

## **AIRTIGHT & NOISECHECK LIMITED**

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### **24 HOUR ACOUSTIC TESTING REPORT FOR**

**AMK PROPERTY SOUTHAMPTON LTD  
C/O 29 THE OAKWOOD CENTRE  
HAVANT  
HAMPSHIRE  
PO9 2NP**

### **SITE ADDRESS**

**ROYAL OAK  
STATION ROAD  
CRAWLEY DOWN  
WEST SUSSEX**

**Acoustic Engineer:**

**Mark Witcher**

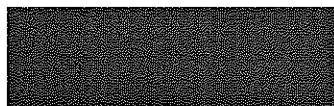
**Date: 23-24<sup>th</sup> April 2015**

**AIRTIGHT & NOISECHECK BUILDING ACOUSTIC TESTING**

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**Raw Data – Can be sent upon request**



**Test Engineer:**

**Mark Witcher**

**Date: 23-24<sup>th</sup> April 2015**

**AIRTIGHT & NOISECHECK LIMITED ACOUSTICS TESTING**

**Customer Name:**

**Date: 23-24<sup>th</sup> April 2015**

AMK Property Southampton Ltd  
C/O 29 The Oakwood Centre  
Downley Road  
Havant  
Hampshire  
PO9 2NP

**Site Address:**

The Royal Oak  
Station Road  
Crawley Down  
West Sussex

**Acoustic Engineer:**

Mr. Mark Witcher

**Equipment used:**

Nor121 Environmental Analyser – Serial No 31375, Calibration due Feb 2016.

**Analyser complies with the following standards:**

IEC 60651 type 1  
IEC 60804 type 1  
IEC 61260 class 1  
IEC 225  
ANSI S1.4-1985 type 1  
ANSI S1.43-1997 type 1  
ANSI S1.11-1986 order 3 type 1 D  
DIN 45 657  
Norsonic production standard set for the Nor121

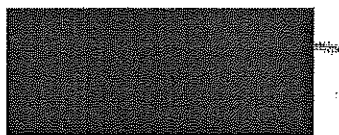
**Measurement Microphone (GRAS 40AF) - Serial No 62522. Calibration due Feb 2016.**

**Acoustic Calibrator – Class 1 (Nor 1251) – Serial No 31169, Cal due March 2016**

**Measurement Procedure:**

The external existing noise levels were recorded for a 24hour period between Thursday 23<sup>rd</sup> & Friday 24<sup>th</sup> April 2015 to ensure future & existing residents in close proximity to the proposed convenience store will be protected from noise created by any associated plant.

The results will be compared to numerous standards and codes of practice, including BS4142: 2014 and BS8233: 2014.



**Acoustic Engineer:**

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**Test Date: 23-24<sup>th</sup> April 2015**

**AIRTIGHT & NOISECHECK LIMITED ACOUSTICS TESTING**

**Executive Summary:**

Airtight & Noisecheck Ltd were instructed by AMK Property Southampton Ltd to undertake an acoustic survey at Royal Oak, Station Road, Crawley Down, West Sussex to determine if the proposed conversion of the building to a convenience store and any associated plant will adversely affect the existing residential dwellings located in close proximity of the site or the existing residential dwellings located to the North. In addition a target value for the proposed plant will be listed within the report.

A 24hour noise assessment was undertaken to establish the current background noise levels associated with the site and to ensure that the noise levels associated with the proposed plant will be adequately mitigated.

This report offers Noise Target Levels for any plant that is to be installed at the proposed site, providing these target levels are met then there is no reason why any future plant will increase the likelihood of complaints for the residential dwellings.

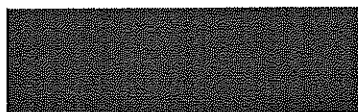
Based on the ambient noise levels measured and providing that the sound reduction & target noise levels listed within this report are met there is no reason to suggest that the proposed plant will have an adverse impact on the existing residential dwellings apparent at the site. The proposed scheme should not have an adverse effect on the reasonable standard of living currently enjoyed by the residents of the dwellings.

To ensure the target values are met, the following elements of the proposed noise must be inspected:

- Impulsiveness
- Tonality
- Intermittency

The aspects listed above can increase the rating level apparent at the façade by up to 18dB on a sliding scale, so all three aspects must be carefully calculated and compared the rating level. Also aspects such as distance to the façade, screening offered and attenuation measures must be taken into account also when determining the final target value.

**Acoustic Engineer:**



**Mark Witcher**

**Test Date: 23-24<sup>th</sup> April 2015**

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**1 Objective:**

**1.1** To determine the target value for any proposed plant at the development that will be installed as part of the proposed convenience store. The site is a 2 storey vacant commercial building, formerly a Public House. A planning application has been made to convert the existing building into a convenience store. It is essential the current residential dwellings are adequately protected from any proposed plant.

**2 Calibration:**

**2.1** The measurement microphone was calibrated both before and after testing and there was no drift recorded throughout the measurement period.

**3 Site Layout & Microphone Position:**

**3.1** Crawley Down is a relatively large village, comprising of a mixture of residential and commercial units. The site is located on the corner of Station Road & Burleigh Road with Station Road immediately to the West & Burleigh Road immediately to the South.

The existing building will be converted into a convenience store,. The nearest residential dwellings will be located to the North of the current building along with other dwellings located to the North East.

**3.2** The convenience store will use the current footprint of the building. The proposed location of any new plant is unknown at this time, but it is understood that the plant will be located to the East of the building where the microphone was positioned for the assessment

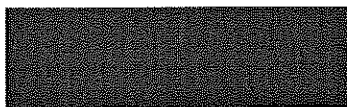
**3.3** There are residential dwellings located to the North, South, West & East of the site. There are is also a row of existing shops located to the West of the site on the other side of Station Road, and these shops will have plant associated with them.

**3.4** The microphone was located to the Eastern aspect of the existing site at a height of 4.5m from the ground and more that 3m from any reflective surface. The microphone was approximately 20 metres from the roads located to the South & West, and positioned at the approximate location of the proposed plant, the existing building also offered protection to the microphone from the vehicular traffic using the local road network so it will offer a fair reflection of the background noise levels apparent at the residential facades.

**4 Weather Conditions:**

**4.1** The weather was moderately dry & sunny. The temperature ranged between 3 – 12 degrees Celcius.

**Acoustic Engineer:**



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**Test Date: 23-24<sup>th</sup> April 2015**

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**5 Results:**

Time Period	Lowest LAeq value	Lowest LA90 Value (BS4142 report)
0700-2300hrs - Day Time	44dB(A) - L <sup>Aeq</sup> 1hour	29dB(A) - L <sup>A90</sup> 1hour
2300-0700hrs - Night Time	28dB(A) - L <sup>Aeq</sup> 15min	27dB(A) - L <sup>A90</sup> 15min

(Results obtained using the environmental sound level meter and where needed taking a logarithmic average of different values)

5.1 The results were measured for a 24hour period to obtain the noise levels throughout that period. The noise levels were measured in 1hour & 5minute intervals. The results listed in the table above are the lowest L<sup>Aeq</sup> value and L<sup>A90</sup> values for both the day time (0700-2300) noise levels (measured in 1hour values) and for the night time (2300-0700) noise levels (measured in 15minute values) for comparison to the requirements of BS4142.

5.2 The hours of operation of the proposed plant is understood to be 0800-2200hrs seven days a week and with this in mind then day time values should be used for target values, calculation & mitigation purposes.

5.3 The mitigation measures listed within this report will be working towards the figures listed in the table above. The noise will be measured against the parameters of BS4142: 2014 in relation to any new plant that may be installed.

Time Period	Lowest LA90 Value	Target Noise Level at Façade
Day Time - 0700-2300hrs	29dB(A) 1hour	<29dB(A)
Night Time - 2300-0700hrs	27dB(A)	<27dB(A)

**6 Results Conclusion:**

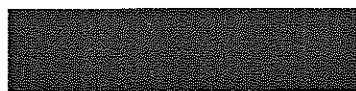
6.1 Based on the noise levels measured above it is apparent that the Target Noise Level for any plant is <29dB(A) at the nearest residential facade for the day time and <27dB(A) for the night time, this would mean that the specific noise would be equal to the L<sup>A90</sup> value and therefore there would be no adverse impact for the residents (BS4142: 2014). Further calculations and possible mitigation measures may be necessary once any plant has been installed to ensure that the target noise levels have been met.

6.2 Further mitigation to reduce the potential noise levels further could be advised as the lower the rating level the less the adverse impact would be.

6.3 The proposed plant is understood to be located approximately between 10-15metres from the proposed residential facade to the North & East (nearest façade) so this must be the distance assumed when performing the necessary calculations, however the distance may vary upon installation.

6.4 When the calculations to establish the plant noise levels are made, factors such as screening offered by buildings and noise decay over distance should be taken into account when determining the necessary level of mitigation to ensure the target values are met. These factors will help to mitigate the plant naturally.

6.5 Impulsiveness, Tonality & Intermittency should also be taken into account as these aspects can increase the noise levels at the façade.



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Test Date: 23-24<sup>th</sup> April 2015

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**7 Conclusion:**

**7.1** Providing that the target values at the nearest noise sensitive facade are met there is no reason to suggest that the proposed plant will adversely affect the residential dwellings located in the vicinity of the proposed convenience store.

**7.2** The nearest residential dwellings are to be located to the North & East of the site, with further dwellings located beyond. All factors listed within this report must be taken into account as they will all contribute to the overall noise levels at the facades.

**7.3** Certain aspects of the noise should be taken into account when determining the final target value, these include:

- Impulsiveness
- Tonality
- Intermittency

All of which could mean an increase of up to 1SdB on the rating level.

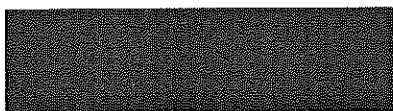
**7.4** The results in this report were measured against criteria set out in British Standard BS4142: Method for Rating industrial noise affecting mixed residential and industrial areas 2014. This document states:

1- a difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context.

2- A difference of around +5dB is likely to be an indication of an adverse impact, depending on the context.

3- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level this is an indication of the specific sound source having a low impact, depending on the context.

**Acoustic Engineer:**

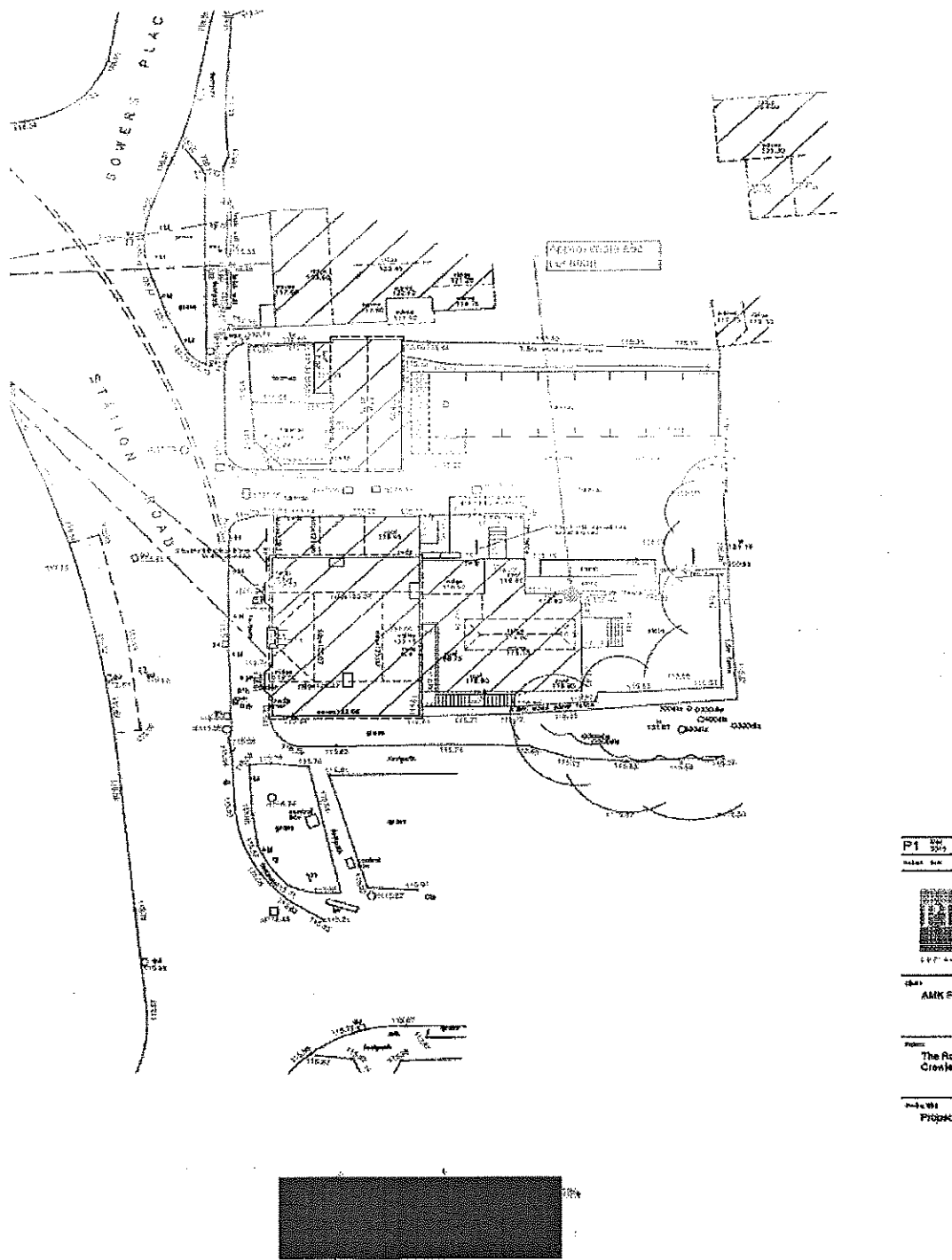


**Mark Witcher**

**Test Date: 23-24<sup>th</sup> April 2015**

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9 Site Plan:



Acoustic Engineer:

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Test Date: 23-24<sup>th</sup> April 2015



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**10 Acoustic Definitions:**

**Continuous equivalent noise level, LAeq** — The steady noise level (usually in dBA) which, over the period of time under consideration, contains the same amount of sound energy as the time varying noise.

**L<sub>Amax</sub>** - The maximum value that the A-weighted sound pressure level reaches during a measurement period.

**dB (A)** — The A-weighted sound pressure level.

**Decibel (dB)** — (1) Degree of loudness. (2) A unit for expressing the relative intensity of sounds on a scale from zero for the average least perceptible sound to about 130 for the average pain level.

**A-weighting** — A frequency weighting that relates to the response of the human ear.

**Background noise level** — Prevailing noise level in a specified environment measured in the absence of the noise being studied.

**British Standards & associated documents:**

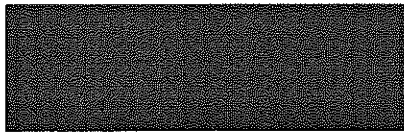
**Planning Policy Guidance 24: Planning and Noise**

**Code of Practice: BS8233: 1999 - Sound Insulation and noise reduction for buildings.**

**World Health Organization (WHO) - Guidelines for Community Noise.**

**BS4142: 2014 - Rating Industrial Noise affecting mixed residential and industrial areas**

**Acoustic Engineer:**

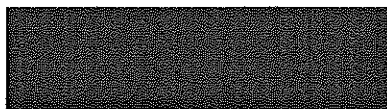
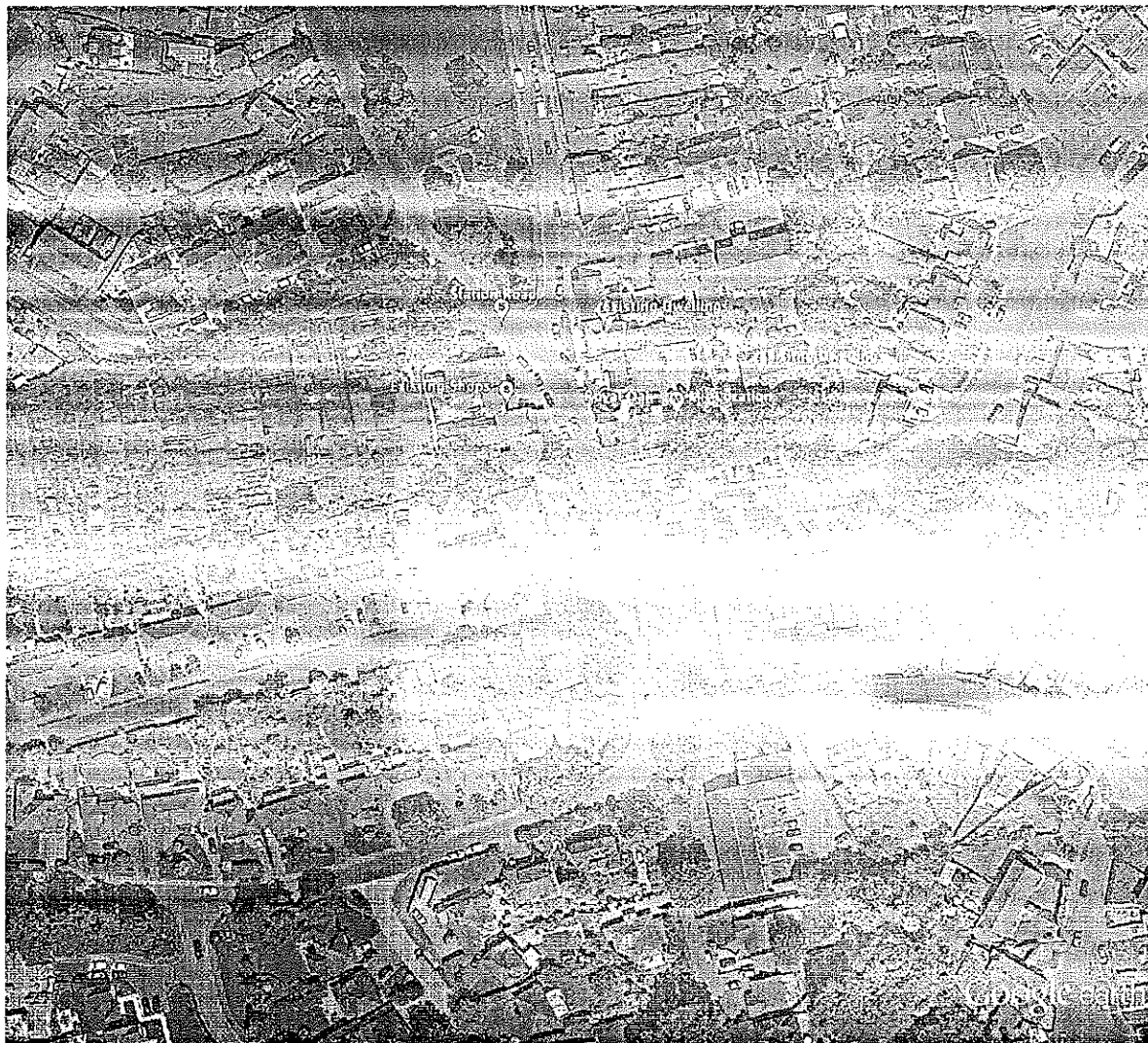


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11 *Google Earth:*



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