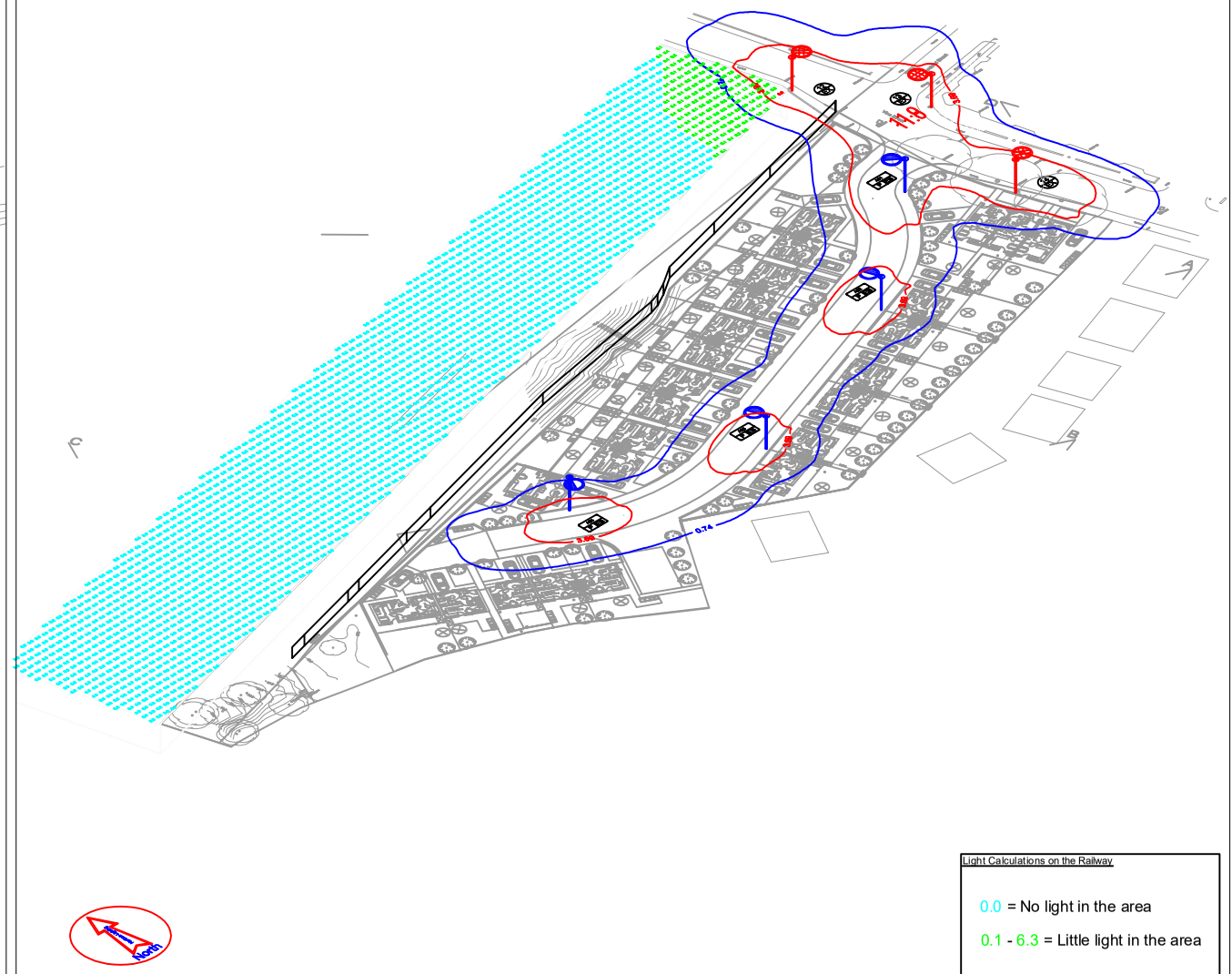
Layout showing isolux contours and proposed equipment positions, Scale 1:500 at A1

Layout showing isolux contours and proposed equipment positions in 3D, Scale 1:500 at A1



Key

04 **Proposed Column (To Be Installed):**
Manufacturer: Mallatite
Material: Steel
Height: 6m
Foot protection: Galvanised
Proposed Lantern (To Be Installed):
Manufacturer: Phillips
Model: Micro Luma
Tilt: 0°
Photometry file: "Luma Micro_BGP615_DW50_2800_10LED_5.1S_CLO_L90_NW.ies"
KLM: 2.84lm
Wattage: 17W
Driver: DALI enabled driver, Philips CityTouch CMS node

03 **Existing Column (To Remain):**
Material: Steel
Height: 6m
Existing Lantern (To Remain):
Manufacturer: Phillips
Model: Micro Luma
Tilt: 0°
Photometry file: "Luma Micro_BGP615_DW50_4000_20LED_5.1S_CLO_L90_NW.ies"
KLM: 4.0klm
Wattage: 23W
Driver: DALI enabled driver, Philips CityTouch CMS node

(All of the above to Manchester City Council)

Philips Micro Luma (BGP615)
(for illustrative purposes)

0.74 lux contour - BS5489: 2020 - **P4** (S/P ratio=1.61): Emin - illustrative

3.69 lux contour - BS5489: 2020 - **P4** (S/P ratio=1.61): Eav,min - illustrative.

A01 P EB — Proposed column scheme number
A01 = Column Number
P = Proposed
EX = Existing
EB = Existing underground connection
T = Electricity Board** Transfer Required

**Existing EB connections are not shown on SP drawings however columns are supplied with EB split concentric cable which are assumed to be jointed underground.To be disconnected.*

***Scottish Power Energy Networks*

NOTES

1. All equipment to be as per MCC / Amey document 'Development Standard Specification for Street Lighting Works'.

2. Prior to excavation works the installation contractor mu be aware of underground services or hazards which may encountered in the installation of the lighting system. Adv should be sought from the developer's engineering representative.

3. The installation contractor must be aware of any overhead obstructions. Advice should be sought from the developer's engineering representative.

4. For column installation details refer to the 'Developmer Standard Specification for Street Lighting Works' docume Provided by Manchester City Council.

5. All columns proposed for adoption by Manchester City Council shall be supplied by the DNO.

6. Until technical approval has been obtained from the relevant adopting authority, it should be understood that a drawings issued are preliminary and NOT for construction Should the contractor commence site work prior to appro being given, it is entirely at his own risk.

7. Design maintenance factor utilitised is 0.76 as provide by Manchester CC for the Philips WRTL Luma lantern.

8. S/P ratio of 1.61 provided by Manchester CC for the Philips Luma lantern.

Light Calculations on the Railway

0.0 = No light in the area

0.1 - 6.3 = Little light in the area

Lighting for Subsidiary Roads: Using white light sources to ballance energy efficiency and visual amenity.

Photopic illuminance (lux) for R_a <60	Photopic illuminance (lux) for $R_a \geq 60$ according to S/P ratio of lamp											
	0.6	0.8	1.0	1.2	1.4	1.6	1.8	2.0	2.2	2.4	2.6	2.8
LPS, HPS				MH (warm white, S/P ~1.2, $R_a \geq 60$)				LED (cool white, S/P ~2.0, $R_a \geq 60$)	Induction lamp (S/P ~1.2, 6500k, $R_a \geq 60$)	MH (daylight, S/P ~2.4, $R_a \geq 60$)		
15.0	14.3	14.0	13.7	13.4	13.1	12.8	12.6	12.3	12.1	11.8	11.6	11.4
10.0	9.4	9.1	8.9	8.6	8.4	8.1	7.9	7.7	7.5	7.3	7.2	7.0
7.5	7.0	6.7	6.5	6.3	6.0	5.9	5.7	5.5	5.3	5.2	5.0	4.9
5.0	4.5	4.3	4.1	4.0	3.8	3.7	3.5	3.4	3.3	3.2	3.1	3.0
3.0	2.6	2.5	2.3	2.2	2.1	2.0	1.9	1.8	1.7	1.7	1.6	1.6
2.0	1.7	1.6	1.5	1.4	1.3	1.2	1.2	1.1	1.0	1.0	0.9	0.9

Table 1. Illuminance for lighting in subsidiary roads to maintain equal visual amenity under light sources of different S/P ratio. These values provide equal mesopic illuminance according to CIE recommended system for mesopic photometry assuming an average luminance coefficient of q_0 = 0.07. Illuminances for intermediate values of S/P ratio can be determined by linear interpolation.
Note: Lamps are given as examples only: for any lamp used, the actual S/P ratio should be obtained from the lamp manufacturer.

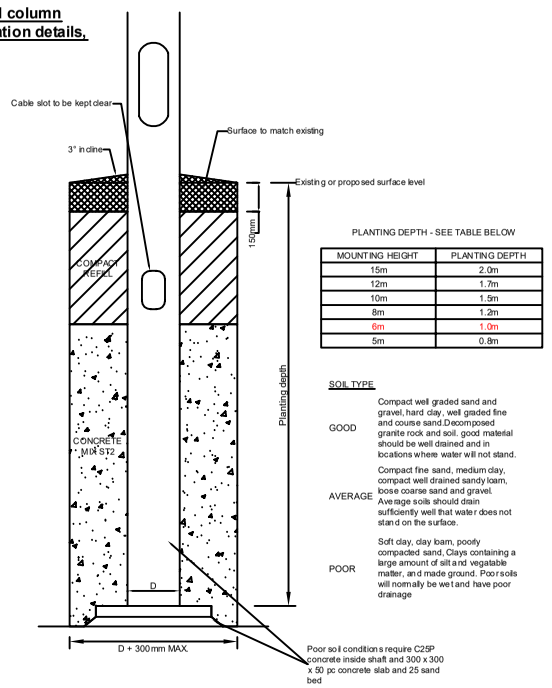
Based upon an S/P ratio of 1.61, BS5489:

P3 values are:
Eav (min) = 5.89 lux
Eav (max) = 8.84 lux
Emin = 1.18 lux

P4 values are:
Eav (min) = 3.69 lux
Eav (max) = 5.54 lux
Emin = 0.74 lux

For lighting calculations refer to the latest versions of Lighting Reality reports 18785-A-01 and 18785-R-(01, 02, 03 & 04).

Typical column installation details, NTS



PLANTING DEPTH - SEE TABLE BELOW

MOUNTING HEIGHT	PLANTING DEPTH
15m	2.0m
12m	1.7m
10m	1.5m
8m	1.2m
6m	1.0m
5m	0.8m

SOIL TYPE

GOOD — Compact well graded sand and gravel, hard clay, well graded fine and course sand.Decomposed granite rock and soil, good material should be well drained and in locations where water will not stand.

AVERAGE — Compact fine sand, medium clay, compact well drained sandy loam, loose coarse sand and gravel. Average soils should drain sufficiently well that water does not stand on the surface.

POOR — Soft clay, clay loam, poorly compacted sand, Clays containing a large amount of silt and vegatable matter, and made ground. Poor soils will normally be wet and have poor drainage

BoQ

Philips BGP615_DW50_4000_20LED_5.1S_CLO_L90_NW
lamp(s): LED-HB 5.1S NW
candela file 'Luma Micro_BGP615_DW50_4000_20LED_5.1S_CLO_L90_NW.ies
1 lamp(s) per luminaire, 4000 initial lumens per lamp
Maintenance Factor = 0.760, watts per luminaire = 23
Outreach (from mounting axis to photometric center)= 300 mm
mounting height= 6 m
number locations= 3, number luminaires= 3
kw all locations= 0.1

Philips BGP615_DW50_2800_10LED_5.1S_CLO_L90_NW
lamp(s): LED-HB 5.1S NW
candela file 'Luma Micro_BGP615_DW50_2800_10LED_5.1S_CLO_L90_NW.ies
1 lamp(s) per luminaire, 2800 initial lumens per lamp
Maintenance Factor = 0.760, watts per luminaire = 17
Outreach (from mounting axis to photometric center)= 300 mm
mounting height= 6 m
number locations= 4, number luminaires= 4
kw all locations= 0.1

REV	DESCRIPTION	DATE	DRN	APP

DRAWING NO: 22050-D-01
REV: -

DRAWING STATUS: DESIGN for Review

CLIENT: Ms Architecture

PROJECT: Vine Street, Abbey Hey Section 38

TITLE: Proposed Lighting and Installation Design Layout

SCALE: As indicated
DESIGNED BY: TL 03/12/20
SHEET NO: Sheet 1 of 1
APPROVED BY: PDL 04/12/20

Harttron
CONSULTATION, DESIGN & INSTALLATION
E. info@harttron.com
T. 01625 850855 F. 01625 850856

PROJECT: F:\Projects\MS Architecture\Vine street, Abbey Hey, Manchester\Drawings\Rev_0

XREF DRAWINGS: 18785-X-12-91-W01 & W16-C

Date Plotted: 04/12/2020 3:57 PM

HARTTRON DESIGNS ARE THE PROPERTY OF HARTTRON LIMITED, COPIES IN PART OR WHOLE ARE NOT PERMITTED WITHOUT WRITTEN AUTHORISATION. (C) COPYRIGHT.