ARTIFICIAL LIGHTING REVIEW OF GONDAR GARDENS IN RELATION TO CONSERVATION ENVIRONMENT AND COMMUTING BATS

Engineers:

Cudd Bentley Consulting Ltd
12 Devonshire Street
London
W1G 7AB

DATE: 25 October 2018

Contents

1. Briefing Note – 19th September 2018

Gondar Gardens – Planning Appeal

ISSUE 8

Artificial Lighting

1. The Council raises an objection that the proposed development, due to its scale, design, and siting, would result in an unacceptable impact from artificial lighting onto the existing site protected because of its local amenity, habitat and biodiversity importance, contrary to policies A1 (Managing the Impact of development), A3 (Biodiversity) and D1 (Design) of the London Borough of Camden Local Plan 2017.

2. The appellant has provided details of the external lighting within the External Lighting Assessment Report[1] undertaken.

3. As the site location has been designated as a Site of Borough Grade II Importance for Nature Conservation, the external lighting has been carefully designed by the appellant with the following constraints taken into consideration.

    2.1 The appellant has carefully selected external lighting within the central courtyard areas, by utilising bollard type lighting circa 717 mm high. Bollard light output has also been selected with an LED lamp source of only 4.3 Watts. Therefore, the typical courtyard areas have a designed average illuminance of 3.15 Lux. The combination of both subdued lighting levels and restricted luminaire height allows for there to be minimal impact on flying 'bat' (mammal) commuting routes, and other insect life.

    2.2 The appellant has considered the impacts of any external lighting on neighbouring properties. To the North of the development there is no external lighting and as such there is no light spill 'up to' or over the adjoining boundary.

    2.3 To the East end of the development, bollard luminaires have been carefully located, in order to ensure that there is no light spill on to or into the 'retention pond' or conserved 'wild' area beyond.

    2.4 To the South of the development where the vehicle access area is located, a combination of wall mounted and bollard lighting has been carefully located and selected to ensure that there is no light spill 'up to' or over the adjoining boundary. Lighting for vehicle access areas shall have PIR (movement sensor) controls in order to prevent operation when no persons are present. Further along the site from the vehicle access area there is no external lighting, thus there is no light spill 'up to' or over the adjoining boundary.

    2.5 To the West of the development at the pedestrian entrance (adjacent to Gondar Gardens road), bollard lighting has been carefully selected and located, thus to ensure that there is no light spill onto Gondar Gardens road.

    2.6 The external central courtyard lighting has been designed by the appellant to be time clock controlled i.e. lighting 'off' between 23:01 – 06:59. Lighting photocell 'hold off' is also to be utilised where there is sufficient 'daylight' during 07:00 – 23:00. An override facility 'on' is

[1] 4810-CBC-XX-RP-X-P01- Stage 2 External Lighting Assessment (Cudd Bentley Consulting, July 2017).

to be provided to allow 'care' staff to navigate courtyard areas during 'out of hour' time periods.

2.7 The appellant has ensured that no external lighting has been proposed for the roof areas, as it is anticipated that any maintenance work shall be carried out during 'day light' hours, and should task lighting be required then portable type lighting shall be utilised. This will also contribute to minimising any potential impact on local wildlife.

2.8 The appellant has selected luminaires that are compliant with Building Regulations Part L2A as well as the requirements of the Building Research Establishment Environmental Assessment Method (BREEAM).

2.9 In addition to the above points, the appellant is also targeting BREEAM credit Pol 04 as part of the development's BREEAM Pre-assessment[2] in order to ensure that light spill is not an issue to neighbouring properties. This credit's aim is 'to ensure that external lighting is concentrated in the appropriate areas and that upward lighting is minimised, reducing unnecessary light pollution, energy consumption and nuisance to neighbouring properties.'[3]

[2] 4830 – 17.10.18 – Persephone Gardens BREEAM Pre-assessment Report – Ver 6 (Cudd Bentley Consulting, October 2017)

[3] BREEAM UK New Construction Non-domestic Buildings 2014 (BRE Global BREEAM Manual, Issue 5, Page 375)

2. Addendum Lighting Designer Statement

Legal requirements for lighting

It is important to remember that there is no legislation requiring an area or road to be lit.

There are a number of British Standards that relate to various components of lighting – BS5489 for road lighting, BS12164 for outdoor workplaces, BS12193 for sports lighting – and there are also guidelines that relate to crime prevention, prevention of vehicular accidents and amenity use.

BS5266-1:2011 relates to the design of emergency lighting and specifies that the minimum lighting level within an escape route from a building is 1 lux. While this represents an increase in lighting, because of the nature and infrequent use of emergency lighting (as most systems are non-maintained – off unless an emergency occurs) this should not pose an issue to bats.

As has been described in 'Legal requirements', above, there is no legal duty requiring any place to be lit. British Standards and other policy documents allow for deviation from their own guidance where there are significant ecological/environmental reasons for doing so. It is acknowledged that in certain situations lighting is critical in maintaining safety, such as some industrial sites with 24-hour operation. However, in the public realm, while lighting can increase the perception of safety and security, measurable benefits can be subjective. Consequently, lighting design should be flexible and be able to fully take into account the presence of protected species.

Having reviewed the planned lighting strategy, the lighting calculations, having carried out a survey or lighting study of the light spill (illuminance), at the vertical plane, from windows and doors at 1m and 2m from the apertures and having consulted the latest legislation and research with regards to the effect of artificial lighting on bats.

I can confirm that the lighting of Gondar Gardens is sympathetic to both bats and to the local environment, that it is low level (illuminance) to minimise impact, the luminaires are low height bollards and positioned to minimise environmental impact and light source and distribution controlled below the horizontal plane to adhere to both best practice and recommendation.

In all of the latest legislation and research there is no acknowledged and recommended illuminance light level for bats, moreover there are many recommendations of the type of light and how to illuminate the environment. The lighting strategy takes full account of lighting buffer zones to natural habitats and should have a low or negative effect on commuting bats.

Moreover, the worst-case spill light from within the apartments should there be no internal curtaining or shading is minimal below 3lux and of no impact to bats.

All light sources are LED with a lamp efficacy of above 40lm/w.

The National Planning Policy Framework (NPPF) states:

By encouraging good design, planning policies and decisions should limit the impact of light pollution from artificial light on local amenity, intrinsically dark landscapes and nature conservation.

I can confirm that the statement above is strictly adhered to.

Best practice also recommends the input of qualified lighting design professionals and this review has been conducted as such.

The lighting designer David Gilbey has collaborated on many conservation area sensitive projects with ecologists including mangrove environments, developments in proximity to turtle breeding areas, roosting bats, fish and protected urban environments.

David Gilbey. BA (Hons) ALD

Lighting Design Director

Cudd Bentley Lighting Design

Research:

Bat Conservation Trust/Independent Lighting Professionals (ILP): Guidance Note 8/18

Bats and Artificial Lighting in the UK.

Bats and Lighting Research Project: E Stone University of Bristol, Bat Conservation Trust, Arup, Natural England.

DATE:	**22 June 2017**
DESIGNER:	**Philips Lighting**
PROJECT No:	**D-202999**
PROJECT NAME:	**Gondar Gardens Rev.2**

Lighitng Levels Achieved

Eave = 3.15 lx
Eming = 0.03 lx
Uo = 0.01

3. Outdoor Lighting Report

PREPARED BY:

Philips Lighting
Philips Centre, Guildford Business Park
Guildford, Surrey GU2 8XH

Telephone: 01483 298935 Fax: 01483 575534
Web: www.lighting.philips.co.uk

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Local Origin at 524808000.00m x 185277536.67m
Grid Origin 423.0m x 1.0m
Area 120.0m x 90.0m
Sample Spacing 1.50m x 1.50m

Luminaires

Luminaire A Data

Supplier	
Type	Lotis square for LED GE black
Lamp(s)	LED 3000K - SPOT - 350mA
LampFlux(klm)/Colour	0.10 3000/90
File Name	LDT_12619002-14060305_REC_LOTIS-SQUARE_3000K-SPOT-350MA_V0.Ldt
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	0.0, 0.0, 0.0
No. in Project	19

Luminaire B Data

Supplier	
Type	Portfolio 0.2 IP54 1Lx LED WW LED<500lm Tre DIM
Lamp(s)	Achrich 4.3W
LampFlux(klm)/Colour	0.58 2700/80
File Name	Portfolio_0.2_IP54_LED_12831132_LDT.LDT
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	37.5, 39.1, 39.5
No. in Project	49

Luminaire C Data

Supplier	
Type	WL120V LED12S/- NO
Lamp(s)	LED12S/830/-
LampFlux(klm)/Colour	1.20 -/
File Name	WL120V LED12S_830.ldt
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	101.8, 64.6, 36.1
No. in Project	6

Luminaire D Data

Supplier	
Type	WT120C L1200 LED22S/- NO
Lamp(s)	LED22S/840/-
LampFlux(klm)/Colour	2.20 -/
File Name	WT120C L1200 1xLED22S_840.ldt
Maintenance Factor	0.67
Imax70,80,90(cd/klm)	97.9, 46.9, 37.7
No. in Project	2

Layout

No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
1	B	523.93	49.91	0.70	90.00	0.00	0.00	0.00			
2	B	518.27	50.00	0.70	90.00	0.00	0.00	0.00			
3	B	529.97	49.86	0.70	90.00	0.00	0.00	0.00			
4	B	518.22	45.10	0.70	270.00	0.00	0.00	0.00			
5	B	524.01	45.08	0.70	270.00	0.00	0.00	0.00			
6	B	529.99	45.06	0.70	270.00	0.00	0.00	0.00			
7	B	515.98	49.75	0.70	180.00	0.00	0.00	0.00			
8	B	515.99	45.35	0.70	180.00	0.00	0.00	0.00			
9	B	533.59	47.48	0.70	0.00	0.00	0.00	0.00			
10	B	511.00	46.96	0.70	0.00	0.00	0.00	0.00			

6696209

Layout Continued

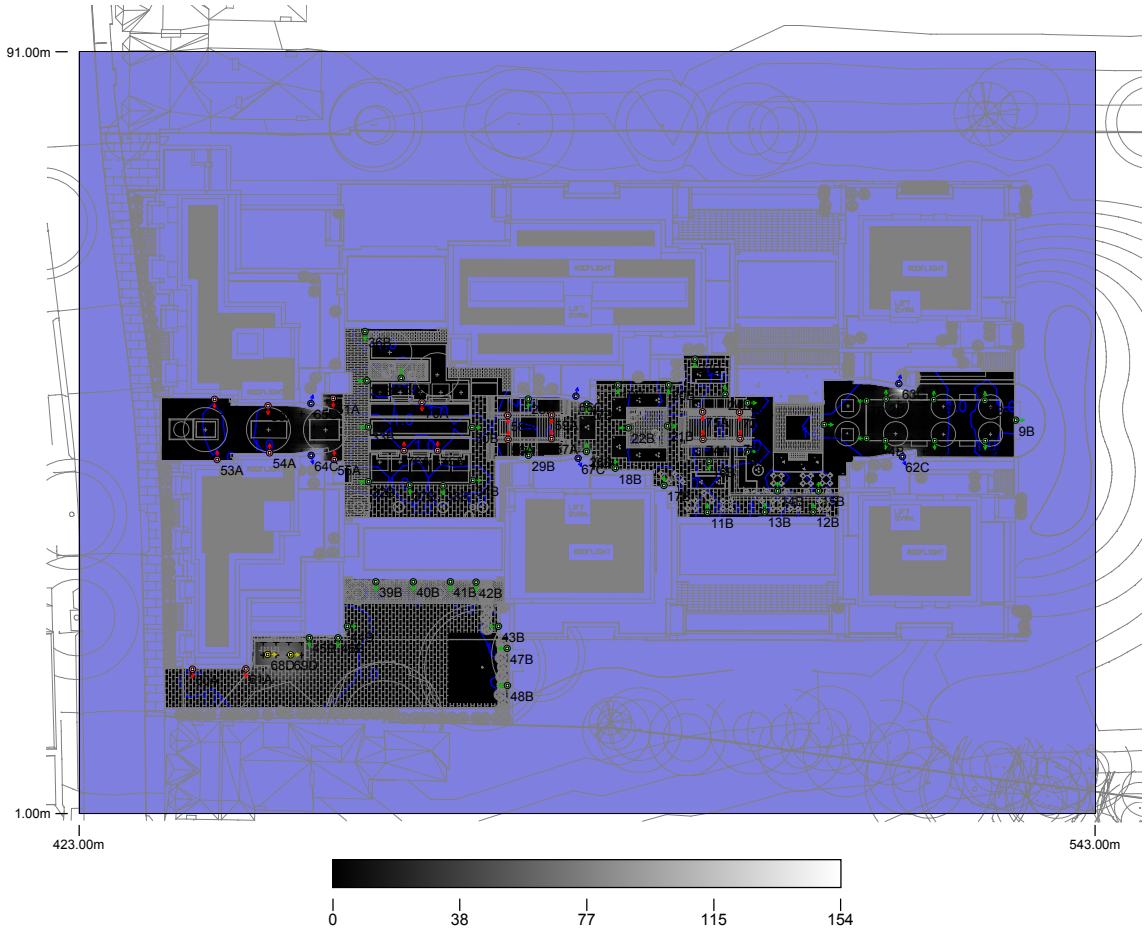
No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
11	B	497.20	36.62	0.70	90.00	0.00	0.00	0.00			
12	B	509.65	36.64	0.70	90.00	0.00	0.00	0.00			
13	B	503.95	36.64	0.70	90.00	0.00	0.00	0.00			
14	B	505.46	39.13	0.70	90.00	0.00	0.00	0.00			
15	B	510.31	39.13	0.70	90.00	0.00	0.00	0.00			
16	B	497.38	42.64	0.70	270.00	0.00	0.00	0.00			
17	B	492.03	39.79	0.70	90.00	0.00	0.00	0.00			
18	B	486.33	41.83	0.70	90.00	0.00	0.00	0.00			
19	B	486.62	51.66	0.70	270.00	0.00	0.00	0.00			
20	B	492.60	51.64	0.70	270.00	0.00	0.00	0.00			
21	B	492.46	46.81	0.70	0.00	0.00	0.00	0.00			
22	B	487.84	46.61	0.70	180.00	0.00	0.00	0.00			
23	B	495.73	54.72	0.70	270.00	0.00	0.00	0.00			
24	B	499.26	50.57	0.70	90.00	0.00	0.00	0.00			
25	B	501.93	49.53	0.70	0.00	0.00	0.00	0.00			
26	B	482.92	43.79	0.70	90.00	0.00	0.00	0.00			
27	B	482.96	49.40	0.70	270.00	0.00	0.00	0.00			
28	B	476.01	50.00	0.70	270.00	0.00	0.00	0.00			
29	B	476.07	43.34	0.70	90.00	0.00	0.00	0.00			
30	B	469.36	46.62	0.70	0.00	0.00	0.00	0.00			
31	B	469.49	40.38	0.70	0.00	0.00	0.00	0.00			
32	B	457.16	40.23	0.70	180.00	0.00	0.00	0.00			
33	B	457.18	46.69	0.70	180.00	0.00	0.00	0.00			
34	B	456.98	52.15	0.70	180.00	0.00	0.00	0.00			
35	B	461.02	52.45	0.70	90.00	0.00	0.00	0.00			
36	B	456.75	57.95	0.70	270.00	0.00	0.00	0.00			
37	B	462.06	39.82	0.70	270.00	0.00	0.00	0.00			
38	B	465.98	39.74	0.70	270.00	0.00	0.00	0.00			
39	B	458.04	28.42	0.70	270.00	0.00	0.00	0.00			
40	B	462.46	28.42	0.70	270.00	0.00	0.00	0.00			
41	B	466.84	28.42	0.70	270.00	0.00	0.00	0.00			
42	B	469.85	28.38	0.70	270.00	0.00	0.00	0.00			
43	B	472.52	23.15	0.70	180.00	0.00	0.00	0.00			
44	B	454.66	23.17	0.70	0.00	0.00	0.00	0.00			
45	B	450.17	21.80	0.70	270.00	0.00	0.00	0.00			
46	B	453.57	21.80	0.70	270.00	0.00	0.00	0.00			

Layout Continued

No.	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
47	B	473.53	20.56	0.70	180.00	0.00	0.00	0.00			
48	B	473.55	16.17	0.70	180.00	0.00	0.00	0.00			
49	B	501.88	43.75	0.70	0.00	0.00	0.00	0.00			
50	A	445.30	49.21	0.50	270.00	90.00	0.00	0.00			
51	A	452.99	50.07	0.50	270.00	90.00	0.00	0.00			
52	A	438.97	49.97	0.50	270.00	90.00	0.00	0.00			
53	A	439.30	42.84	0.50	90.00	90.00	0.00	0.00			
54	A	445.48	43.66	0.50	90.00	90.00	0.00	0.00			
55	A	453.14	42.84	0.50	90.00	90.00	0.00	0.00			
56	A	473.66	45.22	0.50	90.00	90.00	0.00	0.00			
57	A	478.79	45.31	0.50	90.00	90.00	0.00	0.00			
58	A	473.60	48.07	0.50	270.00	90.00	0.00	0.00			
59	A	478.77	48.12	0.50	270.00	90.00	0.00	0.00			
60	A	436.39	18.10	0.50	270.00	90.00	0.00	0.00			
61	A	442.70	18.13	0.50	270.00	90.00	0.00	0.00			
62	C	520.22	43.19	1.00	288.00	0.00	0.00	0.00			
63	C	519.80	51.81	1.00	79.00	0.00	0.00	0.00			
64	C	450.41	43.36	1.00	281.00	0.00	0.00	0.00			
65	C	450.35	49.46	1.00	76.00	0.00	0.00	0.00			
66	C	481.65	50.33	1.00	79.00	0.00	0.00	0.00			
67	C	481.94	43.01	1.00	288.00	0.00	0.00	0.00			
68	D	445.27	19.83	3.00	0.00	0.00	0.00	0.00			
69	D	447.98	19.81	3.00	0.00	0.00	0.00	0.00			
70	A	463.48	49.62	0.50	270.00	90.00	0.00	0.00			
71	A	496.61	48.49	0.50	270.00	90.00	0.00	0.00			
72	A	500.96	48.44	0.50	270.00	90.00	0.00	0.00			
73	A	501.04	45.29	0.50	90.00	90.00	0.00	0.00			
74	A	496.66	45.24	0.50	90.00	90.00	0.00	0.00			
75	A	465.31	43.92	0.50	90.00	90.00	0.00	0.00			
76	A	461.36	43.89	0.50	90.00	90.00	0.00	0.00			

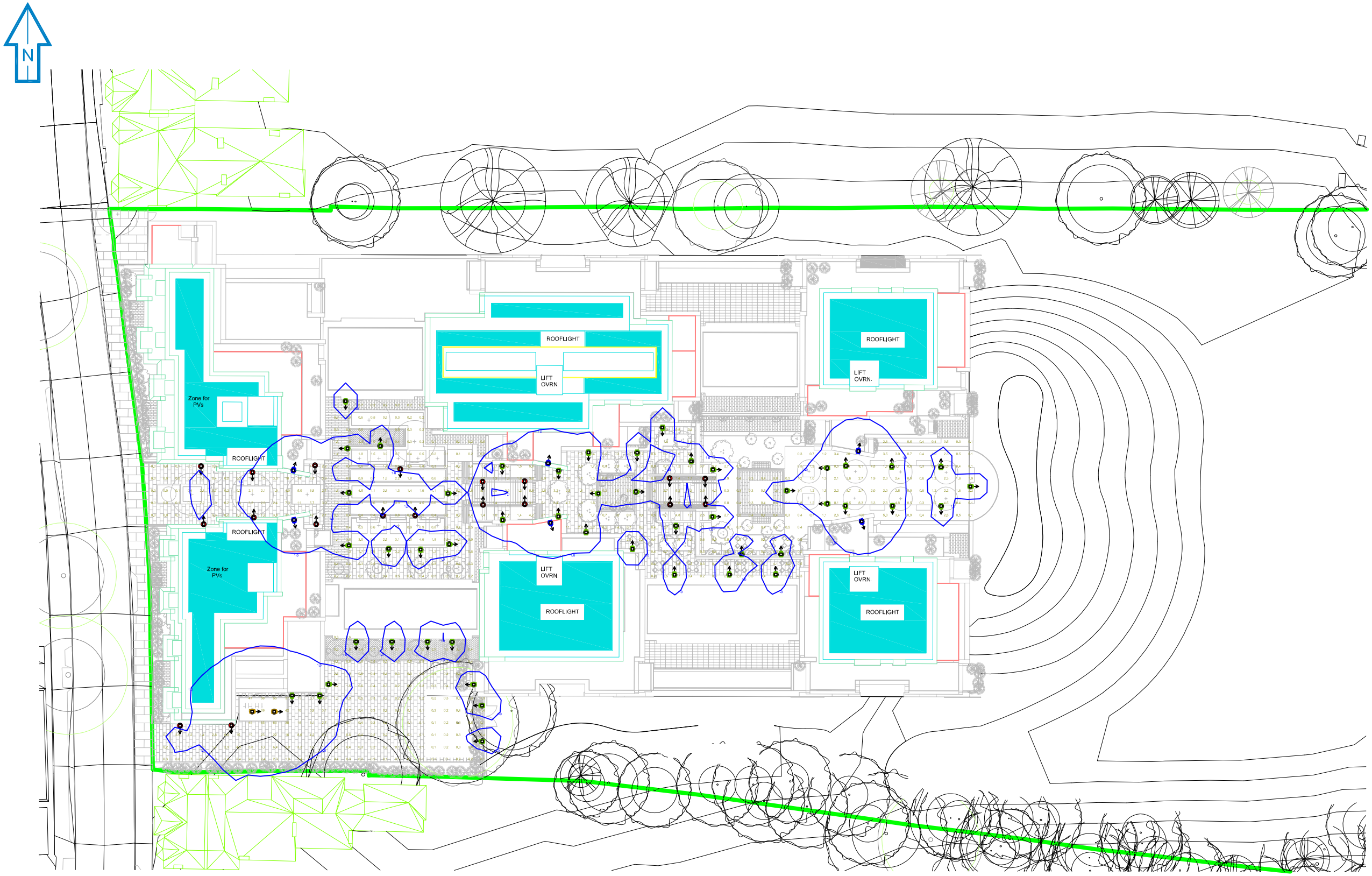
Horizontal Illuminance (lux)

Grid 1



Results

Eav	3.15
Emin	0.03
Emax	100.48
Emin/Emax	0.00
Emin/Eav	0.01



Key:

- Quantity - 19
  Philips Iltiluce Daf 02.gen2
  Recessed 'brick light'
- Quantity - 49
  Philips Modular Portfolio 0.2 LED
  Bollard light
- Quantity - 6
  Philips CoreLine WallMounted
  IP65 Circular LED
- Quantity - 2
  Philips CoreLine WaterProof
  IP65 1200mm LED

1.0 lux iso-contour line 1.0

Grid 1
Horizontal Illuminance (lux)
Eav= 3.15
Emin= 0.03
Emax= 100.48
Emin/Emax= 0.00
Emin/Eav= 0.01

PROPOSAL
(NOT FOR CONSTRUCTION)

PHILIPS
Philips Lighting UK Limited
Registered Office:
Philips Centre, Unit 3, Guildford Business Park, Surrey, GU2 8XG
Registered in England No.291612
Telephone 0845 6011283

Rev	DSR no.	Comment	Date
0	D-200058	INITIAL PROPOSAL	09/06/2017
1	D-201601	REVISED CAR PARK	13/06/2017
2	D-202999	LOW LEVEL LIGHTING	22/06/2017

Proposed By
MARK GABBITAS

Philips Account Manager
JACK VICKERY

Project Number and Name
0400017475
GONDAR GARDENS

Sheet Title
EXTERIOR COURTYARD LIGHTING LAYOUT

Scale & Sheet Size
1:500 @ A3

Sheet No
1 / 1

Notes