



Odour Risk Assessment	
533 Oxford Road, Reading	
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1 Introduction

- 1.1.1 This report considers the potential for annoyance due to kitchen odours from nearby commercial kitchens on the proposed residential development of the first and second floor at 533 Oxford Road, Reading, RG30 1HJ. The application site is shown in **Figure 1**. Odours from nearby commercial kitchens have the potential to impact on the amenity of residents at the proposed development. The assessment has been prepared in support of the planning application for the proposed development.
- 1.1.2 This report includes an odour risk assessment that follows the methodology set out in EMAQ guidance on Control of Odour and Noise from Commercial Kitchen Exhaust Systems, which updates the withdrawn Defra Guidance of the same name (Defra, 2005; EMAQ, 2018). The risk assessment methodology has been used to determine whether mitigation at the kitchens is likely to adequately control odour.
- 1.1.3 The references used in this assessment are shown in **Section 5**.

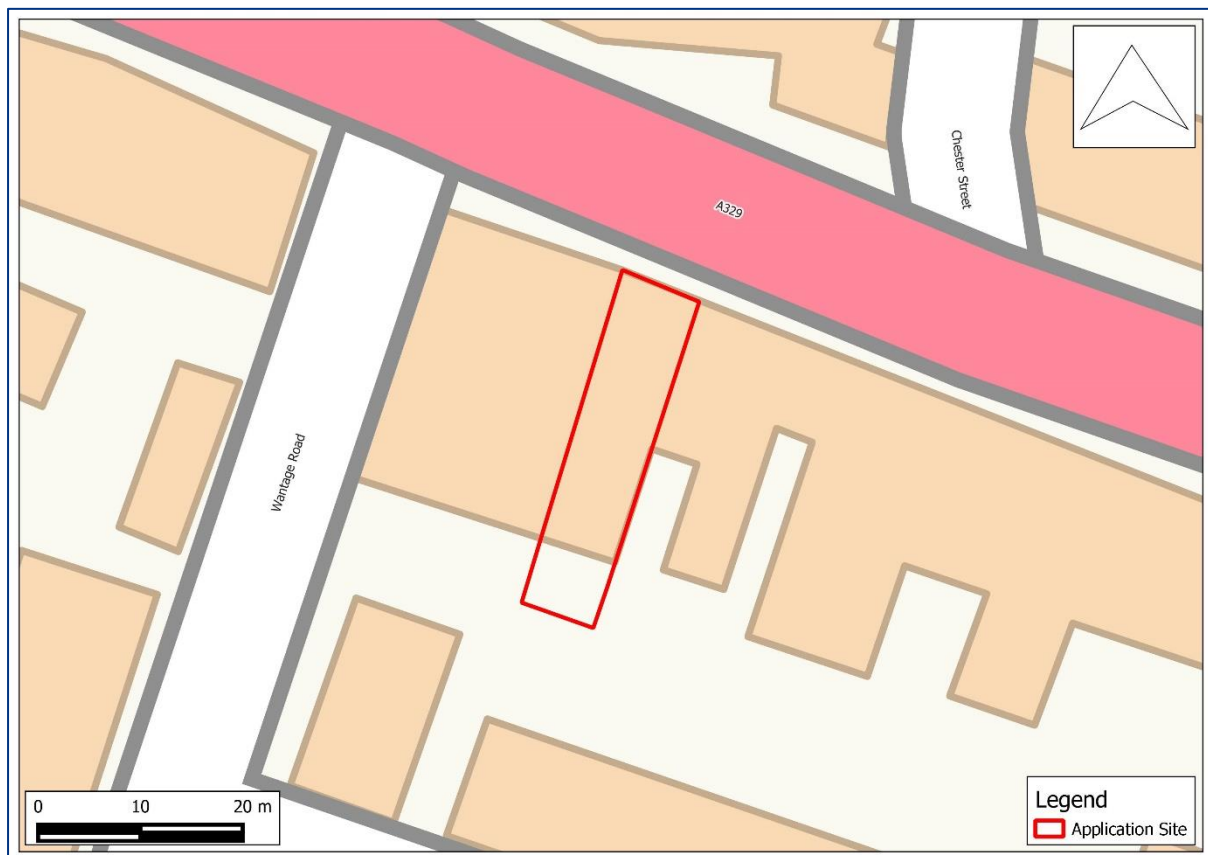


Figure 1: Application Site

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2 Odour Risk Assessment

2.1. Methodology

- 2.1.1 EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems includes a risk assessment methodology for identifying the potential risk of odour impacts from commercial kitchen operations. The results of the risk assessment may then be used to determine a suitable level of odour abatement to be installed into a commercial kitchen.
- 2.1.2 The risk assessment for odours is split into the following four categories;
- dispersion;
 - proximity of receptors;
 - size of kitchen; and
 - cooking type (odour and grease loading).
- 2.1.3 A risk rating is scored for each category and the total risk rating, i.e. the sum of the risk rating for each category, is compared with the significance score in **Table 1**. The level of odour control which is likely to be required to prevent the kitchen from causing odour nuisance impacts can then be determined. The risk ratings for each category are shown in **Table 2**.

Table 1: Significance Score and Odour Control Requirement

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

a based on the sum of scores from dispersion, proximity to receptors, size of kitchen and cooking type.

Table 2: Risk Ratings

Criteria	Rating	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 10 m/s.
	Moderate	10	Discharging 1 m above eaves at 10-15 m/s.
	Good	5	Discharging 1 m above ridge at 15 m/s.
Proximity of Receptors	Close	10	Closest sensitive receptor less than 20 m from kitchen discharge.
	Medium	5	Closest sensitive receptor between 20 and 100 m from kitchen discharge.
	Far	1	Closest sensitive receptor more than 100 m from kitchen discharge. ^a
Size of Kitchen	Large	5	More than 100 covers or large sized takeaway.
	Medium	3	Between 30 and 100 covers or medium sized takeaway.
	Small	1	Less than 30 covers or small takeaway. ^a
Cooking Type (Odour and Grease Loading)	Very High	10	Pub (high level of fried food), fried chicken, burgers or fish & chips. Turkish, Middle Eastern or any premises cooking with solid fuel.
	High	7	Kebab, Vietnamese, Thai, Indian, Japanese, Chinese or Steakhouse.
	Medium	4	Cantonese, Italian, French or Pizza (gas fired).
	Low	1	Most pubs (no fried food, mainly reheating and sandwiches etc.), or Tea Rooms. ^a

^a A planner may take a pragmatic view when assessing whether certain low risk kitchens require any odour abatement to be fitted. In reaching this decision the Planner may consider the nature of the food being cooked and/or the size of kitchen and/or its location.

2.2. Risk Assessment

2.2.1 For this assessment, commercial kitchens in close proximity to the proposed development, i.e. with extracts that discharge within 20m of the proposed development, are considered.

2.2.2 Commercial kitchens operate on the ground floor level of the proposed development building (Peri Peri Original) and also at 529 Oxford Street (Pizza Hut Delivery).

Dispersion

2.2.3 The risk rating for dispersion relates to the location of the discharge flue of the kitchen extraction system, and the flow rate of the exhaust air at the point of discharge.

2.2.4 The extract system for Peri Peri Original terminates vertically through a high velocity cowl 1m above the roof ridge of the flat roof to the rear of the building. Therefore, based on the information in **Table 2**, the risk rating for dispersion would be described as **Good**. It has not been possible to identify the extract from Pizza Hut Delivery; however, it is assumed that, as there are dwellings in close proximity, a similar system is fitted and that dispersion will be **Good**.

Proximity to Receptors

2.2.5 The risk rating for proximity to receptors relates to the distance from the point of discharge of the kitchen extraction system to the nearest sensitive receptor. Examples of high sensitivity receptors, as set out in the Institute of Air Quality Management (IAQM) Guidance on the Assessment of Odour for Planning (IAQM, 2018), include residential dwellings.

2.2.6 The extract flues from Peri Peri Original and Pizza Hut Delivery are within 20m of the proposed development; therefore, based on the information in **Table 2**, the risk rating for dispersion would be described as **Close**.

Size of Kitchen

2.2.7 The risk rating for the size of kitchen relates to the volume of food prepared by the kitchen, as described by the number of covers of a restaurant, or the size of a takeaway.

2.2.8 Peri Peri Original has 36 covers and based on the information in **Table 2**, the risk rating for the size of kitchen would be described as **Medium**. Pizza Hut Delivery is a small take-away; therefore, the risk rating for the size of kitchen would be described as **Small**.

Cooking Type

2.2.9 The risk rating for cooking type relates to the type of food prepared in the kitchen, and the cooking methods used.

2.2.10 Peri Peri Original specialises in grilled chicken, but also serves burgers and fries; therefore, based on the information in **Table 2**, the risk rating for cooking type would be described as **Very High**. Pizza Hut Delivery serves pizzas and the risk rating for cooking type would be described as **Medium**.

Summary

2.2.11 A summary of the risk assessment and the total risk rating for the commercial kitchens is shown in **Table 3**. With regard to the significance scores set out in **Table 1**, the overall risk rating for both commercial kitchens would be **High**; therefore, the extraction systems of these kitchens would require a high level of odour control to mitigate the potential odour impacts at the proposed development.

Table 3: Odour Risk Assessment Summary

Criteria	Significance Score	
	Peri Peri Original	Pizza Hut Delivery
Dispersion	5	5
Proximity of Receptors	10	10
Size of Kitchen	3	1
Cooking Type (Odour and Grease Loading)	10	4
Overall Score	28	20

3 Odour Mitigation

- 3.1.1 The odour risk assessment has identified that a high level of odour control would be required at the commercial kitchens at Peri Peri Original and Pizza Hut Delivery in order to adequately control odour (see **Table 3**). The EMAQ guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems outlines that abatement systems offering a high level of odour control may include:
1. Fine filtration or electrostatic precipitator (ESP) followed by carbon filtration (carbon filters rated with a 0.2-0.4 second residence time); or
 2. Fine filtration or ESP followed by UV ozone system to achieve the same level of control as 1.
- 3.1.2 It is understood that a carbon filtration system is installed at Peri Peri Original with a residence time of 0.3 to 0.6 seconds; therefore, odours from Peri Peri Original are likely to be adequately controlled.
- 3.1.3 It has not been possible to determine the level of odour control installed at Pizza Hut Delivery; however, given that the cooking of pizza is not particularly odorous, it is unlikely that odour from the kitchen at Pizza Hut Delivery will cause odour annoyance at the proposed development. It should also be considered that the prevailing wind in the UK blows from the southwest through to the west; therefore, for most of the time, the wind will blow from the proposed development towards Pizza Hut Delivery and any residual odours from the kitchen will be carried away from the proposed development.

4 Conclusions

- 4.1.1 The odour risk assessment has identified that commercial kitchens within 20m of the proposed development would likely have a high risk rating with regard to odour effects; however, odour controls in the extract systems of the kitchens are likely to adequately control odours.
- 4.1.2 It is judged that there will not be a significant risk of odour impacts from commercial kitchens within 20m of the proposed development.

5 References

Defra, 2005. *Guidance on the Control of Odour and Noise from Commercial Kitchen Exhaust Systems*. s.l.:s.n.

EMAQ, 2018. *Control of Odour and Noise from Commercial Kitchen Exhaust Systems*. s.l.:s.n.

IAQM, 2018. *Guidance on the Assessment of Odour for Planning (v1.1)*. s.l.:s.n.

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A1 Professional Experience

Bob Thomas, BSc (Hons) PgDip MSc MIAQM MEnvSc CSci

Bob Thomas is a Director at AQA, with over twelve years' experience in the field of air quality management and assessment. He has carried out air quality assessments for a wide range of developments, including residential, commercial, industrial, minerals and waste developments. He has been responsible for air quality projects that include ambient air quality monitoring of nitrogen dioxide, dust and PM₁₀, the assessment of nuisance odours and dust, and the preparation of Review and Assessment reports for local authorities. He has extensive dispersion modelling experience for road traffic, energy centre and industrial sources, and has completed many stand-alone reports and chapters for inclusion within an Environmental Statement. Bob has worked with a variety of clients to provide expert air quality services and advice, including local authorities, planners, developers, architects and process operators, and has provided expert witness services at public inquiry. He is a Chartered Scientist, a Member of the Institute of Air Quality Management and a Member of the Institution of Environmental Sciences.

A full CV for Bob Thomas is available at <http://aqassessments.co.uk/about>