

NOTES ON LIGHTING DESIGN

- THE LIGHTING HAS BEEN DESIGNED AGAINST THE FOLLOWING STANDARDS:
 - PD CEN/TR 13201-1:2014 ROAD LIGHTING PART 1 GUIDELINES ON SELECTION OF LIGHTING CLASSES
 - BS EN 13201-2:2015 ROAD LIGHTING PART 2 PERFORMANCE REQUIREMENTS
- THIS AREA IS CONSIDERED TO BE A CLASS P AREA, AS IT CONTAINS A LOW SPEED ROAD ALONGSIDE FOOTWAYS AND CYCLEWAYS.
- THE SELECTION OF THE FINAL LIGHTING CLASS IS DETAILED IN 13201-1:2014, TABLE 4:

Table 3 - Parameters for the selection of lighting class C

Parameter	Options	Description *	Weighting Value $W_{i,c}$
Design speed or speed limit	Very high	$v \geq 100$ km/h	2
	High	$70 < v < 100$ km/h	1
	Moderate	$40 < v < 70$ km/h	0
Traffic volume	High	$v \leq 40$ km/h	-1
	Low		-1
Traffic composition	Mixed with high percentage of non-motorised		2
	Mixed		0
	Motorised only		-1
Separation of carriageway	No		1
	Yes		0
Parked vehicles	Present		0
	Not present		1
Ambient luminosity	High	shopping windows, advertisement expressions, sport fields, station areas, storage areas	1
	Moderate	normal situation	0
	Low		-1
Navigational task	Very difficult		2
	Difficult		1
	Easy		0

* The values stated in the columns are an example. Any adaptation of the method or more appropriate weighting values can be used instead, on the national level.

• CALCULATION OF LIGHTING CLASS:

- ROAD SPEED IS SIGNPOSTED AS 50mph (80kph), SO HIGH = 2
- TRAFFIC VOLUME MODERATE = 0
- CYCLEWAY SEPARATE, TRAFFIC COMPOSITION MOTORISED ONLY = 0
- CARRIAGEWAYS ARE NOT SEPARATED = 1
- PARKED VEHICLES NOT PRESENT = 0
- NO EXISTING STREET LIGHTING, SO AMBIENT LUMINOSITY IS LOW = -1
- NAVIGATIONAL TASK EASY = 0
- LIGHTING CLASS, $C-VWS=6-2-0-0-1-0-(-1)-0=C4$
- THE LIGHTING REQUIREMENT FOR THIS CLASS IS DETAILED IN 13201-2, TABLE 2:

Table 2 - C4-series lighting classes based on road surface illuminance

Class	Horizontal illuminance	
	E_{min} [minimum maintained]	E_{av} [minimum]
C40	50	0.4
C41	30	0.4
C42	20	0.4
C43	15	0.4
C44	10	0.4
C45	7.5	0.4

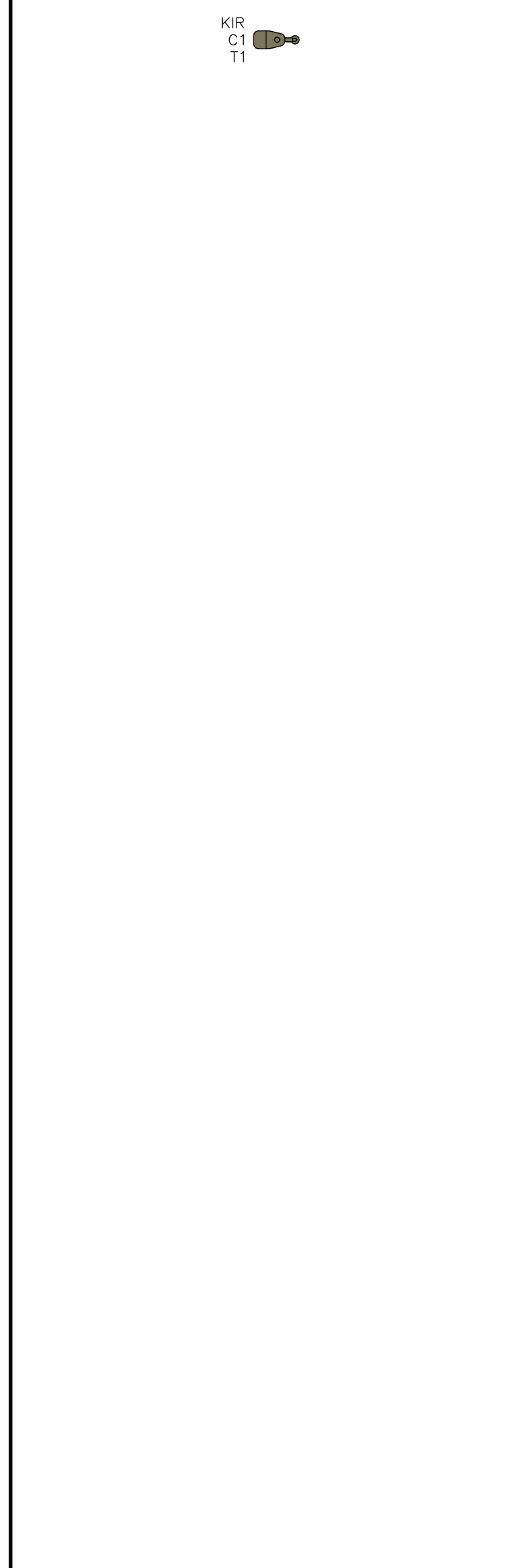
LIGHTING RESULTS

LIGHTING CALCULATIONS HAVE BEEN CARRIED OUT USING DIALUX EVO AND ASSESSED AGAINST THE REQUIREMENTS DESCRIBED ABOVE. SUMMARY AS FOLLOWS:

- TOUCAN ROADWAY
 - REQUIREMENT = 10.0 LUX AVERAGE, 0.40 UNIFORMITY
 - CALCULATED = 10.7 LUX AVERAGE, 0.56 UNIFORMITY
 - PASS
- TOUCAN CYCLEWAY 1
 - REQUIREMENT = 10.0 LUX AVERAGE, 0.40 UNIFORMITY
 - CALCULATED = 12.0 LUX AVERAGE, 0.79 UNIFORMITY
 - PASS
- TOUCAN CYCLEWAY 2
 - REQUIREMENT = 10.0 LUX AVERAGE, 0.40 UNIFORMITY
 - CALCULATED = 9.50 LUX AVERAGE, 0.83 UNIFORMITY
 - PASS

LIGHT FITTING

- DW WINDSOR KIRIUM PRO 1 - GREEN RAL 6013, 56 WATT, 32 LEDs @ 650mA, 3000K COLOUR TEMPERATURE, NEMA 7 PIN SOCKET, C1 OPTIC CONTROL
- LUCY ZODION SUPER 6 PHOTOCELL
- COLUMN TYPE 1 (T1): 6m CONICAL AVON STEEL COLUMN (BS EN 40) BODY STANTION METAL COMPANY TOGETHER WITH 2m UPLIFT AND 0.75m OUTREACH THAMES PROJECTION BRACKET, TOTAL MOUNTING HEIGHT 8m. RATIONALISED WIND LOADING FACTOR (RWF) FOR OXFORDSHIRE AS SPECIFIED IN PD6547:2009



REV	P4	DATE	DESCRIPTION
REV	P3	21.07.2023	UPDATED PRELIMINARY ISSUE
REV	P2	22.07.2023	UPDATED PRELIMINARY ISSUE
REV	P1	22.07.2023	UPDATED PRELIMINARY ISSUE
REV			
DWN	ZE		
CHKD	NB		
APPD	NB		
DATE			
CLIENT			
PARKWAY			
PROJECT			
BICESTER ROADWAY LIGHTING			
DRAWING TITLE			
TOUCAN CROSSING ISOLINES			
DRAWING NUMBER		SCALE @ A1	REVISION
0002-1002		1:100	P4
MANDEK LTD. 38 Dunster Street Northampton NN1 3JY Tel: 01604 636661 E: mail@mandek.co.uk			