

From: Mail <mail@highlights.co.uk>
Sent: Tuesday, June 6, 2023 3:35 PM
To: Facilities Dir. - HRFC <facilitiesdirector@havantrfc.co.uk>
Subject: RE: APP/23/00345 - Hook Lane Rugby Ground, Hooks Lane, Havant
Importance: High

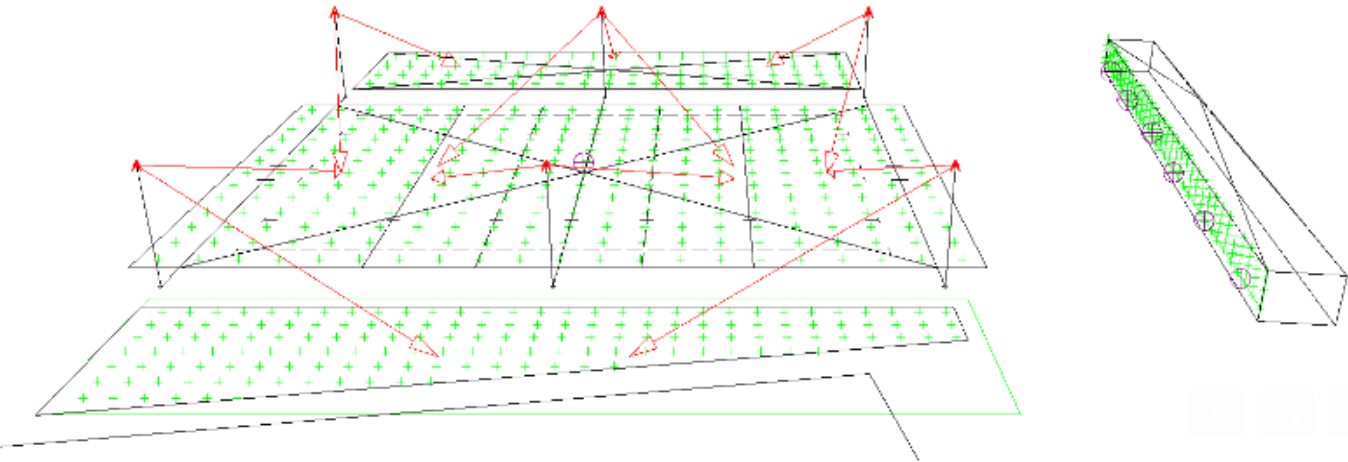
Good afternoon Gordon,

Thank you for your email. Please see our responses below. Please note the Lighting Design attached has been updated slightly with a Vertical Lighting Calculation to assist with the first question below.

1. The lights will not cause glare to neighbouring properties and users of Hook Lane.

Further to consultation with the 2021 Institute of Lighting professions guidance note document, calculation application fields of a horizontal and vertical orientation have been inserted into the site specific lighting design regarding Havant Rugby Club. To ensure the accurate positions of the calculation application fields, Google Earth imagery has been scaled accordingly via AutoCAD 2021 software, prior to import into Philips Calculux Lighting Design software.

The “green wall” applied to the houses pictured below on Hook Lane, represents the boundaries of the residential properties to which the 101 metre long lighting calculation “Vertical Property Grid” is based on. The green vertical calculation grid points start at 1.5 metres above ground level. This is to simulate the height of the centre of ground floor windows of the properties. The calculation grid points occur every three metres horizontally and every metre vertically, up to six metres high. It is the described high frequency of grid points, that ensures correct examination to the adjoining properties for vertical light spill. Please note; large natural barriers such as trees and fencing have not been considered whilst carrying out lighting calculations.



The 6 No. purple circles with crosses within the diagram above represent “observer points” used to calculate the predicted glare intensity at individual points across the boundaries of the residential properties within the Lighting Design.



SOURCE INTENSITY RESULTS:

The guidance note from the ILP (Institute of Lighting Professionals) for the reduction of obtrusive light (2021), advises that within a Rural E2 (Low district brightness) you should achieve the following:

- 1) Source intensity (Glare) should not be above 7500 Candelas (cd)
- 2) Vertical Illuminance should not be above 5 Lux on windows
- 3) Upward Light Ratio should not be above 2.5%

To aid proof of compliance to the above criteria, the 6 No. "observer points" demonstrate the luminaire intensity (glare) to the nearest neighbouring properties to the Rugby Club. The source intensity calculations can be found on page 7 of the attached 100 Lux LED Lighting Design document, and are as follows:

- Property Observer 1 Result = 1714 cd
- Property Observer 2 Result = 2015 cd
- Property Observer 3 Result = 2277 cd
- Property Observer 4 Result = 1967 cd
- Property Observer 5 Result = 1610 cd
- Property Observer 6 Result = 1144cd

The results are **below** the ILP guidance notes recommendations of 7500 cd.

VERTICAL CALCULATION RESULT:

The Vertical lighting calculation demonstrates the vertical illuminance (Light Intrusion) on to the surrounding residential properties. The maximum predicted Lux value is shown on pages 7 and 21 of the 100 Lux LED Lighting Design document, and is as follows:

Property Grid 1 Result = 1.07 Lux

The results are **below** the ILP guidance notes recommendations of 5 Lux.

UPWARD LIGHT RATIO RESULT:

The proposed Upward Light Ratio (ULR or Sky Glow) result can be found on page 7 of the 100 Lux LED Lighting Design document. The result is 0.00%.

The result complies with the ILP guidance notes recommendation of below 2.5%.

2. The design confirms to the Rugby Football Union’s (RFU) Floodlight Installation and Management Guide

I can confirm the lighting design complies fully with the 100 Lux Match play Floodlighting standard as detailed in the Rugby Football Union’s (RFU) Floodlight Installation and Management Guide as attached and below:

Using the measurements explained above, the RFU Regulations for floodlit matches and recommendations for floodlit training activity are summarised in table 1 below. RFU minimum requirements conform to CIBSE (Chartered Institution of Building Services Engineers) Lighting Guide 4.

	Levels 2-5		Levels 6-12	
	Matches	Training	Matches	Training
Maintained Illuminance	200 lux	100 lux	100 lux	100 lux
Uniformity	0.6	0.5	0.5	0.5
Glare	<50	<55	<55	<55
Colour	>60	>20	>20	>20

Should you need any further information, please do not hesitate to come back to me.

Many thanks

Kind Regards

Mark Peckham
Director

