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SHELLEY COLLEGE,

HUDDERSFIELD ROAD, SHELLEY, HUDDERSFIELD

NOISE IMPACT ASSESSMENT

Report **17701-NIA-01**

Prepared on 28 July 2022

Issued For:

SHARE Multi-Academy Trust c/o Shelley College

Huddersfield Road

Shelley

Huddersfield

HD8 8NL

Executive Summary

This noise impact assessment has been undertaken in order to assess use of proposed sports pitches at Shelley College, Huddersfield Road, Shelley, Huddersfield.

The proposed development comprises the following one Third Generation (3G) synthetic sports pitch, which will predominantly be used for football and rugby training at the south-west of the Shelley College site.

Calculations were undertaken using the proprietary noise modelling software package CadnaA for the nearest identified receiver, identified as a house on Shelley Woodhouse Lane. It should be noted that if there are closer receivers that Clement Acoustics is not aware of, a reassessment will be necessary, and this should therefore be confirmed by the Client.

It has been demonstrated that compliance with the established criterion is expected.

Clement Acoustics has used all reasonable skill and professional judgement when preparing this report. The report relies on the information as provided to us at the time of writing and the assumptions as made in our assessment.

Contents

List of Attachments

Document Revision	Date of Revision	Reasons for Revision	Revision By
0	21/07/2022	First Issue	Jamie Newton AMIOA

1.0 INTRODUCTION

Clement Acoustics has been commissioned by SHARE Multi-Academy Trust c/o Shelley College to measure existing background noise levels at Shelley College. Standard noise levels have been used to determine the expected noise impact of a proposed development of playing field facilities.

This report presents the results of noise impact calculations and outlines any necessary mitigation measures.

An acoustic terminology glossary is provided in Appendix A.

2.0 SITE DESCRIPTION

The site is an existing school field to the south-west of Shelley College, bound by Shelley Woodhouse Lane to the west and a public footpath to the north. The surrounding area is predominantly residential in nature.

Current proposals are to install a 3G synthetic sports pitch, which will predominantly be used for football and rugby training. The pitch will also include a spectator area and wire fencing.

Houses on Shelly Woodhouse Lane and Stead Gate have been identified as the nearest affected receivers. This nearest noise sensitive receivers were identified through observations on-site. If there are any receivers closer to that identified within this report then a further assessment will need to be carried out. Therefore, the closest noise sensitive receiver should be confirmed by the client before the plant is installed or any noise mitigation measures are implemented.

Locations are shown in attached site plan 17701-SP1.

3.0 NOISE CRITERIA

3.1 Sports Pitches

Sports pitches will be assessed according to the recommendations of Sport England document 'Artificial Grass Pitches (AGP) Acoustics – Planning Implications'.

This document gives recommended methodologies for calculating the noise level due to AGP use at different receivers.

The guidance of the document with regards to setting a noise limit for noise emissions is as follows:

> *"The determining noise criteria for AGPs proximity to residential properties, to avoid moderate annoyance in the daytime and evenings, as set by the World Health Organisation's 'Guidelines for Community Noise': 50 dB $L_{Aeq(1hour)}$ upper noise limit external to residential properties and within external living areas."*

4.0 SPORTS PITCHES NOISE IMPACT ASSESSMENT

4.1 Source Noise

The guidance of the AGP document is that the noise level emanating from a sports pitch can be considered as follows:

> *"A typical free-field noise level from an AGP (at 10 m from the side-line halfway marking) = 58 dB $L_{Aeq(1\ hour)}$"*

With sports pitches surrounded by other sports pitches and fields, these would be considered as being in an open location. Any reflections from nearby hard surfaces would be inherently applied to the noise emissions through the 3D modelling undertaken.

4.2 Receiver Description

The closest receiver is located to the north-west of the proposed site, on Shelley Woodhouse Lane. The centre of the rear garden of the property is located approximately 115 m from the side-line of the proposed pitch, and 100 m from the western goal.

4.3 3D Noise Map Model

In order to assess the noise impact of proposed plant, noise emissions have been assessed by developing a noise map.

The noise model was constructed using the proprietary noise modelling software package CadnaA. The noise model was constructed utilising the following assumptions and parameters:

- Noise source height is 1.5 m above ground,
- Garden fences are present, at the site boundary,
- Receiver height is 1.5 m above ground,
- Topography of the site is flat and level.

Calculations are performed over single octave bands from 63 Hz to 8 kHz.

Figure 4.1 visually represents the noise propagation from the proposed development with the assumed mitigation.

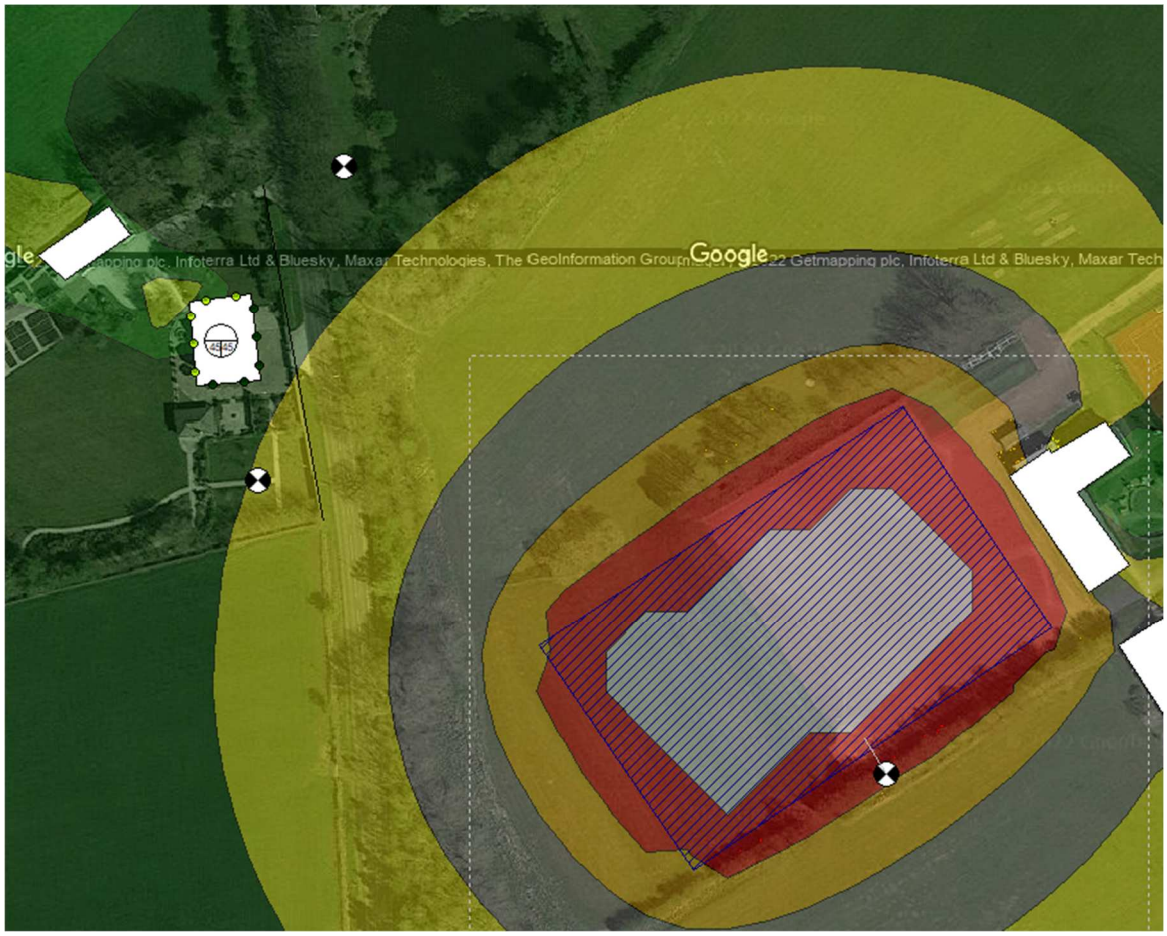

Figure 4.1: Modelled pitch noise

4.4 Noise Impact Assessment

noise emission levels due to the cumulative levels are shown in Table 6.1.

Receiver	AGP Recommended Criterion	Noise Level at Receiver (due to sports pitches)
Nearest Residential Garden	$L_{Aeq,90min}$ 50 dB(A)	$L_{Aeq,90min}$ 42 dB(A)

Table 4.1: Noise levels and project criterion at noise sensitive receivers

As shown, noise from the proposed sports pitch is expected to be comfortably below the recommended criterion at the nearest receiver.

5.0 CONCLUSION

Criteria to be set for noise emissions from the proposed 3G synthetic sports pitch in accordance with the requirements of the Sport England document 'Artificial Grass Pitches (AGP) Acoustics – Planning Implications'.

A noise impact assessment has then been undertaken using standardised noise emission data to predict the noise levels, due to the proposed pitches, at the nearby noise sensitive receivers.

Modelling shows that noise emissions from the proposed pitch should meet the requirements of the APG Document.

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17701-SP1 Indicative site plan indicating proposed pitch location and nearest noise sensitive receivers **Date:** 28 July 2022

APPENDIX A

GLOSSARY OF ACOUSTIC TERMINOLOGY

dB(A)

The human ear is less sensitive to low (below 125Hz) and high (above 16kHz) frequency sounds. A sound level meter duplicates the ear's variable sensitivity to sound of different frequencies. This is achieved by building a filter into the instrument with a similar frequency response to that of the ear. This is called an A-weighting filter. Measurements of sound made with this filter are called A-weighted sound level measurements and the unit is dB(A).

L_{eq}

The sound from noise sources often fluctuates widely during a given period of time. An average value can be measured, the equivalent sound pressure level L_{eq}. The L_{eq} is the equivalent sound level which would deliver the same sound energy as the actual fluctuating sound measured in the same time period.

L_{10}

This is the level exceeded for not more than 10% of the time. This parameter is often used as a "not to exceed" criterion for noise

L_{90}

This is the level exceeded for not more than 90% of the time. This parameter is often used as a descriptor of "background noise" for environmental impact studies.

L_{max}

This is the maximum sound pressure level that has been measured over a period.

Octave Bands

In order to completely determine the composition of a sound it is necessary to determine the sound level at each frequency individually. Usually, values are stated in octave bands. The audible frequency region is divided into 10 such octave bands whose centre frequencies are defined in accordance with international standards.

Addition of noise from several sources

Noise from different sound sources combines to produce a sound level higher than that from any individual source. Two equally intense sound sources operating together produce a sound level which is 3dB higher than one alone and 10 sources produce a 10 dB higher sound level.

Attenuation by distance

Sound which propagates from a point source in free air attenuates by 6dB for each doubling of distance from the noise source. Sound energy from line sources (e.g. stream of cars) drops off by 3 dB for each doubling of distance.

Subjective impression of noise

Sound intensity is not perceived directly at the ear; rather it is transferred by the complex hearing mechanism to the brain where acoustic sensations can be interpreted as loudness. This makes hearing perception highly individualised. Sensitivity to noise also depends on frequency content, time of occurrence, duration of sound and psychological factors such as emotion and expectations. The following table is a reasonable guide to help explain increases or decreases in sound levels for many acoustic scenarios.

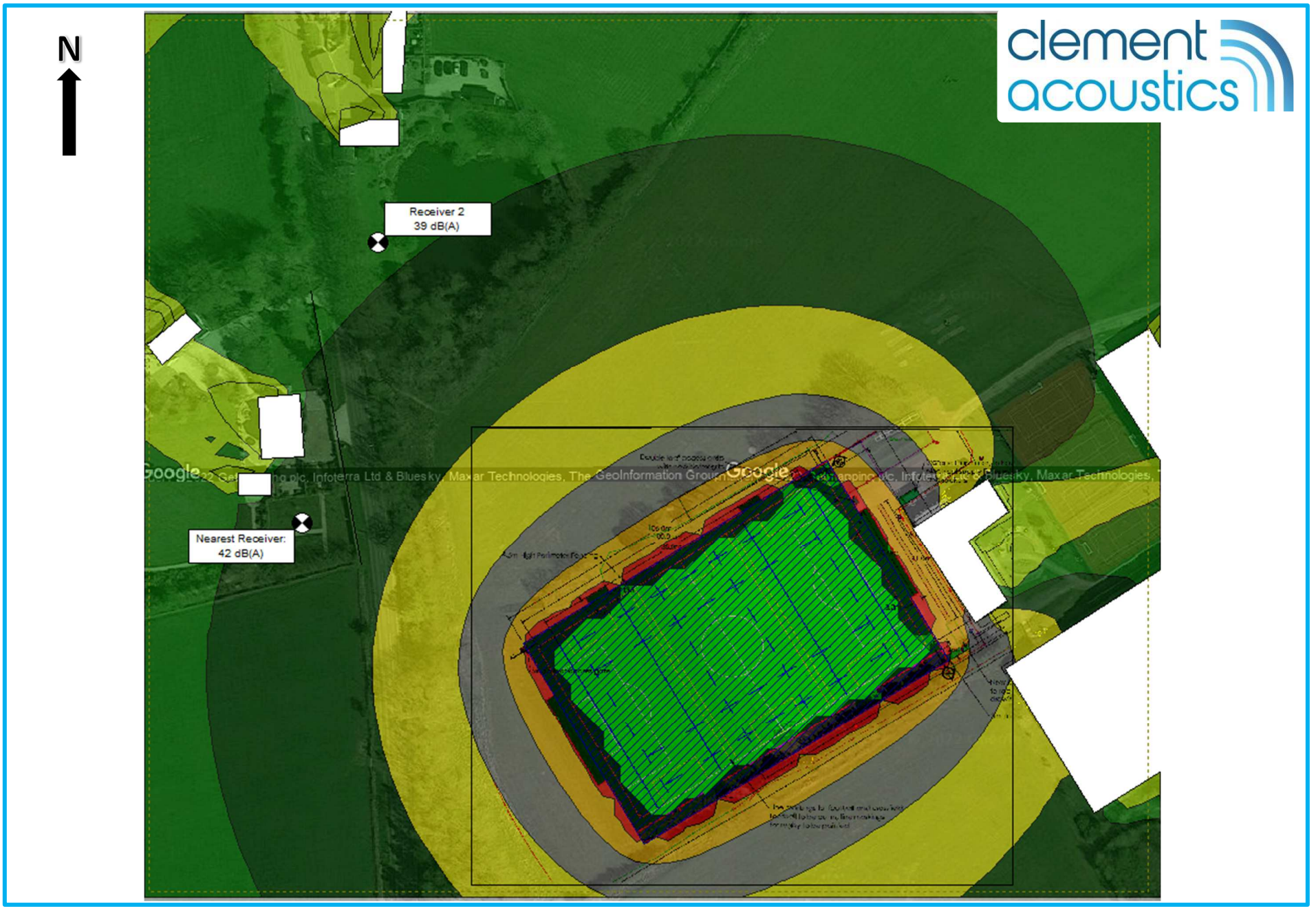
Change in sound level (dB)	Change in perceived loudness
1	Imperceptible
3	Just barely perceptible
6	Clearly noticeable
10	About twice as loud
20	About 4 times as loud

Barriers

Outdoor barriers can be used to reduce environmental noises, such as traffic noise. The effectiveness of barriers is dependent on factors such as its distance from the noise source and the receiver, its height and its construction.

Reverberation control

When sound falls on the surfaces of a room, part of its energy is absorbed and part is reflected back into the room. The amount of reflected sound defines the reverberation of a room, a characteristic that is critical for spaces of different uses as it can affect the quality of audio signals such as speech or music. Excess reverberation in a room can be controlled by the effective use of sound-absorbing treatment on the surfaces, such as fibrous ceiling boards, curtains and carpets.



17701-Appendix B Indicative site plan indicating modelled noise levels **Date:** 28 July 2022