



## **Odour Assessment: Harbury Lane, Warwick**

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July 2014



Experts in air quality  
management & assessment

## Document Control

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<b>Job Number</b>	J2073
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### Document Status and Review Schedule

Report No.	Date	Status	Reviewed by
J2073/1/D1	28 July 2014	Draft Report	Prof. Duncan Laxen (Managing Director)

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## 1 Introduction

- 1.1 This report outlines the findings of an odour risk assessment in relation to the proposed travellers' site at Harbury Lane, near Leamington Spa. The assessment has been carried out by Air Quality Consultants Ltd on behalf of Warwick District Council.
- 1.2 A travellers' site is proposed on land currently occupied by Leamington Football Club's New Windmill Ground stadium, adjacent to Harbury Lane to the south of Leamington Spa. The site is located near to a poultry farm (southwest of the site) and a car breakers yard (west of the site), which are potential sources of odours. This assessment addresses the potential for odour impacts at the site should it be redeveloped for residential (travellers') use.
- 1.3 This report outlines the assessment method, the assessment findings, and provides recommendations with respect to the suitability of the site for residential development.

## 2 Odour in Legislation, Policy and Guidance

### National Legislation

#### *Environmental Protection Act*

- 2.1 There are currently no statutory standards in the UK covering the release and subsequent impacts of odours. This is due to complexities involved with measuring and assessing odours against compliance criteria, and the inherently subjective nature of odours.
- 2.2 It is recognised that odours have the potential to pose a nuisance for residents living near to an offensive source of odour. Determination of whether or not an odour constitutes a statutory nuisance in these cases is usually the responsibility of the local planning authority or the Environment Agency. The Environmental Protection Act 1990 (1990) outlines that a local authority can require measures to be taken where any:  
  
*“dust, steam, smell or other effluvia arising on an industrial, trade and business premises and being prejudicial to health or a nuisance...” or*  
  
*“fumes or gases are emitted from premises so as to be prejudicial to health or cause a nuisance..”*
- 2.3 Odour can also be controlled under the Statutory Nuisance provisions of Part III of the Environmental Protection Act.

## Planning Policy

### *National Planning Policy Framework*

- 2.4 The National Planning Policy Framework (NPPF) (2012) sets out planning policy for England in one place. It places a general presumption in favour of sustainable development, stressing the importance of local development plans, and states that the planning system should perform an environmental role to minimise pollution. One of the twelve core planning principles notes that planning should “*contribute to...reducing pollution*”. To prevent unacceptable risks from pollution, planning decisions should ensure that new development is appropriate for its location. The NPPF states that the effects of pollution on health and the sensitivity of the area and the development should be taken into account.
- 2.5 The NPPF is now supported by Planning Practice Guidance (PPG) (DCLG, 2014), which includes guiding principles on how planning can take account of the impacts of new development on air quality, but also makes clear that, “*Odour and dust can also be a planning concern, for example, because of the effect on local amenity*”.
- 2.6 It also provides guidance on options for mitigating impacts, outlining that “*Mitigation options where necessary, will depend on the proposed development and should be proportionate to the likely impact*”.

## Odour Guidance

### *Defra Guidance*

- 2.7 Defra released Odour Guidance for Local Authorities in March 2010 (Defra, 2010). This is a reference document aimed at environmental health practitioners and other professionals engaged in preventing, investigating and managing odours. The purpose of the guide is:
- “*...to support local authorities in their regulatory roles in preventing, regulating and controlling odours...*”
- 2.8 The guidance outlines tools and methods which may be employed by environmental health practitioners in determining whether there is a statutory nuisance from odours; it covers the fundamentals of odours, the legal framework, assessment methods, mitigation measures and intervention strategies which may be adopted.

### *Environment Agency Guidance*

- 2.9 The Environment Agency has produced a horizontal guidance note (H4) on odour assessment and management (Environment Agency, 2011), which is designed for operators of Environment Agency-regulated processes (i.e, those which classify as Part A(1) processes under the Pollution Prevention and Control (PPC) regime). The H4 guidance document is primarily aimed at methods

to control and manage the release of odours, but also contains a series of recommended assessment methods which can be used to assess potential odour impacts.

### ***Institute of Air Quality Management Guidance***

- 2.10 The latest UK guidance on odour was published by the Institute of Air Quality Management (IAQM) in 2014 (IAQM, 2014). The IAQM guidance sets out assessment methods which may be utilised in the assessment of odours for planning applications. It is the only UK odour guidance document which contains a method for estimating the significance of potential odour impacts.
- 2.11 The IAQM guidance endorses the use of multiple assessment tools for odours, stating that, “*best practice is to use a multi-tool approach where practicable*”. This is in order to improve the robustness of the assessment conclusions. Some of the methods outlined in the IAQM guidance have been adopted in this odour assessment.

## **3 Methodology**

- 3.1 Odour impact assessment is a challenging and largely subjective science. There are a number of odour assessment methods and tools that have been developed, and they are widely used in the UK, including desk-based methods, such as complaints analysis and qualitative risk assessment, through to field odour testing (sniff testing) and dispersion modelling. Each has its advantages and disadvantages and therefore it is useful, where possible, to carry out an odour assessment using a number of these different assessment methods and tools, and to take into account the results of each when reaching an overall conclusion.
- 3.2 The odour assessment set out in this report therefore utilises a multi-tool approach, which incorporates the following assessment methods:
- Odour Risk Assessment; and
  - Site visit, including sniff test.
- 3.3 The following section outlines each of these methods in detail.

### **Odour Risk Assessment**

- 3.4 The odour risk assessment set out in this report is based on a Source-Pathway-Receptor approach outlined in the IAQM’s guidance on odour assessment for planning applications (IAQM, 2014). This approach describes the concept that, in order for an odour impact (such as annoyance or nuisance) to occur, there must be a source of odour, a pathway to transport the odour to an off-site location, and a receptor (e.g. people) to be affected by the odour.

3.5 The risk of odour effects at a given receptor location may be estimated using the following fundamental relationship:

$$\text{Effect} \approx \text{Dose} \times \text{Response}$$

3.6 In this relationship, the **dose** is a measure of the likely exposure to odours, in other words the **impact**. The **response** is determined by the sensitivity of the receiving environment and thus the overall **effect** is the result of changes in odour exposure at specific receptors, taking into account their sensitivity to odours.

3.7 In order to determine the risk of potential odour effects, a number of factors determining odour exposure have been used. These factors are outlined as, and referred to as, the 'FIDOR' factors in the Environment Agency's H4 guidance document on odour management (Environment Agency, 2011), and as the 'FIDOL' factors in the IAQM odour guidance for planning (IAQM, 2014). The FIDOR/FIDOL factors are:

- **F**requency – the frequency with which odours are detected;
- **I**ntensity – the intensity of odours detected;
- **D**uration – the duration of exposure to detectable odours;
- **O**ffensiveness – the level of pleasantness or unpleasantness of odours; and
- **R**eceptor/**L**ocation – the sensitivity of the location where odours are detected, and/or the proximity of odour releases to an odour-sensitive location.

3.8 Potential odours have been assigned a risk-ranking based on the effect  $\approx$  dose x response relationship, whereby the dose (impact) is determined by the FIDO part of FIDOR, and the response is determined by the R (receptor sensitivity). The risk of odour effects can therefore be described as:

$$\text{Effect} \approx \text{Impact (FIDO)} \times \text{Receptor Sensitivity (R)}$$

3.9 The key factors that will influence the effects of odours are the magnitude of the odour source(s), the effectiveness of the pathway for transporting odours, and the sensitivity of the receptor. The methodology set out in the draft IAQM guidance document describes in detail a Source-Pathway-Receptor approach to odour risk assessment, and includes tables and matrices to assist in determining the likely risk of odour effects. The IAQM methodology is outlined below. It includes an element of professional judgement.

3.10 The IAQM methodology has been developed for the assessment of a single odour sources (or group of odour sources in a common location). This assessment is unusual in that the proposed Harbury Lane travellers' site is potentially affected by two discreet odour sources, Barnwell Poultry Farm and Harbury Lane Breakers yard. The assessment therefore examines the risk of odour

impacts from each source separately and then draws a final conclusion on the cumulative potential odour risk as a final stage of assessment.

- 3.11 For each source (Barnwell Farm and Harbury Lane Breakers), the assessment examines the odour potential (source magnitude) and then identifies the effectiveness of the pathway and receptor sensitivity at the proposed travellers' site in order to estimate the significance of potential odour effects.
- 3.12 Table 1 describes the risk-rating criteria (high, medium and low) for source magnitude, pathway effectiveness and receptor sensitivity applied in this assessment. This table has been adapted from the IAQM odour guidance.

**Table 1: Source-Pathway-Receptor Risk Ratings**

Risk Rating	Source Magnitude	Pathway Effectiveness	Receptor Sensitivity
<b>High/ Large</b>	Large-scale odour source and/or a source with highly unpleasant odours (hedonic tone -2 to -4); no odour control.	Very short distance between source and receptor; receptor downwind of source relative to prevailing wind; ground level releases; no obstacle between source and receptor.	Highly sensitive receptors e.g. residential properties and schools.
<b>Medium/ Moderate</b>	Medium-scale odour source and/or a source with moderately unpleasant odours (hedonic tone 0 to -2); basic odour controls.	Receptor is local to the source; releases are elevated, but compromised by building effects.	Moderately sensitive receptors e.g. commercial and retail premises, and recreation areas.
<b>Low/ Small</b>	Small-scale odour source and/or a source with pleasant odours (hedonic tone +4 – 0); best practise odour controls.	Long distance between source and receptor (>500 m); receptors upwind of source relative to prevailing wind; odour release from stack/high level.	Receptors not sensitive e.g. industrial activities or farms.

- 3.13 The risk ratings for source magnitude and pathway effectiveness identified using the criteria in Table 1 are then combined using the matrix shown in Table 2 to estimate an overall risk of odour impact at the proposed Harbury Lane travellers' site.

**Table 2: Assessment of Risk of Odour Impact at a Specific Receptor Location**

Pathway Effectiveness	Source Odour Potential (Source Magnitude)		
	Large	Medium	Small
High	High Risk	Medium Risk	Low Risk
Medium	Medium Risk	Low Risk	Negligible Risk
Low	Low Risk	Negligible Risk	Negligible Risk

- 3.14 The next stage of the risk assessment is to identify the potential odour effect at the travellers' site, for each odour source separately. This is done using the matrix presented in Table 3, which combines the overall odour impact risk descriptor for each receptor with the receptor sensitivity determined using the criteria in Table 1.

**Table 3: Assessment of Potential Odour Effect at a Specific Receptor Location**

Risk of Odour Impact	Receptor Sensitivity		
	High	Medium	Low
High Risk	Substantial Adverse Effect	Moderate Adverse Effect	Slight Adverse Effect
Medium Risk	Moderate Adverse Effect	Slight Adverse Effect	Negligible Effect
Low Risk	Slight Adverse Effect	Negligible Effect	Negligible Effect
Negligible Risk	Negligible Effect	Negligible Effect	Negligible Effect

- 3.15 As a final stage of assessment, an overall significance of odour effects is determined, based on professional judgment and taking into account the significance of effect at the proposed Harbury Lane travellers' site from each of the two key odour sources.

### Site Visit

- 3.16 A site visit was carried out on 25<sup>th</sup> July 2014 in order to carry out sniff tests and visually assess the proposed development site and potential odour sources at Barnwell Farm and Harbury Lane Breakers. The site visit was conducted on a day when winds were not blowing towards the proposed travellers' site from either odour source; however, the surveyor travelled to locations downwind of both potential odour sources in order to attempt to identify any detectable odour emissions on the day of the visit.
- 3.17 The surveyor refrained from the consumption of strong foods and drinks, such as coffee, in the hours prior to the site visit and also avoided the application of perfumes and scented deodorisers, to prevent any masking effect that such products can create.



- 3.18 The site visit was carried out by a surveyor whose sense of smell has been tested using dynamic olfactometry and as verified as 'normal' (i.e. not over- or under-sensitive) in accordance with the BSEN 13725:2003 standard.

## 4 Odour Assessment

- 4.1 This section outlines the results and findings of the odour risk assessment, and the site visit carried out on the 25<sup>th</sup> July 2014.

### Odour Risk Assessment

#### *Process Descriptions*

##### *Barnwell Farm*

- 4.2 Barnwell Farm is a large, 6-shed poultry rearing facility which is permitted and regulated by the Environment Agency. No details on the nature and scale of the farm in terms of the bird stocking rates, rearing arrangement (cages, free range etc.), litter type, and ventilation system have been available for this assessment.
- 4.3 Poultry farms are known sources of odours. The rearing of chickens and turkeys produces odourous emissions both directly from the birds, as well as from the bird litter. Odour emissions from rearing farms can vary depending on the stage of the rearing cycle, as birds grow larger and bird litter accumulates. Periodically, the farm will conduct a clean-out and restock, which is often a period of higher odour emission. As shed doors will be opened, and odours are released as the litter is mechanically disturbed and removed. It is not known whether clean out and re-stocking at Barnwell Farm occurs for all sheds simultaneously, or one shed at a time. If the latter, this will increase the number of days per year during which high odour conditions may occur.

##### *Harbury Lane Breakers*

- 4.4 The Harbury Lane Breakers dismantle used cars, store and sell usable parts as second hand spares, and recycle the remaining scrap metal. The breakers is a potential source of odours, which are likely to be primarily from the handling and disposal of engine oil and lubricants.
- 4.5 Odours at Harbury Lane Breakers are likely to be released during specific activities associated with the breaking of vehicles, and the breakers yard is unlikely to give rise to a continuous odour release.

#### *Source Odour Potential*

- 4.6 The first step of the odour risk assessment is to identify the source odour potential or odour magnitude. This takes into account the scale and nature of each of the odourous processes; the

continuity of odour releases; intensity of odour releases; offensiveness of odour releases; and any odour control measures that are used. In essence, it must consider the odour potential of the sources with respect to the FIDO part of FIDOR.

### *Barnwell Farm*

4.7 The potential for odour releases from Barnwell Farm and overall source odour potential of the poultry farm are described in Table 4.

**Table 4: Identification of Odour Sources and Overall Odour Source Odour Potential for Barnwell Farm**

<b>Odour Source</b>	<b>Description</b>	<b>Frequency and Duration</b>	<b>Intensity and Offensiveness</b>
<b>Poultry shed roof vents</b>	The poultry sheds have vents in the roof to allow air flow into and out of the sheds. It is not known whether the ventilation system is mechanical.	The ventilation system runs continuously and therefore potential odour releases are continuous via the roof vents.	The intensity of odours released from the poultry shed vents is likely to vary depending on ventilation rate, shed temperature, age of stock, and volume of litter accumulation. Odours from the vents will typically be of low to moderate intensity and offensiveness. Odour intensity is likely to be lower following a re-stocking.
<b>Poultry shed access doors</b>	Doors used by farm workers or vehicles to access the poultry sheds as required.	Poultry shed doors are generally kept closed. With the exception of shed clean-out it is likely that the doors will only be opened for very short periods of time for access.	Any odours released through the open doors are likely to be similar in intensity and offensiveness to those from the roof vents.
<b>Poultry shed clean-out and re-stocking.</b>	Periodic cleaning of the poultry sheds to remove accumulated bird litter and restocking with juvenile birds. This is likely to be carried out with shed doors open for access.	Poultry shed clean-out and restocking will typically be every 6 – 14 weeks per shed depending on the rearing type. If each shed is restocked individually, this represents a maximum frequency of once every 1.5 - 2 weeks.	Shed clean-out will involve the physical disturbance and washing down of poultry litter and litter-covered surfaces which is likely to result in greater odour intensity and a potentially higher level of offensiveness than odours released during normal operation.

Odour Source	Description	Frequency and Duration	Intensity and Offensiveness
<b>Overall Source Odour Potential</b>	<p>Barnwell Farm is a moderately-sized poultry farm and is judged to be a medium-scale odour source in terms of the amount of odour released. Odour intensity is likely to be low to medium under normal operation and higher during the annual shed clean-out and restocking.</p> <p>Based on the hedonic tone scores in Table A1.6 of SEPA odour guidance (SEPA, 2010), odours from Barnwell Farm are judged to have the potential to be moderately to highly offensive in accordance with the hedonic scores for earthy (-1.94), ammonia (-2.47), and faecal (-3.36) odours.</p> <p>The overall source odour potential of Barnwell Farm is judged to be <b>Medium</b>.</p>		

### Harbury Lane Breakers

- 4.8 The potential for odour releases from Harbury Lane Breakers and overall source odour potential of the breakers yard are described in Table 5.

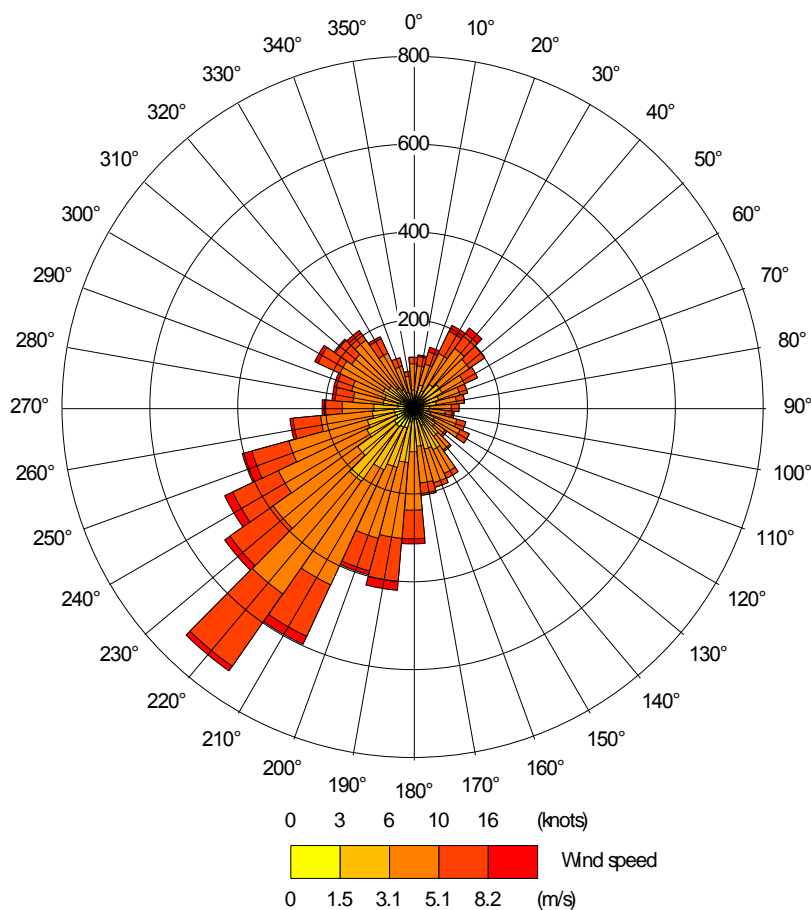
**Table 5: Identification of Odour Sources and Overall Odour Source Odour Potential for Harbury Lane Breakers**

Odour Source	Description	Frequency and Duration	Intensity and Offensiveness
<b>Vehicle Breaking</b>	Release of odours during the dismantling of vehicles. It is not known if dismantling is carried out indoors or outside.	The breakers is open daily and therefore it may be assumed that vehicle dismantling may take place during any day of the week.	Odours will likely be released from the extraction and handling of engine fluids such as engine oil, petrol, diesel, and lubricants. Odour intensity is likely to be low to moderate and odour offensiveness will be slightly unpleasant.
<b>Vehicle Storage</b>	Prior to and following vehicle dismantling, vehicles and vehicle parts are stored on site before sale or removal.	Vehicle are continuously stored at the site, however, the in-situ vehicles are not likely to be a significant source of odours.	There is likely to be very little odour released from vehicle storage. A small amount of odours may be released from any fuel or oil leaks/spillages, but these are likely to be low in intensity.
<b>Overall Source Odour Potential</b>	<p>The Harbury Lane Breakers is judged to be a very minor source of odour. Any odours released are likely to be infrequent, short-lived and very localised.</p> <p>Based on the hedonic tone scores in Table A1.6 of SEPA odour guidance (SEPA, 2010), odours from the Harbury Lane Breakers are judged to have the potential to be mildly offensive in accordance with the hedonic scores for gasoline (-1.16) and metallic (-0.94) odours.</p> <p>The overall source odour potential of the Harbury Lane Breakers is judged to be <b>Small</b>.</p>		

## Pathway Effectiveness

### Barnwell Farm

- 4.9 In order to consider the effectiveness of the pathway, it is important to consider the receptor location in terms of its proximity to odour source(s) and the prevailing wind direction. The proposed Harbury Lane travellers' site boundary is more than 200 m from the nearest of Barnwell Farm's poultry sheds.
- 4.10 The wind rose for 2012 from the Coventry meteorological station presented in Figure 1 demonstrates that the prevailing wind in the region is from the southwest. In general, odours will be transported by the wind and will not be detectable at locations upwind of a source. The exception to this is during calm conditions when odours may disperse against the wind direction, although typically only for relatively short distances. The proposed travellers' site is therefore downwind of Barnwell Farm with respect to the prevailing wind direction.



**Figure 1: Coventry Wind Rose 2012**

- 4.11 Barnwell Farm is bounded by a dense buffer of mature trees along its northern boundary. Although the trees will not remove odours, the action of the foliage will result in increased air

turbulence which should aid dispersion and dilution of odour and lessen the potential for detectable poultry farm odours to occur at the proposed travellers' site.

### *Harbury Lane Breakers*

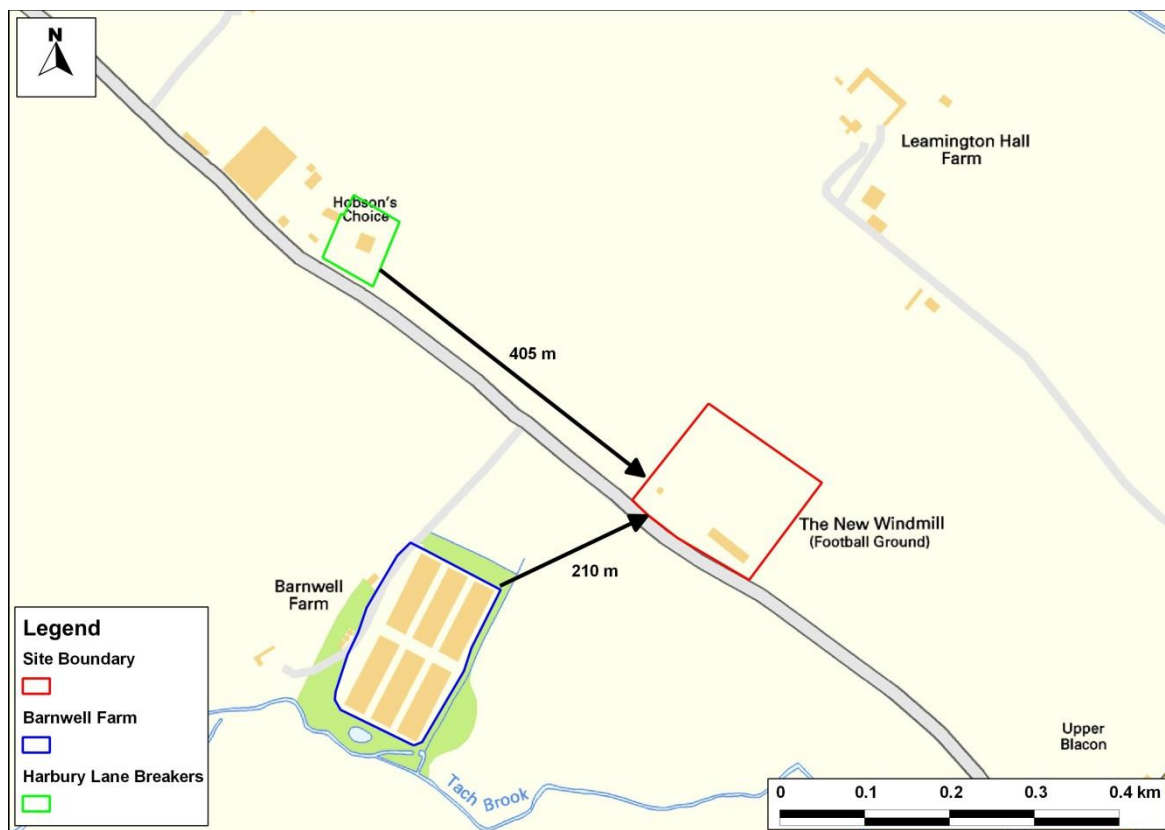
- 4.12 The Harbury Lane Breakers yard is over 400 m from the boundary of the proposed travellers' site. As shown by the wind rose in Figure 1, the prevailing wind in the area is southwesterly, and northwesterly winds, which would transport odours from the breakers towards the proposed travellers' site are relatively uncommon.
- 4.13 The Harbury Lane Breakers is bounded by a large vegetated earth bund along its eastern boundary, which increases the length of the pathway between potential odour sources and the travellers site, as air must pass up and over the bund. The bund may also increase odour dispersion and dilution through increased air turbulence.
- 4.14 The effectiveness of the odour pathways between proposed travellers site and Barnwell Farm and Harbury Lane Breakers are presented in Table 6. The location of Barnwell Farm and Harbury Lane Breakers in relation to the proposed travellers' site is shown in Figure 2.

**Table 6: Effectiveness of Odour Pathway**

Receptor	Distance from Source <sup>a</sup>	Direction from Source	Downwind? <sup>b</sup>	Pathway Effectiveness
<b>Barnwell Farm</b>	210 m	SW	Yes	Moderate
<b>Harbury Lane Breakers</b>	405 m	W	No	Low

<sup>a</sup> Distance between the closest points on the respective site boundaries.

<sup>b</sup> Relative to predominant wind direction identified by wind roses presented in Figure 1.



**Figure 2: Site and Odour Source Location Plan**

4.15 The effectiveness of the pathway to the proposed Harbury Lane travellers’ site is judged to be moderate for odours from Barnwell Farm and low for odours from Harbury Lane Breakers (Table 6).

**Receptor Sensitivity**

4.16 The proposed development is residential and is therefore judged to be of high sensitivity as a receptor.

**Potential Odour Effects**

4.17 The assessment of the potential odour effects at the proposed Harbury Lane travellers’ site is presented in Table 7. This brings together the source odour potential, effectiveness of pathway and receptor sensitivity identified using the criteria described in Table 1, to identify an overall potential for odour effects, using the matrices set out in Table 2 and Table 3. The risks of odour effects from Barnwell Farm and Harbury Lane Breakers are estimated separately.

**Table 7: Potential Odour Effects from Barnwell Farm and Harbury Lane Breakers**

Receptor	Risk of Odour Impact (Dose)			Receptor Sensitivity	Likely Odour Effect
	Source Odour Potential	Effectiveness of Pathway	Risk of Odour Impact		
<b>Barnwell Farm</b>	Medium	Moderate	Low	High	Slight Adverse
<b>Harbury Lane Breakers</b>	Small	Low	Negligible	High	Negligible

4.18 The potential odour effects set out in Table 7 have been identified using the effect  $\approx$  dose  $\times$  response relationship identified in paragraph 3.5. The process is described as follows:

#### *Barnwell Farm*

##### 1) Identify the Impact

4.19 Based on a medium source odour potential; where the pathway is deemed to be moderately effective, then the risk of odour impacts (dose) is judged to be low risk (see Table 2).

##### 2) Consider the Response

4.20 A low risk of odour impacts combined with high receptor sensitivity is judged to lead to a *slight adverse* odour effect (see Table 3).

#### *Harbury Lane Breakers*

##### 1) Identify the Impact

4.21 Based on a small source odour potential; where the pathway is deemed to be of low effectiveness, then the risk of odour impacts (dose) is judged to be negligible (see Table 2).

##### 2) Consider the Response

4.22 A negligible risk of odour impacts combined with high receptor sensitivity is judged to lead to a *negligible* odour effect (see Table 3).

4.23 The potential risk of odour effects is therefore negligible for Harbury Lane Breakers and slight adverse for Barnwell Farm. The final stage of assessment is to draw an overall conclusion on the potential significance, based on professional judgement. This judgement is discussed in Section 5 of this report.

## Site Visit

- 4.24 A site visit was conducted on the 25<sup>th</sup> July 2014 in order to visually assess the development site, Barnwell Farm and Harbury Lane Breakers and to carry out sniff testing to identify any odours emanating from either source during the visit.
- 4.25 It was not possible within the timescales of the assessment to carry out the site visit on a day with winds blowing towards the proposed travellers' site from either Barnwell Farm or Harbury Lane Breakers, as northerly winds were persistent during the week in which the site visit was to be conducted. The site visit was therefore carried out during a day with northeasterly winds. The surveyor ensured access to locations downwind of both Barnwell Farm and Harbury Lane Breakers in order to attempt to detect any odours from either source on the day.
- 4.26 There were, however, no odours detected from either source on the day of the site visit, even when close to the site boundaries. Barnwell Farm was observed to include a large wood chipper contained within a standalone structure next to the poultry sheds, which emitted a woody odour at very close proximity. Apart from this, no poultry odours were noted, even in close proximity to the farm in a downwind direction. Likewise, there were no detectable odours emanating from Harbury Lane Breakers on the day of the site visit.
- 4.27 The site visit represents only a brief 'snapshot' of typical operations at both sources and therefore the findings cannot be used to categorically demonstrate that there is no risk of odours from either source, however, the findings can be used as evidence that both sources are not continuously odourous. It must be borne in mind that odours from these sources may be variable depending on a number of seasonal and temporal factors. Overall though, it is judged that there is a low risk of significant odour emissions from either source during typical operations, and the highest risk of detectable odours is likely to be during the clean out and restocking of poultry sheds at Barnwell Farm.

## 5 Summary and Conclusions

- 5.1 Overall, it is judged that the risk of odour effects at the proposed Harbury Lane travellers' site from Barnwell Farm and Harbury Lane Breakers is insignificant. This judgement is based on the balance of evidence obtained from the results of the odour risk assessment and the site visit conducted on the 25<sup>th</sup> July 2014.
- 5.2 The odour risk assessment identified the potential for slight adverse effects from Barnwell Farm; however, the risk assessment is conservative, and as no odours were detected even on the farm itself during this site visit, it is judged that there are very unlikely to be any detectable odours over 200 m away at the proposed travellers' site under normal operations. In terms of Harbury Lane



Breakers, the odour risk assessment identified a negligible risk of odour effects, which is supported by the findings of the site visit during which no detectable odours were noted.

- 5.3 The poultry shed clean out and restocking at Barnwell Farm may have the potential to release high odours which might be detectable at the proposed travellers' site. This would only be when these activities were being carried out during south-westerly wind conditions, and are most likely on days conducive to odour transport, with low wind speeds, warm air temperatures and no precipitation. The frequency of shed clean out and restocking has been estimated as being fortnightly and therefore future residents of the proposed travellers' site may experience detectable odours from the poultry farm, but this would be less frequently than once per fortnight.
- 5.4 Overall it is judged that the risk of odour effects at the proposed Harbury Lane travellers' site is insignificant. There is a small risk of detectable odours on rare occasions during Barnwell Farm poultry shed clean out, but this is not judged to be of sufficient scale or frequency to render the site unsuitable for residential development.
- 5.5 It should be borne in mind that this odour assessment has been completed using a limited screening methodology and therefore the conclusions are appropriately broad and conservative. Further evidence to support the case that the site is suitable for residential development could be gathered through further odour assessment work including additional site visits, community surveys, and dispersion modelling.

## 6 References

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## 7 Appendices

A1	Professional Experience.....	18
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## A1 Professional Experience

### **Prof. Duncan Laxen, BSc (Hons) MSc PhD MEnvSc FIAQM**

Prof Laxen is the Managing Director of Air Quality Consultants, a company which he founded in 1993. He has over forty years experience in environmental sciences and has been a member of Defra's Air Quality Expert Group and the Department of Health's Committee on the Medical Effects of Air Pollution. He has been involved in major studies of air quality, including nitrogen dioxide, lead, dust, acid rain, PM<sub>10</sub>, PM<sub>2.5</sub> and ozone and was responsible for setting up UK's urban air quality monitoring network. Prof Laxen has been responsible for appraisals of all local authorities' air quality Review & Assessment reports and for providing guidance and support to local authorities carrying out their local air quality management duties. He has carried out air quality assessments for power stations; road schemes; ports; airports; railways; mineral and landfill sites; and residential/commercial developments. He has also been involved in numerous investigations into industrial emissions; ambient air quality; indoor air quality; nuisance dust and transport emissions. Prof Laxen has prepared specialist reviews on air quality topics and contributed to the development of air quality management in the UK. He has been an expert witness at numerous Public Inquiries and published over 70 scientific papers and given numerous presentations at conferences.

### **Laurence Caird, MEarthSci CSci MEnvSc MIAQM**

Mr Caird is a Principal Consultant with AQC, with over eight years' experience in the field of air quality and odour assessment including the detailed assessment of emissions from road traffic, airports, heating and energy plant, and a wide range of industrial sources including the thermal treatment of waste. He has extensive experience in the assessment of odours for planning and environmental permitting, including the use of both desk-based and field-based monitoring and assessment methods. He is a Chartered Scientist and is a Member of the Institute of Air Quality Management (IAQM). He was a member of the IAQM team who produced the recently published *Guidance on the assessment of odour for planning*. Mr Caird has had his odour sensory acuity tested to ensure his sense of smell is within the normal expected range, in terms of threshold and variability.

Full CVs are available at [www.aqconsultants.co.uk](http://www.aqconsultants.co.uk).