# BS5837:2005 Tree Schedule

**Client:** Galliford Try Ltd  
**Galliford Try Ltd**  
**Surveyor:** Bryan Clary  
**Kingsley Primary School**  
**Survey Date:** 4th July 2011  
**Ref:** 11-0921/3526/D01

<table>
<thead>
<tr>
<th>Tree No.</th>
<th>Species</th>
<th>Height (m)</th>
<th>Stem Dia (mm)</th>
<th>Crown Spread (m)</th>
<th>Height of Crown Clearance (m)</th>
<th>Age Class</th>
<th>Phys Con</th>
<th>Struc Con</th>
<th>Additional notes</th>
<th>Preliminary management recommendations</th>
<th>Action agreed with Northants County Council</th>
<th>Estimated remaining contribution (Years)</th>
<th>Ret Cat</th>
<th>RPA Radius (m)</th>
<th>RPA Area (m²)</th>
</tr>
</thead>
<tbody>
<tr>
<td>T1</td>
<td>Pedunculate oak (Quercus robur)</td>
<td>10</td>
<td>350</td>
<td>4.5 5 4.5 5</td>
<td>2.5</td>
<td>Mid</td>
<td>Good</td>
<td>Fair</td>
<td>Surface roots close to the main stem west have been historically severed (likely due to children playing under tree). Several partially occluded wounds at former branch attachments. Tight union at 2m east. Good future potential with high retention value.</td>
<td>None.</td>
<td>Tree protection fencing.</td>
<td></td>
<td>B1</td>
<td>4.2</td>
<td>55.4</td>
</tr>
</tbody>
</table>
| H2       | Hedge of: Privet (Ligustrum vulgare)  
Cherry laurel (Prunus laurocerasus) | 5.5 | | Fair | Fair | Offsite specimens forming residential garden screening. Crown overhangs site by up to 2m. | Prune back overhanging branches to boundary if necessary. | None. | | | | | |
| T3       | Hawthorn (Crataegus monogyna) | 4 | gl 330 | 3 3 3 3 | 1.5 | Mid | Good | Fair | Fully mature. Of short stature with a tree like form. Main stem bifurcates at 0.5m. Previously crown lifted to 1.5m. Reasonable condition. | Prune branches in close proximity to new teaching block leaving 1.5m clearance. | Tree protection fencing. Although RPA will be infringed it is unlikely that tree health will be significantly affected. If therefore has been agreed that no slip hardsurfacing is not required. Prune branches leaving 1.5m clearance if required. | | B1 | 4.2 | 55.4 |
| G4       | Group of: Ash (Fraxinus excelsior)  
Silver birch (Betula pendula)  
Hawthorn (Crataegus monogyna)  
Hazel (Corylus avellana)  
Field maple (Acer campestre)  
Flowering cherry (Prunus sp.) | up to 4 | up to 60 | av dia 2.5 | 0 | Yng | Fair to Good | Fair to Good | A small group known as the 'Millennium spinny'. These trees were first planted in 2000 but have been moved twice therefore establishment rates have been slow. Several trees have stakes and ties still attached. Evidence of basal strimmer damage and other bark wounds on a number of stems. Specimens of little individual value, although together they provided a reasonable landscape feature. The group is triangular in shape and is 14.5m long, 7m wide. | None. | Tree protection fencing. | | B1 | 4.2 | 55.4 |
| G5       | Group of: 4 x Lawson cypress (Chamaecyparis lawsoniana) | up to 13 | up to gl 660 | av dia 6 | 2 | Mid | Fair to Good | Located by the entrance of the school car park. Specimen immediately west of the entrance is in good condition the remainder are fair with two having relatively sparse crowns. High retention value. | None. | Tree protection fencing. | | B2 | 6.6 | - |
Noise Impact Assessment

Appendix C

Kingsley Primary School
AUGUST 2011
7 July 2011

C/12858/L04/CMW

Robert Hart
Galliford Try Construction Central
Leicester Road
Wolvey
Hinckley
Leicestershire
LE10 3JF

Dear Robert

Kingsley Primary School Noise Survey
Northampton Primary Schools

1.0 Summary

SRL was commissioned by Galliford Try Construction Ltd to do an environmental noise survey at the existing Kingsley Primary School site. This survey was to help us establish the dominant noise sources present on the site and to assess the feasibility of various ventilation strategies for the proposed new build area of the site.

We measured ambient noise levels at the Kingsley Primary School site on 30 June 2011.

The BB93 criteria for indoor ambient noise levels can be achieved in the proposed new building with natural ventilation using open windows.

2.0 Survey Data

Our measurement locations are shown in Appendix C. The survey positions were selected to represent the main noise sources around the school site. The measurements exclude noise from pupils as BB93 states that this should not be included in noise break-in assessments. The tabulated results of the survey are shown in Appendix B.

The dominant noise source around the school site is road traffic from Kenmuir Avenue. The noise levels range from 44dB (L_{Aeq}) to 47dB (L_{Aeq}) across the site.
3.0  Noise Breakin

The noise level on the perimeter of the proposed new building is 44-47 dB(A). BB93 specifies indoor ambient noise levels of 35 dB(A) for standard teaching rooms with BB101 allowing a 5 dB(A) relaxation for higher ventilation rates where natural ventilation systems are used. The site noise levels are low enough that open windows can be used for the new building to provide natural ventilation and maintain indoor ambient noise levels specified by BB93 and BB101.

Any thermal double glazing is capable of meeting the indoor ambient noise level requirements for the new building. Similarly it is likely that any façade and roof buildup will be capable of meeting the indoor ambient noise level requirements for the new building. The roof construction also needs to be considered in terms of rain noise. We will assess this as the design progresses.

I have assumed natural ventilation needs a façade opening equivalent to 5% of the floor area for the 8l/s/pupil ventilation rate. I have included the 5 dB(A) relaxation allowed by BB101 for natural ventilation. For 3l/s/pupil ventilation rate the openings must be limited to 1.6% of the floor area.

There are no mandatory requirements for ‘ancillary spaces’ (e.g. kitchens, offices, staff rooms, corridors, stairwells and toilets).

4.0  Mechanical Services Noise

Any noise created by services (other than that from teaching equipment such as computers and projectors) is required to meet the BB93 ambient noise levels specified for a duty of 3l/s/person. This includes break-in from external plant to teaching spaces. Mechanical services ducts must not penetrate partitions between classrooms. The ducts must run in the circulation space, with individual branches off into teaching spaces. The indoor ambient noise level requirements for standard rooms are given in Appendix E.

The noise levels from all plant must be attenuated to 45 dB(A) outside openable windows and rooflights, and to 50 dB(A) at any external teaching areas.

Please call me if you have any questions.

Yours sincerely

Chris Wright
For and on behalf of
SRL Technical Services Limited
Tel: 01787 247595
Email: cwright@srltsl.com
Appendix A – Survey Details

A1.1 Location of Survey

Kingsley Primary School, Wallace Road, Northampton. NN2 7EE

A1.2 Date & Time of Survey

30 June 2011 10:00-14:30

A1.3 Personnel Present During Survey

Allen Smalls (SRL Ltd)

A1.4 Instrumentation

Bruel & Kjaer

Type 2260 Sound Level Meter (SRL No. 739)
Type ZC 0032 Microphone Pre-Amp (SRL No. 741)
Type 4189 Microphone (SRL No. 742)
Type 4231 Sound Level Calibrator (SRL No. 819)

A1.5 Calibration Procedure

Before and after the survey the measurement apparatus was check calibrated to an accuracy of +0.1dB using the type 4231 Sound Level Calibrator. The Calibrator produces a sound pressure level of 94 dB re 2x10⁻⁵ Pa at a frequency of 1 kHz.

A1.6 Survey Procedure

Ambient noise levels were monitored at various positions around the sites as shown in Appendix C. The measurements are tabulated in Appendix B and an explanation of acoustic terms is given in Appendix D.

A1.7 Weather Conditions

Dry, still, little cloud
Appendix B – Survey Manned Measurement Results

Table B1 - Measured Ambient Noise Levels (dB)

<table>
<thead>
<tr>
<th>Position</th>
<th>Start Time</th>
<th>End Time</th>
<th>L_{Aeq}</th>
<th>L_{A10}</th>
<th>L_{A90}</th>
<th>L_{Amax}</th>
<th>L_{A1}</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10:19</td>
<td>10:29</td>
<td>45</td>
<td>47</td>
<td>40</td>
<td>60</td>
<td>52</td>
<td>Approx. location of proposed building</td>
</tr>
<tr>
<td>1</td>
<td>13:52</td>
<td>14:02</td>
<td>44</td>
<td>46</td>
<td>40</td>
<td>54</td>
<td>49</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10:31</td>
<td>10:46</td>
<td>47</td>
<td>49</td>
<td>41</td>
<td>63</td>
<td>56</td>
<td>Approx. location of proposed building</td>
</tr>
<tr>
<td>2</td>
<td>14:04</td>
<td>14:14</td>
<td>44</td>
<td>46</td>
<td>40</td>
<td>57</td>
<td>51</td>
<td></td>
</tr>
</tbody>
</table>

All measurements in dB re 20 μPa

Table B2 - L_{eq} Octave Band Levels (dB)

<table>
<thead>
<tr>
<th>Position</th>
<th>Time</th>
<th>63</th>
<th>125</th>
<th>250</th>
<th>500</th>
<th>1k</th>
<th>2k</th>
<th>4k</th>
<th>dB(A)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10:19</td>
<td>56</td>
<td>49</td>
<td>45</td>
<td>41</td>
<td>40</td>
<td>35</td>
<td>30</td>
<td>45</td>
</tr>
<tr>
<td>1</td>
<td>13:52</td>
<td>57</td>
<td>48</td>
<td>43</td>
<td>40</td>
<td>39</td>
<td>34</td>
<td>28</td>
<td>44</td>
</tr>
<tr>
<td>2</td>
<td>10:31</td>
<td>58</td>
<td>50</td>
<td>43</td>
<td>39</td>
<td>42</td>
<td>42</td>
<td>33</td>
<td>47</td>
</tr>
<tr>
<td>2</td>
<td>14:04</td>
<td>55</td>
<td>48</td>
<td>42</td>
<td>38</td>
<td>39</td>
<td>37</td>
<td>31</td>
<td>44</td>
</tr>
</tbody>
</table>

All measurements in dB re 20 μPa
Appendix C – Survey Positions on existing Site
Appendix D – Noise Measurement Parameter Definitions

\( L_{A90} \) - The "A" weighted sound pressure level that is exceeded for 90% of the measurement period. It is commonly used as the "Background Noise Level".

\( L_{A10} \) - The "A" weighted sound pressure level that is exceeded for 10% of the measurement period. This is often used for assessing traffic noise.

\( L_{A1} \) - The "A" weighted sound pressure level that is exceeded for 1% of the measurement period.

\( L_{Aeq} \) - The "A" weighted equivalent continuous sound pressure level. A representation of a continuous sound level containing the same amount of sound energy as the measured varying noise, over the measurement period. It can be considered as the "average" noise level.

\( L_{Amax} \) - The maximum "A" weighted sound pressure level during the measurement period.
## Appendix E – BB93 Criteria for Indoor Ambient Noise Levels in Teaching Spaces

<table>
<thead>
<tr>
<th>Type of Room</th>
<th>Upper limit for internal ambient noise level (dB L_Aeq (30 minutes))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary School Classroom</td>
<td>35</td>
</tr>
<tr>
<td>Group Area/Breakout Space</td>
<td>40</td>
</tr>
<tr>
<td>Studio</td>
<td>35</td>
</tr>
</tbody>
</table>
Drainage/Foul Sewerage
Drainage

It is proposed to connect the new foul water drainage from the extension to the existing foul water drainage system serving the school.

The existing foul water drainage system serving the school will be checked for available capacity as part of the detailed design.

The existing foul water drainage system serving the school eventually discharges to the public sewerage system. A Section 106 (Water Industry Act) Agreement will be entered into, to agree the increase in flows to the public sewerage system.

Surface Water drainage from impermeable areas created by the development will be treated in line with current regulations in relation to flood risk. In this instance, surface water will discharge to a new soakaway located on the site.

Ground investigation reports from previous projects indicate low soil infiltration rates on the site. For this reason an overflow is indicated allowing surface water in extreme storms to discharge at an agreed flow rate to the public sewerage system.
External Works

Hard standing and car parking areas are proposed which may be accessible to vehicles. These will be designed for the expected volumes of traffic, and with pavement foundations informed by a CBR value.

DSA Drawing 11/13368/SK50 indicates a preliminary drainage strategy for the proposed development. This is based on limited archive information supplied to DSA.

The extent of new topographical survey required to complete the detailed design is indicated on the above drawing.

The extent of existing drainage recommended to be CCTV surveyed to verify its condition is indicated on the above drawing.

The location of soil infiltration rate testing to BRE Digest 365 is indicated on the above drawing. This is required to design surface water infiltration devices. The locations of CBR tests for pavement design are also indicated.
Discussed with the architect or lighting designer.

On site and verified by the architect or contractor.

Disclaimer: All details shown are indicative and subject to change. All dimensions to be checked.

Fittings required between central spaces to ensure adequate levels.

ERCO Site - 42W CFL
'E' denotes 3 hr emergency

10 lux
20 lux
30 lux
40 lux
5 lux
15 lux
25 lux
35 lux
45 lux

DW Windsor Evora - 35W HIT
5/35 Diamond Optic System on 4m column

DW Windsor Evora - 35W HIT
31/35 Diamond Optic System on 4m column, double head

Fittings required between central spaces to ensure adequate levels.
Site Wall-mounted luminaire
for compact fluorescent lamps

44570.000
Graphit m
TC-TEL 42W GX24q-4 3200lm
ECG

Product description
Reflector: metal, white (RAL9010) powder-coated.
Cover: impact-resistant plastic, clear, half painted silver light-proof.
Screw-mounted cover ring with protective grid: corrosion-resistant cast aluminium, double powder-coated.
Protection mode IP65: dust-proof and water jet-proof.
Weight: 3.50 kg
Evora

No longer compromise performance for style.
Evora is a contemporary, low-profile luminaire engineered to incorporate the very latest technologies including integral electronic gear and remote monitoring systems.

Now available for mounting heights of up to 10m and with an extensive range of lamps, from 45W CosmoPolis to 210W Philips MASTERcolour CDM Elite MW, Evora offers specifiers an extremely stylish, highly efficient lighting solution, providing low energy consumption, reduced CO² emissions and ultimately low cost of ownership through reduced maintenance and replacement costs.

Meeting the most stringent of performance criteria, Evora’s clean, unobtrusive design, with no visible fastenings is ideally suited to a wide range of applications including road, residential, amenity and car park lighting.
For projects where stylish design is a prerequisite, Evora’s distinctive bracket options complement a wide range of urban environments.

This dedicated range of brackets are manufactured in our UK facility (ensuring a lower carbon footprint) to provide a solution for every need. For further details on all available bracket options please visit www.dwwindsor.com (bespoke brackets can be made to special order).

Bracket options

For projects where stylish design is a prerequisite, Evora’s distinctive bracket options complement a wide range of urban environments.

This dedicated range of brackets are manufactured in our UK facility (ensuring a lower carbon footprint) to provide a solution for every need. For further details on all available bracket options please visit www.dwwindsor.com (bespoke brackets can be made to special order).
Introducing: MASTERColour® CDM Elite

Combining the lifetime efficiency and reliability of CosmoPolis with an unrivalled colour quality, Evora featuring Philips MASTERColour® CDM Elite MW offers distinct advantages over alternative light sources/competitor products.

High efficiency: excellent colour rendering (CRI 90+) and up to 120 lm/W gives superior, long-lasting white light, which combined with our patented Diamond Optic® reflector, could result in increased column spacings/fewer products needed to meet your lighting requirements – maximising any investment

Miniaturisation: Extremely compact the CDM Elite MW is 50% smaller than conventional HPI and HPL lamps yet offers improved efficiency and light distribution

Environmentally friendly: featuring low mercury and no lead, the high efficiency of the lamp and electronic driver means lower energy consumption and reduced CO₂ emissions. The long lamp life translates to reduced maintenance and replacement costs

Thermal Management

Evora has been designed from its very conception to provide exceptional performance.

With intelligent thermal management, Evora’s electronic components are housed within an active ‘Cool-Zone’. Separated from the heat source (lamp), the components operate at considerably lower temperatures, typically 20°C below the maximum allowable operating temperatures; consequently service life can be considerably extended. Typically a 10°C reduction in the temperature of the electronic ballast can increase life by circa 50,000 hours. Evora’s innovative Cool-Zone, which can incorporate integral control gear, photocell and remote monitoring units, is expected to provide an increased service life in excess of 100,000 hours (when standard electronic control gear is specified)*.

Evora’s superior thermal capabilities ensure that it is suitable for the NEW Philips 210W MASTERColour® CDM Elite MW (flat glass version only). Despite the high temperature generated by the 210W lamp, Evora’s unique Cool-Zone guarantee’s that the temperature of the electronic ballast remains within limits, safeguarding the service life of the gear and luminaire.

Electronic Ballasts

Evora will accept all of the most widely used market-available electronic ballasts for high pressure sodium, metal halide and CosmoPolis lamps.

Owing to Evora’s exceptional thermal management, ballasts will operate at much lower temperatures than the manufacturers recommended limits, extending life and reducing the lifetime carbon footprint of the product.

The benefits of electronic ballasts include:

Energy Savings: With greater efficiency compared to magnetic ballasts, electronic ballasts offer the same light output whilst consuming less power, reducing running costs and carbon footprint.

Lamp Life: Electronic ballasts with “soft” ignition all but eliminate wear on the lamp’s electrodes which is a major cause of light output depreciation and lamp failure. Lamps operate for much longer (reported up to twice as long), increasing service intervals and reducing maintenance costs and carbon footprint.

Light Output: Lamps run on electronic gear operate at a constant light output across their life irrespective of supply voltage variation.

Dimming: Certain electronic ballasts are able to dim discharge light sources, providing lower light levels during off-peak periods, lower energy use and carbon savings.

Remote Monitoring

The Evora is designed to accommodate the most popular remote monitoring systems on the market in a low ambient temperature environment, thus enhancing service life.

What is Remote Monitoring?

Using a remote monitoring system allows the control and monitoring of a luminaire from a PC/laptop or even mobile phone through mains-borne signalling or wireless technologies.

Using compatible software, the range of operations include:

■ Ability to change programming depending on site specific requirements
■ Pre-programmed dimming and switching of individual luminaires or groups of luminaires
■ Dimming can be configured in timed stages for different groups of fittings, with the ability to ramp up light levels during peak periods or in the event of an emergency
■ Lamp-life prediction and energy consumption monitoring
■ Remote fault recognition and diagnosis, and the ability to send automated messages to your contractor when site attendance is required

Lamps can now be monitored prior to failure therefore lamp changes and cleaning programmes can be efficiently planned and intervals extended. With scouting for lamps now completely avoidable, the carbon footprint of luminaire maintenance is reduced.

* Hanard Engineering Plc
1. High pressure die-cast aluminium construction
2. Single push button, for tool-less access
3. Cool-Zone housing control gear, photocell and remote monitoring units
4. Silicone gaskets
5. Plug/socket lamp connection and removable gear tray, retained by spring clips for life time tool-less maintenance
6. Built-in mechanical stop prevents over-opening
7. Quick release latch giving tool-less access to lamp
8. Optic contained within own chamber to contain heat, facilitating natural convection through canopy membrane
9. Secondary safety latch to ensure safe opening
Evora

IP66 – IK07 – Class I

Features:

■ Intelligent thermal management with active Cool-Zone - reduces operating temperature and extends service life of the electronic gear, providing lower life-time maintenance costs

■ 8 year DW Windsor guarantee on standard electronic ballasts *†

■ Product design life circa 40 years

■ Available with high-transmission flat glass for zero upward light pollution, or vandal-resistant polycarbonate bowl (IK10)

■ Wide range of light sources, including Philips MASTERColour® CDM Elite MW for superior colour quality over life

■ The sustainable choice - WEEE compliant, Evora is 98% recyclable

■ Evora offers tool-free access and maintenance via single push-button latch

■ Extremely low profile gives windage of just 0.05m² with flat glass and 0.07m² with dished glazing

■ Range of distinctive bracket options available

* Harvard Engineering Plc † Full terms and conditions available on request

Options

Evora:

For mounting at 6 – 10 metres

Evora LED:

For mounting at 6 – 8 metres

Glazing:

Polycarbonate bowl (IK10)

Flat Toughened Glass

Optical Control:

Diamond Optic®

LED Array (individually lensed)

Road Optic

Light Source:

45 – 140W CosmoWhite

‘210W CDM Elite MW

70 – 150W CDO-TT

70, 150, ‘250W SON-T+/HQI-E

70, 100, 150W CMH Streetwise

70, 150W CDM-T

42, 57W PL-T

* Flat glass only

Dimensions

<table>
<thead>
<tr>
<th>Dimensions (mm)</th>
<th>Weight (kg)</th>
<th>Windage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variant A</td>
<td>B</td>
<td></td>
</tr>
<tr>
<td>Evora</td>
<td>165</td>
<td>518</td>
</tr>
<tr>
<td>Evora*</td>
<td>132</td>
<td>518</td>
</tr>
</tbody>
</table>

* with flat glass

Mounting:

Side entry (42mm Ø)

Direct entry (76mm Ø)

Recyclable: 98%

Other:

Will incorporate a wide range of electronic gear types, including CosmoPolis

Will incorporate a wide range of remote monitoring systems

Miniature photocell available

Wire wound gear available, with timed ignitor as standard

Obtrusive light shield (except for flat glass)

Evora LED available April 2011, for further details visit www.dwwindsor.com

Road optic available September 2011

Materials

Body: Pressure die-cast aluminium

Seals: Silicone rubber

Finish: Polyester powder coated, any standard RAL

DW Windsor Lighting
Pindar Road, Hoddesdon, Hertfordshire, EN11 ODX
Telephone: 01992 474600 Fax: 01992 474601
E-mail: marketing@dwwindsor.co.uk
www.dwwindsor.com
Follow us: twitter.com/DWWindsor