester. We will minimise the</td>
<td>Low</td>
<td>Loss of amenity</td>
<td>Low</td>
</tr>
<tr>
<td>Activity</td>
<td>Transport Method</td>
<td>Affected Residents</td>
<td>Description</td>
<td>Loss</td>
<td>Potential Impact</td>
<td>Mitigation</td>
</tr>
<tr>
<td>----------------------------------------------</td>
<td>------------------------</td>
<td>--------------------</td>
<td>-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
<td>------</td>
<td>----------------------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Separation and storage of liquid digestate</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Liquid digestate is pumped from the digester to the separator and into storage in a sealed bag, which sits within a secondary containment system. There is sufficient storage for six months. Pumping systems are all sealed. Tree planting to the north and east of the site, downwind for the prevailing wind direction, will tend to reduce perception of odour.</td>
<td>Medium</td>
<td>Loss of amenity, possible nuisance</td>
<td>Low</td>
</tr>
<tr>
<td>Removal of liquid digestate</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Digestate is pumped through a sealed system either directly into sealed agricultural tankers or road tankers for transport to end users. We will keep accurate records of exports including time, date, destination and quantity</td>
<td>Low</td>
<td>Loss of amenity, possible nuisance</td>
<td>Low</td>
</tr>
<tr>
<td>Removal of solid digestate</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Solid digestate will sent off site from the separator and stored by end-users. If not removed immediately it will be stored temporarily in a sheeted heap. We will record time date, destination and quantity when digestate is exported.</td>
<td>Low</td>
<td>Loss of amenity, possible nuisance</td>
<td>Low</td>
</tr>
<tr>
<td>Management of biogas condensate</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Biogas condensate will be collected in a sealed system and recycled into the digester</td>
<td>Low</td>
<td>Loss of amenity, possible nuisance</td>
<td>Low</td>
</tr>
<tr>
<td>Management of cleaned biogas</td>
<td>Air transport then inhalation</td>
<td>Local residents</td>
<td>Biogas will be pumped through a sealed system directly into the mains gas pipe as shown on the site layout plan.</td>
<td>Very low</td>
<td>Loss of amenity</td>
<td>Very low</td>
</tr>
</tbody>
</table>
10. Procedure for dealing with complaints

In the event that there any complaints regarding odour, despite the precautions set out above, we will investigate any complaints promptly and take appropriate remedial action. We will:

a) Record the details of the complaint including date, time, location, wind direction and weather, and ask the complainant to assess the severity of the odour in line with Environment Agency guidance on handling odour complaints

b) If possible make our own assessment of the severity of the odour being complained of and record our findings

c) Investigate any potential causes on the site, such as unusual changes in the AD process, spillages, containment failures etc.

d) Record the steps we have taken to investigate, any causes that were discovered and remedial action taken

e) Tell the complainant and anyone else likely to have been affected what has been done to resolve their complaint.

f) Review our odour management techniques to minimise the risk of problems in future.

Guidance on dealing with odour complaints from Appendix 1 of the EA document ‘H4 – Odour Management’ is attached in Appendix 1 to illustrate the forms we could use and the process for assessing the significance of odours.
Text from: ‘Environment Agency – How to comply with your permit – H4 Odour Management’

Appendix 1 – Forms

This appendix provides examples of a report form for sniff testing, a complaint form and an odour diary. Word versions of these are available\(^\text{11}\).

Odour reporting form (sniff testing)

You may need to carry out an assessment either to work out whether you are complying with your permit, or as a part of an investigation into a complaint.

You can use routine assessments to build up a picture of the impact the odour has on the surrounding environment over time. You can develop ‘worst case’ scenarios by doing assessments during adverse weather conditions or during particularly odorous cycles of an operation. Ideally, you should use the same methodology to follow up complaints.

Please note:

- Staff normally exposed to the odours may not be able to detect or reasonably judge the intensity of odours off-site. You might be better off using office staff or people who have not recently been working on the site to do this.

- Anyone who has a cold, sinusitis or a sore throat, is likely to underestimate the odours.

- To improve (or to check) data quality, you can get two people to do the test independently at the same time.

- Those doing the assessment should avoid strong food or drinks, including coffee, for at least half an hour beforehand. They should also avoid strongly scented toiletries and deodorisers in the vehicle used during the assessment.

Where you test will depend on:

- whether you are responding to a complaint;
- whether you are checking your state of compliance at sensitive receptors;
- whether you are trying to establish the source of an odour;
- wind direction.

The assessment may involve someone walking along a route that you have selected either because of these factors, or in response to the conditions they found when they got there. Another option is to choose fixed points so that you can evaluate the changing situation over several weeks or months. Or the test points may vary from test to test according to local conditions, which would help you identify worst case conditions.

You should also keep a note of any external activities (such as agricultural practices) that could be either the source of the odour, contribute to the odour, or be a confounding factor. Remember that an odour will become diluted and may change character as this happens.

You should also take the factors given in Section 5.2 Monitoring – Ambient Air into account.

\(^{11}\) Via EPR guidance at http://www.environment-agency.gov.uk/business/topics/permitting/36414.aspx#Horizontal_guidance
# Odour report form

<table>
<thead>
<tr>
<th>Time of test</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of test</td>
<td>e.g. street name etc</td>
</tr>
<tr>
<td>Weather conditions (dry, rain, fog, snow etc):</td>
<td></td>
</tr>
<tr>
<td>Temperature (very warm, warm, mild, cold, or degrees if known)</td>
<td></td>
</tr>
<tr>
<td>Wind strength (none, light, steady, strong, gusting) Use Beaufort scale if known</td>
<td></td>
</tr>
<tr>
<td>Wind direction (e.g. from NE)</td>
<td></td>
</tr>
<tr>
<td>Intensity (see below)</td>
<td></td>
</tr>
<tr>
<td>Duration (of test)</td>
<td></td>
</tr>
<tr>
<td>Constant or intermittent in this period or persistence</td>
<td></td>
</tr>
<tr>
<td>What does it smell like?</td>
<td></td>
</tr>
<tr>
<td>Receptor sensitivity (see below)</td>
<td></td>
</tr>
<tr>
<td>Is the source evident?</td>
<td></td>
</tr>
<tr>
<td>Any other comments or observations</td>
<td></td>
</tr>
</tbody>
</table>

Sketch a plan of where the tests were taken, the potential source(s).

### Intensity

<table>
<thead>
<tr>
<th>Intensity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No odour</td>
</tr>
<tr>
<td>1</td>
<td>Very faint odour</td>
</tr>
<tr>
<td>2</td>
<td>Faint odour</td>
</tr>
<tr>
<td>3</td>
<td>Distinct odour</td>
</tr>
<tr>
<td>4</td>
<td>Strong odour</td>
</tr>
<tr>
<td>5</td>
<td>Very strong odour</td>
</tr>
<tr>
<td>6</td>
<td>Extremely strong odour</td>
</tr>
</tbody>
</table>

### Receptor sensitivity

<table>
<thead>
<tr>
<th>Receptor sensitivity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>e.g. footpath, road</td>
</tr>
<tr>
<td>Medium</td>
<td>e.g. industrial or commercial workplaces</td>
</tr>
<tr>
<td>High</td>
<td>e.g. housing, pub/hotel etc</td>
</tr>
</tbody>
</table>

Ref: German Standard VDI 3882, Part 14
# Odour Complaint Report Form

<table>
<thead>
<tr>
<th>Time and date of complaint:</th>
<th>Name and address of complainant:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Telephone number of complainant:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date of odour:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Time of odour:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Location of odour, if not at above address:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weather conditions (i.e., dry, rain, fog, snow):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature (very warm, warm, mild, cold or degrees if known):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wind strength (none, light, steady, strong, gusting):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Wind direction (eg from NE):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Complainant's description of odour:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

- What does it smell like?
- Intensity (see below):
  - Intensity 0: No odour
  - Intensity 1: Very faint odour
  - Intensity 2: Faint odour
  - Intensity 3: Distinct odour
  - Intensity 4: Strong odour
  - Intensity 5: Very strong odour
  - Intensity 6: Extremely strong odour

- Duration (time):
- Constant or intermittent in this period:
- Does the complainant have any other comments about the odour?

<table>
<thead>
<tr>
<th>Are there any other complaints relating to the installation, or to that location? (either previously or relating to the same exposure):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Any other relevant information:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Do you accept that odour likely to be from your activities?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>What was happening on site at the time the odour occurred?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Operating conditions at time the odour occurred (eg flow rate, pressure at inlet and pressure at outlet):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Actions taken:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Form completed by:</th>
<th>Sign ed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Intensity</th>
</tr>
</thead>
<tbody>
<tr>
<td>0  No odour</td>
</tr>
<tr>
<td>1  Very faint odour</td>
</tr>
<tr>
<td>2  Faint odour</td>
</tr>
<tr>
<td>3  Distinct odour</td>
</tr>
<tr>
<td>4  Strong odour</td>
</tr>
<tr>
<td>5  Very strong odour</td>
</tr>
<tr>
<td>6  Extremely strong odour</td>
</tr>
</tbody>
</table>
Proposed Anaerobic Digester
Wormslade Farm, Clipston Road
Kelmarsh, LE16 9RX

Pest Management Plan

Commissioned by:

RAW Energy
Taylers Farmhouse
Aldsworth
Nr. Cheltenham
Gloucestershire, GL54 3QX

May 2016

Prepared by: Jane James BSc (Hons), MSc. CIWEM
Chris Seabridge & Associates Ltd
South Staffordshire College
Rodbaston Campus, Penkridge
ST19 5PH

Telephone: 01785 710564
E-Mail: jane@chrisseabridge.co.uk
1. Introduction

This document sets out the Pest Management Plan for the anaerobic digestion facility at Wormslade Farm. It supports Application No. 15/00090/ made to Northamptonshire Council in November 2015 and sets out relevant issues, measures to reduce the risk of pest infestation and relevant monitoring. If and when the plant is established this plan will be kept up to date by being reviewed either in the event of any complaints, or every four years.

The plan addresses site management to avoid problems particularly from flies and rodents and to deal with any infestations that may appear. Actions are identified to:

- Prevent pests being attracted to the site;
- Monitor for the presence of pests;
- Deal with any influx of pests; and to
- Review the plan at intervals, including consideration of any changes in the surroundings.

This report has been commissioned by the applicant; Mr Stuart Homewood of Raw Biogas Ltd.

2. Prevention

The most effective pest control is to avoid an initial infestation. The site will be managed to do this by ensuring that there are no accessible sources of food that might attract pests, and that as far as possible there are no opportunities for pests to nest and reproduce. The site will be managed to minimise its attractiveness to pests and vermin of all types.

The measures set out in the accompanying Odour Management Plan will reduce the risk of odour nuisance through good housekeeping and strict cleanliness and will also minimise the risk of fly infestation and reduce the risk of bird or rodent infestations. These measures include promptly cleaning up any spilt feedstock, which might otherwise attract vermin, keeping the loading area clean and keeping buildings and equipment in good condition, so reducing the risk of pests finding shelter on the site.

The most likely food source for rodents is the grain element of the maize silage: site managers will ensure the maize silage clamp is kept covered when it is not in use, and that the amount of silage that is exposed is minimised as far as possible. All spillages will be cleaned up promptly. Silage clamps can also be attractive to rats as nesting sites: good site management will ensure that the clamps and associated covers are kept in good condition and with minimum silage exposed.

3. Monitoring

To assess the effectiveness of our preventative measures the site manager will regularly monitor the site and check for pest infestation.

Checks for flies / insects will be carried out weekly in the summer months by a visual check of the site, in particular the area around the feeder tanks, the separator and the area draining to the black water store, with the results recorded in the environmental management system.

Rodent problems will be assessed by regular checks for signs of rat / mouse activity including:

- General monitoring by site manager and operators during their usual routine work.
- Checking for signs of damage from gnawing and burrowing, especially in less frequented areas such as beside and behind the silage clamps and around or under containers.
- Check for rodent holes in similar areas.
• Monitor the silage clamps, especially around the open face of the maize silage clamps. This may include using chalk dust or other suitable tell tale substance to show up rat foot prints over night
• Look for signs of burrows or any other rodent activity during routine maintenance of tree planting
• Check drains and drain covers for any sign of gnawing or damage

4. **Dealing with pest infestations**

In the event that monitoring identifies that there is a pest problem, it will be dealt with promptly and appropriately.

In the case of fly infestation a properly licensed pest control operative would be called in to treat relevant surfaces with insecticide. In addition site hygiene will be reviewed to identify any shortcomings and address them, for example ensuring that the site is kept clean including infrastructure such as the feeders and input tanks, the area around the separator and loading areas.

If an infestation of rodents is discovered, again a properly licensed pest controller would be engaged to deal with them in line with the Code for the Responsible Use of Rodenticide. This would entail regular visits to the site to place, monitor and renew traps and / or bait points with on going monitoring to assess the remaining rodent population.

In both cases the contractor would be responsible for managing active ingredients of the pesticides and dealing with packaging, so ensuring that only staff with appropriate training use these hazardous chemicals and any waste is disposed of safely and legally.

5. **Review**

This plan will be reviewed if any infestation is discovered, or at four yearly intervals if there are no pest problems.
Proposed Anaerobic Digester

Wormslade Farm, Clipston Road

Kelmarsh, LE16 9RX

Digestate Management Plan

Commissioned by:
RAW Energy
Taylers Farmhouse
Aldsworth
Nr. Cheltenham
Gloucestershire, GL54 3QX

May 2016

Prepared by: Jane James BSc (Hons), MSc. MCIWEM, FACTS
Chris Seabridge & Associates Ltd
South Staffordshire College
Rodbaston Campus, Penkridge
ST19 5PH

Telephone: 01785 710564
E-Mail: jane@chrisseabridge.co.uk
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1 Introduction

This management plan sets out the land required to provide inputs, together with indicative nutrient management planning for utilising digestate, for the proposed Anaerobic Digestion plant at Wormslade Farm, Kelmash. It supports Application No. 15/00090/ made to Northamptonshire Council in November 2015. Calculations in the plan use industry standard figures shown in the Defra-sponsored AHDB Fertiliser Manual, known as RB209, and research-based information provided by commercial companies. Actual digestate applications will be based on field-by-field cropping and nutrient management plans tailored to the circumstances of each farm and based on analysis of digestate once the plant is running. The solid and liquid digestate will be sampled and analysed at least annually so that nutrient applications can be planned accurately.

This plan is based on information and projections supplied by RAW Energy Ltd.

2 Environmental setting

Wormslade Farm is in the catchment of the River Ise, a tributary of the River Nene. The catchment is part of a large Nitrate Vulnerable Zone (NVZ) covering a wide area of the central Midlands. Within the NVZ the use of organic nitrogen is controlled by closed periods and total organic nitrogen application limits.

Nitrate Vulnerable Zones in the area surrounding Wormslade Farm
http://maps.environment-agency.gov.uk/wiyby/
The map below shows data for the area around Wormslade Farm from the Soilscape website run by Cranfield University. It shows the surrounding area has largely medium to heavy soils. Areas shown in dark green, khaki or dark brown represent clayey or loamy soils that are seasonally wet or with impeded drainage. Areas shown in blue are loamy and/or clayey soils with naturally high water levels. Areas shown in pink or light brown are more freely draining soils. Soil types can be seen in more detail on-line at [http://www.landis.org.uk/soilscape/](http://www.landis.org.uk/soilscape/)

### Soilscape data: information on soil type in the area surrounding Wormslade Farm

#### 3 Input crop nutrient requirements

It is planned that the anaerobic digestion plant at Wormslade Farm will take in around 46 000 tonnes of feedstock; made up of silage from crops such as maize, whole crop hybrid rye and grass, with the addition of cattle slurry. Table 1 shows the likely make up of the inputs and the estimated area of land required to produce the crops. This is based on industry standard yields as given in RB209.

**Table 1: Quantity of feedstock**

<table>
<thead>
<tr>
<th>Material</th>
<th>Quantity</th>
<th>Av yield</th>
<th>Hectares needed to grow feedstock</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize Silage</td>
<td>18 000</td>
<td>40 t/ha</td>
<td>450</td>
</tr>
<tr>
<td>Whole Crop Hybrid rye Silage</td>
<td>18 000</td>
<td>40 t/ha</td>
<td>450</td>
</tr>
<tr>
<td>Grass Silage</td>
<td>5 000</td>
<td>47 t/ha*</td>
<td>106</td>
</tr>
<tr>
<td>Cattle slurry</td>
<td>5 000</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>TOTALS</strong></td>
<td>46 000</td>
<td></td>
<td>1006</td>
</tr>
</tbody>
</table>

*Assuming 3 cuts of silage yielding 23 t/ha, 15 t/ha and 9 t/ha respectively*
Cattle slurry will be sourced from livestock units as near to the site as possible as will crops for making silage. Annex 1 includes letters from local farming businesses interested in supplying feedstock, both slurry and crops, and using digestate.

The plant will produce a consistent, good quality digestate, which is a desirable organic fertiliser with a high proportion of available nitrogen for crop growth and good levels of phosphate and potassium. In this sense, ‘organic’ means fertiliser from a natural plant or animal source, as opposed to manufactured fertiliser.

Digestate from the plant will be used preferentially to fertilise the land where the inputs are grown. This will help to ensure effective use of the crop nutrients in the solid and liquid digestate and to ensure that the land providing the feedstock is kept in good heart. Remaining digestate will be used to fertilise other crops locally. Liquid digestate is used only during the growing period in spring and summer, to ensure maximum uptake of the available nitrogen it provides. Solid digestate has much lower nitrogen content and can be used as a soil conditioner at any time of year.

Digestate will be used according to field specific nutrient management plans produced by each land manager, as required by the Nitrate Pollution Prevention Regulations 2008. Tables 2, 3, 4 and 5 show average nutrient requirement for these crops, an indicative analysis for whole digestate, likely planned application rates and total digestate use.

**Table 2** – Maize, whole crop hybrid rye and grass silage nutrient requirements

<table>
<thead>
<tr>
<th></th>
<th>Kg / ha</th>
<th>N</th>
<th>P₂O₅</th>
<th>K₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize (SNS 1, P index 2, K index 2-)</td>
<td>100</td>
<td>55</td>
<td>175</td>
<td></td>
</tr>
<tr>
<td>Whole crop hybrid rye (SNS 1, P 2, K 2-)*</td>
<td>150</td>
<td>80</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Grass for silage (Average growth class)</td>
<td>300</td>
<td>80</td>
<td>350</td>
<td></td>
</tr>
</tbody>
</table>


**Table 3** – Typical whole digestate analysis (kg /tonne fresh weight)¹

<table>
<thead>
<tr>
<th></th>
<th>Total N</th>
<th>P₂O₅</th>
<th>K₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Whole digestate</td>
<td>4.4</td>
<td>1.35</td>
<td>3.49</td>
</tr>
</tbody>
</table>

Good practice guidance for using manure-based or food-based digestate² suggests that farmers should provide only around 50 to 60% of the crop nitrogen requirement from digestate with the remainder coming from inorganic, artificial, fertiliser. Table 4 below indicates the amount of digestate likely to be used to produce input crops.

**Table 4** – whole digestate requirement for input crops

1. Biofertiliser management: best practice for agronomic benefit & odour control, WRAP, September 2011
2. Digestate and compost use in agriculture, Good practice guidance for farmers, growers and advisers. WRAP, February 2016
The total amount of whole digestate required to grow the input crops is shown in Table 5

### Table 5 – whole digestate to be used for input crops

<table>
<thead>
<tr>
<th>Crop</th>
<th>Hectares</th>
<th>Total whole digestate used (tonnes or cubic metres)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>450</td>
<td>6300</td>
</tr>
<tr>
<td>Whole crop hybrid rye</td>
<td>450</td>
<td>9450</td>
</tr>
<tr>
<td>Grass</td>
<td>106</td>
<td>2226</td>
</tr>
<tr>
<td>Total tonnes needed</td>
<td></td>
<td>17976</td>
</tr>
</tbody>
</table>

*One cubic metre of digestate weighs around one tonne.

It is expected that the digester will produce around 36 000 tonnes of whole digestate each year, which will be separated into solid and liquid digestate, providing around 12 000 tonnes of separated fibrous solids and 24 000 tonnes of liquid digestate. Using around 18 000 tonnes to grow feedstock crops will leave around 18 000 tonnes of digestate available to use on other land.

## 4 Digestate available for other crops

Wormslade Farm is part of a mixed farming area. Agricultural land in the surrounding area is used to grow arable crops, including cereals, oil seed rape and root crops, as well as with grass for grazing and fodder production. Liquid and solid digestate provide excellent fertiliser for a range of crops. As liquid digestate has consistent high levels of crop available nitrogen, it is particularly effective as a top dressing on cereal and oilseed crops in the spring. It is also very useful on grass after silage or hay has been harvested as the liquid application ensures the fertiliser is immediately available to the plant.
### Table 6 – digestate use on other crops

<table>
<thead>
<tr>
<th>Crop</th>
<th>Kg / ha of nutrient</th>
<th>N</th>
<th>P₂O₅</th>
<th>K₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winter Wheat (SNS 1, P index 2, K index 2-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrient requirement (RB209)</td>
<td>220</td>
<td>65</td>
<td></td>
<td>85</td>
</tr>
<tr>
<td>Good practice maximum nutrient from digestate</td>
<td>132</td>
<td>65</td>
<td></td>
<td>85</td>
</tr>
<tr>
<td>Cubic m digestate required per hectare</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrients supplied (kg / ha)</td>
<td>132</td>
<td>40</td>
<td></td>
<td>105</td>
</tr>
<tr>
<td>Winter Oilseed Rape (SNS 1, P index 2, K index 2-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrient requirement (RB209)</td>
<td>190</td>
<td>50</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Good practice maximum nutrient from digestate</td>
<td>114</td>
<td>50</td>
<td></td>
<td>40</td>
</tr>
<tr>
<td>Cubic m digestate required per hectare</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrients supplied (kg / ha)</td>
<td>114</td>
<td>35</td>
<td></td>
<td>91</td>
</tr>
<tr>
<td>Potatoes (SNS 1, P index 2, K index 2-)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrient requirement (RB209)</td>
<td>180</td>
<td>90</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Good practice maximum nutrient from digestate</td>
<td>84</td>
<td>90</td>
<td></td>
<td>50</td>
</tr>
<tr>
<td>Cubic m digestate required per hectare</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nutrients supplied (kg / ha)</td>
<td>84</td>
<td>25</td>
<td></td>
<td>66</td>
</tr>
</tbody>
</table>

Using these crops as examples, Table 7 illustrates the cropping areas that could potentially be supplied with fertiliser from the digester at Wormslade Farm. These types and proportions of crops are purely illustrative, suggesting the extent of possible use of digestate.

### Table 7 – cropping areas for digestate use

<table>
<thead>
<tr>
<th>Crop</th>
<th>Cubic m digestate/ha</th>
<th>Hectares grown</th>
<th>Total digestate usage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maize</td>
<td>14</td>
<td>130</td>
<td>1770</td>
</tr>
<tr>
<td>Winter wheat</td>
<td>30</td>
<td>150</td>
<td>4500</td>
</tr>
<tr>
<td>Winter oil seed rape</td>
<td>26</td>
<td>100</td>
<td>2600</td>
</tr>
<tr>
<td>Potatoes</td>
<td>19</td>
<td>50</td>
<td>950</td>
</tr>
<tr>
<td>Cut grass</td>
<td>41</td>
<td>200</td>
<td>8180</td>
</tr>
<tr>
<td></td>
<td></td>
<td>630</td>
<td>18 000</td>
</tr>
</tbody>
</table>

See Annex 1 for further details of local farm businesses interested in supplying inputs, both crops and slurry, and using digestate.

## 5 Digestate use on farms

All farmers using digestate from Wormslade Farm will be asked to confirm that the material will be used in accordance with the Code of Good Agricultural Practice, the Nitrates Regulations and the recently published WRAP document ‘Digestate and compost use in agriculture, Good practice guidance for farmers, growers and advisers’.

In particular, they will confirm that liquid digestate will be:
• Used in accordance with a farm-specific nutrient management plan based on advice from a FACTS qualified advisor and on regular soil testing
• Applied used low-emission technology such as dribble bar, band spreading or shallow injection in the case of liquid digestate

And that digestate will NOT be applied:
• Within six metres of any surface water when using precision equipment
• When land is waterlogged, flooded, snow-covered, or frozen for more than 12 hours in the previous 24 hours
• Within less than 50 metres from a spring, well or borehole
• At rates that would lead to the total organic nitrogen supplied exceeding 250 kg N/ha in any 12 month period
• At rates that would exceed the N-max limits for a particular crop
• Where applications would cause the total organic nitrogen loading for the farm to exceed 170 kg/ha

6 Digestate management on site
Liquid digestate, either whole or separated, has a high proportion of its nitrogen content in the form of ammonium nitrogen, which is immediately available to plants. Because of this high availability it must only be used at times when plants are actively growing, to ensure that nitrogen is taken up by the plant and not leached into the environment. Within Nitrate Vulnerable Zones (NVZ) liquid digestate is subject to closed periods. For soils that are not sandy or shallow the closed periods for tillage land run from 1st October to the end of January. These requirements dictate the need for digestate storage. To ensure that digestate is used only at the best times, the site will have sufficient storage for at least six months production of digestate, a total of 15 000m³ storage.

Solid digestate has much lower levels of available nitrogen and is not subject to closed period restrictions. It is valuable for returning organic matter to the soil and will typically be used prior to ploughing on land for arable cropping. Solid digestate will be stored safely on site, with in the area draining to the ‘black water’ tank. If taken off the site. Solid digestate will be removed by end-users, some of it being taken as back-loads’ in trailers bringing in silage crops, and will be kept in NVZ-compliant storage on land in their control.

7 Record keeping
To allow farmers who are using the digestate to demonstrate compliance with the Nitrates Regulations we will maintain records of:
• Digestate analysis – sampling and analysis will be carried out at least annually, to determine levels of major plant nutrients, Nitrogen, Phosphate and Potassium, and of minor plant nutrients, Sulphur, Sodium and Magnesium, as well as dry matter content. The analysis results will be shared with land managers using the digestate
• Exports of solid and liquid digestate from the site including date, amounts, type of material, recipient and location of the land where the digestate will be used.
8 Annex 1 – Suppliers and Digestate users

The following farm businesses have expressed an interest in supplying inputs and using the products from the digester:

- M. R. Newton and Partners of Wormslade Farm, Kelmarsh
- R J Peabody and Sons, Mill Farm, Maidwell, Nthants

25 May 2016

FEEDSTOCK INTENT TO SUPPLY
SUBJECT TO CONTRACT

M. R. Newton and Partners of Wormslade Farm, Kelmarsh (the “Farm”) agree, subject to agreeing the terms of a feedstock contract with RAW Biogas Ltd (the “Company”) to formalise the principles set out in this letter of intent, to contract on an annual basis with the Company for a term of 10 years:

1) To supply:
   a) 6000 tonnes of Maize, Hybrid Rye and Grass (“Feedstock”) to the proposed Anaerobic Digestion scheme at Wormslade Farm (the “AD Project”).
2) To accept 3200 tonnes of digestate from the AD Project to be used as fertilizer per annum.
3) The supply of Feedstock and Waste will be undertaken in accordance with a specification and methodology to be agreed between us to ensure the sustainable character of the AD Project; and
4) That feedstock produced will not be grown more than 20km from the AD Project.
5) That feedstock produced will be delivered to site for an agreed market price which will then be Index Linked in line with RPI
6) The feedstock can be grown or procured with the first delivery arriving to The Project by May at the earliest.
7) That the feedstock will be grown and digestate applied on land shown in the attached plan.

I look forward to working with the Company to agree the terms of the contract to reflect the above principles.

Signed .......................................................... M.R. Newton on behalf of M.R. Newton and Partners
Land from which the feedstock will be supplied and onto which any digestate will be applied
I William Paybody of R J Paybody and Sons, Mill Farm, Maidwell, Northamptonshire (the “Farm”) agree, subject to agreeing the terms of a feedstock contract with RAW Biogas Ltd (the “Company”) to formalise the principles set out in this letter of intent, to contract on an annual basis with the Company for a term of 2 years:

1) to supply/source:
   a) 25,000 Tonnes of [Maize/grass/wholecrop Silage] (“Feedstock”); and
   b) to source necessary cubic meters of slurry (“Waste”),
      to the proposed Anaerobic Digestion scheme at Wormslade Farms (the “AD Project”);

2) to utilise digestate from the AD Project for use on the Farm;

3) that the supply of Feedstock and Waste will be undertaken in accordance with a specification
   and methodology to be agreed between us to ensure the sustainable character of the AD
   Project; and

4) confirm that the quantity of digestate to be provided from the AD Project will not result in the
   Farm breaching NVZ or other environmental obligations.

I look forward to working with the Company to finalise the terms of agree the terms of the contract to reflect the above principles.

Yours

William Paybody