



Abacus Lighting Design, Basketball Court – Thornbury

The Abacus lighting proposals are detailed on the design, these show the mast locations, floodlight orientations, illuminance levels on the pitch & projected overspill values. Also included is the obtrusive light compliance report which shows the results of the vertical overspill calculations taken on the surrounding properties, you can see that results show compliance to the obtrusive light guidelines for the location.

Horizontal Illuminance Levels							
Customer Specification							
Label	CalcType	Units	Avg	Min/Avg			
MUGA	Illuminance	Lux	200	0.60			
Calculation Summary							
Initial Calculations							
Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
MUGA	Illuminance	Lux	252	391	168	0.67	0.43
Calculation Summary							
Maintained Calculations							
Label	CalcType	Units	Avg	Max	Min	Min/Avg	Min/Max
MUGA	Illuminance	Lux	226	351	151	0.67	0.43

The design achieves a maintained average of 200 lux with 0.6 uniformity on the playing area, the maintained illuminance values are calculated using a maintenance factor of 0.90. This takes into account light losses due to dirt accumulation on the floodlight front glass & lamp lumen depreciation, ensuring that the minimum requirements for safe play are achieved. The obtrusive light calculations are calculated using a maintenance factor of 1.0, to reflect the lamps condition when brand new.

The use of the floodlight ensures that horizontal & vertical overspill containment is excellent. As less than 5 Lux vertical illuminance will be projected towards any residential property windows the system will exceed the requirements for an environmental zone E2 location. Upward waste light will also be minimised & at the floodlight elevations used less than 2.5% will be projected into the atmosphere. This will meet the recommendations of The Campaign For Dark Skies, an organisation who lobby for low light pollution systems & recommend the use of Abacus systems.

Obtrusive Light - Compliance Report

CIE 150:2017, E2-Low District Brightness, Pre-Curfew
Filename: LS4069031B Thornbury - Outdoor Basketball Court
04/08/2025 11:10:59

Illuminance

Maximum Allowable Value: 5 Lux

Calculations Tested (6):

Calculation Label	Test Results	Max. Illum.
Tree Line 2	PASS	0
Tree Line 2	PASS	0
Tree Line 2	PASS	0
Tree Line	PASS	0
Tree Line	PASS	0
Tree Line	PASS	0



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As you can see from the 'Obtrusive Light – Compliance Report' we have completed vertical illuminance calculations on the surrounding Tree lines and they all **pass/meet** the requirements of the ILP guidance notes on obtrusive light. All design calculations have been undertaken using an open, unobstructed site, the values of overspill will be further reduced any existing buildings, mature trees or natural screening.

We have generated multiple lighting designs for the project which demonstrate that light levels on the surrounding tree lines remain at or below 0.5 lux, with only a minimal overlap that slightly exceeds this level. These results were achieved without the use of shields, as photometric data for the shields is not available.

It is important to highlight that the luminaires we intend to install will be fitted with shields. The purpose of these shields is to restrict backward and upward light output, focusing illumination only where it is required. In practice, this will further reduce any potential light spill onto the adjacent trees and provide an additional safeguard beyond the levels already demonstrated in the designs.

For reference, I have attached a photo of our Challenger 1 floodlight fitted with a shield as an example.

Figure 1 - Front & Side Cowl



Figure 2 - Rear Cowl



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