Site Plan 1:200

Location Plan 1:250

ACOUSTIC SCREENING

The location of the acoustic screening is illustrated on the Site plan 1:200.

To be effective the mass of any acoustic screen should exceed 10 kg / sq m. A 2.25m high stone barrier wall has been included as shown in order to afford attenuation to the rear amenity areas of Plots 1 and 2. The mass of this proposed barrier should be of the order of 200 kg / sq m. which is well in excess of the requirements.

As the A483 will not be visible from the rear amenity areas of these Plots an attenuation of 10 dBA can be assumed resulting in an external level of 49 dBA (Reference : BS 5228 : Part1 : 2009 Section F.2.2.2.1 Section C).

Acoustic fences between Plots 6 7 8 9 -10 should have a mass of at least 10 kg / sq m and a height of 2.0m and be constructed as detailed below. Screens between the individual plots should be on the same construction having a mass of at least 10 kg / sq m and have no gaps / holes in the screen at any point.

The noise levels on various plots will have to be controlled by the building of acoustic fences / barriers these are available commercially one such supplier being www.jacksons-fencing.co.uk.

The barrier could take the form of a small earth bund for part of the overall height of the barrier and then an acoustic fence on top

The screen to the eastern boundary of the site can be constructed from virtually any solid material provided it has a mass of at least 10 kg / sq m and have a height of 2.5m A screen is also to be provided to the Northern boundary to the rear of Plots 9 & 10. The screen / barriers will provide attenuation to Plots 5, 6, 7, 8, 9 -10 resulting in an external noise level of 49 dBA the Plots to the West of the development will also benefit from the attenuation provided by the screens between the various properties.

Plots 3 & 4 are screened by the development itself and again the expected external noise level will be 49 dBA.
If the screen is constructed from timber then it is important that the timber is properly weather treated in order to minimise any deteration due to weather.

There must be no holes or gaps in the screen this is particularly important at the base of the screen between it and the ground there must also be no gaps between the screen and the posts ideally slotted posts should be used to reduce the likelyhood of this happening.

The posts etc can be of any suitable construction that will support the fence with the wind loading etc.

The important thing acoustically is that there are NO gaps at all along the edges of the wooded panels at the side and the bottom and that there are NO gaps between the individual wooden slats that the fence is constructed from.

The actual fence posts to be wooden posts .The actual fence boards and cover strips need to be about 25mm and be tight fitted with no gaps between the joints , hence the cover strip on the back. The top of the fence will just need to be weather stripped.

The mass of this type of barrier is of the order of 10 to 12 kg / sq m which meets the requirements for the effectiveness of the barrier.

ACOUSTIC CALCULATIONS
Measured Level = 59 dBA - 07.00 to 23.00 hrs : 59 - 35 =24 dB
53 dBA 23.00 to 07.00 hrs : 53 - 30 = 23 dB
LA max = 65 dBA : 65 - 45 = 20 dB.
Acoustic fencing a note saying the minimum mass = 10 kg / sq m.
Glazing to all windows to achieve a minimum attenuation of Rw + Ctr = 25 dB - for example 4mm / 6 to 20mm / 4mm IGU's
Ventilation to achieve a minimum Dn,ew + Ctr = 24 dB

WINDOWS / GLAZING
All windows are to comprise sealed double glazed units set within good quality Grey uPVC frames. Sealed double glazed units are to achieve a minimum U-value of 1.6 W/m²K. Glazing configuration to be 4 / 6 to 20mm / 4mm IGU's that has a quoted Rw + Ctr of 25dBA. Opening areas of windows are to be equal to at least 5% of enclosed floor area with part of the opening set at 1750mm above floor level. Provide background ventilation to habitable rooms by means of 8000mm² controllable trickle ventilators set in head frame member of windows or locking mechanism that provides adequate background ventilation. Acoustic performance of ventilation system (trickle vent) should be a minimum of Dn,ew + Ctr = 24 dB. Windows to bedrooms at first floor level to have opening lights of at least 0.33m² with a minimum clear opening of 750mm high x 450mm wide. Window cill is to be positioned to ensure that cill level is within 1100mm of floor level. Window Cills positioned within 800mm of First Floor level to have removable guarding fitted. Glazing in critical locations such as within 800mm of floor level to windows, within 1500mm of floor level to doors, and windows adjacent to doors is to consist of laminated toughened safety glass in accordance with BS 6206 and permanently marked.

MECHANICAL VENTILATION
Provide mechanical ventilation to kitchen, en-suite and bathroom by means of Vent Axia or similar wall/ceiling mounted electrically operated fans extracting directly to external air to the following requirements:

Bathroom & en-suite - fans to extract at a rate of 15 litres per second, (type of fan to be in line extractor confirmed adequate by manufacturer) to be operated in conjunction with light switch with a 15 minute over run facility.
Door to en-suite to be undercut by 10mm to allow adequate ventilation.
Kitchen - cooker hood to extract at a rate of 30 litres per second.
Vents to be covered with weather proof grilles at points of discharge to external air.

Acoustic performance of mechanical ventilation systems should be a minimum of Dn,ew + Ctr = 24 dB.

Building Parameter	Minimum (mm)	Maximum (mm)
Depth	24200	24700
Width	26515	27015
Height	7465	7965

Rev	Date	Detail	Initial
G	09/18	Acoustic elements illustrated	D.J.E.
F	06/18	Design Amends	D.J.E.
E	06/18	Design Amends	D.J.E.
D	05/18	Design Amends	D.J.E.
C	03/18	Topo Survey Added	D.J.E.
B	12/17	Boundary Detail Added	S.M.E.
A	11/17	Design Amends	D.J.E.

Project:
Proposed residential development at Willow Cottage, Ruabon, Wrexham. LL14 6LE.

Title: Planning: Site & Location Plan
Scale: (A1) 1:200 & 1:1250

Drawn By: D.J.Edwards
Date: Oct 2017

Drawing No: A046/002
Sheet: 1 of 1

blueprint architectural services
Office 3K4,
Redwither Business Tower,
Wrexham. LL13 9XT
Tel: 01978 356500
www.blueprintarchitectural.com
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