KIER PROPERTY DEVELOPMENTS LIMITED

PROPOSED MIXED USE DEVELOPMENT

LAND AT MIDLAND ROAD, ROYSTON

NOISE IMPACT ASSESSMENT

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ENS
Environmental Noise Solutions Limited

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SECTION 1 INTRODUCTION

1.1 Environmental Noise Solutions Limited (ENS) has been commissioned by Kier Property Developments Limited to undertake a noise impact assessment for a proposed mixed use development at land at Midland Road, Royston, Barnsley (hereafter referred to as the application site).

1.2 The noise impact assessment relates to a hybrid application consisting of a detailed planning application for the erection of 143 residential units, supermarket (Use Class A1), petrol filling station, additional parking for Community Campus, public open space, landscaping, access, parking and ancillary works and an outline application for a Health Centre (Use Class D1) with all matters reserved.

1.3 The proposed development consists of the following commercial floor space:

i. Supermarket: 3,066 m^2 gross internal area (33,000 ft^2) with 1,858 m^2 net internal area (20,000 ft^2);

ii. Petrol Filling Station: 75 m^2 gross internal area (807 ft^2); and

iii. Health Centre: 1,175 m^2 gross internal area (12,560 ft^2).

1.4 For reference, the total application site area is 7.12 hectares (17.59 acres).

1.5 The objectives of the noise impact assessment were to:

i. Determine ambient noise levels at the application site during representative periods of the daytime and night time;

ii. Determine the ambient noise climate at the application site over the entire daytime and night time period by calculation with reference to pertinent guidelines;

iii. Assess the potential impact of the ambient noise climate on the residential element of the proposed mixed use development with reference to the new National Planning Policy Framework (NPPF) and the former Planning Policy Guidance 24 'Planning and Noise' (PPG24)); and

iv. Consider the potential impact of the proposed mixed use development on the existing ambient noise climate at the application site; and

v. Provide recommendations for a scheme of sound attenuation works and management controls, as necessary, to ensure that the proposed mixed use development does not give rise to unacceptable noise impacts on the surrounding (existing and proposed) land uses, which are primarily residential uses, with reference to the new NPPF.

1.6 This report details the methodology and results of the assessment and provides recommendations for the building envelope construction (fenestration and ventilation). It has been prepared to accompany a planning application to be submitted to Barnsley Metropolitan Borough Council (BMBC) for the proposed mixed use development of the application site.

1.7 This report has been prepared for Kier Property Developments Limited for the sole purpose described above and no extended duty of care to any third party is implied or offered. Third parties making reference to the report should consult Kier Property Developments Limited and ENS as to the extent to which the findings may be appropriate for their use.

1.8 A glossary of acoustic terms used in the main body of the text is contained in Appendix 1.

SECTION 2 SITE SETTING

2.1 The application site is situated within the town of Royston, near Barnsley, South Yorkshire, with the proposed supermarket located at the edge of the district centre. A site location plan is contained in Appendix 2 for reference.

2.2 The application site is understood to be the site of the former Royston High School, and is currently vacant (with no school infrastructure on site).

2.3 The application site is situated within a predominantly residential area with a few retail and community uses in the vicinity. It is bound by:

i. Residential use directly to the east;

ii. ASDA supermarket to the south east, across which lies a pharmacy, a doctor's surgery and residential use;

iii. Residential use and a place of worship directly to the south, overlooking the B6428 Midland Road;

iv. A community / leisure centre to the west, flanked by residential use to its north and south; and

v. Residential use directly to the north, overlooking Common Lane (note: a part of the application site extends up to Common Lane).

2.4 During the course of the daytime and night time noise survey, the ambient noise climate was formed by local and distant traffic noise from the surrounding road network. In addition, noise from the nearby employment uses was noted to contribute locally to the ambient noise climate during the daytime.

2.5 The B6428 Midland Road is situated to the south of the application site and serves as a bus route. During the course of the daytime noise survey, this road was observed to be moderately trafficked, with a significant decline in the road usage observed during the course of the night time noise survey.

2.6 An ASDA supermarket is situated directly to the south east of the application site. During the course of the daytime noise survey, noise from HGV deliveries to the supermarket, as well as that associated with the usage of the car park, contributed locally to the ambient noise climate in the south eastern region of the application site. During the course of the night time noise survey, the supermarket was closed.

2.7 Royston Leisure Centre / Civic Hall is situated off Station Road to the west of the application site and is understood to comprise of a fitness suite, dance studio, swimming pool, hall and meeting rooms. During the course of the daytime noise survey, occasional noise from visitors entering / leaving the premises was clearly audible in the western region of the application site. In addition, noise from the operation of external plant serving the premises was audible during the course of the daytime and night time noise survey, although not significant or loud.

2.8 No other significant noise sources were noted in the vicinity of the application site.

2.9 In summary, the application site is principally subject to local and distant road traffic noise, in addition to localized noise associated with activities at the nearby employment uses.

2.10 The noise impact assessment relates to a hybrid application consisting of a detailed planning application for the erection of 143 residential units, a supermarket (Use Class A1) with 3,066 m^2 gross internal area (33,000 ft^2) with 1,858 m^2 net internal area (20,000 ft^2), a petrol filling station with 75 m^2 gross internal area (807 ft^2), additional parking for Community Campus, public open space, landscaping, access, parking and ancillary works and an outline application for a Health Centre (use Class D1) with 1,175 m^2 gross internal area (12,560 ft^2) with all matters reserved.

2.11 The proposed site layout plan is contained in Appendix 2 for reference.

2.12 It is understood that the opening hours of the supermarket are 0700 to 2300 hours Monday to Saturday and for a 6-hour period between 1000 and 1800 hours on Sunday.

2.13 It is understood that 24/7 servicing hours (i.e. HGV deliveries) are required for the supermarket. It is noteworthy that the supermarket service yard is to be enclosed with a 3 metre high brick wall (and the entrance gates to the yard are a similar height and may be constructed from solid timber i.e. acoustic gates). It is further understood that the adoption of a Service Yard Management Plan (SYMP) is acceptable for night time (2300 to 0700 hours) deliveries.

2.14 For reference, the nearest proposed residential uses are located circa 47 metres north east of the loading bay and will be wholly screened by the boundary wall (and solid entrance gates).

2.15 Based on similar sized supermarkets, in order to provide adequate availability and freshness of products for when the supermarket is open so that consistent availability is maintained throughout the day, it is anticipated that there is a requirement for 6 to 8 HGV deliveries during the daytime period (0700 to 2300 hours) and for 2 to 3 HGV deliveries during the night time period (2300 to 0700 hours). The duration of a HGV delivery is typically around 30 to 45 minutes.

2.16 It is understood that the opening hours of the petrol filling station will be 30 minutes either side of the supermarket i.e. 0630 to 2330 hours Monday to Saturday and for a 7-hour period between 0930 and 1830 hours on Sunday.

2.17 It is understood that 24/7 servicing hours (i.e. HGV fuel deliveries) are also required for the petrol filling station. It is noteworthy that the northern, eastern and western boundaries of the petrol filling station are to benefit from a 2 metre high timber fence. For reference, the nearest (existing and proposed) residential uses are located circa 50 metres from the underground storage tanks to the petrol filling station.

SECTION 3 ENVIRONMENTAL NOISE SURVEY

3.1 In order to assess the ambient noise climate at the application site, representative measurements of external noise were taken between approximately:

i. 16:10 to 17:25 hours on Tuesday 11th October 2011;

ii. 15:25 to 19:25 hours on Wednesday 12th October 2011; and

iii. 01:00 to 03:05 hours on Thursday 13th October 2011.

3.2 For the purpose of this assessment, the following noise monitoring positions (MPs) were used:

i. MP1 was located near the ASDA supermarket (overlooking the delivery yard) to the south east of the application site;

ii. MP2 was located near No. 1 Galway Close to the south east of the application site;

iii. MP3 was located near the road façade of No. 57A Midland Road to the south of the application site;

iv. MP4 was located to the rear of Moss Rose Cottage to the south of the application site (for reference this property fronts onto Midland Road);

v. MP5 was located near Nos. 20–22 Well Hill Grove to the west of the application site;

vi. MP6 was located near the plant room associated with the community / leisure centre to the west of the application site;

vii. MP7 was located near the gable end of No. 54 Common Lane to the north of the application site; and

viii. MP8 was located off Ruston Drive to the east of the application site.

3.3 All measurements were taken in a free field environment, at approximately 1.5 metres above ground level. The approximate location of the monitoring positions is reproduced in Appendix 2 for reference.

3.4 Noise measurements were undertaken using a Bruel & Kjaer 2260 Investigator Type 1 Sound Level Meter. Monitoring sessions consisted of logged measurements (logging intervals varying from 5 seconds to 60 seconds) over a period of at least 15 minutes. A–weighted broadband parameters (including L_{AMax}), together with linear third octave band levels were measured.

3.5 A 90 mm windshield was fitted for all measurements. The measurement system calibration was verified immediately before the commencement of the measurement sessions and again at the end, using a Bruel & Kjaer Type 4231 calibrator. No drift in calibration level was noted. Weather conditions throughout the survey were appropriate for surveying, with low wind speed (less than 5 metres per second).

3.6 The following tables contain a summary of noise measurements rounded to the nearest decibel. Where appropriate, any unrepresentative events have been excluded by post processing the data using Bruel and Kjaer Evaluator Type 7820 software.

Table 3.1 – Noise Measurement Data at MP1

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
11/10/11	16:10–17:25	58	45	59	80	87	Road traffic noise with occasional noise from activities at ASDA supermarket; maximum noise levels associated with delivery event

Table 3.2 – Noise Measurement Data at MP2

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	15:25–15:40	58	44	59	77	80	Road traffic noise with occasional noise from activities at ASDA supermarket; maximum noise levels associated with HGV drive by
13/10/11	01:00–01:20	46	32	42	64	67	Reduced road traffic noise with underlying 'roar' from distant industrial use

Table 3.3 – Noise Measurement Data at MP3

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	15:45–16:05	67	54	69	87	93	Road traffic noise; maximum noise levels associated with vehicles passing over traffic calming humps
13/10/11	01:30–01:45	47	32	41	70	72	Reduced road traffic noise with underlying 'roar' from distant industrial use

Table 3.4 – Noise Measurement Data at MP4

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	16:15–16:30	48	40	51	59	64	Less exposed to road traffic noise due to buildings
13/10/11	01:50–02:05	37	28	37	58	62	Reduced road traffic noise with underlying 'roar' from distant industrial use

Table 3.5 – Noise Measurement Data at MP5

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	16:55–17:10	46	41	47	62	68	Distant road traffic noise with some noise from activities at nearby community / leisure centre

Table 3.6 – Noise Measurement Data at MP6

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	17:40–18:15	51	48	52	62	67	Distant road traffic noise with some noise from activities at nearby community / leisure centre (external plant audible though not significant)
13/10/11	02:15–02:40	46	43	48	52	60	Reduced distant road traffic noise, external plant at nearby community / leisure centre audible though not significant

Table 3.7 – Noise Measurement Data at MP7

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	18:30–18:45	44	34	45	64	70	Road traffic noise with some pedestrian activity
13/10/11	02:45–03:05	41	33	42	55	59	Reduced road traffic noise with underlying noise from distant industrial use

Table 3.8 – Noise Measurement Data at MP8

Date	Time	L_{Aeq} (dB)	L_{A90} (dB)	L_{A10} (dB)	L_{ASmax} (dB)	L_{AFmax} (dB)	Comments
12/10/11	19:00–19:25	53	33	58	71	74	Road traffic noise

SECTION 4 NOISE IMPACT ASSESSMENT CRITERIA

4.1 NATIONAL PLANNING POLICY FRAMEWORK

4.1.1 The National Planning Policy Framework (NPPF), came into force on 27 March 2012 and is a material consideration in planning decisions. At the heart of the NPPF is a presumption in favour of sustainable development, and the policies in Paragraphs 18 to 219 of the NPPF, taken as a whole, constitute the Government's view on what sustainable development in England means in practice for the planning system.

4.1.2 The NPPF states that there are three dimensions to sustainable development, which include an economic role (contributing to building a strong, responsive and competitive economy), a social role (providing the supply of housing required to meet the needs of present and future generations) and an environmental role (which includes minimising waste and pollution).

4.1.3 The NPPF supersedes Planning Policy Guidance Note 24 (PPG 24). The main policy statement in relation to noise is Paragraph 123 of the NPPF, which states that planning policies and decisions should aim to:

- Avoid noise from giving rise to significant adverse impacts on health and quality of life as a result of new development;
- Mitigate and reduce to a minimum other adverse impacts on health and quality of life arising from noise from new development, including through the use of conditions;
- Recognise that development will often create some noise and existing businesses wanting to develop in continuance of their business should not have unreasonable restrictions put on them because of changes in nearby land uses since they were established (note: subject to the provisions of the Environmental Protection Act 1990 and other relevant law); and
- Identify and protect areas of tranquillity which have remained relatively undisturbed by noise and are prized for their recreational and amenity value for this reason.

4.1.4 In relation to 'adverse impacts', the NPPF refers to the Explanatory Note to the Noise Policy Statement for England (NPSE) for guidance.

4.1.5 The Noise Policy Statement for England (NPSE) and associated Explanatory Note were published by DEFRA in 2010 and set out the Government's noise management strategy to enable noise management decisions to be made within the wider context (i.e. guiding principles of sustainable development), in a cost-effective manner and in a timely fashion.

4.1.6 Fundamental to this approach is 'there is a need to integrate consideration of the economic and social benefit of the activity or policy under examination with proper consideration of the adverse environmental effects, including the impact of noise on health and quality of life. This should avoid noise being treated in isolation in any particular situation, i.e. not focussing solely on the noise impact without taking into account other related factors'.

4.1.7 The noise policy aims of NPSE are to (i) avoid significant adverse impact on health and quality of life, (ii) mitigate and minimise adverse impacts on health and quality of life, and (iii) where possible, contribute to the improvement of health and quality of life. The policy aims are always to be considered within the context of the Government's policy on sustainable development.

4.1.8 In relation to the mitigation and minimisation of adverse impacts, NPSE considers that *'in reality, although not always stated, the aim has tended to be to minimise noise 'as far as is reasonably practical'*. This is reinforced in Paragraph 2.24 of the Explanatory Note, which requires that *'all reasonable steps should be taken to mitigate and minimise adverse effects on health and quality of life while also taking into account the guiding principles of sustainable development. This does not mean that such adverse effects cannot occur'*.

4.1.9 In relation to explaining the 'significant adverse' and 'adverse' effects quoted in the NPPF, NPSE uses the two established concepts from toxicology that are currently being applied to noise impacts, for example by the World Health Organisation (WHO), these are:

- NOEL – No Observed Effect Level. This is the level below which no effect can be detected. In simple terms, below this level, there is no detectable effect on health and quality of life due to noise.
- LOAEL – Lowest Observed Adverse Effect Level. This is the level above which adverse effects on health and quality of life can be detected.

4.1.10 The NPSE then extends these concepts to lead to a SOAEL – Significant Observed Adverse Effect Level. This is the level above which significant adverse effects on health and quality of life occur.

4.1.11 No specific criteria are presented in the NPSE, to provide the necessary policy flexibility until further evidence and suitable guidance is available. In lieu of specific criteria, for residential development, ENS makes reference to existing guideline documents, which are summarised in the following paragraph(s).

4.1.12 BS 8233 (1999) 'Sound Insulation and Noise Reduction for Buildings – Code of Practice' defines a range of ambient noise levels for design criteria, in order that good or reasonable conditions are achieved in certain internal environments.

4.1.13 The following table shows a summary of the levels recommended in BS 8233 for habitable rooms expected in the proposed residential development. Additionally, the World Health Organisation (WHO) guidelines on Community Noise (1999) considers that for speech intelligibility during the daytime and evening periods, internal living room levels should not exceed 35 dB $L_{Aeq\ (0700\text{-}2300)}$.

Table 4.1 - Indoor Ambient Noise Levels as Recommended in BS 8233

Criterion	Typical Situation	Design Range dB $L_{Aeq,T}$	
		GOOD	REASONABLE
Reasonable resting / sleeping conditions	Living rooms	30	40
	Bedrooms*	30	35

* For a reasonable standard in bedrooms at night, individual noise events should not normally exceed 45 dB $L_{AF\ max}$.

4.1.14 With reference to BS 8233 guideline levels, by definition, the 'reasonable' design criteria cannot represent a significant adverse impact (the prevention of which is the 1st aim of NPSE). With cognisance to the 2nd aim of NPSE (to minimise noise impact), the WHO criterion of 35 dB $L_{Aeq,T}$ during the daytime and BS 8233 'good' design criterion of 30 dB $L_{Aeq,T}$ during the night time are considered appropriate.

4.1.15 The WHO Guidelines for Community Noise considers that few people are seriously annoyed by activity with levels below 55 dB L_{Aeq} in the daytime. On this basis, the SOAEL is an unknown value in excess of 55 dB L_{Aeq}. Therefore, utilising 55 dB L_{Aeq} as the target garden criterion achieves the 1st aim of NPSE (avoiding significant impact).

4.2 INTRODUCTION

4.2.1 The potential impact of the existing ambient noise climate on the residential element of the proposed mixed use development has been assessed with reference to the guidance contained within former Planning Policy Guidance 24, 'Planning and Noise' (PPG24).

4.2.2 Consideration has also been given to the potential noise impact of the non-residential aspect of the development on existing and proposed residential uses.

SECTION 5 NOISE IMPACT ASSESSMENT

5.1 PROPOSED RESIDENTIAL DEVELOPMENT

5.1.1 On the basis of the measured daytime and night time ambient noise levels at the application site, and with reference to the proposed site layout, the proposed residential development footprint (MP6, MP7 and MP8) is located within a relatively low ambient noise climate with ambient noise levels less than circa 55 dB $L_{Aeq,T}$ during the daytime and less than circa 45 dB $L_{Aeq,T}$ during the night time. Such low ambient noise levels do not represent any significant impact and therefore it is considered that the proposed residential development footprint is in accordance with the new National Planning Policy Framework (NPPF).

5.1.2 Although Planning Policy Guidance Note 24, 'Planning and Noise' (PPG24) has been superseded by the new NPPF, based on the measured / calculated daytime and night time ambient noise levels, it is noteworthy the proposed residential development footprint within the application site falls within Noise Exposure Category A with the associated advice that '*noise need not be considered a determining factor in granting planning permission*'. This illustrates the relatively low ambient noise levels at this part of the application site.

5.1.3 As a consequence, standard double glazing with standard trickle ventilation is considered appropriate throughout the residential development.

5.2 NOISE ASSOCIATED WITH PROPOSED SUPERMARKET DEVELOPMENT

5.2.1 At the time of writing, given the staged reached for the development proposals, the exact details of the proposed supermarket and petrol filling station (in terms of refrigeration and ventilation plant, car wash facilities, etc.) is not known. Notwithstanding this, the potential noise impact of these uses on adjacent noise sensitive development (existing and proposed residential use) can be mitigated by the appropriate consideration of controls on judicious selection and siting of external fixed plant, boundary screening etc. It is considered that these considerations are all amenable to a suitably worded planning condition.

5.2.2 It is understood that 24/7 servicing hours (i.e. HGV deliveries) are required for the supermarket. It is noteworthy that the supermarket service yard is to be enclosed with a 3 metre high brick wall (and the entrance gates to the yard are a similar height and may be constructed from solid timber i.e. acoustic gates). It is further understood that the adoption of a Service Yard Management Plan (SYMP) is acceptable for night time deliveries (2300 to 0700 hours).

5.2.3 For reference, the nearest proposed residential uses are located circa 47 metres north east of the loading bay and will be wholly screened by the boundary wall (and solid entrance gates).

5.2.4 Based on similar sized supermarkets, in order to provide adequate availability and freshness of products for when the supermarket is open so that consistent availability is maintained throughout the day, it is anticipated that there is a requirement for 6 to 8 HGV deliveries during the daytime period (0700 to 2300 hours) and for 2 to 3 HGV deliveries during the night time period (2300 to 0700 hours). The duration of a HGV delivery is typically around 30 to 45 minutes.

5.2.5 It is considered that with appropriate management controls (a Service Yard Management Plan (SYMP) for night time deliveries), due to the maximum noise levels associated with HGV deliveries, the attenuation provided by the proposed boundary screening and the separation distances involved, there should be no unacceptable loss of amenity at the nearest proposed residential uses associated with night time HGV deliveries to the proposed supermarket.

5.2.6 For reference, ENS has previously measured HGV delivery noise events at a variety of supermarkets. The following worst-case calculations have been based on measurements of refrigerated HGVs delivering consumables. All measurements were undertaken in free-field conditions. In addition to noise from the unloading process, the levels used in the assessment include noise from the vehicle pulling up to the unloading bay, manoeuvring into position and then pulling away once unloading/loading is complete, together with other sources such as trolleys and reversing bleepers.

5.2.7 The equivalent continuous noise level for a HGV delivery event is taken as 70 dB $L_{Aeq\ (1\ hour)}$ at 3 metres distance, which includes for the vehicle arriving and manoeuvring, vehicle unloading, a 15 minute quiet period (associated with documentation and waiting with engine off) and the vehicle departing.

5.2.8 The maximum noise level, which is relevant to potential sleep disturbance associated with night time deliveries, is taken as 85 dB L_{AFMax} at 3 metres distance.

5.2.9 The attenuation calculations are based on the delivery events being modelled as a point source (with a 6 decibel reduction per doubling of distance).

5.2.10 The screening attenuation calculations are based on British Standard 5228:2009 Part 1 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' (BS 5228) which states '*In the absence of spectral data, as a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver. High topographical features and specifically designed and positioned noise barriers could provide greater attenuation.*' For the purpose of the assessment, based on the primary noise source being the vehicle engine and the unloading of goods, 10 decibels attenuation has been assumed for the 3 metre high solid brick wall.

5.2.11 On the basis of the above, the predicted noise levels at the nearest proposed residential uses (located circa 47 metres from the loading bay) associated with an HGV delivery are:

- 36 dB $L_{Aeq\ (1\ hour)}$ during the daytime period (70 dB $L_{Aeq\ (1\ hour)}$ at 3 metres less 24 decibels distance attenuation less 10 decibels screening attenuation); and
- 51 dB L_{AFMax} during the night time period (85 dB L_{AFMax} at 3 metres less 24 decibels distance attenuation less 10 decibels screening attenuation).

5.2.12 BS 8233 suggests that a typical façade, regardless of construction, will offer a maximum sound reduction of 15 decibels when windows are open. Based on the widely used and conservative reduction of 12 decibels due to a partially open window, the predicted noise levels inside the nearest proposed residential uses (located circa 47 metres from the loading bay) associated with an HGV delivery are:

- 24 dB $L_{Aeq\ (1\ hour)}$ during the daytime period; and
- 39 dB L_{AFMax} during the night time period.

5.2.13 The predicted noise levels inside the nearest proposed residential uses (located circa 47 metres from the loading bay) associated with an HGV delivery are circa 5 decibels less than the BS 8233 guideline levels for good resting and sleeping conditions (which are comparable to the WHO guideline levels).

5.2.14 Quiet delivery practices typically reduce noise levels by a further 5 to 10 decibels. It is therefore proposed that, for additional robustness, a Service Yard Management Plan (SYMP) shall be adopted for HGV deliveries during the night time period (2300 to 0700 hours).

5.2.15 The objective of the SYMP will be to ensure that the service yard operates efficiently and effectively, thereby minimising any incidence of potential disruption on the highway and noise disturbance to the nearest proposed residential uses.

5.2.16 The SYMP will formalise a number of management and operations measures to reduce noise levels as follows:

The Journey

- During the final approach to the store, refrigeration units within vehicles will be switched off and remain switched off during unloading; and
- When within the service yard, vehicles will switch off their engines; and
- Access into the service yard should be unrestricted. However, if entry is restricted, vehicles should stop; switch off engines, radios and headlights, and contact store staff
- Entrance gates should be shut once the vehicle arrives

Within the Service Yard

- Vehicle radios will be switched off;
- Vehicle headlights will be switched off when stationary and vehicle lights will be used for vehicle manoeuvring only, to aid safe movement;
- The use of external alarms or speakers will be prohibited within the service yard;
- Drivers will be advised to use signage within and outside the yard, reminding *staff and drivers to be quiet at all times*;
- Noise generation from vehicle manoeuvring into loadings to be kept to a minimum;
- Vehicle reversing 'audible warning' (unless a white noise broad band alarm) to be switched off during night time periods (i.e. when dark), without compromising safety;
- At all times drivers will be advised to: engage gears within minimal noise; keep engine revs to a minimum; apply brakes gently; and close doors with minimal noise.

Unloading

- Drivers should ensure that engine and refrigeration units are switched off once vehicle the vehicle is stationary and in the unloading position;
- Drivers should seek to: lower loading plates into the correct position with minimal noise; avoid making contact with trailer walls, lift guardrails and other obstructions; and maintain conversation to a minimum;

Return Journey

- All vehicle doors will be closed with minimal noise;
- Drivers should refrain from starting up vehicle refrigeration units (if required) until the vehicle is a reasonable distance from the store and neighbouring dwellings;
- Drivers should seek to: engage gears within minimal noise; keep engine revs to a minimum; apply brakes gently; and accelerate gently until the vehicle is a reasonable distance from the store.

5.2.17 It is therefore considered that with appropriate management controls (a SYMP for night time deliveries), due to the maximum noise levels associated with HGV deliveries, the attenuation provided by the proposed boundary screening and the separation distances involved, there should be no unacceptable loss of amenity at the nearest proposed residential uses associated with night time HGV deliveries to the proposed supermarket.

5.2.18 In summary, in accordance with the new National Planning Policy Framework, it is considered the 24/7 servicing arrangements should avoid noise from giving rise to significant adverse impacts on health and quality of life.

5.2.19 Due to the separation distances involved, screening and the inherently 'quieter' nature of fuel deliveries, there should be no unacceptable loss of amenity at the nearest (existing and proposed) residential uses associated with night time fuel tanker deliveries to the proposed petrol filling station.

5.2.20 Due to the separation distances and screening involved, there should be no unacceptable loss of amenity at the nearest (exiting and proposed) residential uses associated with the proposed opening hours of the petrol filling station.

5.2.21 In order to assess the noise impact on the nearest (existing and proposed) residential uses, a supplementary noise survey was undertaken by ENS at a distance of 10 metres from an existing 'pay at pump' petrol filling station outside Doncaster. It is noted that the measurements made by ENS included other noise sources such as distant road traffic (notably from the M18 motorway, resulting in high background noise levels), and the actual impact of the PFS may be lower.

5.2.22 It was concluded from the survey that the maximum noise levels associated with the use of the petrol station are as follows: 59 dB L_{AFMax} at 10 metres associated with a car using the petrol filling station; and 68 dB L_{AFMax} at 10 metres associated with a HGV using the petrol filling station.

5.2.23 Based on the above maximum noise levels, and treating the PFS as a point source (i.e. 6 decibel attenuation per doubling of distance), and 10 decibels screening attenuation due to the proposed boundary treatment, the predicted maximum noise levels associated with the proposed petrol filling station (opening 30 minutes into the (beginning and end of the) night time period) is 35 dB L_{AFMax} and 44 dB L_{AFMax} outside the nearest (existing and proposed) residential uses for a car and a HGV, respectively. Such levels are considered negligible.

5.2.24 With reference to the proposed supermarket car park, ENS has previously undertaken noise measurements 10 metres from the boundary of a busy supermarket car park and the measured noise levels were of the order of 48 dB $L_{Aeq\ (1\ hour)}$.

5.2.25 Considering the number of car parking bays, the separation distances involved and/or the ambient daytime noise level (dominated by local road traffic), it is considered that the main customer car park will have a negligible noise impact on the amenity of the surrounding (existing and proposed) residential uses.

5.3 NOISE ASSOCIATED WITH DEVELOPMENT RELATED TRAFFIC

5.3.1 As can be seen from the proposed site layout plan contained in Appendix 2, vehicular access into the application site will be from two locations. The first access will be via a new mini roundabout on The Lane and this will allow for two way vehicle movements between the application site and Midland Road. A secondary one-way vehicle entry will be provided at the existing school access on Midland Road. It should also be noted that the ambient noise climate in this area of the application site is relatively high (circa 67 dB $L_{Aeq,T}$ during daytime at MP3 off Midland Road).

5.3.2 In addition to these two accesses, it will also be possible for vehicles to connect with the existing residential area on Ruston Drive from within the application site.

5.3.3 In order to assess the noise impact of development related traffic on the existing residential use that surrounds the application site, reliance has been placed on the information provided by Pell Frischmann for the proposed mixed use development.

5.3.4 The assessment predicts the base traffic flows on the surrounding roads, in addition to the traffic flows associated with the proposed mixed use development, for the year 2013. For the purpose of the noise impact assessment, the Annual Average Daily Traffic (AADT) for the year 2013 has been used.

5.3.5 The 2013 AADT at the primary two-way access at the junction between The Lane and Midland Road (which is moderately trafficked) is 4,204 vehicles in the absence of the proposed development, which increases to 6,631 with the proposed development; a circa 58 percent increase in traffic volume. In terms of the increase in road traffic noise levels, in accordance with the Department of Transport's Memorandum on the Calculation of Road Traffic Noise (CRTN), this represents a circa 2.0 decibels increase (10*log(6,631/4,204)).

5.3.6 The 2013 AADT at the secondary one-way access at the junction between the southern site access (entrance to the former school) and Midland Road (which is moderately trafficked) is 5,883 vehicles in the absence of the proposed development, which increases to 8,475 with the proposed development; a circa 44 percent increase in traffic volume. In terms of the increase in road traffic noise levels, in accordance with the Department of Transport's Memorandum on the Calculation of Road Traffic Noise (CRTN), this represents a circa 1.6 decibels increase (10*log(8,475/5,883)).

5.3.7 Noise effects arising from road traffic have been assessed in accordance with the significance criteria detailed in the following table.

Table 5.1 – Impact Significance Criteria for Road Traffic Noise

Noise Level Increase (dB(A))	Subjective response	Impact Significance
0.0 – 2.9	Barely perceptible	Negligible
3.0 – 4.9	Noticeable	Minor Adverse
5.0 – 9.9	Up to a doubling in loudness	Moderate Adverse
10.0 and more	More than a doubling in loudness	Major Adverse

5.3.8 The criteria provided in the above table are derived by considering how changes in noise levels can be categorised by significance based on key benchmarks that relate to human perception of sound. For example, PPG24 states that a 3 decibel increase in noise levels is generally considered to be the smallest change in noise which is perceptible, whilst a 10 decibel increase in noise levels represents a doubling of loudness.

5.3.9 In accordance with the impact significance criteria, the predicted increase in road traffic noise due to the proposed development is considered to represent a negligible impact.

SECTION 6 CONCLUSIONS

6.1 A noise impact assessment has been undertaken for a proposed mixed use development at land at Midland Road, Royston, Barnsley.

6.2 The main aim of the assessment was to determine the potential impact of the existing ambient noise climate on the residential element of the proposed mixed use development. Consideration has also been given to the potential noise impact of the proposed supermarket and petrol filling station on the surrounding (existing and proposed) land uses, which are primarily residential uses.

6.3 The ambient noise climate at the application site is that of local and distant road traffic noise, with localized noise contributions from the nearby employment uses.

6.4 With reference to the proposed site layout, the residential development footprint is located in a low ambient noise climate. In accordance with the requirements of the new National Planning Policy Framework, significant adverse noise impact will not arise. Furthermore, although Planning Policy Guidance Note 24 'Planning and Noise' (PPG24) has been superseded by the new NPPF, based on the measured / calculated daytime and night time ambient noise levels, it is noteworthy the proposed residential development footprint within the application site falls within Noise Exposure Category A with the associated advice that '*noise need not be considered a determining factor in granting planning permission*'. This illustrates the relatively low ambient noise levels at this part of the application site. As a consequence, standard double glazing with standard trickle ventilation is considered appropriate throughout the residential development.

6.5 At the time of writing, given the stage reached for the development proposals, the exact details (in terms of refrigeration and ventilation plant, car wash facilities etc) of the proposed supermarket and petrol filling station is not known. Notwithstanding this, the potential noise impact of these uses on adjacent noise sensitive development (existing and proposed residential use) can be mitigated by the appropriate consideration of controls on judicious selection and siting of external fixed plant, boundary screening etc. It is considered that these considerations are all amenable to a suitably worded planning condition.

6.6 It is understood that the proposed servicing hours of the supermarket are 24/7. The supermarket service yard is to be enclosed with a 3 metre high brick wall (and the entrance gates to the yard are a similar height and may be constructed from solid timber i.e. acoustic gates). For reference, the nearest proposed residential uses are located circa 47 metres north east of the loading bay and will be wholly screened by the boundary wall (and solid entrance gates). It is considered that with appropriate management controls, due to the attenuation provided by the proposed boundary screening and the separation distances involved, there should be no unacceptable loss of amenity at the nearest proposed residential uses associated with night time HGV deliveries to the proposed supermarket.

6.7 Due to the separation distances and screening involved, there should be no unacceptable loss of amenity at the nearest existing and proposed residential uses associated with night time fuel tanker deliveries to the proposed petrol filling station.

6.8 Due to the separation distances and screening involved, there should be no unacceptable loss of amenity at the nearest existing and proposed residential dwellings associated with proposed opening hours of the petrol filling station.

6.9 Based on the ambient noise climate at the access routes into the application site, in addition to the development-led traffic, the predicted increase in road traffic noise due to the proposed development is considered to represent a negligible impact.

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APPENDIX 1 ▪ Glossary of Acoustic Terms

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APPENDIX 1 GLOSSARY OF TERMS

Sound Pressure Level (L_p)

The basic unit of sound measurement is the sound pressure level. As the pressures to which the human ear responds can range from 20 μPa to 200 Pa, a linear measurement of sound levels would involve many orders of magnitude. Consequently, the pressures are converted to a logarithmic scale and expressed in decibels (dB) as follows:

$$L_p = 20 \log_{10}(p/p_0)$$

Where L_p = sound pressure level in dB; p = rms sound pressure in Pa; and p_0 = reference sound pressure (20 μPa).

A-weighting Network

A frequency filtering system in a sound level meter, which approximates under defined conditions the frequency response of the human ear. The A-weighted sound pressure level, expressed in dB(A), has been shown to correlate well with subjective response to noise.

Equivalent continuous A-weighted sound pressure level, $L_{Aeq, T}$

The value of the A-weighted sound pressure level in decibels of continuous steady sound that within a specified time interval, T, has the same mean-square sound pressure as a sound that varies with time. $L_{Aeq, 16h}$ (07:00 to 23:00 hours) and $L_{Aeq, 8h}$ (23:00 to 07:00 hours) are used to qualify daytime and night time noise levels.

$L_{A10, T}$

The A-weighted sound pressure level in decibels exceeded for 10% of the measurement period, T. $L_{A10, 18h}$ is the arithmetic mean of the 18 hourly values from 06:00 to 24:00 hours.

$L_{A90, T}$

The A-weighted sound pressure level of the residual noise in decibels exceeded 90% of a given time interval, T. L_{A90} is typically taken as representative of background noise.

$L_{AF\ max}$

The maximum A-weighted noise level recorded during the measurement period. The subscript 'F' denotes fast time weighting, slow time weighting 'S' is also used.

Sound Exposure Level (SEL or L_{AE})

The energy produced by a discrete noise event averaged over one second, no matter how long the event actually took. This allows for comparison between different noise events which occur over different lengths of time.

Weighted Sound Reduction Index (R_W)

Single number quantity which characterises the airborne sound insulation properties of a material or building element over a defined range of frequencies (R_W is used to characterise the insulation of a material or product that has been measured in a laboratory).

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APPENDIX 2 ▪ Drawings



North

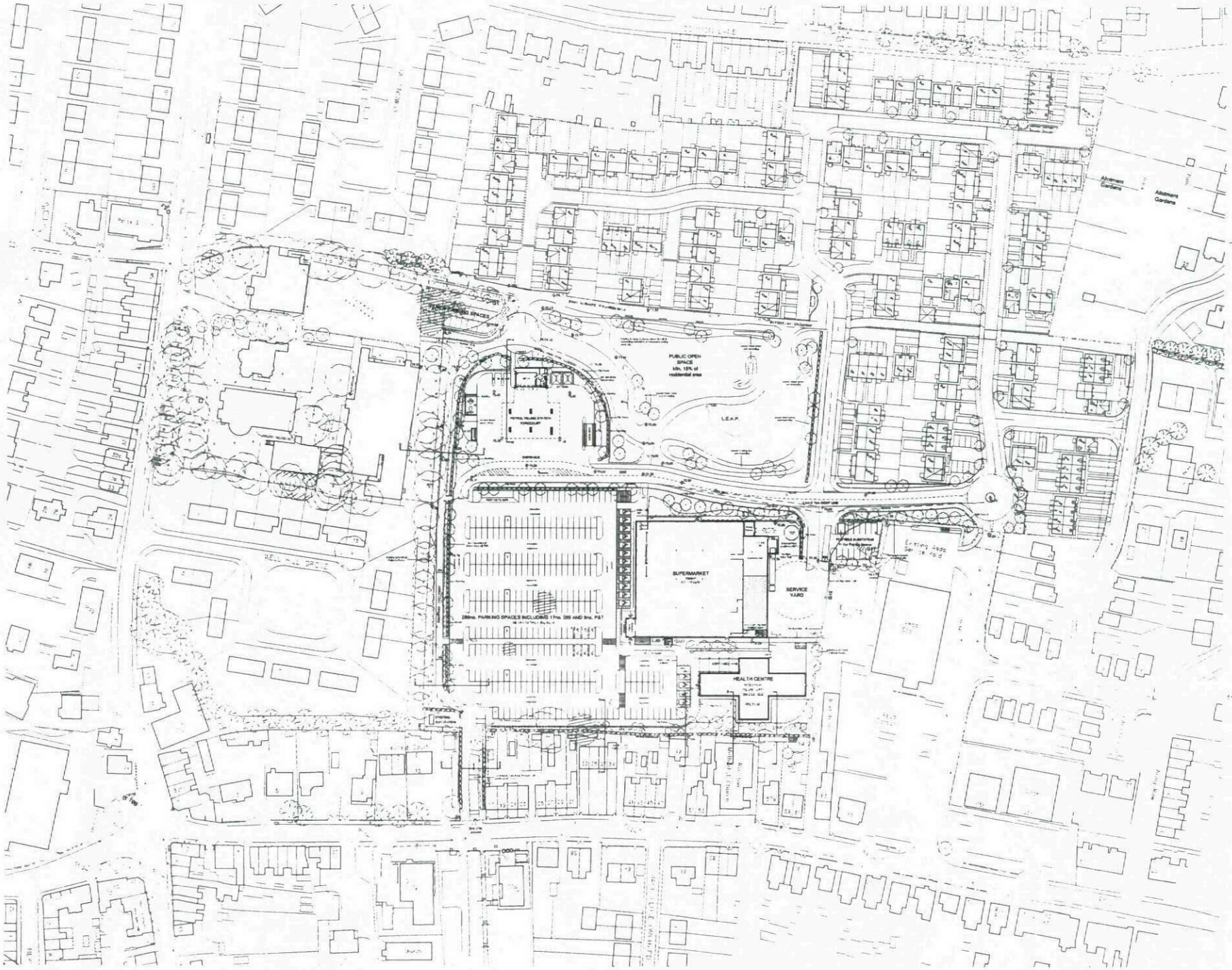
Approx site area: 7.12 Hectares
17.59 Acres

Application Boundary

Project/Client: Proposed Mixed Use Development Midland Road Royston		Project No: 2111031	
		Dwg No: AD (00) 01	
		Rev: -	
Drawing: Site Location Plan		Scale: 1:2000 @A3	
		Drawn By: JJH	Date: NOV '12
		Checked By: RH	Date: NOV '12

ARCH L

Tel: +44 (0)113 388 4330



NOTES
1. FOR TREE SURVEY NOTES SEE ACCOMPANYING JAMES ROYSTON ARBORICULTURAL SURVEY
2. FOR DETAILED LANDSCAPING PROPOSALS SEE SHEEGEN FOREMAN LANDSCAPE MASTERPLAN

LEGEND

- PROPOSED TREE
- EXISTING SURVEYED TREE TO BE RETAINED
- EXISTING TREE (NOT SURVEYED) TO BE RETAINED
- EXISTING SURVEYED TREE TO BE FELLED
- EXISTING LANDSCAPE
- PROPOSED HEDGEROW
- PROPOSED SENSE PLANTING

SCHEDULE OF RESIDENTIAL ACCOMMODATION

☆ AFFORDABLE HOME ALLOCATION

Housetype	Total
Chamberlain 2 Storey 4 Bed Detached House	9 No.
Crathorne 2 storey 4 Bed Detached House	9 No.
Baudberry 2 Storey 4 Bed Detached House	18 No.
Seaton 2.5 Storey 5 bed Semi Detached Turnstall House	17 No.
Lumley 2.5 Storey 5 Bed Detached No. 14	7 No.
Rufford 2 Storey 3 bed Detached House	12 No.
Rufford Semi 2 Storey 3 bed Semi Detached	28 No.
Hamberry 2 Storey 3 bed Semi Detached	36 No.
Sevick 2.5 Storey 4 bed Semi Turnstall	11 No.
Skipton 2 Storey 3 bed Semi Turnstall	10 No.

Total 143 units

KEY AND BOUNDARY TREATMENT

- DENOTES 900 HIGH CLOSE BOARDED FENCE
- DENOTES 900 HIGH 2 RAIL POST AND RAIL 'T' BEAM FENCE
- DENOTES 1800 HIGH SCREEN WALL FENCE
- DENOTES 900 HIGH RAILINGS
- DENOTES BRICK SCREEN WALL 200mm WIDE AT PLINTH
- 600 TIMBER KNEE RAIL POST TO TOP
- EXISTING 2.4m HIGH GREEN METAL PALISADE FENCE TO REMAIN
- EXISTING 1.8m BRICK WALL TO REMAIN
- EXISTING 1.8m BRICK WALL TO REMAIN

PLANNING

Proposed Mixed Use Development Midland Road, Royston	Dwg. No. 211/021
	Dwg. No. AD (00) 02
Proposed Site Layout Plan	Scale 1:500 @A1
	Drawn JJR Date NOV 12
	Checked Date
	Rev. NOV 12

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PROPOSED SITE LAYOUT WITH APPROXIMATE NOISE MONITORING POSITIONS

