

APPENDIX 2.7

Notes - Setting Out
 1. Drawing to be read in conjunction with Mossdale Meadows Setting Out Report.

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CONSTRUCTION ISSUE

Ref.	Description	Date	By	Appr.
C01	CONSTRUCTION ISSUE	01.02.2023	GO	IF

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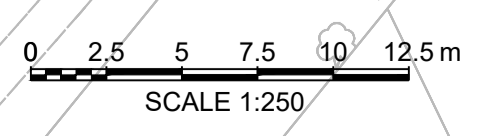
Client
LEICESTER CITY COUNCIL

Project Name
GREAT CENTRAL WAY - PHASE 2

Sheet Title
SETTING OUT

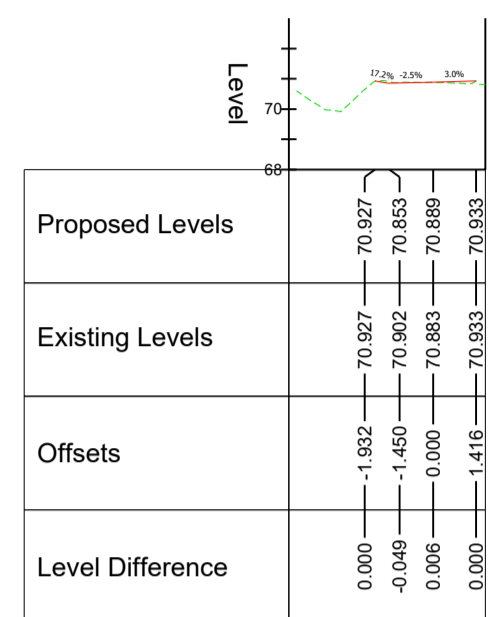
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Suitability
784-B038444	GO	Feb '23	IF	Feb '23	IF	Feb '23	1:250	S4
B038444	TTE	- XX	- MM	- DR	- H	- 0122		C01

Survey Stations			
Ref.	x	y	z
WM9	455294.903	302044.229	72.804
WM10	455321.219	302037.284	72.817
WM11	455380.675	302007.613	71.027
WM12	455396.810	302010.357	71.187
WM13	455427.106	301996.679	70.835

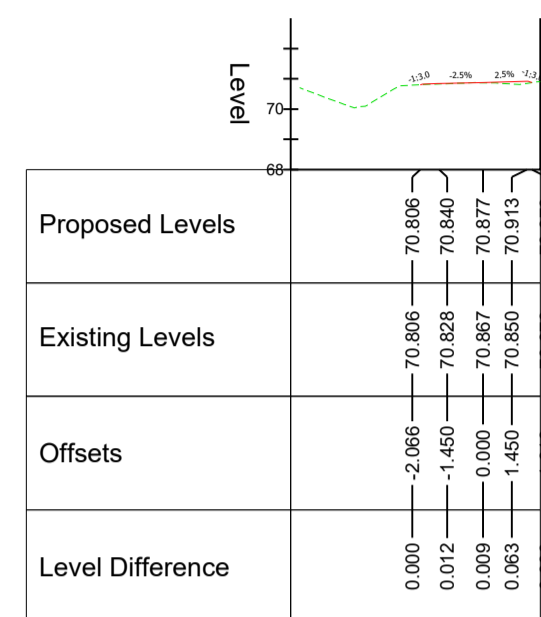


Cross Sections

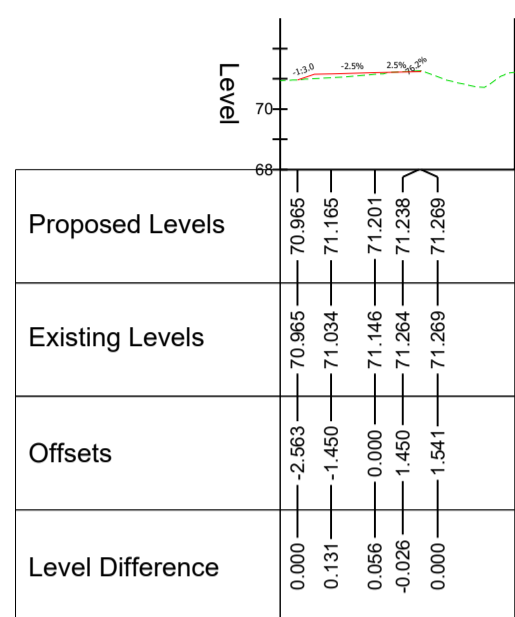
--- Existing Level
 --- Proposed Level



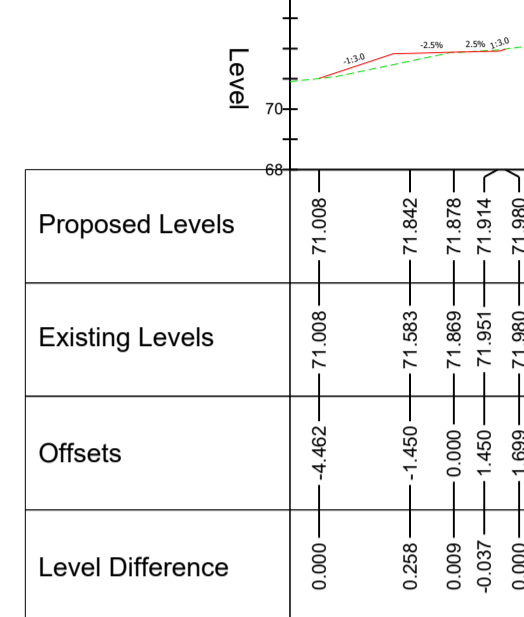
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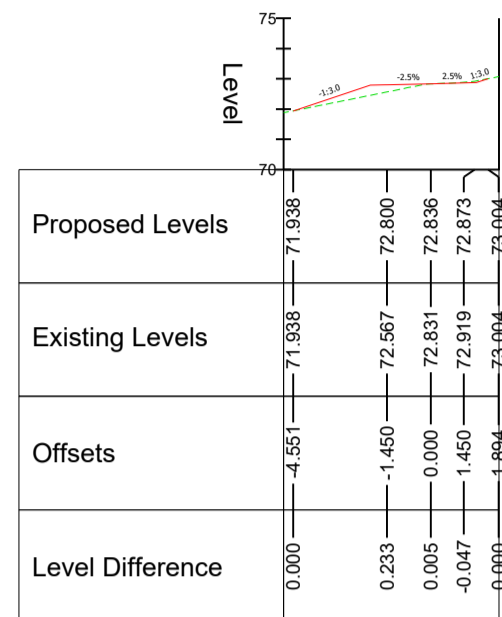
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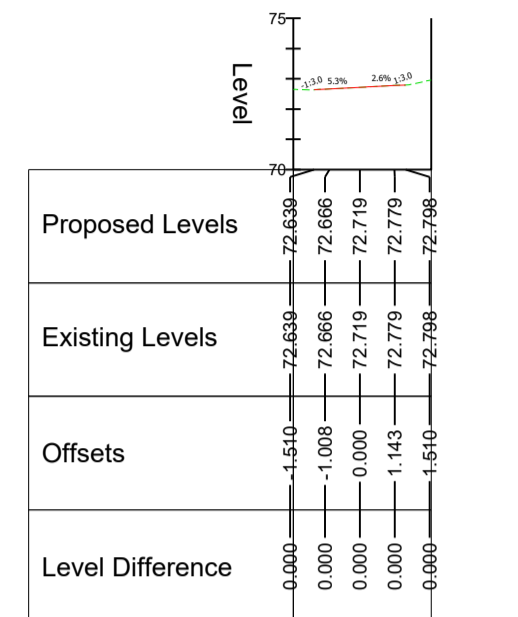
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Alignment - Mossdale FW-CL - CH 110.000

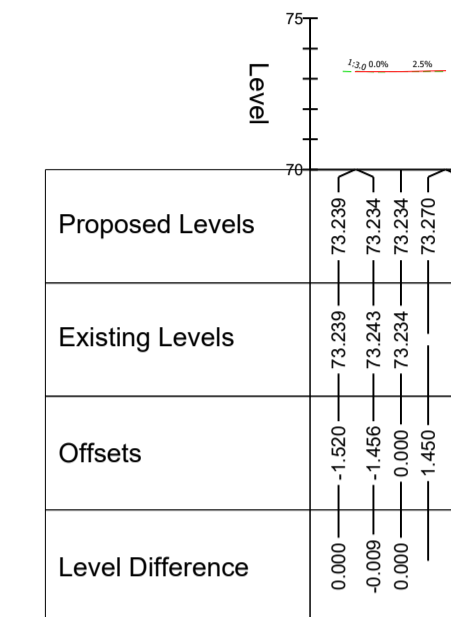


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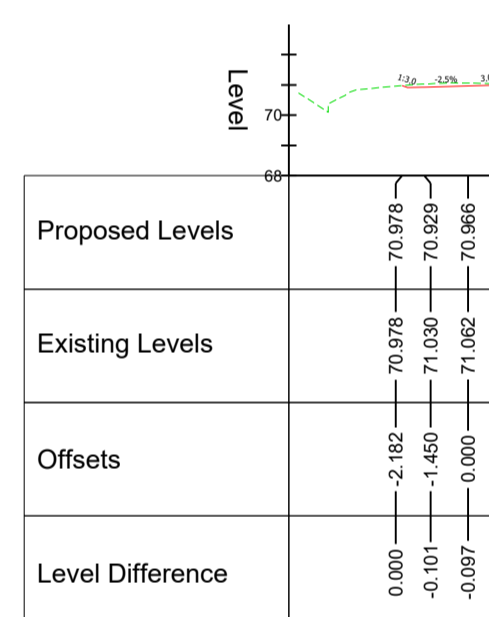


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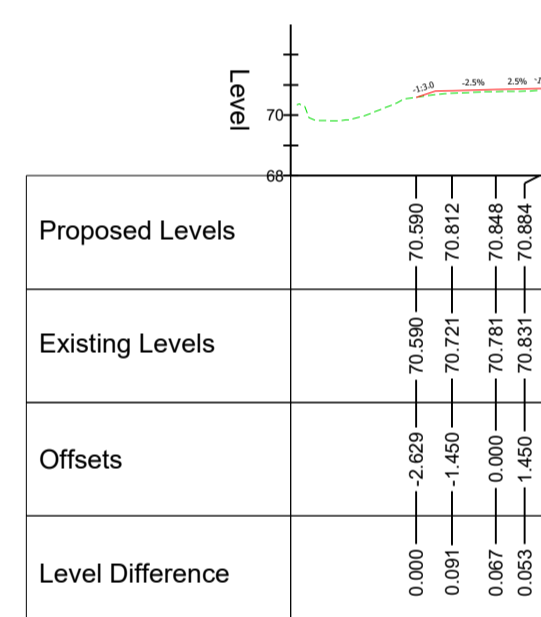
APPENDIX 2.8



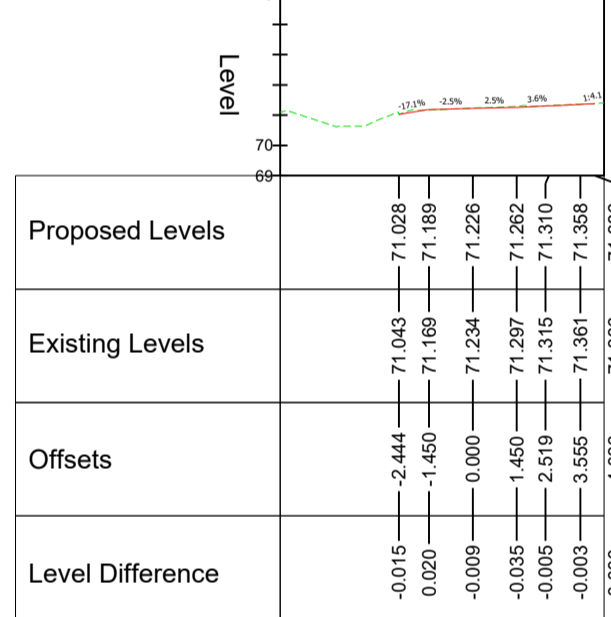
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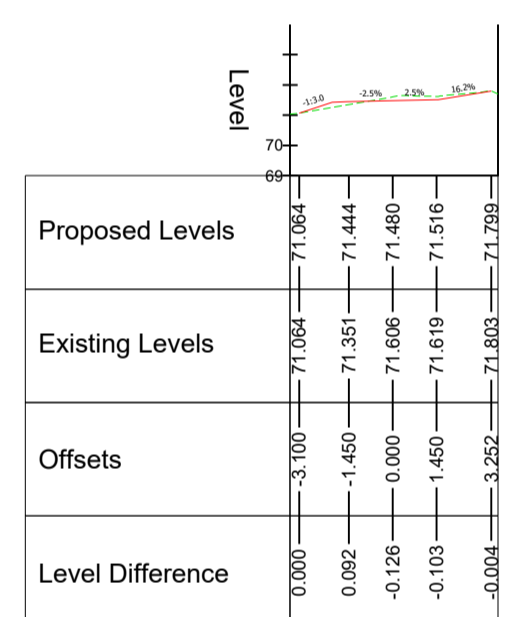
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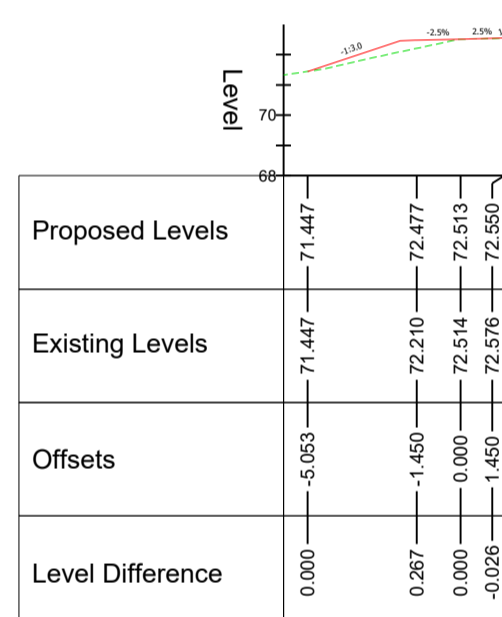
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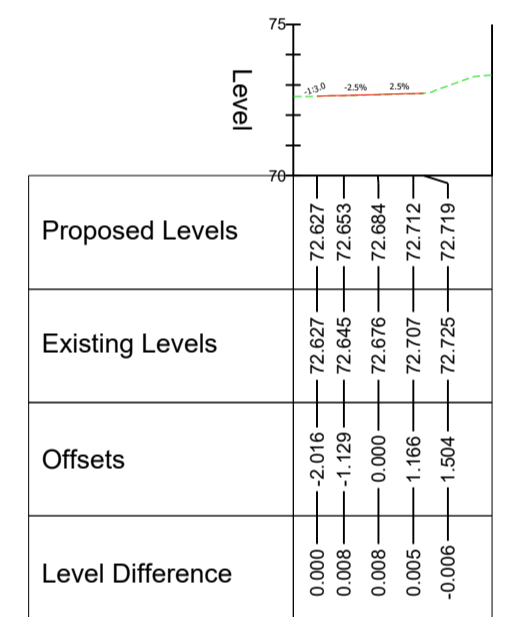
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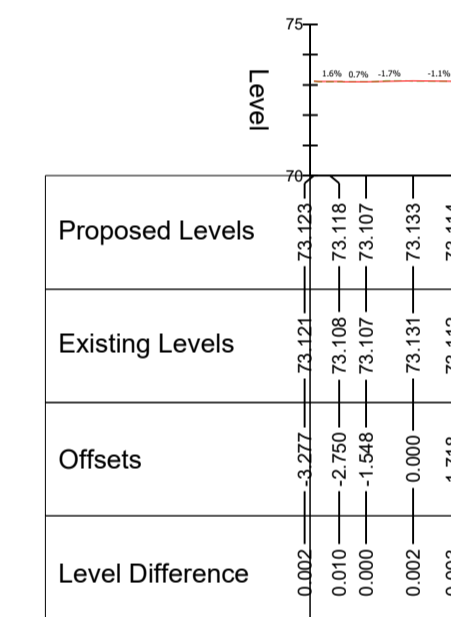
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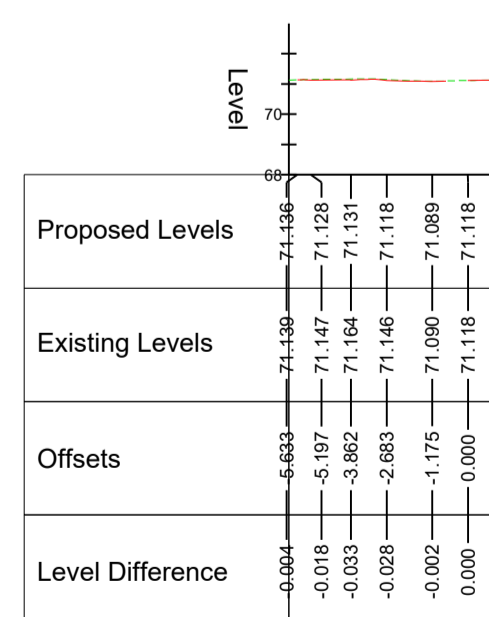
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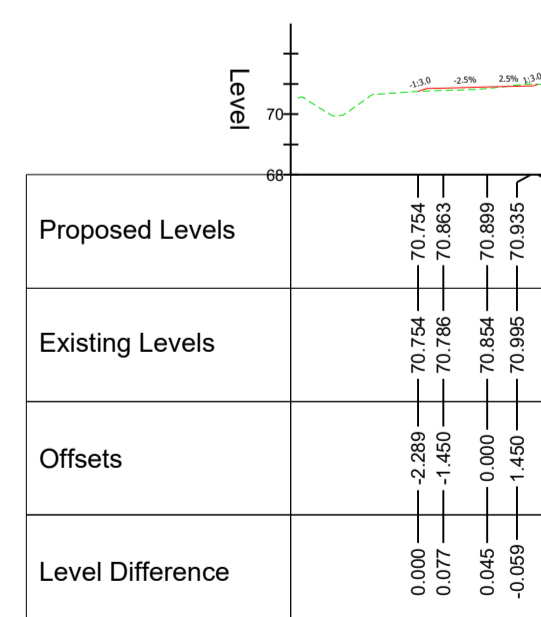
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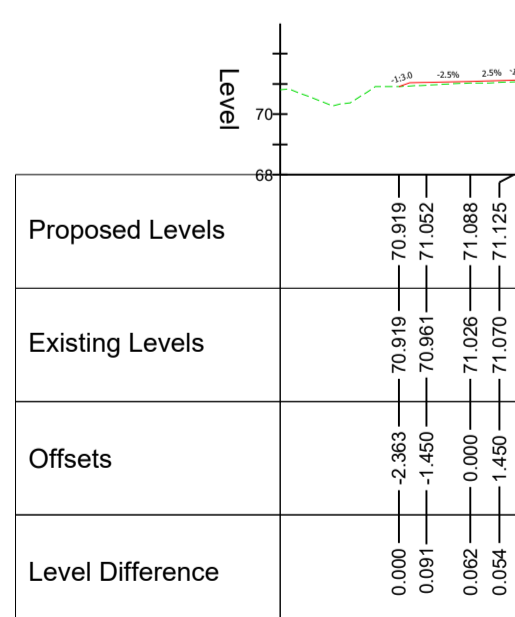
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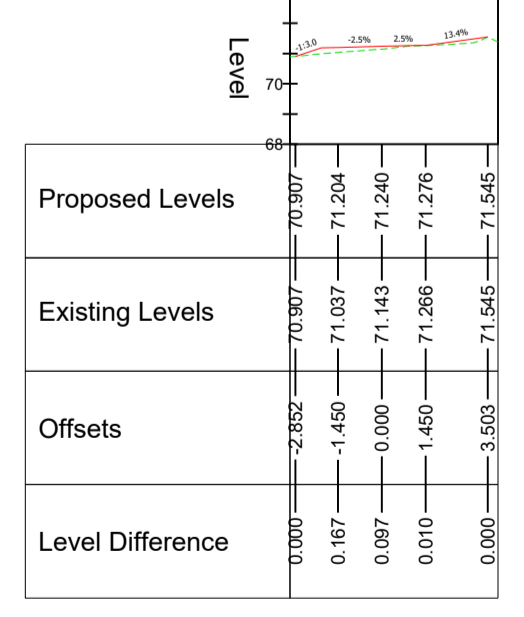
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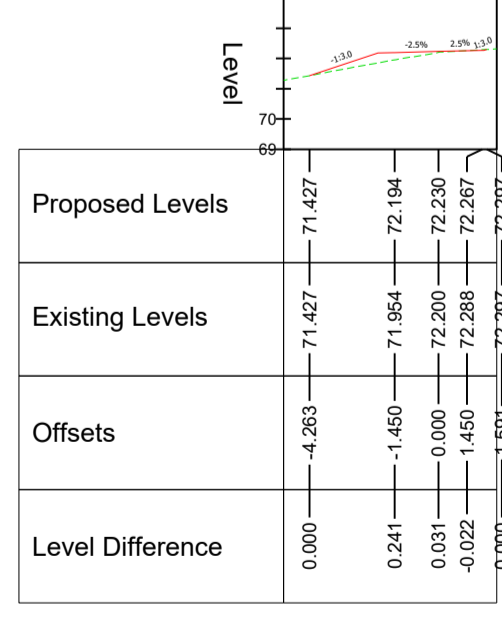
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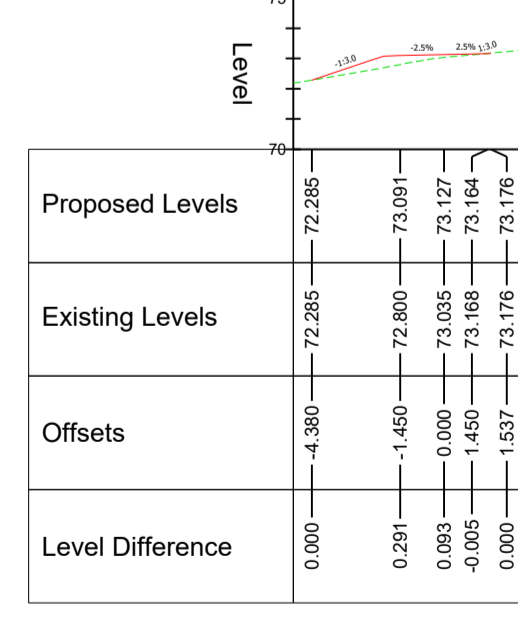
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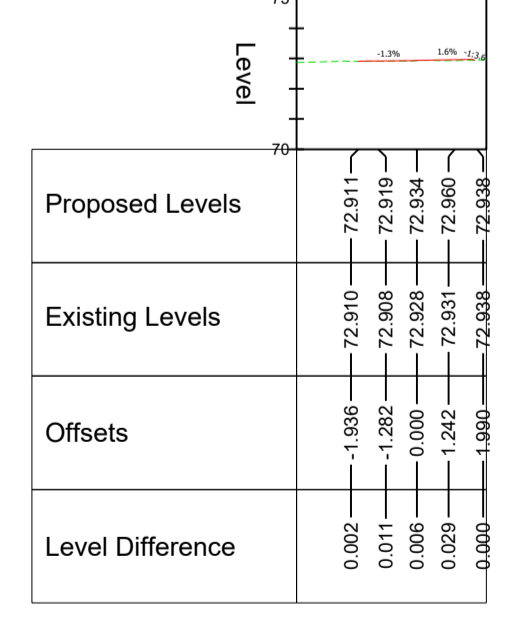
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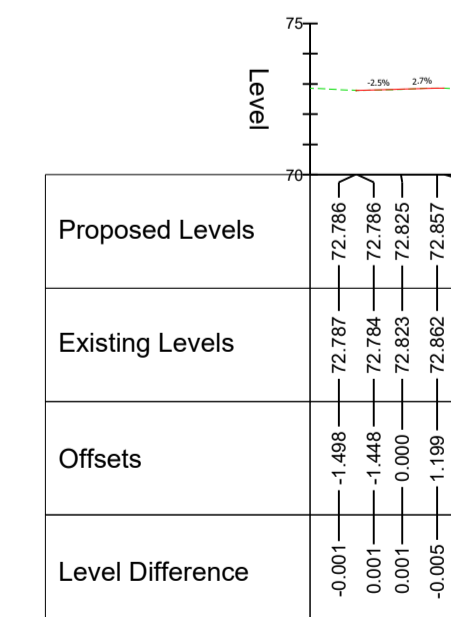
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Alignment - Mossdale FW-CL - CH 150.000



Alignment - Mossdale FW-CL - CH 176.100



Alignment - Mossdale FW link CL - CH 0.000 (1)

Notes - Cross Sections

- Drawing to be read in conjunction with Geometry & Visibility Splay drawings B038444-TTE-XX-MM-DR-H-0121.

CONSTRUCTION ISSUE

SCHEDULE OF CHANGES (SINCE REV C01):

- RADIUS TO THE SOUTH OF THE FOOTWAY CONNECTION TO WEST REMOVED. CROSS SECTIONS UPDATED TO SUIT.

Rev	Description	Date	GO	IF	IF
C02	REFER TO SCHEDULE OF CHANGES	01.02.2013	GO	IF	IF
C01	CONSTRUCTION ISSUE	03.01.2023	GO	IF	IF

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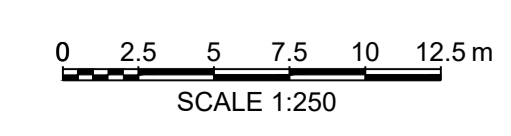


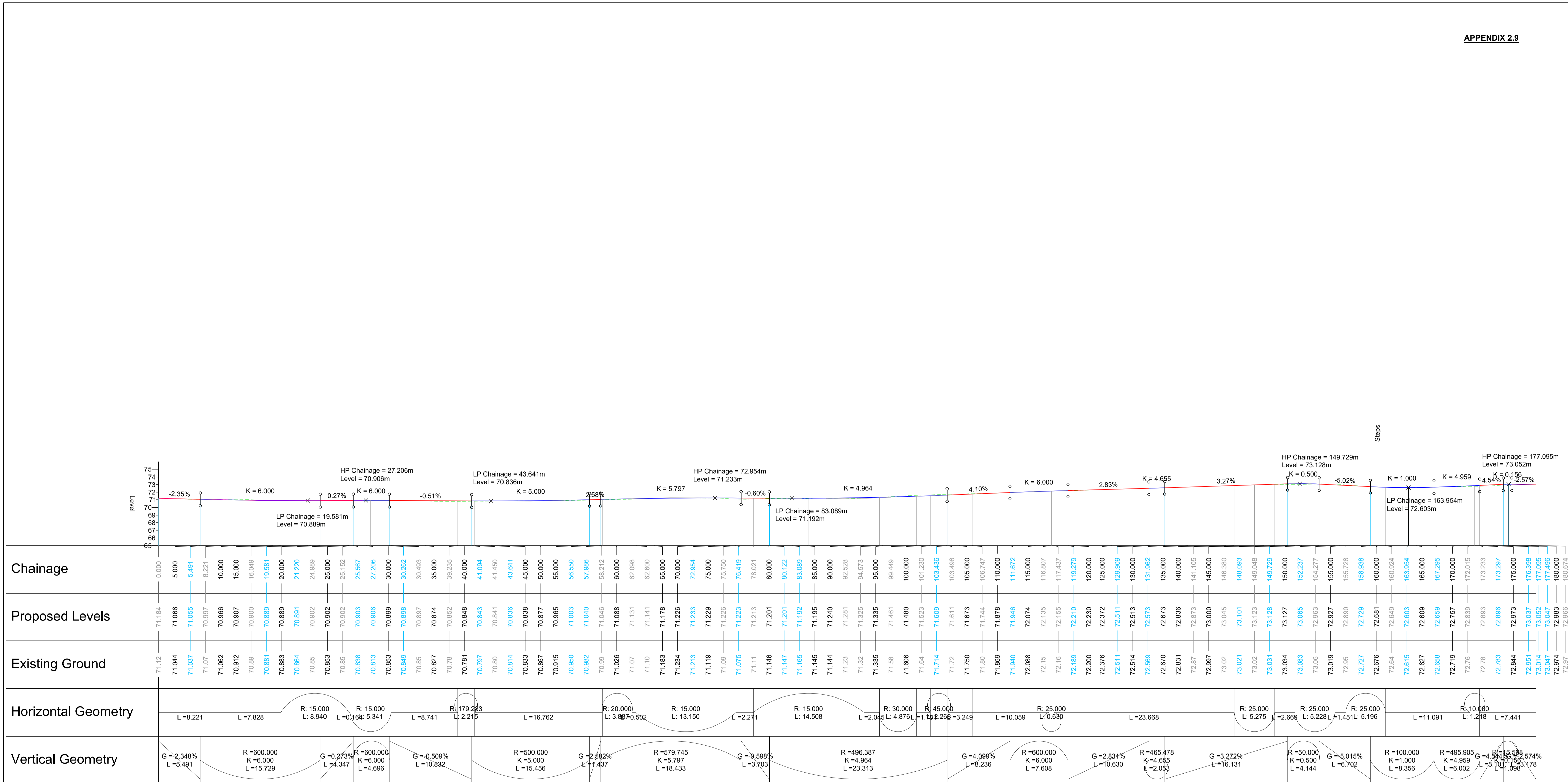
Client
LEICESTER CITY COUNCIL

Project Name
GREAT CENTRAL WAY - PHASE 2

Sheet Title
CROSS SECTIONS

TTE Project Number	784-B038444	Drawn By	GO	Date	July '22	Checked By	IF	Date	July '22	Approved By	IF	Date	July '22	Scale @ A1	1:250	Suitability	S4
Client Project Number	B038444	Originator	TTE	Volume/System	XX	Level/Location	MM	Type/Code	DR	Role	H	Number	0131	Revision	C02		

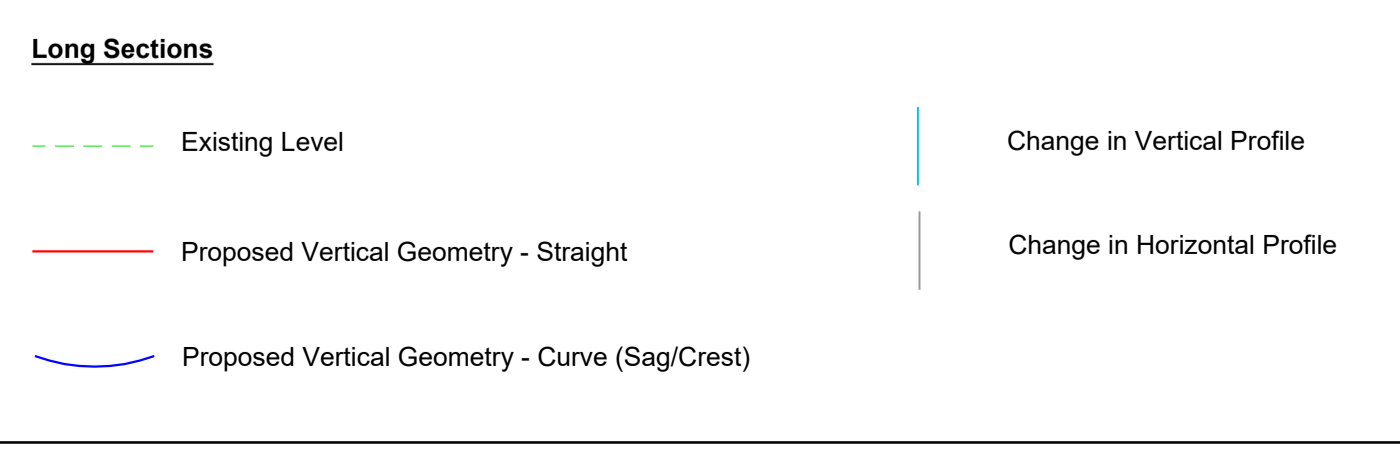




ALIGNMENT - MOSSDALE FW-CL - LONGSECTION
SCALE: H 1:250,V 1:250. DATUM: 65.000

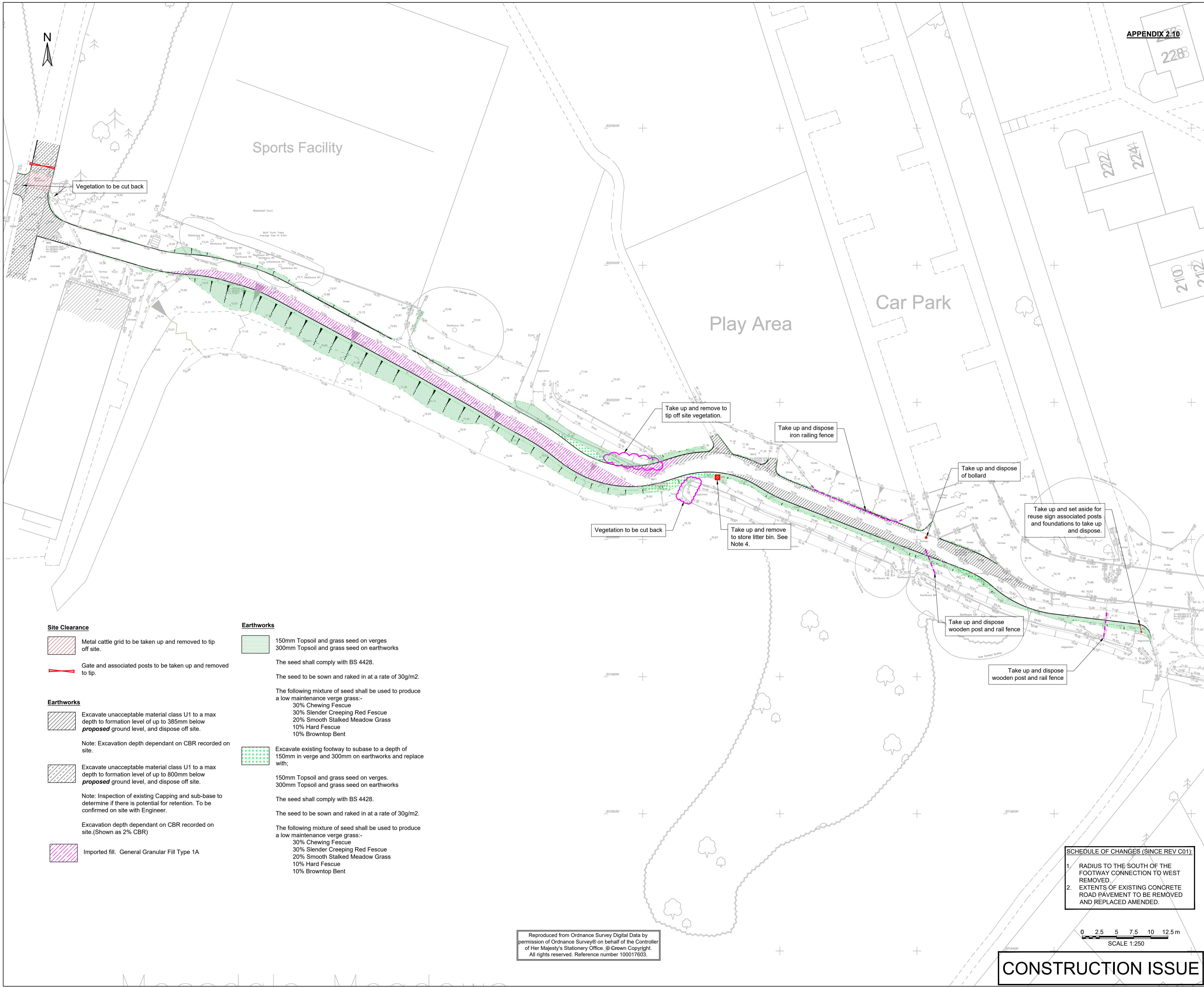
Notes - Long Sections

- Drawing to be read in conjunction with Geometry & Visibility Splay drawings B038444-TTE-XX-MM-DR-H-0121.



CONSTRUCTION ISSUE

Client LEICESTER CITY COUNCIL	Project Name GREAT CENTRAL WAY - PHASE 2	Issuing Office Tetra Tech Leicester Executive Park, Avon Way, Anstey, Leicester, United Kingdom, LE7 7GR Tel: +44 (0)116234 8000 www.tetratechurope.com																						
Sheet Title LONG SECTION	<table border="1"> <thead> <tr> <th>TTE Project Number</th> <th>Drawn By</th> <th>Date</th> <th>Checked By</th> <th>Date</th> <th>Approved By</th> <th>Date</th> <th>Scale @ A1</th> <th>Subality</th> </tr> </thead> <tbody> <tr> <td>784-B038444</td> <td>GO</td> <td>July '22</td> <td>IF</td> <td>July '22</td> <td>IF</td> <td>July '22</td> <td>1:250</td> <td>S4</td> </tr> </tbody> </table>		TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Subality	784-B038444	GO	July '22	IF	July '22	IF	July '22	1:250	S4				
TTE Project Number	Drawn By	Date	Checked By	Date	Approved By	Date	Scale @ A1	Subality																
784-B038444	GO	July '22	IF	July '22	IF	July '22	1:250	S4																
<table border="1"> <thead> <tr> <th>Rev</th> <th>Description</th> <th>Date</th> <th>Drn / Chk / App.</th> </tr> </thead> <tbody> <tr> <td>C01</td> <td>CONSTRUCTION ISSUE</td> <td>03.01.2023</td> <td>GO IF IF</td> </tr> </tbody> </table>	Rev	Description	Date	Drn / Chk / App.	C01	CONSTRUCTION ISSUE	03.01.2023	GO IF IF	<table border="1"> <thead> <tr> <th>Client Project Number</th> <th>Originator</th> <th>Volume/System Level/Location</th> <th>Type/Code</th> <th>Role</th> <th>Number</th> <th>Revision</th> </tr> </thead> <tbody> <tr> <td>B038444</td> <td>TTE</td> <td>XX</td> <td>MM</td> <td>DR</td> <td>H</td> <td>0141</td> </tr> </tbody> </table>		Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision	B038444	TTE	XX	MM	DR	H	0141
Rev	Description	Date	Drn / Chk / App.																					
C01	CONSTRUCTION ISSUE	03.01.2023	GO IF IF																					
Client Project Number	Originator	Volume/System Level/Location	Type/Code	Role	Number	Revision																		
B038444	TTE	XX	MM	DR	H	0141																		
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Notes - Site Clearance

- Existing trees, hedges and bushes should be cut back to ensure that visibility splays and existing/new signs are clear of obstructions.
- Existing trees, hedges and bushes should not be removed during the bird nesting season.
- All materials arising from site clearance which are not required, or unacceptable for reuse in the permanent works will be disposed of by the contractor off site.
- Litter bin to be taken to the Braunstone Town Council Depo.

Notes - Earthworks

Excavation

- As the ground conditions are unknown it has been assumed that the material excavated will be 'unacceptable material'.
- Any material to be re-used as fill in permanent works must be tested by the contractor and comply with the requirements of table 6/1 and appendix 6/1.
- In the case that unacceptable material is found on site, Class U1B and Class U2, the Contractor shall comply with any specific requirements for disposal described in contract specific Appendix 6/2.
- Excavation depths are consistent with construction depths. Please refer to the relevant drawings.
- Soft spots or any other material deemed to be unsuitable in formation shall be removed and replaced with compacted type 1 granular material, or as directed by the engineer.
- Prior to carrying out excavation works with mechanical plant in the vicinity of any statutory undertakers plant, the contractor should first scan the area with a CAT and excavate sufficient hand dig trial holes to ascertain the exact location.
- Excavations in locations where services may be encountered shall be carried out in accordance with 'HSG 47 Avoiding Danger from Underground Services'.
- Special care is to be taken when excavating in the vicinity of existing trees, it is not intended that any tree roots should be severed or damaged and specialist advice should be sought when major roots (>25mm Ø) present a problem. Care is to be taken to avoid damage to branches and foliage. Prior to removal of any trees developer/contractor to liaise with the Highway Authority's Forestry Team.

Earthworks

- All embankments to have a slope gradient no steeper than 1 in 3 unless shown otherwise.
- Embankments and other areas of fill shall be formed of acceptable material excavated from within the site or imported on to the site which meets the requirements of Table 6/1 for acceptability for use in the permanent works and has the approval of the Engineer to be used in that particular location.
- Compaction of earthwork materials is to be in accordance with Table 6/4.
- Please refer to cross-section drawings and typical cross sections for more information on embankment arrangements.

Topsoil

- All excavated topsoil shall be stored on-site and deposited onto new verges where possible.
- Topsoiling shall be carried out using Class 5 material complying with Table 6/1.
- Topsoil depths to be a minimum of 150mm on verges and 300mm on embankments.
- The top 50mm of topsoil shall be reduced to a fine tilth and graded to final levels (after consolidation) 20mm (less the turf thickness where turf used) above top of kerbs, edgings, manhole covers and hard surfaces etc. Any weed growth, rubbish and stones larger than 25mm in any dimension are to be removed and disposed of off site. If seeding or turfing does not follow topsoiling directly the areas to be seeded or turfed must be kept weed free by herbicide treatment.

Site Clearance

- Metal cattle grid to be taken up and removed to tip off site.
- Gate and associated posts to be taken up and removed to tip.

Earthworks

- Excavate unacceptable material class U1 to a max depth to formation level of up to 385mm below proposed ground level, and dispose off site.
Note: Excavation depth dependant on CBR recorded on site.
- Excavate unacceptable material class U1 to a max depth to formation level of up to 800mm below proposed ground level, and dispose off site.
Note: Inspection of existing Capping and sub-base to determine if there is potential for retention. To be confirmed on site with Engineer.
Excavation depth dependant on CBR recorded on site. (Shown as 2% CBR)
- Imported fill. General Granular Fill Type 1A

Earthworks

- 150mm Topsoil and grass seed on verges
300mm Topsoil and grass seed on earthworks
The seed shall comply with BS 4428.
The seed to be sown and raked in at a rate of 30g/m2.
The following mixture of seed shall be used to produce a low maintenance verge grass:-
30% Chewing Fescue
30% Slender Creeping Red Fescue
20% Smooth Stalked Meadow Grass
10% Hard Fescue
10% Browntop Bent
- Excavate existing footway to subbase to a depth of 150mm in verge and 300mm on earthworks and replace with:
150mm Topsoil and grass seed on verges.
300mm Topsoil and grass seed on earthworks
The seed shall comply with BS 4428.
The seed to be sown and raked in at a rate of 30g/m2.
The following mixture of seed shall be used to produce a low maintenance verge grass:-
30% Chewing Fescue
30% Slender Creeping Red Fescue
20% Smooth Stalked Meadow Grass
10% Hard Fescue
10% Browntop Bent

Take up and remove to tip off site vegetation.

Take up and dispose iron railing fence

Take up and dispose of bollard

Take up and set aside for reuse sign associated posts and foundations to take up and dispose.

Vegetation to be cut back

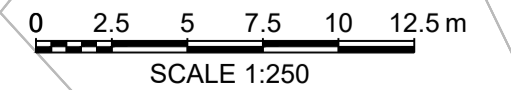
Take up and remove to store litter bin. See Note 4.

Take up and dispose wooden post and rail fence

Take up and dispose wooden post and rail fence

SCHEDULE OF CHANGES (SINCE REV C01):

- RADIUS TO THE SOUTH OF THE FOOTWAY CONNECTION TO WEST REMOVED.
- EXTENTS OF EXISTING CONCRETE ROAD PAVEMENT TO BE REMOVED AND REPLACED AMENDED.



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CONSTRUCTION ISSUE

C02	REFER TO SCHEDULE OF CHANGES	31.01.2023	GO	IF	IF
C01	CONSTRUCTION ISSUE	03.01.2023	GO	IF	IF
Rev	Description	Date	Drn	CHK	App

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Client
LEICESTER CITY COUNCIL

Project Name
GREAT CENTRAL WAY - PHASE 2

Sheet Title
SITE CLEARANCE & EARTHWORKS

TTE Project Number	784-B038444	Drawn By	GO	Date	July '22	Checked By	IF	Date	July '22	Approved By	IF	Date	July '22	Scale @ A1	1:250	Suitability	S4
Client Project Number	B038444	Originator	TTE	Volume/System Level/Location	XX - MM - DR	Type/Code	H	Number	0601	Revision	C02						

DATE: 23 January 2023
DESIGNER: T Bull
PROJECT No: SL22-065
PROJECT NAME: Mossdale Meadows Shared Use Track



Designed using guidance taken from PLG 23 Lighting for Cycling Infrastructure. Link Footway - Lighting class P3, TI 16.43%

Outdoor Lighting Report

PREPARED BY: Tony Bull
Senior Engineer
e-mail: tony.bull@leics.gov.uk

Layout Report

General Data

Dimensions in Metres Angles in Degrees
Grid Origin 455286.0m x 301967.2m
Area 183.0m x 90.5m
Sample Spacing 1.49m x 1.48m

Luminaires



Luminaire A Data

Supplier	ASD Lighting
Type	HWD2-#3K12 500-N2-CLO Gen 5
Lamp(s)	LED 3000K
LampFlux(klm)/Colour	2.48 3000/72
File Name	HWD2-#3K12 500-N2-CLO (19W).ldt
Maintenance Factor	0.84
Imax70,80,90(cd/klm)	734.7, 22.8, 0.3
No. in Project	6



Luminaire B Data

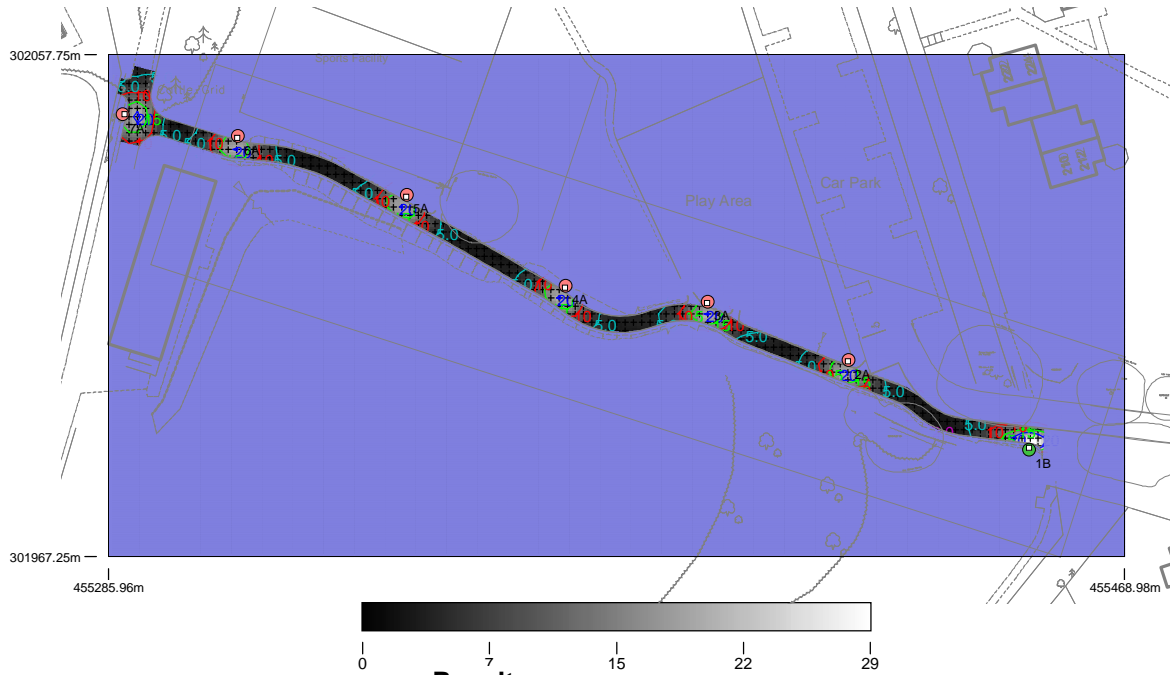
Supplier	ASD Lighting
Type	HWD2-#3K16 700-M1-CLO Gen 5
Lamp(s)	LED 3000K
LampFlux(klm)/Colour	3.62 3000/72
File Name	HWD2-#3K16 700-M1-CLO (34W).ldt
Maintenance Factor	0.84
Imax70,80,90(cd/klm)	646.8, 131.8, 1.0
No. in Project	1

Layout

ID	Type	X	Y	Height	Angle	Tilt	Cant	Out-reach	Target X	Target Y	Target Z
4	A	455368.24	302016.09	6.00	238.00	0.00	0.00	0.30			
1	B	455451.64	301986.68	6.00	87.00	0.00	0.00	0.30			
2	A	455419.22	302002.77	6.00	248.00	0.00	0.00	0.30			
3	A	455393.78	302013.31	6.00	265.00	0.00	0.00	0.30			
5	A	455339.67	302032.47	6.00	242.00	0.00	0.00	0.30			
6	A	455309.25	302043.06	6.00	255.00	0.00	0.00	0.30			
7	A	455288.52	302047.07	6.00	345.00	0.00	0.00	0.30			

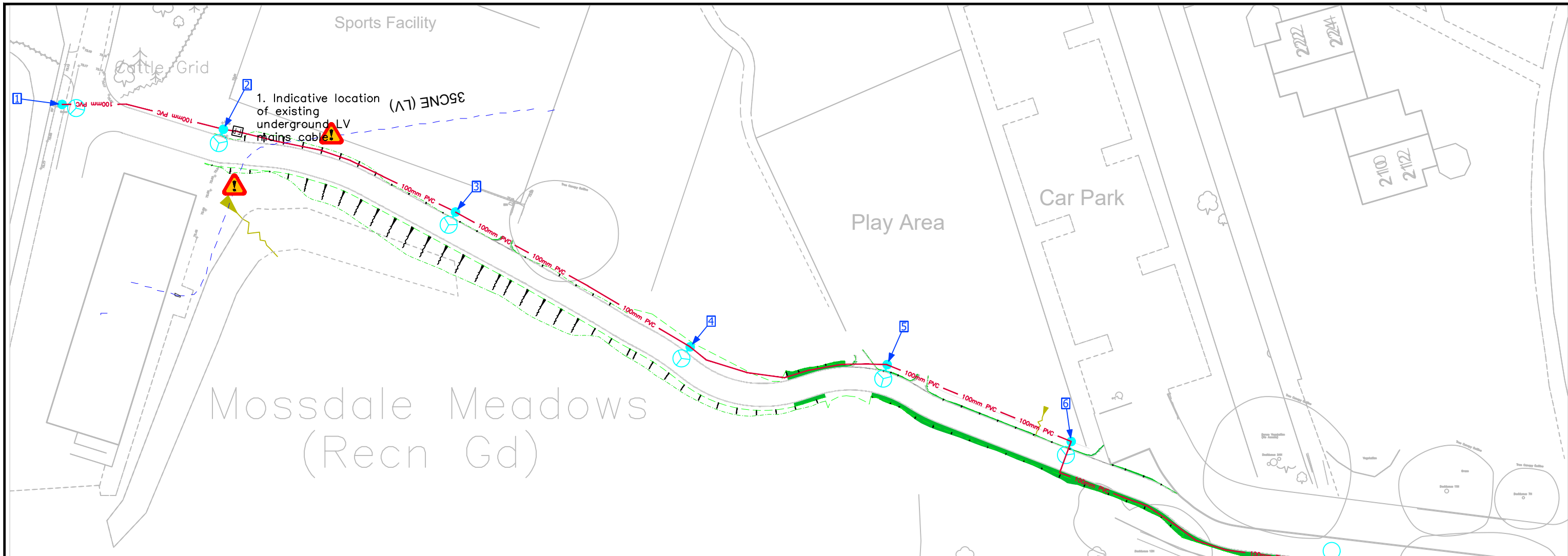
Horizontal Illuminance (lux)

3ff1f094



Results

Eav	8.55
Emin	2.15
Emax	29.38
Emin/Emax	0.07
Emin/Eav	0.25

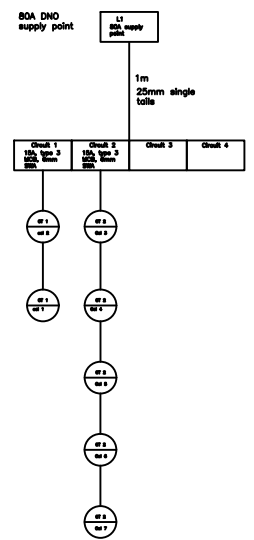


Mosssdale Meadows (Recn Gd)

- GENERAL NOTES:**
- Any alterations to the positions of columns and associated equipment to that as shown on this drawing must be referred to the designer to ensure compliance with lighting level requirements before installation. Any change to drawing or column locations after approval will require re-submission to LCC for re-assessment.
 - Setting out should be conducted by a competent person and notice of works schedule provided to LCC Lighting Engineer to arrange inspection if required.
 - All column doors to face away from on coming traffic unless access restricted or otherwise specified. Ensure correct orientation of lanterns to road line as shown.
 - New column numbering as detailed is for reference only. Contractor to affix numbering in line with LCC specification prior to adoption.
 - In order to avoid future maintenance issues and ensure efficiency of lighting scheme, planting of trees and shrubbery in vicinity of street lighting equipment is to be avoided. It is recommended that a clearance from tree trunk to column be a minimum of 4m.
 - Columns are to be planted to the rear of footways and in adopted land only. Where in soft ground, columns to be located to a minimum of 0.8m back of kerb. Build outs connected to highway and column protection are required. Refer to standard detail for specification. Where columns are located to back of footway in vicinity of dropped kerb vehicle access, a minimum clearance of 0.8m from column to dropped kerb is required.
 - Telensa CMS to LCC specification to be installed and working prior to adoption handover.
 - Details of Telensa cells must be sent to LCC Street Lighting Engineer within 48 hours of being made live.
 - It is the responsibility of Developer to ensure unmetered DNO LV service connections to lighting equipment and to pay electricity charges upto the date of formal LCC account.
 - The design and installation of lighting and electrical equipment for this lighting scheme must comply with manufacturers guidance and most current BS7671 wiring regulations. In addition, LCC Street Lighting documents, guidance and standard detail are available for further installation guidance and should be obtained and read in conjunction with this drawing.

- KEY:**
- Lantern: ADS Highway Diamond Micro - Warm white (3000K) Philips Xitanium DALI driver. Standard colour body inc 7 pin NEMA socket. None CLO, M1 optic. (LCC code S2)
 - Code: Highway Diamond Micro HWD2 16LED, 3000K, 700mA
 - Switching: Telensa 5 pin NEMA intergrated dimming telecell with DALI control & GPS to Leicestershire Council Network.
 - Lantern Mounting: Zero degrees, post top fitting.
 - Column Details: 6m nominal height galvanised tubular steel column. To Leicestershire County Council specification. Connected to a private feed.
- Lantern: ADS Highway Diamond Micro - Warm white (3000K) Philips Xitanium DALI driver. Standard colour body inc 7 pin NEMA socket. None CLO, N2 optic. (LCC code S1)
 - Code: Highway Diamond Micro HWD2 12LED, 3000K, 500mA
 - Switching: Telensa 5 pin NEMA intergrated dimming telecell with DALI control & GPS to Leicestershire Council Network.
 - Lantern Mounting: Zero degrees, post top fitting.
 - Column Details: 6m nominal height galvanised tubular steel column. To Leicestershire County Council specification. Connected to a private feed.

Ct1	Distance	Wattage	Amps
F/P to col 2	5	19	0.08
Col 2 to Col 1	27	19	0.08
	32		0.17
Ct2			
F/P to col 3	36	19	0.08
Col 3 to 4	40	19	0.08
Col 4 to 5	34	19	0.08
Col 5 to 6	31	19	0.08
Col 6 to 7	47	34	0.15
	188		0.68



POWER SUPPLIES:
Feeder Pillar to be fed from distribution network operator (DNO) LV supply network. If an IONO or similar is proposed then a service level agreement must be in place between parties prior to commencement of any connection works. All street lights to be fed from private supply.

ISOLATOR: Double pole fused isolator to be mounted on backboard of each adoptable column above DNO cut out.

DIMMING / PART NIGHT CONTROL:
Lanterns to comply with LCC specification. Dimming schedule to be confirmed by LCC.

Notes:

- All Dimensions Are In Metres. All Levels Are In Metres Above Ordnance Datum.
- Any changes to the design or specification will require the prior approval of the relevant engineer in writing.
- This Drawing Is To Be Read Particularly In Conjunction With The Following Drawings:-

Revision	Description	By	Date	Rev.
1	New Layout	TB	09/12/2022	A
	Approved Revision			

Leicestershire County Council

Ann Carruthers
Director of Environment and Transport

County Hall * Glenfield * Leicester * LE3 8RJ
Tel No : 0116 3050001 Web: www.leics.gov.uk

Preliminary

Street Lighting Highways & Transport Services

FS 33973
AMS 665552

Client: **Leicester City**

Title: Mosssdale Meadows Lighting Design Drawing

Scheme Ref. / Drawing No.	Revision
SL22-065	A
Prepared By: T Bull	Scale: 1:500
Checked By: R Dennis	Size: A3
Approved By: R Dennis	Date: Month Year

Street lighting equipment specification
16 LED 700mA post-top mounted lantern and 6m galvanised tubular steel column
(Sep 15)

<u>DATE</u>	*****	<u>LOCATION</u>	*****	<u>PLAN NO</u>	<u>LTG</u>	****
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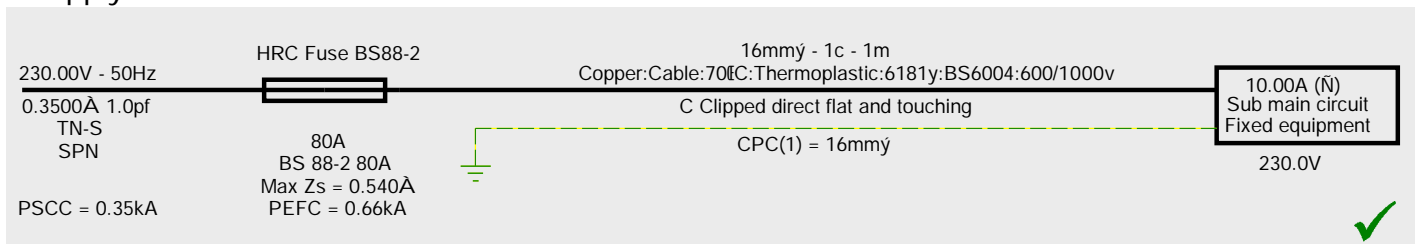
<u>NB</u>	THIS SPECIFICATION MUST BE SENT TO THE ERECTION CONTRACTOR BY THE DEVELOPER WITH A COPY OF THE DESIGN PLAN. Should the property type and layout be altered after your present proposals, I must be advised in writing with an appropriate plan showing the amendments.					
<u>COLUMN</u>	Design Criteria	Department of Transport Departmental Standards BD26/04 and BS EN 40 and in accordance with Standard Drawing SD/13/3.				
	Nominal Height	6 metres				
	Shaft Diameter	76.0mm				
	Bracket Projection	N/A				
	Base Diameter	140mm				
	Lantern Uplift	0 ⁰				
	Planting depth	1000mm				
	Lantern Connection	76mm (Post Top)				
	Door opening above ground level	600mm				
	Type	One-piece constant diameter tubular steel suitable for Post top lantern.				
	Surface Finish	Specification for Highway Works as issued by the Department of Transport (Part 4) 1300 series Clause 1306 (type G1). Galvanised to BS EN ISO 1461:1999.				
<u>LAMP</u>	16 LED, colour temperature of 3000k. Fully IES LM79 & LM80 tested. To be driven at 700mA by Philips control gear. Driver to be DALI enabled and must not include CLO (constant light output). Dimming levels to be controlled by Leicestershire County Councils Central Management System.					
<u>LANTERN</u>	As specified on drawing, post top lantern with Philips electronic control gear. The lantern will comply with BS EN 60598 and with IP rating 66. Lantern to be fitted with a 7 pin NEMA receptacle Waterproof Label to be attached on the underside of the outside of the lantern stating number of LEDs used, drive current and lantern setting. If shields are required, they must be purchased from the lantern manufacturer.					
<u>PHOTOCELL</u>	Telensa 5 pin Nema CMS Telecell with GPS for Leicestershire County Council					
<u>NUMBERING</u>	As shown on Standard Drawing SD/12/36.					
<u>EARTHING</u>	Single core 6mm ² (copper) PVC insulated cable to BS 6004. Bond to column door shall be of flexible construction and be of sufficient length to allow placement of door on ground without tension. Earthing requirements shall be as detailed in Standard Drawing SD/14/12.					
<u>WIRING</u>	PVC Insulated & Sheathed Circular Flexible Cable 1.5mm shall be supplied with lantern. A Charles Endirect TYPE T1 double pole isolator (or similar equal approved) with a 6 Amp fuse shall be installed in the column base as per Standard Drawing SD/14/12. A test and completion certificate as detailed in IET Wiring Regulations (BS 7671:2008+A3:2015) to be supplied for each column installed prior to adoption.					
<u>FUSE</u>	An HRC fuse (rating 10 amps) must be taped to the earth lead to indicate to the Distribution Network Operator that the installation is ready for connection to the supply.					
<u>COLUMN POSITIONING</u>	The developer will be responsible for marking out the positions as per plan which must always be within the area to be adopted by the Highway Authority. Foundation details as per Standard Drawing SD/13/1.					
	Installation date of column and lantern to be clearly marked inside base of column.					

Mossdale Meadows

APPENDIX 3.4

Supply - 1L1 - L1

Tails



Cable Data		16mm ² - 1c - 1m		
Copper: Cable: 70°C: Thermoplastic: 6181y: BS6004: 600/1000v: Table 4D1				
Cable Rating \bar{I} (tabulated)	Table 4D1A Col-6	87A		
Cable Rating \bar{I} (effective)		87A	$\bar{I} \hat{=} \bar{N}$	PASS
mV/A/mtr (tabulated)	Table 4D1B Col-4	2.8mV/A/m (r)		
mV/A/mtr (temperature corrected)	operating 30.53°C	2.432mV/A/m (r)		
Voltage drop permitted (per phase)	5.00% (11.50V)			
Voltage drop Calculated (per phase)	0.01% (0.02V)	Circuit voltage drop = 0.02V		PASS

Correction Factors		C (total) = 1.000		
Ambient temperature (\bar{T})	30°C	$\bar{T} = 1.000$	Table 4B1	
Grouping (\bar{I})	1 ccts	$\bar{I} = 1.000$	Table 4C3	

Circuit Protective conductors (cpc)		Total cpc value = 0.0012Ω		
Minimum copper cpc required ($S = \bar{I} \bar{t} / k$)	4.71mm ²	k = 115	0.690 sec	I = 652.67 A
Separate cpc	16mm ²	16mm ²	CPC $\hat{=} \bar{I} \bar{t} / k$	PASS

Protective Device Details		BS 88-2		
BS 88-2 80A		BS 88-2		
Selected for	Overload and short-circuit protection			
Rating (O) $\hat{=}$ load (\bar{N})	80	80 $\hat{=}$ 10	O $\hat{=} \bar{N}$	PASS
Rating (O) $\hat{=}$ cable rating (\bar{I})	80	80 $\hat{=}$ 87	O $\hat{=} \bar{I}$	PASS
Breaking capacity (\bar{U})	16.5kA	16.5 $\hat{=}$ 0.66	$\bar{U} \hat{=} \bar{\emptyset}$	PASS
Operating current (O)	128.0A			
Calculated disconnection time	0.690 sec			PASS
Maximum permitted disconnection time	5 sec	Table 41.1		
Impedance of device (Z)	0.540A	0.540 $\hat{=}$ 0.3524	Z $\hat{=} Z_s$	PASS

Earth Fault Data				
Earth fault loop impedance (Z_e)	0.3500A			
Circuit R1 value	0.0012A			
Circuit R2 value	0.0012A			
Circuit R1+R2 value	0.0024A			
Earth loop impedance ($Z_s = Z_e + R1 + R2$)	0.3524A	0.54 $\hat{=}$ 0.3524	Z $\hat{=} Z_s$	PASS
Earth fault current ($\bar{O} = \bar{A} / Z_s$)	652.67A	$\bar{A} = 230.00V$	$Z_s = 0.3524A$	

Short Circuit Data				
Prospective short circuit current	0.35 kA			
Short circuit withstand time ($t = k^2 S^2 / I^2$)	7.948 sec	k = 115	S = 16mm ²	I = 652.67 A

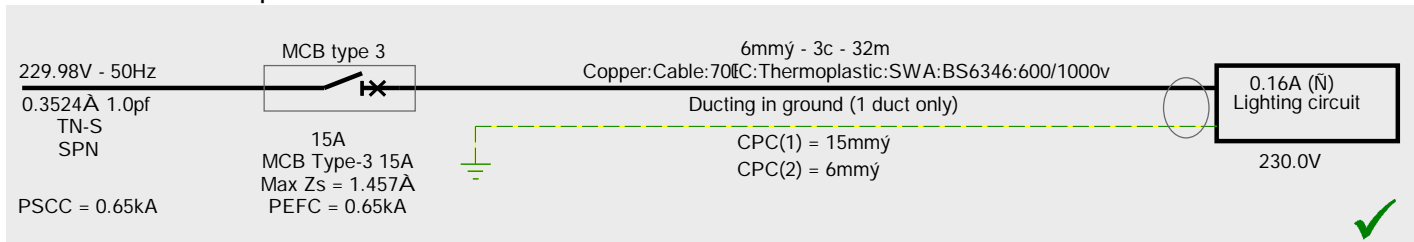
Castline Systems - CableCalc BS7671 (18th Edition) Version 6.0.0.9

Mossdale Meadows

APPENDIX 3.5

Feeder Pillar disp board - 1L1 - L1

Circuit 1



Cable Data		6mm ² - 3c - 32m		
Copper: Cable:70°C:Thermoplastic:SWA:BS6346:600/1000v:Table 4D4				
Cable Rating \bar{I} (tabulated)	Table 4D4A Col-6	46A		
Cable Rating \bar{I} (effective)		46A	$\bar{I} \leq \bar{I}_n$	PASS
mV/A/mtr (tabulated)	Table 4D4B Col-3	7.3mV/A/m (r)		
mV/A/mtr (temperature corrected)	operating 20.00°C	6.083mV/A/m (r)		
Voltage drop permitted (per phase)	5.00% (11.50V)			
Voltage drop Calculated (per phase)	0.02% (0.04V)	Circuit voltage drop = 0.02V		PASS

Correction Factors				C (total) = 1.000
Ambient temperature (\bar{T})	20°C	$\bar{C} = 1.000$	Table 4B2	
Grouping (\bar{I})	1 ccts	$\bar{I} = 1.000$	Table 4C3	
Soil thermal resistivity	2.5K.m/W	$C_s = 1$	Table 4B3	
Buried Cable Depth	0.7m	$C_d = 1$	Table 4B4	

Circuit Protective conductors (cpc)				Total cpc value = 0.0590Ω
Minimum copper cpc required ($S = \bar{I}^2 t / k$)	1.24mm ²	$k = 115$	0.100 sec	$I = 450.94 \text{ A}$
Cable sheath (copper equivalent)	15mm ²	15mm ²		
Internal core	6mm ²	6mm ²	CPC $\bar{C} = \bar{I}^2 t / k$	PASS

Protective Device Details				BS 3871
MCB Type-3 15A				
Selected for	Overload and short-circuit protection			
Rating (\bar{O}) \leq load (\bar{I}_n)	15	$15 \leq 0.16$	$\bar{O} \leq \bar{I}_n$	PASS
Rating (\bar{O}) \leq cable rating (\bar{I}) * 0.9	15	$15 \leq 41.4$	$\bar{O} \leq \bar{I}$	PASS
Breaking capacity (\bar{U})	6kA	$6 \leq 0.65$	$\bar{U} \leq \emptyset$	PASS
Operating current (\bar{O})	20.25A	$20.25 \leq 66.70$	$\bar{O} \leq 1.45\bar{I}$	PASS
Calculated disconnection time	0.100 sec			PASS
Maximum permitted disconnection time	5 sec	Table 41.1		
Impedance of device (Z)	1.457A	$1.457 \leq 0.5100$	$Z \leq Z_s$	PASS

Earth Fault Data				
Earth fault loop impedance (Z_e)	0.3524A			
Circuit R1 value	0.0986A			
Circuit R2 value	0.0590A			
Circuit R1+R2 value	0.1576A			
Earth loop impedance ($Z_s = Z_e + R1 + R2$)	0.5100A	$1.46 \leq 0.5100$	$Z \leq Z_s$	PASS
Earth fault current ($\bar{O} = \bar{E} / Z_s$)	450.94A	$\bar{E} = 229.98V$	$Z_s = 0.5100A$	

Short Circuit Data				
Prospective short circuit current	0.65 kA			
Short circuit withstand time ($t = k^2 S^2 / I^2$)	2.341 sec	$k = 115$	$S = 6mm^2$	$I = 450.94 \text{ A}$

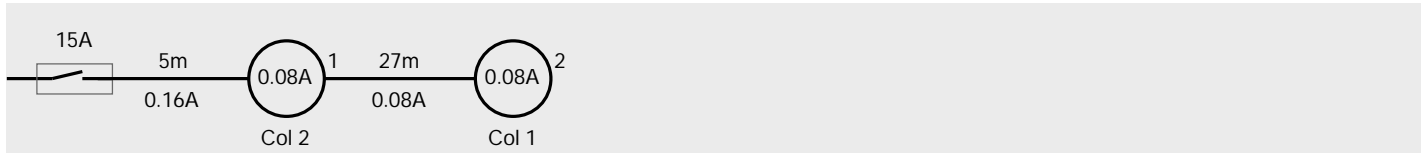
Castline Systems - CableCalc BS7671 (18th Edition) Version 6.0.0.9

Feeder Pillar disp board - 1L1

Circuit 1

6mm ² - 3c - 32m								
Section	Load	Load(t)	Distance	Voltdrop	R1+R2	Zs	Isc	Description
1	0.08	0.16	5	0.005	0.0340	0.38645	0.595	Col 2
2	0.08	0.08	27	0.013	0.1125	0.46490	0.495	Col 1

Total	0.16A	32.00m	0.02V	0.158A	0.510A
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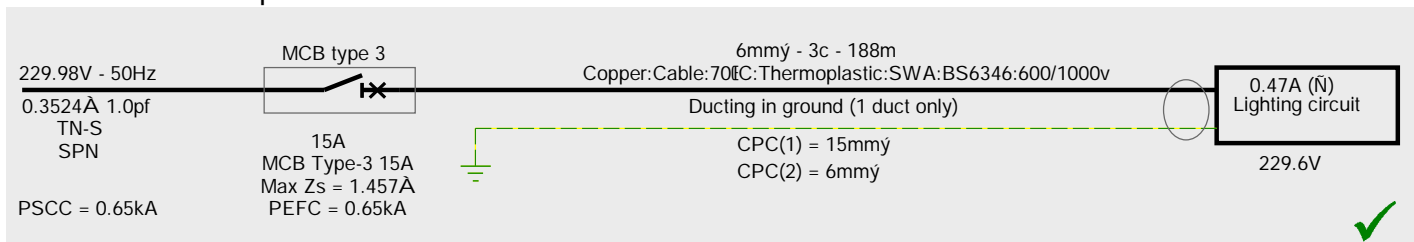


Mosssdale Meadows

APPENDIX 3.6

Feeder Pillar disp board - 2L1 - L1

Circuit 2



Cable Data			6mm ² - 3c - 188m	
Copper: Cable:70°C:Thermoplastic:SWA:BS6346:600/1000v:Table 4D4				
Cable Rating \bar{I} (tabulated)	Table 4D4A Col-6	46A		
Cable Rating \bar{I} (effective)		46A	$\bar{I} \leq \bar{I}_n$	PASS
mV/A/mtr (tabulated)	Table 4D4B Col-3	7.3mV/A/m (r)		
mV/A/mtr (temperature corrected)	operating 20.01°C	6.083mV/A/m (r)		
Voltage drop permitted (per phase)	5.00% (11.50V)			
Voltage drop Calculated (per phase)	0.16% (0.37V)	Circuit voltage drop = 0.35V		PASS

Correction Factors			C (total) = 1.000	
Ambient temperature (\bar{E})	20°C	$\bar{E} = 1.000$	Table 4B2	
Grouping (\bar{I})	1 ccts	$\bar{I} = 1.000$	Table 4C3	
Soil thermal resistivity	2.5K.m/W	Cs = 1	Table 4B3	
Buried Cable Depth	0.7m	Cd = 1	Table 4B4	

Circuit Protective conductors (cpc)			Total cpc value = 0.3468Ω	
Minimum copper cpc required ($S = \bar{E}I\bar{t}/k$)	0.49mm ²	k = 115	0.100 sec	I = 179.91 A
Cable sheath (copper equivalent)	15mm ²	15mm ²		
Internal core	6mm ²	6mm ²	CPC $\bar{E} \bar{E}I\bar{t}/k$	PASS

Protective Device Details			BS 3871	
MCB Type-3 15A				
Selected for	Overload and short-circuit protection			
Rating (\bar{O}) \bar{E} load (\bar{N})	15	15 \bar{E} 0.47	$\bar{O} \leq \bar{N}$	PASS
Rating (\bar{O}) \bar{E} cable rating (\bar{I}) * 0.9	15	15 \bar{E} 41.4	$\bar{O} \leq \bar{I}$	PASS
Breaking capacity (\bar{U})	6kA	6 \bar{E} 0.65	$\bar{U} \leq \emptyset$	PASS
Operating current (\bar{O})	20.25A	20.25 \bar{E} 66.70	$\bar{O} \leq 1.45\bar{I}$	PASS
Calculated disconnection time	0.100 sec			PASS
Maximum permitted disconnection time	5 sec	Table 41.1		
Impedance of device (Z)	1.457A	1.457 \bar{E} 1.2783	Z \bar{E} Zs	PASS

Earth Fault Data				
Earth fault loop impedance (Z_e)	0.3524A			
Circuit R1 value	0.5790A			
Circuit R2 value	0.3468A			
Circuit R1+R2 value	0.9259A			
Earth loop impedance ($Z_s = Z_e + R1 + R2$)	1.2783A	1.46 \bar{E} 1.2783	Z \bar{E} Zs	PASS
Earth fault current ($\bar{O} = \bar{E}/Z_s$)	179.91A	$\bar{E} = 229.98V$	Zs = 1.2783A	

Short Circuit Data				
Prospective short circuit current	0.65 kA			
Short circuit withstand time ($t = k^2 S^2 / I^2$)	14.709 sec	k = 115	S = 6mm ²	I = 179.91 A

Castline Systems - CableCalc BS7671 (18th Edition) Version 6.0.0.9

Feeder Pillar disp board - 2L1

Circuit 2

6mm ² - 3c - 188m								
Section	Load	Load(t)	Distance	Voltdrop	R1+R2	Zs	Isc	Description
1	0.08	0.47	36	0.103	0.2397	0.59206	0.388	Col 3
2	0.08	0.39	40	0.095	0.3183	0.67067	0.343	Col 4
3	0.08	0.31	34	0.064	0.4988	0.85125	0.27	Col 5
4	0.08	0.23	31	0.043	0.6568	1.00923	0.228	Col 6
5	0.15	0.15	47	0.043	0.8681	1.22054	0.188	

Total	0.47A	188.00m	0.35V	0.926A	1.278A
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