

Design Notes

For further calculations or details please consult your GPS representative.

A maintenance factor of 0.8 has been applied to all IP6x luminaires. A maintenance policy should be adopted to support the maintenance factor of 0.80.

Mounting height MH - refers to the height above the pool surface from the luminaire.

Obstructions such as fences HAVE NOT BEEN INCLUDED in this lighting calculation.

- AS4282 1997 - "Control of the obtrusive effects of outdoor lighting"
LIGHT TECHNICAL PARAMETERS - Pre-curfew hours
 -> Ev Residential Areas - 10 lux maximum
 -> Luminous Intensity Emitted - Level 2 control
 -> Threshold Increment - 20% maximum

DESIGN ASSESSMENT - Street lights & floods SWITCHED ON
 Vertical spill illuminance has been calculated on the boundaries as shown from 0m to 25m above ground level (1 x 1m increment grid). The maximum calculated vertical illuminance with floods switched on is 1.1lux maintained (1.375lux initial).

The maximum luminous intensity emitted per luminaire has been assessed using a large controlling dimension of >75 metres. The maximum elevation used in the design results in a maximum luminous intensity within Level 2 control limits.

Threshold increment has been calculated on the roadways. The maximum TI calculated is 11.6% based on an assumed roadway adaptation luminance of 1.0 cd/m2.

This represents a **CONCEPT DESIGN ONLY**; site and pole locations must be confirmed prior to installation.

ASSUMPTIONS:

We haven't received any clear indication regarding pole and luminaire types on Hill Rd; these have been assumed to be Sylvania Roadster 150W HPS Aeroscreen (located as per supplied CAD file).

Vegetation on Hill Rd (North boundary) has been included in the lighting design using a 50% transmittance factor.

THIS DESIGN HAS NOT BEEN ACHIEVED TO MEET THE REQUIREMENTS OF ANY AUSTRALIAN SPORT LIGHTING STANDARD.

THIS DESIGN HAS BEEN PRODUCED AS PER THE REQUESTS OF THE CLIENT. THE CLIENT REQUESTED A MINIMUM HORIZONTAL POINT ILLUMINANCE AT GROUND LEVEL OF Eph=50lx (surf lagoon only).

| Luminaire Schedule | | | | | | | | | | |
|--------------------|-----|-------|-------------|-------|----------------------------------|-------------|-------------|-----|----------|-----------|
| Project: Floods | | | | | | | | | | |
| Symbol | Qty | Label | Arrangement | LLF | Description | Total Watts | Lum. Lumens | Arm | CIE Type | IES Class |
| | 15 | Ra3 | SINGLE | 0.800 | SR4H840A2 4000K CRI80 Flat Glass | 19200 | 113956 | 0 | Direct | Type III |
| | 15 | Ra3b | SINGLE | 0.800 | SR4H840A2 with Baffle | 19186.5 | 107018 | 0 | Direct | Type III |

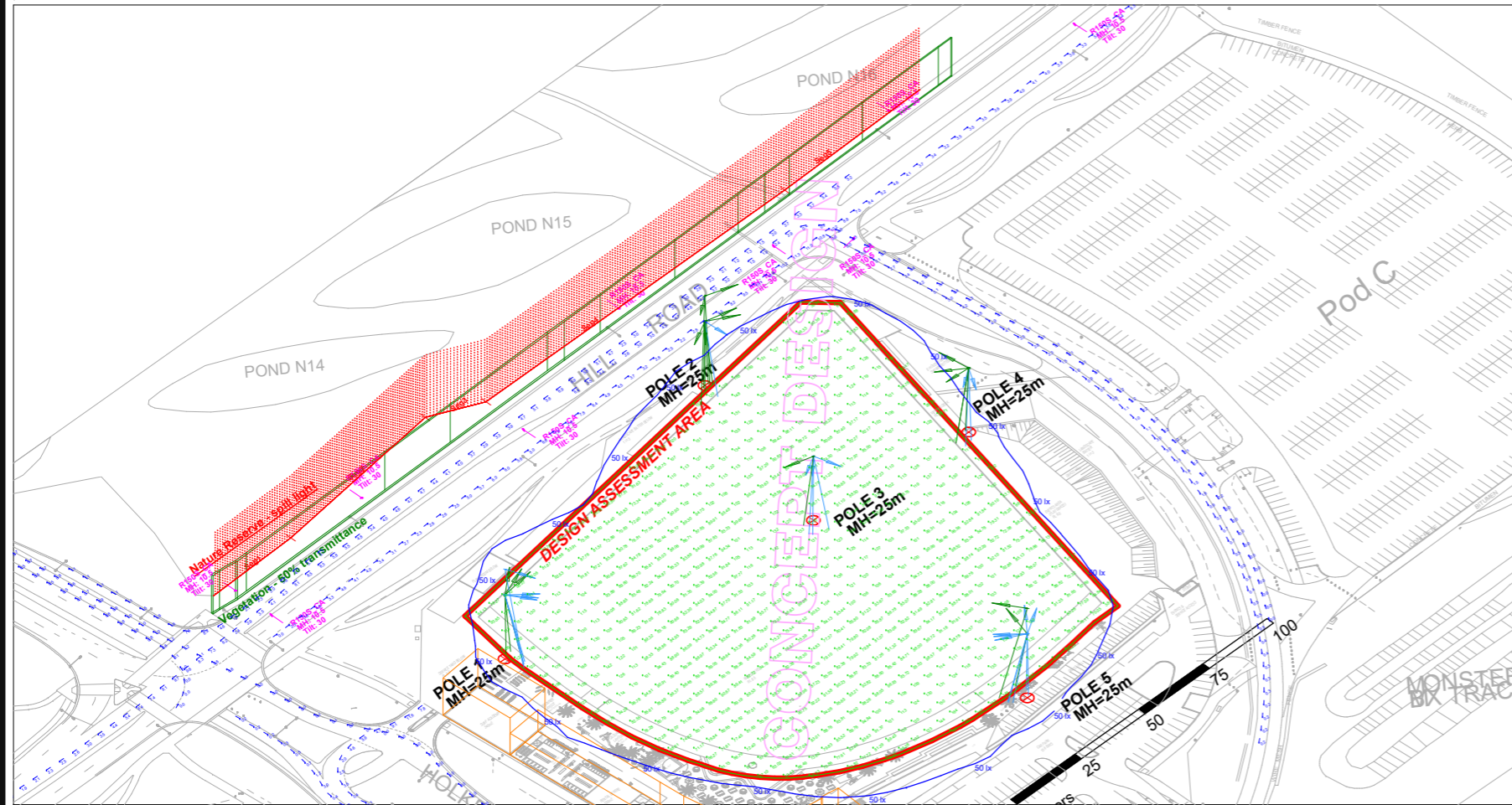
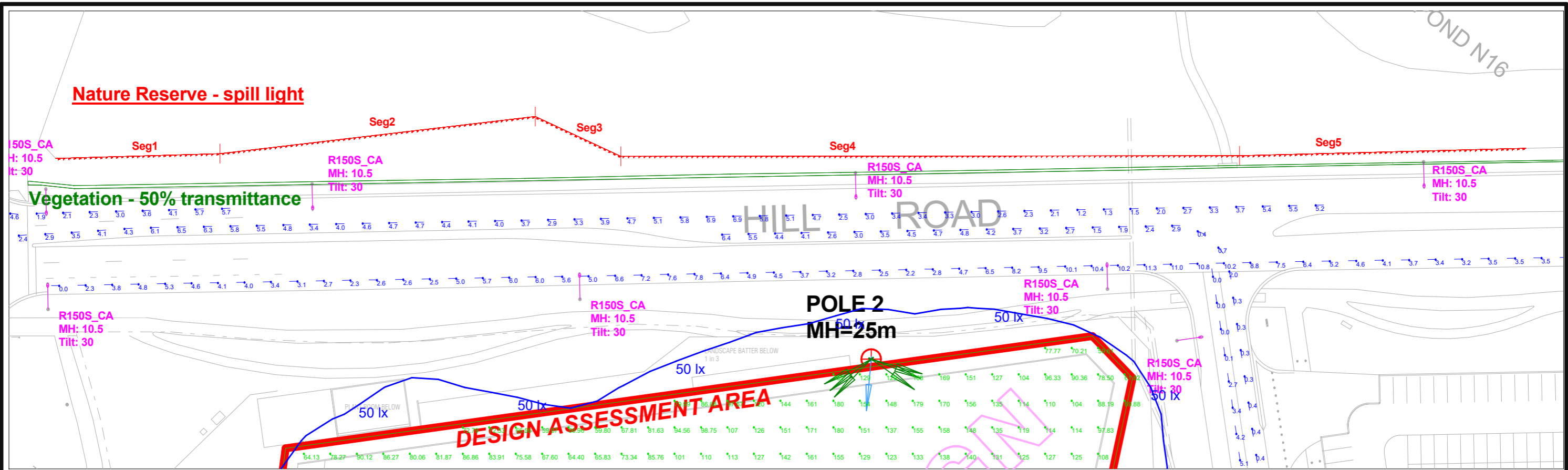
This design calculation is based upon specified parameters supplied by the client, and other design inputs assumed by us, as detailed in this document. In practice, the accuracy of the values will differ due to environmental variations such as actual luminaire positioning, room surface reflectance, supply voltage, local luminaire ambient temperature, obstacles/furniture, etc. These results are also subject to normally accepted photometric tolerances, and calculation/program uncertainties. Gerard Lighting provides this calculation without any representation or warranty of any kind. The Company shall be under no liability to the Customer for failure to obtain such performance figures unless the performance of the Goods supplied is specifically guaranteed in writing, and any such written guarantee shall be subject to recognised manufacturing variations and tolerances applicable to the Goods.

| Rev: | Date: | Comment: | By: | Chkd: | Appd: |
|------|------------|--|-----|-------|-------|
| Rev3 | 08.03.2017 | Revised design based on clients request. | AP | | |
| Rev2 | 07.03.2017 | Revised design based on clients request. | AP | | |
| Rev1 | 02.02.2017 | Changed pole height, location & lux level. | AP | | |



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|---------------------------------|--|---------------------------|
| Project: URBNSURF Sydney | Rev: 3 | Scale: 1:1500 / A3 |
| Title: 50lux min MH=25m | Designer: AP | Date: 3/9/2017 |
| Client: WAVEPARK Group | Document No: 0149771Rev3 - URBNSURF Sydney - concept lighting des | |
| Page No: Page 1 of 2 | | |



| Calculation Summary | | | | | | | |
|---------------------|-------------|-------|--------|-----|-------|---------|---------|
| Project: Grids | | | | | | | |
| Label | CalcType | Units | Avg | Max | Min | Min/Avg | Min/Max |
| Pool - Eh @ 0m GL | Illuminance | Lux | 102.36 | 181 | 56.21 | 0.55 | 0.31 |

| Calculation Summary | | | |
|---------------------------------|----------------|-------|------|
| Project: Spill & TI | | | |
| Label | CalcType | Units | Max |
| Spill - nature reserve_III_Seg1 | Obtrusive Ligh | Lux | 0.8 |
| Spill - nature reserve_III_Seg2 | Obtrusive Ligh | Lux | 0.5 |
| Spill - nature reserve_III_Seg3 | Obtrusive Ligh | Lux | 0.9 |
| Spill - nature reserve_III_Seg4 | Obtrusive Ligh | Lux | 1.1 |
| Spill - nature reserve_III_Seg5 | Obtrusive Ligh | Lux | 0.4 |
| TI - Car park access rd 1 | Obtrusive Ligh | % | 6.4 |
| TI - Car park access rd 2 | Obtrusive Ligh | % | 5.1 |
| TI - Hill Rd 1 | Obtrusive Ligh | % | 9.7 |
| TI - Hill Rd 2 | Obtrusive Ligh | % | 11.3 |
| TI - Holker Busway 1 | Obtrusive Ligh | % | 1.2 |
| TI - Holker Busway 2 | Obtrusive Ligh | % | 8.2 |
| TI - Holker Busway 3 | Obtrusive Ligh | % | 0.8 |
| TI - Holker Busway 4 | Obtrusive Ligh | % | 3.8 |
| TI - Holker Busway 5 | Obtrusive Ligh | % | 11.6 |

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