

NOTES:

1. ELECTRICAL CONTRACTOR TO VERIFY LIGHTING DESIGN PRIOR TO INSTALLATION.
2. GROUND LEVEL LIGHTING TO PEDESTRIAN AREAS IS TO BE CONTROLLED VIA INTEGRAL PHOTO CELL (WHERE POSSIBLE) AND DALI DRIVERS AS PER EXISTING LIGHTING IN ADJACENT AREAS. THIS WILL ALLOW INTEGRATION OF THE NEW LIGHTING INTO THE EXISTING LIGHTING CONTROL SYSTEM FOR THE CONNECTING AREAS. THIS WILL ENSURE THAT THE LIGHTING WILL BE ENERGISED AT LOW AMBIENT LIGHT LEVELS AND REMAIN ON THROUGH THE NIGHT UNTIL SUNRISE. LIGHTING TO THE MULTISTORY CAR PARK BUILDING WILL BE CONTROLLED BY A NEW WIRED DALI2 SYSTEM AND COMMISSIONED TO ENSURE LIGHTING IS ONLY ON WHEN AND WHERE NEEDED. LIGHTING TO THE SERVICE YARD WILL BE CONTROLLED BY THE NEW DALI2 CONTROL SYSTEM WITH USE OF DAI-ENABLED MANUAL SWITCH AND PHOTOCELL. THE NEW DALI2 SYSTEM IS BASED ON THE HELVAR IMAGINE LIGHTING CONTROL PLATFORM. AN INDICATIVE CONTROLS LAYOUT FOR THE CAR PARK BUILDING HAS BEEN SHOWN AS PER DESIGN PACKAGE RECEIVED FROM HELVAR, JULY 2020. THIS WILL BE DEVELOPED AT THE NEXT STAGE AS THE DESIGN PROGRESSES. FURTHER DETAILS ON THE CONTROL STRATEGIES FOR ALL LIGHTING CAN BE FOUND IN CPW EXTERNAL LIGHTING REPORT NO. 20161-CPW-X00-DR-E-221001.
3. THE PROPOSED LIGHTING DESIGN TO COMPLY WITH THE CIBSE GUIDE L066 THE OUTDOOR ENVIRONMENT, BS EN 12464-1 INDOOR WORK PLACES 2021, BS EN 12464-2 OUTDOOR WORKPLACES 2024, I.P. GUIDANCE NOTE 1 THE REDUCTION OF OBSTRUCTIVE LIGHT, 2021 AND ALL LATEST ADDITIONS.
4. IN LINE WITH REQUIREMENTS LAID OUT IN BS EN 12464-1, 150LX AVERAGE AND A UNIFORMITY OF 0.4 HAS BEEN TARGETED FOR THE PARKING AREAS, FOR TRAFFIC LANES 20LX AVERAGE AND A UNIFORMITY OF 0.4 HAS BEEN TARGETED, AS PER BS EN 12464-2, 20LX AVERAGE AND A UNIFORMITY OF 0.4 HAS BEEN TARGETED FOR STEPS AND PEDESTRIAN RAMPS, FOR THE SERVICE YARD 5 LX AVERAGE WITH A UNIFORMITY OF 0.25 HAS BEEN TARGETED. A HIGHER LEVEL OF 45LX AND 0.35 UNIFORMITY HAS BEEN TARGETED TO THE MAIN PEDESTRIAN ROUTES, AS PER CLIENT SPECIFICATION. FURTHER DETAILS ON THE LUX LEVELS CAN BE FOUND IN CPW EXTERNAL LIGHTING REPORT NO. 20161-CPW-X00-DR-E-221001.
5. LUX LEVELS SHOWN ON THIS DRAWING ARE WITH ALL LUMINAIRES AT 100% OUTPUT. WITH EFFECTIVE USE OF THE PROPOSED, NEW, DALI2 LIGHTING CONTROL SYSTEM, LUMINAIRES CAN BE COMMISSIONED AND DIMMED DOWN TO MEET THE DESIGN LUX LEVELS AND REDUCE OBSTRUCTIVE LIGHT LEVELS FURTHER.
6. LUMINAIRE REFERENCES EX3 AND EX5 CAN BE SUPPLIED WITH AN INTEGRAL 3 HOUR EMERGENCY BATTERY FOR USE AS AN EMERGENCY LUMINAIRE TO OPEN AREAS, ESCAPE ROUTES, POINTS OF EMPHASIS AND FINAL EXITS AS REQUIRED. THE PROPOSED DALI2 LIGHTING CONTROL SYSTEM WILL PERFORM ALL EMERGENCY TESTING AND MONITORING OF EMERGENCY LUMINAIRES TO THE CAR PARK BUILDING. EMERGENCY LIGHTING TO BE DESIGNED BY CONTRACTOR AT THE NEXT STAGE.
7. NO SHRUBBERY OR FOLIAGE HAS BEEN ALLOWED WITHIN THE LIGHTING CALCULATION TO ALLOW FOR WORST CASE ON THE RIGHT HAND SIDE OVER THE SITE BOUNDARY.
8. AT THIS EARLY STAGE, THE EXACT SPECIFICATION OF THE CAR PARK CLADDING HAS NOT BEEN FULLY DETAILED. IN THIS CALCULATION, SOLID WALLS HAVE BEEN MODELLED TO SURROUND THE GROUND LEVEL AND SERVICE YARD. VERTICAL 'T' HAS BEEN MODELLED TO THE FIRST FLOOR AND ABOVE, AS SHOWN IN ARCHITECTS' CURRENT FACADE INFORMATION. LIGHTING TO THE STARCORES, BIKE STORE, INTERNAL PLANT SPACES ETC. HAS BEEN SHOWN ON THESE DRAWINGS BUT IS NOT INCLUDED IN THE CALCULATION RESULTS, AS THIS IS AN EXTERNAL LIGHTING ASSESSMENT AND IT IS ASSUMED THESE WILL HAVE SOLID WALLS AND WILL NOT CONTRIBUTE TO LIGHT SPILL.
9. OBSTRUCTIVE LIGHT CALCULATIONS HAVE BEEN UNDERTAKEN ON THE CLOSEST EXISTING RESIDENCES WITH ALL LIGHTING ON AT 100% OUTPUT AND MEET THE REQUIREMENTS FOR AN E4 ENVIRONMENTAL ZONE, AS SET OUT IN THE I.P. GUIDANCE NOTE 1 THE REDUCTION OF OBSTRUCTIVE LIGHT, 2021. ADDITIONAL OBSTRUCTIVE LIGHT CALCULATIONS HAVE BEEN PERFORMED ON THE NEIGHBOURING CROWN HOUSE, WHICH SHOW THAT MITIGATION MEASURES ARE REQUIRED TO REDUCE LIGHT INTRUSION TO MEET ACCEPTED POST-CURFEW LEVELS. FURTHER DETAILS OF THESE CALCULATIONS CAN BE FOUND IN CPW EXTERNAL LIGHTING REPORT NO. 20161-CPW-X00-DR-E-221001.
10. AS THE CAR PARK IS PROPOSED TO BE IN 24/7 OPERATION, THE CALCULATION RESULTS LISTED HERE DEMONSTRATE THE PRE-CURFEW LEVELS WITH ALL LIGHTING ON AT 100% OUTPUT, INCLUDING THE SERVICE YARD.
11. LIGHTING TO THE SERVICE YARD HAS BEEN DESIGNED AND CALCULATED TO PROVIDE A SAFE LEVEL FOR PEDESTRIAN MOVEMENT ONLY. IT IS ASSUMED THAT IF ANY OUT OF HOURS OR NIGHT TIME MAINTENANCE WORK TO EQUIPMENT IS REQUIRED, PERSONNEL WILL USE PORTABLE TASK LIGHTING.
12. ONE ITERATION OF LUMINAIRE REF. EX4 IN THE SERVICE YARD IS COLUMN MOUNTED INSTEAD OF WALL MOUNTED TO AVOID MOUNTING TO THE ADJACENT WALL.

GROUND LEVEL CALCULATION RESULTS:

- 00 - VEHICLE ENTRANCE AREA
ILLUMINANCE (LUX)
AVERAGE=330.36 MAXIMUM=389.8 MINIMUM=207.9 MIN/AVG=0.63
- 00 - EXTERNAL CAR PARK ENTRANCE
ILLUMINANCE (LUX)
AVERAGE=73.39 MAXIMUM=180.6 MINIMUM=32.2 MIN/AVG=0.44
- 00 - EXTERNAL MAIN PEDESTRIAN ROUTE
ILLUMINANCE (LUX)
AVERAGE=56.32 MAXIMUM=113.5 MINIMUM=23.4 MIN/AVG=0.42
- 00 - INTERNAL PARKING
ILLUMINANCE (LUX)
AVERAGE=160.97 MAXIMUM=288.3 MINIMUM=92.1 MIN/AVG=0.57
- 00 - SERVICE YARD ACCESS NORTH
ILLUMINANCE (LUX)
AVERAGE=31.27 MAXIMUM=56.6 MINIMUM=6.9 MIN/AVG=0.28
- 00 - SERVICE YARD ACCESS SOUTH
ILLUMINANCE (LUX)
AVERAGE=23.03 MAXIMUM=117.9 MINIMUM=3.8 MIN/AVG=0.17
- 00 - EXTERNAL PEDESTRIAN RAMP 1
ILLUMINANCE (LUX)
AVERAGE=85.70 MAXIMUM=95.6 MINIMUM=69.1 MIN/AVG=0.81
- 00 - EXTERNAL PEDESTRIAN RAMP 2
ILLUMINANCE (LUX)
AVERAGE=30.59 MAXIMUM=40.0 MINIMUM=28.1 MIN/AVG=0.92
- 00 - SERVICE YARD
ILLUMINANCE (LUX)
AVERAGE=32.57 MAXIMUM=68.0 MINIMUM=13.8 MIN/AVG=0.42
- 00 - SERVICE YARD STAIRS
ILLUMINANCE (LUX)
AVERAGE=53.06 MAXIMUM=76.8 MINIMUM=32.5 MIN/AVG=0.61
- 00 - EXTERNAL SIDE PEDESTRIAN ACCESS
ILLUMINANCE (LUX)
AVERAGE=30.06 MAXIMUM=92.1 MINIMUM=12.7 MIN/AVG=0.35
- 00 - EXTERNAL PEDESTRIAN STEPS 1
ILLUMINANCE (LUX)
AVERAGE=57.78 MAXIMUM=87.0 MINIMUM=43.5 MIN/AVG=0.75
- 00 - EXTERNAL PEDESTRIAN STEPS 2
ILLUMINANCE (LUX)
AVERAGE=90.09 MAXIMUM=98.2 MINIMUM=41.2 MIN/AVG=0.69
- 00 - CAR PARK TRAFFIC LANE RAMP
ILLUMINANCE (LUX)
AVERAGE=163.54 MAXIMUM=270.4 MINIMUM=107.5 MIN/AVG=0.66
- 00 - CAR PARK TRAFFIC LANES
ILLUMINANCE (LUX)
AVERAGE=103.71 MAXIMUM=278.5 MINIMUM=57.6 MIN/AVG=0.56
- 00 - EXTERNAL VEHICLE ACCESS ROAD
ILLUMINANCE (LUX)
AVERAGE=48.68 MAXIMUM=92.0 MINIMUM=22.3 MIN/AVG=0.46
- 00 - INTERNAL BIN STORE
ILLUMINANCE (LUX)
AVERAGE=151 MAXIMUM=179 MINIMUM=105 MIN/AVG=0.7
- 00 - INTERNAL CYCLE STORE
ILLUMINANCE (LUX)
AVERAGE=123 MAXIMUM=151 MINIMUM=67.8 MIN/AVG=0.55
- 00 - INTERNAL LIFT LOBBY
ILLUMINANCE (LUX)
AVERAGE=185 MAXIMUM=213 MINIMUM=139 MIN/AVG=0.75
- 00 - INTERNAL PLANT 1
ILLUMINANCE (LUX)
AVERAGE=391 MAXIMUM=385 MINIMUM=307 MIN/AVG=0.85
- 00 - INTERNAL PLANT 2
ILLUMINANCE (LUX)
AVERAGE=399 MAXIMUM=452 MINIMUM=314 MIN/AVG=0.79
- 00 - INTERNAL PLANT 3
ILLUMINANCE (LUX)
AVERAGE=421 MAXIMUM=494 MINIMUM=317 MIN/AVG=0.75
- 00 - INTERNAL PLANT 4
ILLUMINANCE (LUX)
AVERAGE=273 MAXIMUM=306 MINIMUM=219 MIN/AVG=0.80
- 00 - INTERNAL RISER
ILLUMINANCE (LUX)
AVERAGE=259 MAXIMUM=286 MINIMUM=222 MIN/AVG=0.86
- 00 - INTERNAL STARCORE
ILLUMINANCE (LUX)
AVERAGE=158 MAXIMUM=179 MINIMUM=124 MIN/AVG=0.78

PRJ	17/01/2020	FOR PLANNING	NR	VS
PRJ	16/01/2020	DRAFT ISSUE	NR	VS
REV	DATE	DESCRIPTION	BY	VE



www.cpwv.com

Address: Interface 100
Arlestone Way, Solihull
B39 4LH

Phone: +44(0) 121 709 6600
Email: solihull@cpwv.com

RIBA Stage

STAGE 3

Status

FOR PLANNING

Client

UNIVERSITY OF HUDDERSFIELD

Project

MULTI STOREY CAR PARK

Drawing Title

PROPOSED LIGHTING LAYOUT
GROUND FLOOR

Scale (A1)	Date					By	Ve	
1:200	JULY 2026					KR	VS	
Proj ID	Originator	Functional	Statcal	Form	Discipline	Number	Satisfiability	Revision
260161	CPW	XX	00	DR	E	221001	S3	P02

260161-CPW-X00-00-DR-E-221001 S3 P02

Linked Files



LIGHTING LEGEND:

- EX1
MANUFACTURER: DW WINDSOR
PRODUCT: SEPHORA HALO
OUTPUT: 41.5W, 630LM
OPTIC: A1, WIDE ROAD OPTIC
COLOUR TEMPERATURE: 3000K
MOUNTING TYPE: COLUMN
MOUNTING HEIGHT: 8M
- EX2
MANUFACTURER: DW WINDSOR
PRODUCT: SEPHORA HALO
OUTPUT: 97.5W, 1463LM
OPTIC: C3, SYMMETRIC AREA OPTIC
COLOUR TEMPERATURE: 3000K
MOUNTING TYPE: COLUMN
MOUNTING HEIGHT: 8M
- EX3
MANUFACTURER: THORN
PRODUCT: AQUA FORCE PRO, 1600MM
OUTPUT: 48W, 637LM
OPTIC: SYMMETRIC
COLOUR TEMPERATURE: 3000K
MOUNTING TYPE: SURFACE CEILING
MOUNTING HEIGHT: LVL 00 = 4.0M, LVL 01-09 = 2.7M
TO BE SUPPLIED WITH INTEGRAL EMERGENCY BATTERY FOR USE AS AN EMERGENCY LUMINAIRE AS REQUIRED
- EX4
MANUFACTURER: DW WINDSOR
PRODUCT: KIRIUM PRO S MINI
OUTPUT: 16W, 275LM
OPTIC: C2, AREA OPTIC
COLOUR TEMPERATURE: 3000K
MOUNTING TYPE: WALL BRACKET
C INDICATES LUMINAIRE IS TO BE COLUMN MOUNTED (SEE NOTE 12)
MOUNTING HEIGHT: 4M
- EX5
MANUFACTURER: THORN
PRODUCT: PIAZZA 3
OUTPUT: 13W, 165LM
OPTIC: ASYMMETRIC
COLOUR TEMPERATURE: 3000K
MOUNTING TYPE: SURFACE WALL
MOUNTING HEIGHT: 2.5M
TO BE SUPPLIED WITH INTEGRAL EMERGENCY BATTERY FOR USE AS AN EMERGENCY LUMINAIRE AS REQUIRED

LIGHTING CONTROL LEGEND:

- HELVAR DALI2 ENABLED 1 WAY MANUAL SWITCH
- HELVAR DALI2 ENABLED 2 WAY MANUAL SWITCH (EXTERIOR)
- HELVAR SURFACE MOUNT DALI2 PIR SENSOR
- HELVAR SURFACE MOUNT WIDE RANGE DALI2 MULTISENSOR (DAYLIGHT & PIR)
- HELVAR IMAGINE DALI2 CONTROLLER (LOCATION AND QUANTITIES TO BE CONFIRMED)