

## Light Impact Assessment - Former Romar Factory, Ivy Mill, Main Street, Hensingham, Whitehaven

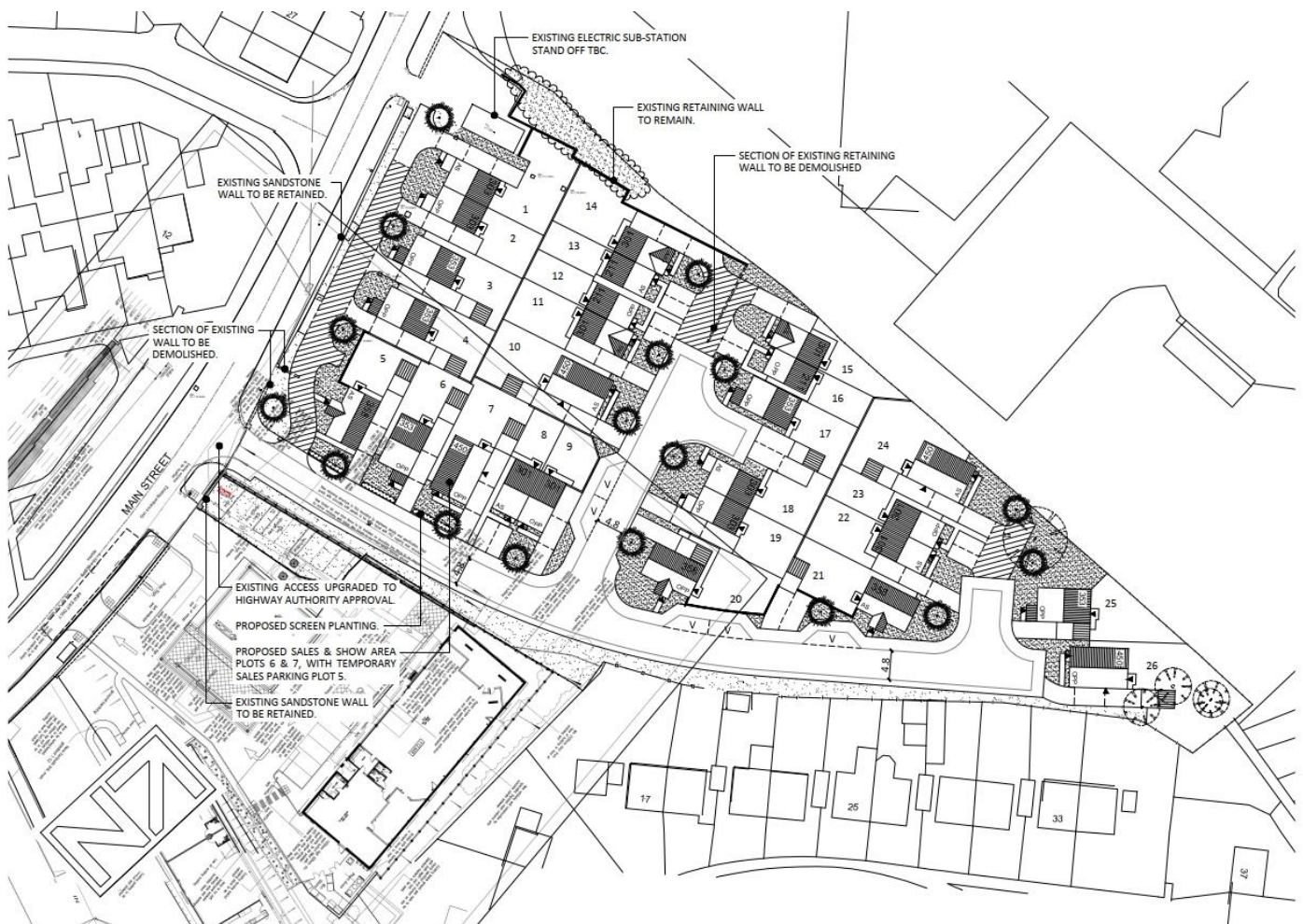


Gleeson Homes  
Ivy Mill, Main Street,  
Whitehaven,  
Cumbria, CA28 8TP

## Forward:

Pettit Singleton Associates (PSA) have been appointed by Gleeson Homes to assess the impact of the lighting installed within the adjacent spar petrol garage on their new proposed residential development at Ivy Mill, Main Street, Whitehaven. This is in response to the pre commencement planning condition (number 3) within the planning approval issued by Copeland borough council. Application No: 4/20/2334/OR1.

In order to assess the lighting impact on the proposed development, PSA have replicated the lighting design installed within the spar petrol garage site and calculated the light spill impact on the proposed development. The findings and associated calculation information are detailed within this report/drawing.



*Proposed Development Approved Site Plan*

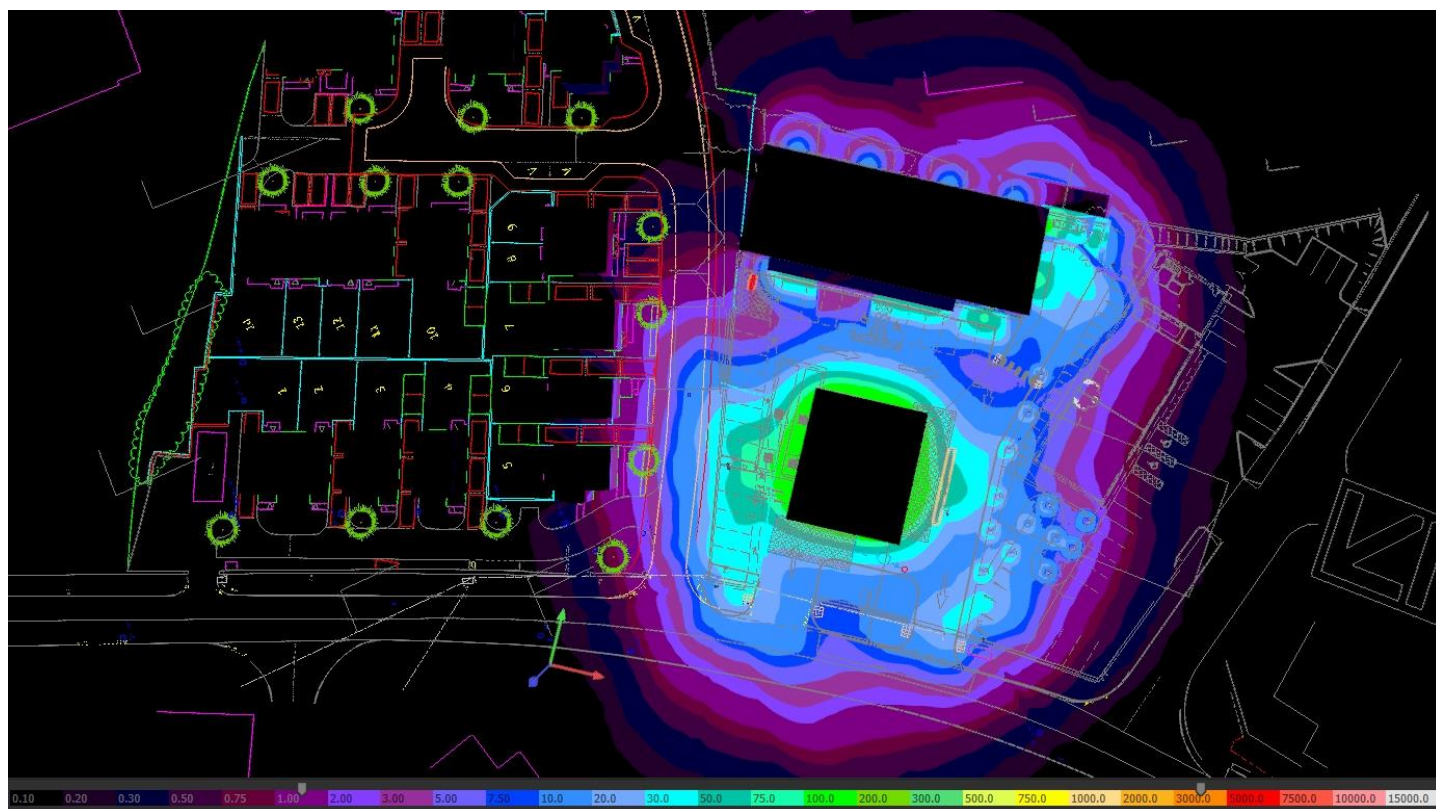


## Findings

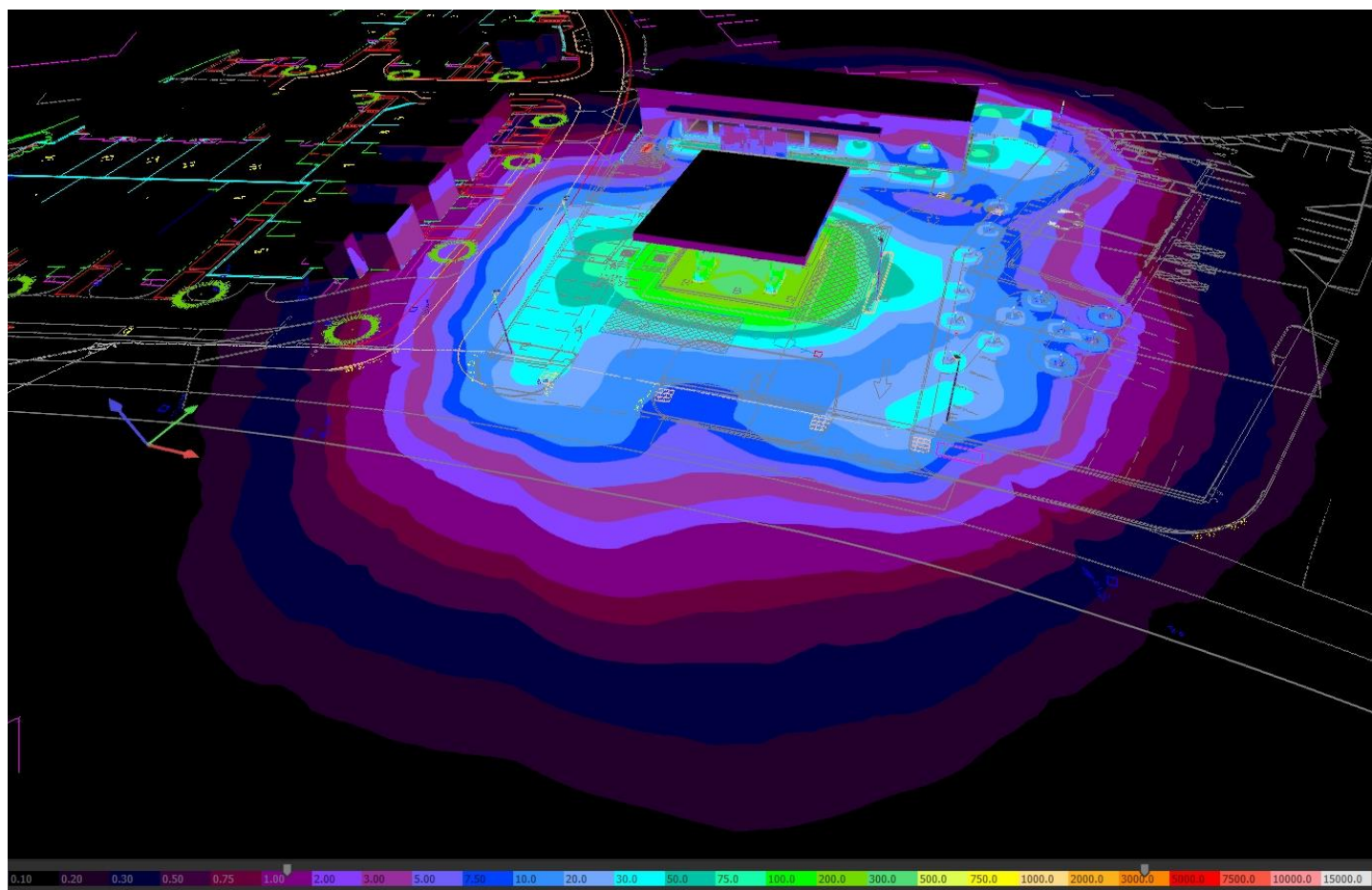
The spar petrol garage is operational 24 hours a day. The external lighting operates on a time switch and day/night sensor whilst the garage is open meaning the external lighting will be on all night. The canopy lighting operates on the same principle but with added presence detection dimming down to 50% when no presence is detected. The C wall mounted bulkheads operate as security lights via on/off presence detection.

The installed lighting has been 3D modelled and the lighting spill impact calculated in relation to the proposed development. The calculation details are below and full detailed information is provided on the drawing within Appendix 1:

- There is minimal light spill into four proposed adjacent properties: A maximum of 3-4 lux on the face of the external wall/window.
- The light spill is primarily from the canopy lighting – As highlighted these do dim to 50% when presence is not detected.



*External Lighting Spill Model Image 1*



*External Lighting Spill Model Image 2*

## ENVIRONMENTAL ZONES:

It is recommended that Local Planning Authorities specify the following environmental zones for exterior lighting control within their Development Plans.

Category	Examples
E1:	Intrinsically dark landscapes National Parks, Areas of Outstanding Natural Beauty, etc
E2:	Low district brightness areas Rural, small village, or relatively dark urban locations
E3:	Medium district brightness areas Small town centres or urban locations
E4:	High district brightness areas Town/city centres with high levels of night-time activity

*Environmental Zones*



Table 1 – Obtrusive Light Limitations for Exterior Lighting Installations						
Environmental Zone	Sky Glow ULR [Max %] <sup>(1)</sup>	Light Trespass (into Windows) Ev [Lux] <sup>(2)</sup>		Source Intensity I [kcd] <sup>(3)</sup>		Building Luminance Pre-curfew <sup>(4)</sup>
		Pre- curfew	Post- curfew	Pre- curfew	Post- curfew	Average, L [cd/m2]
E1	0	2	1*	2.5	0	0
E2	2.5	5	1	7.5	0.5	5
E3	5.0	10	2	10	1.0	10
E4	15.0	25	5	25	2.5	25

- ULR** = Upward Light Ratio of the Installation is the maximum permitted percentage of luminaire flux for the total installation that goes directly into the sky.
- Ev** = Vertical Illuminance in Lux and is measured flat on the glazing at the centre of the window
- I** = Light Intensity in Cd
- L** = Luminance in Cd/m2
- Curfew** = The time after which stricter requirements (for the control of obtrusive light) will apply; often a condition of use of lighting applied by the local planning authority. If not otherwise stated – 23.00hrs is suggested.
- \*** = From Public road lighting installations only

## Environmental Zones Table

We would perceive the location to be classified as E4.

## Summary

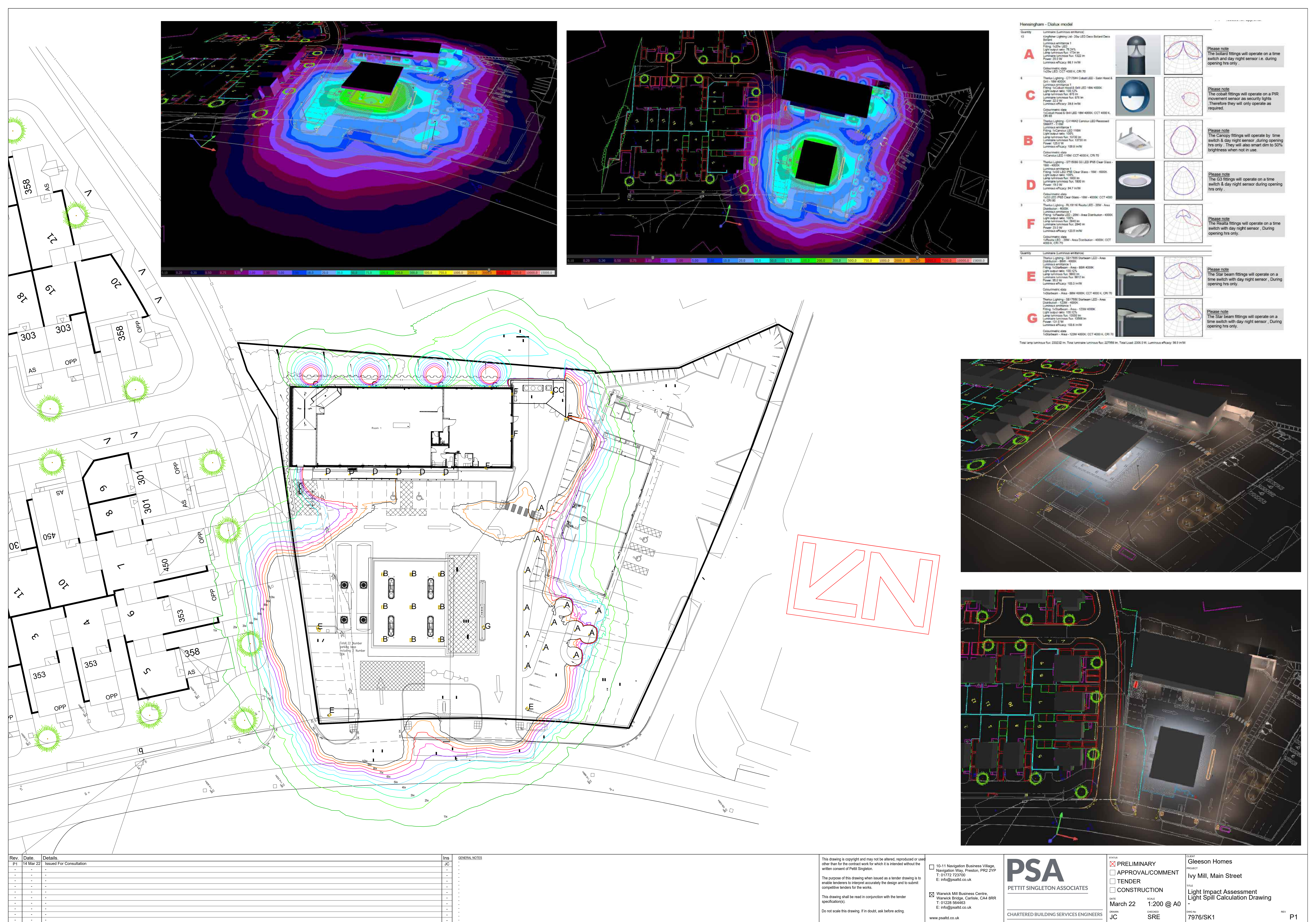
Due to the urban location of the development and the minor calculated maximum light spill, we do not believe that the current spar petrol garage lighting will provide an adverse impact on the proposed Gleeson House development.

The developer of the garage has carefully considered the initial design to provide adequate lighting for use as well as suitable controls for minimal light spill and energy saving.

A night time illuminance reduction could be requested from the spar developer if the planning authority deem the above light spill to be unsatisfactory. This would be subject to a risk assessment. Alternatively the reduction in operational pumps after a set time could be considered, this would allow some luminaires to be switched off entirely.

## Appendix 1 Light Spill calculation Drawing





Hensingham - Dialux model

Quantity	Luminaire (Luminous emittance)			
13	Kingfisher Lighting Ltd - 20w LED Deco Bollard Deco Bollard			
<b>A</b>	Luminaire emittance 1 Filing: 102w LED Lamp luminous flux: 1734 lm Luminaire luminous flux: 1822 lm Power: 20.0 W Luminous efficacy: 86.1 lm/W Colourimetric data 102w LED: CCT 4000 K, CRI 70			<b>Please note</b> The bollard fittings will operate on a time switch and day night sensor i.e. during opening hrs only
6	Thorius Lighting - GT15041 Caball LED - Sate Hood & Grill - 18W 4000K Luminaire emittance 1 Filing: 102w LED Lamp luminous flux: 1734 lm Luminaire luminous flux: 1822 lm Power: 20.0 W Luminous efficacy: 86.1 lm/W Colourimetric data 102w LED: CCT 4000 K, CRI 70			<b>Please note</b> The bollard fittings will operate on a PIR movement sensor as security lights. Therefore they will only operate as required.
9	Thorius Lighting - GT15041 Caball LED - Sate Hood & Grill - 18W 4000K Luminaire emittance 1 Filing: 102w LED Lamp luminous flux: 1734 lm Luminaire luminous flux: 1822 lm Power: 20.0 W Luminous efficacy: 86.1 lm/W Colourimetric data 102w LED: CCT 4000 K, CRI 70			<b>Please note</b> The Canopy fittings will operate by time switch & day night sensor, during opening hrs only. They will also smart dim to 50% brightness when not in use.
8	Thorius Lighting - GT15041 Caball LED - Sate Hood & Grill - 18W 4000K Luminaire emittance 1 Filing: 102w LED Lamp luminous flux: 1734 lm Luminaire luminous flux: 1822 lm Power: 20.0 W Luminous efficacy: 86.1 lm/W Colourimetric data 102w LED: CCT 4000 K, CRI 70			<b>Please note</b> The G3 fittings will operate on a time switch & day night sensor during opening hrs only
5	Thorius Lighting - GT15041 Caball LED - Sate Hood & Grill - 18W 4000K Luminaire emittance 1 Filing: 102w LED Lamp luminous flux: 1734 lm Luminaire luminous flux: 1822 lm Power: 20.0 W Luminous efficacy: 86.1 lm/W Colourimetric data 102w LED: CCT 4000 K, CRI 70			<b>Please note</b> The Star fittings will operate on a time switch with day night sensor, During opening hrs only
1	Thorius Lighting - GT15041 Caball LED - Sate Hood & Grill - 18W 4000K Luminaire emittance 1 Filing: 102w LED Lamp luminous flux: 1734 lm Luminaire luminous flux: 1822 lm Power: 20.0 W Luminous efficacy: 86.1 lm/W Colourimetric data 102w LED: CCT 4000 K, CRI 70			<b>Please note</b> The Star beam fittings will operate on a time switch with day night sensor, During opening hrs only
Total lamp luminous flux: 233232 lm. Total luminaire luminous flux: 227958 lm. Total Load: 2306.0 W. Luminous efficacy: 98.0 lm/W				

ZN