NOISE, ODOUR AND EXTRACTION ASSESSMENT

32 HIGH STREET

WESTBURY,

BA13 3DH

CHANGE OF USE FROM

PREVIOUS BANK/FINANCIAL ESTABLISHMENT

TO

RESTAURANT/HOT FOOD TAKEAWAY

AND

2 (TWO) RESIDENTIAL APPARTMENTS

AT 1st FLOOR

A. INTRODUCTION

This paper is to support a planning application for the change of use of a Bank to a Restaurant and Hot Food takeaway at 32 High Street, Westbury. The function of this document id to demonstrate that hot food takeaway will not adversely affect the neighbouring amenity as proper treatment will apply to tackle all kind of negative impact of odour and noise of the hot food takeaway.

It will also analyse the details of the activity of the Restaurant/Hot Food takeaway, the dividing structures between the business and neighbouring properties, and details of the extraction of odours related with the business.

Odour management plan is added in this assessment to explain the measures taken to tackle any probable harm to amenity caused by the odours.

B. PROPOSAL

This application is to change the use of the ground floor unit from a Bank to a Restaurant/Hot Food takeaway. As the previous tenant (Bank) vacated the premisses approximately four years ago and the landlord could not find any tenant other than use of a Restaurant/Hot Food use. There is a specific odour and noise management plan to mitigate the potential harm to the neighbouring amenities, the proposal of a change of use which is favourable within this vicinity.

The proposed opening hours will be 9.00 – 23.00 hours Monday to Sunday. The Restaurant/Takeaway will employ 3/5 full-time and part-time members of staff.

There will be a canopy with duct and extraction system over cooking area, the preparation area will be at the back side of the existing shop. The Restaurant/Takeaway will mainly sell international food.

This product has odour which will be extracted by the canopy and proper extraction system.

The Restaurant/Takeaway will also serve other hot food related to international food. Products will be sourced from different local supplier which have professional quality and standard.

C. VENTILATION AND EXTRACTION OF ODOURS

An extraction system is proposed in the restaurant to make it odour free which will be installed in the wall along the property's rear elevation, leading out to the external courtyard. Details of this can be found in the drawings (rear elevation and section).

To manage the exhaust pollution properly, it will be split in to two distinct phases:

1. The particulate phase, oil, smoke and grease particles and
2. The gaseous phase or odour

C.1 THE PARTICULATE PHASE; OIL, SMOKE AND GREASE PARTICLES

C.1.1 Electrostatic precipitator (ESP 3000): collector of grease and smoke fumes

The Electrostatic precipitator units will be used to clean the airstream of grease and hydrocarbons (smoke) in kitchen exhaust systems. They are highly efficient and can remove particulate down to sub-micron (.01m) size. The filter efficiency of 98% is attained during a single pass through the ESP, based on the charging of particles by an ionisation section which are then trapped on the earth plates in the collector cell.

Larger particulates in the airstream would be removed by the pre-filter and lastly through an after filter to prevent any re-entertainment and provide good air distribution.

Filter technology:
1. Pre-filter
Eurovent Class 2
2. Ionisation selection
3. Collector section
Eurovent Class 9
Filter surface 28.4 square meter
4. Final filter
Eurovent Class 2

Construction:
ESP air cleaners are precision engineered to current industrial standards. The case is of galvanised construction, spot welded and fitted with heavy duty hinges and bolt-on door equipped with compression locks (adjustable). Industrial neoprene seals fitted all round.

Efficiency:

Particulate Micron	Air Vol. 100%	Air Vol. 80%
0.01	97%	98%
0.1	97%	97%
10.0	98%	98%

Maintenance:
ESP air cleaners require only routine maintenance as all filter components are cleanable by means of steam, detergent, or pressure jet excluding media and carbon filters.

Controls:
Separate enclosure houses the HT supply, motor controls, and operating lights, with individual indication of mains and filter operation.
Air volume max: 5000 cubic metre/h 3000cfm
Electrical supply: 220/240V 50Hz 1ph
Power consumption: 50W
Weight: 100Kg
Min/Max Working Temp: 4/56 degree C
Max relative humidity: 75%

Standards:
The ESP units comply with current IEE, CE and other European standards, including the health and safety at work Act, Rated to IP 53.

Dimensions:
Width: 900mm
Width : 700mm
Height : 630mm
Height : 490mm
Depth : 660mm

C.1.2 Sitesafe carbon filters:
Sitesafe carbon filters, these innovative carbon units measure 594x196x597mm directly replacing original carbon blocks whilst providing the same filter performance as an existing full-size cell. Their advantage is that they only weigh 18kg each against the 68kg of original blocks. This takes the strain out of fitting and servicing, allowing only one engineer to complete the task where two had been previously required. Sitesafe carbon filters use panels of activated carbon to remove the malodourous gases within the commercial kitchen extract duct through the process of chemical absorption. By installing ESP units before Sitesafe filters, the carbon life span is greatly increased, allowing it to nullify malodours at optimum efficiency for much longer.

- Carbon: PA242424
- Size :594x594x597
- Gross Weight :68.20kg
- Carbon Weight :50.00kg
- Rated Airflow :3600m³/hr
- Pressure Drop :120Pa

C.1.3 Box fan: GB T120
The GigaBox T120 types are suitable for the extraction of dirty, humid and hot air up to maximum 120 °C, such as extract air fan in commercial kitchens. Fans in exhaust air systems are designed and fitted so that they are easy to access, easy to control and easy to clean. It is possible to turn it off from inside the kitchen. The motor is located outside the flow line of the exhaust air. Connected extractor hoods can distinguish between solid and liquid components where possible. Passage of flame to the following components is prevented.

In the GigaBox T120 range, the motor is located outside the delivery flow and is separated from the impeller by a heat-insulated wall. The motor impeller unit can be removed without dismantling the ducting system.

Assembly of the shaped piece on exhaust side with
- GB T120 centrifugally above or at the side.
- GB T120 with easy-to-remove access panel.

Free-running high-performance centrifugal impeller with backward curved polymer blades (NG 250 made from steel) on a galvanised steel back plate, direct driven GB T120 with aluminium impellers. Energy- efficient with low noise generation. Dynamically balanced together with the motor according to DIN ISO 1940 T.1 – grade 6.3 or 2.5. IEC-standard motor or maintenance-free external motor protected to IP 54 or 44. Thermal overload protection through built-in thermal contacts. Suitable for continuous operation. Insulation class F. Ball bearings are lubricated for life.

Exhaust air duct is made of non-flammable components. From the kitchen outlet, they have a fire resistance class and is equipped with a shut-off device with proof of use for this purpose. Suitable grease filters or separating devices made of non-combustible materials are attached placed on or directly behind exhaust devices (hoods or ventilation ceilings). It is possible to remove and reattach these easily for cleaning.

C.2 O.N. 100: ODOUR NEUTRALISER

This unique product has been blended solely for use in purified air products to counteract odours from the exhaust of restaurants and commercial cooking premises. ELIMINODOR has been developed using space age technology and is finely balanced blend of oils and other chemicals which neutralise cooking odours. This blend must not become unbalanced by mixing with any other products as this will render ELIMINODOR ineffective and result in damage to equipment. The design of unique system provides that only minimal quantities are required for optimum results.

It will improve the control of odour emissions even with limited particulate phase control; however optimum results cannot be achieved unless used in conjunction with some form of high efficiency pre-filtration, the preferred type of particulate control is Electrostatic precipitation.

How will it work:

The process combines both physics and chemistry. Ambient air is drawn into the O.N.100 unit by means of an integral fan where the air is mixed with a neutralising chemical to form a vapour or gas. The principles of Electrostatic Precipitation are again applied, and the vapour is ionised to 15000 V negative and discharged into the duct by means of a non-conductive flexible hose and venturi spigot. The flow through this is controlled by the velocity within the duct thus once a system is commissioned and balanced the dosage will be correct.

The metal duct is earthed through the same circuit thus making the contents at an opposite electrical potential to the ionised chemical vapour. The electrostatic difference forces the chemical to combine physically with the contaminants after which a chemical reaction takes place to neutralise the cooking odour.

Efficiency:

The neutralisation effect is very good, dependant on the level of activity within the kitchen either a faint cooking odour or faint neutralising chemical will be detected directly at the discharge.

Eliminodor:

The odourfoyl concept used in Eliminodor is a system developed by purified Air Limited to reduce or eliminate the perception of malodorous materials. By using a combination of selected materials, the malodorous molecules are electrostatically entrapped in the air thereby preventing them being recognised by the nose.

D. FUNCTIONALITY OF THE EXTRACTION SYSTEM

The extractor system will generate negative pressure in the restaurant, which will ensure that all odours are extracted to the rear of the property. This unit also generates estimated noise level of 39dB, which is lower than a normal conversation experienced from 3 metres away (approximately 60-65dB). It will still achieve 120 litres/second at medium performance levels

Air extraction. This unit also provides a high standard of general ventilation in line with the council environmental policy.

The extraction equipment will be controlled electronically only for business hours.

Since the unit will be located at the rear of the property with other existing extraction system of neighbouring uses in a courtyard and far away from the residential units above, it will not have any negative noise or odour impact.

NO SERVICE PENETRATION FROM THE RESTAURANT TO THE NEIGHBOURING PROPERTIES

There is a residential flat above the proposed restaurant/takeaway. There is no way to transfer noise or air fumes from ground floor to neighbouring properties as the walls and doors are fire and sound protective.

The roof between the ground and first floor are built on pre cast concrete slabs with all joints sealed with special silicon sealant thus protects air and noise pollution to upper floor.

ODOUR MANAGEMENT

The following measures are included in the plan to minimise impact on residential amenity from odours produced using cooking products:

1. The size of restaurant/takeaway is small so the generated odours are sufficiently low which will not have any negative impact on neighbouring amenities.
2. All products using in the restaurant/takeaway will have very high professional quality.
3. There is no service penetrate from ground floor to first floor. And the floor is comprised of celling, joists, plasterboard and flooring.
4. Extraction system in the rear wall will extract all the odours generated by the restaurant/takeaway.
5. Odour management plan is shown in the drawings.

CONCLUSION

By considering that the owner is not able to rent the shop as A1 (retail trade) or B1 (financial use), The most favourable option will be a restaurant/takeaway with an appropriate odour and noise management plan. This will also generate the local employment opportunity.