

# New AGP and grass pitches at Jubilee Park, Knowsley

## Planning Noise Impact Assessment

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## 1. INTRODUCTION

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Knowsley Council is proposing to redevelop a portion of land within the existing Jubilee Park (off Dinas Lane in Huyton, Knowsley) to create a 79x52m 3G Artificial Grass Pitch (AGP) for use by Huyton Juniors FC who will manage this site under a long-term lease from Knowsley Council. The AGP will be also let for community hire occasionally when not in use by Huyton Juniors FC.

Surfacing Standards are assisting Knowsley Council in developing the facility and have engaged Spectrum to provide acoustic consultancy services in relation to the planning application. This report is intended to be suitable for submission with the planning application.

## 2. SITE DESCRIPTION

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Jubilee Park is located off Dinas Lane in Huyton, Knowsley. It is primarily surrounded on all sides by residential properties, as well as a medical centre on Dinas Lane and Park View Academy to the north on Park View. There are six existing grass football pitches marked out in the northern part of the park, just north of the proposal site area.

The proposals are to create a 79x52m 3G Artificial Grass Pitch (AGP) for use by Huyton Juniors FC and occasional community hire in the southwestern corner of the park. The proposal area is currently formed of maintained amenity grassland, a small macadam area, and an abandoned bowling green. A drawing showing the proposed site layout is included in Appendix B.

There are residences within 40m of the proposal site to the north, southwest and south. The closest to the proposal are on Dinas Lane to the south, and generally back onto the park where the proposed AGP will be situated. These residences on Dinas Lane are mostly at slightly lower ground level than the area of the park to the rear where the AGP is proposed, with the exception being a new property constructed recently in part of the rear garden of 143 Dinas Lane (which is not shown on the site location plans but is included in the modelling results). There are also properties to the north on Lincombe Road which are more distant than those on Dinas Lane, and which overlook the park and its existing sports pitches.

The proposals are for the AGP to be used up until 21:00 hours. During the evenings, this use will be primarily for training by Huyton Juniors. When not in use for training, this will be let for hire by the community.

## 3. RELEVANT STANDARDS AND GUIDANCE

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### 3.1 NATIONAL PLANNING POLICY FRAMEWORK

The National Planning Policy Framework (NPPF)<sup>1</sup> sets out the Government's planning policies for England and how these should be applied by establishing a framework within which locally prepared plans for development can be produced.

The NPPF requires (180) that '*planning policies and decisions should contribute to and enhance the natural and local environment by: [...] preventing new and existing development from contribution to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of [...] noise pollution [...].*'

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<sup>1</sup> National Planning Policy Framework, MHCLG, December 2023



In relation to noise (191) *'Planning policies and decisions should also ensure that new development is appropriate for its location taking into account the likely effects (including cumulative effects) of pollution on health, living conditions and the natural environment, as well as the potential sensitivity of the site or the wider area to impacts that could arise from the development. In doing so they should:*

*'a) mitigate and reduce to a minimum potential adverse impacts resulting from noise from new development – and avoid noise giving rise to significant adverse impacts on health and the quality of life<sup>2</sup>;*

*'b) identify and protect tranquil areas which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason'*

Planning policies and decisions should also (193) *'ensure that new development can be integrated effectively with existing businesses and community facilities (such as places of worship, pubs, music venues and sports clubs). Existing businesses and facilities should not have unreasonable restrictions placed on them as a result of development permitted after they were established. Where the operation of an existing business or community facility could have a significant adverse effect on new development (including changes of use) in its vicinity, the applicant (or 'agent of change') should be required to provide suitable mitigation before the development has been completed'.*

Throughout the NPPF reference is made to other policies, such as the Noise Policy Statement for England (NPSE), which should also be applied as appropriate.

### 3.2 PLANNING PRACTICE GUIDANCE

Planning Practice Guidance on Noise<sup>3</sup> (PPG-N) sets out government guidance on *'how planning can manage potential noise impacts in new development'*.

Whilst it does advise that noise can override other planning concerns, *'where justified'*, it states that *'it is important to look at noise in the context of the wider characteristics of a development proposal, its likely users and its surroundings, as these can have an important effect on whether noise is likely to pose a concern.'* (002)

It also details the hierarchy of noise exposure, including the thresholds LOAEL and SOAEL, based on the likely average response, referred to within NPSE<sup>4</sup>. The noise exposure categories are summarised below.

- No Observed Adverse Effect: Noise can be heard, but does not cause any change in behaviour, attitude or other physiological response.
- Observed Adverse Effect: Noise can be heard and causes small changes in behaviour, attitude or other physiological response.
- Significant Observed Adverse Effect: The noise causes a material change in behaviour, attitude or other physiological response.
- Unacceptable Adverse Effect: Extensive and regular changes in behaviour, attitude or other physiological response, and/or an inability to mitigate effect of noise leading to psychological stress.

<sup>2</sup> See Explanatory Note to the Noise Policy Statement for England, paragraphs 2.23 and 2.24, DEFRA, 15 March 2010.

<sup>3</sup> PPG - Noise, MHCLG, 22 July 2019

<sup>4</sup> Explanatory Note to the Noise Policy Statement for England, paragraphs 2.19 and 2.20, DEFRA, 15 March 2010)



The guidance advises, in accordance with the first and second aims of the NPSE, that where there is no observed effect or no observed adverse effect, no specific measures are required to manage the acoustic environment; where there is an observed adverse effect, consideration needs to be given to mitigating and minimising those effects; where there is significant adverse effects, the planning process should be used to avoid these effects occurring; where there are unacceptable adverse effects, the situation should be prevented.

In establishing values for LOAELs and SOAELs, which represent the onset levels of adverse effects and significant adverse effects, respectively, the guidance advises because of the subjective nature of noise, there is no simple relationship between noise level and its impact. It will instead depend on a number of factors in a particular situation. These will include:

- The source, its absolute level and the time of day.
- For intermittent sources, the number and duration of events;
- The spectral frequency content of the noise

Other factors will also need to be considered in many cases, which are more fully described and detailed within the full PPG guidance, but include matters such as:

- The cumulative impacts with other sources
- Whether internal effects can be completely removed for example by closing windows (relevant with new residential development subject to ventilation being developed)
- Whether existing noise sensitive locations already experience high noise levels,
- Where Noise Action Plans, and, in particular Important Areas are identified nearby.
- The effect on wildlife especially on nationally designated sites.
- The use of external amenity spaces intrinsic to an overall design and including private gardens.
- The potential effect of a new residential or other sensitive development being located close to an existing noisy business or site, and for noise mitigation to be considered.
- Whether there are nearby areas of tranquility relatively undisturbed by noise from human caused sources that undermine the intrinsic character of the area and likely already valued for their tranquility.

It should be observed that the PPG guidance does not provide any detail on the how such assessment including these factors, should be carried out. However, reference is made to documents published by other organisations, such as:

- *BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings (British Standards Institute 2014);*
- *Guidelines for Environmental Noise Impact Assessment (Institute of Environmental Management and Assessment, 2014);*
- *ProPG: Planning & Noise – Professional Practice Guidance on Planning & Noise- New Residential Development (Association of Noise Consultants, Institute of Acoustics and Chartered Institute of Environmental Health, May 2017).*

This should not be considered an exhaustive list, however, as reference may also be made to other existing British Standards, where relevant, and to scientific exposure-response studies or reviews relating to noise and its effects on human and, where appropriate, animal populations.

Of particular relevance here is Para 005. It states that where noise levels are between the LOAEL and SOAEL *noise [...] starts to have an adverse effect and consideration needs to be given to mitigating and minimising [...] effects (taking account of the economic and social benefits being derived from the activity causing the noise).*

This point was address in more detail, with specific reference to sports pitches in Planning Policy Guidance 24: Planning and Noise, DCLG, 1994 (replaced by NPPF, 27.03.2012). PPG24 has been superseded and replaced by the NPPF, however it is worth referring to it here in the absence of other specific guidance.

For noise from recreational or sporting activities, Annex 3, paragraph 22 states that planning authorities *have to take account of how frequently the noise would be generated and how disturbing it will be, and balance the enjoyment of the participants against nuisance to other people.*

The guidance in PPG24 further said that depending on local circumstances and public opinion, the local planning authority may consider it reasonable to permit higher noise emission levels from sporting pitches than from industrial or commercial development, subject to a limitation on usage hours and control of noise during unsociable hours.

This guidance indicated that there are a number of factors which require consideration when assessing the potential noise impact from use of a sporting facility, based on frequency of use, hours of use and particular circumstances, however, the inference is that a higher noise allowance than for an industrial or commercial source would be acceptable.

### 3.3 BS 8233:2014 AND WHO

*BS 8233:2014 Guidance on sound insulation and noise reduction for buildings* gives recommendations for fixed noise limits for steady state noise inside residential properties as follows:

| Activity | Location            | 07:00 to 23:00       |
|----------|---------------------|----------------------|
| Resting  | Living Room/Bedroom | $L_{Aeq,16hr}$ 35 dB |
| Dining   | Dining Room         | $L_{Aeq,16hr}$ 40 dB |

**Table 1:** BS8233 indoor ambient noise levels for dwellings.

N.B. Night-time impact has been disregarded, as the facilities will not be used during the night time period

BS8233 also includes the following statements relevant to this assessment:

*This [table] applies to external noise as it affects the internal acoustic environment from sources without a specific character, previously termed “anonymous noise”. Occupants are usually more tolerant of noise without a specific character than, for example, that from neighbours which can trigger complex emotional reactions. For simplicity, only noise without character is considered in Table [1]. For dwellings, the main considerations are:*



- a) for bedrooms, the acoustic effect on sleep; and  
 b) for other rooms, the acoustic effect on resting, listening and communicating.

*NOTE Noise has a specific character if it contains features such as a distinguishable, discrete and continuous tone, is irregular enough to attract attention, or has strong low-frequency content, in which case lower noise limits might be appropriate.*

*Where development is considered necessary or desirable, despite external noise levels above WHO guidelines, the internal target levels may be relaxed by up to 5 dB and reasonable internal conditions still achieved.*

BS 8233 also provides “Design criteria for external noise” as follows:

*For traditional external areas that are used for amenity space, such as gardens and patios, it is desirable that the external noise level does not exceed 50 dB  $L_{Aeq,T}$ , with an upper guideline value of 55 dB  $L_{Aeq,T}$  which would be acceptable in noisier environments. However, it is also recognized that these guideline values are not achievable in all circumstances where development might be desirable. In higher noise areas, such as city centres or urban areas adjoining the strategic transport network, a compromise between elevated noise levels and other factors, such as the convenience of living in these locations or making efficient use of land resources to ensure development needs can be met, might be warranted. In such a situation, development should be designed to achieve the lowest practicable levels in these external amenity spaces, but should not be prohibited.*

These guidelines are in keeping with “Guidelines for Community Noise” published by the World Health Organization, 1999.

| Area                | Critical health effect                                             | Noise level          |
|---------------------|--------------------------------------------------------------------|----------------------|
| Outdoor living area | Serious annoyance, daytime and evening                             | $L_{Aeq,16hr}$ 55 dB |
|                     | Moderate annoyance, daytime and evening                            | $L_{Aeq,16hr}$ 50 dB |
| Dwelling, indoors   | Speech intelligibility and moderate annoyance, daytime and evening | $L_{Aeq,16hr}$ 35 dB |

**Table 2:** WHO noise level guidelines

N.B. Night-time impact has been disregarded, as the facilities will not be used during the night time period

The values in Table 2 must be carefully understood. There is a variability in individual response to environmental noise, with some people being more noise-sensitive than others. The levels given are the noise level below which **few** people will be moderately or seriously annoyed; they do not represent an onset of moderate/serious annoyance for the general population. In effect, the levels protect the more sensitive section of the population.

BS8233 and WHO advise that any type of window, when partially open will provide a reduction in noise from outside to inside of approximately 10-15 dB.

However the scope of the WHO document is wider than that of BS8233. Whereas BS8233 advises the guidelines are primarily intended for consideration of “anonymous noise” (which is not defined), WHO state that the guidelines relate to community noise, which is defined as all noise, including neighbourhood noise, and that “...typical neighbourhood noise comes from...sport events”.



According to BS8233, these guidelines cannot be strictly applied to noise from the sports pitches as this will not be steady state, or anonymous. Nonetheless, it provides an indication of absolute levels that can be used with other guidelines to assess the acoustic impact.

$L_{Aeq,T}$  is the average noise level, measured over the time period T. BS8233 and WHO advise that the time period for the daytime should be a 16-hour average (07:00-23:00). The night period is defined as 23:00-07:00. In this case, the pitches are not used at night, and so no assessment of night-time noise is required. It should be noted that neither BS8233 nor WHO contain any guideline levels in terms of maximum noise level ( $L_{Amax}$ ) for daytime activity.

### 3.4 SPORT ENGLAND DESIGN GUIDANCE ON ARTIFICIAL GRASS PITCH (AGP) ACOUSTICS

The document Artificial Grass Pitch (AGP) Acoustics – Planning Implications Revision 001 2015 provides guidance on:

*‘...acoustic implications associated with AGP facilities and follows on from an acoustic research programme involving detailed analysis of relevant noise guidance documents and site testing in a range of locations. It proposes appropriate noise criteria and assessment methods and outlines practical measures that can be applied to reduce noise in particularly sensitive areas.*

*There is no previous guidance or assessment methodology specifically relating to noise from AGPs and this guidance considers the issues from first principles. It offers a simple explanation for those wishing to develop such facilities and provides a more consistent approach for Local Authority noise assessments and limits that might be set for proposals adjacent to sensitive residential areas. It highlights the importance of considering the potential for disturbance to neighbours early in the planning and design stages.’*

While the document refers only to artificial grass pitches, the guidance is considered to be generally applicable to any sports pitches.

It says that:

*Noise levels were measured during nine sports sessions on three separate AGPs. The sessions included football, hockey and rugby and participation by men, women and children. The purpose was to determine a ‘typical’ noise level generated from a ‘typical’ AGP sports session. Noise level measurements were taken at a distance of 10 metres behind the mid-way points along goal lines and sidelines. They were found to be highest behind the sideline halfway line. The most significant noise levels were found to be generally derived from the voices of players.*

*A typical free-field noise level from an AGP (at 10 m from the sideline halfway marking) = 58 dB  $L_{Aeq,1hr}$*

and

*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  $L_{Aeq,1hr}$  upper noise limit external to residential properties and within external living areas.*



As stated in section 4.4 above, it is important to be cautious in applying the WHO guidelines in this way. The WHO guidelines actually say **few** people will be moderately annoyed at external noise levels of  $L_{Aeq,16hr}$  50 dB. This is not 'half' or 'most' or 'generally' but few. Indeed, the Sport England guidance note states:

*Exceedance of the WHO guideline values does not necessarily imply significant noise impact and indeed, it may be that significant impacts do not occur until much higher levels of noise exposure are reached.*

Further, the Sport England Guidelines apply  $L_{Aeq,1hr}$  whereas the WHO uses  $L_{Aeq,16hr}$ .

### 3.5 NOISE CHARACTER

It is generally accepted that the introduction of a new noise source, that is wholly different in character to the existing noise environment will be perceived as more disturbing by local residents than a new noise source that is similar to the existing environment.

For example, where road traffic noise affects a home, a period of time where the road is busier and therefore noisier than usual is less likely to be perceived as disturbing than if a new factory started work and generated noise of the same numerical level.

There are no standards or guidance that describe a procedure to apply this, and so judgement is required from the LPA as to the significance of the noise character. Recommendations are provided in this report.

## 4. EXISTING NOISE ENVIRONMENT

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In order to support the assessment of the effect of noise from the proposed pitches, existing ambient and background noise levels at the site have been measured. Details of the measurement and analysis of noise across the site is described in following sections.

### 4.1 SURVEY DATE, LOCATION AND EQUIPMENT

Ambient noise measurements were carried out during a site survey on Wednesday 2<sup>nd</sup> September 2020. This survey consisted of a series of attended, short-term measurements at three locations on the subject site. Measurements were recorded in a series of 10 and 15-minute periods.

Positions 1 and 2 were in the park, close to the southern boundary, at the end of gardens for properties on Dinas Lane. They were both partially screened from road traffic on Dinas Lane and are considered representative of the rear of properties on Dinas Lane. Position 3 was also within the park, but close to the northern site boundary, at a location representative of levels at the front of properties on Lincombe Road. In each case, the microphone was at a height of 1.5m above ground level. These measurement locations are shown on the site location plan in Appendix A.

The following equipment was used during the survey:

- Bruel & Kjaer Type 2250 Sound Level Meter s/n 3024398
- Bruel & Kjaer Type 4189 Microphone s/n 3147720
- Bruel & Kjaer Type 4231 Acoustic Calibrator s/n 3021283



Before and after the survey, the sound level meter was field-calibrated in accordance with the manufacturer's guidelines, and no significant drift was observed. The meter, microphone and field calibrator are laboratory calibrated biennially in accordance with UKAS procedures or to traceable National Standards.

## 4.2 RESULTS

The results of the individual 10 and 15-minute measurements have been collated and are displayed in tabular form in the Environmental Noise Record Sheets included in Appendix C. Noise parameters recorded consisted of equivalent continuous ( $L_{Aeq}$ ) noise levels and statistical noise levels (termed  $L_n$ , where  $n$  is the percentage of time the level is exceeded during the measurement period). Octave band measurements were also recorded for each of these parameters. The results of the measurements are summarised below in Table 3.

| Position                   | Period        | Time period (T) | Representative ambient noise level<br>$L_{Aeq,T}$ dB | Representative background sound level<br>$L_{A90,T}$ dB |
|----------------------------|---------------|-----------------|------------------------------------------------------|---------------------------------------------------------|
| A – Rear of 157 Dinas Lane | Daytime       | 07:00-17:00     | 50                                                   | 48                                                      |
|                            | Early evening | 17:00-21:00     | 46                                                   | 44                                                      |
|                            | Late evening  | 21:00-23:00     | 43                                                   | 41                                                      |
| B – Rear of 147 Dinas Lane | Daytime       | 07:00-17:00     | 50                                                   | 48                                                      |
|                            | Early evening | 17:00-21:00     | 46                                                   | 44                                                      |
|                            | Late evening  | 21:00-23:00     | 45                                                   | 42                                                      |
| C – Close to Lincombe Road | Daytime       | 07:00-17:00     | 55                                                   | 50                                                      |
|                            | Early evening | 17:00-21:00     | 52                                                   | 45                                                      |
|                            | Late evening  | 21:00-23:00     | 46                                                   | 43                                                      |

**Table 3:** Summary of representative measured noise levels

The representative  $L_{Aeq,T}$  levels in Table 3 are determined from the log average of all measured  $L_{Aeq,15min}$  values during the relevant period.

Weather conditions were mild and dry throughout the survey, although there was a period of heavy rain just prior to the start of the survey. Wind speeds were low throughout the survey.

It is notable that activity in the park may be reduced in comparison to its normal use due to government restrictions in place during the COVID-19 pandemic. Although it is not possible to precisely quantify this, it should be noted that there are a number of pitches marked out on the park, one or some which would be expected to be in use on a typical evening under normal conditions.



## 5. PREDICTION OF SPORTS PITCH NOISE LEVELS

### 5.1 OPERATIONAL NOISE LEVELS OF RECREATIONAL AND SPORTS AREAS

In order to demonstrate the likely level of noise produced by the use of the sports pitches at the nearby residential locations, it is necessary to produce a reliable estimate of 'at source' noise levels from similar pitches. Spectrum have conducted measurements of typical noise levels from the use of sports and recreational facilities on a number of previously occasions.

Noise levels generated by recreation and sports activities tend to be linked with high levels of cumulative speech generated by the players and spectators of team sports. The level of produced noise is likely to vary with the numbers playing the sport and numbers of spectators. For the purpose of this assessment noise data on team-based sports activity has been used.

The measured noise data from the recreational activity is included in Table 4 below. The 5-minute sample noise measurements were recorded at positions close to the following venues:

- The all-weather synthetic sports area at Robin Park, Wigan. Noise measurements recorded during several 5-a-side football matches being played by adult players, with spectators.
- The school playing fields (grass surface), at Hesketh Fletcher High School, in Atherton. Noise measurements recorded during an 11-a side football match played by the under 16's team.
- The 5-a-side 3G pitches at King George V playing fields, Welwyn Garden City. Noise measurements recorded during adult 5-a-side league matches on the last date of the season (so matches were fully competitive) and were refereed.

| Measurement Venue  | Distance (m) | Measured levels |             | Sound power level |              |
|--------------------|--------------|-----------------|-------------|-------------------|--------------|
|                    |              | $L_{Aeq}$       | $L_{AFmax}$ | $L_{WA}$          | $L_{WA Max}$ |
| 1 Robin Park       | 40           | 56              | 70          |                   |              |
|                    | 40           | 56              | 63          |                   |              |
|                    | 40           | 55              | 64          |                   |              |
|                    | <b>Mean</b>  | <b>56</b>       | <b>66</b>   | <b>99</b>         | <b>109</b>   |
| 2 Hesketh Fletcher | 100          | 48              | 55          |                   |              |
|                    | 100          | 49              | 58          |                   |              |
|                    | 100          | 48              | 54          |                   |              |
|                    | <b>Mean</b>  | <b>48</b>       | <b>56</b>   | <b>101</b>        | <b>109</b>   |
| 3 King George V    | On sideline  | 64              |             |                   |              |
|                    | On sideline  | 60              |             |                   |              |
|                    | On sideline  | 64              |             |                   |              |
|                    | <b>Mean</b>  | <b>63</b>       | <b>79</b>   | <b>102</b>        | <b>118</b>   |

**Table 4:** Measured noise data on sports activities

- Notes:
- 1) Distances taken from centre of playing area for 1 and 2, and on the sideline for case 3
  - 2) Sound power levels determined by scaling area source to match the measured levels
  - 3) In case 3, typical maximum levels were determined rather than the maximum from a series of individual measurements



The measurements taken at each venue show good consistency, indicating that noise levels produced by use of sports pitches typically produce source sound power levels of around  $L_{WA}$  101 dB, subject to an  $L_{WAmax}$  of 112 dB (11 dB higher). The noise levels are unlikely to be continuous – throughout any activity, levels go up and down related to the play, and also vary depending on who is using the pitch, the intensity and significance of the activity, and the precise location of the activity. However, this treatment of the noise as a distributed source across the area of the pitch is considered sufficiently representative for the purposes of noise prediction.

These levels are within 1 dB of the data provided in the Sport England Design Guidance Note.

## 5.2 NOISE PREDICTION METHODOLOGY

Noise levels across the site are predicted using proprietary numerical noise modelling software (Predictor<sup>5</sup>). This software package meets the requirements of ISO 9613 Part 2:1996<sup>6</sup>. The noise model takes account of the following in its calculation procedures:

- Source sound power level (for point, line and area sources)
- Reflection from nearby structures and source directivity
- Distance from noise source (geometric spreading)
- Atmospheric absorption
- Acoustic screening of intervening structures and topography
- Ground absorption
- Ground effects (which includes the height of ground relative to the noise source)

In this case, two scenarios are modelled: typical weekday evening and typical weekend daytime. Predictions are based on worst-case assumptions about a typical 1-hour use of the proposed pitch. This means that noise levels are assumed to be continuous and distributed evenly across the whole area of both proposed pitches over the course of one hour.

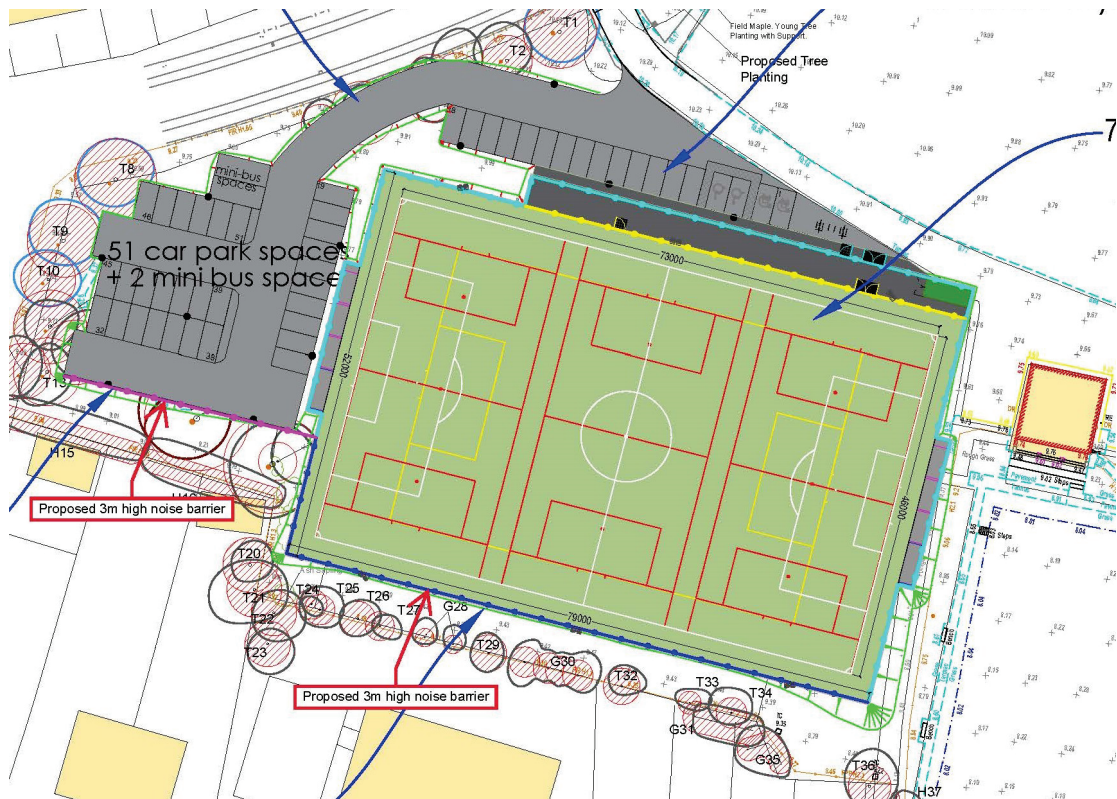
## 5.3 RESULTS

Initial predictions showed that under predicted conditions, noise from the pitches would exceed the guideline level of  $L_{Aeq,1hr}$  50 dB outlined in the Sport England Guidance (and supported by the WHO Guidelines for Community Noise) at a number of nearby residences.

In order to reduce levels at residences, as well as reducing the potential noise impact, mitigation measures are proposed. As pitches cover large areas, mitigation is not straightforward and tall barriers are typically required. In this case, a 3m barrier is proposed in the location shown below in Figure 1:

<sup>5</sup> *Bruel and Kjaer – Predictor (Predictor-LimA) v2024 Environmental Noise Calculation Software Package, Type 7810*

<sup>6</sup> *ISO 9613-2:1996 "Acoustics – Attenuation of sound during propagation outdoors – Part 2: General method of calculation to determine Noise Levels"*



**Figure 1:** Partial site layout showing proposed barrier location

Noise predictions were then carried out with this barrier in place. Contour plots showing the results of these updated predictions are included in Appendix D.

#### 5.4 ACOUSTIC BARRIER SPECIFICATION

This acoustic barrier described above should have the following properties:

- 3m (or greater) in height
- No holes or penetrations
- A surface density of at least 10 kg/m<sup>2</sup>

These requirements can readily be met with common approaches to fencing, for example a close-boarded timber fence. The fencing should be installed in the location, and to the extents, shown in Figure 1.



## 6. PREDICTION OF CAR PARK NOISE LEVELS

For the purpose of this assessment, the specific noise levels produced by car park activities at the noted residential receptor locations will be established by prediction.

It was not possible to obtain source noise levels at an existing car park associated with sports pitches. Consequently, to form the basis of this assessment, library noise data previously measured by Spectrum at a supermarket will be used, as agreed with Knowsley Council's Environmental Health Department.

Car park activities are likely to be broadly similar at all small supermarket stores. Consequently, as the basis of the prediction, the typical noise levels produced during this activity have been referenced from detailed noise measurements at an existing Aldi store in Biggleswade, Bedfordshire. This store was selected as it is located within a quiet area away from busy roads.

For these noise measurements, attended sample measurements of five minutes duration were carried out at various locations around the store's car park. The measurements were conducted during a busy lunch time period on Monday 30 March 2015. Note that the measurements are representative of a very busy trading period when the local schools were on holiday. The influence of vehicle movements on local and surrounding roads were excluded from the measurements.

The measurement locations around the Biggleswade store's car park are highlighted on the site location plan included in Appendix E. Environmental noise record sheets detailing the full breakdown of results from the attended noise measurements are also included in Appendix E.

The results of the noise measurements indicate that noise levels associated with car park activities throughout a busy trading period are relatively steady. Typically these are in the range  $L_{Aeq,T}$  57dB to  $L_{Aeq,T}$  61dB at the measurement locations. Observations during the noise measurements concluded that typical activities which generate noise within the car park are attributable to vehicle movements, car doors closing, customers speaking and trolley movements.

Prediction methodologies use the sound power level ( $L_w$ ) of a source as input data, so for this purpose the measured car park activity noise level, expressed in terms of  $L_{Aeq,T}$ , needs to be converted to the equivalent activity sound power level. This is derived using the measured car park  $L_{Aeq,T}$  (where T is the period), corrected for the measurement surface area enveloping the noise source. A summary of the calculated activity sound power level associated with the car park is shown in Table 5 below.

| Detail                                           | dB(A) | Octave Band Sound Power Levels (dB) |     |     |     |    |    |    |    |
|--------------------------------------------------|-------|-------------------------------------|-----|-----|-----|----|----|----|----|
|                                                  |       | 63                                  | 125 | 250 | 500 | 1k | 2k | 4k | 8k |
| Activity during a busy period $L_{Aeq,T}$ at 15m | 59    | 65                                  | 58  | 54  | 55  | 54 | 51 | 48 | 42 |
| Lp to Lw Correction                              | 32    | 32                                  | 32  | 32  | 32  | 32 | 32 | 32 | 32 |
| Activity Sound Power Level $L_w$                 | 91    | 97                                  | 90  | 86  | 87  | 86 | 83 | 80 | 74 |

**Table 5:** Calculated activity sound power level associated with car park activities

To accurately evaluate the overall effect of the noise associated with the proposed car park it is necessary to consider the noise that is likely to be generated by this operation, at the nearby residential receptor locations.



As with the prediction of noise levels from the proposed sports pitches, noise levels from the proposed car park are predicted using proprietary numerical noise modelling software (Predictor<sup>7</sup>).

Detailed noise calculations, providing information on total specific noise at each receptor are computed. Contour plots showing the results of the predictions are included in Appendix E.

## 7. ASSESSMENT OF SPORTS PITCH NOISE LEVELS

### 7.1 COMPARISON OF PREDICTED LEVELS AGAINST ABSOLUTE GUIDELINE LEVELS

The primary target is an absolute guideline level as set out in the Sport England guidance document:

*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  $L_{Aeq,1hr}$  upper noise limit external to residential properties and within external living areas.*

#### 7.1.1 Typical weekday evenings

At properties on Dinas Lane, with mitigation, noise levels were predicted to be:

- Up to 43 dB at the facades of residential properties at ground-floor level
- Up to 44 dB in the gardens of residential properties
- Up to 49 dB at the facades of all residential properties at first-floor level

With mitigation measures in place, the guideline target levels are met at ground level in all properties and in gardens on Dinas Lane.

It is also important to note that properties on Lincombe Road to the north are also exposed to noise from the proposed AGP during the evenings. The proposed barrier will not be effective in reducing noise levels here, and facades will still be exposed to noise levels of up to 51 dB. However, this is considered less critical given the context of these properties (as discussed below).

## 7.2 CONTEXT

### 7.2.1 Sensitivity of different properties

The most sensitive residences are considered to be properties on Dinas Lane, which are closest to the pitches. In addition, it is the rear of the properties, including private rear gardens, which back on to the pitch. That means, that in these areas which are well screened from noise in the current environment, a noise change has the potential to be more noticeable.

In contrast, properties on Lincombe Road overlook the park and are generally closer to the existing sports pitches. Accordingly, they are likely to be less sensitive the addition of the proposed new pitch. They also have rear gardens which face away from the existing park and proposals, so are much better screened and are therefore exposed to much lower levels from the proposals.

<sup>7</sup> Bruel and Kjaer – Predictor (Predictor-LimA) v2024 Environmental Noise Calculation Software Package, Type 7810



### 7.2.2 Existing environment and noise change

As shown in table 3 above, existing ambient noise levels are between  $L_{Aeq}$  43 and 46 dB during the critical late evening period (between 21:00 and 22:00) and background sound levels are  $L_{A90}$  41 to 43 dB in the same period. This means that noise levels from the proposed pitches will exceed existing ambient levels by up to 6 dB and existing background levels by up to 8 dB at properties on Dinas Lane. This is an indication of a noticeable noise change. At properties on Lincombe Road, the exceedance will be up to 8 dB above background levels.

During the daytime, existing ambient noise levels are much higher, are between  $L_{Aeq}$  50 and 55 dB and background sound levels are  $L_{A90}$  48 to 50 dB. Accordingly, predicted levels of  $L_{Aeq}$  51 or lower are commensurate with currently ambient levels and are no more than 3 dB above background levels.

It is important to note that measurements were carried out both during school holidays and during a period of eased COVID-19 lockdown measures. At this time, although road traffic noise levels are not expected to be significantly lower than normal pre-COVID-19 levels, the impact on use of the existing park is more difficult to quantify. It is likely that the park would already be used more intensively for sport, were it not for the COVID-19 government restrictions and recommendations. It is therefore possible, that under normal circumstances noise levels measured during a typical evening in the park might be higher than measured at this time.

However, even allowing for this, it remains likely that the proposals will increase existing ambient and background sound levels at the nearest residences to some extent.

### 7.2.3 Character

Existing measurements and observations did not capture noise from sport activity in Jubilee Park or the surrounding area. However, there are existing demarcated football pitches within the park immediately north of the proposed development.

Measurements were made during school holidays and these existing pitches are likely to be more intensively used during school term time and during the winter football season. Additionally, as noted above, these might be expected to be used more frequently were it not for the COVID-19 government restrictions and recommendations. In any case, for residents living adjacent to a park – particularly one with an adjacent school - the potential of noise from sport activity might be expected.

This is certainly the case for properties on Lincombe Road which face directly on to the park. At these properties, the noise change is considered much less likely to be noticeable in subjective terms. However, properties on Dinas Lane are generally more distant from the existing pitches. At these properties, the proposals would represent an intensification of noise of a similar character. Furthermore, a custom-designed sport facility such as this is more likely to generate a higher level of cumulative speech from players and spectators of team sports than a simple grass pitch within a park.

### 7.2.4 Time of day

The proposed hours of use of the sports pitches overlap with 'business hours'. At these times it is more likely that nearby residents will not be at home or that they will not be undertaking activities requiring peace and quiet.



The proposed hours of use however also extend into evenings up to 21:00. At this time, residents are more likely to be at home. The proposed use hours however do not extend into the night-time period. This is particularly relevant in terms of the exposure of dwellings to noise at first-floor level. As the affected properties are typical houses, it's likely that bedrooms will be located at first-floor level.

Noise impact on bedrooms is less significant in the evenings than during the night-time when sleep disturbance is an issue. Noise impact on living areas is also generally considered more relevant during the evenings.

Given this context, although predicted levels are closer to guideline levels at first floor level in the evening, they are much lower at ground floor level - no more than 44 dB for properties on Dinas Lane.

#### **7.2.5 Time of year**

Use of the proposed pitches will be primarily during the winter football season. During this part of the year residents tend to spend less time in gardens and external amenity areas, particularly during the evenings. Residents are also less likely to open windows during the winter months (especially during the evenings), as there is less need to prevent overheating. Both factors mean that the potential for impact from the proposals will be lower during the time of year when the most intensive use is expected.

### **7.3 SUMMARY OF ASSESSMENT AND FINDINGS**

Taking into account the planning practice guidance, it is considered that predicting levels below (or very close to) the absolute guideline level means the likelihood of a significant adverse impact is low. However, an adverse impact may still arise. In this circumstance, context is important in determining how likely an adverse impact is.

A number of different contextual factors have been considered and there is no evidence that the surrounding residential receptors should be considered less sensitive than a typical residence. Existing noise levels are relatively low and although the park is clearly used for sporting activities, there is no evidence that they have previously taken place within 40m of the most sensitive residences (on Dinas Lane). Consequently, the character of the noise environment for these residences is likely to change as a result of the proposals.

In summary: a significant adverse impact is not likely. Mitigation measures have been incorporated into the design to mitigate and minimise adverse impacts as far as possible and, given the contextual factors, the likelihood of adverse noise impact is relatively low.

## 8. ASSESSMENT OF NOISE FROM THE CAR PARK

For the purposes of this assessment, the predicted car park noise levels, representative of a busy period, will be compared with the ambient noise levels at the nearby residential receptor locations. Note, the predictions represent a worst-case scenario, as they are based on activities associated with a busy supermarket car park when the local schools were on holiday. This included trolley noise and loading shopping into vehicles. Therefore, the expectation would be that noise levels from the car park associated with the proposed sports pitches are expected to be lower.

| Receptor Position | Noise Level dB(A)                             |                                          |            |
|-------------------|-----------------------------------------------|------------------------------------------|------------|
|                   | Predicted noise levels from the busy car park | Existing $L_{Aeq,T}$ ambient noise level | Difference |
| Dinas Lane        | 43                                            | 50 - 55                                  | -7 to -12  |
| Lincombe Road     | 49                                            | 50 - 55                                  | -1 to -6   |

**Table 6:** Predicted noise levels from the busy car park at the nearby residential locations, compared with the existing ambient  $L_{Aeq,T}$  noise levels.

The study predicts that at the nearest residential locations, car park noise levels wouldn't exceed the measured ambient noise level.

Table 7 shows a comparison of the specific noise levels from the car park, with the WHO  $L_{Aeq,16\text{ hour}}$  50dB absolute daytime criteria for moderate annoyance, at the nearby residential locations covered by the assessment.

| Residential Location | Predicted noise levels from the busy car park (dB) | Comparison with WHO 50dB(A) criterion |
|----------------------|----------------------------------------------------|---------------------------------------|
| Dinas Lane           | 43                                                 | -7                                    |
| Lincombe Road        | 49                                                 | -1                                    |

**Table 7:** Predicted noise levels from the busy car park at the nearby residential positions, compared with the WHO  $L_{Aeq,16\text{ hour}}$  50dB daytime moderate annoyance criterion.

As indicated in Table 7, noise levels from the car park would not exceed the WHO  $L_{Aeq,16\text{ hour}}$  50dB advised daytime criteria at all of the nearby residential receptor locations.

In consideration of both the assessment results, the study has shown that activities associated with a busy car park would result in a low noise impact.



## 9. CONCLUSIONS

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Knowsley Council is proposing to redevelop a portion of land within the existing Jubilee Park (off Dinas Lane) to create a 79x52m 3G Artificial Grass Pitch for use by Huyton Juniors FC who will manage this site under a long-term lease from Knowsley Council.

Spectrum have carried out noise predictions of the proposed pitch and assessed the predicted levels against the absolute guideline levels set out in the Sport England guidance and WHO Guidelines for Community Noise. A noise measurement survey has also been carried out at the site to provide some context to the assessment by looking at existing ambient and background sound levels.

Initial predictions indicated the potential for an adverse impact, so mitigation measures have been recommended and incorporated into the predictions. With these measures in place, noise levels meet the absolute guideline levels at the most sensitive residences.

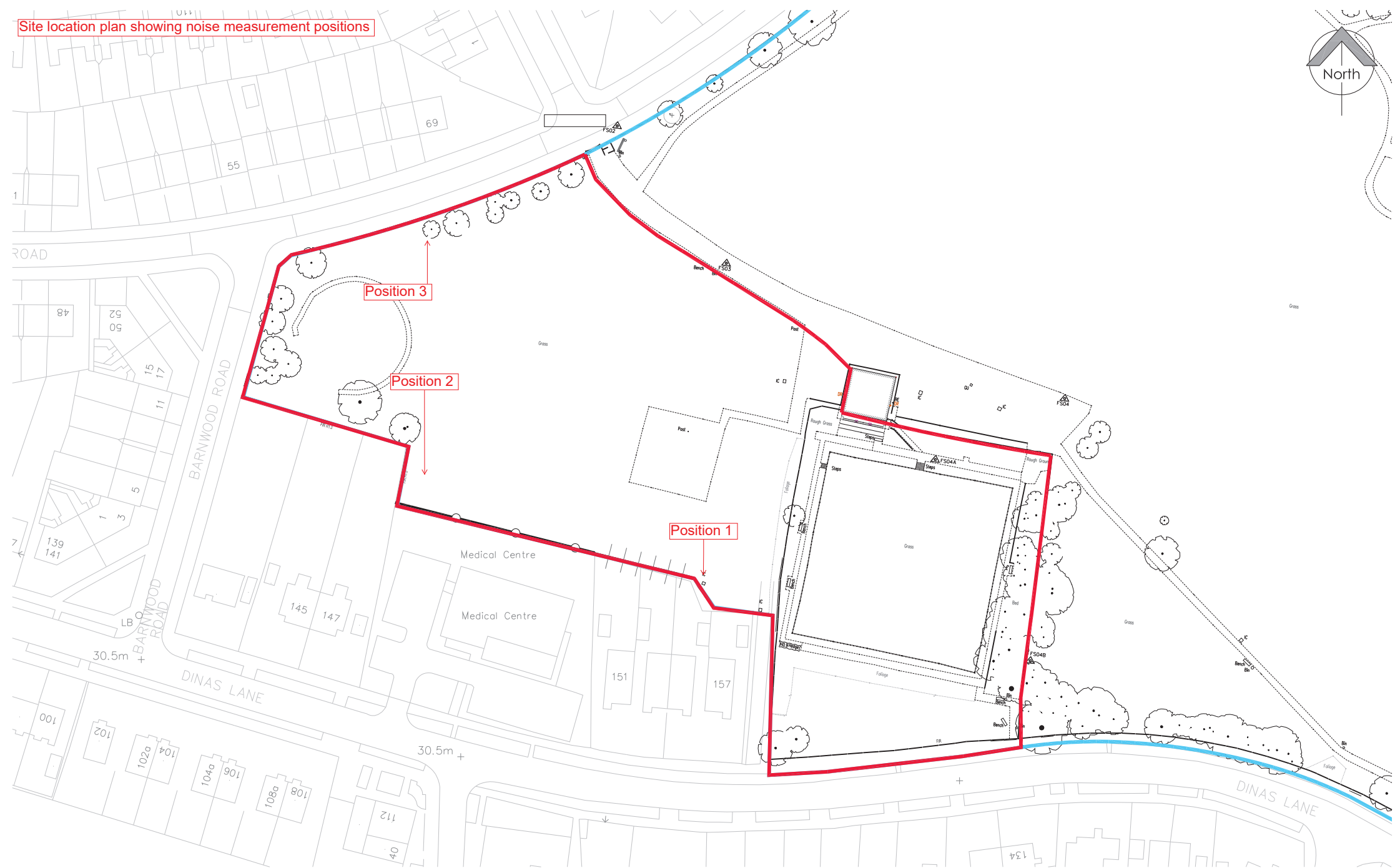
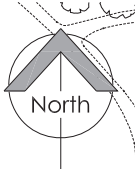
An assessment of noise associated with activities in the proposed car park has also been conducted. The assessment indicates that noise levels from the car park would not exceed the existing ambient  $L_{Aeq,7}$  noise levels, as well as the WHO  $L_{Aeq,16\text{ hour}}$  50dB advised daytime criteria at all of the nearby residential receptor locations

Overall, given the context of the existing environment and proposed use, it is considered that a significant adverse impact is not likely. Mitigation measures have been incorporated into the design to mitigate and minimise adverse impacts as far as possible and, given the contextual factors, the likelihood of adverse noise impact is relatively low.

## **A P P E N D I X   A**

Site location plan showing noise measurement positions

Site location plan showing noise measurement positions



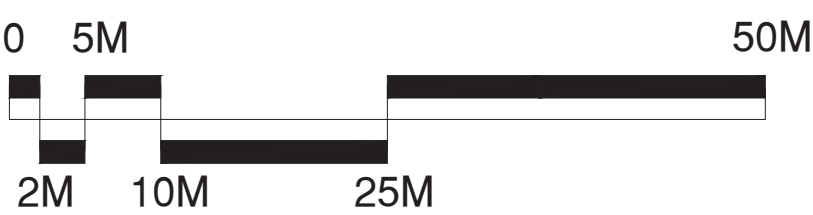
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|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|---------------------------------------------------------------------------------------------|--|--|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|--|---------------------|--|
| <div>Copyright Notice:<br/>This drawing is the copyright of Design Studio - North LLP (Architects)<br/>and shall not be reproduced without permission. © 2020</div> <div>Dwg. Purpose <b>Feasibility</b></div> |  |  | <div>Jubilee Park, Knowsley</div> <div>Dwg. Title<br/>Existing Site Plan (South West)</div> |  |  | <div>Knowsley Council</div> <div>Churchill House, Mill Hill, Pontefract, West Yorkshire,<br/>WF8 4HY t: 01977 797258 e: mail@stevewells-associates.com</div> |  |  | <div>STEVE WELLS<sup>TM</sup><br/>ASSOCIATES</div> <div>205-066-0001</div> |  |                     |  |
| No.                                                                                                                                                                                                            |  |  | Revision / Issue                                                                            |  |  | Date                                                                                                                                                         |  |  | Scale<br>1:500 @ A3                                                                                                                                             |  | Date<br>August 2020 |  |
|                                                                                                                                                                                                                |  |  |                                                                                             |  |  |                                                                                                                                                              |  |  | JLR                                                                                                                                                             |  | DKW                 |  |

## **APPENDIX B**

Site layout plans showing proposals

# Knowsley MBC - Jubilee Park

Creation of an Artificial Grass Pitch



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SSU  
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3. ALL PERSONNEL SHOULD BE AWARE OF THE HEALTH AND SAFETY PLAN WHICH IS RETAINED IN THE SITE MANAGERS OFFICE.

- Artificial Turf Playing Area
- AGP Hard Standing Areas and Goal Storage
- Car Parking and New Private Access Road
- 4.5m High Fence Line
- 4.5m High Fence Line with Additional 3.5m High Ball Stop Netting (Total 8m) 3m High Acoustic Barrier
- 3.0m High Fence Line
- 1.2m High Fence Line

Notes:  
Line markings to accommodate:  
1Nr. 9v9 73x46m (white)  
1Nr. 7v7 55x37m (yellow)  
3Nr. 5v5 36.84x22.28m\* (red)  
\*Smaller than recommended size but acceptable for FA match play

Trees to be removed  
have no red hatched RPA

New access arrangement

51 new car parking spaces (inc 2  
DDA and 2 EV) and 2 minibus spaces

79x52m Pitch Footprint

51 car park spaces  
+ 2 mini bus space

3.0m High Acoustic Barrier  
to South of Car Park

Residential boundary line fencing totaling 8 metres in  
height comprising of 4.5 metre high perimeter fence  
and 3.5 metre high ball stop netting. In addition there is  
a 3 metre high acoustic fence to the southern boundary  
and part of the western boundary



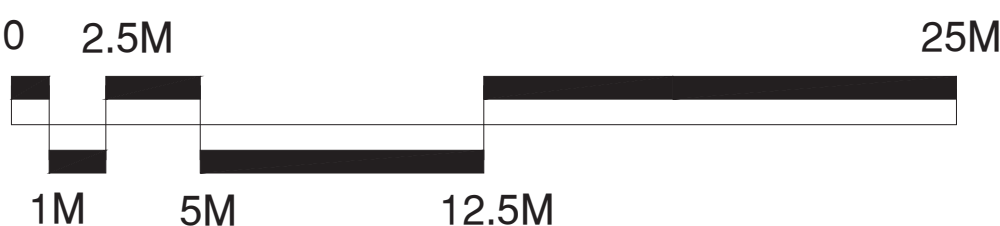
|     |                |     |    |          |
|-----|----------------|-----|----|----------|
| 04  | PLANNING ISSUE | LS  | WB | 18.09.24 |
| 03  | PLANNING ISSUE | LS  | WB | 12.09.24 |
| 02  | PLANNING ISSUE | LS  | WB | 05.09.24 |
| 01  | PLANNING ISSUE | ME  | WB | 22.06.24 |
| 00  | PLANNING ISSUE | ME  | WB | 19.12.23 |
| REV | DESCRIPTION    | REV | CK | DATE     |



|            |                                                                                            |
|------------|--------------------------------------------------------------------------------------------|
| AUTHOR     | LS                                                                                         |
| TITLE      | Knowsley MBC - Jubilee Park<br>Creation of an Artificial Grass Pitch<br>Proposed Site Plan |
| PROJECT    | LANO-CLS036                                                                                |
| SCALE      | 1:500                                                                                      |
| SIZE       | A1                                                                                         |
| DRAWING No | 03                                                                                         |
| REVISION   | 04                                                                                         |

# Knowsley MBC - Jubilee Park

Creation of an Artificial Grass Pitch





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3. ALL PERSONNEL SHOULD BE AWARE OF THE HEALTH AND SAFETY PLAN WHICH IS RETAINED IN THE SITE MANAGERS OFFICE.

- Artificial Turf Playing Area
- AGP Hard Standing Areas and Goal Storage
- Car Parking and New Private Access Road
- 4.5m High Fence Line

4.5m High Fence Line with Additional 3.5m High Ball Stop Netting (Total 8m) 3m High Acoustic Barrier

- 3.0m High Fence Line
- 1.2m High Fence Line

Notes:  
Line markings to accommodate:  
1Nr. 9v9 73x46m (white)  
1Nr. 7v7 55x37m (yellow)  
3Nr. 5v5 36.84x22.28m\* (red)

\*Smaller than recommended size but acceptable for FA match play

Trees to be removed have no red hatched RPA

51 new car parking spaces (inc 2 DDA and 2 EV) and 2 minibus spaces

1m Bollard Lighting Column

mini-bus spaces

51 car park spaces + 2 mini bus space

3.0m High Acoustic Barrier to South of Car Park

1m Bollard Lighting Column

Residential boundary line fencing totalling 8 metres in height comprising of 4.5 metre high perimeter fence and 3.5 metre high ball stop netting. In addition there is a 3 metre high acoustic fence to the southern boundary and part of the western boundary

1m Bollard Lighting Column

New access arrangement with 5m wide lockable double gate

Proposed Tree Planting

2Nr. disabled parking bays

2Nr. EV charging points

6Nr. cycle parking stands

Single leaf access gate

Double leaf access gate

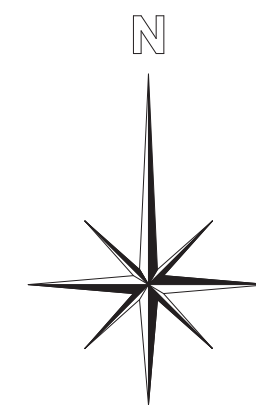
Maintenance container

10m Floodlighting Column

1m Bollard Lighting Column

10m Floodlighting Column

79x52m Pitch Footprint



|     |                |     |          |
|-----|----------------|-----|----------|
| 04  | PLANNING ISSUE | ME  | 18.09.24 |
| 03  | PLANNING ISSUE | LS  | 12.09.24 |
| 02  | PLANNING ISSUE | LS  | 05.09.24 |
| 01  | PLANNING ISSUE | ME  | 22.06.24 |
| 00  | PLANNING ISSUE | ME  | 19.12.23 |
| REV | DESCRIPTION    | REV | CK DATE  |

**SSL**  
Surfacing Standards Limited  
SPORTS PITCH CONSULTANTS



|                        |                |                                                                                                    |                |
|------------------------|----------------|----------------------------------------------------------------------------------------------------|----------------|
| AUTHOR<br>ME           |                | TITLE<br>Knowsley MBC - Jubilee Park<br>Creation of an Artificial Grass Pitch<br>Proposed AGP Plan |                |
| PROJECT<br>LANO-CLS036 | SCALE<br>1:200 | SIZE<br>A1                                                                                         | REVISION<br>04 |

## **APPENDIX C**

Environmental noise record sheets

## Environmental Noise Record Sheet



|                 |                                     |
|-----------------|-------------------------------------|
| Project:        | New AGP/MUGA Jubilee Park, Knowsley |
| Project number: | 20308                               |
| Date:           | 09/09/2020                          |

|                            |                                                               |
|----------------------------|---------------------------------------------------------------|
| Noise monitoring location: | 1: In Jubilee park, close to north boundary of 155 Dinas Lane |
| Plant operating condition: | n/a                                                           |
| Instrumentation:           | Brueel & Kjaer 2250/9                                         |
| Calibration times:         | 16:07, 16:51, 20:11, 21:58                                    |

| Date/time |            |                    | Weather          |                |           | Noise Level (dB) |         |         |        |        |      | Comments<br><br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)) |
|-----------|------------|--------------------|------------------|----------------|-----------|------------------|---------|---------|--------|--------|------|------------------------------------------------------------------------------------------------------------------------------|
| Date      | Start time | Duration (min:sec) | Wind speed (m/s) | Wind direction | Cloud (%) | LAF10.0          | LAF50.0 | LAF90.0 | LAFmax | LAFmin | LAeq |                                                                                                                              |
| 02/09/20  | 16:10      | 10:01              | 0-2              | W              | 50        | 51               | 49      | 48      | 65     | 46     | 50   | Traffic on Dinas Lane, seagulls, recently stopped raining, kids on play area                                                 |
| 02/09/20  | 19:43      | 15:00              | 0-1              | W              | 50        | 48               | 45      | 44      | 61     | 42     | 46   | Traffic on Dinas Lane, occasional cars on Lincombe Road, distant dog bark                                                    |
| 02/09/20  | 21:00      | 15:00              | 0-2              | W              | 50        | 45               | 42      | 41      | 53     | 40     | 43   | Distant traffic, occasional cars on local roads, wind in trees                                                               |

| Date/time |            |                    | Weather          |                |           | Leq Octave Band Pressure Level (dB) |    |     |     |     |    |    |    |    |       | Comments<br><br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)) |
|-----------|------------|--------------------|------------------|----------------|-----------|-------------------------------------|----|-----|-----|-----|----|----|----|----|-------|------------------------------------------------------------------------------------------------------------------------------|
| Date      | Start time | Duration (min:sec) | Wind speed (m/s) | Wind direction | Cloud (%) | 31.5                                | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |                                                                                                                              |
| 02/09/20  | 16:10      | 10:01              | 0-2              | W              | 50        | 61                                  | 60 | 53  | 45  | 44  | 47 | 42 | 38 | 27 | 50    | Traffic on Dinas Lane, seagulls, recently stopped raining, kids on play area                                                 |
| 02/09/20  | 19:43      | 15:00              | 0-1              | W              | 50        | 57                                  | 56 | 49  | 42  | 41  | 43 | 37 | 29 | 21 | 46    | Traffic on Dinas Lane, occasional cars on Lincombe Road, distant dog bark                                                    |
| 02/09/20  | 21:00      | 15:00              | 0-2              | W              | 50        | 55                                  | 55 | 49  | 42  | 38  | 39 | 34 | 28 | 21 | 43    | Distant traffic, occasional cars on local roads, wind in trees                                                               |

## Environmental Noise Record Sheet



|                 |                                     |
|-----------------|-------------------------------------|
| Project:        | New AGP/MUGA Jubilee Park, Knowsley |
| Project number: | 20308                               |
| Date:           | 09/09/2020                          |

|                            |                                                               |
|----------------------------|---------------------------------------------------------------|
| Noise monitoring location: | 2: In Jubilee park, close to north boundary of 147 Dinas Lane |
| Plant operating condition: | n/a                                                           |
| Instrumentation:           | Bruel & Kjaer 2250/9                                          |
| Calibration times:         | 16:07, 16:51, 20:11, 21:58                                    |

| Date     | Date/time  |                    | Wind speed (m/s) | Weather        |         | Cloud (%) | Noise Level (dB) |         |        |        |      | Comments<br><br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)) |
|----------|------------|--------------------|------------------|----------------|---------|-----------|------------------|---------|--------|--------|------|------------------------------------------------------------------------------------------------------------------------------|
|          | Start time | Duration (min:sec) |                  | Wind direction | LAF10.0 |           | LAF50.0          | LAF90.0 | LAFmax | LAFmin | LAeq |                                                                                                                              |
| 02/09/20 | 16:21      | 10:01              | 0-2              | W              | 50      | 52        | 49               | 48      | 57     | 47     | 50   | Traffic on Dinas Lane, wind in trees, distant siren (16.25). Distant car alarm (16.29)                                       |
| 02/09/20 | 19:59      | 15:00              | 0-1              | W              | 50      | 48        | 45               | 44      | 64     | 42     | 46   | Distant traffic, occasional cars on local roads, dog barking, distant train to the south.                                    |
| 02/09/20 | 21:16      | 15:00              | 0-2              | W              | 50      | 46        | 43               | 42      | 65     | 40     | 45   | Distant traffic, wind in trees, occasional cars on local roads, dog barking, distant voices                                  |

| Date     | Date/time  |                    | Wind speed (m/s) | Weather        |      | Cloud (%) | Leq Octave Band Pressure Level (dB) |     |     |     |    |    |    |    |       |                                                                                             | Comments<br><br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)) |
|----------|------------|--------------------|------------------|----------------|------|-----------|-------------------------------------|-----|-----|-----|----|----|----|----|-------|---------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
|          | Start time | Duration (min:sec) |                  | Wind direction | 31.5 |           | 63                                  | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |                                                                                             |                                                                                                                              |
| 02/09/20 | 16:21      | 10:01              | 0-2              | W              | 50   | 60        | 59                                  | 51  | 45  | 45  | 47 | 42 | 37 | 31 | 50    | Traffic on Dinas Lane, wind in trees, distant siren (16.25). Distant car alarm (16.29)      |                                                                                                                              |
| 02/09/20 | 19:59      | 15:00              | 0-1              | W              | 50   | 56        | 55                                  | 49  | 42  | 42  | 43 | 37 | 32 | 25 | 46    | Distant traffic, occasional cars on local roads, dog barking, distant train to the south.   |                                                                                                                              |
| 02/09/20 | 21:16      | 15:00              | 0-2              | W              | 50   | 56        | 55                                  | 47  | 41  | 42  | 42 | 35 | 31 | 25 | 45    | Distant traffic, wind in trees, occasional cars on local roads, dog barking, distant voices |                                                                                                                              |

## Environmental Noise Record Sheet



|                 |                                     |
|-----------------|-------------------------------------|
| Project:        | New AGP/MUGA Jubilee Park, Knowsley |
| Project number: | 20308                               |
| Date:           | 09/09/2020                          |

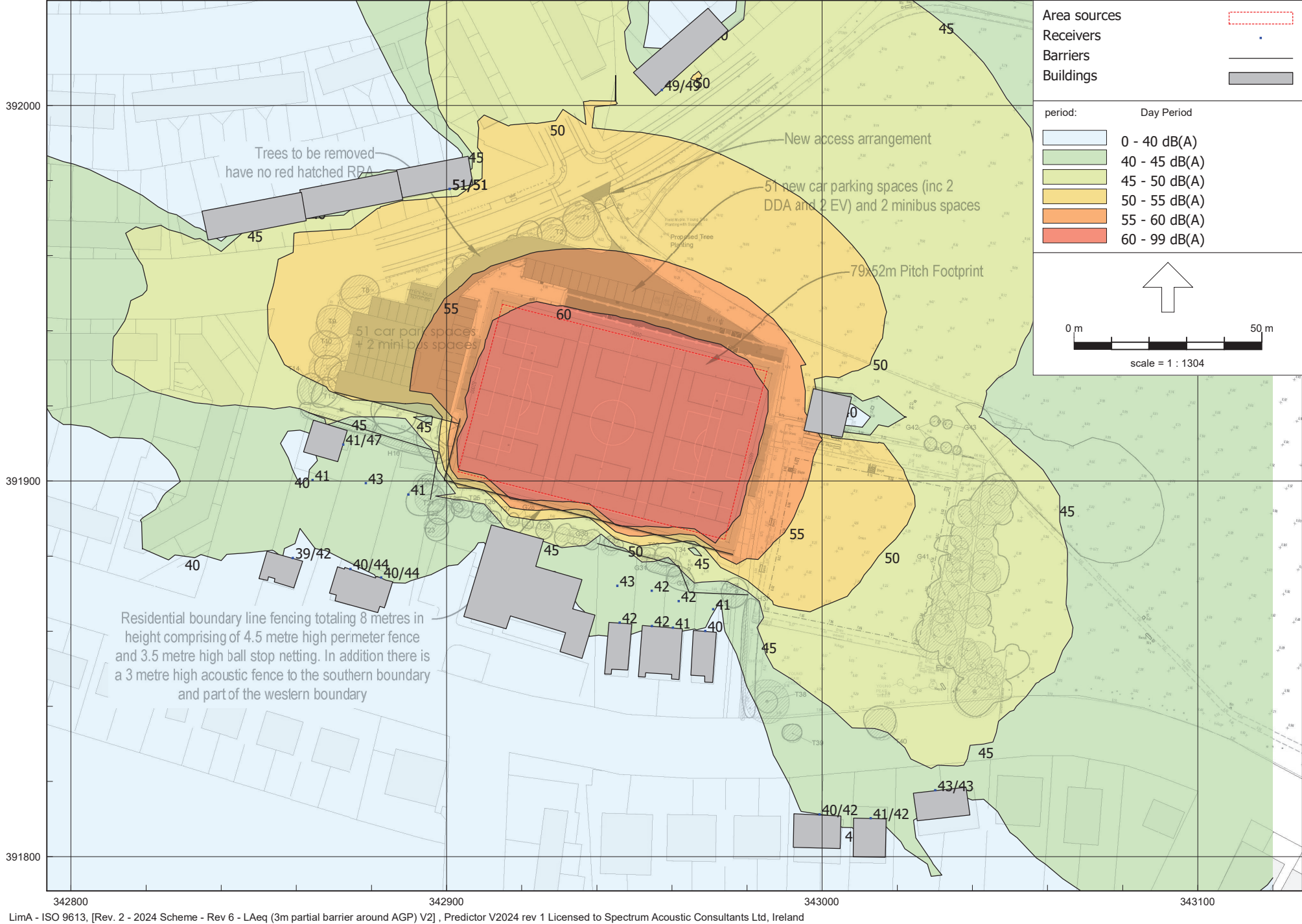
|                            |                                                                 |
|----------------------------|-----------------------------------------------------------------|
| Noise monitoring location: | 3: In Jubilee park, approximately 5m from edge of Lincombe Road |
| Plant operating condition: | n/a                                                             |
| Instrumentation:           | Brue! & Kjaer 2250/9                                            |
| Calibration times:         | 16:07, 16:51, 20:11, 21:58                                      |

| Date     | Date/time  |                    | Wind speed (m/s) | Weather        |         | Cloud (%) | Noise Level (dB) |         |        |        |      | Comments<br><br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)) |
|----------|------------|--------------------|------------------|----------------|---------|-----------|------------------|---------|--------|--------|------|------------------------------------------------------------------------------------------------------------------------------|
|          | Start time | Duration (min:sec) |                  | Wind direction | LAF10.0 |           | LAF50.0          | LAF90.0 | LAFmax | LAFmin | LAEq |                                                                                                                              |
| 02/09/20 | 16:32      | 10:02              | 0-3              | W              | 50      | 59        | 51               | 50      | 68     | 48     | 55   | Traffic on Dinas Lane, occasional cars on Lincombe Road, seagulls                                                            |
| 02/09/20 | 20:15      | 15:00              | 0-2              | W              | 50      | 51        | 47               | 45      | 75     | 43     | 52   | Distant traffic, loud cars on Lincombe Road, distant traffic, voices on street, distant dog bark                             |
| 02/09/20 | 21:32      | 15:00              | 0-3              | W              | 50      | 47        | 45               | 43      | 65     | 42     | 46   | Distant traffic, voices on street, wind in trees, distant siren                                                              |

| Date     | Date/time  |                    | Wind speed (m/s) | Weather        |      | Cloud (%) | Leq Octave Band Pressure Level (dB) |     |     |     |    |    |    |    |       | Comments<br><br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)) |                                                                                                  |
|----------|------------|--------------------|------------------|----------------|------|-----------|-------------------------------------|-----|-----|-----|----|----|----|----|-------|------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
|          | Start time | Duration (min:sec) |                  | Wind direction | 31.5 |           | 63                                  | 125 | 250 | 500 | 1k | 2k | 4k | 8k | dB(A) |                                                                                                                              |                                                                                                  |
| 02/09/20 | 16:32      | 10:02              | 0-3              | W              |      | 50        | 64                                  | 63  | 55  | 50  | 49 | 52 | 49 | 42 | 36    | 55                                                                                                                           | Traffic on Dinas Lane, occasional cars on Lincombe Road, seagulls                                |
| 02/09/20 | 20:15      | 15:00              | 0-2              | W              |      | 50        | 58                                  | 61  | 54  | 49  | 47 | 48 | 46 | 40 | 31    | 52                                                                                                                           | Distant traffic, loud cars on Lincombe Road, distant traffic, voices on street, distant dog bark |
| 02/09/20 | 21:32      | 15:00              | 0-3              | W              |      | 50        | 58                                  | 56  | 49  | 42  | 41 | 43 | 38 | 31 | 27    | 46                                                                                                                           | Distant traffic, voices on street, wind in trees, distant siren                                  |

## **A P P E N D I X   D**

Contour plots showing predicted sports pitch LAeq noise levels



## **APPENDIX E**

Car park noise model



2 - Junction of Bonds Lane/  
Foundary Lane

3 - Junction of Bonds Lane/  
Palace Street

1 - Corner of Car Park by  
Post Office

4 - Corner of Car Park near Aldi  
Main Door and Palace Street

Aldi Store

5 - Overflow car park at  
rear of store



# ENVIRONMENTAL NOISE RECORD SHEET

Sheet 1 of 5  
RL40/13378

|                           |                                       |                                   |                                                           |
|---------------------------|---------------------------------------|-----------------------------------|-----------------------------------------------------------|
| <b>Location:</b>          | 1 - Corner of car park by post office | <b>Project:</b>                   | Aldi Broughton                                            |
| <b>Date:</b>              | 30/03/2015                            | <b>Instrumentation:</b>           | B&K 2260-1                                                |
| <b>Calibration Times:</b> | 12:06, 15.30                          | <b>Plant Operating Condition:</b> | (Measurements in Aldi, Biggleswade car park at lunchtime) |

| Date    | Time  |             | Weather        |            |           | Noise Level dB(A) |     |     |      |      |      | Comments<br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)).                                                                                                                                                                                                                                                   |
|---------|-------|-------------|----------------|------------|-----------|-------------------|-----|-----|------|------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | L10               | L50 | L90 | LMAX | LMIN | LAeq |                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 12:09 | 5           | Low            | -          | 95        | 61                | 56  | 54  | 76   | 51   | 59   | General car movements. Very busy – cars queueing for spaces. People movements and trolley noise. 0 out of 35 car park spaces free.<br>Still busy. Slightly fewer car/ people movements.<br>2 out of 35 spaces free.<br>Busy but fewer cars queueing for spaces.<br>12 out of 35 spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:05 | 5           | Low            | -          | 95        | 60                | 56  | 53  | 75   | 50   | 58   |                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 13:57 | 5           | Low            | -          | 95        | 60                | 56  | 52  | 74   | 50   | 58   |                                                                                                                                                                                                                                                                                                                                                                             |

| Date    | Time  | LAeq (dB) | Leq Octave Band Pressure Level |    |     |     |     |    |    |    |    | Comments                                                                                                                                                                                                                                                                                                                                                                    |
|---------|-------|-----------|--------------------------------|----|-----|-----|-----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |       |           | 31                             | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 12:09 | 59        | 72                             | 65 | 58  | 54  | 55  | 54 | 51 | 48 | 42 | General car movements. Very busy – cars queueing for spaces. People movements and trolley noise. 0 out of 35 car park spaces free.<br>Still busy. Slightly fewer car/ people movements.<br>2 out of 35 spaces free.<br>Busy but fewer cars queueing for spaces.<br>12 out of 35 spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:05 | 58        | 72                             | 67 | 57  | 54  | 55  | 53 | 51 | 47 | 40 |                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 13:57 | 58        | 68                             | 65 | 57  | 53  | 55  | 54 | 50 | 45 | 39 |                                                                                                                                                                                                                                                                                                                                                                             |



# ENVIRONMENTAL NOISE RECORD SHEET

Sheet 2 of 5  
RL40/13378

**Location:** 2 – Corner of car park near junction of Bonds Lane/Foundry Land  
**Date:** 30/03/2015  
**Calibration Times:** 12:06, 15.30

**Project:** Aldi Broughton  
**Instrumentation:** B&K 2260-1  
**Plant Operating Condition:** (Measurements in Aldi, Biggleswade car park at lunchtime)

| Date    | Time  |             | Weather        |            |           | Noise Level dB(A) |     |     |      |      |      | Comments<br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)).                                                                                                                                                                                                                                                                                   |
|---------|-------|-------------|----------------|------------|-----------|-------------------|-----|-----|------|------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | L10               | L50 | L90 | LMAX | LMIN | LAeq |                                                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 12:21 | 5           | Low            | -          | 95        | 60                | 57  | 54  | 77   | 52   | 58   | General car and people movements – very busy. Trolley noise.<br>0 out of 35 car park spaces free.<br>Still busy but slightly fewer car/people movements. Extractor fan noise from nearby New Inn. 3 out of 35 car park spaces free.<br>Slightly less busy. Extractor fan noise continuing. 6 out of 35 car park spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:13 | 5           | Low            | -          | 95        | 59                | 55  | 52  | 69   | 50   | 56   |                                                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 14:12 | 5           | Low            | -          | 95        | 59                | 54  | 52  | 75   | 50   | 57   |                                                                                                                                                                                                                                                                                                                                                                                                             |

| Date    | Time  | LAeq<br>(dB) | Leq Octave Band Pressure Level |    |     |     |     |    |    |    |    | Comments                                                                                                                                                                                                                                                                                                                                                                                                    |
|---------|-------|--------------|--------------------------------|----|-----|-----|-----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |       |              | 31                             | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |                                                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 12:21 | 58           | 71                             | 70 | 60  | 57  | 54  | 53 | 52 | 48 | 40 | General car and people movements – very busy. Trolley noise.<br>0 out of 35 car park spaces free.<br>Still busy but slightly fewer car/people movements. Extractor fan noise from nearby New Inn. 3 out of 35 car park spaces free.<br>Slightly less busy. Extractor fan noise continuing. 6 out of 35 car park spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:13 | 56           | 69                             | 68 | 57  | 54  | 53  | 52 | 49 | 41 | 33 |                                                                                                                                                                                                                                                                                                                                                                                                             |
| 30/3/15 | 14:12 | 57           | 69                             | 68 | 58  | 55  | 53  | 52 | 49 | 44 | 37 |                                                                                                                                                                                                                                                                                                                                                                                                             |



## ENVIRONMENTAL NOISE RECORD SHEET

Sheet 3 of 5  
RL40/13378

**Location:** 3 – Entrance to car park at junction of Bonds Lane/Palace St.

**Date:** 30/03/2015

**Calibration Times:** 12:06, 15.30

**Project:** Aldi Broughton

**Instrumentation:** B&K 2260-1

**Plant Operating Condition:** (Measurements in Aldi, Biggleswade car park at lunchtime)

| Date    | Time  |             | Weather        |            |           | Noise Level dB(A) |     |     |      |      |      | Comments<br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)).                                                                                                                                                                                                                                                         |
|---------|-------|-------------|----------------|------------|-----------|-------------------|-----|-----|------|------|------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | L10               | L50 | L90 | LMAX | LMIN | LAeq |                                                                                                                                                                                                                                                                                                                                                                                   |
| 30/3/15 | 12:32 | 5           | Low            | -          | 95        | 63                | 57  | 54  | 83   | 52   | 61   | Constant car movement. Trolley noise evident. People talking. Metal shutter in closed shop at corner of Palace St. noisy due to wind gusts.<br>0 out of 35 car park spaces free.<br>Becoming less busy – fewer people and car movements. Dog barked in distance. 2 out of 35 car park spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:25 | 5           | Low            | -          | 95        | 63                | 57  | 53  | 73   | 50   | 60   |                                                                                                                                                                                                                                                                                                                                                                                   |

| Date    | Time  | LAeq<br>(dB) | Leq Octave Band Pressure Level |    |     |     |     |    |    |    |    | Comments                                                                                                                                                                                                                                                                                                                                                                          |
|---------|-------|--------------|--------------------------------|----|-----|-----|-----|----|----|----|----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |       |              | 31                             | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |                                                                                                                                                                                                                                                                                                                                                                                   |
| 30/3/15 | 12:32 | 60           | 74                             | 70 | 61  | 57  | 56  | 56 | 54 | 50 | 45 | Constant car movement. Trolley noise evident. People talking. Metal shutter in closed shop at corner of Palace St. noisy due to wind gusts.<br>0 out of 35 car park spaces free.<br>Becoming less busy – fewer people and car movements. Dog barked in distance. 2 out of 35 car park spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:25 | 61           | 75                             | 71 | 60  | 56  | 56  | 56 | 52 | 46 | 40 |                                                                                                                                                                                                                                                                                                                                                                                   |



# ENVIRONMENTAL NOISE RECORD SHEET

Sheet 4 of 5  
RL40/13378

|                           |                                                                  |                                   |                                                           |
|---------------------------|------------------------------------------------------------------|-----------------------------------|-----------------------------------------------------------|
| <b>Location:</b>          | 4 – Corner of car park near supermarket main door and Palace St. | <b>Project:</b>                   | Aldi Broughton                                            |
| <b>Date:</b>              | 30/03/2015                                                       | <b>Instrumentation:</b>           | B&K 2260-1                                                |
| <b>Calibration Times:</b> | 12:06, 15.30                                                     | <b>Plant Operating Condition:</b> | (Measurements in Aldi, Biggleswade car park at lunchtime) |

| Date    | Time  |             | Weather        |            |           | Noise Level dB(A) |     |     |      |      |      | Comments<br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)).                                                                                                                                                                                                                                                            |
|---------|-------|-------------|----------------|------------|-----------|-------------------|-----|-----|------|------|------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | L10               | L50 | L90 | LMAX | LMIN | LAeq |                                                                                                                                                                                                                                                                                                                                                                                      |
| 30/3/15 | 12:52 | 5           | Low            | -          | 95        | 61                | 55  | 51  | 74   | 49   | 58   | Quieter part of car park. Car, people and trolley movements reducing slightly. Children shouting. 0 out of 35 car park spaces free.<br>Car park less busy. Still car, people and trolley movements. Car door slammed near meter. Noisy car towards end of readings. 6 out of 35 car park spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces. |
| 30/3/15 | 13:41 | 5           | Low            | -          | 95        | 58                | 53  | 51  | 78   | 47   | 58   |                                                                                                                                                                                                                                                                                                                                                                                      |

| Date    | Time  | LAeq<br>(dB) | Leq Octave Band Pressure Level |    |     |     |     |    |    |    |    | Comments                                                                                                                                                                                                                                                                                                                                                                            |
|---------|-------|--------------|--------------------------------|----|-----|-----|-----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |       |              | 31                             | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |                                                                                                                                                                                                                                                                                                                                                                                     |
| 30/3/15 | 12:52 | 58           | 70                             | 66 | 60  | 53  | 52  | 53 | 51 | 47 | 41 | Quieter part of car park. Car, people and trolley movements reducing slightly. Children shouting. 0 out of 35 car park spaces free.<br>Car park less busy. Still car, people and trolley movements. Car door slammed near meter. Noisy car towards end of readings. 6 out of 35 car park spaces free.<br><br><b>Note</b> – free spaces were mostly disabled and parent/child spaces |
| 30/3/15 | 13:41 | 58           | 70                             | 69 | 58  | 56  | 55  | 54 | 50 | 44 | 38 |                                                                                                                                                                                                                                                                                                                                                                                     |



# ENVIRONMENTAL NOISE RECORD SHEET

Sheet 5 of 5  
RL40/13378

**Location:** 5 – Overflow car park at rear of store.

**Date:** 30/03/2015

**Calibration Times:** 12:06, 15.30

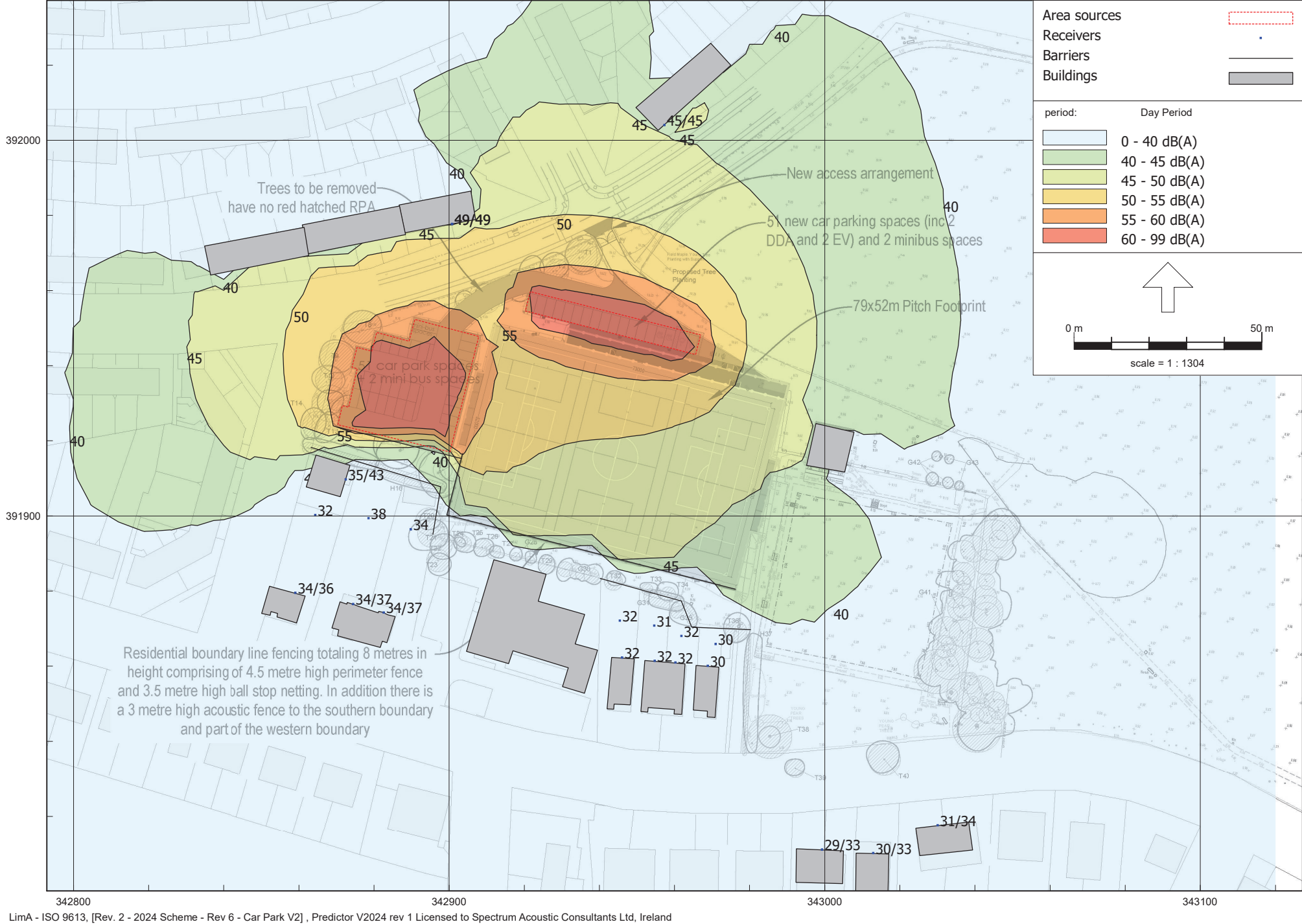
**Project:** Aldi Broughton

**Instrumentation:** B&K 2260-1

**Plant Operating Condition:** (Measurements in Aldi, Biggleswade car park at lunchtime)

| Date    | Time  |             | Weather        |            |           | Noise Level dB(A) |     |     |      |      |      | Comments<br>(Including description of noise (eg whine, hiss, rumble, impact, vehicle rain, vegetation, or animal noise)).                                                                                                                                                                                                                                                                 |
|---------|-------|-------------|----------------|------------|-----------|-------------------|-----|-----|------|------|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Start | Dur'n (Min) | Wind Speed m/s | Wind Dir'n | Cloud (%) | L10               | L50 | L90 | LMAX | LMIN | LAeq |                                                                                                                                                                                                                                                                                                                                                                                           |
| 30/3/15 | 12:58 | 5           | Low            | -          | 95        | 57                | 49  | 45  | 71   | 41   | 54   | Very quiet – no noise from road. Some car, people and trolley movement. 3 out of 17 car park spaces free.<br>Very quiet. No car or people movement. Alarm went off in store towards end of readings. 6 out of 17 car park spaces free.<br>Short reading with no noise except one trolley being pushed to a nearby car.<br><br>Note – no disabled or parent/child spaces in this car park. |
| 30/3/15 | 13:49 | 5           | Low            | -          | 95        | 48                | 44  | 43  | 63   | 41   | 46   |                                                                                                                                                                                                                                                                                                                                                                                           |
| 30/3/15 | 13:54 | 20 secs     | Low            | -          | 95        | 55                | 50  | 48  | 68   | 46   | 53   |                                                                                                                                                                                                                                                                                                                                                                                           |

| Date    | Time  | LAeq<br>(dB) | Leq Octave Band Pressure Level |    |     |     |     |    |    |    |    | Comments                                                                                                                                                                                                                                                                                                                                                                                  |
|---------|-------|--------------|--------------------------------|----|-----|-----|-----|----|----|----|----|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         |       |              | 31                             | 63 | 125 | 250 | 500 | 1k | 2k | 4k | 8k |                                                                                                                                                                                                                                                                                                                                                                                           |
| 30/3/15 | 12:58 | 54           | 64                             | 60 | 51  | 47  | 48  | 47 | 47 | 45 | 41 | Very quiet – no noise from road. Some car, people and trolley movement. 3 out of 17 car park spaces free.<br>Very quiet. No car or people movement. Alarm went off in store towards end of readings. 6 out of 17 car park spaces free.<br>Short reading with no noise except one trolley being pushed to a nearby car.<br><br>Note – no disabled or parent/child spaces in this car park. |
| 30/3/15 | 13:49 | 46           | 63                             | 64 | 51  | 42  | 42  | 42 | 38 | 34 | 26 |                                                                                                                                                                                                                                                                                                                                                                                           |
| 30/3/15 | 13:54 | 53           | 60                             | 58 | 50  | 45  | 46  | 49 | 46 | 44 | 40 |                                                                                                                                                                                                                                                                                                                                                                                           |



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