

- Notes:
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 - All levels relative to ordnance datum.
 - Overhead statutory undertakers information indicated where present.
 - Prior to the commencement of any works on site, the Contractor shall be responsible for verifying all utilities information as provided on drawings with the utilities C2 response file and the relevant utility (see Appendix 1/16). All services (including manholes and service box covers) shall be marked out on site before works begin by reference to existing service drawings, visual check during daylight, and use of CAT/Genny.
 - The contractor shall undertake the works in accordance with HSE Guidance Note HSG47: Avoiding Danger from Underground Services. Hand excavated inspection pits shall be carried out using insulated hand tools, where underground services may be affected by the works (e.g. anchoring signs into the ground, excavation works etc.). Excavation works shall be carried out following the guidance as set out in HSE publications HSG 185 "Be Safe and Shore" and CIS 8(rev1) "Safety in Excavations". In accordance with CDM Regulation 31, no person shall enter any excavation unless it has been inspected by a competent person who has confirmed that it is safe to enter to carry out works.
 - The Contractor shall note that old service apparatus (pipes, ducts etc) may potentially comprise of Asbestos Containing Materials (ACM).
 - This drawing shall be read in conjunction Drawing No's. P20485-3708-201, P20485-3708-1302 & P20485-3708-1401 to 1404
 - The location of all road lighting equipment is shown indicatively. The exact locations shall be agreed with the Overseeing Organisation.
 - All existing and proposed pedestrian routes must remain free of all lighting equipment (road lighting columns, chambers etc), unless agreed otherwise with the Overseeing Organisation.
 - Asset ID reference numbers shown this drawing are for design purposes only. The contractor will be provided with final asset ID reference numbers from the Overseeing Authorities. Asset ID reference numbers shall be provided to all road lighting columns in accordance with Gloucestershire County Council's Specification.
 - The Contractor shall ensure all new lighting is fully operational before removing any of the existing lighting.
 - Minor vegetation clearance and pruning of bushes maybe required at proposed road lighting column locations as instructed by the Overseeing Organisation.
 - All columns to be supplied by the DNO and be fitted with a secondary fused isolator as detailed on Drawing No. P20485-3708-1401
 - After galvanising all lighting columns are to have the paint protection system applied internally and externally at the place of manufacture. GCC's column protection preference is Dacrylate 2 Pack applied in factory, as per table below.

KEY

COLUMN SPECIFICATION "A" ADOPTABLE PROPOSED NEW

COLUMN IS: MALLATTITE, 12m GALVANISED, TUBULAR STEEL, ROOT MOUNTED, WITH WRAP AROUND STYLE DOOR AND 8mm ALLEN HEAD DOOR BOLT LOCK WITH ANTI-VANDAL CENTRE PIN. COLUMN TO COMPLY WITH GLOUCESTERSHIRE CC STREET LIGHTING SPECIFICATION, CLAUSES 10.70 TO 10.79 AND TO HAVE 50 YEAR DESIGN LIFE. COLUMN TO HAVE FACTORY APPLIED FINISH PAINT TO GLOUCESTERSHIRE CC STREET LIGHTING SPECIFICATION CLAUSES 10.93 TO 10.96, USING A DACRYLATE 2 PACK SYTEM. COLOUR BS4800 12B21, LIGHT GREEN

LUMINAIRE IS: CU PHOSCO P861-112-F2B-WW-E3050-121W 15.27km CLO / 7 PIN NEMA / RAL7035
 CIW 112 No WARM WHITE LEDs, 350mA PHILIPS XITANIUM DALI ENABLED DIMMABLE DRIVER, DIMMING SET TO BE PRE-PROGRAMMED TO DIM BY 50% BETWEEN MIDNIGHT AND 5:30am
 POST TOP MOUNING 76mm DIA. COLUMN SPIGOT AT 0° INCLINATION

CMS NODE IS: TELENDA 5-PIN NEMA TELECELL-GPSENABLED AND PROGRAMMED FOR USE IN GLOUCESTERSHIRE PRODUCT CODE T2E1N-G-3

ELECTRICAL CONNECTION
 SECONDARY ISOLATOR - CEL SWITCH DISCONNECTOR AND CEL 1132 FUSE CARRIER WITH 6A BS88 FUSE
 PRODUCT CODE REF L2/SFE/A1/6.0/350+350E+610E M6 LUG TAILS
 TERMINATION TYPE 1 ON GCC DRAWING J108

ELECTRICAL CABLING
 WITHIN COLUMN FROM SECONDARY ISOLATOR TO LUMINAIRE TO BE 3 CORE 1.5MM² CIRCULAR FLEX HOSVV-F WITH TEMPERATURE RANGE -15°C TO +70°C

COLUMN SPECIFICATION "B" ADOPTABLE PROPOSED NEW

COLUMN IS: MALLATTITE, 6m GALVANISED, TUBULAR STEEL, ROOT MOUNTED, WITH WRAP AROUND STYLE DOOR AND 8mm ALLEN HEAD DOOR BOLT LOCK WITH ANTI-VANDAL CENTRE PIN. COLUMN TO COMPLY WITH GLOUCESTERSHIRE CC STREET LIGHTING SPECIFICATION, CLAUSES 10.70 TO 10.79 AND TO HAVE 50 YEAR DESIGN LIFE. COLUMN TO HAVE FACTORY APPLIED FINISH PAINT TO GLOUCESTERSHIRE CC STREET LIGHTING SPECIFICATION CLAUSES 10.93 TO 10.96, USING A DACRYLATE 2 PACK SYTEM. COLOUR BS4800 12B21, LIGHT GREEN

LUMINAIRE IS: URBIS AMPERA MINI 5119 8LED 900mA WW 25.4W 2.72km CLO / 7 PIN NEMA / RAL7040
 CIW 8 No WARM WHITE LEDs, 900mA PHILIPS XITANIUM DALI ENABLED DIMMABLE DRIVER, DIMMING SET TO BE PRE-PROGRAMMED TO DIM BY 50% BETWEEN MIDNIGHT AND 5:30am
 POST TOP MOUNING 76mm DIA. COLUMN SPIGOT AT 0° INCLINATION

CMS NODE IS: TELENDA 5-PIN NEMA TELECELL-GPSENABLED AND PROGRAMMED FOR USE IN GLOUCESTERSHIRE PRODUCT CODE T2E1N-G-3

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COLUMN SPECIFICATION "C" ADOPTABLE PROPOSED NEW

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LUMINAIRE IS: URBIS AMPERA MINI 5119 8LED 900mA WW 25.4W 2.72km CLO / 7 PIN NEMA / RAL7040
 CIW 48 No WARM WHITE LEDs, 900mA PHILIPS XITANIUM DALI ENABLED DIMMABLE DRIVER, DIMMING SET TO BE PRE-PROGRAMMED TO DIM BY 50% BETWEEN MIDNIGHT AND 5:30am
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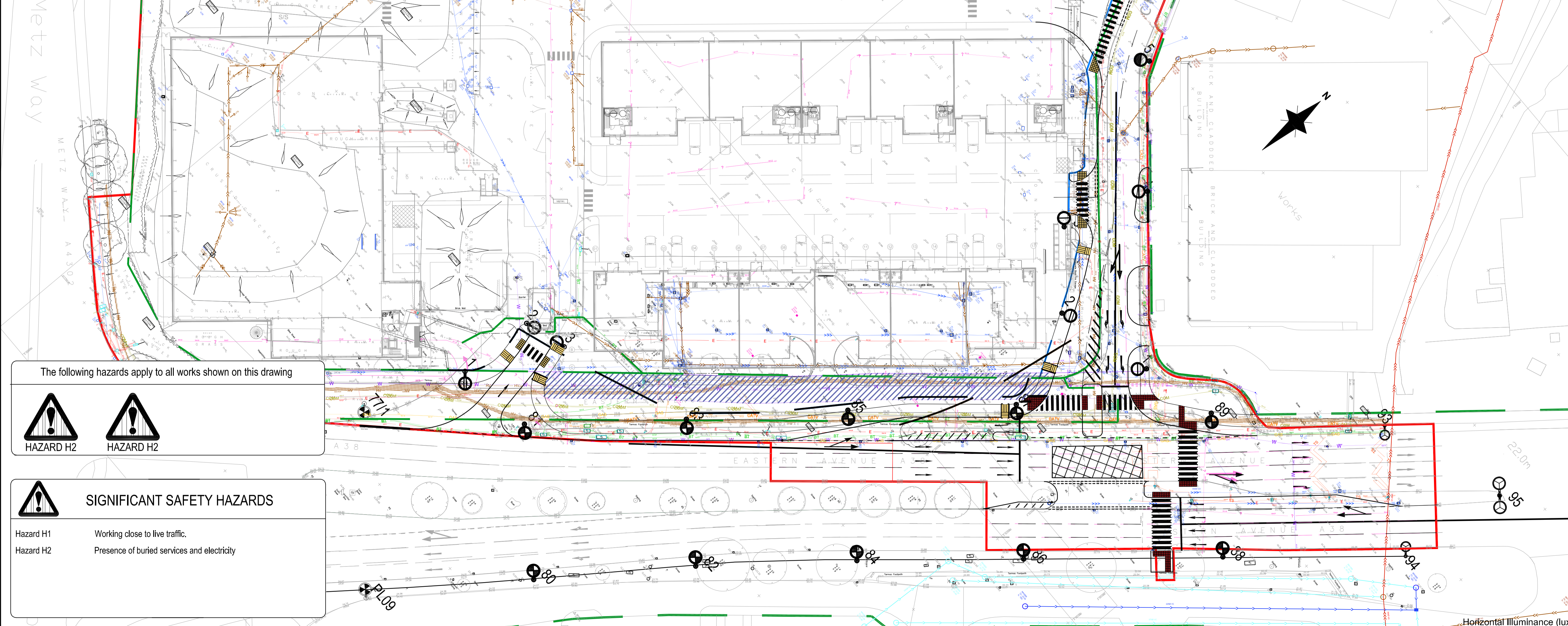
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- Existing 6m road lighting column complete with post top mounted Urbis Ampera Luminaire to remain
- Existing 10m road lighting column complete with single bracket arm and Urbis Ampera Luminaire to remain
- Existing 10m road lighting column complete with twin bracket arm and Urbis Ampera Luminaire to remain
- Existing 12m road lighting column complete with single bracket arm and Urbis Ampera Luminaire to remain
- Existing 12m road lighting column complete with twin bracket arm and Urbis Ampera Luminaire to remain
- Proposed columns 80, 81, 82, 84, 86, & 88 to be sited with a 2m setback all other columns to be sited at rear of footpath

Paint System to be Applied over: GALVANISE TO BS EN ISO 1461

Details	1st Coat	2nd Coat	3rd Coat	4th Coat
Internal & External to 250mm Above Ground	T WASH	PRIMER	ROOT TREATMENT	EXTERNAL FINISH
Paint Specification	150-23	90-258 (from 115) Dacrylate Epoxid 2Pk Epoxy High Build Aluminium	79-489 Dacrylate Epoxid 2 Pk Epoxy Black Glass Reinforcement	200 - Line Dacrylate Dac - Sil 200 POLYSILOXANE FINISH Colour depends on location (Refer to 10.96)



LIGHTING REALITY CALCULATION
ACCESS PARK V3.rma

Grid 1 - Eastern Avenue
 Results - Horizontal Illuminance (Lux)
 Eav = 15.32
 Emin = 6.7
 Emax = 47.33
 Emin / Emax = 0.14
 Emin / Eav = 0.44
 Emax / Eav = 3.09

Grid 2 - Access Park Entrance
 Results - Horizontal Illuminance (Lux)
 Eav = 10.16
 Emin = 6.38
 Emax = 17.34
 Emin / Emax = 0.37
 Emin / Eav = 0.63
 Emax / Eav = 1.71

Grid 3 - Chancel Close
 Results - Horizontal Illuminance (Lux)
 Eav = 11.4
 Emin = 4.52
 Emax = 21.78
 Emin / Emax = 0.21
 Emin / Eav = 0.4
 Emax / Eav = 1.91

The following hazards apply to all works shown on this drawing

HAZARD H2

HAZARD H2

SIGNIFICANT SAFETY HAZARDS

Hazard H1 Working close to live traffic.

Hazard H2 Presence of buried services and electricity

All proposed columns require a DNO connection to be arranged

A Original for Approval	DH	NJ	5.121
Rev. DESCRIPTION	DRWN	CHK	DATE

14 Appletree Close | Oakley | Basingstoke | Hampshire | RG23 7HL

CLIENT/CUSTOMER COMPLETE DESIGN PARTNERSHIP LTD

PROJECT **ACCESS PARK GLOUCESTER**

TITLE **ROAD LIGHTING GENERAL ARRANGEMENT**

DRAWN DH	SCALE 1:500 @ A1	DATE Dec 2020
DRAWING NUMBER P20485-3807-1301	ISSUE A	

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CMS NODE IS: TELENSA 5-PIN NEMA TELECELL-GPSENABLED AND PROGRAMMED FOR USE IN GLOUCESTERSHIRE PRODUCT CODE T2E1N-G-3

ELECTRICAL CONNECTION
SECONDARY ISOLATOR - CEL SWITCH DISCONNECTOR AND CEL 1132 FUSE CARRIER WITH 6A BS88 FUSE
PRODUCT CODE REF L2/SFE/A1/6.0/350+350E+610E M6 LUG TAILS
TERMINATION TYPE 1 ON GCC DRAWING J/08

ELECTRICAL CABLING
WITHIN COLUMN FROM SECONDARY ISOLATOR TO LUMINAIRE TO BE 3 CORE 1.5MM² CIRCULAR FLEX HOSVV-F WITH TEMPERATURE RANGE -15°C TO +70°C

COLUMN SPECIFICATION "B" ADOPTABLE PROPOSED NEW

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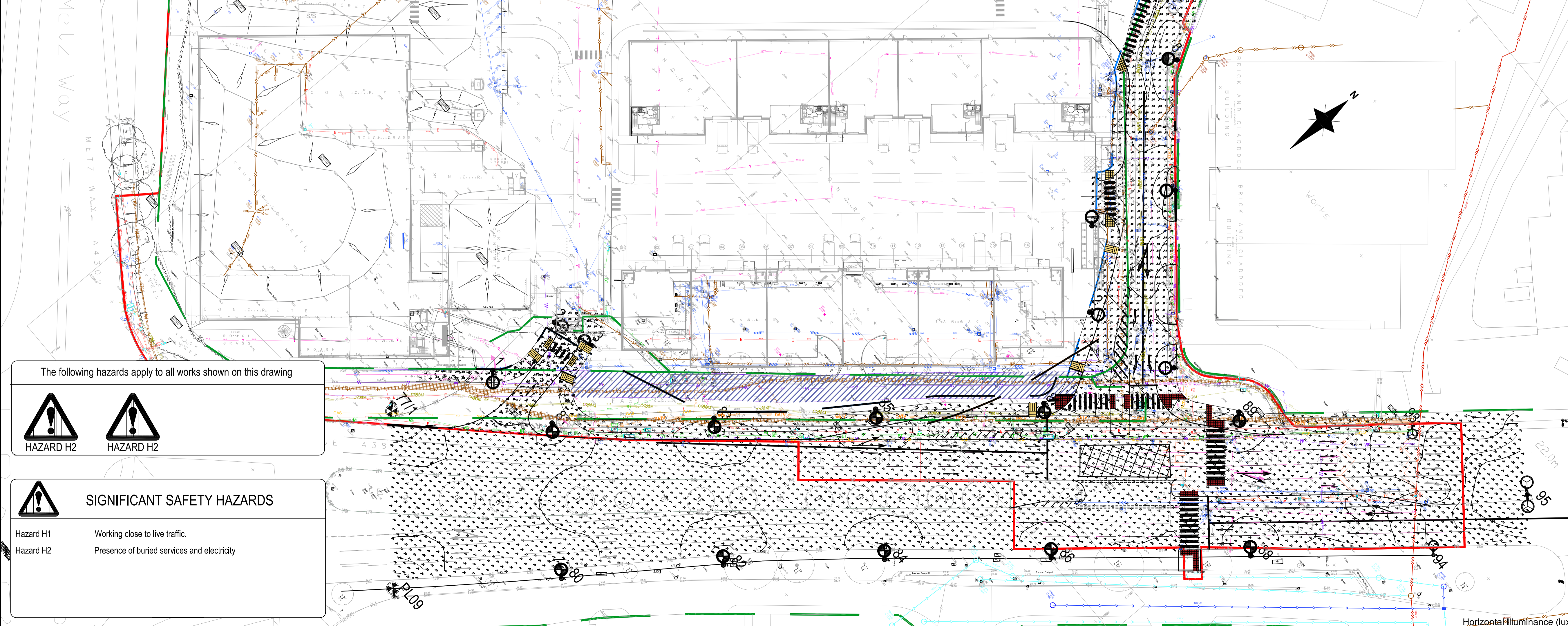
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- Existing 12m road lighting column complete with twin bracket arm and Urbis Ampera Luminaire to remain
- Proposed columns 80, 81, 82, 84, 86, & 88 to be sited with a 2m setback all other columns to be sited at rear of footpath

Paint System to be Applied over: GALVANISE TO BS EN ISO 1461

Details	1st Coat	2nd Coat	3rd Coat	4th Coat
Internal & External to 250mm Above Ground	T WASH	PRIMER	ROOT TREATMENT	EXTERNAL FINISH
Paint Specification	150-23	90-258 (Item 115) Dacrylate Epoxid 2Pk Epoxy High Build Aluminium	79-489 Dacrylate Epoxid 2 Pk Epoxy Black Glass Reinforcement	200 - Line Dacrylate Dac - Sil 200 POLYSILOXANE FINISH Colour depends on location (Refer to 10.96)



The following hazards apply to all works shown on this drawing

HAZARD H2

HAZARD H2

SIGNIFICANT SAFETY HAZARDS

Hazard H1 Working close to live traffic.

Hazard H2 Presence of buried services and electricity

LIGHTING REALITY CALCULATION
ACCESS PARK V3.rma

Grid 1 - Eastern Avenue

Results - Horizontal Illuminance (Lux)

Eav = 15.32
Emin = 6.7
Emax = 47.33
Emin / Emax = 0.14
Emin / Eav = 0.44
Emax / Eav = 3.09

Grid 2 - Access Park Entrance

Results - Horizontal Illuminance (Lux)

Eav = 10.16
Emin = 6.38
Emax = 17.34
Emin / Emax = 0.37
Emin / Eav = 0.63
Emax / Eav = 1.71

Grid 3 - Chancel Close

Results - Horizontal Illuminance (Lux)

Eav = 11.4
Emin = 4.52
Emax = 21.78
Emin / Emax = 0.21
Emin / Eav = 0.4
Emax / Eav = 1.91

Proposed columns 80, 81, 82, 84, 86, & 88 to be sited with a 2m setback all other columns to be sited at rear of footpath

Lighting design carried out in accordance with BS5489-1:2020 & ILP PLG02 The Application of Conflict Areas on the Highway

N.B. The 2 conflict areas on Eastern Avenue merge by virtue of the 5 second rule. The approaches from the East & West have been confirmed to be designed to a lighting class of M4 by GCC.

N.C.

Eastern Avenue conflict areas Class - C3

Average Illuminance $E_{AV} \geq 15$ Lux

Overall Uniformity, $E_{min}/E_{av} \geq 0.40$

Threshold Increment, $TI \leq 15.0\%$

Chancel Close and new access road conflict areas Class - C4

Average Illuminance $E_{AV} \geq 10$ Lux

Overall Uniformity, $E_{min}/E_{av} \geq 0.40$

Threshold Increment, $TI \leq 15.0\%$

All proposed columns require a DNO connection to be arranged

Rev	DESCRIPTION	DH	NJ	5.1.21
Rev	DESCRIPTION	DRWN	CHK	DATE

14 Appletree Close | Oakley | Basingstoke | Hampshire | RG23 7HL

CLIENT/CUSTOMER

PROJECT **ACCESS PARK GLOUCESTER**

TITLE **ROAD LIGHTING CALCULATION SUMMARY**

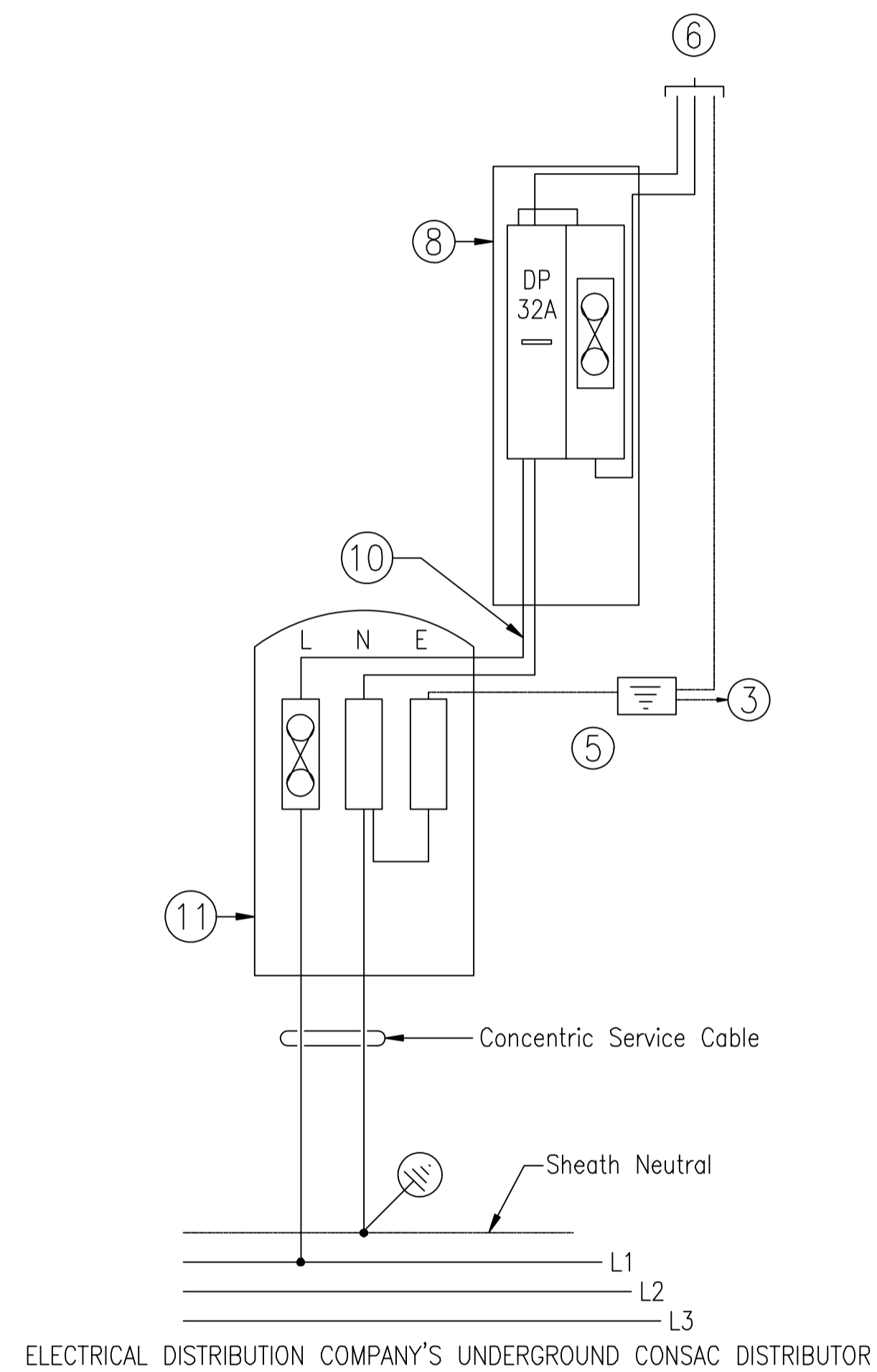
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DH	1:500 @ A1	Dec 2020
DRAWING NUMBER	ISSUE	
P20485-3807-1302	A	

DO NOT SCALE FROM THIS DRAWING

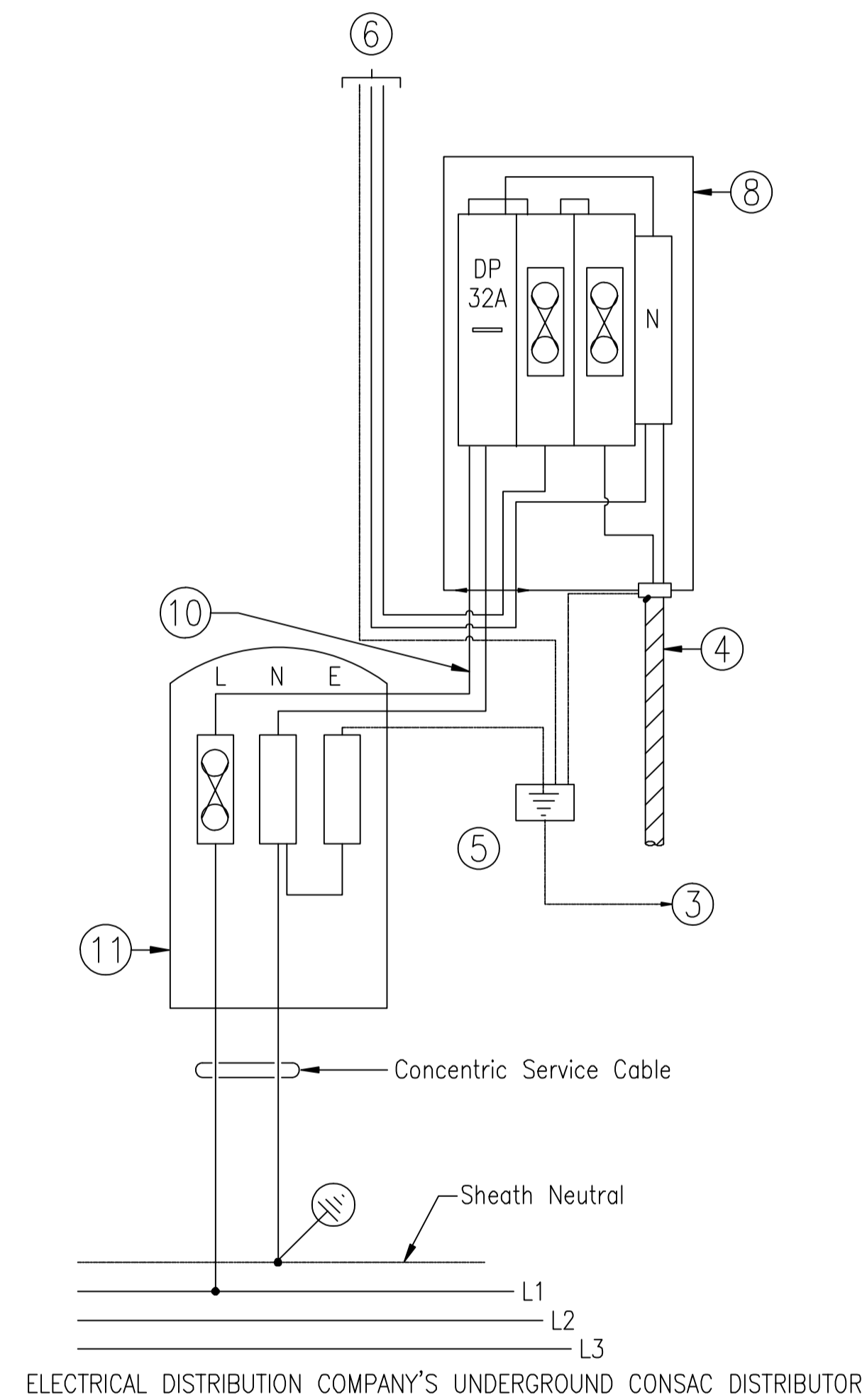
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TABLE 1

CROSS SECTIONAL AREA OF TAILS CONNECTED TO CUT - OUT SQ mm COPPER EQUIVALENT	MINIMUM CROSS SECTIONAL AREA COPPER EQUIVALENT OF MAIN EQUIPOTENTIAL BONDING CONNECTIONS IN SQ. mm
LESS THAN 35	10
OVER 35 BUT NOT MORE THAN 50	16



TERMINATION TYPE T1
T1 : IS AN INTERFACE WITH THE ELECTRICAL DISTRIBUTION COMPANY



TERMINATION TYPE T2
T2 : IS AN INTERFACE WITH THE ELECTRICAL DISTRIBUTION COMPANY AND ONE LOCAL AUTHORITY LOOP OUT

Notes:

- The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
- ALL DIMENSIONS ARE IN MILLIMETRES.
- Local Authority road lighting unit, lit traffic sign unit or feeder pillar earth stud.
- Local Authority cable(s) (PVC/XLPE/PVC) with CET cable gland, SNE distribution.
- All main bonding shall be in accordance with Table 1. Bonding terminals attached to the earth marshalling terminal \boxplus by means of a crimped lug. All supplementary bonding shall be 6 sq.mm.
- Control gear / lantern wiring conductors shall be 1.5 sq.mm for columns up to 6 metres nominal height and 2.5 sq.mm for columns 8 metres and above.
- The circuit protective device(s) shall be BS EN 60269 HBC cartridge fuses rated as follows:-
For lantern wattages up to 70 watt - 6 amp
over 70 watt up to 250 watt - 10 amp
- Enclosed double pole switched isolator and integral BS EN 60269 HBC cartridge fuse(s) with a lock off facility.
- Interconnecting phase and neutral conductors to the electrical distribution company's interface shall be 6 sq.mm PVC insulated and sheathed.
- Electrical distribution company's fused cut-out.

Drawing:

STANDARD DETAIL
ELECTRICAL SUPPLY CABLE
TERMINATION TYPES T1 & T2

Drg. No.

J/08

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PROJECT
ACCESS_PARK
GLOUCESTER

TITLE
ROAD_LIGHTING
STANDARD_DETAILS

DRAWN	SCALE	DATE
DH	NTS	DEC_2020

DRAWING NUMBER	ISSUE
P20485-3708-1401	A

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Road Lighting Columns and Brackets
APPENDIX 13/2 PART 1

SPECIFICATION	EN40
---------------	------

REVISION No

DATE

DRAWING No.

CLIENT *
PROJECT Development
CONTRACT No.
DETAILS 6M Post Top Column
COLUMN REF/TYPE Tubular Steel

PART A General

Column nominal height m

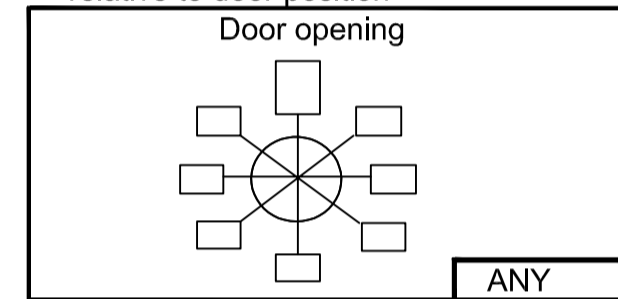
Column material

No of door openings

Door opening size :
Door height mm
width mm

Cross-section of base height width depth
compartment mm mm mm

Acceptable positions of bracket arms relative to door position



Column Sections	Dia x thickness (mm)	fy (N/mm2)
base	139.7 x 3	275
shaft	76.1 x 2.5	275

Corrosion protection (steel columns only) - basic system type (NG 1901)

Additional sacrificial steel thickness above that needed in the design, from the bottom of the column to at least 250mm above the anticipated ground level. mm

Details of signs and attachments allowed for in the design

Area (m2)	Item	Area	Offset	Height
	Sign	0.500	300	2500

PART B Foundation data

Planted base Planted depth mm

Diameter of concrete surround (if any)	Standard Soil Type Factor G		
	630	390	230
NONE	0.62	0.275	m

Flanged base	Bolt hole crs. (mm)	Hole diameter (mm)	Design load/bolt (kN)
	N/A	N/A	N/A

Relevant forces and moments at ground level

	TRANSMITTED LOADS (all unfactored) (EN 40)		
	BM (kNm)	Shear (kN)	Axial (kN)
Planted Root :	4.06	1.42	0.57
Flanged :	4.06	1.42	0.57

Line of max. moment relating to door opening
NOTE: For flange plates with slotted holes a diagram shall be included with this data sheet

APPENDIX 13/2 PART 2

EN40 DESIGN PARAMETERS	
Mean Return Period	50
Topography factor	1.00
Terrain Category	III
Altitude above sea level	178 m
Basic Wind Speed (BS EN 1991-1-4)	22.5 m/s
Rationalised Wind Region	N/A
Partial Load Factor	Class B
Partial Material Factor	1.05
Deflection Class	3

PART C Acceptable Lanterns

Post Top Column

LANTERN: MAXIMUM CHARACTERISTICS

Lantern Connection		Max Wt	Max Wind
Diameter (mm)	Length (mm)	(kg)	Area m2
76.1	100	10	0.1

Single Arm Bracket Column

Lantern Deflection (mm)	
Vertical (mm)	Horizontal (mm)
N/A	N/A

Bracket projection (m)	Drawing No	Ref No	Material		Lantern Connection		Fixing Angle	Max Wt (kg)	Max Wind Area m2
			Grade	fy (N/mm2)	Diameter	Length			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Double arm brackets

Lantern Deflection (mm)	
Vertical (mm)	Horizontal (mm)
N/A	N/A

Bracket projection (m)	Drawing No	Ref No	Material		Lantern Connection		Fixing Angle	Max Wt (kg)	Max Wind Area m2
			Grade	fy (N/mm2)	Diameter	Length			
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

It is certified that the information given in the data sheet has been obtained in accordance with the requirements of : EN40

Signed on Behalf of the Contractor J.a.c*/**/****

Notes:

Drawing:

COLUMN DATA SHEET
(EXAMPLE)

Drg. No.

J/09

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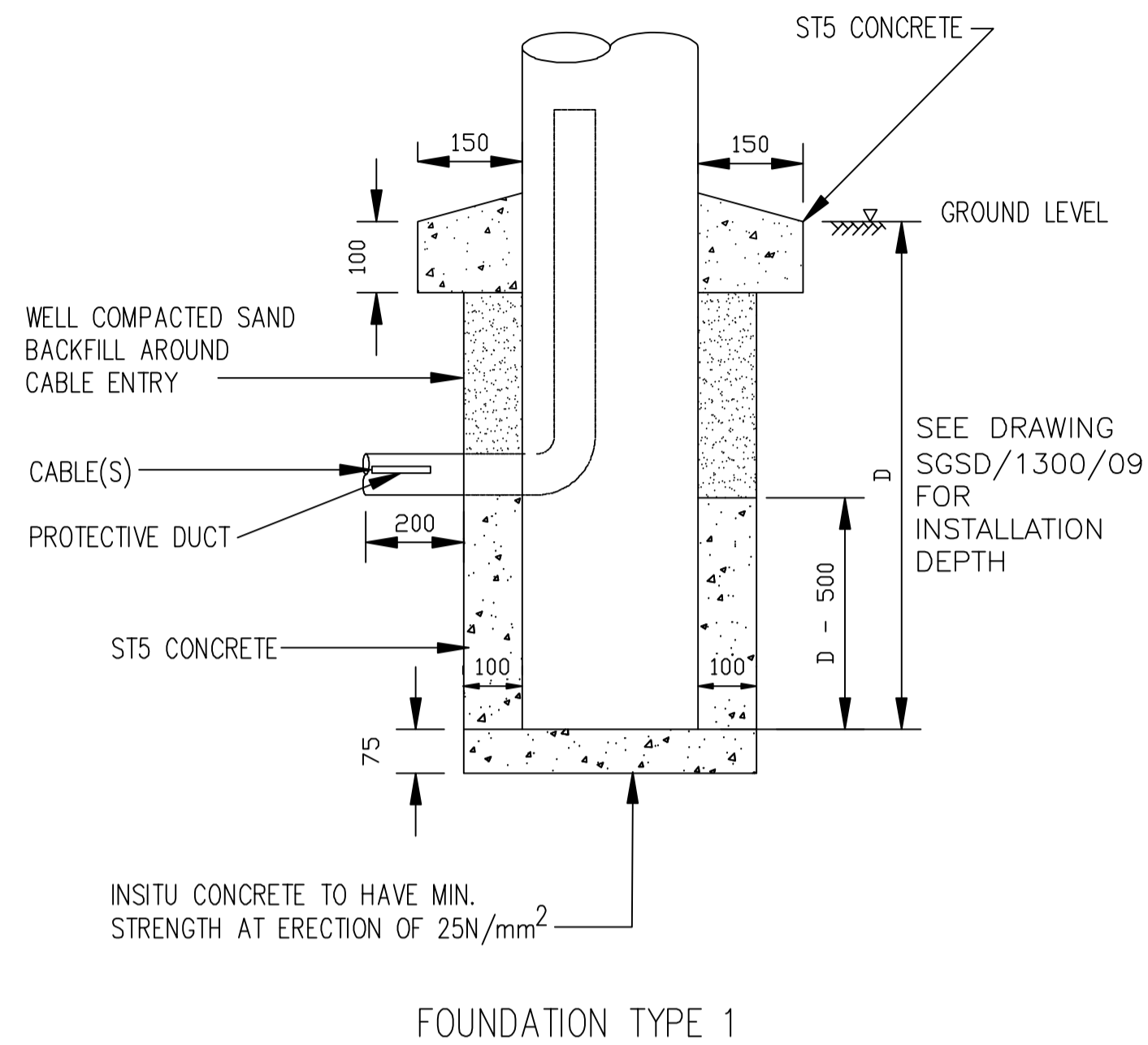
PROJECT
**ACCESS PARK
GLOUCESTER**

TITLE
**ROAD LIGHTING
STANDARD DETAILS**

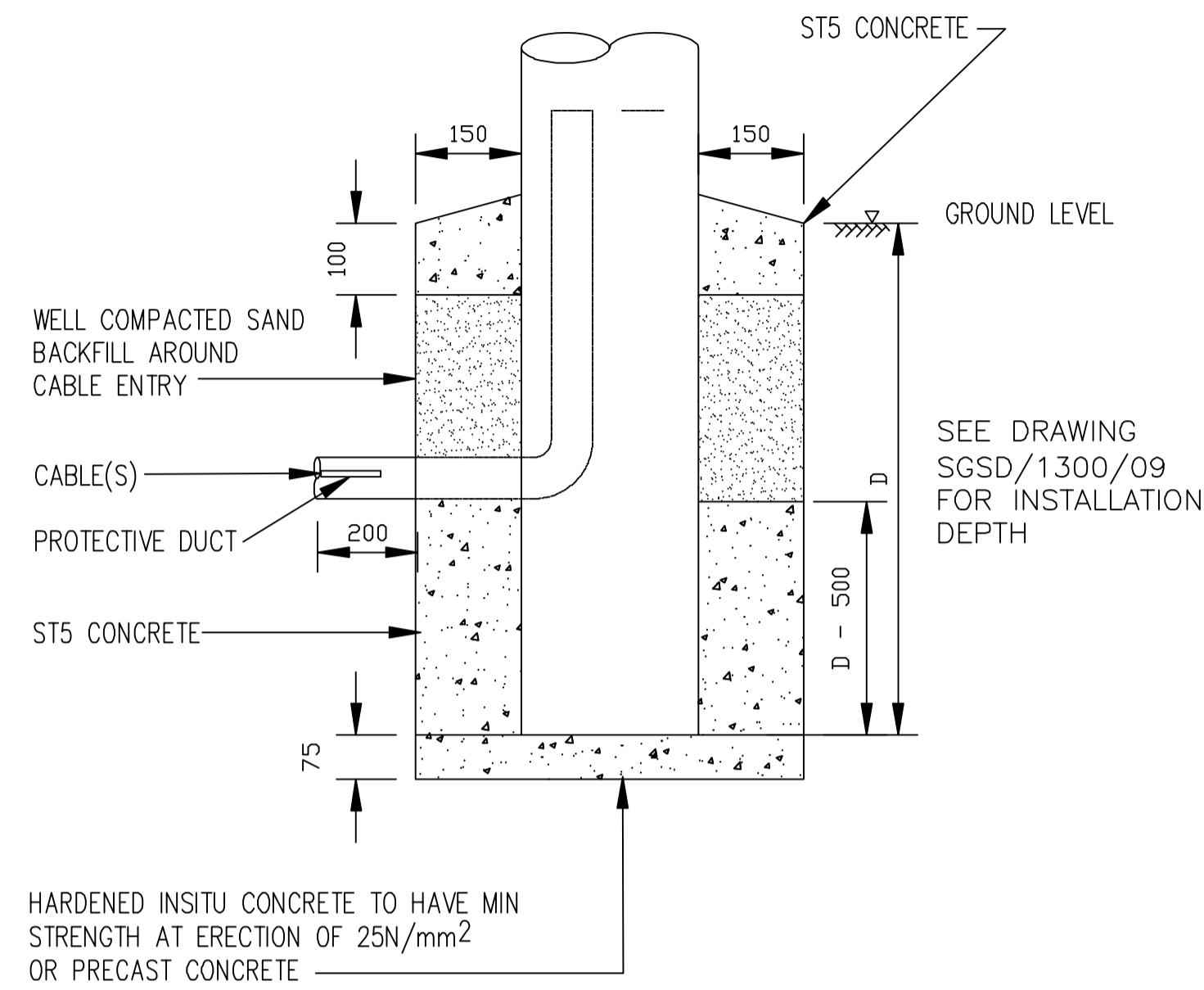
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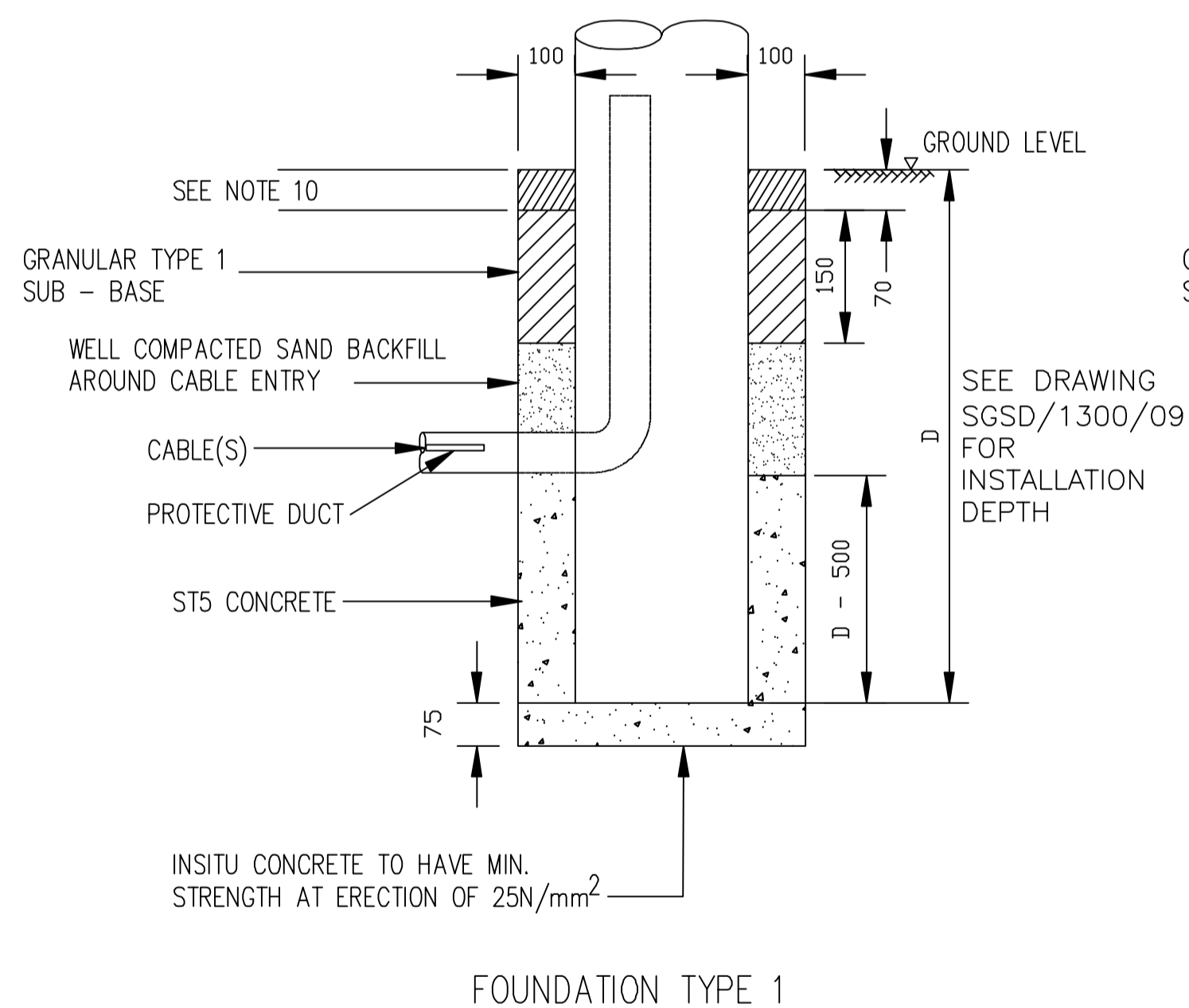


FOUNDATION TYPE 1

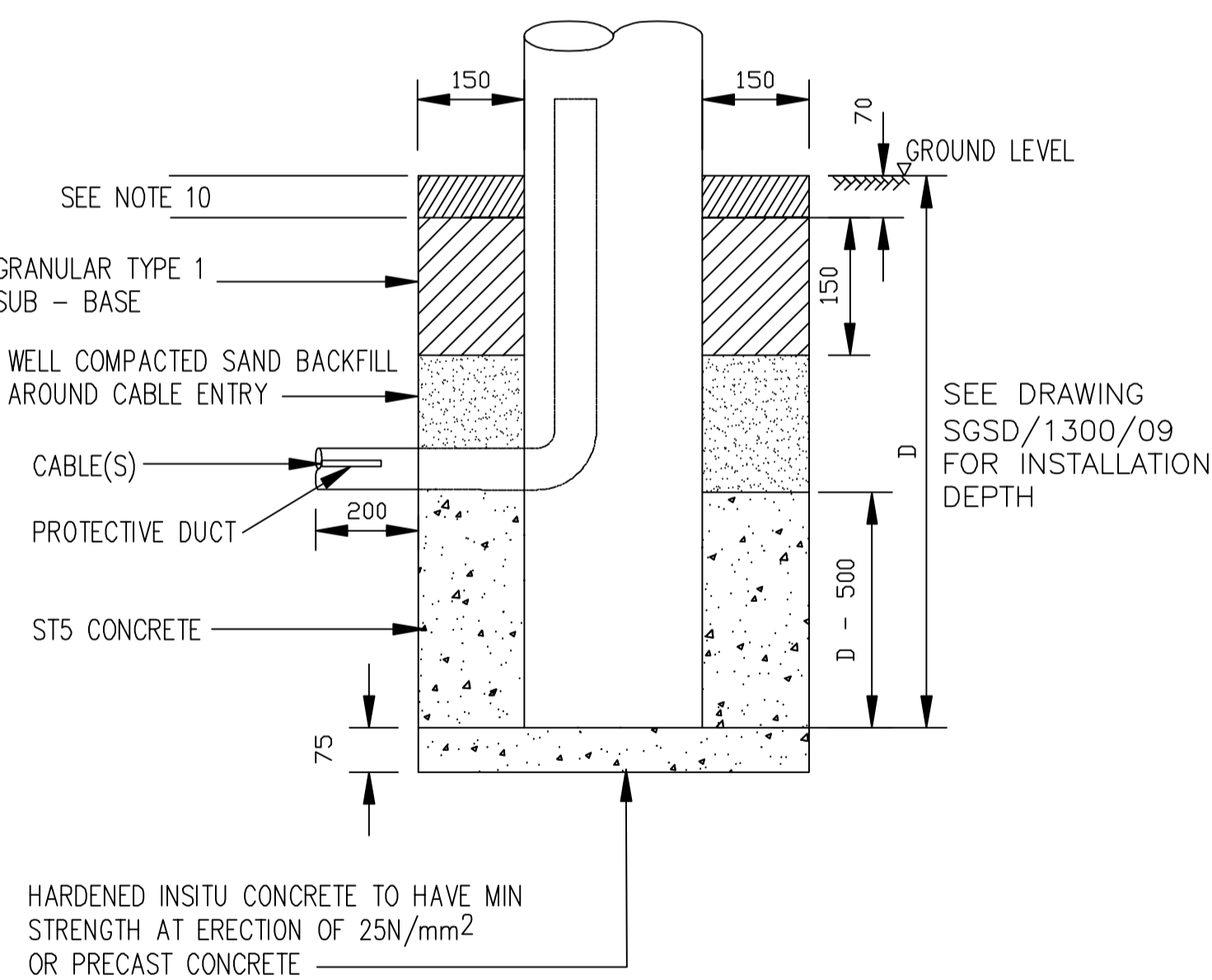


FOUNDATION TYPE 2

COLUMN ROOT INSTALLED IN EITHER A VERGE OR A CONCRETE FOOTPATH



FOUNDATION TYPE 1



FOUNDATION TYPE 2

Notes:

1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. Columns shall be installed in accordance with Clause 1305 and shall present a uniform alignment when erected, installation tolerance shall be $\pm 50\text{mm}$.
4. Columns shall be erected vertically. Lanterns shall be fitted separately.
5. The cable entry slot shall be plugged prior to backfilling to prevent the ingress of sand into the column.
6. DUCTING
The duct shall be coloured:
(i) BLACK for electrical distribution company use.
(ii) ORANGE for Local Authority cable(s).
7. MATERIAL SPECIFICATION CLAUSES:
(i) Sand to BS1199 and BS1200
(ii) Concrete to be ST5 to Clause 2602 with a maximum water to cement ratio of 0.60. The prescribed mix to be to BS8500-1.
(iii) Type 1 unbound mixture sub-base to Clause 803.
8. The ground level foundation concrete collar shall be installed after installation of the electrical supply cable(s) and completion of the ground backfill works.
9. Area above foundation shall be reinstated to match surrounding materials.
10. Column to be installed as recommended by the manufacturer.

Drawing:

**STANDARD DETAIL
STEEL ROOT COLUMN//SIGN
FOUNDATION TYPE 1 & TYPE 2**

Drg. No.

J/10

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PROJECT
**ACCESS_PARK
GLOUCESTER**

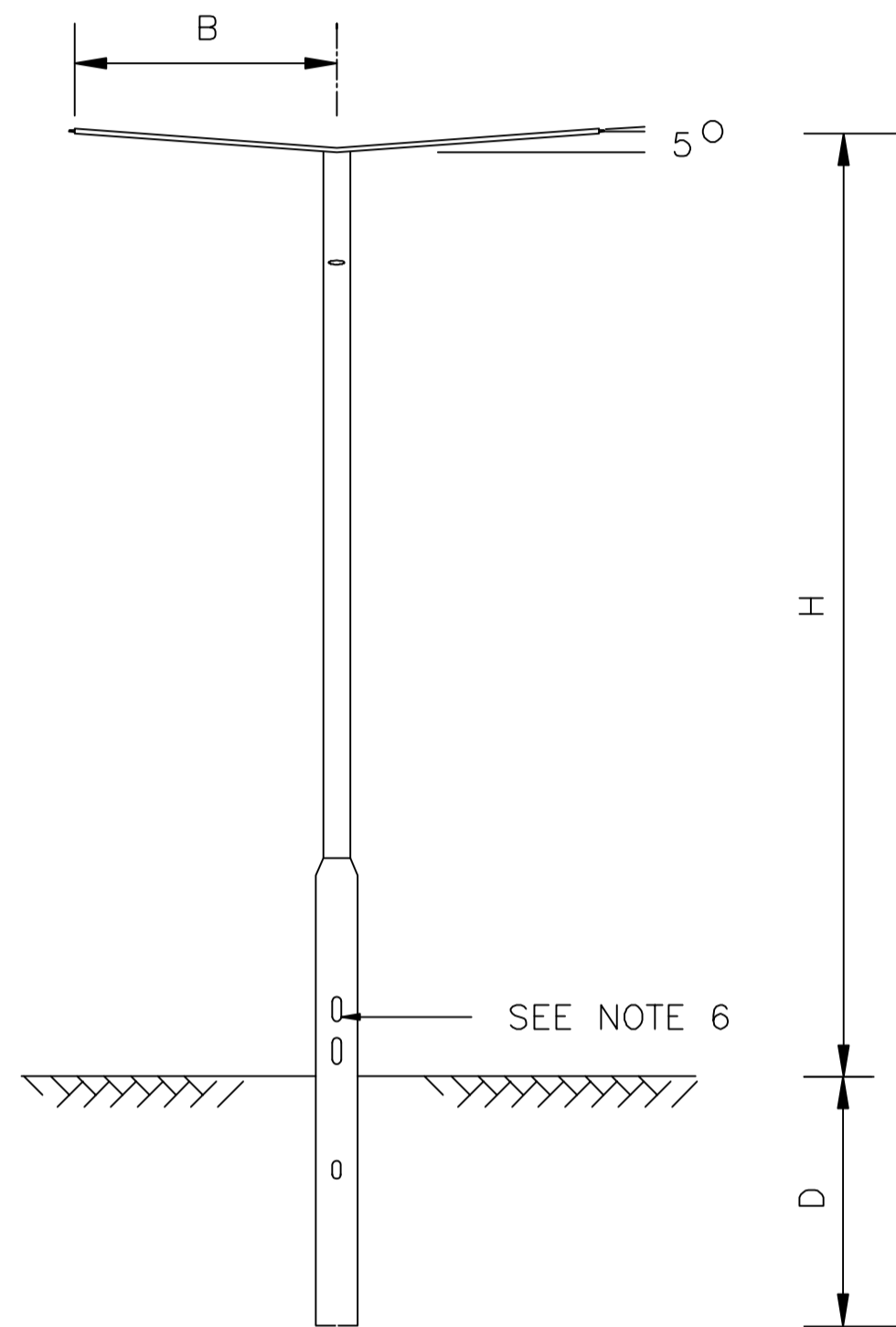
TITLE
**ROAD_LIGHTING
STANDARD_DETAILS**

DRAWN	SCALE	DATE
DH	NTS	DEC_2020

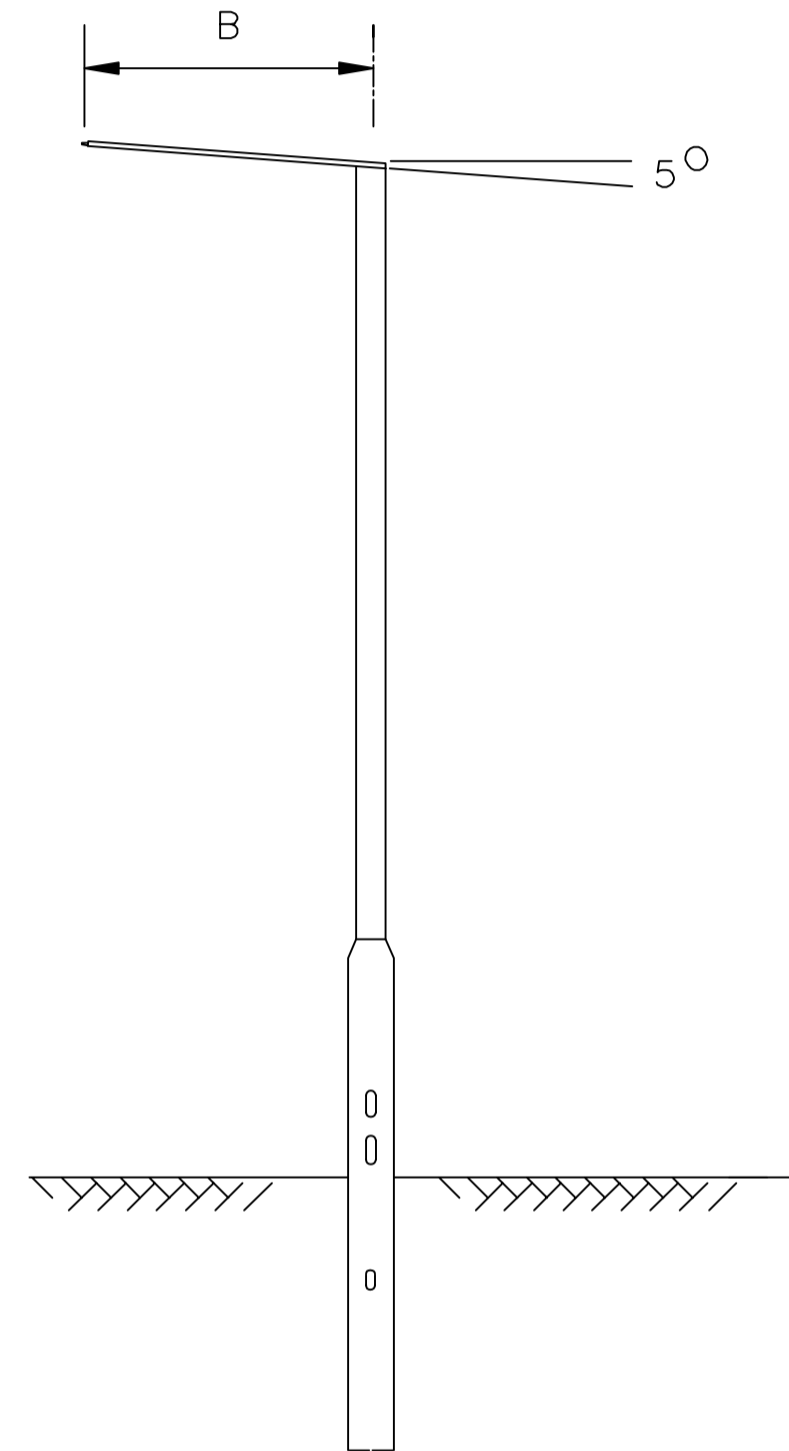
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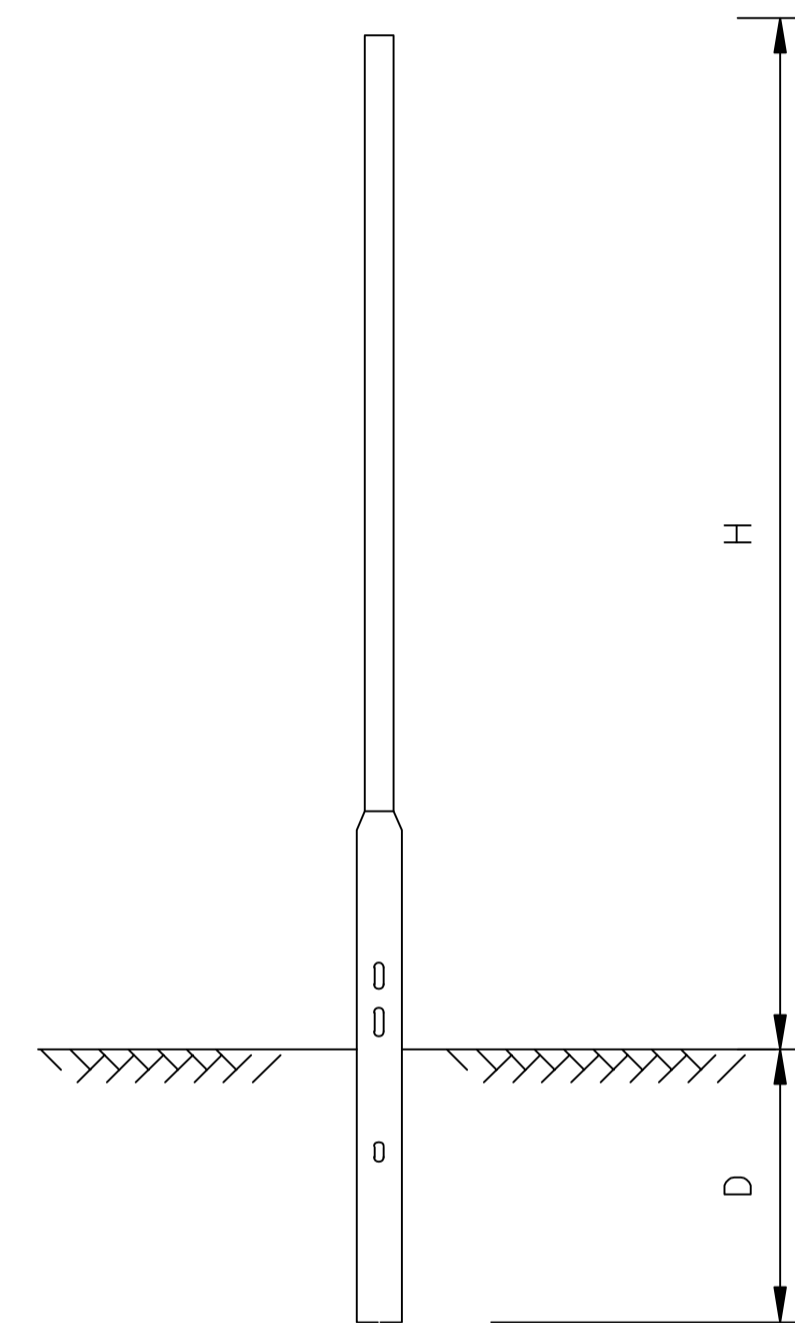
ELEVATION ON DOUBLE BRACKET



ELEVATION ON SINGLE BRACKET



ELEVATION WITHOUT BRACKET
(LANTERN POST TOP FIT)



INSTALLATION DIMENSIONS			
COLUMN HEIGHT (H) METRES	DEPTH (D) METRES	ALTERNATIVES FOR (B) METRES	
		BRACKET ARM	POST TOP
5	0.8	N/A	0.0
6	1.0	N/A	0.0
8	1.2	N/A	0.0
10	1.5	N/A	0.0
12	1.7	N/A	0.0
15	2.0	N/A	0.0
18	2.0	N/A	0.0

Notes:

1. The Specification for Highway Works (current version, or as indicated in the contract) applies, together with any Gloucestershire County Council additional or substitute clauses.
2. ALL DIMENSIONS ARE IN MILLIMETRES.
3. All columns shall be galvanised steel, factory painted and shall comply with Clause 1301 and the specific requirements of Appendix 13/1, 13/2 and 19/2.
4. Columns shall be installed in accordance with Clause 1305 and shall present a uniform alignment when erected, installation tolerance shall be $\pm 50\text{mm}$.
5. Columns shall be erected vertically. Lanterns shall be fitted separately.
6. For columns with twin projection bracket arms the column shafts shall be fitted with twin access doors.

Drawing:

**STANDARD DETAIL
STREET LIGHTING COLUMN
PLANTING DETAILS**

Drg. No.

J/11

A	FIRST ISSUE	DH	NJ	01/21
Rev.	DESCRIPTION	DRWN	CHK	DATE



PROJECT
**ACCESS_PARK
GLOUCESTER**

TITLE
**ROAD_LIGHTING
STANDARD_DETAILS**

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