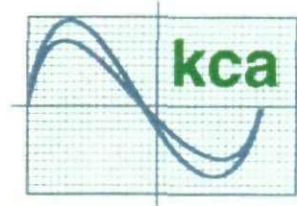


**KIRBY CHARLES ASSOCIATES LTD**  
**Acoustic Consultants**

Wellow Hall Cottage, Wellow, Newark, Nottinghamshire. NG22 0EA  
Telephone/Fax: (01623) 862925 Mobile: 07885 292856  
E-Mail Address: kcapaulhubbard@aol.com



25<sup>th</sup> May 2010

Mr R Beevers  
Ben Bailey Homes  
First Floor, ICON  
First Point  
Balby Carr Bank  
Doncaster  
DN4 5JQ

Dear Mr Beevers

**Ref: 'Summervale' Residential Development Site, Doncaster Road, Goldthorpe.**

Further to our recent telephone conversation with regard to your queries concerning the proposed revised site layout (Ref: Revised Site Layout Drawing No 2101/01 Revision Z, Dated 20<sup>th</sup> May 2010), please find below our response:

- i. It is our understanding that the adjacent land to the west of the 'Summervale' site is now to be developed for housing, rather than the initially planned employment use, and that the southern section is complete and the houses occupied, i.e. Plots 10 to 123 occupied.
- ii. Condition 36 of the 'Summervale' Planning Permission states:  
  
*'36. All habitable room windows (i.e. living room, bedroom, kitchen, dining room, study, bathroom) in the new dwellings facing the main access road shall be installed with glazing capable of a minimum of 34 dB attenuation and acoustic trickle vents.'*
- iii. The houses facing onto the main access road have been constructed with the required acoustically enhanced windows / trickle vents and therefore Condition 36 of the Planning Permission has been fully complied with, excepting for Plots 1 to 5.



- iv. With regard to Plots 1 to 5, in strict compliance with the requirements of Condition 36 these Plots shall be fitted with the same mitigation measures as the completed houses facing the access road, i.e. glazing of minimum specification 6mm glass x 16mm air-gap x 6.8mm glass and acoustic vents with an element-normalised sound level difference ( $D_{n,e}$ ) of 38 dB(A) minimum, with the vent in the fully open position.
- v. With regard to the remaining (to be constructed) Plots on the 'Summervale' development site, no further noise mitigation measures are required to satisfy Planning Permission Conditions.

I trust this answers your queries, however, please do not hesitate to contact me should you wish to discuss further.

Yours sincerely

P F Hubbard



Planning, Transport  
and Environment

NOISE IMPACT ASSESSMENT  
FORMER GOLDTHORPE COLLIERY  
AND ADJACENT LAND OFF DONCASTER ROAD,  
GOLDTHORPE, BARNSLEY

RPS Consultants  
Planning, Transport and Environment  
34 Lisbon Street  
Leeds  
LS1 4LX

Telephone: (0113) 2206190 Facsimile: (0113) 2439161

RPS Ref: AEC/DLN0310  
Date: 27 June 2005

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## APPENDICES

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## SECTION 1: INTRODUCTION

1.1 Following the submission of a planning application for a mixed-use residential and employment site on the former Goldthorpe Colliery and adjacent land off Doncaster Road, Goldthorpe, Barnsley, the Local Authority Environmental Health Department expressed concerns about the potential conflict between the existing and proposed residential use and the proposed industrial uses.

1.2 In order to address these concerns and ensure that there would not be an adverse impact due to noise, the following draft conditions in respect of noise were recommended by the Local Authority, subject to RPS's proposed amendments shown in square brackets:

*"27 The applicant shall provide a report detailing the physical mitigation measures and management practices to be employed to ensure that the impact of noise, fumes/odour and dust from the proposed industrial units, service areas and access roads does not cause disamenity to existing residential properties (Frederick Street, Beever Street, Cross Street, Claycliffe Terrace and Doncaster Road) or the proposed housing development to the east of the site. The report shall also detail mitigation measures to reduce the likelihood of noise nuisance from existing and proposed nearby [employment] use and traffic noise to residents of the proposed residential development. The report shall be submitted to the LPA for approval prior to any work on the proposed [employment] development commencing and the operations shall be undertaken in complete accordance with the approved scheme.*

*In the interests of the amenities of existing and future residents*

**28** *Noise levels arising from the use of the proposed [employment] units shall not give rise to site attributable noise levels in excess of 35dB dB LAeq (1 hour) and 45 dB LA maximum [within bedrooms] and 40 dB LAeq (1 hour) within living rooms between 23.00 and 07.00 hours when measured with windows closed, from existing residential properties [on Frederick Street, Beever Street, Cross Street, Claycliffe Terrace and Doncaster Road] and the proposed residential properties [east of the site access road].*

*In the interests of the amenities of existing and future residents*

- 29 Noise levels arising from the use of the proposed industrial units shall not give rise to site attributable noise levels in excess of 55dB LAeq (16 hour) free field within [the living areas of rooms of] existing residential properties [on Frederick Street, Beaver Street, Cross Street, Claycliffe Terrace and Doncaster Road] and the proposed residential properties [east of the site access road].

*In the interests of the amenities of existing and future residents*

- 30 The residential development shall be carried out in accord with recommendations set out in the 'Guide to Noise and Vibration Control on Construction and Open Sites' BS 5228: Parts I and II 1997.

*In the interest of the amenities of existing and future residents*

- 31 Prior to the commencement of [employment] building operations, an [Employment] Development Noise Action Plan shall have been submitted to and approved in writing by the Local Planning Authority detailing the measures to control noise emanating from the [employment] building operations on the site. Taking into account guidance in the 'Guide to Noise and Vibration Control on Construction and Open Sites' BS 5228: Parts I and II 1997. Such measures may include noise reduction measures to individual items of plant and machinery, the use of acoustic barriers, detail the normal hours of such operations including impact piling and vehicular access routes. The [employment] building operations shall be carried out in accordance with the approved [Employment] Development Noise Action Plan.

*In the interest of amenities of existing and future residents."*

- 1.3 The Leeds Acoustics Group of RPS Consultants have been commissioned by Ben Bailey Homes Limited to undertake an assessment of noise impacts associated with the proposed employment development on the existing and the proposed residential properties and to address the concerns of the Local Authority.

- 1.4 The assessment incorporates the following sections:

- **Baseline Conditions** – incorporating the collection of daytime ambient noise level data via noise surveys in order to determine the existing baseline noise climate at potentially sensitive receptors in the vicinity of the site;
- **Predicted Impacts** - quantitative and qualitative assessment of noise levels at potentially sensitive local receptors during the construction and operational phases of the development and determination of the significance of the impacts;

- **Mitigation Measures** - provision of proposals for mitigation measures, where appropriate, in order to minimise any potential negative impacts arising from the development;
- **Residual Impacts** – prediction of any impacts, which may remain as a result of the development following implementation of mitigation measures.

---

## SECTION 2: DESCRIPTION OF SITE

- 2.1 The proposed mixed-use site is located to the south of Doncaster Road, Goldthorpe to the west of Barnsley Town Centre.
- 2.2 The site is located within an area which is mainly residential with some industrial units to part of the western boundary.

## SECTION 3: NOISE STANDARDS AND POTENTIAL IMPACTS

3.1 The Department of the Environment Planning Policy Guidance Note PPG24: 'Planning and Noise' gives guidance to local authorities on the use of their planning powers to minimise the adverse impact of noise.

3.2 Typical every day noise levels are presented in Table 3.1 below:

Table 3.1: Typical noise levels in dB(A)

| Sound Pressure Level, dB(A) | Typical Environment | Subjective Description |
|-----------------------------|---------------------|------------------------|
| Traffic at kerb edge        | 70 – 85             | Loud                   |
| Raised voice at 1 metre     | 80                  | Loud                   |
| Normal voice at 1 metre     | 60                  | Moderate               |
| Residential area at night   | 40                  | Quiet                  |

### a) Road Traffic Noise

3.3 In respect of road and rail noise effects on residential properties PPG24 states that:

*"1. When assessing a proposal for residential development near a source of noise, local planning authorities should determine into which of the four noise exposure categories (NECs) the proposed site falls, taking into account both the day and night-time noise levels."*

3.4 The NECs are:

*"A - Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level."*

*B - Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise."*

*C - Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise."*

*D - Planning permission should normally be refused."*

3.5 Table 3.2 below shows the noise levels corresponding to these noise exposure categories for road, rail, air and mixed source.

Table 3.2: PPG24 Noise Exposure Categories

| NOISE LEVELS CORRESPONDING TO THE NOISE EXPOSURE CATEGORIES<br>FOR NEW DWELLINGS $L_{AEQ,T}$ dB, PPG 24 |                         |         |         |     |
|---------------------------------------------------------------------------------------------------------|-------------------------|---------|---------|-----|
| NOISE SOURCE                                                                                            | NOISE EXPOSURE CATEGORY |         |         |     |
|                                                                                                         | A                       | B       | C       | D   |
| Road Traffic                                                                                            |                         |         |         |     |
| 07:00 – 23:00                                                                                           | < 55                    | 55 – 63 | 63 – 72 | >72 |
| 23:00 – 07:00                                                                                           | < 45                    | 45 – 57 | 57 – 66 | >66 |
| Rail Traffic                                                                                            |                         |         |         |     |
| 07:00 – 23:00                                                                                           | < 55                    | 55 – 66 | 66 – 74 | >74 |
| 23:00 – 07:00                                                                                           | < 45                    | 45 – 59 | 59 – 66 | >66 |
| Air Traffic                                                                                             |                         |         |         |     |
| 07:00 – 23:00                                                                                           | <57                     | 57 – 66 | 66 – 72 | >72 |
| 23:00 – 07:00                                                                                           | <47                     | 47 – 59 | 59 – 68 | >68 |
| Mixed Sources                                                                                           |                         |         |         |     |
| 07:00 – 23:00                                                                                           | < 55                    | 55 – 63 | 63 – 72 | >72 |
| 23:00 – 07:00                                                                                           | < 45                    | 45 – 57 | 57 – 66 | >66 |

3.6 Further, PPG24 states in Annex 2 that:

**“Daytime**

*There is no recent, major, U.K. based research from which to take figures for road or rail traffic. The level at the boundary of NEC A and NEC B is therefore based on guidance provided by the World Health Organisation that ‘general daytime outdoor noise levels of less than 55 dB(A)  $L_{eq}$  are desirable to prevent any significant community annoyance”*

**“Night-time**

*As for daytime, there is no recent, major, U.K. based research from which to take figures for road or rail traffic. There has been research on the effects of aircraft noise, most recently on sleep disturbance, which looks at noise levels at which people are awoken from sleep. The night-time noise level at the boundary of NEC A and NEC B is based on the WHO guideline previously referred to which states that for night-time: ‘based on limited data available, a level of less than 35 dB(A) is recommended to preserve the restorative process of sleep’ and this is considered more relevant when seeking to achieve the best practicable conditions for rest and sleep.”*

- 3.7 In respect of changes in road traffic noise due to proposals, research carried out in the late 1960's and early 1970's into the effects of road traffic on occupiers of residential properties showed that the  $L_{A10, 18 \text{ hour}}$  index correlated well with dissatisfaction. This has become the accepted index for assessing road traffic noise in respect of dissatisfaction and annoyance and is the noise level exceeded for 10% of each hour averaged over the period 06.00 hours to 24.00 hours.
- 3.8 It has also been established that the percentage of people 'bothered' by noise is not directly proportional to the change in noise levels but is a function of the actual levels they are exposed to.
- 3.9 An indication of the nuisance from road traffic noise is given in the Department of Transport Design Manual for Road and Bridges (DMRB), Volume 11, Environmental Assessment Section 3, Part 7, Chapter, which states that:

*"3.5 In recent years, evidence has also been accumulating from surveys before and after sudden changes in noise exposure. It indicates that people are more sensitive to abrupt changes in traffic noise associated with new road schemes than would be predicted from the steady state evidence. In the period following a change in traffic flow, people may find benefits or disbenefits when the noise changes are as small as 1 dB(A) - equivalent to an increase in traffic flow of 25% or decrease in traffic flow of 20%. These effects last for a number of years. In the longer term, perceived noise nuisance may tend towards the steady state level associated with the new noise exposure."*

- 3.10 An estimation of the percentage of people bothered by road traffic noise is given in Figure 2 of DMRB Vol. 11 Section 3, Part 7, and the change in the percentage of people bothered by road traffic noise immediately after an abrupt change is given in Figure 3 of the above publication.
- 3.11 Whilst the existing traffic noise can be measured, the actual level received at each property can be influenced by many factors, in particular weather, and as a result can vary significantly from day to day. The Department of Transport publication 'Calculation of Road Traffic Noise', 1988 (CRTN) gives a consistent approach to the prediction of road traffic noise at receiver points using current and predicted traffic flows and considers the traffic flow over an 18 hour period. The methodology also applies corrections for the numbers of heavy goods vehicles, vehicle speeds, gradient of roads etc.

3.12 The procedures contained in CRTN will be used in this assessment to establish the change in annoyance of nearby existing residents following opening of the proposed development.

3.13 The calculations cover the different traffic scenarios of 'do-minimum', i.e. no new scheme, and 'do-something', i.e. with the scheme in place.

3.14 The impact of noise levels at potentially sensitive receptors due to changes in road traffic after completion have been classified as follows:

- **Severe** Changes in annoyance greater than 75%
- **Moderate** Changes in annoyance greater than 50%
- **Slight** Changes in annoyance greater than 25%
- **Negligible** Changes in annoyance less than 25%

b) Construction Noise and Vibration

3.15 With respect to noise from construction sites, the British Standard BS5228: 1997: Noise and Vibration Control on Construction and Open Sites - Part 1: Code of Practice for Basic Information and Procedures for Noise and Vibration Control is referenced.

3.16 The Standard refers to the need for the protection against noise of persons living and working in the vicinity of, and those working on, such sites.

3.17 Guidance regarding acceptable vibration levels in buildings is contained in the British Standard BS6472: 1992 - Evaluation of Human Exposure to Vibration in Buildings (1Hz to 80 Hz).

3.18 The impact of predicted noise levels at potentially sensitive receptors during construction have been classified as follows:

- **Severe** Façade noise levels greater than 75 dB  $L_{Aeq, 1 \text{ hour}}$
- **Moderate** Façade noise levels between 65 and 75 dB  $L_{Aeq, 1 \text{ hour}}$
- **Slight** Façade noise levels between 55 and 65 dB  $L_{Aeq, 1 \text{ hour}}$
- **Negligible** Façade noise levels below 55 dB  $L_{Aeq, 1 \text{ hour}}$

c) Operational Usage of the Employment Site

3.19 In relation to noise from industrial and commercial developments, the Local Authority recommendations are:

- 35 dB(A) Leq(1 hour) and 45 dB(A) LA maximum and 40 dB(A) Leq(1 hour) within living rooms between 23.00 and 07.00 hours when measured with the windows closed, from existing properties and the proposed residential properties.
- External noise levels at properties shall not exceed 55 dB(A) Leq (16 hour).

## SECTION 4: BASELINE CONDITIONS - EXISTING NOISE CLIMATE

### a) Baseline Noise Survey

- 4.1 In order to establish the existing noise climate at nearby potentially sensitive receptors, noise monitoring was carried out within the development site at representative site boundary positions in the vicinity of a selection of properties.
- 4.2 A 24-hour ambient noise monitoring survey was undertaken on 21 April 2005 and 22 April 2005 at 2 no. monitoring locations, in order to allow collection of 1-hour of noise level data and provide an indication of noise levels in the vicinity of the following locations:
- Location 1 – Approximately 23 metres from Doncaster Road
  - Location 2 – Bottom of Beevers Street, Goldthorpe
- 4.3 The above monitoring locations are highlighted on Figure 4.1.
- 4.4 Weather conditions during the surveys were in accordance with the advice and guidance given in B.S.4142 although the wind speed at times was recorded at 2/3ms remaining well within the reasonable limits of 5ms<sup>-1</sup>.
- 4.5 Instrumentation used during the survey was a Quest 1900 Precision Integrating Logging Sound Level Meter (Serial No. CC5050009), mounted on a tripod ~1.5m above ground level and set to measure  $L_{Aeq}$ ,  $L_{A90}$ ,  $L_{A10}$  and  $L_{Amax}$  with a 'fast' time constant and with a dynamic range of 30 - 90 dB. The instrument was calibrated before and after each survey using an acoustic calibrator (Serial No. QE 40 20009). No significant deviations were noted.

### b) Noise Survey Results

- 4.6 A summary of the measured noise level data is presented in Table 4.1 below, together with a subjective assessment of the key noise sources operating in the area at the time of the survey.

Table 4.1: Summary of Measured Noise Level Data

| Location                      | Date     | Time        | Measured Noise Level (dB) |                  |                  |                   | Subjective Assessment of Key Noise Sources |
|-------------------------------|----------|-------------|---------------------------|------------------|------------------|-------------------|--------------------------------------------|
|                               |          |             | L <sub>Aeq</sub>          | L <sub>A90</sub> | L <sub>A10</sub> | L <sub>Amax</sub> |                                            |
| 23 metres from Doncaster Road | 21.04.05 | 05.54-09.55 | 56.3                      | 45.1             | 60.0             | 78.7              | Traffic on Doncaster Road                  |
|                               | 22.04.05 | 01.46-02.48 | 43.3                      | 31.2             | 43.3             | 69.7              |                                            |
| Bottom of Beevers Street      | 22.04.05 | 02.53-03.54 | 36.5                      | 29.0             | 37.1             | 62.0              | Activity within coal yard after 06.40      |
|                               | 22.04.05 | 05.54-09.56 | 50.3                      | 37.3             | 45.4             | 79.4              |                                            |

- 4.7 In general, the baseline noise climate to the rear of properties and Doncaster Road was influenced predominantly by road traffic whilst at the bottom of Beevers Street the noise climate was influenced by road/rail traffic and activities in the coal yard between 06.40 and 09.56.

## SECTION 5: PREDICTED IMPACTS INCORPORATING MITIGATION AND RESIDUAL IMPACTS

5.1 The proposed development of the mixed-use site has the potential to impact upon existing and proposed local receptors due to a change in the existing noise climate. Impacts both in the short-term and long-term during construction and operational phases. The magnitude and significance of the impacts will be evaluated further in this section.

### a) Operation - Identified Potential Impacts

5.2 The key operational impacts, which may arise as a result of the development are considered to be:

- Increased road traffic noise due to development traffic at local receptors
- Noise from vehicular traffic movements and car park usage on-site
- Usage of the proposed employment units

5.3 When undertaking assessment of the on-site noise sources, approximate distance measurements have been taken from drawing number DLA1838-10 between the receptors and the nearest section of the site where the noise source identified could reasonably operate.

5.4 Below is presented an assessment of each of the potential impacts noted above.

#### i) Increased Road Traffic Noise Due Development Traffic at Local Receptors

5.5 A Transport Assessment (TA) has been undertaken in order to determine the potential impact on the local highway network due to traffic flow changes associated with the development.

5.6 The nearest potentially sensitive receptors to the site, which lie adjacent to the proposed main highway network, are located to the south of Doncaster Road immediately adjacent to the main access road and these have been chosen for assessment.

5.7 The impact of noise levels at NSRs due to changes in road traffic after completion were classified as follows:

- **Major** Changes in annoyance greater than 75%
- **Moderate** Changes in annoyance greater than 50%
- **Minor** Changes in annoyance greater than 25%
- **Negligible** Changes in annoyance less than 25%

5.8 When undertaking road traffic noise assessments, it is common practice to assess the potential increase in the  $L_{A10}$  noise level over an 18-hour period between 06:00 – 00:00hrs using annual average weekday traffic (AAWT) flow data, as required by CRTN. To provide some context to noise level changes associated with road traffic, as iterated earlier, a 25% increase in the number of vehicles using the road, assuming that other variables including average vehicle speed, % HGV composition and carriageway alignment remain unchanged, would result in an increase of 1dB  $L_{A10, 18\text{-hours}}$ .

5.9 A number of details regarding the baseline and predicted future traffic flows have been obtained from the Traffic Group of RPS. Table 11.4 below presents the AAWT 18-hour traffic flow data for the base year (2007) and the proposed opening year (2007) together with % HGV values shown in brackets.

**Table 11.4: Predicted Traffic Flow Data**

| Location                           | 2008 Without Development | 2008 With Development |
|------------------------------------|--------------------------|-----------------------|
| Properties fronting Doncaster Road | 7153                     | 13646                 |
| Main Access Road to Site           | 0                        | 6492                  |

5.10 Traffic speed data has been taken from paragraph 14.2 of CRTN based upon existing carriageway speed limits. Traffic speeds are predicted to remain unchanged when considering the 'do-something' scenario in future years.

5.11 As mentioned earlier, the CRTN methodology also requires a number of other details to be taken into account in addition to traffic flows. Where the exact details have not been available, assumptions have been made. The following details have been used within the traffic noise predictions:

- Information regarding distance between source and receptor has been taken from relevant OS plans;
- Road surface types have been categorised as impervious bitumen for both scenarios;
- Angles of view for each carriageway segment were taken from OS plans;
- % absorbent ground between source and receiver was estimated using OS plans and site observations;
- All predictions have been made at 1m from the façade of each receptor and therefore a correction of 2.5dB has been included in the calculated levels.

5.12 The predicted noise level change at 1m from the façade of the chosen potentially most sensitive receptors, when comparing the 'do-something' scenario against the 'do-minimum' scenario, are presented in Table 5.1 below:

**Table 5.1: Predicted Noise Levels Change Due to Road Traffic Noise**

| Receptor Adjacent to Link         | Predicted Noise Level Change (dB L <sub>A10,18 hour</sub> ) with the 'do-something' scenario |                       |
|-----------------------------------|----------------------------------------------------------------------------------------------|-----------------------|
|                                   | 2008 Without Development                                                                     | 2008 With Development |
| Fronting Doncaster Road           | 67                                                                                           | 70                    |
| Rear properties on Doncaster Road | 43                                                                                           | 50                    |

5.13 With respect to the potential nuisance impact arising as a result of increased noise at existing residential receptors due to increased traffic movements, DMRB has been used to predict how the percentage of people bothered by noise from road traffic might change in 2005 and 2010 with the 'do-something' scenario when compared to the 'do-minimum' scenario. The methodology considers how people might react immediately after an abrupt increase in traffic noise and then how the number of people annoyed may change with increased time.

Table 5.2: Percentage of People Bothered by Road Traffic Noise

| Receptors Adjacent To Link         | Current % People Bothered By Road Traffic Noise (2003) | % People Bothered By Road Traffic Noise in Opening Year (2008) | % of People Bothered By Road Traffic Noise in the Longer Term (2008) | Short Term Impact | Residual Impact |
|------------------------------------|--------------------------------------------------------|----------------------------------------------------------------|----------------------------------------------------------------------|-------------------|-----------------|
| Properties fronting Doncaster Road | 26                                                     | 71                                                             | 34                                                                   | Moderate          | Negligible      |
| Rear properties on Doncaster Road  | 2                                                      | 42                                                             | 4                                                                    | Slight            | Negligible      |

- **Mitigation**

5.14 Given the above predicted impact magnitudes, no mitigation measures are considered necessary for properties in the vicinity of the site access at Doncaster Road against road traffic noise.

- **Residual Impacts**

5.15 Impacts with respect to road traffic noise nuisance level changes immediately following the opening of the development are predicted to be negligible. Residual impacts in the longer term are predicted to remain negligible.

ii) **Noise from Vehicular Traffic Movements and Car Park Usage On-Site**

5.16 Vehicular traffic on-site will be that primarily associated with employees, visitors and deliveries/collections concentrated largely during the start and finish of each working day.

5.17 In addition to noise from vehicles on the site access roads, noise associated with car parking areas including vehicle manoeuvring, intermittent shutting of vehicle doors and the starting and revving of engines, will be a key source of noise associated with office use. An examination of the proposed layout indicates that all parking areas will be predominantly screened from the nearby noise sensitive receptors by the proposed employment buildings and it is not expected that noise from car parks will be intrusive.

- **Mitigation**

5.18 Given the above, it is considered that no further mitigation will be required.

- Residual Impacts

5.19 There will be no residual impacts arising as a result of the use of car parking areas.

- iii) Construction - Identified Potential Impacts

5.20 Construction activities associated with this type of development have the potential to result in significant noise impacts at receptors, depending upon the proximity of the receptors and the requirement for significant earth moving and use of 'heavy' plant and machinery. The greatest impacts tend to occur during the initial stages when the ground is being prepared and the main infrastructure is being put in place. Once this is complete, noise and vibration from general activities associated with construction of the building envelopes is considered to be less significant.

5.21 Increased noise may also result on the local road network due to an increased volume of HGV's travelling to and from the site during the construction programme (e.g. for import/export of raw materials, clean fill etc.). The potential effects of these sources on local receptors are likely to vary throughout the development programme depending upon the requirement for import/export of materials.

5.22 Given that exact details regarding construction techniques and types of plant likely to be used are not available at present, it is difficult to predict accurately the potential impacts of construction noise on local receptors. Nevertheless, in the absence of construction information, it is still considered useful to present potential worst-case noise levels from a selection of typical construction plant, which may be used based upon experience of similar developments. The key activities during the construction phase are:

- Soil strip and haul
- Highway and drainage construction works
- Building operations

5.23 Due to the phasing of operations and the extent of the site, noise from such operations at locations immediately adjacent to the boundary will be relatively short lived (possibly a small number of days), thereby reducing the overall impact magnitude.

5.24 In order to predict the potential impact of the above-mentioned site operations, construction noise prediction methodology given in the British Standard B.S.5228 has been used. Table 5.5 below presents the plant assumed to be required for each activity and the associated manufacturer's noise level data.

Table 5.5: Potential Construction Plant and Sound Power Levels

| Plant type                                     | Activity                                           | Number of items      | Sound Power Level dB(A) |
|------------------------------------------------|----------------------------------------------------|----------------------|-------------------------|
| <b>Soil Strip Operations</b>                   |                                                    |                      |                         |
| Bull Dozer (Approx. 20 tonnes)                 | Grading, Levelling and Stock pile maintenance      | 2                    | 108 (each)              |
| 360° Excavator (Approx. 20 tonnes)             | Soil handling                                      | 1                    | 108                     |
| 25 tonne Articulated Dump trucks               | Material movement                                  | 12 per hour          | 110 (each)              |
| <b>Highway Construction and Drainage works</b> |                                                    |                      |                         |
| Bull Dozer (Approx. 20 tonnes)                 | Levelling and grading activities                   | 1                    | 108                     |
| Vibratory Roller (Operating weight 10 tonnes)  | Compaction Operations                              | 1                    | 104                     |
| 360° Excavator (Approx. 20 tonnes)             | Materials handling                                 | 1                    | 108                     |
| 7Tarmac Paver                                  | Tarmac placement                                   | 1                    | 96                      |
| Road lorries                                   | Import of required materials, Tarmac and Aggregate | 8 movements per hour | 105.5 (each)            |
| <b>Building Construction</b>                   |                                                    |                      |                         |
| Compressor                                     | Power supply                                       | 1                    | 100                     |
| 360° Excavator (Approx. 20 tonnes)             | Materials handling                                 | 1                    | 108                     |
| Telescopic Handler                             | Moving and handling of materials                   | 1                    | 106                     |
| Crane (Approx. 50 tonnes)                      | Moving and handling of materials                   | 1                    | 102                     |
| Road lorries                                   | Import of required materials, inc. Concrete        | 4 movements per hour | 105.5 (each)            |

5.25 The results of the suite of predictions undertaken to calculate the resulting noise levels at nearby receptors from the construction operations are presented within Table 5.6 below. The results assume that all plant will be operating at full power for 100% of the assessment period at the closest reasonable location to the receptor. The closest receptor on each road listed to the activity under consideration has been taken.

5.26 The impact of levels at NSRs during construction were classified as follows:

- **Major** Façade noise levels greater than 75 dB(A) Leq(1 hour)
- **Moderate** Façade noise levels between 65 and 75 dB(A) Leq(1 hour)
- **Minor** Façade noise levels between 55 and 65 dB(A) Leq(1 hour)
- **Negligible** Façade noise levels below 55 dB(A) Leq(1 hour).

5.27 The results presented in Table 5.6 below are therefore considered an absolute worst-case prediction, based upon the typical plant assumed:

**Table 5.6: Predicted Construction Noise Levels**

| Location            | Activity             | Measured<br>L <sub>A90</sub> Daytime | Predicted<br>Worst Case<br>Noise Level<br>(dB L <sub>Aeq,1-hour</sub> ) | Impact   |
|---------------------|----------------------|--------------------------------------|-------------------------------------------------------------------------|----------|
| Rear Beaver Street  | Soil Stripping       | 66                                   | 76                                                                      | Major    |
|                     | Highway Construction |                                      | 74                                                                      | Moderate |
|                     | Building Works       |                                      | 72                                                                      | Moderate |
| Rear Cross Street   | Soil Stripping       | 66                                   | 72                                                                      | Moderate |
|                     | Highway Construction |                                      | 70                                                                      | Moderate |
|                     | Building Works       |                                      | 68                                                                      | Moderate |
| Rear Doncaster Road | Soil Stripping       | 66                                   | 70                                                                      | Moderate |
|                     | Highway Construction |                                      | 68                                                                      | Moderate |
|                     | Building Works       |                                      | 66                                                                      | Moderate |

• **Mitigation**

5.28 If necessary in order to ensure that the noise impact of the construction phase is minimised, provision of temporary screening by either hoardings or soil mounds could be erected.

5.29 Provision of screening would provide attenuation of approximately 10 dB(A) resulting in the impacts at the closest properties as shown in Table 5.7 below:

Table 5.7: Predicted Construction Noise Levels 'With Mitigation'

| Location              | Activity             | Measured<br>L <sub>A90</sub> Daytime | Predicted<br>Worst Case<br>Noise Level<br>(dB L <sub>Aeq,1-hour</sub> ) | Impact   |
|-----------------------|----------------------|--------------------------------------|-------------------------------------------------------------------------|----------|
| Rear Beaver Street    | Soil Stripping       | 66                                   | 66                                                                      | Moderate |
|                       | Highway Construction |                                      | 64                                                                      | Moderate |
|                       | Building Works       |                                      | 62                                                                      | Moderate |
| Rear Frederick Street | Soil Stripping       | 66                                   | 62                                                                      | Moderate |
|                       | Highway Construction |                                      | 60                                                                      | Moderate |
|                       | Building Works       |                                      | 58                                                                      | Moderate |

5.30 Furthermore, it is recommended that 'Best Practicable Means' be employed in order to minimise construction impacts, including for example:

- Selection of quietest working equipment readily available e.g. electric/battery powered equipment, which is generally quieter than petrol/diesel powered;
- Use of regularly maintained and appropriately silenced equipment;
- Shutting down of equipment when not in use i.e. 'maintain a no idle policy';
- Positioning of equipment behind physical barriers e.g. existing features/hoarding;
- Direction of noise emissions from plant including exhausts or engines away from sensitive receptors;
- Handling all materials in a manner which minimises noise e.g. reduce drop height of materials;
- Switching all audible warning systems to the minimum setting required by the Health and Safety Executive.

• **Residual Impacts**

5.31 The introduction of temporary screening and the adoption of the above general recommendations for the duration of the construction works will help minimise the resulting impacts of construction noise at surrounding receptors. The predicted impact during the number of construction activities will be 'moderate' following provision of boundary screening or earth mounding.

5.32 It should be noted however, as iterated above, impacts of such magnitude would only be expected to operate over short periods whilst works are being undertaken close to the site boundary adjacent to receptors. As the works progress and works are undertaken at a greater distance from the receptors, noise levels would be reduced.

5.33 Given that the above assessment has been undertaken in the absence of a definitive list of plant and activities, the predicted impacts highlighted are considered worst-case but are presented as indicative only. Liaison should be undertaken with the relevant Local Authority Environmental Health Department regarding their requirements for further assessment once more detailed construction information becomes available. As part of any further assessment, site and activity specific mitigation measures should be developed in order to reduce further the potential impacts at receptors.

5.34 The development of residential dwellings prior to the development of the employment units would need to be assessed once a definitive list of plant and activities is available. Appropriate screening would need to be provided to reduce the level of impact at the nearest receptors.

- **Operational Impacts**

5.35 The activities proposed by potential occupiers of the proposed employment units would be examined in detail and the building envelope designed to ensure that noise levels at existing and proposed dwellings would not be exposed to noise levels in excess of the levels contained in the recommendations.

5.36 Typical sound pressure levels for forklift trucks have been taken from BS5228 Part 1:1997 'Noise and Vibration control on Construction and Open sites'. The  $L_{Aeq}$  at 10m for typical forklift activities is 77dB. The assessment has assumed a 100% on time, an over estimate for the forklift activities.

5.37 The predicted noise levels at existing and proposed dwellings, assuming that a typical façade provides approximately 40 dB(A) attenuation, would therefore be:

| Location                                 | Leq(1 hour) |          |
|------------------------------------------|-------------|----------|
|                                          | Internal    | External |
| Rear of properties on Beaver Street      | 23          | 63       |
| Rear of properties on Cross Street       | 20          | 60       |
| Rear of properties on Frederick Street   | 23          | 63       |
| New properties to East of Blocks B and C | 20          | 60       |

5.38 It can be seen that external noise levels at properties due to external activities exceeds the recommended level of 55 dB(A) assuming that these activities occur for the whole of the 16 hour period, which would not be the case in practice.

5.39 However in order to ensure that external noise at properties does not exceed 55 dB(A) Leq(16 hour) it is proposed to provide screening to the service areas located near residential properties which it is predicted would provide some 8 dB(A) attenuation giving external levels of:

| Location                                 | Leq(1 hour) |
|------------------------------------------|-------------|
|                                          | External    |
| Rear of properties on Beaver Street      | 55          |
| Rear of properties on Cross Street       | 53          |
| Rear of properties on Frederick Street   | 55          |
| New properties to East of Blocks B and C | 52          |

- **Residual Impacts**

5.40 The introduction of screening will minimise the resulting impacts of service area noise at surrounding receptors.

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## SECTION 6: SUMMARY

- 6.1 This assessment has considered the effects of the proposed development in terms of noise and noticeably the impact of the proposed employment units on existing and proposed residential properties. All potential noise sources have been considered, including traffic noise generated by the increased number of vehicles using the surrounding road network, car park activities, employment unit usage and construction noise and noise arising from the completed development.
- a) **Road Traffic Noise and Car Park Activities**
- 6.2 The assessment indicated that there would be a slight increase in the percentage of people annoyed by noise both immediately after the development opens and in the long term. This change will be negligible.
- b) **Construction Noise**
- 6.3 The primary source of noise arising from the development will be during the construction phase where necessary it is proposed that temporary screening be erected during construction works. This would reduce the noise impact to moderate. The main source of noise will be the soil stripping activities, which will be very limited in their duration. The noise impact during construction in the remainder of the site will be slight. All noise predictions are calculated on a worst-case basis. There would be no residual impacts.
- c) **Employment Unit Usage**
- 6.4 The possible range of activities that could be associated with the usage of the units has not yet been established but all prospective uses will be examined in detail to ensure that the noise generated by the possible use will not exceed the levels recommended in paragraphs 28 and 29.
- 6.5 In order to ensure that noise from activities carried out within service areas will be kept to the minimum levels possible, it is proposed to provide 1.8 metre high close boarded timber fence screening to the areas adjacent to existing and proposed residential properties.

d) Proposed Residential Development

- 6.6 Predictions carried out for other housing developments indicates that an external cavity wall with 4/12/4 double glazed windows with acoustically attenuated trickle ventilation provided around 35 dB(A) attenuation however this varied with the dimensions of the window and the room area.
- 6.7 If required examples of the attenuation provided by typical façades could be submitted to the local authority for completeness.



## APPENDIX A

### INSTRUMENTATION CALIBRATION DOCUMENTATION



## APPENDIX B

### NOISE MONITORING RESULTS



QUEST TECHNOLOGIES  
1900 PRECISION INTEGRATING/LOGGING SOUND LEVEL METER

Unit Version Number: 01.3

Serial Number: CC50500009

Name **RPS Planning, Transport and Environment.**

Work Area Land off Doncaster Road, Goldthorpe.

Comments Weather: Temp. 8c. Fine, dry morning.  
Wind speed - Nil.

Meter Calibration: 114.0dB 21-APR-05 @ 05:53:14

Calibrator: Serial Number QE 40 20009. Calibration Date 11<sup>th</sup> August 2004.

**STUDY 1**

**Notes**

Location On unnamed road and 23 metres from Doncaster Road, Goldthorpe  
and opposite Nora Street, Goldthorpe (8 metres from end of back  
garden of 116, Doncaster Road, Goldthorpe.)

Noise source Traffic on Doncaster Road, Goldthorpe.

**Measuring Parameters:**

|           |          |               |     |                |      |
|-----------|----------|---------------|-----|----------------|------|
| Range     | 30- 90dB | Weighting     | A   | Time Constant  | FAST |
| Threshold | OFF      | Exchange Rate | 3dB | Peak Weighting | A    |

**Session Started**

21-APR-05 @ 05:54:21

**Session Stopped**

21-APR-05 @ 09:55:34

**Run Time**

4:01:12

Peak Level 76.9dB

21-APR-05 @ 08:17:43

Max Level 78.7dB

21-APR-05 @ 07:53:30

Min Level 38.2dB

21-APR-05 @ 09:21:28

Overload 0.00%

LEQ 56.3dB L1 66.3dB L10 60.0dB L50 51.0dB L90 45.1dB

LOGGING ( 1 HR ) LEQ LMAX L10 L90

**Study 1**

06:54:21 54.4dB 73.7dB 57.7dB 44.0dB

07:54:21 56.9dB 78.7dB 60.7dB 47.6dB

08:54:21 57.1dB 77.3dB 61.0dB 47.2dB

09:54:21 55.6dB 75.7dB 59.9dB 43.3dB

## STUDY 2

Notes Weather :- Temp. 5c. Fine, dry night.  
Wind speed - Nil.  
Location Same as 1. above.  
Noise source Same as 1. above.

### Measuring Parameters:

|           |          |               |     |                |      |
|-----------|----------|---------------|-----|----------------|------|
| Range     | 30- 90dB | Weighting     | A   | Time Constant  | FAST |
| Threshold | OFF      | Exchange Rate | 3dB | Peak Weighting | A    |

|                      |                      |          |
|----------------------|----------------------|----------|
| Session Started      | Session Stopped      | Run Time |
| 22-APR-05 @ 01:46:41 | 22-APR-05 @ 02:48:09 | 1:01:27  |
| Peak Level 70.1dB    | 22-APR-05 @ 02:08:24 |          |
| Max Level 69.7dB     | 22-APR-05 @ 01:54:24 |          |
| Min Level 29.9dB     | 22-APR-05 @ 02:35:24 |          |
| Overload 0.00%       |                      |          |

LEQ 43.3dB L1 54.7dB L10 43.3dB L50 34.1dB L90 31.2dB

LOGGING ( 5 MIN) LEQ LMAX L10 L90

### Study 2

|          |        |        |        |        |
|----------|--------|--------|--------|--------|
| 01:51:41 | 46.1dB | 65.5dB | 48.1dB | 31.9dB |
| 01:56:41 | 47.4dB | 69.7dB | 41.9dB | 31.6dB |
| 02:01:41 | 36.0dB | 47.9dB | 39.6dB | 31.0dB |
| 02:06:41 | 36.7dB | 47.9dB | 40.3dB | 31.4dB |
| 02:11:41 | 42.5dB | 67.1dB | 44.1dB | 31.4dB |
| 02:16:41 | 46.7dB | 66.0dB | 47.1dB | 32.2dB |
| 02:21:41 | 44.8dB | 66.0dB | 43.9dB | 33.3dB |
| 02:26:41 | 40.8dB | 53.8dB | 44.7dB | 32.1dB |
| 02:31:41 | 37.2dB | 54.3dB | 38.6dB | 30.7dB |
| 02:36:41 | 35.7dB | 61.8dB | 37.7dB | 30.7dB |
| 02:41:41 | 39.9dB | 52.6dB | 44.0dB | 31.1dB |
| 02:46:41 | 42.6dB | 61.9dB | 44.6dB | 32.0dB |

## STUDY 3

Notes Weather :- Temp. 5c. Fine, dry night.  
Wind speed - Nil.  
Location Bottom of Bever Street, Goldthorpe.  
Noise source Traffic on main roads and sounds of trains from a railway line at the back of the proposed site.

### Measuring Parameters:

|           |          |               |     |                |      |
|-----------|----------|---------------|-----|----------------|------|
| Range     | 30- 90dB | Weighting     | A   | Time Constant  | FAST |
| Threshold | OFF      | Exchange Rate | 3dB | Peak Weighting | A    |

|                      |                      |          |
|----------------------|----------------------|----------|
| Session Started      | Session Stopped      | Run Time |
| 22-APR-05 @ 02:53:21 | 22-APR-05 @ 03:54:39 | 1:01:17  |
| Peak Level 65.4dB    | 22-APR-05 @ 02:53:31 |          |
| Max Level 62.4dB     | 22-APR-05 @ 03:54:27 |          |
| Min Level 27.3dB     | 22-APR-05 @ 03:17:25 |          |
| Overload 0.00%       |                      |          |



LEQ 36.5dB L1 47.4dB L10 37.1dB L50 31.3dB L90 29.0dB

LOGGING ( 5 MIN) LEQ LMAX L10 L90

Study 3

| Time     | LEQ    | LMAX   | L10    | L90    |
|----------|--------|--------|--------|--------|
| 02:58:21 | 38.9dB | 62.0dB | 37.7dB | 29.4dB |
| 03:03:21 | 37.4dB | 51.4dB | 41.5dB | 28.6dB |
| 03:08:21 | 32.2dB | 45.1dB | 34.0dB | 28.7dB |
| 03:13:21 | 31.0dB | 39.4dB | 32.8dB | 29.1dB |
| 03:18:21 | 30.4dB | 39.6dB | 32.1dB | 28.4dB |
| 03:23:21 | 30.5dB | 41.1dB | 32.9dB | 28.5dB |
| 03:28:21 | 32.0dB | 40.0dB | 33.8dB | 30.1dB |
| 03:33:21 | 34.8dB | 44.7dB | 37.9dB | 30.1dB |
| 03:38:21 | 41.5dB | 49.2dB | 46.4dB | 31.3dB |
| 03:43:21 | 36.3dB | 46.2dB | 38.1dB | 32.8dB |
| 03:48:21 | 31.8dB | 38.7dB | 33.4dB | 30.3dB |
| 03:53:21 | 32.6dB | 39.2dB | 35.0dB | 30.5dB |

STUDY 4

Notes Weather :- Temp. 2c. Fine, dry morning.

Wind speed - Nil.

Location Same as 3. above.

Noise source Same as 3. above.

Measuring Parameters:

|           |          |               |     |                |      |
|-----------|----------|---------------|-----|----------------|------|
| Range     | 30- 90dB | Weighting     | A   | Time Constant  | FAST |
| Threshold | OFF      | Exchange Rate | 3dB | Peak Weighting | A    |

Session Started

22-APR-05 @ 05:54:58

Session Stopped

22-APR-05 @ 09:56:30

Run Time

4:01:31

Peak Level 85.2dB

22-APR-05 @ 05:55:42

Max Level 79.4dB

22-APR-05 @ 08:03:47

Min Level 33.4dB

22-APR-05 @ 09:53:11

Overload 0.00%

LEQ 50.3dB L1 61.2dB L10 45.4dB L50 41.1dB L90 37.3dB

LOGGING ( 1 HR ) LEQ LMAX L10 L90

Study 4

| Time      | LEQ                                                          | LMAX   | L10    | L90    |
|-----------|--------------------------------------------------------------|--------|--------|--------|
| 06:54:58  | 53.5dB                                                       | 78.5dB | 50.0dB | 39.0dB |
| 07:54:58  | 43.1dB                                                       | 61.6dB | 44.5dB | 41.2dB |
| 08:54:58  | 49.6dB                                                       | 79.4dB | 43.8dB | 38.3dB |
| 09:54:58  | 49.8dB                                                       | 78.4dB | 42.2dB | 35.7dB |
| 06.40 Hrs | Coal yard opens up and lorry engine left running.            |        |        |        |
| 06.45 Hrs | Lorry reverses out of yard and leaves.                       |        |        |        |
| 06.51 Hrs | Car drives up to coal yard and then leaves.                  |        |        |        |
| 07.30 Hrs | Cars into other units.                                       |        |        |        |
| 08.04 Hrs | Dogs in coal yard barking.                                   |        |        |        |
| 08.57 Hrs | Lorry returns to coal yard and then reverses out and leaves. |        |        |        |
| 09.56 Hrs | Completed.                                                   |        |        |        |