Odour Assessment

13 South End Road, London

Client: Karma Bread Limited

Reference: 1069r2

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Report Issue

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Executive Summary

Redmore Environmental Ltd was commissioned by Karma Bread Limited to undertake an Odour Assessment in support of a proposed bakery at 13 South End Road, London.

The proposals include the refurbishment of an existing building to provide a new bakery and small café. This will produce a range of breads, bagels and doughnuts for consumption on and off the premises.

The development has the potential to cause odour impacts as a result of emissions from the proposed baking processes. As such, an Odour Assessment was requested in order to assess potential effects as a result of the scheme.

An assessment using standard methodology was undertaken in order to identify the odour risk associated with the proposals. This was based on a number of site specific inputs.

The results of the assessment indicated the odour risk was classified as high. As such, suitable mitigation was specified for the development. Additional control techniques were also identified for use at the site should impacts of greater significance than currently anticipated occur during operation.

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1.0 INTRODUCTION

1.1 Background

1.1.1 Redmore Environmental Ltd was commissioned by Karma Bread Limited to undertake an Odour Assessment in support of a proposed bakery at 13 South End Road, London.

1.1.2 The development has the potential to cause odour impacts as a result of emissions from the proposed baking processes. As such, an Odour Assessment was requested in order to assess potential effects as a result of the scheme.

1.2 Site Location and Context

1.2.1 The site is located at 13 South End Road, London, at approximate National Grid Reference (NGR): 527240, 185560. Reference should be made to Figure 1 for a map of the site and surrounding area.

1.2.2 The proposals include the refurbishment of an existing building to provide a new bakery and small café. This will produce a range of breads, bagels and doughnuts for consumption on and off the premises. Emissions from the baking processes will be released to atmosphere through two dedicated ventilation systems, one serving the oven and one the doughnut machine. The release points will be positioned towards the rear of the premises above the proposed mezzanine floor.

1.2.3 It should be noted that emissions from the oven will only consist of hot exhaust gases and condensation with limited potential for odour. As such, this system has not been considered during the assessment.

1.2.4 The operation of the doughnut machine may result in odour emissions. These have the potential to cause impacts at sensitive locations within the vicinity of the site and have therefore been assessed within this report.

2.0 ODOUR BACKGROUND

2.1 Odour Definition

2.1.1 Department for Environment, Food and Rural Affairs (DEFRA) guidance[1] defines odour as:

> "An odour is the organoleptic attribute perceptible by the olfactory organ on sniffing certain volatile substances. It is a property of odorous substances that make them perceptible to our sense of smell. The term odour refers to the stimuli from a chemical compound that is volatilised in air. Odour is our perception of that sensation and we interpret what the odour means. Odours may be perceived as pleasant or unpleasant. The main concern with odour is its ability to cause a response in individuals that is considered to be objectionable or offensive.
>
> Odours have the potential to trigger strong reactions for good reason. Pleasant odours can provide enjoyment and prompt responses such as those associated with appetite. Equally, unpleasant odours can be useful indicators to protect us from harm such as the ingestion of rotten food. These protective mechanisms are learnt throughout our lives. Whilst there is often agreement about what constitutes pleasant and unpleasant odours, there is a wide variation between individuals as to what is deemed unacceptable and what affects our quality of life."

2.2 Odour Impacts

2.2.1 The magnitude of odour impact depends on a number of factors and the potential for complaints varies due to the subjective nature of odour perception. The FIDOR acronym is a useful reminder of the factors that will determine the degree of odour pollution:

- Frequency of detection - frequent odour incidents are more likely to result in complaints;
- Intensity as perceived - intense odour incidents are more likely to result in complaints;
- Duration of exposure - prolonged exposure is more likely to result in complaints;
- Offensiveness - more offensive odours have a higher risk of resulting in complaints; and,

[1] Odour Guidance for Local Authorities, DEFRA, 2010.

- Receptor sensitivity - sensitive areas are more likely to have a lower odour tolerance.

2.2.2 It is important to note that even infrequent emissions may cause loss of amenity if odours are perceived to be particularly intense or offensive.

2.2.3 The FIDOR factors can be further considered to provide the following issues in regards to the potential for an odour emission to cause a nuisance:

- The rate of emission of the compound(s);
- The duration and frequency of emissions;
- The time of the day that this emission occurs;
- The prevailing meteorology;
- The sensitivity of receptors to the emission i.e. whether the odorous compound is more likely to cause nuisance, such as the sick or elderly, who may be more sensitive;
- The odour detection capacity of individuals to the various compound(s); and,
- The individual perception of the odour (i.e. whether the odour is regarded as unpleasant). This is greatly subjective, and may vary significantly from individual to individual. For example, some individuals may consider some odours as pleasant, such as petrol, paint and creosote.

2.3 Odour Legislative Control

2.3.1 The main requirement with respect to odour control from premises not controlled under the Environmental Permitting (England and Wales) Regulations (2010) and subsequent amendments, such as the proposed development, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

> "Any dust, steam, smell or other effluvia arising on industrial, trade or business premises and being prejudicial to health or a nuisance."

2.3.2 Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the Local Authority is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Environmental Protection Act (1990). Enforcement can insist that there

be no odour beyond the boundary of the works. The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to best practice measures.

2.4 National Planning Policy

2.4.1 The National Planning Policy Framework[2] (NPPF) was published on 27th March 2012 and sets out the Government's core policies and principles with respect to land use planning, including odour. The document includes the following considerations which are relevant to the proposed development:

> "The planning system should contribute to and enhance the natural and local environment by: […]
>
> Preventing both new and existing development from contributing to or being put at unacceptable risk from, or being adversely affected by unacceptable levels of soil, air, water or noise pollution or land instability"

2.4.2 The implications of the NPPF have been considered throughout this assessment.

[2] National Planning Policy Framework, Department for Communities and Local Government, 2012.

3.0 METHODOLOGY

3.1 Introduction

3.1.1 The proposed development has the potential to cause odour impacts as a result of emissions from the baking processes. Impacts have therefore been assessed using the DEFRA methodology[3]. The relevant process is summarised in the following Sections.

3.2 DEFRA Assessment Methodology

3.2.1 The DEFRA methodology[4] provides an approach for identifying the risk of odour impact associated with food preparation premises and defining an appropriate level of mitigation to control potential effects to an acceptable level.

3.2.2 The first stage in the process is to score the proposed premises in accordance with the criteria outlined in Table 1.

Table 1 Risk Scoring Criteria

Criteria	Score	Score	Details
Dispersion	Very poor	20	Low level discharge, discharge into courtyard or restriction on stack
	Poor	15	Not low level but below eaves, or discharge at below 10m/s
	Moderate	10	Discharging 1m above eaves at 10 - 15m/s
	Good	5	Discharging 1m above ridge at 15m/s
Proximity of receptors	Close	10	Closest sensitive receptor less than 20m from kitchen discharge
	Medium	5	Closest sensitive receptor between 20 and 100m from kitchen discharge
	Far	1	Closest sensitive receptor more than 100m from kitchen discharge

[3] Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

[4] Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

Criteria	Score	Score	Details
Size of kitchen	Large	5	More than 100 covers or large sized take away
	Medium	3	Between 30 and 100 covers or medium sized take away
	Small	1	Less than 30 covers or small take away
Cooking type (odour and grease loading)	Very high	10	Pub (high level of fried food), fried chicken, burgers or fish & chips
	High	7	Kebab, Vietnamese, Thai or Indian
	Medium	4	Cantonese, Japanese or Chinese
	Low	1	Most pubs, Italian, French, Pizza or steakhouse

3.2.3 The score obtained using the values shown in Table 1 is subsequently used to define the associated risk and odour control requirement. The relevant criteria are summarised in Table 2.

Table 2 Odour Control Requirement

Significance Score	Impact Risk	Odour Control Requirement
Less than 20	Low to Medium	Low level odour control
20 to 35	High	High level odour control
More than 35	Very high	Very high level odour control

3.2.4 A suitable odour control system can then be identified from the techniques summarised in the DEFRA guidance[5].

[5] Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

4.0 ASSESSMENT

4.1 Odour Risk

4.1.1 The odour risk associated with the proposals was rated in accordance with the DEFRA methodology[6]. The results are summarised in Table 3.

Table 3 Odour Risk

Criteria	Score	Score	Notes
Dispersion	Very poor	20	The ventilation system discharges approximately 500mm above roof level and the vent is directed downwards
Proximity of receptors	Close	10	The closest sensitive receptors are less than 20m from the discharge It should be noted that in order to increase this distance a tall stack would be required with associated visual and aesthetic impacts to nearby residents
Size of kitchen	Small	1	The size of the proposed bakery is considered comparable to that of a small takeaway
Cooking type (odour and grease loading)	Low	1	Baking is considered a pleasant odour, which is reflected in its positive hedonic score and high odour assessment criteria, as detailed in Environment Agency guidance[7]

4.1.2 As shown in Table 3, the odour risk from the proposed bakery was scored as 32. The value is dominated by poor dispersion characteristics, as well as the proximity of local receptors. The risk was therefore classified as **high**, in accordance with the DEFRA criteria.

4.2 Odour Control

Proposed Measures

4.2.1 In order to control potential odour emissions from the bakery review of the process was undertaken in order to identify the most significant sources and appropriate control

6 Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

7 H4: Odour Management, Environment Agency, 2011.

techniques. This indicated inline grease filters have been specified for inclusion within the doughnut machine canopy by AAC, the ventilation system engineers. This will reduce the grease loading of the exhaust gases and help control impacts.

Additional Techniques

4.2.2 Review of the DEFRA guidance[8] indicated the following measures should be considered if odour impacts are experienced in the vicinity of the site:

- Inclusion of dust filtration and a carbon filter on the ventilation systems. This is identified as providing a **high** level of odour protection whilst being suitable for a small scale operations such as the development.

4.2.3 It is not proposed to include the above control system at the development in the first instance due to the low odour generating potential of baking processes. However, an appropriate system has been specified which could be utilised if unexpected levels of impact occur once the site is operational.

[8] Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems, DEFRA, 2005.

5.0 CONCLUSION

5.1.1 Redmore Environmental Ltd was commissioned by Karma Bread Limited to undertake an Odour Assessment in support of a proposed bakery at 13 South End Road, London.

5.1.2 The development has the potential to cause odour impacts as a result of emissions from the proposed baking processes. As such, an Odour Assessment was requested in order to assess potential effects as a result of the scheme.

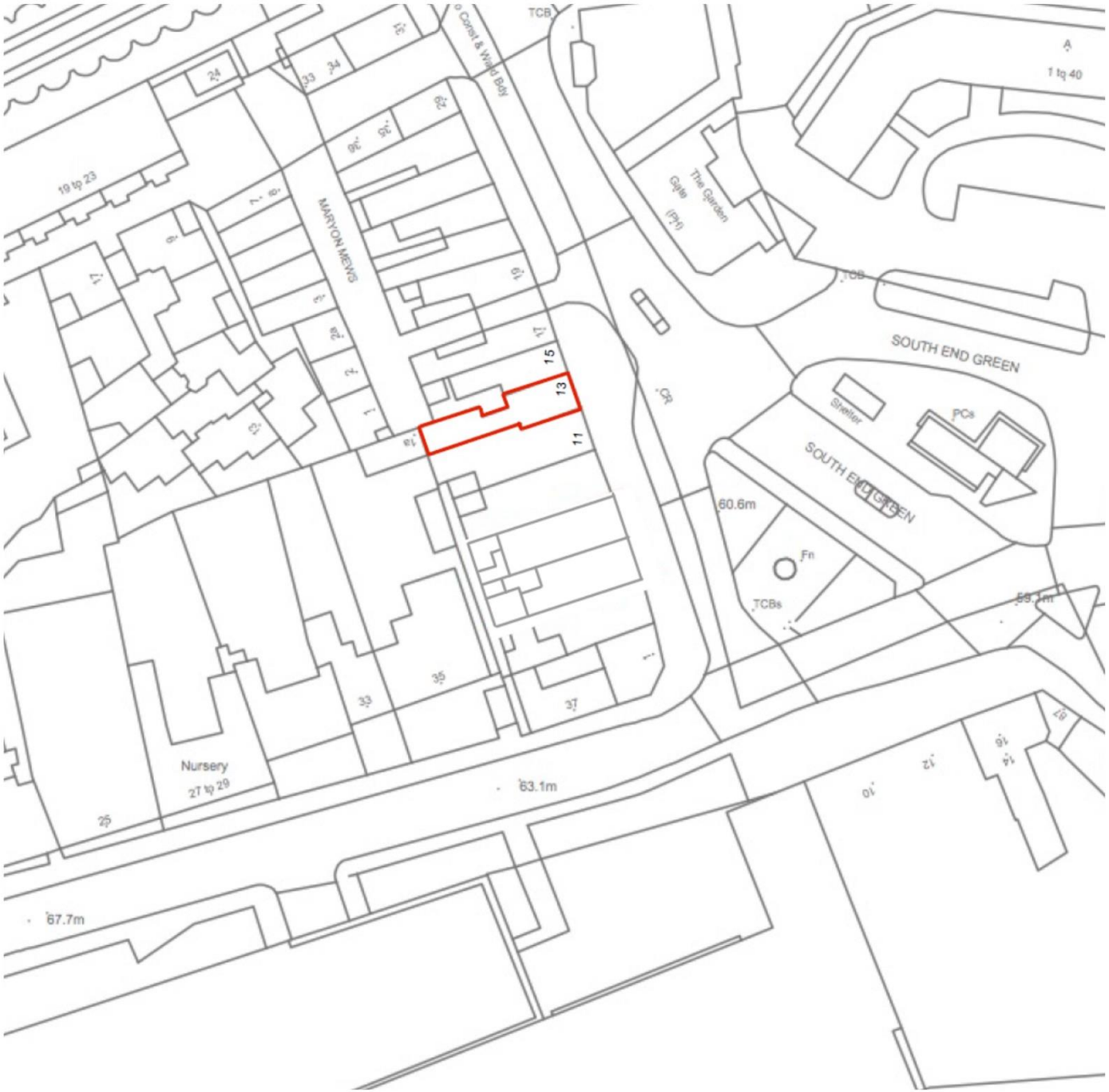
5.1.3 An assessment using the DEFRA methodology was undertaken in order to identify the odour risk associated with the proposals. This was based on site specific inputs describing dispersion potential, proximity of receptors, size of kitchen and cooking type.

5.1.4 The results of the assessment indicated the odour risk was classified as **high**, in accordance with the DEFRA criteria. As such, mitigation in the form of grease filtration was specified for the development. Additional control techniques were also identified for use at the site should impacts of greater significance than currently anticipated occur during operation.

6.0 ABBREVIATIONS

DEFRA	Department for Environment, Food and Rural Affairs
NGR	National Grid Reference
NPPF	National Planning Policy Framework

Figures



Legend

Title
Figure 1 - Site Location Plan

Project
Odour Assessment
13 South End Road, London

Project Reference
1069

Client
Karma Bread Limited

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