Three Spires Acoustics — Acoustics, Noise and Regulatory Control Consultants	Document **CH/TN/2016/11**	Date 18/04/2016
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TECHNICAL NOTE	For Reliant Building Contractors Ltd	

Proposed Dwellings on Land off Kings Road, Spalding, Lincolnshire.

Introduction

Three Spires Acoustics have been retained by Reliant Building Contractors Ltd to provide assistance with the discharge of planning condition 19, of outline planning consent H16/0473/11 regarding a scheme of noise mitigation for dwellings adjoining the railway line at a residential development at Kings Rd, Spalding, Lincolnshire.

1. Site

Residential Development of 42 dwellings at Kings Rd, Spalding, Lincolnshire. Figure 1 below presents a plan of the site and monitoring location.

Figure 1: Plan Drawing of Development & Measurement Location

2. Planning Consent Conditions

Condition 19

No development shall commence until details of a scheme of noise mitigation for those dwellings which adjoin the railway line has been submitted to and agreed in writing by the LPA. No dwelling shall be occupied prior to the implementation of the agreed scheme of mitigation.

Reason: To ensure that the noise from the railway line is mitigated against in accordance with Policy SG17 of South Holland Local Plan 2006.

3. Survey Results

The results from the approved Environmental Noise Assessment (CJH/Reliant/04/2008) along with the required internal levels are presented in Table 1 below.

Table 1: Summary of Results of Noise Survey

Period	MP1	BS8233 Recommendations	MP1 Level Diff
	dB(A)	dB(A)	dB(A)
Day	53	35	18
Highest 1hour	61	35	26
Night	46	30	16
Highest 1hour	51	30	21
Modal LAmax (in highest hour)	65	45	20

The highest $L_{Aeq,1hr}$ values from Table 1 have been used to determine the building facade sound insulation performance. Building elements for units facing onto the railway will therefore require 26dB of attenuation.

4. Facade Construction

We have been informed by the client that the following building construction specification will be used for the build of all units at the site.

4.1 Walls

Cavity wall construction consisting of;

300mm cavity wall comprising 100mm facing brickwork, 100mm cavity, and an internal leaf of 100mm DENSE concrete block. Internally to be lined with 12.5mm taped and jointed plasterboard on dabs. The cavity to receive a minimum of 50mm Kingspan Kooltherm K8 cavity board.

The construction will provide a single figure sound reduction of at least 50dB(R_W) and as such will provide sufficient sound reduction.

4.2 Roof

The roof construction shall consist of;
Interlocking concrete roof tiles/Slate on 38 x 25mm tsw battens on a layer of Kingspan Nilvent breathable roofing felt, roof pitch 32 degrees on standard trussed rafters, supplied by specialist manufacturers at max. 600mm centres unless shown otherwise. Include galv. m.s. straps (30 x 5mm) to end three trusses adjacent to gable and party wall at rafter level at max. 2m centres. All ceiling members to be under drawn with 12.5mm foil backed plasterboard, skim finish, and have 100mm Rockwool Rollbatt placed between ceiling joists with 140mm Rockwool Rollbatt or Timber roll cross layered over joists.

The construction will provide a single figure sound reduction of at least 45dB(R_W) and as such will provide sufficient sound reduction.

4.3 Glazing & Ventilation Specification

The windows and ventilators will typically be the weakest elements within the external building fabric. Table 2 below details the glazing specifications for units overlooking the railway line of the development. To achieve the internal noise criteria all windows/doors should be well sealed (air tight) when closed with good seals such as **Q-LON®** acoustic seals (or equivalent) around all sides. Any air gap will significantly reduce the performance of the glazing in terms of the ability to attenuate noise.

Table 2: Glazing and Ventilation Specification

Railway Side		125 Hz	250 Hz	500 Hz	1.0KHz	2.0KHz	4.0KHz	RW	Type	Ventilation
Bedrooms	SRI	20	19	29	38	36	45	32	Thermal Glazing 6/12/6	Acoustic Tickle vents
Kitchen /Bathroom		24	20	25	35	38	35	31	Thermal Glazing 4/12/6	Hit and miss
Living Room		20	19	29	38	36	45	32	Thermal Glazing 6/12/6	Acoustic Tickle vents

4. Amenity Areas

The results of the environmental noise survey indicated that amenity areas will experience noise levels in the region of 53dB $L_{Aeq,16hour}$ Railway side. This is above the Local Authority's requirements of 50-55dB $L_{Aeq,16hours}$ and therefore mitigation is necessary in order to reduce noise within these areas.

A 1.8m-2m high close board fence will run along the perimeter with the railway and provide further protection from railway noise. It is considered that this will provide at least 10dB(A) of sound reduction and therefore will result in compliance with the external amenity area requirements.

4. Conclusion

Three Spires Acoustics have undertaken an assessment of building facade specification for dwellings adjoining the railway line at a residential development at Kings Rd, Spalding, Lincolnshire. The outcome of the assessment indicates that the proposed specification will comply with the Local Authority's and National Planning Policy Framework (NPPF) requirements and therefore it is considered that condition 19 of outline planning consent H16/0473/11 maybe discharged.

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