

Technical Lighting Report

Proposed New Floodlighting Installation – Netball Courts River Academy, Reading RG1 8EQ

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1. Introduction

River Academy, Reading RG1 8EQ, in partnership with Direct Sports Lighting (DSL), is proposing the installation of a purpose-designed, low-energy LED floodlighting system to serve the outdoor netball courts within the school grounds. The courts are currently unlit, which restricts their use during autumn and winter months.

The proposed lighting installation will enable extended curriculum, training, and community use while providing a safe, high-quality sporting environment. The system has been carefully designed to deliver the required lighting performance for netball while minimising light pollution, glare, and visual impact on neighbouring properties.

2. Design Standards and Performance Criteria

The floodlighting design has been developed in accordance with current sports lighting guidance and best practice, including relevant recommendations from CIBSE and the Institution of Lighting Professionals (ILP).

2.1 Illuminance Levels

The lighting has been designed to provide appropriate illumination for netball activity:

- **Maintained average horizontal illuminance:** 400 lux
- **Uniformity (U_o):** In line with recognised guidance for outdoor netball courts

These levels ensure suitable visual conditions for players, officials, and spectators, supporting safe and effective play.

3. Environmental Zone Assessment

The site at River Academy is located within an established urban residential area. In accordance with the Institution of Lighting Engineers' *Guidance Notes for the Reduction of Light Pollution*, the site is considered to fall within:

- **Environmental Zone E3 – Medium District Brightness**

- Typical of suburban and urban residential locations

This classification has informed the lighting strategy to ensure that light spill, glare, and sky glow are controlled and maintained within acceptable limits.

4. Lighting Column Height and Arrangement

Lighting column heights have been determined using guidance from **CIBSE LG4: Sports Lighting**, taking into account sight lines, beam control, and environmental considerations.

- **Column height:** 8 metres

The selected 8-metre height represents an optimal balance between performance and impact, allowing:

- Accurate light distribution across the courts
 - Effective glare control
 - Reduced overspill beyond the site boundary
 - A modest daytime visual profile appropriate to the school environment
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5. Luminaire Selection

To meet both performance and environmental requirements, a high-efficiency LED sports floodlight with advanced optical control has been specified.

Key characteristics include:

- Precision asymmetric optics for targeted illumination
- Very low upward light output ratio (ULOR)
- Excellent cut-off control to limit light spill and glare
- High efficacy to reduce energy consumption

The selected luminaire is fully compatible with Environmental Zone E3 requirements and is widely used in education and community sports settings.

6. Light Pollution and Mitigation Measures

A range of mitigation measures has been incorporated into the design to minimise environmental impact:

- Careful positioning and aiming of luminaires

- Use of shielding and glare control accessories where required
- Strict control of beam angles to prevent overspill beyond the courts
- Lighting levels designed to meet, but not exceed, the required standard

While lighting columns and luminaires will be visible, the overall design ensures a restrained and sensitive installation appropriate to the surrounding area.

7. Operational Hours and Controls

The floodlighting will operate during agreed hours only, supporting school and community use while protecting residential amenity.

- **Proposed hours of use:**
- Monday to Friday: 16:00 – 21:30 (seasonal use, typically September to April)

To ensure compliance:

- Lighting will be controlled via an automated time-clock system
 - This prevents accidental operation outside permitted hours and removes reliance on manual switching
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8. Lighting Design Calculations

The proposal is supported by a full computer-generated lighting design prepared by Direct Sports Lighting, which details:

- Lighting column locations
- Luminaire orientations
- Calculated illuminance levels across the courts
- Predicted light spill at site boundaries

The design achieves a **maintained average illuminance of 400 lux**, calculated using an appropriate maintenance factor to account for:

- Luminaire lumen depreciation over time
- Minor dirt accumulation on optical surfaces

This ensures that lighting performance remains compliant throughout the operational life of the system.

9. Contextual Lighting Levels (For Reference)

Light Source	Typical Horizontal Illuminance
Full moon	0.3 – 0.5 lux
Residential street lighting	5 – 15 lux
Car park (non-retail)	20 – 30 lux
Office / classroom	250 – 750 lux
Outdoor netball (training/competition)	~400 lux
Professional stadium	800 – 2500 lux
Bright sunny day	80,000 – 120,000 lux

10. Conclusion

The proposed LED floodlighting installation at River Academy, Reading RG1 8EQ, has been carefully designed to provide high-quality illumination for netball while minimising environmental impact. The system meets recognised lighting standards, incorporates robust light pollution controls, and includes operational safeguards to protect neighbouring amenity.

Direct Sports Lighting is an established specialist in low-pollution sports lighting, delivering sustainable, efficient solutions for education and community facilities across the UK.