West Sussex County Council

A29 PHASE 1

Lighting Management Scheme

70079718-WSP-A29-XX-RP-LI-0001
FEBRUARY 2022

PUBLIC

West Sussex County Council

A29 PHASE 1

Lighting Management Scheme

TYPE OF DOCUMENT (VERSION) PUBLIC

PROJECT NO. 70079718

OUR REF. NO. 70079718-WSP-A29-XX-RP-LI-0001

DATE: FEBRUARY 2022

WSP

62-64 Hills Road
Cambridge
CB2 1LA

Phone: +44 1223 558 050

Fax: +44 1223 558 051

WSP.com

QUALITY CONTROL

Issue/revision	First issue	Revision 1	Revision 2	Revision 3
Remarks	First Issue	Updated with revised lighting plans post approval		
Date	29/04/2021	25/02/2022		
Prepared by	Dean Hawkins	Amanda Reece		
Signature		Reece, Amanda (UKAXR060) Author 2022.02.25 15:07:12		
Checked by	Kimberly Bartlett	Paul Batchelor		
Signature		Batchelor, Paul (UKPJB004) cn=Batchelor, Paul (UKPJB004), ou=Active, email=Paul.Batchelor@wsp.com Reviewed 2022.02.25 14:48:14		
Authorised by	Jo North	Jo North		
Signature		North, Jo (UKJFN001) Digitally signed by North, Jo (UKJFN001) DN: cn=North, Jo (UKJFN001), ou=Active, email=Joanne.North@wsp.com Reason: authorised Date: 2022.03.01 11:44:22		
Project number	70079718	70079718		
Report number	70079718-WSP-A29-XX-RP-LI-0001	70079718-WSP-A29-XX-RP-LI-0001		
File reference	70079718-WSP-A29-XX-RP-LI-0001	70079718-WSP-A29-XX-RP-LI-0001		

CONTENTS

TABLES

APPENDICES

APPENDIX A

ECOLOGY LIGHTING GUIDANCE

APPENDIX B

WSCC/SSE LIGHTING PLANS

APPENDIX C

TRAFFIC SIGNS SCHEDULE

1

INTRODUCTION

1 INTRODUCTION

1.1 PURPOSE

This Outline Lighting Management Scheme (LMS) has been prepared in support of the A29 Realignment and the provision of road lighting. This plan details specific environmental sensitivities that will be affected by the road lighting and measures to be implemented to mitigate these effects. This document should be read alongside A29 Phase 1, Lighting Assessment Report, 70079718-WSP-A29-XX-RP-LI-0001 (**Appendix 10.2 of the Revised ES**)

Relevant information pertinent to and appended to this LMS:

- A29 Realignment – Ecology lighting guidance is provided in **Appendix A** of this LMS.
- Street Lighting Layout Drawings, SSE281768-1300-002-I, SSE281768-1300-003-F, SSE281768-1300-004-F, SSE281768-1300-005-F and SSE281768-1300-006-H provided in **Appendix B**.

In preparing the LMS, reference is made to the Institution of Lighting Professionals (ILP), Guidance Note 01/21 Guidance Notes for the Reduction of Obtrusive Light (GN01) (ILP, 2021), Bat Guidance Note 08/18 Bats and artificial lighting in the UK (ILP, 2018).

The LMS considers that the lighting proposals detailed on drawings SSE281768-1300-002 to SSE281768-1300-006 along with any further requirements of the LMS, are to be fully adopted and that any deviation will require the reassessment of effects from a competent environmental specialist.

1.2 BACKGROUND

An Outline Lighting Management Scheme was submitted as part of the planning application WSCC/052/20. Planning permission for the Scheme was granted on 30th June 2021 and planning condition 13 requires an updated Lighting Management Scheme, be submitted and approved prior to the installation of any lighting. The condition also required, where practicable, that all lighting is set back to avoid potential conflict with users of the shared cycleway/footpath. The revised Street Lighting Layout Drawings which include this relocation of 500mm from the cycleway/footpath is included in Appendix B.

1.3 SENSITIVITIES

The sensitivities identified and covered within the LMS:

- Existing residential properties.
- Public right of way (PRoW) bisecting the Site considered important for foraging and commuting Barbastelle bats, which are particularly sensitive to artificial lighting.
- South Downs National Park.

1.4 LIMITATIONS

The LMS does not cover temporary artificial lighting provided for construction activities.

The limitations imposed on exterior lighting for Environmental Zone E2 (Rural / Low District Brightness) are as follows (from GN01).

Where a curfew is included, this refers to the time after which stricter requirements for the control of obtrusive light will apply, as stipulated by the local planning authority. If not otherwise stated, 23:00 to 05:00 hours are suggested.

Table 1-1 – Obtrusive light limitations for E2 zone

Sky Glow ULR (Max %)	Light intrusion (into windows) Ev (lux)	
	Pre-curfew	Post-curfew
2.5	5.0	1.0

GN01 (ILP, 2020)

Notes

1. Upward Light Ratio (ULR) is the maximum permitted percentage of luminaire flux that goes directly into the sky.
2. Ev = vertical illuminance in lux, measured flat on the glazing at the centre of the window.

Table 1-2 – Limits for luminous intensity for E2 zone

	Luminaire projected area Ap in m²					
	0<Ap≤0.002	0.002<Ap≤0.01	0.01<Ap≤0.03	0.03<Ap≤0.13	0.13<Ap≤0.5	Ap>0.5
Pre-curfew (maximum cd)	0.57 d	1.3 d	2.5 d	5.0 d	10 d	7,500
Post-curfew (maximum cd)	0.29 d	0.63 d	1.3 d	2.5 d	5.1 d	500
Aid to gauging Ap	2 to 5cm	5 to 10cm	10 to 20cm	20 to 40cm	40 to 80cm	>80cm
Geometric mean of diameter (cm)	3.2cm	7.1cm	14.1cm	26.3cm	56.6cm	>80cm
Corresponding Ap representative area (m²)	0.0008	0.004	0.016	0.063	0.251	>0.5

GN01 (ILP, 2020)

Notes

1. d is the distance between the observer and the luminaire in metres.
2. Ap is the apparent surface of the light source seen from the observer position
3. Cd = Candela

The ILP Bat Guidance Note 08/18 Bats and artificial lighting in the UK (ILP, 2018) suggests limitations to the amount of spill light onto sensitive features **being 0.2 lux on the horizontal plane** (e.g. at ground level) and **0.4 lux on the vertical plane** (e.g. along the sides of hedgerow or treelines, calculated at an equivalent bat flying height).

2 LIGHTING PROPOSALS

2.1 DESCRIPTION OF PROPOSED LIGHTING

Lighting proposals have been developed by SSE Enterprise with due consideration to identified sensitivities, in liaison with the scheme's ecologist with mitigation measures incorporated within the lighting design.

Road lighting will be provided at the three new roundabouts on Fontwell Avenue, Barnham Road and New Road / Central Roundabout including lighting to the approaches. The extents of the approach lighting to each roundabout varies between circa. 50m and circa. 80m to account for environmental sensitivities or complex road layouts but aims to meet industry best practice by providing five seconds of lighting at the given road speed (67m at 30mph).

The sections of new road between each roundabout will not be lit, instead the cycleway adjacent to the road will be lit with lower mounting heights and lighting levels appropriate for non-motorised users. The PRoW intersects with the new road and to aid pedestrian movement a crossing, shown in **Figures 3-1** and **3-2**, is provided. To highlight the presence of pedestrians waiting or using the crossing, artificial lighting is proposed.

New road and pedestrian lighting to be designed to standards:

- BS 5489-1:2020 Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas (BSI, 2012)
- BS EN 13201 (all parts) Road lighting (BSI, 2014-2015)
- Lighting of Developer Promoted Highway Schemes in West Sussex (West Sussex County Council, 2019)
- Institution of Lighting Professionals Professional Lighting Guide PLG 02, The application of conflict areas on the highway. (PLG 02) (ILP, 2013)

The lighting proposals detailed on drawings SSE281768-1300-002-I, SSE281768-1300-003-F, SSE281768-1300-004-F, SSE281768-1300-005-F and SSE281768-1300-006-H as shown in **Appendix B** and lighting levels detailed in **Table 2-1** will be adopted, in accordance with BS 5489-1:2020, based in-part on anticipated traffic flow figures.

The Traffic Sign Schedule is attached as Appendix C. The vast majority of proposed new signage along the length of the new road will not be lit, with the exception of the following lit signs:

- TS36 D, E, F 600mm wide circular sign on the central roundabout;
- TS20 C 600mm circular sign on the Public Right of Way traffic island crossing;
- TS28 E,F,G,H 600mm Circular signage on the Barnham Road roundabout;
- TS42 a rectangular sign on the Barnham East Approach; and
- TS44 D, E, F 600mm Circular signage on Fontwell Avenue Roundabout.

Approximately 40 lighting columns will be fitted with integral rear louvres to restrict the level of backlight. These are shown with the suffix BL1 in Appendix B. The luminaires to be used on the Scheme vary between the Philips Luma Mini, Micro and Medium variants depending on the area being lit with examples provided in **Figure 2-1** and **2-2** below.

Figure 2-1 Philips Luma Mini

Figure 2-2 Philips Luma Medium

Table 2-1 – Lighting levels

Road	Traffic Flow (AADT) Traffic Flow	Lighting Class	Maximum luminaire mounting heights
Fontwell Avenue	7,000 - 40,000	M4	8m
Fontwell Avenue Roundabout	7,000 - 40,000	C3	8m
New Road	7,000 - 40,000	M4	8m
New Road Roundabout	7,000 - 40,000	C3	8m
New Road Cycleway	Low Usage	P4	6m
PRoW Pedestrian Crossing	Low Usage	P4	5m
Barnham Road	7,000 - 40,000	M3	10m
Barnham Road Roundabout	7,000 - 40,000	C2	10m

Notes

1. Lighting classes to be reduced during the periods shown in Table 1-4 – Dimming Regime.
2. Lighting Classes have been defined by SSE Enterprise as detailed on SSE281768-1300-002-G, SSE281768-1300-003-E, SSE281768-1300-004-E, SSE281768-1300-005-E and SSE281768-1300-006-F.
3. Associated lighting levels are detailed within A29 Phase 1, Lighting Assessment Report, 70079718-WSP-A29-XX-RP-LI-0001, and BS EN 13201.

The following mitigation measures are intended to formalise the approach to the proposed road and pedestrian lighting and will be adopted as part of the operational requirements of the Scheme.

2.2 GENERAL PRINCIPLES

Each luminaire must be installed at 0° to the horizontal so that no light is emitted directly above the luminaires.

Each luminaire to be specified with a colour temperature of 3000K to minimise the blue-light component of the light source to reduce the impact on fauna populations and contribution to sky glow.

A system of control and operation will be implemented that allows; dimming of lighting to a lower level during periods of low use or switch-off. Each luminaire to be installed with external node and controlled via the Mayflower Central Management System. The system is to allow individual luminaires to be switched or dimmed in line with the requirements set out in the LMS.

While it is not envisaged shield and baffles will be required, where levels of obtrusive light cannot be limited through good design, these should be considered; however their application should be agreed with WSCC and SSE to ensure carriageway lighting levels are not compromised.

Lighting will switch on at dusk (35 lux) and off at dawn (18 Lux); the times at which lighting is operational will vary throughout the year however when switched-on the dimming regime detailed within **Table 2-2** is to apply to all luminaires other than during the periods identified in **Table 3-1**.

Table 2-2 – Dimming Regime

Dimming Regime	Total lumen output of luminaires dimmed to %								
	Switch-on	20:00	21:30	22:00	00:00	05:00	05:30	06:00	Switch-off
D50 – All night	100%	75%	75%	50%	50%	50%	50%	100%	0%

3 SPECIFIC MITIGATION

To mitigate against the impact to bats foraging and commuting along the ProW crossing the new road, as recommended within the Ecology lighting guidance provided in **Appendix A**, and considering the active bat season is between April and October, the following proposals are to be incorporated within the operational lighting requirements of the Scheme.

Table 3-1 – Specific bat mitigation

Lighting Column	April to October	November to March
17, 18, 21, 22, 23	Switched-off	Standard operational profile - refer to **Table 2-2**
19 & 20	Total lumen output of luminaires dimmed to 30%	Standard operational profile - refer to **Table 2-2**
All other lighting columns	Standard operational profile - refer to **Table 2-2**	Standard operational profile - refer to **Table 2-2**

Figures 3-1 and **3-2** provide a visual representation of the effects of utilising the dimming and luminaire switch-off requirements of **Table 3-1**. This mitigation will reduce spill light onto the bat corridor to levels below that recommended within the ILP Bat Guidance Note 08/18 Bats and artificial lighting in the UK (ILP, 2018).

Figure 3-1 – Light spill (April – October)

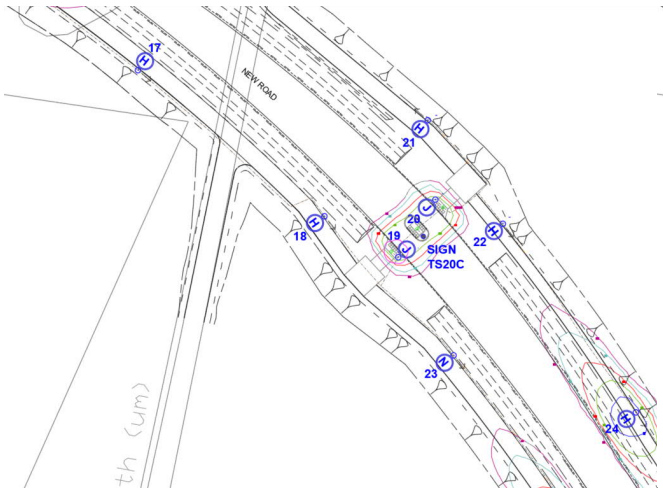
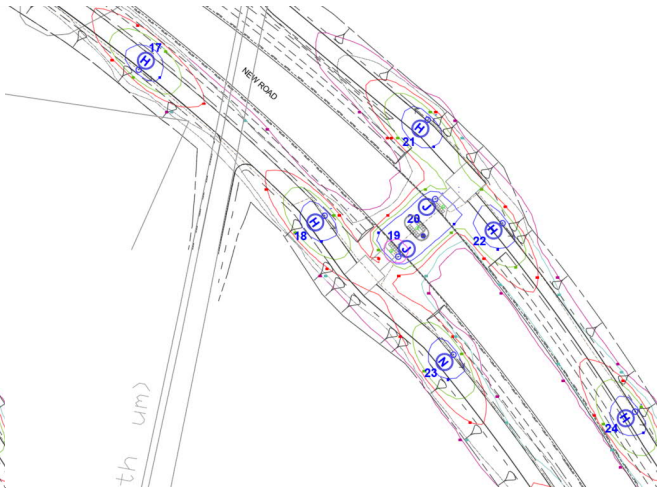


Figure 3-2 – Light spill (November – March)



3.1 MONITORING REQUIREMENTS

WSCC will monitor the effectiveness of lighting mitigation measures for the Scheme. Monitoring will consist of surveys that will involve the measurement of artificial lighting levels following the baseline assessment methodology detailed in ILP Professional Lighting Guide 04, Guidance on Undertaking Environmental Lighting Impact Assessments (PLG04) (ILP, 2013) with measurements compared against the limitations set within the LMS. Improvements will be carried out where necessary and practicable to do so, along with periodic maintenance and inspections.

3.2 TRAFFIC SAFETY

The following commentary on traffic safety has been developed alongside and agreed with the Scheme designer's SSE and Jacksons.

Road lighting has been designed so that it is appropriate for the estimated usage of the Scheme. Where significant flows of motorised traffic intersect, i.e. at the roundabouts, road lighting is applied, however due to environmental considerations previously detailed, the carriageways between the roundabouts are predominately unlit with the exception of small sections of carriageway approaching the roundabouts.

The cycleways adjacent to the unlit carriageways are however lit in order to encourage the use of the cycleway. During normal operation, the cycleways are lit in their entirety in accordance with WSCC's specification to ensure that any hazards or obstacles on the route are easily identifiable. Due to the environmental sensitives of the PRoW as a bat commuting / foraging corridor, lighting along the cycleway near to the PRoW will be switched-off during the periods detailed in ***Table 3-1*** *leaving an area of circa. 110m of unlit cycleway. While the cycleway is not lit, the uncontrolled crossing linking the PRoW will be lit and during these periods the lighting levels provided will be dimmed to a level outlined in BS5489-1. The periods where the lighting is switched off or dimmed will be during a period (April and October) where the sunset times are generally later in the evening coinciding with anticipated lower non-motorised user activity. Although there will be a section of unlit cycleway, as the usage is anticipated to be low and adjacent vegetation will be kept low as to provide good forward visibility, it is not anticipated that he unlit section of cycleway will present a significant risk to users.*

During the winter months where sunset times are much earlier in the evening and usage is anticipated to be greater, lighting along the cycleway and uncontrolled crossing will be operational but aligned with dimming profile detailed within ***Table 2-1****.*

The lighting will be controlled by WSCC's Central Management System (CMS), a system that not only controls dimming but reports faults.

It is recommended that the lighting proposals are reviewed as part of the Scheme's full safety audit and further safety features, such as advanced warning signs and routine vegetation clearance, are implemented.

4 REFERENCES

The following documents are referenced within the LMS.

- A29 Phase 1, Lighting Assessment Report, 70079718-WSP-A29-XX-RP-LI-0001 P04 (WSP, March 2021)
- A29 Realignment – Lighting Guidance Ecology (WSP, March 2021)
- Street Lighting Layout Drawings, SSE281768-1300-002-I, SSE281768-1300-003-F, SSE281768-1300-004-F, SSE281768-1300-005-F and SSE281768-1300-006-H
- Institution of Lighting Professionals, Guidance Note 01/20 Guidance Notes for the Reduction of Obtrusive Light (GN01) (ILP, 2021)
- Institution of Lighting Professionals, Bat Guidance Note 08/18 Bats and artificial lighting in the UK (ILP, 2018).
- BS 5489-1:2020 Code of practice for the design of road lighting – Part 1: Lighting of roads and public amenity areas (BSI, 2012)
- BS EN 13201 (all parts) Road lighting (BSI, 2014-2015)
- Lighting of Developer Promoted Highway Schemes in West Sussex (West Sussex County Council, 2019)
- Institution of Lighting Professionals, Professional Lighting Guide PLG 02, The application of conflict areas on the highway. (PLG 02) (ILP, 2013)
- Institution of Lighting Professionals, Professional Lighting Guide 04, Guidance on Undertaking Environmental Lighting Impact Assessments (PLG04) (ILP, 2013)

Appendix A

ECOLOGY LIGHTING GUIDANCE

TECHNICAL NOTE 1

DATE:	06 January 2022	**CONFIDENTIALITY:**	Public
SUBJECT:	A29 Realignment – Ecology Lighting guidance		
PROJECT:	70079718	**AUTHOR:**	Verity Dickie
CHECKED:	Owen Peat	**APPROVED:**	Jo North

BACKGROUND

WSP undertook a suite of ecological surveys in 2019 to support the Ecology and Nature Conservation Chapter of the Environmental Statement (ES) and planning application for the A29 (Phase 1) realignment project. Surveys undertaken included bat activity surveys whereby four static bat detectors were deployed on a monthly basis from April – October at specific locations across the Site.

The surveys identified at least eight species across the Site, with common and soprano pipistrelle *Pipistrellus pipistrellus* and *Pipistrellus pygmaeus* which are widespread and common bat species[1,2] accounting for over 75% of all bat activity recorded. The remaining recordings were made by a range of species, including the rarer greater horseshoe bat *Rhinolophus ferrumequinum*, Barbastelle bat *Barbastella barbastellus* and Leisler's bat *Nyctalus leisleri.* Other species recorded included noctule *Nyctalus noctule*, serotine *Eptesicus serotinus* and Nathusius' pipistrelle *Pipistrellus nathusii*. other genus, that could not be identified to species level included *Plecotus* sp. and *Myotis* sp.

One detector was located along the public right of way (PRoW) that bisects the Site and was considered to be an important foraging / commuting passage for Barbastelle bats, a species which are particularly sensitive to artificial lighting and are considered to be up to district level importance. As such through liaison with SSE who prepared the lighting design, as well as WSP lighting specialists who prepared the lighting strategy to support the ES, lighting was reduced as much as possible through careful design along the route of this PRoW.

Adaptations that were made at the detailed design stage to ensure that reduced lighting levels could be incorporated into the lighting design included moving the central roundabout 100m west to avoid light spill along the PRoW. Additionally, designs were also adapted to move a pedestrian crossing (which must be lit for safety purposes) by 21m to the east to avoid light spill onto the PRoW and therefore there will be a dark corridor, 15m either side of the PRoW. Whilst this corridor will be as dark as possible, it is noted in the lighting strategy that it is not always possible to completely remove levels of spill light onto nearby sensitive features near to artificial lighting installations as low levels of spill light can be present at significant distances from the installation.

The ES set out that an appropriate lighting strategy will be created for the Scheme, informed by current best practice guidance with regards to bats and lighting (ILP, 2018[3]). In particular, the lighting strategy will require that new permanent lighting is the minimum required and will avoid light spill directly onto retained and newly created ecological features (e.g. hedgerows and woodland) within the Scheme. Warm white LEDs will be used, and hoods and louvres will be used to prevent backwards, upwards or other light spill. The lighting strategy will also detail the careful timing of when the lighting will be operational to reduce the

[1] Bat Conservation Trust (2017a). National Bat Monitoring Programme Population Trends | The state of the UK's bats 2017.
[2] Bat Conservation Trust (2017b). National Bat Monitoring | Annual report 2017.
[3] Institute of Lighting Professionals (2018) Guidance Note 08/18: Bats and artificial lighting in the UK. Bat Conservation Trust, London.

TECHNICAL NOTE 1

DATE:	06 January 2022	**CONFIDENTIALITY:**	Public
SUBJECT:	A29 Realignment – Ecology Lighting guidance		
PROJECT:	70079718	**AUTHOR:**	Verity Dickie
CHECKED:	Owen Peat	**APPROVED:**	Jo North

light spill further. This will be achieved through the use of Mayflower lighting in which it is possible to establish a site-specific switching regime, whereby each lighting unit fitted with a Mayflower external node can be controlled individually and set to dim at any time of day during operation. By using this control, it will be possible to reduce the lighting at the times when bats are active.

Following receipt of a Regulation 25 request, further information has been provided on the mechanism that will be put in place to ensure that the lighting is dimmed / turned-off at appropriate times to meet commitments made within the ES chapter. This technical note provides further information on the lighting reductions in the most ecologically sensitive areas and forms an appendix to the Outline Lighting Management Scheme.

GUIDANCE ON LIGHTING REDUCTION

Following a review of the static bat data that was collected between April to October 2019, the timing in which barbastelle calls were recorded in relation to sunset / sunrise times was analysed, with a breakdown of each month provided in Table 1 below.

Month	Approximate Sunset / Sunrise range	Earliest barbastelle bat call	Latest barbastelle bat call
April	19:35 – 20:20 / 06:35 – 05:35	21:28pm	02:56am
May	20:20 – 21:05 / 05:35 – 04:55	22:07pm	03:20am
June	21:05 – 21:20 / 04:50 – 04:55	22:23pm	02:49am
July	21:20 – 20:50 / 04:55 – 05:30	22:39pm	00:44am
August	20:45 – 19:50 / 05:30 – 06:15	21:21pm	04:24am
September	19:45 – 18:40 / 06:15 – 07:00	21:03pm	01:59am
October	18:40 – 17:40 / 07:05 – 07:50	19:31pm	19:31pm

In all months, with the exception of August and October, all barbastelle calls were at least one hour after the latest sunset time in the month. In all months, the latest calls recorded were all at least one hour prior the earliest sunrise time in each month.

For August, the earliest call at 21:21pm was on the 19th August, when sunset is approximately 20:15pm, as such this call was approximately an hour after sunset. Similarly, in October, the single call recorded at 19:31pm was on the 11th October, when sunset is approximately 18:20pm, and therefore this call was over an hour after sunset.

TECHNICAL NOTE 1

DATE:	06 January 2022	**CONFIDENTIALITY:**	Public
SUBJECT:	A29 Realignment – Ecology Lighting guidance		
PROJECT:	70079718	**AUTHOR:**	Verity Dickie
CHECKED:	Owen Peat	**APPROVED:**	Jo North

Barbastelle are typically later emerging species (Table 3.3 - Collins (ed.) 2016) with the data collected during the bat activity surveys correlating with this. In general, bats are typically active from April until October. Between November and March, they are either in a state of torpor or hibernating, although in March, they will start to feed on warmer nights (Figure 3.1 Collins (ed.) 2016).

As shown in Appendix B, the lighting design (inset drawing ref SSE281768-1300-004) details that in the immediate vicinity of the footpath, lighting columns 17, 18, 21, 22 and 23 will be set to 0% lumen output and lighting units 19 and 20 will be set to 30% lumen output significantly reducing the light spill in the location of the existing footpath. This reduction should be in place during the bat active season (April to October), but during the winter, these lights can be turned on if required for safety reasons.

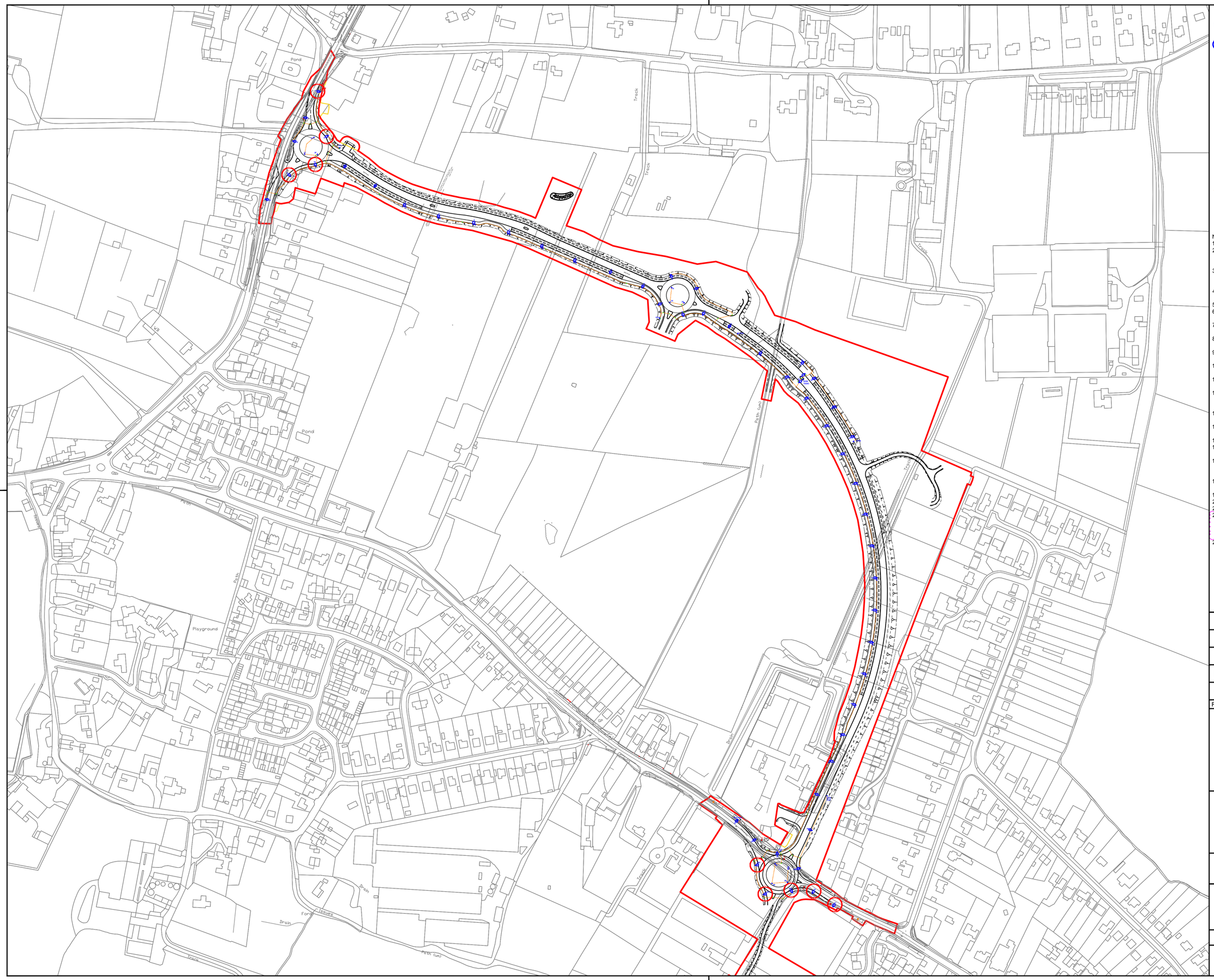
As standard on WSCC schemes, lighting is dimmed by 40% on all ‘all night’ lighting from midnight which will benefit a range of protected nocturnal species including bats and badgers. For the A29 scheme, it is understood that this dimming regime will be increased and extended, with lighting dimmed to 75% at 20:00, and then to 50% from 22:00 until 06:00 therefore providing additional benefit to protected species.

CONCLUSION

Providing the guidance set out above is adhered to, as set out in the ES, overall there is anticipated to be a negligible adverse effect on foraging and commuting bats during the operational phase of the Scheme. This is due to the measures that have been taken to reduce the lighting levels in the most sensitive areas for bats, whilst also recognising that overall there will be a permanent increase in the levels of artificial lighting across the Scheme.

Appendix B

WSCC/SSE LIGHTING PLANS



Key

- Proposed street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol).
- Proposed raise and lower street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol). Arrow indicated direction of lowering mechanism.
- Proposed illuminated sign consisting of galvanised steel wide base post. Signs to be lit by Simmonsigns LUA LED sign light with low voltage HF electronic ballast. Sign light controlled by Mayflower Internal node.
- Proposed illuminated centre island post consisting of 4.7 metre mid hinged galvanised steel post, 2 no. internally illuminated Simmonsigns Invinca Keep Left signs and Simmonsigns white LED beacon. Equipment to be supplied by 24v supply.
- Street lighting column to be retained.
- Street lighting column to be removed.
- Proposed feeder pillar with 230v single phase supply installed to WSCC specification.
- Indicative cable route.
- 450mm x 450mm polyproylene preformed twin wall modular duct access chamber similar to NAL Limited STAKKAbox Modula duct chamber. Chamber, concrete infill and cover are to be rated to B125. Depth of chamber to allow for a 600mm deep duct run (see note 20).

Notes

1. Do not scale from drawing if not printed at original paper size.
2. All street lighting equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. Lighting columns to be fed by DNO supply unless otherwise shown.
6. Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
7. Column maintenance numbers have been agreed with WSCC and therefore numbering on-site should be as per the lighting drawings.
8. Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
9. One Mayflower Complete Lighting control DALI sub-master unit to be installed to control nodes and link central management system.
10. Lighting columns are to be planted directly into the ground as per WSCC's specification referred to as "Road Lighting column erection details".
11. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
12. All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
13. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
14. All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.
15. All electrical cables to be XLPE/SWA/PVC and laid in ducting.
16. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
17. Locations of duct chambers shown on the drawing are indicative (albeit they have been cross referenced against other highway disciplines to avoid clashes). Final locations shall be confirmed on site.
18. Ducting to be 100mm dia PVC ducts coloured orange. Maximum number of cables per duct is 3. One spare duct is to be installed at each road crossing.
19. Ducting below footways to be 450mm below finished level.
20. Ducting below carriageways to be 600mm below finished level.
21. Every duct to be installed with draw cords.
22. Refer to drawing WSCC-SD1-0500-042 for details regarding bedding and backfill installation. Standard installation type should be used where possible however appropriate installation type is subject to on site conditions.
23. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
G	AMENDED COLUMN LOCATIONS	05/11/21	MWG
F	AMENDED FOLLOWING JCE COMMENTS	29/04/21	MWG
E	AMENDED FOLLOWING JCE COMMENTS	19/04/21	MWG
D	AMENDED FOLLOWING JCE COMMENTS	04/03/21	MWG
C	AMENDED FOLLOWING JCE COMMENTS	26/01/21	MWG

sse Enterprise | Lighting

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE

STREET LIGHTING
LAYOUT DRAWING

SHEET 1 OF 8

PROJECT

A29 REALIGNMENT
WEST SUSSEX

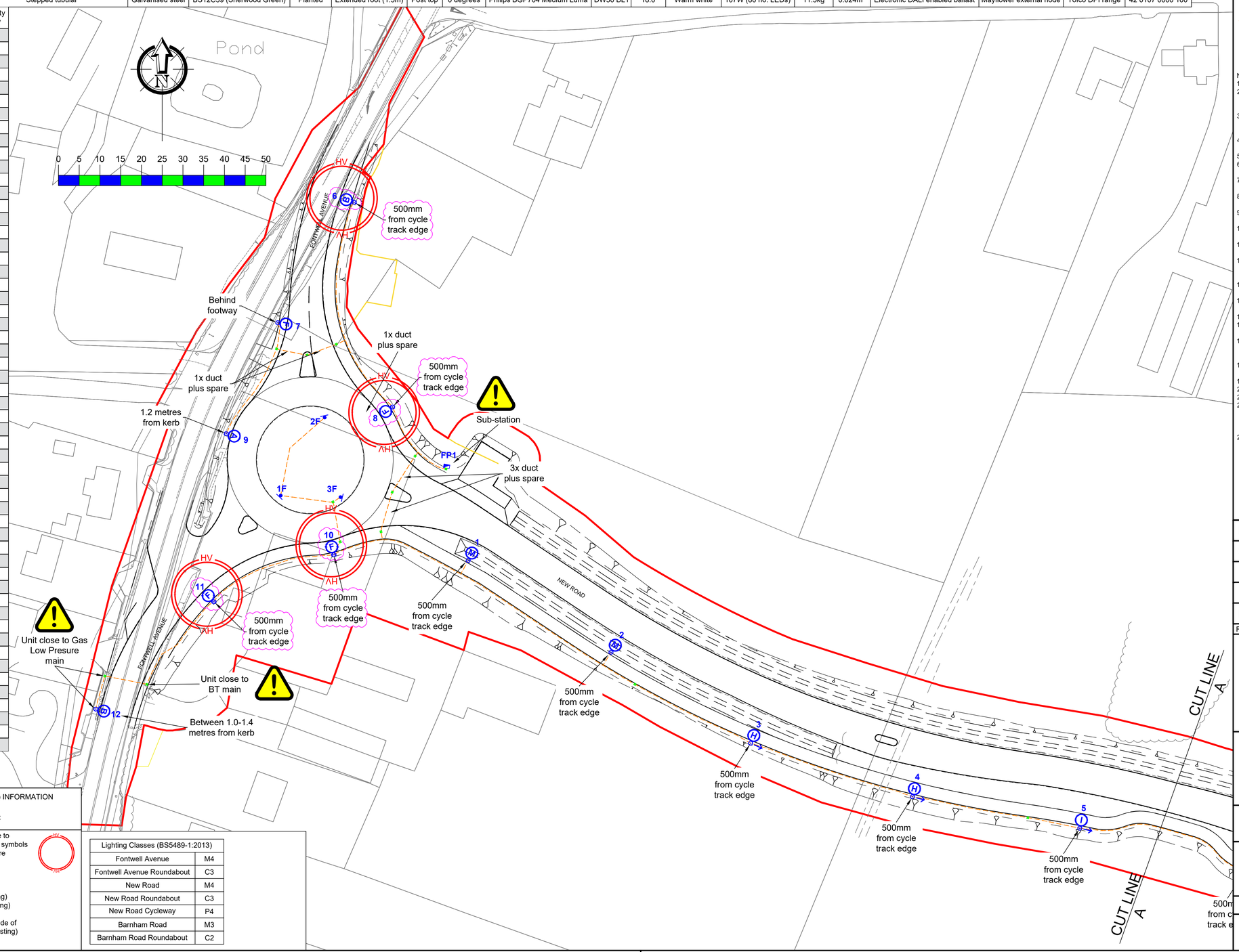
SCALE	1:500 @ A1
DATE	15/09/20
DRAWN	MWG
CHECKED	RHJ
PAPER SIZE	A1
APPROVED	SAB

DRAWING NUMBER: SSE281768-1300-001

REVISION: G

Unit Type ID	Count	Status	Mounting Height	Column Type	Column Material	Column Colour	Installation Type	Root Length	Mounting	Luminaire Tilt	Luminaire	Optic Setting	Output (klm)	Colour Temperature	Wattage	Luminaire Weight	Windage	Control Unit	Switching Unit	Isolator	Luminaire Elexon Code
A	1	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
B	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10 BL1	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
C	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
D	5	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	21.0	Warm white	127W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0124 0000 100
E	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
F	6	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
G	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
H	13	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
I	2	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DM50 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
J	2	Proposed column	5 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DPL1 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
L	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
M	4	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
N	10	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
O	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100

Col Ref	Location	Easting	Northing	Electricity Supply
23	Barnham Road	495129.3	105190.1	DNO
24	Barnham Road	495149.8	105168.0	DNO
25	Barnham Road	495174.4	105153.1	FP3
25A	Barnham Road	495200.6	105135.0	FP3
25B	Barnham Road	495191.6	105107.0	FP3
25C	Barnham Road	495158.9	105104.8	FP3
25D	Barnham Road	495149.9	105138.1	FP3
26	Barnham Road	495214.8	105106.3	DNO
27	Barnham Road	495238.3	105091.0	DNO
6	Fontwell Avenue	494652.6	106020.6	FP1
7	Fontwell Avenue	494634.5	105991.5	FP1
8	Fontwell Avenue	494661.8	105970.9	FP1
9	Fontwell Avenue	494622.1	105964.7	FP1
10	Fontwell Avenue	494647.9	105936.0	FP1
11	Fontwell Avenue	494618.7	105924.5	FP1
12	Fontwell Avenue	494590.6	105898.3	FP1
1	New Road	494680.4	105934.1	FP1
2	New Road	494714.8	105912.0	FP1
3	New Road	494748.4	105890.1	FP1
4	New Road	494787.4	105877.2	FP1
5	New Road	494827.7	105869.6	FP1
6	New Road	494867.2	105858.9	FP1
7	New Road	494905.1	105843.2	FP1
8	New Road	494942.7	105826.8	FP1
9	New Road	494983.5	105813.5	FP2
10	New Road	495020.4	105797.2	FP2
11	New Road	495038.9	105777.8	FP2
12	New Road	495053.1	105812.0	FP2
13	New Road	495084.2	105797.0	FP2
14	New Road	495067.6	105764.8	FP2
15	New Road	495089.7	105766.1	FP2
16	New Road	495119.2	105751.7	FP2
17	New Road	495154.1	105721.3	FP2
18	New Road	495187.0	105696.4	FP2
19	New Road	495199.5	105689.1	FP2
20	New Road	495205.9	105699.1	FP2
21	New Road	495204.6	105712.8	FP2
22	New Road	495217.6	105694.9	FP2
23	New Road	495209.3	105672.3	FP2
24	New Road	495240.7	105662.2	FP2
25	New Road	495232.3	105640.7	FP2
26	New Road	495261.8	105628.2	FP2
27	New Road	495250.7	105608.6	FP3
28	New Road	495265.6	105574.7	FP3
29	New Road	495276.9	105539.4	FP3
30	New Road	495284.4	105503.1	FP3
31	New Road	495288.1	105466.3	FP3
32	New Road	495287.9	105429.2	FP3
33	New Road	495283.8	105392.4	FP3
34	New Road	495275.8	105356.2	FP3
35	New Road	495264.0	105321.0	FP3
36	New Road	495247.7	105287.7	FP3
37	New Road	495235.0	105257.7	FP3
38	New Road	495217.9	105219.8	FP3
39	New Road	495213.9	105177.9	FP3



SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Note the following significant risks:

CONSTRUCTION: High Voltage mains cable located close to proposed and existing lighting equipment (indicated by the symbols shown). All measures are to be taken to locate mains before excavation works commences.

Known utilities present include (refer to drawings A29-CAP-VUT-00-DR-C-0077 to 0081 for further details);
Low Pressure Mains - Eastern and Western side of (existing) Fontwell Avenue and Northern and Southern side of (existing) Barnham Road.
Water mains (Portsmouth Water) - Eastern and Western side of (existing) Fontwell Avenue and running centrally along (existing) Barnham Road.

Lighting Classes (BS5489-1:2013)	
Fontwell Avenue	M4
Fontwell Avenue Roundabout	C3
New Road	M4
New Road Roundabout	C3
New Road Cycleway	P4
Barnham Road	M3
Barnham Road Roundabout	C2

Key

- Proposed street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol).
- Proposed raise and lower street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol). Arrow indicated direction of lowering mechanism.
- Proposed illuminated sign consisting of galvanised steel wide base post. Signs to be lit by Simmonsigns LUA LED sign light with low voltage HF electronic ballast. Sign light controlled by Mayflower Internal node.
- Proposed illuminated centre island post consisting of 4.7 metre mid hinged galvanised steel post, 2 no. internally illuminated Simmonsigns Invinca Keep Left signs and Simmonsigns white LED beacon. Equipment to be supplied by 24v supply.
- Street lighting column to be retained.
- Street lighting column to be removed.
- Proposed feeder pillar with 230v single phase supply installed to WSCC specification.
- Indicative cable route.
- 450mm x 450mm polyproylene preformed twin wall modular duct access chamber similar to NAL Limited STAKKAbox Modula duct chamber. Chamber, concrete infill and cover are to be rated to B125. Depth of chamber to allow for a 600mm deep duct run (see note 20).

Notes
1. Do not scale from drawing if not printed at original paper size.
2. All street lighting equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. Lighting columns to be fed by DNO supply unless otherwise shown.
6. Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
7. Column maintenance numbers have been agreed with WSCC and therefore numbering on-site should be as per the lighting drawings.
8. Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
9. One Mayflower Complete Lighting control DALI sub-master unit to be installed to control nodes and link central management system.
10. Lighting columns are to be planted directly into the ground as per WSCC's specification referred to as "Road Lighting column erection details".
11. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
12. All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
13. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
14. All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.
15. All electrical cables to be XLPE/SWA/PVC and laid in ducting.
16. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
17. Locations of duct chambers shown on the drawing are indicative (albeit they have been cross referenced against other highway disciplines to avoid clashes). Final locations shall be confirmed on site.
18. Ducting to be 100mm dia PVC ducts coloured orange. Maximum number of cables per duct is 3. One spare duct is to be installed at each road crossing.
19. Ducting below footways to be 450mm below finished level.
20. Ducting below carriageways to be 600mm below finished level.
21. Every duct to be installed with draw cords.
22. Refer to drawing WSCC-SD1-0500-042 for details regarding bedding and backfill installation. Standard installation type should be used where possible however appropriate installation type is subject to on site conditions.
23. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
H	AMENDED COLUMN LOCATIONS	05/11/21	MWG
G	AMENDED FOLLOWING JCE COMMENTS	29/04/21	MWG
F	AMENDED FOLLOWING JCE COMMENTS	19/04/21	MWG
E	AMENDED FOLLOWING JCE COMMENTS	13/04/21	MWG
D	AMENDED FOLLOWING JCE COMMENTS	04/03/21	MWG

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE
STREET LIGHTING LAYOUT DRAWING

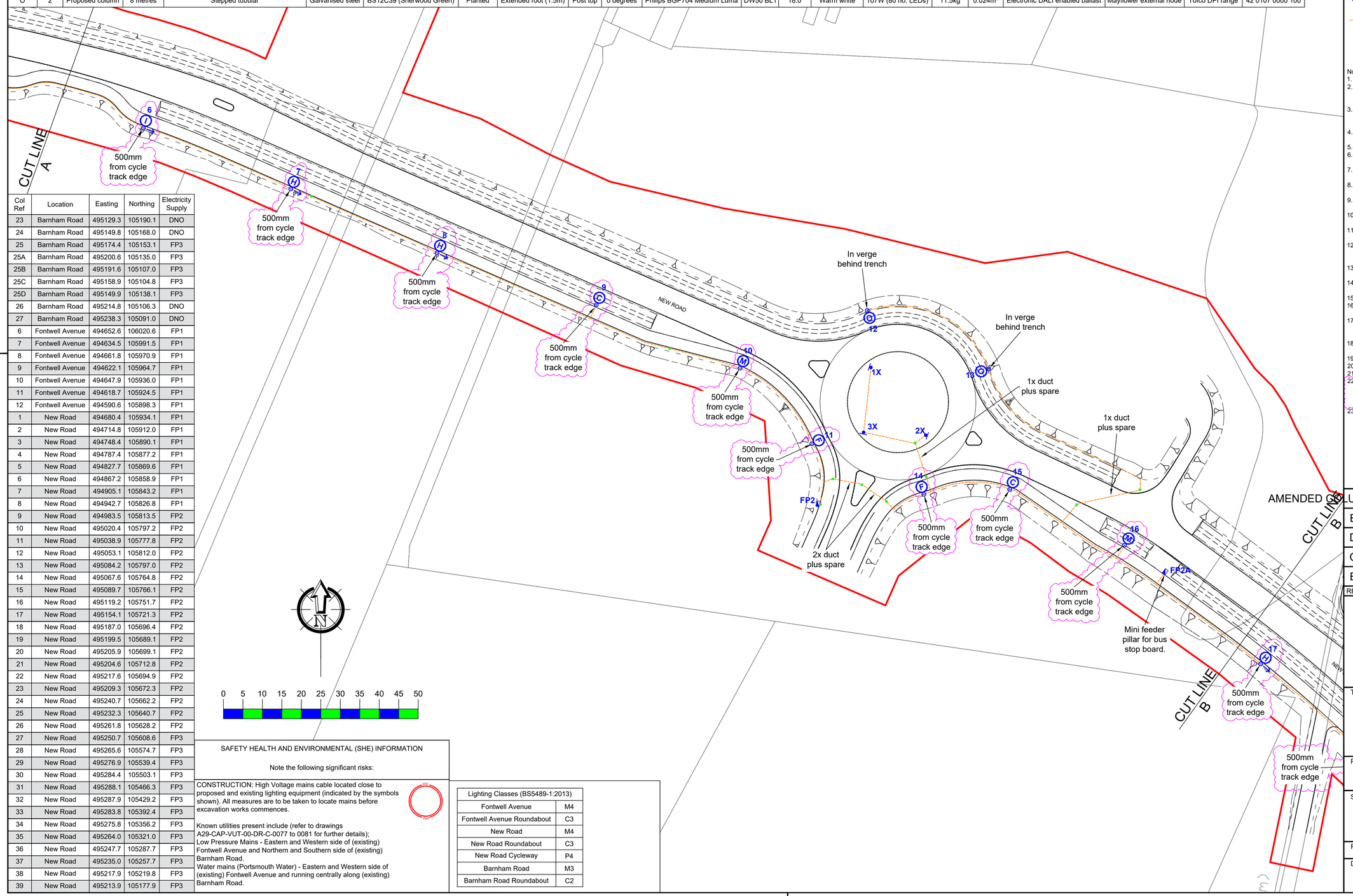
SHEET 2 OF 8

PROJECT
A29 REALIGNMENT WEST SUSSEX

SCALE	1:500 @ A1
DATE	15/09/20
DRAWN	MWG
CHECKED	RHJ
PAPER SIZE	A1
APPROVED	SAB
DRAWING NUMBER	SSE281768-1300-002
REVISION	I

C:\Users\mg23330\Enerveo\Lighting Design Hub - Documents\02 Projects\281768 - A29, West Sussex\2_Design\SSE281768-1300-001-008-M.dwg

Unit Type ID	Count	Status	Mounting Height	Column Type	Column Material	Column Colour	Installation Type	Root Length	Mounting	Luminaire Tilt	Luminaire	Optic Setting	Output (klm)	Colour Temperature	Wattage	Luminaire Weight	Windage	Control Unit	Switching Unit	Isolator	Luminaire Elexon Code
A	1	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
B	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10 BL1	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
C	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
D	5	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	21.0	Warm white	127W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0124 0000 100
E	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
F	6	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
G	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
H	13	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
I	2	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DM50 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
J	2	Proposed column	5 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DPL1 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
L	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
M	4	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
N	10	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
O	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100



Col Ref	Location	Easting	Northing	Electricity Supply
23	Barnham Road	495129.3	105190.1	DNO
24	Barnham Road	495149.8	105168.0	DNO
25	Barnham Road	495174.4	105153.1	FP3
25A	Barnham Road	495200.6	105135.0	FP3
25B	Barnham Road	495191.6	105107.0	FP3
25C	Barnham Road	495158.9	105104.8	FP3
25D	Barnham Road	495149.9	105138.1	FP3
26	Barnham Road	495214.8	105106.3	DNO
27	Barnham Road	495238.3	105091.0	DNO
6	Fontwell Avenue	494652.6	106020.6	FP1
7	Fontwell Avenue	494634.5	105991.5	FP1
8	Fontwell Avenue	494661.8	105970.9	FP1
9	Fontwell Avenue	494622.1	105964.7	FP1
10	Fontwell Avenue	494647.9	105936.0	FP1
11	Fontwell Avenue	494618.7	105924.5	FP1
12	Fontwell Avenue	494590.6	105898.3	FP1
1	New Road	494680.4	105934.1	FP1
2	New Road	494714.8	105912.0	FP1
3	New Road	494748.4	105890.1	FP1
4	New Road	494787.4	105877.2	FP1
5	New Road	494827.7	105869.6	FP1
6	New Road	494867.2	105858.9	FP1
7	New Road	494905.1	105843.2	FP1
8	New Road	494942.7	105826.8	FP1
9	New Road	494983.5	105813.5	FP2
10	New Road	495020.4	105797.2	FP2
11	New Road	495038.9	105777.8	FP2
12	New Road	495053.1	105812.0	FP2
13	New Road	495084.2	105797.0	FP2
14	New Road	495067.6	105764.8	FP2
15	New Road	495089.7	105766.1	FP2
16	New Road	495119.2	105751.7	FP2
17	New Road	495154.1	105721.3	FP2
18	New Road	495187.0	105696.4	FP2
19	New Road	495199.5	105689.1	FP2
20	New Road	495205.9	105699.1	FP2
21	New Road	495204.6	105712.8	FP2
22	New Road	495217.6	105694.9	FP2
23	New Road	495209.3	105672.3	FP2
24	New Road	495240.7	105662.2	FP2
25	New Road	495232.3	105640.7	FP2
26	New Road	495261.8	105628.2	FP2
27	New Road	495250.7	105608.6	FP3
28	New Road	495265.6	105574.7	FP3
29	New Road	495276.9	105539.4	FP3
30	New Road	495284.4	105503.1	FP3
31	New Road	495288.1	105466.3	FP3
32	New Road	495287.9	105429.2	FP3
33	New Road	495283.8	105392.4	FP3
34	New Road	495275.8	105356.2	FP3
35	New Road	495264.0	105321.0	FP3
36	New Road	495247.7	105287.7	FP3
37	New Road	495235.0	105257.7	FP3
38	New Road	495217.9	105219.8	FP3
39	New Road	495213.9	105177.9	FP3

SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Note the following significant risks:

CONSTRUCTION: High Voltage mains cable located close to proposed and existing lighting equipment (indicated by the symbols shown). All measures are to be taken to locate mains before excavation works commences.

Known utilities present include (refer to drawings A29-CAP-VUT-00-DR-C-0077 to 0081 for further details);
Low Pressure Mains - Eastern and Western side of (existing) Fontwell Avenue and Northern and Southern side of (existing) Barnham Road.
Water mains (Portsmouth Water) - Eastern and Western side of (existing) Fontwell Avenue and running centrally along (existing) Barnham Road.

Lighting Classes (BS5489-1:2013)	
Fontwell Avenue	M4
Fontwell Avenue Roundabout	C3
New Road	M4
New Road Roundabout	C3
New Road Cycleway	P4
Barnham Road	M3
Barnham Road Roundabout	C2

Key

- Proposed street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol).
- Proposed raise and lower street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol). Arrow indicated direction of lowering mechanism.
- Proposed illuminated sign consisting of galvanised steel wide base post. Signs to be lit by Simmonsigns LUA LED sign light with low voltage HF electronic ballast. Sign light controlled by Mayflower Internal node.
- Proposed illuminated centre island post consisting of 4.7 metre mid hinged galvanised steel post, 2 no. internally illuminated Simmonsigns Invinca Keep Left signs and Simmonsigns white LED beacon. Equipment to be supplied by 24v supply.
- Street lighting column to be retained.
- Street lighting column to be removed.
- Proposed feeder pillar with 230v single phase supply installed to WSCC specification.
- Indicative cable route.
- 450mm x 450mm polyproylene preformed twin wall modular duct access chamber similar to NAL Limited STAKKAbox Modula duct chamber. Chamber, concrete infill and cover are to be rated to B125. Depth of chamber to allow for a 600mm deep duct run (see note 20).

Notes

1. Do not scale from drawing if not printed at original paper size.
2. All street lighting equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. Lighting columns to be fed by DNO supply unless otherwise shown.
6. Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
7. Column maintenance numbers have been agreed with WSCC and therefore numbering on-site should be as per the lighting drawings.
8. Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
9. One Mayflower Complete Lighting control DALI sub-master unit to be installed to control nodes and link central management system.
10. Lighting columns are to be planted directly into the ground as per WSCC's specification referred to as "Road Lighting column erection details".
11. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
12. All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
13. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
14. All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.
15. All electrical cables to be XLPE/SWA/PVC and laid in ducting.
16. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
17. Locations of duct chambers shown on the drawing are indicative (albeit they have been cross referenced against other highway disciplines to avoid clashes). Final locations shall be confirmed on site.
18. Ducting to be 100mm dia PVC ducts coloured orange. Maximum number of cables per duct is 3. One spare duct is to be installed at each road crossing.
19. Ducting below footways to be 450mm below finished level.
20. Ducting below carriageways to be 600mm below finished level.
21. Every duct to be installed with draw cords.
22. Refer to drawing WSCC-SD1-0500-042 for details regarding bedding and backfill installation. Standard installation type should be used where possible however appropriate installation type is subject to on site conditions.
23. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
F	AMENDED FOLLOWING JCE COMMENTS	05/11/21	MWG
E	AMENDED FOLLOWING JCE COMMENTS	29/04/21	MWG
D	AMENDED FOLLOWING JCE COMMENTS	04/03/21	MWG
C	AMENDED FOLLOWING JCE COMMENTS	26/01/21	MWG
B	REINSERTED MISSING CONTOURS AND AMENDED FOLLOWING CLIENT COMMENTS	14/10/20	MWG

sse Enterprise | Lighting

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE

STREET LIGHTING LAYOUT DRAWING

SHEET 3 OF 8

PROJECT

A29 REALIGNMENT WEST SUSSEX

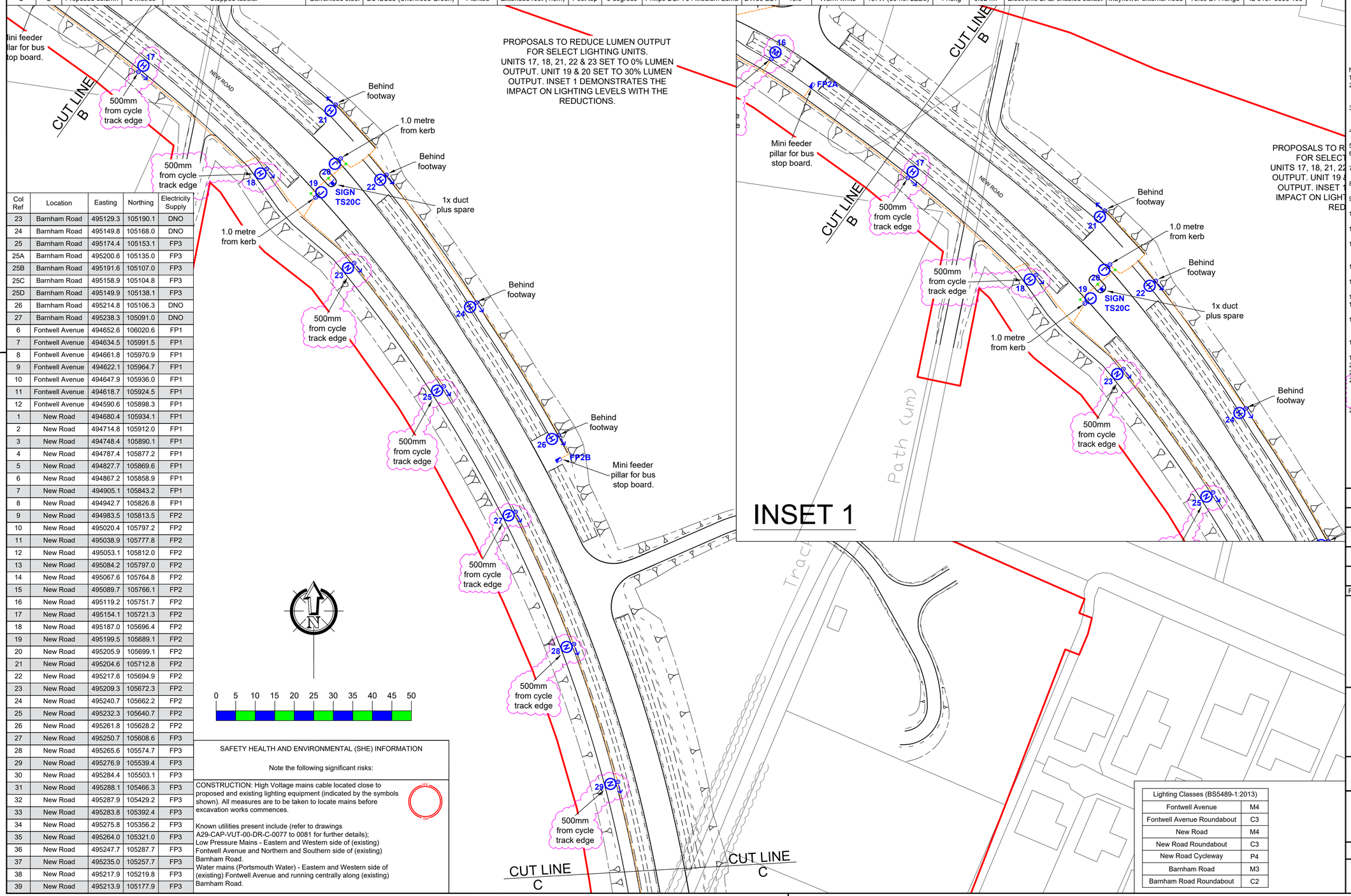
SCALE	1:500 @ A1
DATE	15/09/20
DRAWN	MWG
CHECKED	RHJ
PAPER SIZE	A1
APPROVED	SAB

DRAWING NUMBER: SSE281768-1300-003

REVISION: F

Unit Type ID	Count	Status	Mounting Height	Column Type	Column Material	Column Colour	Installation Type	Root Length	Mounting	Luminaire Tilt	Luminaire	Optic Setting	Output (klm)	Colour Temperature	Wattage	Luminaire Weight	Windage	Control Unit	Switching Unit	Isolator	Luminaire Elexon Code
A	1	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
B	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10 BL1	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
C	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
D	5	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	21.0	Warm white	127W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0124 0000 100
E	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
F	6	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
G	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
H	13	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
I	2	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DM50 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
J	2	Proposed column	5 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DPL1 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
L	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
M	4	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
N	10	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
O	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100

PROPOSALS TO REDUCE LUMEN OUTPUT FOR SELECT LIGHTING UNITS. UNITS 17, 18, 21, 22 & 23 SET TO 0% LUMEN OUTPUT. UNIT 19 & 20 SET TO 30% LUMEN OUTPUT. INSET 1 DEMONSTRATES THE IMPACT ON LIGHTING LEVELS WITH THE REDUCTIONS.



INSET 1

Col Ref	Location	Easting	Northing	Electricity Supply
23	Barnham Road	495129.3	105190.1	DNO
24	Barnham Road	495149.8	105168.0	DNO
25	Barnham Road	495174.4	105153.1	FP3
25A	Barnham Road	495200.6	105135.0	FP3
25B	Barnham Road	495191.6	105107.0	FP3
25C	Barnham Road	495158.9	105104.8	FP3
25D	Barnham Road	495149.9	105138.1	FP3
26	Barnham Road	495214.8	105106.3	DNO
27	Barnham Road	495238.3	105091.0	DNO
6	Fontwell Avenue	494652.6	106020.6	FP1
7	Fontwell Avenue	494634.5	105991.5	FP1
8	Fontwell Avenue	494661.8	105970.9	FP1
9	Fontwell Avenue	494622.1	105964.7	FP1
10	Fontwell Avenue	494647.9	105936.0	FP1
11	Fontwell Avenue	494618.7	105924.5	FP1
12	Fontwell Avenue	494590.6	105898.3	FP1
1	New Road	494680.4	105934.1	FP1
2	New Road	494714.8	105912.0	FP1
3	New Road	494748.4	105890.1	FP1
4	New Road	494787.4	105877.2	FP1
5	New Road	494827.7	105869.6	FP1
6	New Road	494867.2	105858.9	FP1
7	New Road	494905.1	105843.2	FP1
8	New Road	494942.7	105826.8	FP1
9	New Road	494983.5	105813.5	FP2
10	New Road	495020.4	105797.2	FP2
11	New Road	495038.9	105777.8	FP2
12	New Road	495053.1	105812.0	FP2
13	New Road	495084.2	105797.0	FP2
14	New Road	495067.6	105764.8	FP2
15	New Road	495089.7	105766.1	FP2
16	New Road	495119.2	105751.7	FP2
17	New Road	495154.1	105721.3	FP2
18	New Road	495187.0	105696.4	FP2
19	New Road	495199.5	105689.1	FP2
20	New Road	495205.9	105699.1	FP2
21	New Road	495204.6	105712.8	FP2
22	New Road	495217.6	105694.9	FP2
23	New Road	495209.3	105672.3	FP2
24	New Road	495240.7	105662.2	FP2
25	New Road	495232.3	105640.7	FP2
26	New Road	495261.8	105628.2	FP2
27	New Road	495250.7	105608.6	FP3
28	New Road	495265.6	105574.7	FP3
29	New Road	495276.9	105539.4	FP3
30	New Road	495284.4	105503.1	FP3
31	New Road	495288.1	105466.3	FP3
32	New Road	495287.9	105429.2	FP3
33	New Road	495283.8	105392.4	FP3
34	New Road	495275.8	105356.2	FP3
35	New Road	495264.0	105321.0	FP3
36	New Road	495247.7	105287.7	FP3
37	New Road	495235.0	105257.7	FP3
38	New Road	495217.9	105219.8	FP3
39	New Road	495213.9	105177.9	FP3

SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Note the following significant risks:

CONSTRUCTION: High Voltage mains cable located close to proposed and existing lighting equipment (indicated by the symbols shown). All measures are to be taken to locate mains before excavation works commences.

Known utilities present include (refer to drawings A29-CAP-VUT-00-DR-C-0077 to 0081 for further details);
Low Pressure Mains - Eastern and Western side of (existing) Fontwell Avenue and Northern and Southern side of (existing) Barnham Road.
Water mains (Portsmouth Water) - Eastern and Western side of (existing) Fontwell Avenue and running centrally along (existing) Barnham Road.

Lighting Classes (BS5489-1:2013)	
Fontwell Avenue	M4
Fontwell Avenue Roundabout	C3
New Road	M4
New Road Roundabout	C3
New Road Cycleway	P4
Barnham Road	M3
Barnham Road Roundabout	C2

Key

- Proposed street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol).
- Proposed raise and lower street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol). Arrow indicated direction of lowering mechanism.
- Proposed illuminated sign consisting of galvanised steel wide base post. Signs to be lit by Simmonsigns LUA LED sign light with low voltage HF electronic ballast. Sign light controlled by Mayflower Internal node.
- Proposed illuminated centre island post consisting of 4.7 metre mid hinged galvanised steel post, 2 no. internally illuminated Simmonsigns Invinca Keep Left signs and Simmonsigns white LED beacon. Equipment to be supplied by 24v supply.
- Street lighting column to be retained.
- Street lighting column to be removed.
- Proposed feeder pillar with 230v single phase supply installed to WSCC specification.
- Indicative cable route.
- 450mm x 450mm polyproylene preformed twin wall modular duct access chamber similar to NAL Limited STAKKAbox Modula duct chamber. Chamber, concrete infill and cover are to be rated to B125. Depth of chamber to allow for a 600mm deep duct run (see note 20).

Notes

1. Do not scale from drawing if not printed at original paper size.
2. All street lighting equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. Lighting columns to be fed by DNO supply unless otherwise shown.
6. Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
7. Column maintenance numbers have been agreed with WSCC and therefore numbering on-site should be as per the lighting drawings.
8. Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
9. One Mayflower Complete Lighting control DALI sub-master unit to be installed to control nodes and link central management system.
10. Lighting columns are to be planted directly into the ground as per WSCC's specification referred to as "Road Lighting column erection details".
11. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
12. All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
13. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
14. All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.
15. All electrical cables to be XLPE/SWA/PVC and laid in ducting.
16. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
17. Locations of duct chambers shown on the drawing are indicative (albeit they have been cross referenced against other highway disciplines to avoid clashes). Final locations shall be confirmed on site.
18. Ducting to be 100mm dia PVC ducts coloured orange. Maximum number of cables per duct is 3. One spare duct is to be installed at each road crossing.
19. Ducting below footways to be 450mm below finished level.
20. Ducting below carriageways to be 600mm below finished level.
21. Every duct to be installed with draw cords.
22. Refer to drawing WSCC-SD1-0500-042 for details regarding bedding and backfill installation. Standard installation type should be used where possible however appropriate installation type is subject to on site conditions.
23. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
F	AMENDED COLUMN LOCATIONS	05/11/21	MWG
E	AMENDED FOLLOWING JCE COMMENTS	29/04/21	MWG
D	AMENDED FOLLOWING JCE COMMENTS	04/03/21	MWG
C	AMENDED FOLLOWING JCE COMMENTS	26/01/21	MWG
B	REINSERTED MISSING CONTOURS AND AMENDED FOLLOWING CLIENT COMMENTS	14/10/20	MWG

sse Enterprise | Lighting

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE

STREET LIGHTING LAYOUT DRAWING

SHEET 4 OF 8

PROJECT

A29 REALIGNMENT WEST SUSSEX

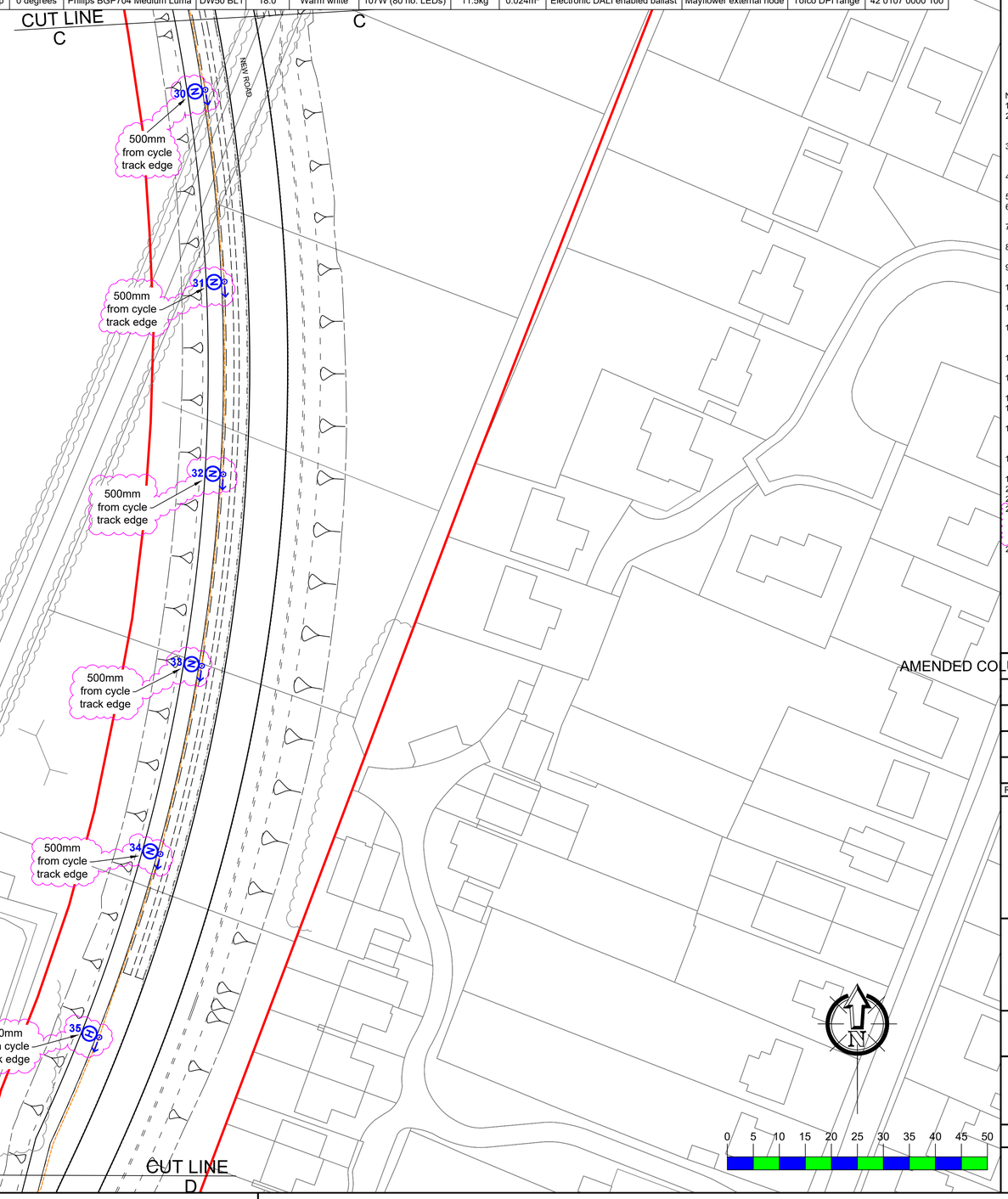
SCALE	DATE
1:500 @ A1	15/09/20
	DRAWN: MWG
	CHECKED: RHJ
PAPER SIZE: A1	APPROVED: SAB

DRAWING NUMBER: SSE281768-1300-004

REVISION: F

Unit Type ID	Count	Status	Mounting Height	Column Type	Column Material	Column Colour	Installation Type	Root Length	Mounting	Luminaire Tilt	Luminaire	Optic Setting	Output (klm)	Colour Temperature	Wattage	Luminaire Weight	Windage	Control Unit	Switching Unit	Isolator	Luminaire Elexon Code
A	1	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
B	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10 BL1	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
C	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
D	5	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	21.0	Warm white	127W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0124 0000 100
E	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
F	6	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
G	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
H	13	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
I	2	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DM50 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
J	2	Proposed column	5 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DPL1 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
L	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
M	4	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
N	10	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
O	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100

Col Ref	Location	Easting	Northing	Electricity Supply
23	Barnham Road	495129.3	105190.1	DNO
24	Barnham Road	495149.8	105168.0	DNO
25	Barnham Road	495174.4	105153.1	FP3
25A	Barnham Road	495200.6	105135.0	FP3
25B	Barnham Road	495191.6	105107.0	FP3
25C	Barnham Road	495158.9	105104.8	FP3
25D	Barnham Road	495149.9	105138.1	FP3
26	Barnham Road	495214.8	105106.3	DNO
27	Barnham Road	495238.3	105091.0	DNO
6	Fontwell Avenue	494652.6	106020.6	FP1
7	Fontwell Avenue	494634.5	105991.5	FP1
8	Fontwell Avenue	494661.8	105970.9	FP1
9	Fontwell Avenue	494622.1	105964.7	FP1
10	Fontwell Avenue	494647.9	105936.0	FP1
11	Fontwell Avenue	494618.7	105924.5	FP1
12	Fontwell Avenue	494590.6	105898.3	FP1
1	New Road	494680.4	105934.1	FP1
2	New Road	494714.8	105912.0	FP1
3	New Road	494748.4	105890.1	FP1
4	New Road	494787.4	105877.2	FP1
5	New Road	494827.7	105869.6	FP1
6	New Road	494867.2	105858.9	FP1
7	New Road	494905.1	105843.2	FP1
8	New Road	494942.7	105826.8	FP1
9	New Road	494983.5	105813.5	FP2
10	New Road	495020.4	105797.2	FP2
11	New Road	495038.9	105777.8	FP2
12	New Road	495053.1	105812.0	FP2
13	New Road	495084.2	105797.0	FP2
14	New Road	495067.6	105764.8	FP2
15	New Road	495089.7	105766.1	FP2
16	New Road	495119.2	105751.7	FP2
17	New Road	495154.1	105721.3	FP2
18	New Road	495187.0	105696.4	FP2
19	New Road	495199.5	105689.1	FP2
20	New Road	495205.9	105699.1	FP2
21	New Road	495204.6	105712.8	FP2
22	New Road	495217.6	105694.9	FP2
23	New Road	495209.3	105672.3	FP2
24	New Road	495240.7	105662.2	FP2
25	New Road	495232.3	105640.7	FP2
26	New Road	495261.8	105628.2	FP2
27	New Road	495250.7	105608.6	FP3
28	New Road	495265.6	105574.7	FP3
29	New Road	495276.9	105539.4	FP3
30	New Road	495284.4	105503.1	FP3
31	New Road	495288.1	105466.3	FP3
32	New Road	495287.9	105429.2	FP3
33	New Road	495283.8	105392.4	FP3
34	New Road	495275.8	105356.2	FP3
35	New Road	495264.0	105321.0	FP3
36	New Road	495247.7	105287.7	FP3
37	New Road	495235.0	105257.7	FP3
38	New Road	495217.9	105219.8	FP3
39	New Road	495213.9	105177.9	FP3



Key

- Proposed street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol).
- Proposed raise and lower street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol). Arrow indicated direction of lowering mechanism.
- Proposed illuminated sign consisting of galvanised steel wide base post. Signs to be lit by Simmonsigns LUA LED sign light with low voltage HF electronic ballast. Sign light controlled by Mayflower Internal node.
- Proposed illuminated centre island post consisting of 4.7 metre mid hinged galvanised steel post, 2 no. internally illuminated Simmonsigns Invinca Keep Left signs and Simmonsigns white LED beacon. Equipment to be supplied by 24v supply.
- Street lighting column to be retained.
- Street lighting column to be removed.
- Proposed feeder pillar with 230v single phase supply installed to WSCC specification.
- Indicative cable route.
- 450mm x 450mm polyproylene preformed twin wall modular duct access chamber similar to NAL Limited STAKKAbox Modula duct chamber. Chamber, concrete infill and cover are to be rated to B125. Depth of chamber to allow for a 600mm deep duct run (see note 20).

Notes

1. Do not scale from drawing if not printed at original paper size.
2. All street lighting equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. Lighting columns to be fed by DNO supply unless otherwise shown.
6. Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
7. Column maintenance numbers have been agreed with WSCC and therefore numbering on-site should be as per the lighting drawings.
8. Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
9. One Mayflower Complete Lighting control DALI sub-master unit to be installed to control nodes and link central management system.
10. Lighting columns are to be planted directly into the ground as per WSCC's specification referred to as "Road Lighting column erection details".
11. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
12. All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
13. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
14. All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.
15. All electrical cables to be XLPE/SWA/PVC and laid in ducting.
16. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
17. Locations of duct chambers shown on the drawing are indicative (albeit they have been cross referenced against other highway disciplines to avoid clashes). Final locations shall be confirmed on site.
18. Ducting to be 100mm dia PVC ducts coloured orange. Maximum number of cables per duct is 3. One spare duct is to be installed at each road crossing.
19. Ducting below footways to be 450mm below finished level.
20. Ducting below carriageways to be 600mm below finished level.
21. Every duct to be installed with draw cords.
22. Refer to drawing WSCC-SD1-0500-042 for details regarding bedding and backfill installation. Standard installation type should be used where possible however appropriate installation type is subject to on site conditions.
23. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
	AMENDED COLUMN LOCATIONS	05/11/21	MWG
E	AMENDED FOLLOWING JCE COMMENTS	29/04/21	MWG
D	AMENDED FOLLOWING JCE COMMENTS	04/03/21	MWG
C	AMENDED FOLLOWING JCE COMMENTS	26/01/21	MWG
B	REINSERTED MISSING CONTOURS AND AMENDED FOLLOWING CLIENT COMMENTS	14/10/20	MWG

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE

STREET LIGHTING LAYOUT DRAWING

SHEET 5 OF 8

PROJECT

A29 REALIGNMENT WEST SUSSEX

SCALE	DATE	15/09/20
1:500 @ A1	DRAWN	MWG
	CHECKED	RHJ
PAPER SIZE A1	APPROVED	SAB

DRAWING NUMBER: SSE281768-1300-005

REVISION: F

SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Note the following significant risks:

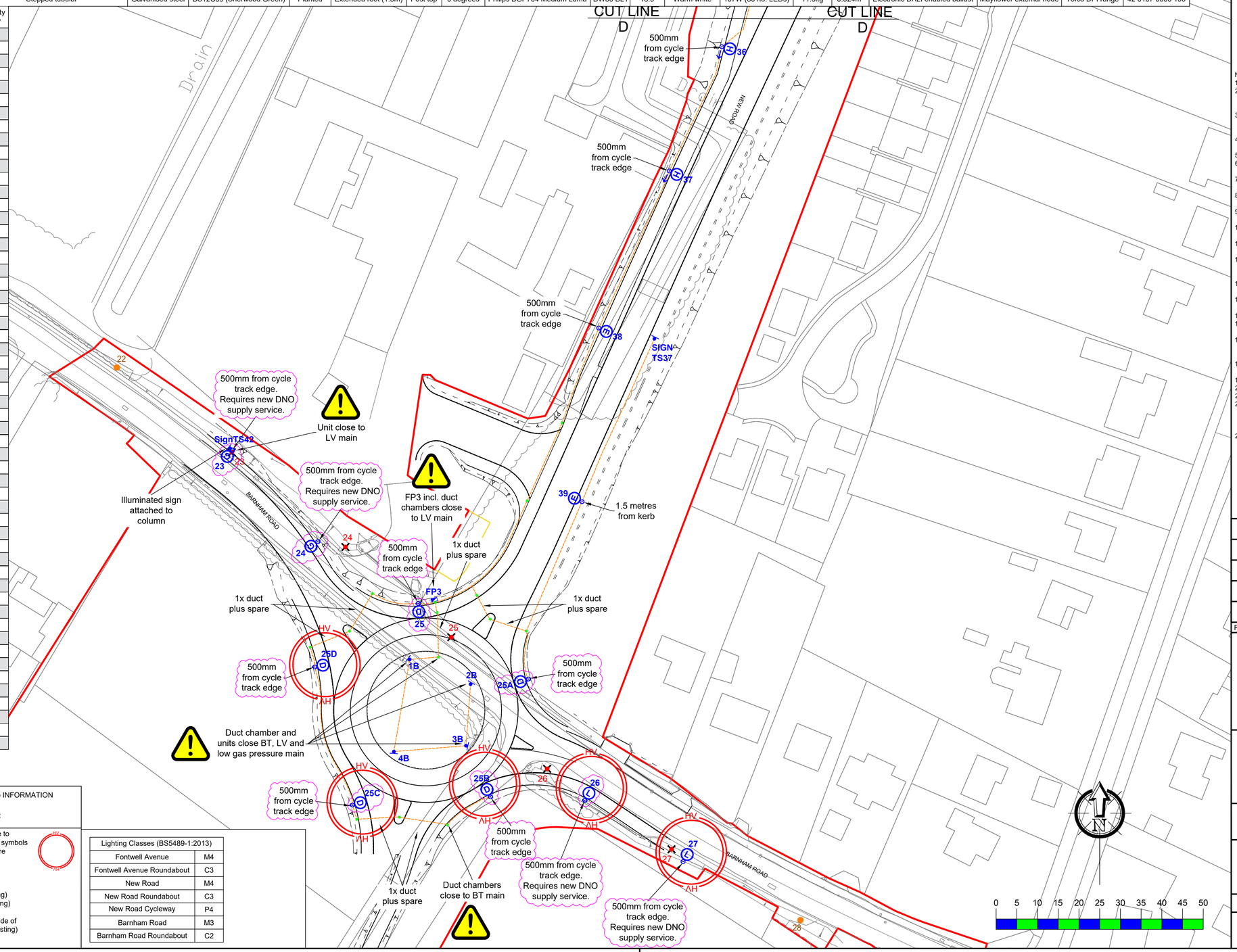
CONSTRUCTION: High Voltage mains cable located close to proposed and existing lighting equipment (indicated by the symbols shown). All measures are to be taken to locate mains before excavation works commences.

Known utilities present include (refer to drawings A29-CAP-VUT-00-DR-C-0077 to 0081 for further details);
Low Pressure Mains - Eastern and Western side of (existing) Fontwell Avenue and Northern and Southern side of (existing) Barnham Road.
Water mains (Portsmouth Water) - Eastern and Western side of (existing) Fontwell Avenue and running centrally along (existing) Barnham Road.

Lighting Classes (BS5489-1:2013)	
Fontwell Avenue	M4
Fontwell Avenue Roundabout	C3
New Road	M4
New Road Roundabout	C3
New Road Cycleway	P4
Barnham Road	M3
Barnham Road Roundabout	C2

Unit Type ID	Count	Status	Mounting Height	Column Type	Column Material	Column Colour	Installation Type	Root Length	Mounting	Luminaire Tilt	Luminaire	Optic Setting	Output (klm)	Colour Temperature	Wattage	Luminaire Weight	Windage	Control Unit	Switching Unit	Isolator	Luminaire Elexon Code
A	1	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
B	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10 BL1	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
C	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
D	5	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50	21.0	Warm white	127W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0124 0000 100
E	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
F	6	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100
G	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DM10	10.0	Warm white	60W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0060 0000 100
H	13	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
I	2	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DM50 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
J	2	Proposed column	5 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP702 Micro Luma	DPL1 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
L	2	Proposed column	10 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Factory standard	Post top	0 degrees	Philips BGP703 Mini Luma	DW50	13.0	Warm white	76W (40 no. LEDs)	9.5kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0076 0000 100
M	4	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	14.5	Warm white	84W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0084 0000 100
N	10	Proposed column	6 metres	Mid-Hinged Raise and Lower stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP702 Micro Luma	DN10 BL1	2.0	Warm white	13W (10 no. LEDs)	8.0kg	0.021m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0013 0000 100
O	2	Proposed column	8 metres	Stepped tubular	Galvanised steel	BS12C39 (Sherwood Green)	Planted	Extended root (1.5m)	Post top	0 degrees	Philips BGP704 Medium Luma	DW50 BL1	18.0	Warm white	107W (80 no. LEDs)	11.5kg	0.024m²	Electronic DALI enabled ballast	Mayflower external node	Tofco DPI range	42 0107 0000 100

Col Ref	Location	Easting	Northing	Electricity Supply
23	Barnham Road	495129.3	105190.1	DNO
24	Barnham Road	495149.8	105168.0	DNO
25	Barnham Road	495174.4	105153.1	FP3
25A	Barnham Road	495200.6	105135.0	FP3
25B	Barnham Road	495191.6	105107.0	FP3
25C	Barnham Road	495158.9	105104.8	FP3
25D	Barnham Road	495149.9	105138.1	FP3
26	Barnham Road	495214.8	105106.3	DNO
27	Barnham Road	495238.3	105091.0	DNO
6	Fontwell Avenue	494652.6	106020.6	FP1
7	Fontwell Avenue	494634.5	105991.5	FP1
8	Fontwell Avenue	494661.8	105970.9	FP1
9	Fontwell Avenue	494622.1	105964.7	FP1
10	Fontwell Avenue	494647.9	105936.0	FP1
11	Fontwell Avenue	494618.7	105924.5	FP1
12	Fontwell Avenue	494590.6	105898.3	FP1
1	New Road	494680.4	105934.1	FP1
2	New Road	494714.8	105912.0	FP1
3	New Road	494748.4	105890.1	FP1
4	New Road	494787.4	105877.2	FP1
5	New Road	494827.7	105869.6	FP1
6	New Road	494867.2	105858.9	FP1
7	New Road	494905.1	105843.2	FP1
8	New Road	494942.7	105826.8	FP1
9	New Road	494983.5	105813.5	FP2
10	New Road	495020.4	105797.2	FP2
11	New Road	495038.9	105777.8	FP2
12	New Road	495053.1	105812.0	FP2
13	New Road	495084.2	105797.0	FP2
14	New Road	495067.6	105764.8	FP2
15	New Road	495089.7	105766.1	FP2
16	New Road	495119.2	105751.7	FP2
17	New Road	495154.1	105721.3	FP2
18	New Road	495187.0	105696.4	FP2
19	New Road	495199.5	105689.1	FP2
20	New Road	495205.9	105699.1	FP2
21	New Road	495204.6	105712.8	FP2
22	New Road	495217.6	105694.9	FP2
23	New Road	495209.3	105672.3	FP2
24	New Road	495240.7	105662.2	FP2
25	New Road	495232.3	105640.7	FP2
26	New Road	495261.8	105628.2	FP2
27	New Road	495250.7	105608.6	FP3
28	New Road	495265.6	105574.7	FP3
29	New Road	495276.9	105539.4	FP3
30	New Road	495284.4	105503.1	FP3
31	New Road	495288.1	105466.3	FP3
32	New Road	495287.9	105429.2	FP3
33	New Road	495283.8	105392.4	FP3
34	New Road	495275.8	105356.2	FP3
35	New Road	495264.0	105321.0	FP3
36	New Road	495247.7	105287.7	FP3
37	New Road	495235.0	105257.7	FP3
38	New Road	495217.9	105219.8	FP3
39	New Road	495213.9	105177.9	FP3



SAFETY HEALTH AND ENVIRONMENTAL (SHE) INFORMATION

Note the following significant risks:

CONSTRUCTION: High Voltage mains cable located close to proposed and existing lighting equipment (indicated by the symbols shown). All measures are to be taken to locate mains before excavation works commences.

Known utilities present include (refer to drawings A29-CAP-VUT-00-DR-C-0077 to 0081 for further details);
Low Pressure Mains - Eastern and Western side of (existing) Fontwell Avenue and Northern and Southern side of (existing) Barnham Road.
Water mains (Portsmouth Water) - Eastern and Western side of (existing) Fontwell Avenue and running centrally along (existing) Barnham Road.

Lighting Classes (BS5489-1:2013)	
Fontwell Avenue	M4
Fontwell Avenue Roundabout	C3
New Road	M4
New Road Roundabout	C3
New Road Cycleway	P4
Barnham Road	M3
Barnham Road Roundabout	C2

Key

- Proposed street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol).
- Proposed raise and lower street lighting column (Unit Type ID displayed inside symbol. Unit reference number displayed outside symbol). Arrow indicated direction of lowering mechanism.
- Proposed illuminated sign consisting of galvanised steel wide base post. Signs to be lit by Simmonsigns LUA LED sign light with low voltage HF electronic ballast. Sign light controlled by Mayflower Internal node.
- Proposed illuminated centre island post consisting of 4.7 metre mid hinged galvanised steel post, 2 no. internally illuminated Simmonsigns Invinca Keep Left signs and Simmonsigns white LED beacon. Equipment to be supplied by 24v supply.
- Street lighting column to be retained.
- Street lighting column to be removed.
- Proposed feeder pillar with 230v single phase supply installed to WSCC specification.
- Indicative cable route.
- 450mm x 450mm polyproylene preformed twin wall modular duct access chamber similar to NAL Limited STAKKAbox Modula duct chamber. Chamber, concrete infill and cover are to be rated to B125. Depth of chamber to allow for a 600mm deep duct run (see note 20).

Notes
1. Do not scale from drawing if not printed at original paper size.
2. All street lighting equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. Lighting columns to be fed by DNO supply unless otherwise shown.
6. Each luminaire to be fitted with Mayflower Complete Lighting control S6000 socket (NEMA).
7. Column maintenance numbers have been agreed with WSCC and therefore numbering on-site should be as per the lighting drawings.
8. Columns to be numbered using adhesive labels suitable for exterior use. Letters and numerals shall be 50mm high black on a white background.
9. One Mayflower Complete Lighting control DALI sub-master unit to be installed to control nodes and link central management system.
10. Lighting columns are to be planted directly into the ground as per WSCC's specification referred to as "Road Lighting column erection details".
11. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
12. All apparatus shall be sited so as to minimise, in so far as is reasonable and practical, nuisance, danger and obstruction to all residents, businesses and users of the highway.
13. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
14. All installations must be installed in such a way that trees or any other foliage on the site does not interfere with the level of lighting.
15. All electrical cables to be XLPE/SWA/PVC and laid in ducting.
16. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
17. Locations of duct chambers shown on the drawing are indicative (albeit they have been cross referenced against other highway disciplines to avoid clashes). Final locations shall be confirmed on site.
18. Ducting to be 100mm dia PVC ducts coloured orange. Maximum number of cables per duct is 3. One spare duct is to be installed at each road crossing.
19. Ducting below footways to be 450mm below finished level.
20. Ducting below carriageways to be 600mm below finished level.
21. Every duct to be installed with draw cords.
22. Refer to drawing WSCC-SD1-0500-042 for details regarding bedding and backfill installation. Standard installation type should be used where possible however appropriate installation type is subject to on site conditions.
23. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
H	AMENDED COLUMN LOCATIONS	10/02/22	MWG
G	AMENDED COLUMN LOCATIONS	05/11/21	MWG
F	AMENDED FOLLOWING JCE COMMENTS	29/04/21	MWG
E	AMENDED FOLLOWING JCE COMMENTS	19/04/21	MWG
D	AMENDED FOLLOWING JCE COMMENTS	04/03/21	MWG

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE
STREET LIGHTING LAYOUT DRAWING

SHEET 6 OF 8

PROJECT
A29 REALIGNMENT WEST SUSSEX

SCALE	DATE	15/09/20
1:500 @ A1	DRAWN	MWG
	CHECKED	RHJ
PAPER SIZE A1	APPROVED	SAB

DRAWING NUMBER
SSE281768-1300-006

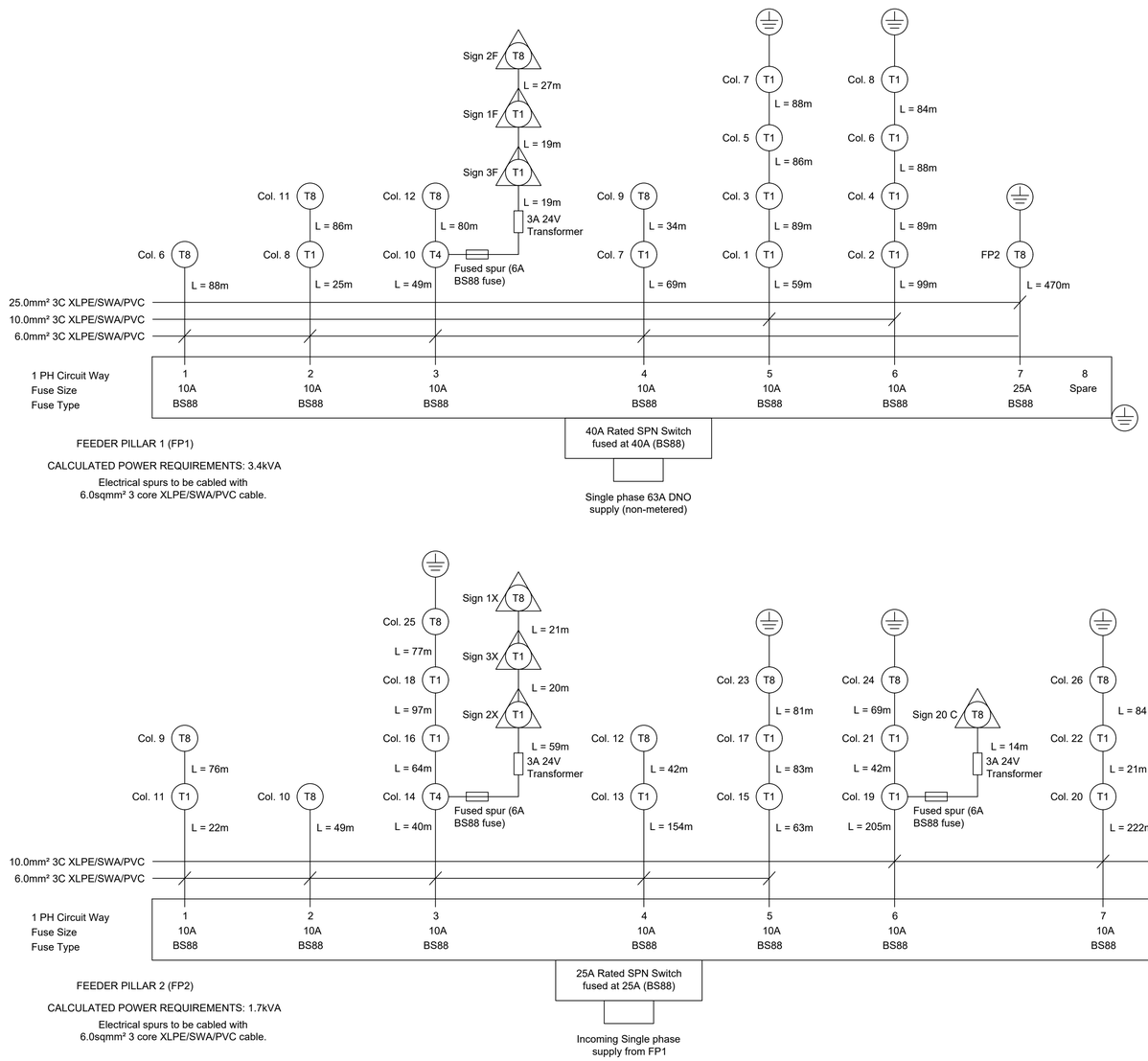
REVISION
H

C:\Users\mg23330\Enerveo\Lighting Design Hub - Documents\02 Projects\281768 - A29, West Sussex\2_Design\SSE281768-1300-001-008-M.dwg

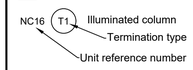
CABLE TERMINATION
TYPE T1

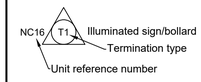
CABLE TERMINATION
TYPE T4

CABLE TERMINATION
TYPE T8



Key





Earth electrode

Notes

1. Do not scale from drawing if not printed at original paper size.
2. All electrical equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
6. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
7. All electrical cables to be 3 core XLPE/SWA/PVC and laid in orange 100mm dia duct.
8. Road crossing to have one spare PVC duct.
9. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
10. Ducting below footways to be 450mm below finished level.
11. Ducting below carriageways to be 600mm below finished level.
12. Every duct to be installed with draw cords.
13. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
C	ADDED CABLE LENGTHS	08/02/21	MWG
B	AMENDED FOLLOWING JCE COMMENTS	26/01/21	MWG
A	ORIGINAL ISSUE	15/09/20	MWG

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE

STREET LIGHTING
LAYOUT DRAWING

SHEET 7 OF 8

PROJECT

A29 REALIGNMENT
WEST SUSSEX

SCALE	1:500 @ A1
PAPER SIZE	A1
DATE	15/09/20
DRAWN	MWG
CHECKED	RHJ
APPROVED	SAB

DRAWING NUMBER

SSE281768-1300-007

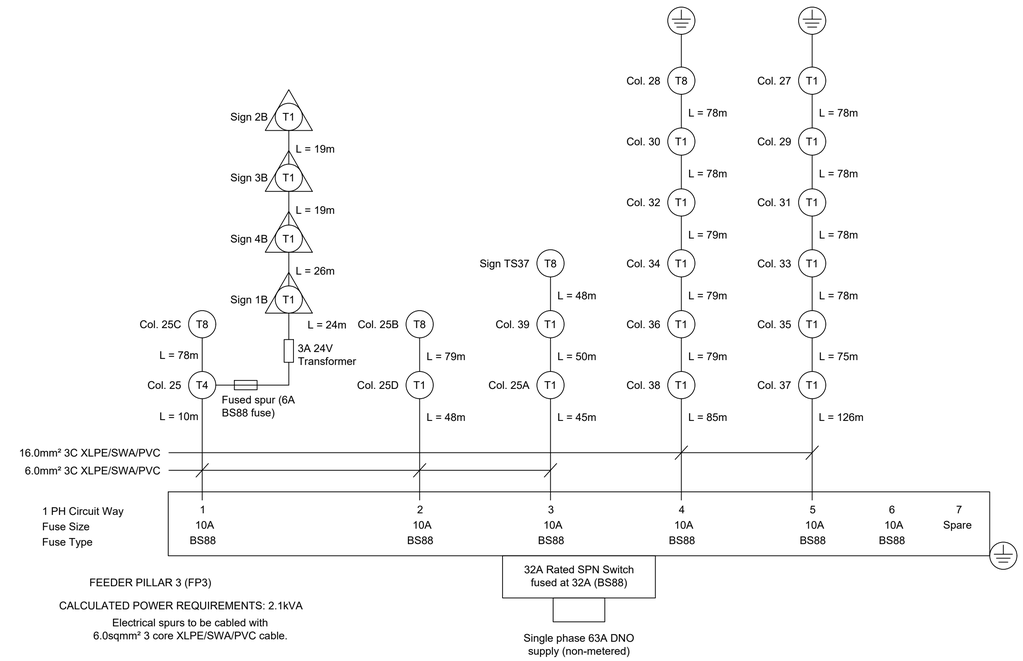
REVISION

C

CABLE TERMINATION
TYPE T1

CABLE TERMINATION
TYPE T4

CABLE TERMINATION
TYPE T8

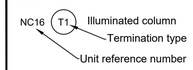


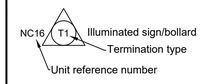
FEEDER PILLAR 3 (FP3)

CALCULATED POWER REQUIREMENTS: 2.1kVA

Electrical spurs to be cabled with
6.0sqmm² 3 core XLPE/SWA/PVC cable.

Key





Earth electrode

Notes

1. Do not scale from drawing if not printed at original paper size.
2. All electrical equipment and works to be carried out in accordance with current West Sussex County Council's specification 'Lighting of Develop Promoted Highway Schemes in West Sussex'.
3. Contractor to confirm position of statutory undertakers plant before commencement of the works. For statutory undertaker's information visit www.linesearchbeforeudig.co.uk
4. During works all traffic management to be in accordance with Chapter 8 of the Traffics Signs Manual.
5. All apparatus are to be new at the time of installation and be supported by relevant manufacturer's guarantees.
6. All illuminated apparatus must be installed and tested in compliance with BS7671 at the time of adoption.
7. All electrical cables to be 3 core XLPE/SWA/PVC and laid in orange 100mm dia duct.
8. Road crossing to have one spare PVC duct.
9. 150mm wide yellow heavy gauge PVC tape marked "Street Lighting Cable" placed over private electricity ducts / cables
10. Ducting below footways to be 450mm below finished level.
11. Ducting below carriageways to be 600mm below finished level.
12. Every duct to be installed with draw cords.
13. This detailed design has been prepared in accordance with the HEA-HEMSA guidance note - CDM2015 regulations, issue 1.1, dated 09/04/15 Procedure 3: information has been supplied by the client or another designer or the principal designer which forms the basis of this lighting scheme design and includes the hazards identified by others on their hazard elimination and management list.

REV	DESCRIPTION	DATE	BY
C	ADDED CABLE LENGTHS	08/02/21	MWG
B	AMENDED FOLLOWING JCE COMMENTS	26/01/21	MWG
A	ORIGINAL ISSUE	15/09/20	MWG

SSE Enterprise - Lighting, 1st Floor, Solent Park, Walton Road, Portsmouth, PO6 1UJ

TITLE

STREET LIGHTING
LAYOUT DRAWING

SHEET 8 OF 8

PROJECT

A29 REALIGNMENT
WEST SUSSEX

SCALE 1:500 @ A1	DATE 15/09/20
	DRAWN MWG
	CHECKED RHJ
PAPER SIZE A1	APPROVED SAB

DRAWING NUMBER SSE281768-1300-008

REVISION C

Appendix C

TRAFFIC SIGNS SCHEDULE

A29 Re-alignment Scheme **Date** 09/10/2020
Job Number: CS/099505

Document No. A29-CAP-HTS-00-SH-C-069 **Rev** S3-P03
Prepared By D Hubbard **Checked by** G Lansell
Notes:
1. All posts over 80mm Dia to be passively safe equivalent

Sign Ref:	TSRGD Diagram Ref:	Sign Width (mm)	Sign Height (mm)	Sign Area (sq.m)	Text 'x' Height (mm)	Sign shape	No. Of Posts	Post Dia (mm) (Or equivalent)	Mounting Height (mm)	Foundations Dimensions (W x L x D)(mm) (See note 1)	Illuminated	Power Supply	Designer Comments
Direction Signs													
Drawing A29-CAP-HTS-00-DR-C-0086													
TS01	ADS	680	1260	0.86	75	Rectangle	1	76.1 x 4.0 CHS	2400	1300 x 1300 x 1000	No	No	
TS02	ADS	1325	1540	1.73	75	Rectangle	2	76.1 x 6.3 CHS	2400	1800 x 1700 x 1000	No	No	
TS03	Flag type direction sign	670	290	0.18	62.5	Flag	1	76.1 x 3.2 CHS	2400	1250 x 1250 x 1000	No	No	
TS04	Flag type direction sign	855	255	0.21	62.5	Flag	1	76.1 x 3.2 CHS	2400	650 x 700 x 1000	No	No	
TS05	Flag type direction sign	1240	280	0.42	62.5	Flag	1	76.1 x 6.3 CHS	2400	900 x 900 x 1000	No	No	
TS06	ADS	1430	1295	1.62	75	Rectangle	1	88.9 x 6.3 CHS	2400	1700 x 1650x 1000	No	No	
Drawing A29-CAP-HTS-00-DR-C-0087													
TS15	ADS	805	1315	0.88	75	Rectangle	1	76.1 x 6.3 CHS	2400	700 x 650 x 1000	No	No	
TS16	Flag type direction sign	925	430	0.94	62.5	Flag	2	76.1 x 6.3 CHS	2400	1200 x 800 x 1000	No	No	
TS17	Flag type direction sign	1025	430	0.21	62.5	Flag	1	76.1 x 6.3 CHS	2400	1000 x 900 x 1000	No	No	
TS18	ADS	930	1830	1.55	75	Rectangle	1	88.9 x 10.0 CHS	2400	1500 x 1500 x 1000	No	No	
Drawing A29-CAP-HTS-00-DR-C-0089													
TS22	ADS	1155	975	1.11	75	Rectangle	1	76.1 x 5.0 CHS	2400	1400 x 1400 x 1000	No	No	
TS23	Flag type direction sign	1395	730	0.14	62.5	Flag	1	76.1 x 2.9 CHS	2400	1450 x 1100 x 1000	No	No	
TS24	Flag type direction sign	925	430	0.94	62.5	Flag	1	76.1 x 6.3 CHS	2400	1200 x 800 x 1000	No	No	
TS25	ADS	1650	1500	2.5	75	Rectangle	2	88.9 x 4.0 CHS	2400	1900 x 1800 x 1000	No	No	
TS26	Flag type direction sign	1025	430	0.21	62.5	Flag	1	76.1 x 6.3 CHS	2400	1000 x 900 x 1000	No	No	
TS27	ADS	1525	1530	1.05	75	Rectangle	1	76.1 x 6.3 CHS	2400	1950 x 1750 x 1000	No	No	

A29 Re-alignment Scheme **Regulatory Signs Schedule** **Date** 09/10/2020
Job Number: CS/099505

Document No. A29-CAP-HTS-00-SH-C-069 **Rev** S3-P03
Prepared By D Hubbard **Checked by** G Lansell
Notes:
1. All posts over 80mm Dia to be passively safe equivalent

Sign Ref:	TSRGD Diagram Ref:	Re use existing sign	Sign Width (mm)	Sign Height (mm)	Sign Area (sq.m)	Text 'x' Height (mm)	Sign shape	No. Of Posts	Post Dia (mm) (Or equivalent)	Mounting Height (mm)	Foundations Dimensions (W x L x D)(mm) (See note 1)	Illuminated	Power Supply	Designer Comments
Regulatory Signs														
Drawing A29-CAP-HTS-00-DR-C-0086														
TS07	956 Shared footway/ cycleway	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	2400	600 x 600 x 600	No	No	Mounted back to back with TS08
TS08	966 Cyclists Dismount	N	375	150	0.06	40	Rectangle	Same post as TS07	-	2400	-	No	No	Mounted back to back with TS07
TS09	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS48
TS10 A, B	956 Shared footway/ cycleway	N	270	270	-	-	Circle	In a bollard	-	-	Manufactors requirements	No	No	Back to back on bollard
TS11	956 Shared footway/ cycleway	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	2400	600 x 600 x 600	No	No	Mounted back to back with TS12
TS12	966 Cyclist rejoin carriageway	N	375	150	0.056	40	Rectangle	Same post as TS11	-	2400	-	No	No	Mounted back to back with TS11
TS13 A, B	Bollard with 610 sign aspect	N	300	-	-	-	-	-	-	-	Accordance with manufacturer's instructions	No	No	Traffic signs as per Traffic island Type E2 WSCC Standard Detail WSCC-SD1-1100-075 Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS13 C	2 no. 610 mounted back to back	N	600	-	-	-	Circle	1	76.1 x 3.2 CHS	2100	600 x 600 x 600	No	No	Traffic signs as per Traffic island Type E2 WSCC Standard Detail WSCC-SD1-1100-076
TS13 D, E	Bollard with 610 sign aspect	N	300	-	-	-	-	-	-	-	Accordance with manufacturer's instructions	No	No	Traffic signs as per Traffic island Type E2 WSCC Standard Detail WSCC-SD1-1100-075 Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS13 F	2 no. Diag 610 signs mounted back to back	N	600	-	-	-	Circle	1	76.1 x 3.2 CHS	2100	600 x 600 x 600	No	No	Traffic signs as per Traffic island Type E2 WSCC Standard Detail WSCC-SD1-1100-076
TS 44 A, B, C	3No. Chervons 515	N	1800	400	0.72	-	Rectangle	2	76.1 x 3.2 CHS	1000	600 x 600 x 600 each	No	No	
TS 44 D, E, F	606	N	600	-	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	Yes	Yes	
TS-45, 46, 47	Bollard with 610 sign aspect	N	300	-	-	-	Circle	Bollards	-	-	Accordance with manufacturer's instructions	No	No	Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS48	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS09

A29 Re-alignment Scheme **Regulatory Signs Schedule** **Date** 09/10/2020
Job Number: CS/099505

Document No. A29-CAP-HTS-00-SH-C-069 **Rev** S3-P03
Prepared By D Hubbard **Checked by** G Lansell
Notes:
1. All posts over 80mm Dia to be passively safe equivalent

Sign Ref:	TSRGD Diagram Ref:	Re use existing sign	Sign Width (mm)	Sign Height (mm)	Sign Area (sq.m)	Text 'x' Height (mm)	Sign shape	No. Of Posts	Post Dia (mm) (Or equivalent)	Mounting Height (mm)	Foundations Dimensions (W x L x D)(mm) (See note 1)	Illuminated	Power Supply	Designer Comments
Regulatory Signs														
Drawing A29-CAP-HTS-00-DR-C-0087														
TS34, 35	Bollard with 610 sign aspect	N	300	-	-	-	Circle	Bollards	-	-	Accordance with manufacturer's instructions	No	No	Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS 36 A, B, C	3No. Chervons 515	N	1800	400	0.72	-	Rectangle	2	76.1 x 3.2 CHS	1000	600 x 600 x 600 each	No	No	
TS 36 D, E, F	606	N	600	-	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	Yes	Yes	
TS43	Bollard with 610 sign aspect	N	300	-	-	-	Circle	Bollard	-	-	Accordance with manufacturer's instructions	No	No	Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS49	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS50
TS50	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS49
TS56	956	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	
TS57	956	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	
TS58	956	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	
TS14 A, B	956 Shared footway/ cycleway	N	270	270	-	-	Circle	In a bollard	-	-	Manufactors requirements	No	No	Back to back on bollard
Drawing A29-CAP-HTS-00-DR-C-0088														
TS19 A, B	956 Shared footway/ cycleway	N	270	270	-	-	Circle	In a bollard	-	-	Manufactors requirements	No	No	Back to back on bollard
TS20 A, B	Bollard with 610 sign aspect	N	300	-	-	-	-	-	-	-	Accordance with manufacturer's instructions	No	No	Traffic signs as per Traffic island Type B8 WSCC Standard Detail WSCC-SD1-1100-072 Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS20 C	2 no. 610 mounted back to back	N	600	-	-	-	Circle	1	76.1 x 3.2 CHS	2100	600 x 600 x 600	Yes	Yes	Traffic signs as per Traffic island Type B8 WSCC Standard Detail WSCC-SD1-1100-072 Internally illuminated
TS51	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS52
TS52	670 30mph repeater	N	300	300	-	-	Circle	Sme post as TS51	-	1500	-	No	No	Mounted back to back with TS51
TS53	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS54
TS54	670 30mph repeater	N	300	300	-	-	Circle	Same post as TS53	-	1500	-	No	No	Mounted back to back with TS53
TS59	956	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS60
TS60	965 End of Route	N	395	430	0.17	40	Square	Same post as TS59	-	1500	-	No	No	Mounted back to back with TS59
TS61 A, B	956 Shared footway/ cycleway	N	270	270	-	-	Circle	In a bollard	-	-	Manufactors requirements	No	No	Mounted back to back on bollard

A29 Re-alignment Scheme **Regulatory Signs Schedule** **Date** 09/10/2020
Job Number: CS/099505

Document No. A29-CAP-HTS-00-SH-C-069 **Rev** S3-P03
Prepared By D Hubbard **Checked by** G Lansell
Notes:
1. All posts over 80mm Dia to be passively safe equivalent

Sign Ref:	TSRGD Diagram Ref:	Re use existing sign	Sign Width (mm)	Sign Height (mm)	Sign Area (sq.m)	Text 'x' Height (mm)	Sign shape	No. Of Posts	Post Dia (mm) (Or equivalent)	Mounting Height (mm)	Foundations Dimensions (W x L x D)(mm) (See note 1)	Illuminated	Power Supply	Designer Comments
Regulatory Signs														
Drawing A29-CAP-HTS-00-DR-C-0089														
TS 21	670 30mph repeater	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS 55
TS22	956	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	
TS 28 A, B, C, D	3No. Chervons 515	N	1800	400	0.72	-	Rectangle	2	76.1 x 3.2 CHS	1000	600 x 600 x 600 each	No	No	
TS 28 E, F, G, H	606	N	600	-	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	Yes	Yes	
TS29	956 Shared footway/ cycleway	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	2400	600 x 600 x 600	No	No	Mounted back to back with TS30
TS30	965 End of Route	N	395	430	0.17	40	Rectangle	Same post as TS29	-	2400	-	No	No	Mounted back to back with TS29
TS31	955	N	270	270	-	-	Circle	In a bollard	-	-	Manufactors requirements	No	No	
TS 38, 39, 40, 41	Bollard with 610 sign aspect	N	300	-	-	-	Circle	Bollards	-	-	Accordance with manufacturer's instructions	No	No	Sign post solutions SPS 3Sixty or Simmonsigns 'Weebol Flex' (or similar approved by WSCC) reboundable non-illuminated reflective bolaard with 300 diamter diagram 610 sign aspect
TS 42 Barnham east approach	818.4 'Low bridge'	N	640	930	0.6	67.5	Rectangle	1	76.1 x 6.3 CHS	2400	2100 x 2100 x 600	Yes	Yes	
TS32	955 Cycleway	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	2400	600 x 600 x 600	No	No	
TS55	670 30mph repeater	N	300	300	-	-	Circle	Same post as TS21	-	1500	-	No	No	Mounted back to back with TS21
TS62	956	N	300	300	-	-	Circle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	Mounted back to back with TS63
TS63	966	N	375	150	0.056	40	Rectangle	Same post as TS62	-	1500	-	No	No	Mounted back to back with TS62
TS64	966	N	375	150	0.056	40	Rectangle	1	76.1 x 3.2 CHS	1500	600 x 600 x 600	No	No	

62-64 Hills Road
Cambridge
CB2 1LA

wsp.com