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DISTRIBUTION CENTRE
NOISE ASSESSMENT

Woodhead Garage, 115 Froghall Road
Cheadle
Stoke-on-Trent ST10 2DN

Client:
MJS Transport [UK] Ltd

Local Auth Ref:	SMD/2022/0175
Report Date:	4th August 2022
Ref:	20220804 9283 Cheadle.docx
Site Visit by:	M A Kenyon
Site Visit:	N/A

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1.0 INTRODUCTION

MJS Transport [UK] Ltd are seeking planning consent for an extension to their existing yard area to provide additional vehicle parking and associated landscaping works [Local Authority Ref. SMD/2022/0175].

Martec Environmental Consultants Ltd has been instructed to assess the likely changes in the noise impact of the site, resulting from the proposed changes.

Acoustic Terminology is set out at Appendix 1 with the consultants' qualifications at Appendix 2.

2.0 SITE DESCRIPTION & BACKGROUND TO ASSESSMENT

Figure 1 below is the proposed site plan for the site; the extended area can be seen located to the north of the existing site and the nearest dwellings are shown to the east of the extended area.

The proposals are described in greater detail within the planning application. In brief it is understood that the extended area would permit an increase in the number of the client's own vehicles effectively replacing 'third party' vehicle trips to the site so that overall there would be a drop in the number of vehicle movements on-site. The planning

statement accompanying the application stated at Section 5.27:

"The business currently utilises numerous third party vehicles to deliver into and collect from their warehouse on a daily basis. In the vast majority of cases these comprise of 44 tonne GVW articulated lorries. The proposed development will allow the company to expand their existing fleet and staffing numbers such that they can undertake this work themselves, and in turn reduce the need for third party vehicles to visit the site."

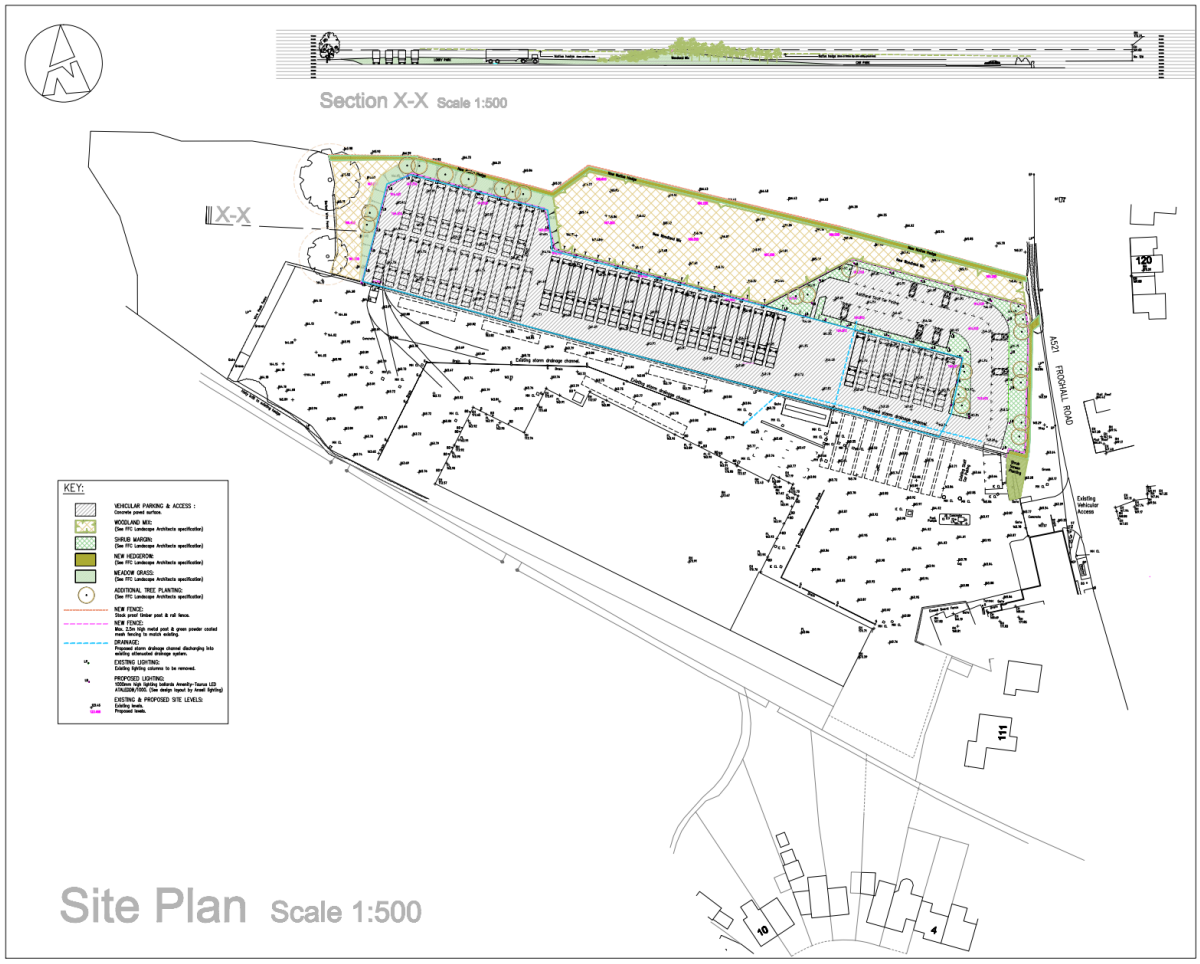


Figure 1: Site Plan Showing Proposed Extended Area

3.0 PREDICTION OF DISTRIBUTION CENTRE NOISE

Naturally neither the extended area nor changes in the client's fleet yet exist, so that it is necessary to model the impact of the changes.

3.1 Noise Modelling Methodology

A model of the site and surrounding area has been created using SoundPLANv4.1, based the information and assumptions shown in Table 1 below.

It should be noted that the planning application envisages a lower number of vehicles movements occurring over the whole of the extended site. The following predictions assume that there is no reduction in the numbers of vehicles visiting the site, which will tend to over-estimate the impact of the changes, i.e. the same number of HGV activities are spread over a larger area, some of which is nearer to some of the residents.

In addition, it can be seen from Figure 1, that the extended area will largely be used for parking the vehicles and naturally loading, unloading and manoeuvring will occur [as currently] close to the building in the existing yard area, i.e. under the proposals most noise generating activity will occur on the existing yard. However, for the purposes of this assessment it has been assumed that the current number of vehicle movements generated noise evenly over the whole of the current and proposed yard areas. Given that the extended area tends to be closer to

the residents, this assumption will tend to overestimate the noise impact of the proposals.

Again, from Figure 1 it can be seen that the intention is to park large HGV's and trailers between the existing yard [including the main noise generating areas] and the residents; this would tend to reduce the noise reaching the residents. However, for the purposes of this assessment it has been assumed that no such screening would occur. Again, this will tend to overestimate the noise impact of the proposals.

Finally, the predictions have assumed a nominal sound power level per unit area of the yard as the basis of comparison between the existing and proposed situations. Any level could have been chosen; consequently, there is no suggestion that the absolute predicted level for any given scenario is accurate; however, the differences between the predicted levels for each scenario should form a reliable basis for comparing the impacts.

Parameter	Source	Details
Ground levels	Bluesky	LIDAR terrain data 2m DTM – assuming no significant changes in current levels
Source of Noise	Martec	Area sources of existing yard plus entrance for first scenario then for second scenario the same level of activity spread over existing and proposed yards – entrance activity remains the same. Car parking areas assumed not to produce significant noise.
Source Octave Band Data	BS5228 C6.21	Movement of 'full' Road going lorry
Source Heigh	Martec	A height of 1.5m has been assumed
Area of Existing and Extended Yards used by HGVs	Martec	Measured as approx. 7600 m^2 and 4600m^2 respectively from plans and used as basis to 'spread' existing HGV activity over the combined area.
Building Heights	Martec	Assumed 6m for industrial buildings and housing and 3.5m for garages.
Reflections	Martec	All Buildings and barriers have been assumed to have smooth hard reflective surfaces.
Receptor positions	Martec	Height of 1.4m for ground floor, 4m for first floor receptors.
Prediction Method	Martec	ISO 9613-2:1996

Table 1: Modelling Parameters, Sources and Assumptions

3.2 Predicted Levels

The noise contours have been plotted in Figures 2 and 3 towards the end of the report. It can be seen that the contours at the nearby housing are essentially the same, within the limits of prediction accuracy. It should be stressed that the prediction assumptions will lead to an over-estimate of the impact of the changes.

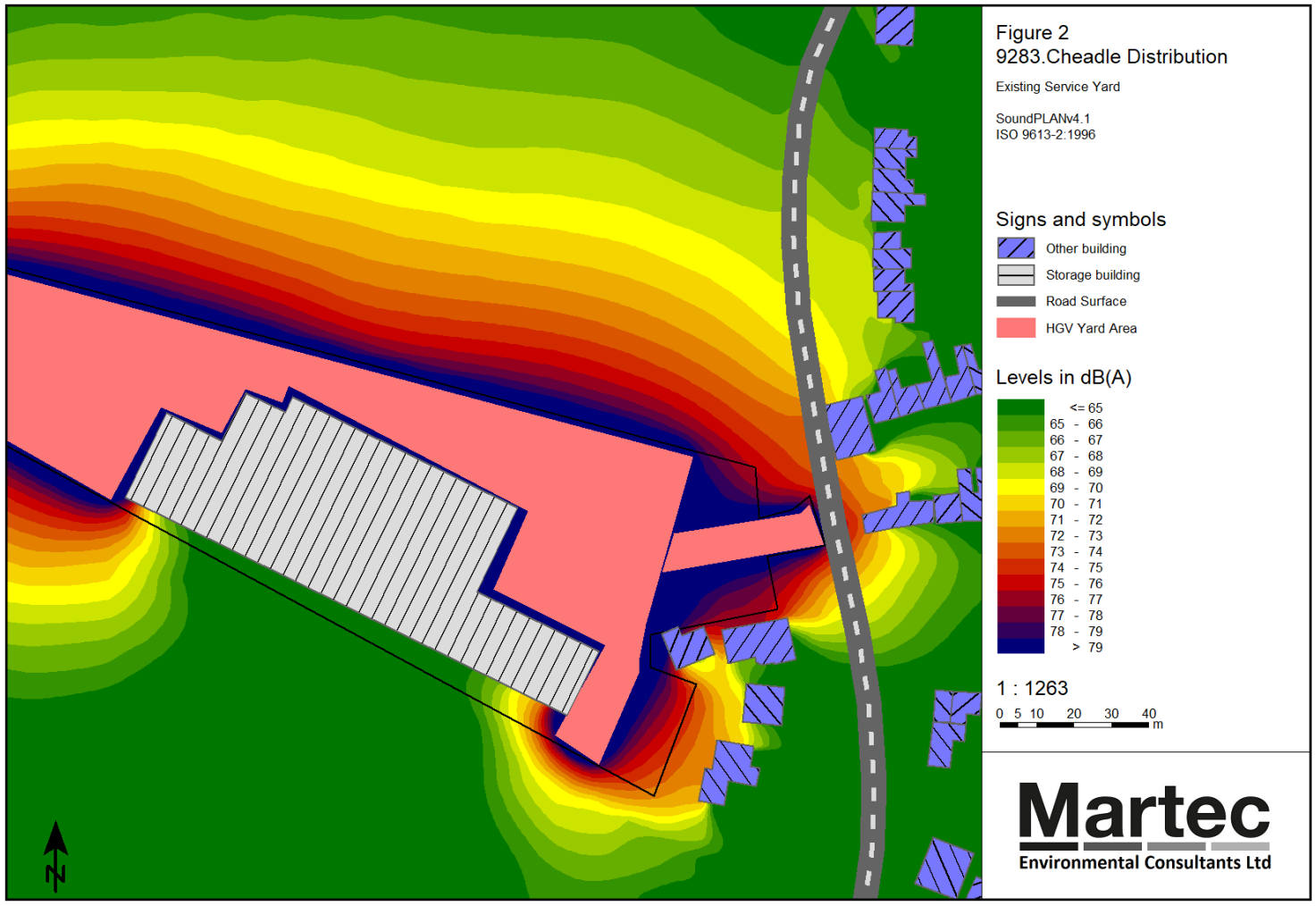
4.0 CONCLUSIONS AND RECOMMENDATIONS

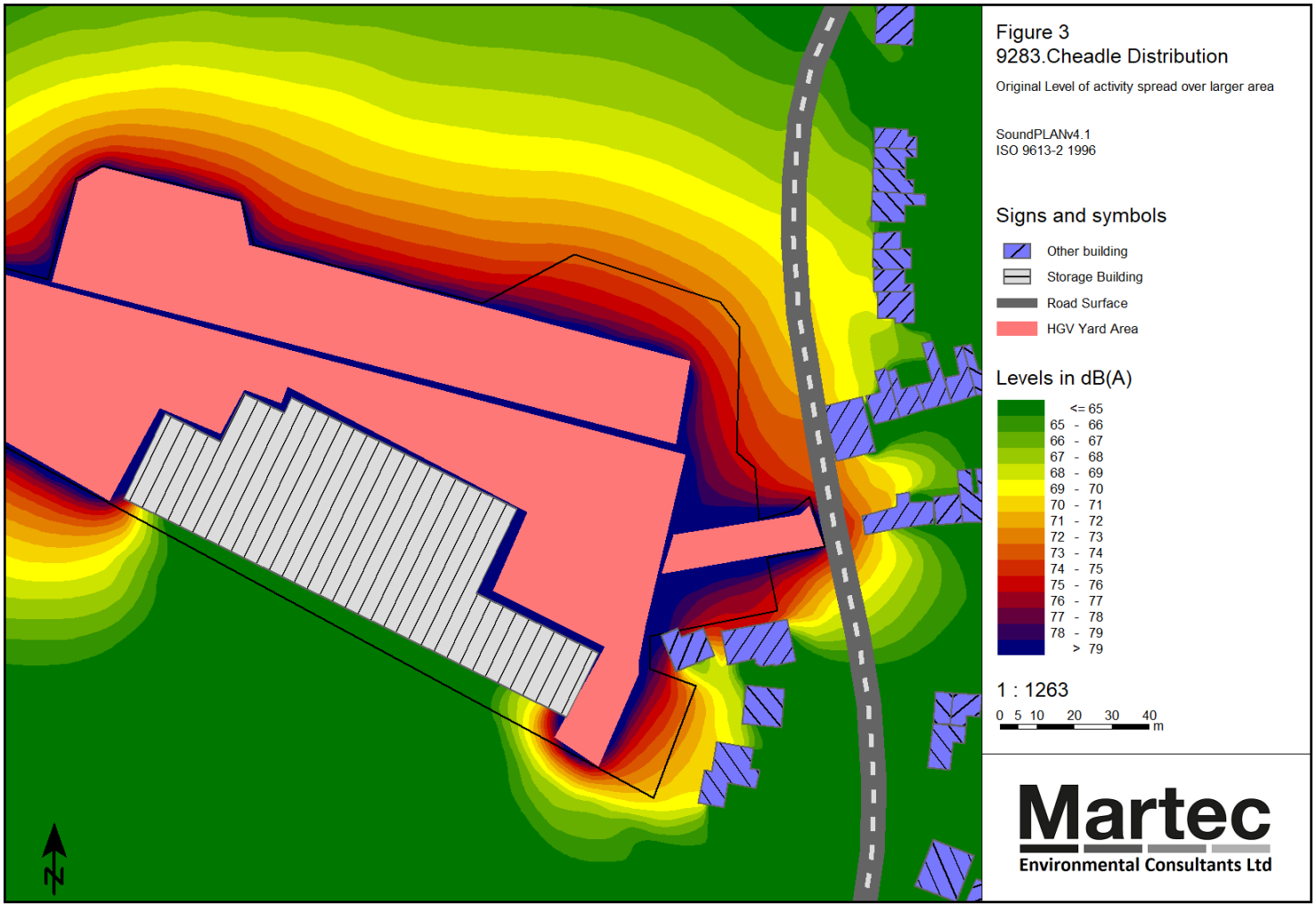
Based on the above assumptions, the predictions indicate that the noise impact of the storage and distribution centre should not change significantly as a result of using the extended area.

Again, it should be stressed that the predictions assume a nominal sound power level and there is no suggestion that the absolute predicted levels are accurate; however, the differences between the predicted levels for each scenario should form a reliable basis for comparing their noise impacts.

Consequently, it is considered that the noise impact should not bar the grant of planning consent for the proposals.

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Figure 2
9283.Cheadle Distribution
Existing Service Yard
SoundPLANv4.1
ISO 9613-2:1996
Signs and symbols
Other building
Storage building
Road Surface
HGV Yard Area
Levels in dB(A)
<= 65
65 - 66
66 - 67
67 - 68
68 - 69
69 - 70
70 - 71
71 - 72
72 - 73
73 - 74
74 - 75
75 - 76
76 - 77
77 - 78
78 - 79
> 79
1 : 1263
0 5 10 20 30 40 m
N
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Figure 3
9283.Cheadle Distribution
Original Level of activity spread over larger area
SoundPLANv4.1
ISO 9613-2 1996
Signs and symbols
Other building
Storage Building
Road Surface
HGV Yard Area
Levels in dB(A)
<= 65
65 - 66
66 - 67
67 - 68
68 - 69
69 - 70
70 - 71
71 - 72
72 - 73
73 - 74
74 - 75
75 - 76
76 - 77
77 - 78
78 - 79
> 79
1 : 1263
0 5 10 20 30 40 m
N
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APPENDIX 1

EXPLANATION OF ACOUSTIC TERMS

The dB or the decibel, is the unit of noise. The number of decibels or the level, is measured using a sound level meter. It is common for the sound level meter to filter or 'weight' the incoming sound so as to mimic the frequency response of the human ear. Such measurements are designated **dB(A)**.

A doubling of the sound is perceived, by most people, when the level has increased by 10 dB(A). The least discernible difference is 2 dB(A). Thus most people cannot distinguish between, say 30 and 31 dB(A).

The Background level of noise is most commonly represented by the level which is exceeded for 90% of the time i.e. the LA90.

If a noise varies over time then the **equivalent continuous level, or LAeq**, is the notional constant level of noise which would contain the same amount of acoustic energy as the time varying noise.

The following table gives an approximate indication of the comparative loudness of various noises expressed in terms of the A weighted scale:

Source of noise	dB(A)	Nature of Noise
Inside Quiet bedroom at night	25-30	Very Quiet
Quiet office	40-45	
Rural background noise	35-45	
Normal conversational level	55-65	
Busy restaurant	65-75	
Inside suburban electric train	70-80	
Hand clap @ 1m	75-85	
HGV accelerating @ 5m away	85-90	Very Loud

APPENDIX 2

QUALIFICATIONS AND EXPERIENCE OF M. A. KENYON

My full name is Melville Alexander Kenyon. I am the principal of the firm of Martec Environmental Consultants Ltd, a consultancy company that specialises in environmental noise assessment and control. I graduated in 1982 with a Bachelor's degree in Engineering and subsequently a Master's degree in Environmental Acoustics. I have been a corporate member of the professional body for noise and vibration specialists, the Institute of Acoustics, since 1988, and have sat on the British Standards Committee dealing with noise in buildings [BS.8233:1999].

I have lectured at Liverpool John Moores University on the Diploma of Acoustics course and at Manchester Metropolitan University on their Environmental Health degree course.

The firm of Martec Environmental Engineering was formed in the 1970's and joined The Association of Noise Consultants in 1996. It is now known as Martec Environmental Consultants Ltd.

Since its formation, Martec has advised many groups of both residents and developers about the problems of noise and vibration in the environment.