# Technical Report.

**GREENWAY HALL GOLF CLUB– PROPOSED FLOODLIGHTING TO THE DRIVING RANGE**

**17/07/2017**

**DRIVING RANGE FLOODLIGHTING**
**LOW LIGHT POLLUTION INSTALLATION**

**Josh Egginton – Abacus Lighting Ltd**

Greenway Hall Golf Club and Abacus Lighting Ltd are proposing the installation of floodlighting to the existing driving range.

## Abacus Design Outline.

In designing as suitable floodlighting solution for the driving range at Greenway Hall Golf Club, key specification issues had to be considered. These included the illuminance level required, the environmental zone category for the site, the minimum floodlight height & the number type of floodlights. Details of how these issues were resolved are as follows:-

1. To ascertain the illuminance level required we referred to the 'CIBSE Lighting Guide 4: Sports Lighting' minimum requirements. This requires a minimum illuminance level of 50 Lux on the area.
2. For the relevant environmental zone reference was made The Institution of Lighting Engineers: *Guidance Notes for The Reduction of Light Pollution, 2000*.(as attached). This document categorises the environment into four zones ranging from National Parks to City Centres. The site would fall into Zone E3 for a suburban location.
3. Abacus have taken every care and consideration into the floodlighting design, this includes positioning of the floodlights to reduce the impact of floodlights on the local properties. Abacus appreciate that the floodlights are going to be noticeable, however everything has been undertaken and designed to ensure that this provides minimal impact on the neighbours.

## Abacus A5900 Challenger 3 Floodlight.

Benefits

• The Challenger 3 delivers an optically precise symmetrical beam specifically designed and suited to stadium floodlighting requirements

Technical Features

• Body of high pressure die cast aluminium, finished in light grey (RAL7035), polyester powder coating

• Reflector system of high purity, polished and anodised aluminium. Incorporating an internal baffle to improve efficiency and reduce glare

- Toughened front glass, secured by cast aluminium front frame
- Galvanised steel stirrup, with additional elevation locking screws
- Electrical connection box (IP66) housing ignitor, located on side of stirrup, fitted with 2 x Gore™ membrane breathers

- Designed to accept double ended, short arc 2kW or 1kW metal halide lamps
- Dual provision on side of floodlight body to attach gun sight aiming device to allow accurate beam alignment (AL5931)
- Easy access for re-lamping via opening of the rear cover. Positive closure via large stainless steel catch

For full details of dimensions & specification please see the colour brochure enclosed.

**Abacus Lighting Design**

The Abacus lighting proposals are detailed on the design, these show the floodlight locations, floodlight orientations, illuminance levels on the range & projected overspill values.

For the range the design achieves a maintained minimum illuminance value of just over 50 Lux. The maintained illuminance values are calculated using a maintenance factor of 0.80. 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.

All design calculations have been undertaken using an open, unobstructed site, the values of overspill will be further reduced any existing mature trees or natural screening.

**Conclusion.**

The proposed system would be suitable for installing in an environmental zone E2, meeting the most stringent of light control parameters whilst maintaining the specified illuminance levels on the range.

The impact on residents will be minimised as overspill values into gardens will be no more than moonlight & vertical illuminance into windows before curfew are below the values recommended by the ILE. Daytime visual impact will also be minimised by using slimline masts & light grey floodlights which do not stand out against the skyline.

For reference please see below a description of lighting levels.

| Light Source | Horizontal Lux |
|---|---|
| | |
| Full Moon | 0.3 to 0.5 |
| Street Lights – Footpath | 3 to 10 |
| Street Lights – Residential Area | 5 to 15 |
| Typical City Centre Car Park(non retail) | 20 to 30 |
| Office/Classroom | 250 to 750 |
| Professional Stadium | 800 to 2500 |
| Sunny Day | 80,000 to 120,000 |

Once installed the AL5900 series light control system will provide the optimum sports lighting solution.

Abacus Lighting Limited are world leaders in the design & manufacture of low pollution exterior lighting solutions. For further information regarding Abacus low light pollution products please contact our Head Office on 01623 511111 or visit our Web Site www.abacuslighting.com

For and on behalf of **Abacus Lighting Limited**

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