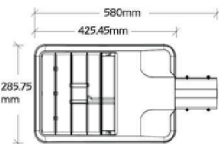
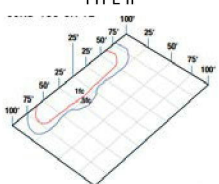
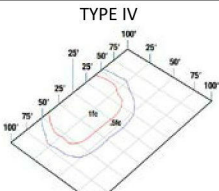
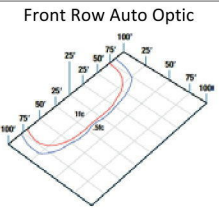


TENCH AVE TOURIST PRECINCT PENRITH

Lighting Design & Simulation for External Carpark

Issue for: INFORMATION ONLY | Project No. 3206 | By: MP | Rev: E | Date: 08/09/16 |

SIMULATION LIGHTING SCHEDULE

Ref.	Image	General Information	Model	Dimension (LxWxH)	Connected Load	Lumen	Colour Temp.	Photometrics	Est. Price*
P1		- Dimming drivers are standard with connections for external dimming equipment available upon request. - Protects luminaire from excessive temperature. - Motion sensor provides full power when detects motion, lower wattage to preset power when no motion. - Designed to replace HID lighting up to 400WH or HPS.	BEACON Viper Small		55 W	5610 lm	4000K	TYPE II 	\$1,100
P2					55 W	6110 lm	4000K	TYPE IV 	\$1,100
P3					55 W	6276 lm	4000K	Front Row Auto Optic 	\$1,100

* Price are indicative only, excluding whole seller /contractor margin & installation cost.

Lighting Design & Simulation for External Carpark

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SIMULATION RESULT

Beacon Viper Small - Total Connected Load: 1540 W						
AREA	AS 1158.3.1 Table 2.9			AVG. LUX	MIN. LUX	MAX. LUX
CARPARK 1	3.5lx avg	0.7lx min	<10 max/avg	16.20 lx	.92 lx	64.00 lx
CARPARK 2	3.5lx avg	0.7lx min	<10 max/avg	10.00 lx	3.13 lx	42.50 lx
CARPARK 3	3.5lx avg	0.7lx min	<10 max/avg	7.99 lx	2.79 lx	27.30 lx
CARPARK 4	3.5lx avg	0.7lx min	<10 max/avg	6.90 lx	1.57 lx	27.00 lx
ACC. CARPARK 1 *	>= 14lx avg			42.20 lx	-	-
ACC. CARPARK 2 *	>= 14lx avg			40.80 lx	-	-
ACC. CARPARK 3 *	>= 14lx avg			40.00 lx	-	-
ENTRY ONLY	7lx avg	1.5lx min	<10 max/avg	9.94 lx	3.11 lx	15.90 lx
ENTRY/ EXIT	7lx avg	1.5lx min	<10 max/avg	10.60 lx	4.29 lx	16.30 lx

External parking area lighting designs comply with illuminance levels required by AS1158.3.1 category P11c (General carpark) and AS 1158.3.1 category P12 (Acc. parking)

* Accessible parking lux level is designed to fulfil access report caparking requirement D3.5 (40lx)

Photometric as supplied by manufacturer.

Luminaire symbols enlarged for clarity.

All at LLF 0.75

Program used DIALux EVO 6

Lighting Design & Simulation for External Carpark

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LIGHTING LAYOUT

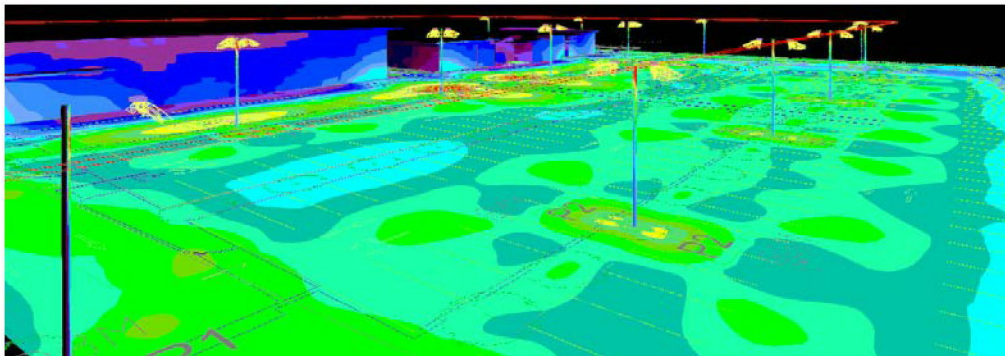
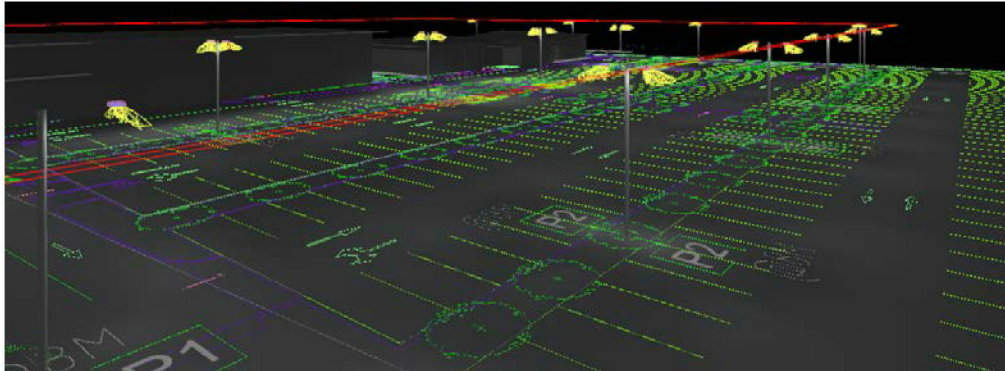


Lighting Design & Simulation for External Carpark

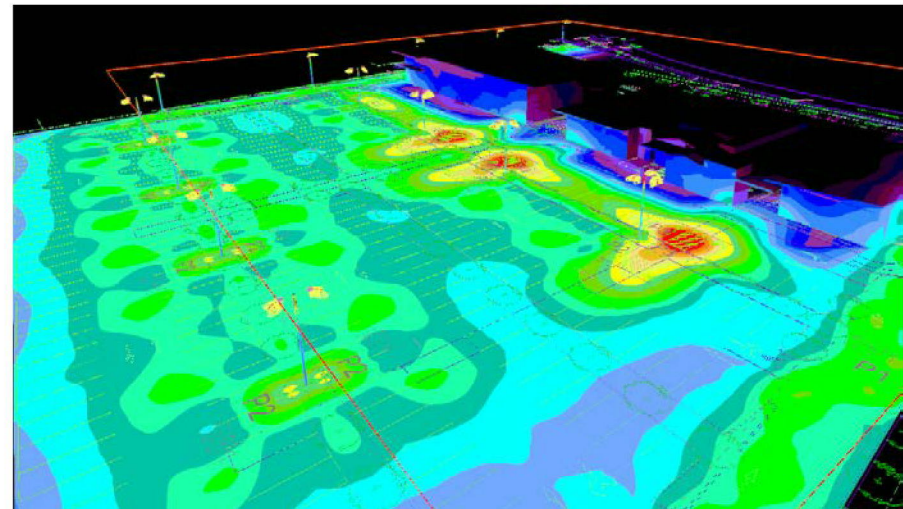
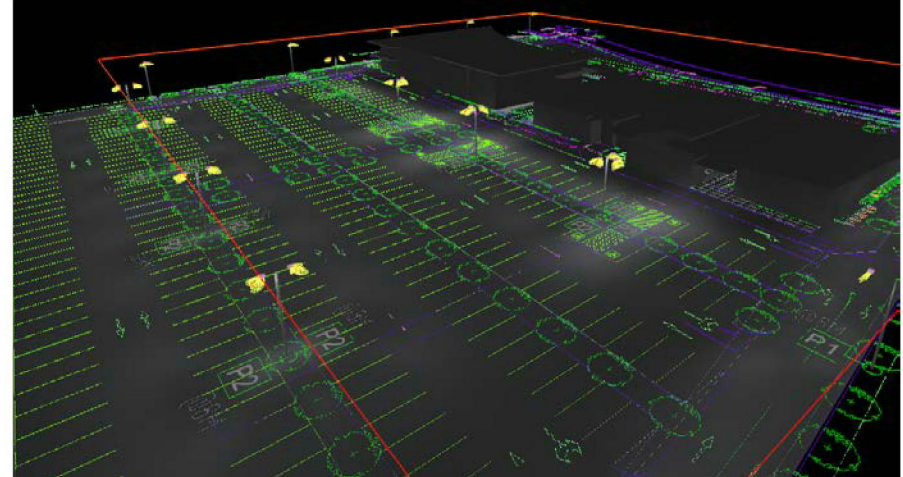
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COLOUR RENDERING

CARPARK VIEW 1



CARPARK VIEW 2



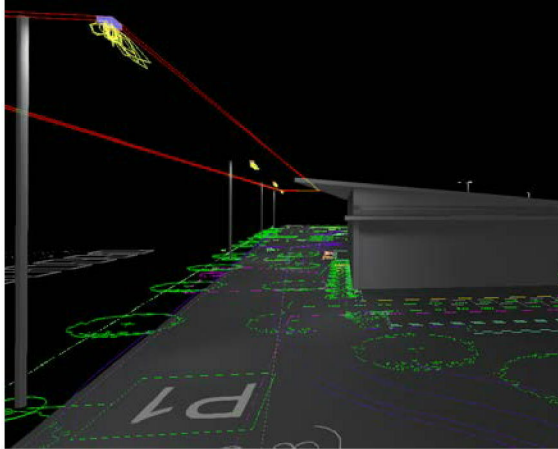
TENCH AVE TOURIST PRECINCT PENRITH

Lighting Design & Simulation for External Carpark

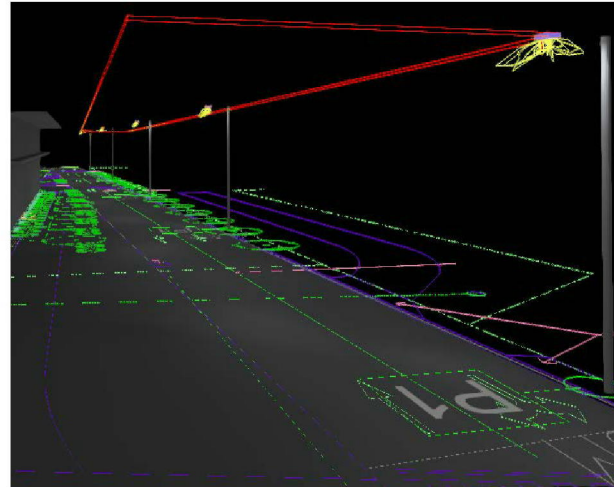
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COLOUR RENDERING

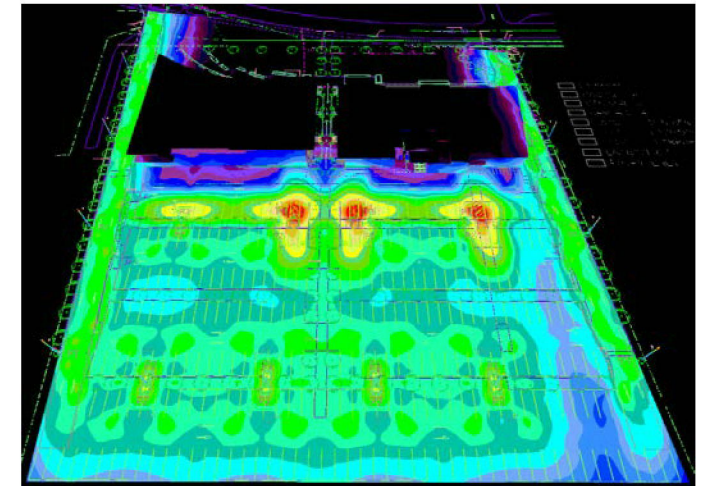
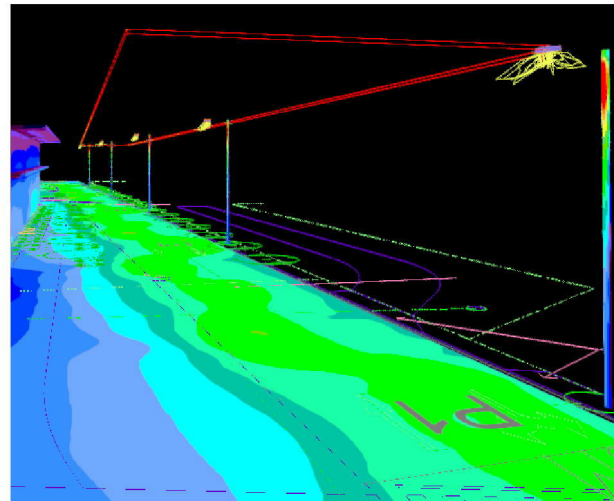
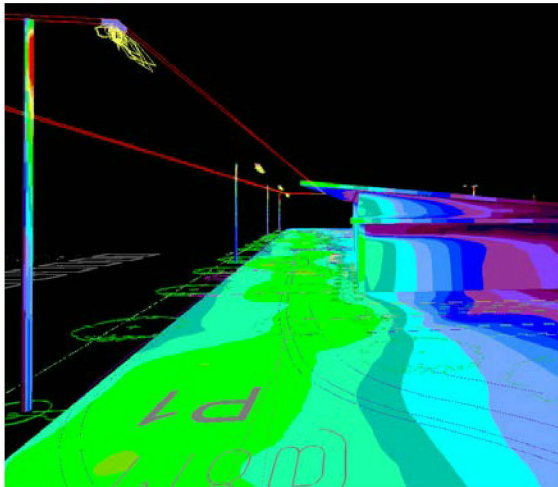
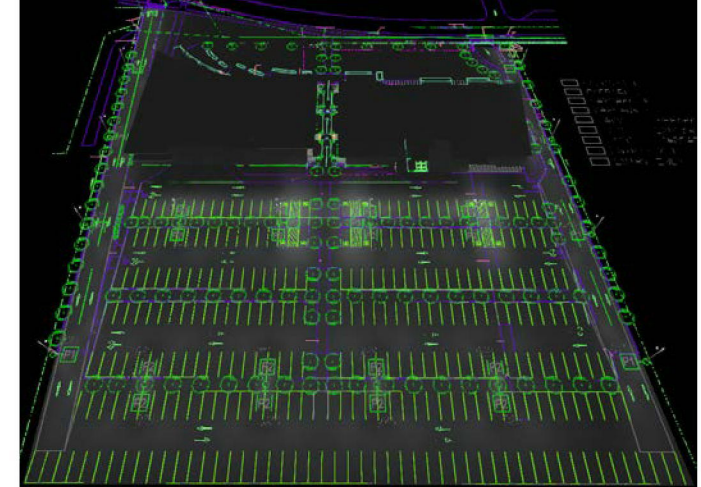
ENTRY ONLY



ENTRY/ EXIT



WHOLE VIEW



Lighting Design & Simulation for External Carpark

Issue for: INFORMATION ONLY | Project No. 3206 | By: MP | Rev: E | Date: 08/09/16 |

OUTDOOR CARPARK STANDARD TABLE

TABLE 2.5
LIGHTING CATEGORIES FOR OUTDOOR
CAR PARKS
(INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5
	Selection criteria ^{a)}			
Type of area	Night time vehicle or pedestrian movements	Night time occupancy rates (NTOR)	Risk of crime ^{b)}	Applicable lighting subcategory ^{c)}
Parking spaces, aisles and circulation roadways	High	>75%	High	P11a
	Medium	≥25%, ≤75%	Medium	P11b
	Low	<25%	Low	P11c
Designated parking spaces specifically intended for people with disabilities	N/A	N/A	N/A	P12

^{a)} The selection criteria of Columns 2 to 4 should be separately evaluated. The highest level of any of the selection criteria that is deemed appropriate for the area type will determine the applicable lighting subcategory.

^{b)} The risk levels 'High', 'Medium' and 'Low' correspond to the classifications of the same names in HB 436.

^{c)} Providing a lighting scheme that meets the requirements of more than one subcategory by the use of switching is permitted.

TABLE 2.9
VALUES OF LIGHT TECHNICAL PARAMETERS AND PERMISSIBLE
LUMINAIRE TYPES FOR OUTDOOR CAR PARKS
(INCLUDING ROOF-TOP CAR PARKS)

1	2	3	4	5	6
Lighting subcategory	Light technical parameters ^{a)}				Permissible luminaire type (see Table 2.5)
	Average horizontal illuminance ^{a,b)} ($\bar{E}_h$)	Point horizontal illuminance ^{a,b)} (E_{ph})	Illuminance (horizontal) uniformity ^{c)} Cat. P (U_{E2})	Point vertical illuminance ^{a,b)} (E_{pv})	
	lux	lux		lux	
P11a	14	3	10	3	Types 3, 4, 5 or 6
P11b	7	1.5	10	1.5	
P11c	3.5	0.7	10	—	
P12	—	≥14 and ≥ $\bar{E}_h$ ^{d)}	—	—	

^{a)} These values are maintained.

^{b)} Compliance is achieved by being greater than or equal to the applicable table value.

^{c)} Compliance is achieved by being less than or equal to the applicable table value.

^{d)} E_{ph} shall be determined for each P12 area in the car park and, in each case, it shall be greater than the value stated and greater than the average for the overall car park.