

Company	SHD Lighting Consultancy Ltd
Designer	Stephen Higham

Client	Vistry (Merseyside)
Date	25/04/2025

Title	Lickers Lane
Project no.	SHD2082

Stage	Early design
Status	Preliminary
Operation scenario	FP02 Cable Calculation

Project revisions

Revision	Revision by	Revision date	Comment
R0	Steve Higham	25/04/2025	

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Main supply report															
Company		SHD Lighting Consultancy Ltd													
Designer		Stephen Higham													
Supply details															
Description		Supply													
Supply method		User defined source/origin point Supply@100kVA													
Phase/Voltage		Single-phase 230V 50Hz													
Earthing system		TN-C-S													
Voltage drop limit		Public supply: Lighting 3%, other uses 5%													
Prospective 1Ph fault				Prospective Ph to N fault											
Ipf (kA)		7.2463		Ipn (kA)		7.2463									
Zpf (Ω)		0.0317		Zpn (Ω)		0.0317									
p.f.		0.5		p.f.		0.5									
Prospective earth fault				Earthing arrangements											
Ief (kA)		0.6571		Earthing conductor (mm²)			1x25								
Ze (Ω)		0.351		Earthing electrode resistance (Ω)			0								
p.f.		0.5		Main bonding conductor (mm²)			25								
Min/Max Fault levels															
Isc-max (kA)		7.0415		Cmax		1		Isc-min (kA)		7.2463		Cmin		1	
Protection by supplier						Main protective device									
-						Fuse 1P 25A/80kA Generic BS88 fuses									
Meter tails				25mm² Single-core 70°C PVC non-armoured, L:1m											
Load calculations															
Phase				L1		L2		L3		N					
Connected load (A)				0.18		0		0		0.18					
Diversified load (A)				0.18		0		0		0.18					
Spare load (A)				0 (0%)		0		0		-					
Design load power calculations															
Phase				L1		L2		L3		Total					
Design load (A) (Diversified + Spare)				0.18		0		0		N:0.18					
kVA				0.04		0		0		0.04					
kW				0.04		0		0		0.04					
kVAr				0		0		0		0					
cos φ				1		1		1		1					
Main conductor				2Cx25mm² + 1x25mm² E PVC70/M/Cu Length: 1m											

Maximum demand report												
Company		SHD Lighting Consultancy Ltd										
Designer		Stephen Higham										
Supply details												
Description		Supply										
Supply method		User defined source/origin point Supply@100kVA										
Phase/Voltage		Single-phase 230V 50Hz										
Earthing system		TN-C-S										
Design load power calculations												
Phase		L1			L2			L3			Total	
kVA		0.04			0			0			0.04	
kW		0.04			0			0			0.04	
kVAr		0			0			0			0	
cos φ		1			1			1			-	
Load calculations												
Phase		L1			L2			L3			N	
Connected load (A)		0.18			0			0			0.18	
Diversified load (A)		0.18			0			0			0.18	
Spare load (A)		0 (0%)			0			0				
Design load (A) (Diversified + Spare)		0.18			0			0			N:0.18	
Load power calculations per switchboard and distribution board												
Description [Load type]		Power factor			Connected Load (A)				Connected Load (kVA)			
Supply area (m²)		Diversity factor			Diversified load (A)				Diversified load (kVA)			
Load density (W/m²)		Spare load (%)			Diversified + Spare load (A)				Diversified + Spare load (kVA)			
		L1	L2	L3	L1	L2	L3	N	L1	L2	L3	Total
FP01 [Sub-Circuits]		1	1	1	0.18	0	0		0.04	0	0	0.04
N/A		1	1	1	0.18	0	0		0.04	0	0	0.04
N/A		0	0	0	0.18	0	0	0.18	0.04	0	0	0.04

Circuits schedule report : FP01



Company	SHD Lighting Consultancy Ltd
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Description	Voltage	Phase	Total circuit ways			Spare load	Spare ways		Empty ways		
FP01	230V AC	SP&N	4			0%	0		1Ph: 3 (75%)		
							L1	L2	L3		
Location:		Mounting:	Surface	Reference No.:		Connected load (A) Diversified load (A) Diversified+Spare load (A)	0.18				
Connected from:	Supply	IP Rating:	IP 4X	Isolator Rating:			0.18				
Zs (Ω):	0.3521	Board Rating (A):		Fault Rating (kA):			0.18				
Incomer device											

				Power factor Diversity factor 3rd Harmonics %			Connected load (A) Diversified load (A) Diversified+Spare load (A)		
Way	Description	Conductor	Protective devices	L1	L2	L3	L1	L2	L3
1.L1	PR03	3Cx6mm ² (E cable core) SWA/XLPE90(70)/Cu Length: 5m	Fuse 1P 16A/80kA Generic BS88 fuses	1 1 0			0.18 0.18 0.18		
2.L1	empty								
3.L1	empty								
4.L1	empty								
L1	FP01	2Cx25mm ² + 1x25mm ² E PVC70/M/Cu Length: 1m	Fuse 1P 25A/80kA Generic BS88 fuses	1 1 0			0.18 0.18 0.18		

Circuits schedule report : PR03



Company	SHD Lighting Consultancy Ltd
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Description		Voltage	Phase	Total circuit ways		Spare load	Spare ways				
PR03		230V AC	SP&N	2		0%	0				
								L1	L2	L3	
Location:		Mounting:	Surface	Reference No.:		Connected load (A) Diversified load (A) Diversified+Spare load (A)	0.18				
Connected from:	FP01	IP Rating:	IP 4X	Isolator Rating:			0.18				
Zs (Ω):	0.3719	Board Rating (A):		Fault Rating (kA):			0.18				
Incomer device											

				Power factor Diversity factor 3rd Harmonics %			Connected load (A) Diversified load (A) Diversified+Spare load (A)		
Way	Description	Conductor	Protective devices	L1	L2	L3	L1	L2	L3
1.L1	Street Light	3Cx1.5mm ² (E cable core) PVC70/M/Cu Length: 7m	Fuse 1P 6A/80kA Generic BS88 fuses	1 1 0			0.06 0.06		
2.L1	PR04	3Cx6mm ² (E cable core) SWA/XLPE90(70)/Cu Length: 32m		1 1 0			0.12 0.12 0.12		
1.L1	Street Light	3Cx1.5mm ² (E cable core) PVC70/M/Cu Length: 7m	Fuse 1P 6A/80kA Generic BS88 fuses	1 1 0			0.06 0.06		
2.L1	PR05	3Cx6mm ² (E cable core) SWA/XLPE90(70)/Cu Length: 40m		1 1 0			0.06 0.06 0.06		
1.L1	Street Light	3Cx1.5mm ² (E cable core) PVC70/M/Cu Length: 7m	Fuse 1P 6A/80kA Generic BS88 fuses	1 1 0			0.06 0.06		
L1	PR03	3Cx6mm ² (E cable core) SWA/XLPE90(70)/Cu Length: 5m	Fuse 1P 16A/80kA Generic BS88 fuses	1 1 0			0.18 0.18 0.18		

Lighting columns schedule report : PR03	
Company	SHD Lighting Consultancy Ltd
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Supplied from:	FP01	Voltage:	230V AC	Max. volt drop/Limit:	0.03% (Street Light)/Public supply: 3%
First column:	PR03	Location:		Total load (A):	0.18
Cables to Columns: Multicore 90°C XLPE armoured		Total length(m): 77		Cables to Lightings: Multicore 70°C PVC non-armoured	
				Total length(m): 21	

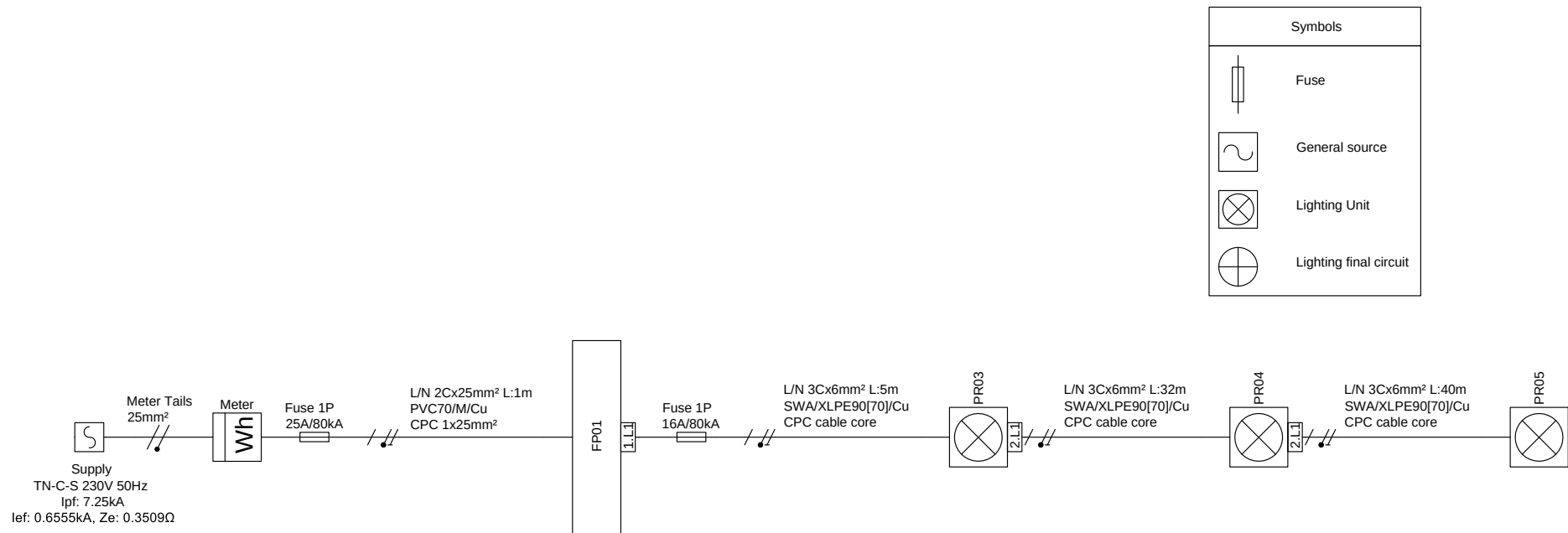
Column	Supplied from	Protective devices			Cable to column	Length(m)	Load(A)
[L1] PR03	FP01	Fuse 1P 16A/80kA			3Cx6mm² (E cable core), SWA/XLPE90(70)/Cu	5	0.18
Lighting	Watts	cos(φ)	3rd Harmonics	Protective devices	Cable to lighting	Length(m)	Volt Drop
[L1] Street Light	1x14W	1	0%	Fuse 1P 6A/80kA	3Cx1.5mm² (E cable core), PVC70/M/Cu	7	0.01%
Column	Supplied from	Protective devices			Cable to column	Length(m)	Load(A)
[L1] PR04	PR03	Fuse 1P 6A/80kA			3Cx6mm² (E cable core), SWA/XLPE90(70)/Cu	32	0.12
Lighting	Watts	cos(φ)	3rd Harmonics	Protective devices	Cable to lighting	Length(m)	Volt Drop
[L1] Street Light	1x14W	1	0%	Fuse 1P 6A/80kA	3Cx1.5mm² (E cable core), PVC70/M/Cu	7	0.02%
Column	Supplied from	Protective devices			Cable to column	Length(m)	Load(A)
[L1] PR05	PR04	Fuse 1P 6A/80kA			3Cx6mm² (E cable core), SWA/XLPE90(70)/Cu	40	0.06
Lighting	Watts	cos(φ)	3rd Harmonics	Protective devices	Cable to lighting	Length(m)	Volt Drop
[L1] Street Light	1x14W	1	0%	Fuse 1P 6A/80kA	3Cx1.5mm² (E cable core), PVC70/M/Cu	7	0.03%

Cables schedule report		
Company	SHD Lighting Consultancy Ltd	
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Cable ID	Voltage	From	To	L (m)	Make-up	Type	Method	Classification
c-d-1	230V AC	Supply	FP01	1	2Cx25mm ² + 1x25mm ² E PVC70/M/Cu	Multicore 70°C PVC non-armoured - Cu	Ref. C - Clipped direct	
c-d-2	230V AC	FP01	PR03	5	3Cx6mm ² (E cable core) SWA/XLPE90 (70)/Cu	Multicore 90°C XLPE armoured (Run to 70 °C) - Cu	Ref. D - In underground ducts	
c-f-1	230V AC	PR03	Street Light	7	3Cx1.5mm ² (E cable core) PVC70/M/Cu	Multicore 70°C PVC non-armoured - Cu	Ref. C - Clipped direct	
c-d-2	230V AC	PR03	PR04	32	3Cx6mm ² (E cable core) SWA/XLPE90 (70)/Cu	Multicore 90°C XLPE armoured (Run to 70 °C) - Cu	Ref. D - In underground ducts	
c-f-1	230V AC	PR04	Street Light	7	3Cx1.5mm ² (E cable core) PVC70/M/Cu	Multicore 70°C PVC non-armoured - Cu	Ref. C - Clipped direct	
c-d-2	230V AC	PR04	PR05	40	3Cx6mm ² (E cable core) SWA/XLPE90 (70)/Cu	Multicore 90°C XLPE armoured (Run to 70 °C) - Cu	Ref. D - In underground ducts	
c-f-1	230V AC	PR05	Street Light	7	3Cx1.5mm ² (E cable core) PVC70/M/Cu	Multicore 70°C PVC non-armoured - Cu	Ref. C - Clipped direct	

Warnings

No Warnings were found in the calculated circuits



All Distribution Circuits								
Working Voltage	From	To	Conductor Make-up	Conductor Type	Length (m)	Method	Protective Device	Voltage Drop
230V AC	Supply	FP01	2Cx25mm² + 1x25mm² E	PVC70/M/Cu	1	Ref. C - Clipped direct	Fuse 1P 25A/80kA	0 %
230V AC	FP01	PR03	3Cx6mm² (E cable core) (Run to 70 °C)	SWA/XLPE90(70)/Cu	5	Ref. D - In underground ducts	Fuse 1P 16A/80kA	0 %
230V AC	PR03	PR04	3Cx6mm² (E cable core) (Run to 70 °C)	SWA/XLPE90(70)/Cu	32	Ref. D - In underground ducts	N/A	0.01 %
230V AC	PR04	PR05	3Cx6mm² (E cable core) (Run to 70 °C)	SWA/XLPE90(70)/Cu	40	Ref. D - In underground ducts	N/A	0.02 %