

TECHNICAL NOTE

Project name Arborfield - District Centre Nursery and Pre-school	Project number 60312043	Client Crest Nicholson Operations Ltd.	Subject Lighting Assessment
Date 12 August 2026	Document ref 60312043-BOHUNT-TEC-1301-C		

1. Introduction

AECOM has been commissioned by Crest Nicholson Operations Ltd. to deliver environmental services in support of planning for the development of Arborfield Garrison. The development parcel known as the District Centre Nursery and Pre-school, Arborfield, RG2 9GB, is the subject of a reserved matters application, pursuant to Outline planning consent (O/2014/2280) for the provision of a nursery, pre-school and six residential dwellings, together with associated access, car and cycle parking, landscaping and infrastructure.

This technical note has been produced to assess the potential impact of existing sports lighting installed at Bohunt School sports field on the new proposed housing that immediately adjacent to the school's western boundary.

This report has been prepared to support a new reserved matters application and follows a similar format to that produced for the previous application, dated 4 April 2023, relating to the impacts of the sports lighting at Bohunt School on a housing development to the north of the sports field. During pre-application discussions, Wokingham Borough Council had raised a concern that the proposed housing within the vicinity of the sports field will be impacted by the potentially high light levels. The lighting assessment that was produced for the previous development is provided in document ref. 60312043-BOHUNT-TEC-1301-B.

For the current development application, an extract from the masterplan for this part of the site, identifying potentially impacted properties, is presented below as Figure 1.1.

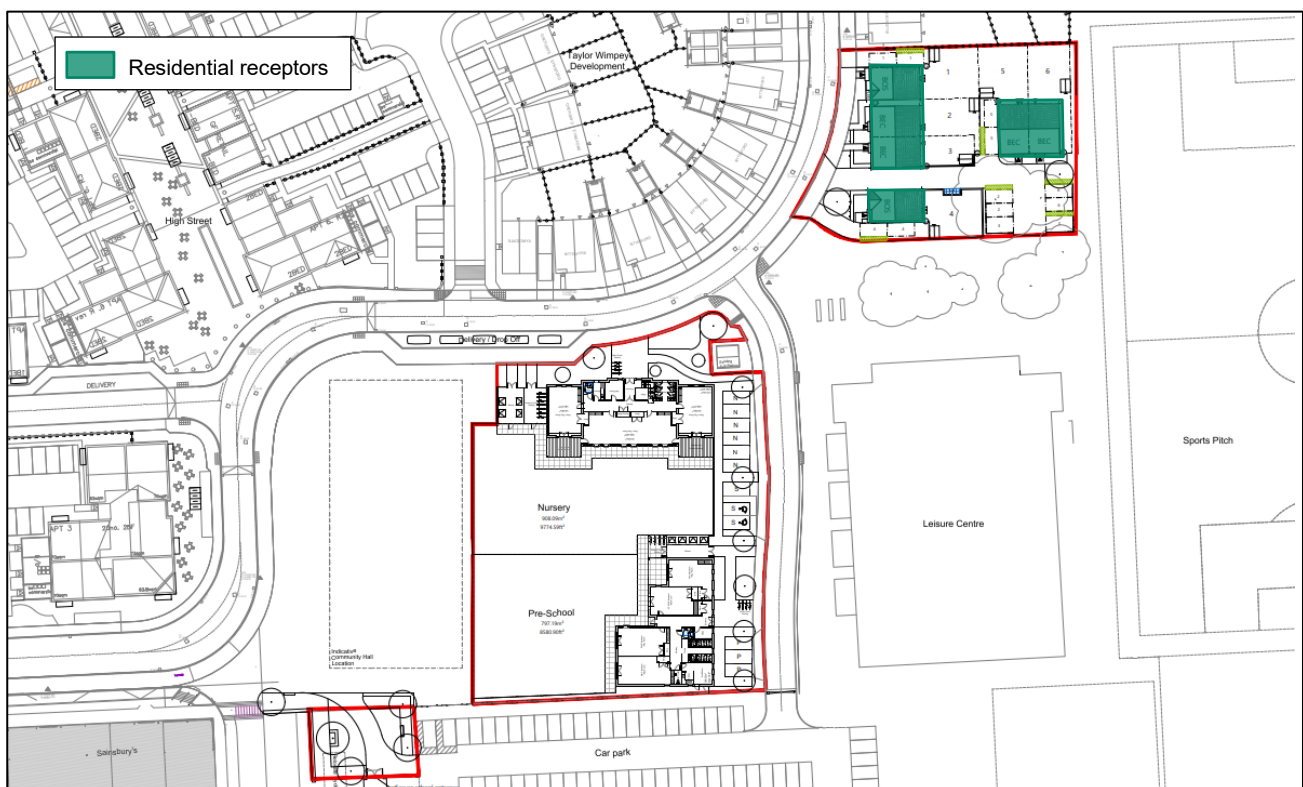


Figure 1.1 Extract of Masterplan showing proposed residential housing potentially affected by sports lighting
(Thrive Architects drawing no. TL.01 Rev P12)

2. Background

The design of the sports lighting for the Bohunt School sports field was developed and constructed in 2017. The sports field closest to the housing development is lit by Kingfisher Scorpius floodlight luminaires mounted on 15m octagonal mid-hinged columns using 1kW HQI-T (metal halide white light lamps) and 65-degree hoods as shown in Figure 2.2.



Figure 2.2 Kingfisher Scorpius Floodlight

Using Lighting Reality Outdoor to model the sports field lighting situation, it was found that the light level at ground level ranged from 9 lux – 183 lux with the greatest light level occurring in the south-east region of the sports field.

Outside of school hours, regular uses for the sports field include football, rugby and frisbee games between 5:30PM – 9:30PM on weekday and weekends.

Presently under consideration for obtrusive lighting effects originating from the sports lighting is the proposed small housing development to the west of sports field at approximately 6 m from the sports field to the nearest property structure.

3. Assessment Methodology

To assess the impact of the sports lighting on the surrounding area, the lighting design and proposed housing layout has been modelled in Lighting Reality Outdoor to obtain the horizontal and vertical spill light.

The lighting has been modelled horizontally at 0m, 5m and 10m elevations and vertically over the height of the properties to the west of the sports field. The vertical calculation surfaces were modelled on the north, east, and southern walls of the nearest two new proposed residences, as these were considered most likely to experience light obtrusion (.

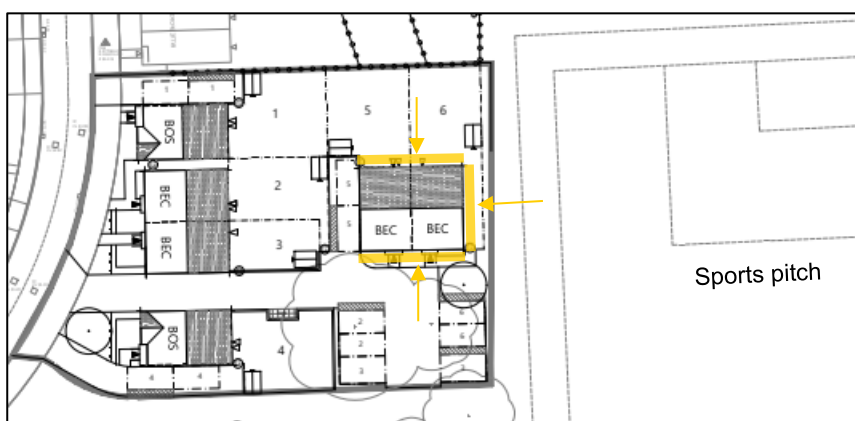


Figure 3.3 Vertical Calculation Surfaces of Light Sensitive Residential Properties

The method of modelling used assumed that the study area around the lighting columns was flat with no structures or vegetation and means that the most intense lighting scenario has been being modelled.

4. Assessment Results

An investigation into the lighting showed that light spill would impact the properties to the west of the sports field.

Table 4-1 shows the levels of spill light affecting the western properties over a horizontal area.

Table 4-1. Horizontal Light Spill Intensity Affecting Properties West of the Sports Field

Elevation (m)	Light level (lux)
0	3 - 20
5	1 - 20
10	1 - 8

Figure 4.4 and Figure 4.5 over show the horizontal lighting contours of the area local to the sports field.

The maximum horizontal illuminance is shown moving into the western property boundary is exhibited at the 10 m level due to the very close proximity of the sports lighting poles, where at height and directly under the luminaires the light levels are more intense. This effect drops off at a distance of approximately 8 horizontal metres from the pole as the light spreads more evenly and contributions from all adjacent lighting poles means the higher light levels are exhibited at ground level.



Figure 4.4 Horizontal Lighting Contour Plan at 0m Elevation

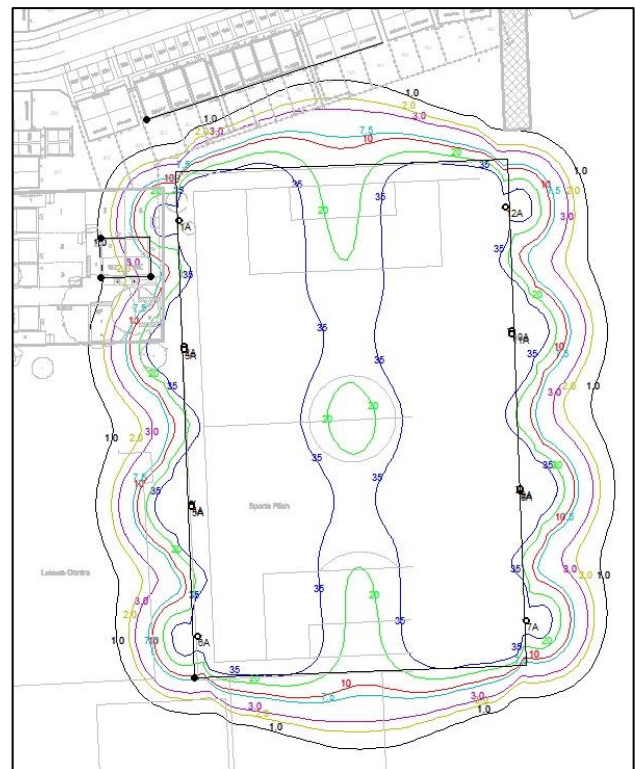


Figure 4.5 Horizontal Lighting Contour Plan at 5m Elevation

Vertical light modelling on the residential properties shows that they would experience the greatest light intensity towards the upper storey height, where the maximum light level was **14.2 lux** on the eastern façade directly facing the sports pitch, as shown in the vertical lux map in Figure 4.7. The vertical light modelling on the properties show that at eye level of the first floor (approximately 4m elevation from ground level), the maximum light level was **6.8 lux** on the northern façade (building rear) as shown in Figure 4.7 and was **6.1 lux** on the southern façade (building front) as shown in Figure 4.8.

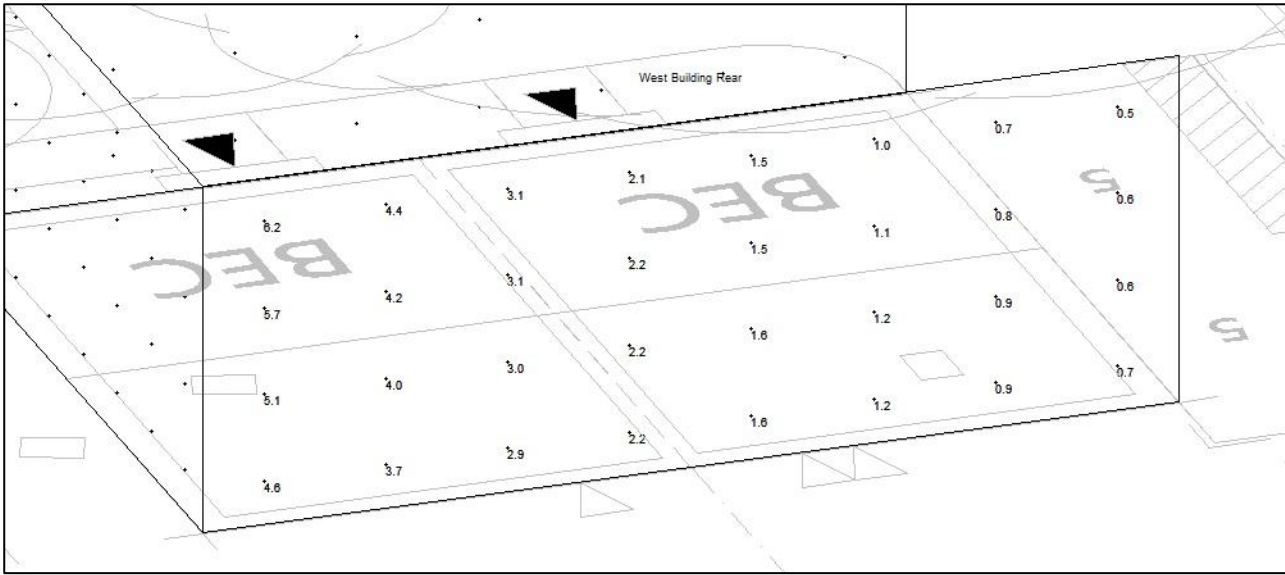


Figure 4.6 Vertical Lighting Lux Levels on the Western Properties – North Facade

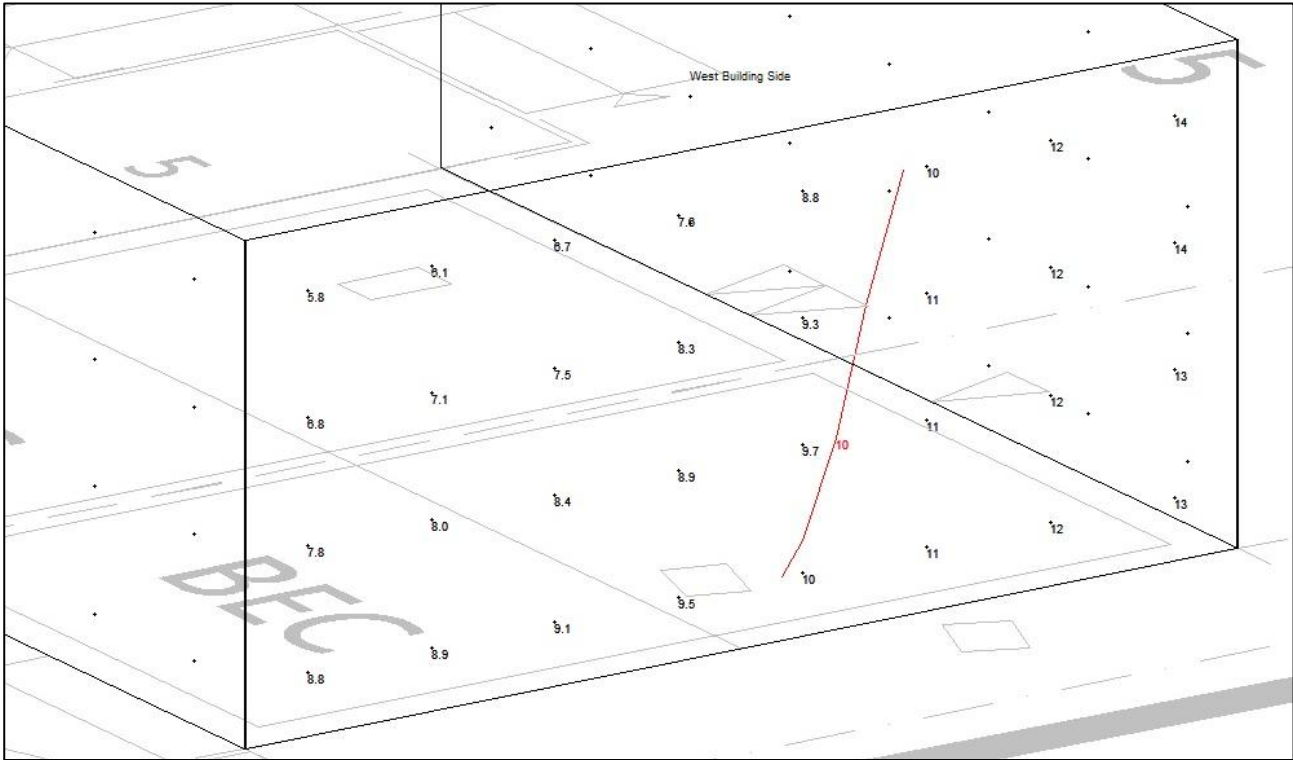


Figure 4.7 Vertical Lighting Lux Levels on the Western Properties – West Façade (facing the sports field)

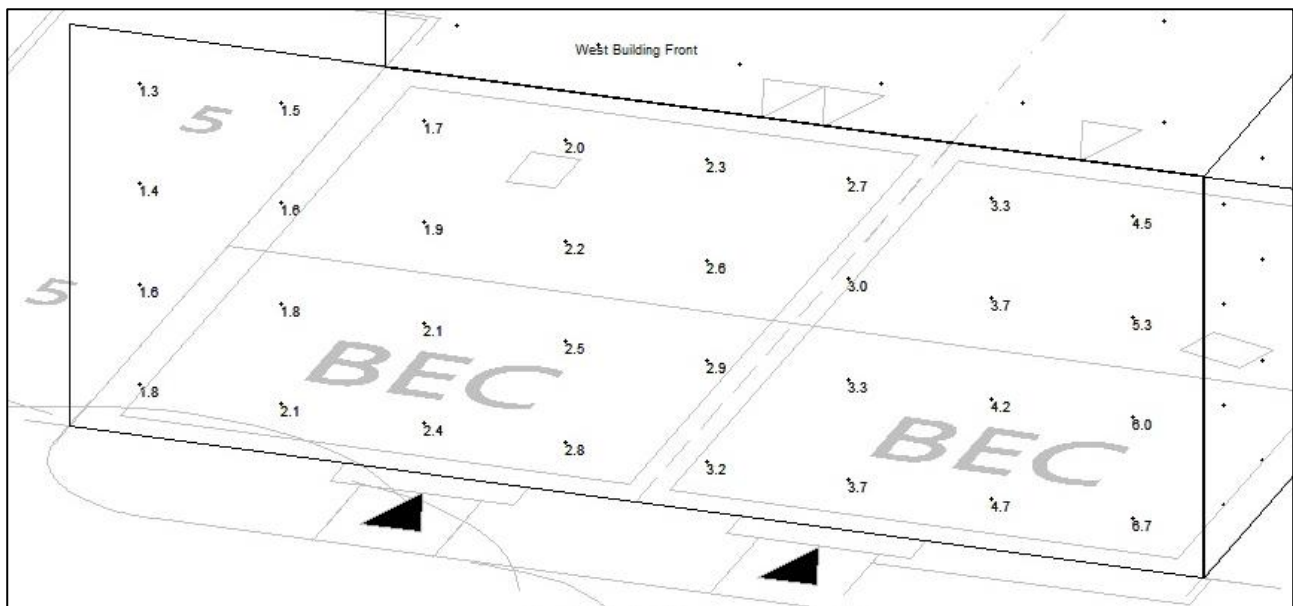


Figure 4.8 Vertical Lighting Lux Levels on the Western Properties – South Façade

The District Centre housing development falls within a suburban surrounding and according to the Institution of Lighting Professionals GN01:2021 – Guidance Note for the Reduction of Obtrusive Light, suburban areas are identified as Environmental Zone E3 as shown in Table 4-2.

To meet the best practice targets outlined in the ILP GN01 guidance, vertical illuminance of properties in an E3 environmental zone should be no more than 10 lux pre-curfew, as shown in Table 4-3.

Table 4-2 Environmental Zones

Zone	Surrounding	Lighting environment	Examples
E0	Protected	Dark (SQM 20.5+)	Astronomical Observable dark skies, UNESCO starlight reserves, IDA dark sky places
E1	Natural	Dark (SQM 20 to 20.5)	Relatively uninhabited rural areas, National Parks, Areas of Outstanding Natural Beauty, IDA buffer zones etc.
E2	Rural	Low district brightness (SQM ~15 to 20)	Sparsely inhabited rural areas, village or relatively dark outer suburban locations
E3	Suburban	Medium district brightness	Well inhabited rural and urban settlements, small town centres of suburban locations
E4	Urban	High district brightness	Town/city centres with high levels of night-time activity

Table 4-3 Maximum Values of Vertical Illuminance on Properties [ILP 01/20]

Light technical parameter	Application conditions	Environmental zone				
		E0	E1	E2	E3	E4
Illuminance in the vertical plane (E_v)	Pre-curfew	n/a	2 lx	5 lx	10 lx	25 lx
	Post-curfew	n/a	<0.1 lx*	1 lx	2 lx	5 lx

Note:

* If the installation is for public (road) lighting then this may be up to 1 lx.

Having reviewed the proposed plans and elevations for these houses, we note that no windows are proposed on the eastern elevation, which is the only façade predicted to exceed the pre-curfew target illuminance level.

The lighting modelling demonstrates that the northern and southern façades, where habitable room windows are proposed, will experience illuminance levels of 6.1 lux and 6.8 lux respectively, both of which comply with the applicable pre-curfew obtrusive light criteria. While these façades are not compliant with the 2 lux post-curfew standard, Bohunt School has confirmed that the sports lighting will not be operated beyond 9:30pm and therefore the post-curfew assessment criteria are not considered applicable. On this basis, the proposed dwellings are considered acceptable in lighting terms and no mitigation is required.

Section 5 below outlines a range of mitigation measures that could be incorporated to further reduce the visual effects of the sports lighting and enhance residential amenity, although these measures are not required to achieve compliance with the relevant lighting criteria.

5. Potential Mitigation

While the assessment demonstrates that the proposed dwellings are compliant with the applicable pre-curfew obtrusive light criteria, we recognise that the perception of light spill is subjective and that any reasonable measures which further improve residential amenity may be welcomed by future occupants. Light spill towards the proposed development could be further reduced through the installation of suitably sized light shields and glare cowls on the floodlights closest to the development (examples shown Figure 5.9).

These measures are relatively simple to install and can effectively reduce rearward light spill. We recommend liaising with Wokingham Borough Council to agree the installation of light shields on the one or two lighting columns nearest the proposed development. Suitable product specification and supplier links are provided in Appendix A.



Figure 5.9 Examples of Luminaires with Rear shields, Glare cowl, Hood, Shield and Louvres

To reduce the larger spread of light spill into the property boundaries, it is also recommended to install fencing and plant suitably dense / tall vegetation along the eastern property boundary. Effective mitigation of light spill through the ground floor windows, would require planting and installed fences to be at least 2 m tall.

Notwithstanding the above, due to the height of the lighting columns, the floodlights will remain visible from surrounding properties when in operation. The measures outlined above would therefore serve to reduce light spill and improve visual amenity, although they are not required to achieve compliance with the relevant lighting criteria.

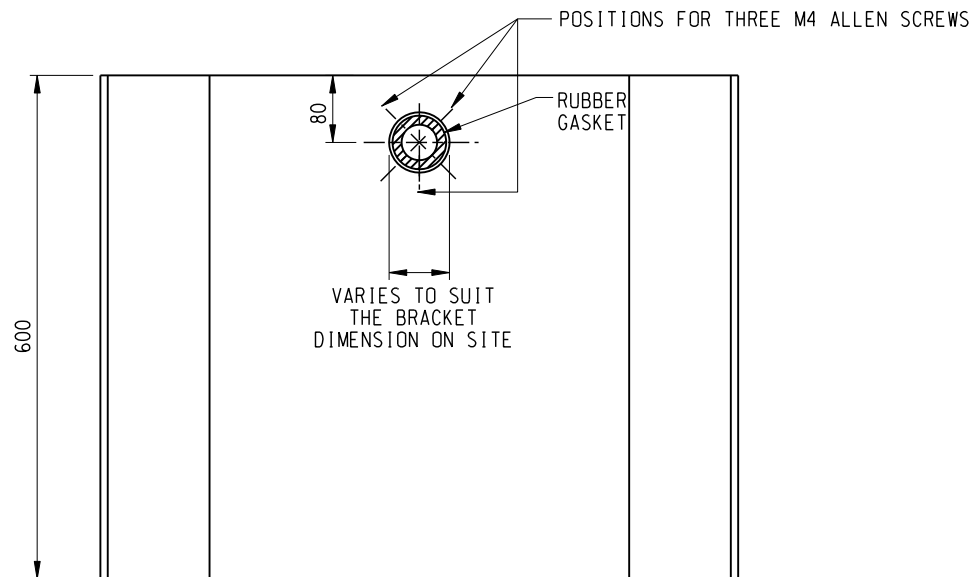
Appendix A

Manufacturing detail drawing for light shield:

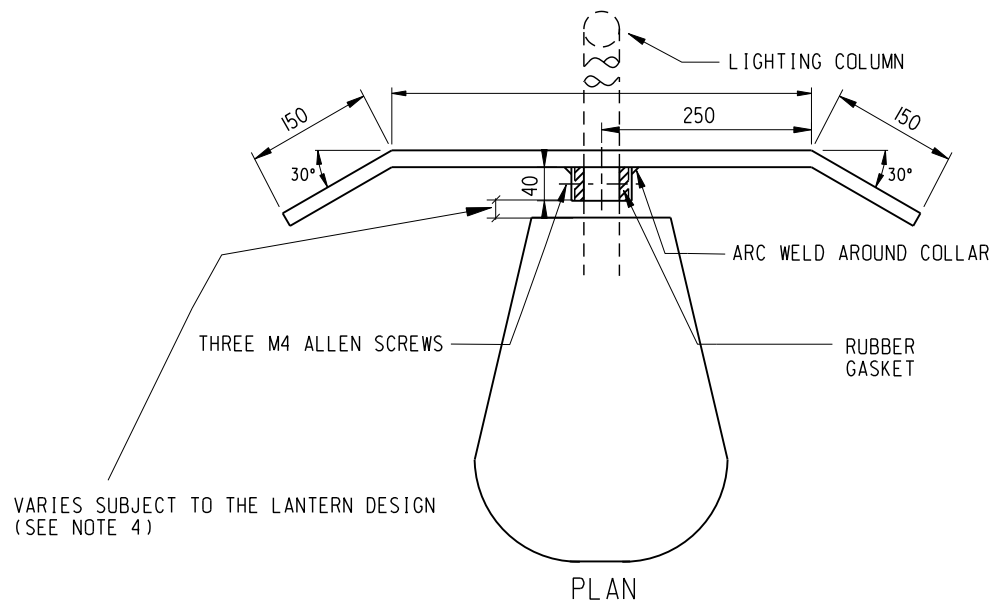
- Drawing no. HLDSGE01-CL0007D – Light Shield for Street Lights
- next page

For off-the-shelf luminaire light shields see:

- Gemma Lighting - [Street Lighting Accessories | Photocells, Shields & Guards | Gemma Lighting](#)
- Pudsey Diamond - [Hose Clip Shields | Lighting Shields | Pudsey Diamond UK](#)



FRONT ELEVATION



NOTES:

1. MATERIAL FOR THIS SHIELD SHALL BE 2mm THICK MILD STEEL PLATE AND HOT DIP GALVANISED TO BS EN ISO1461.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. THE FINAL DETAILS SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER.
4. LIGHT SHIELD SHALL BE INSTALLED CLOSEST TO THE LANTERN AS FAR AS POSSIBLE.

D	Lantern and note 5 added		Apr 09
C	Rubber gasket added General revision		Feb 06
B	General revision		Jul 05
A	General revision		Jul 02
	Former Drg. No. LDSD2000-CL0007 with general revision		Dec 01
REF.	REVISION	SIGNATURE	DATE

LIGHT SHIELD FOR STREET LIGHTS

HIGHWAYS DEPARTMENT LIGHTING DIVISION

REFERENCE	DRAWING No.	CAD
SCALE N.T.S.	HLDSGE01-CL0007D	