

# M42 Junction 6 Development Consent Order Scheme Number TR010027

## 8.23 Lighting Technical Note

Planning Act 2008

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The Infrastructure Planning (Examination Procedure) Rules 2010

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**M42 Junction 6 Development Consent Order**  
Development Consent Order 202[ ]

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**Lighting Technical Note**

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# 1 Glossary of terms

Term	Definition
BCR	Benefits to Cost Ratio
CMS	Central Management System
IAN	Interim Advice Note
LED	Light Emitting Diode
PIA	Personal Injury Accidents
SAR	Scheme Appraisal Report
SRN	Strategic Road Network
TOCS	Take Off and Climb Surface

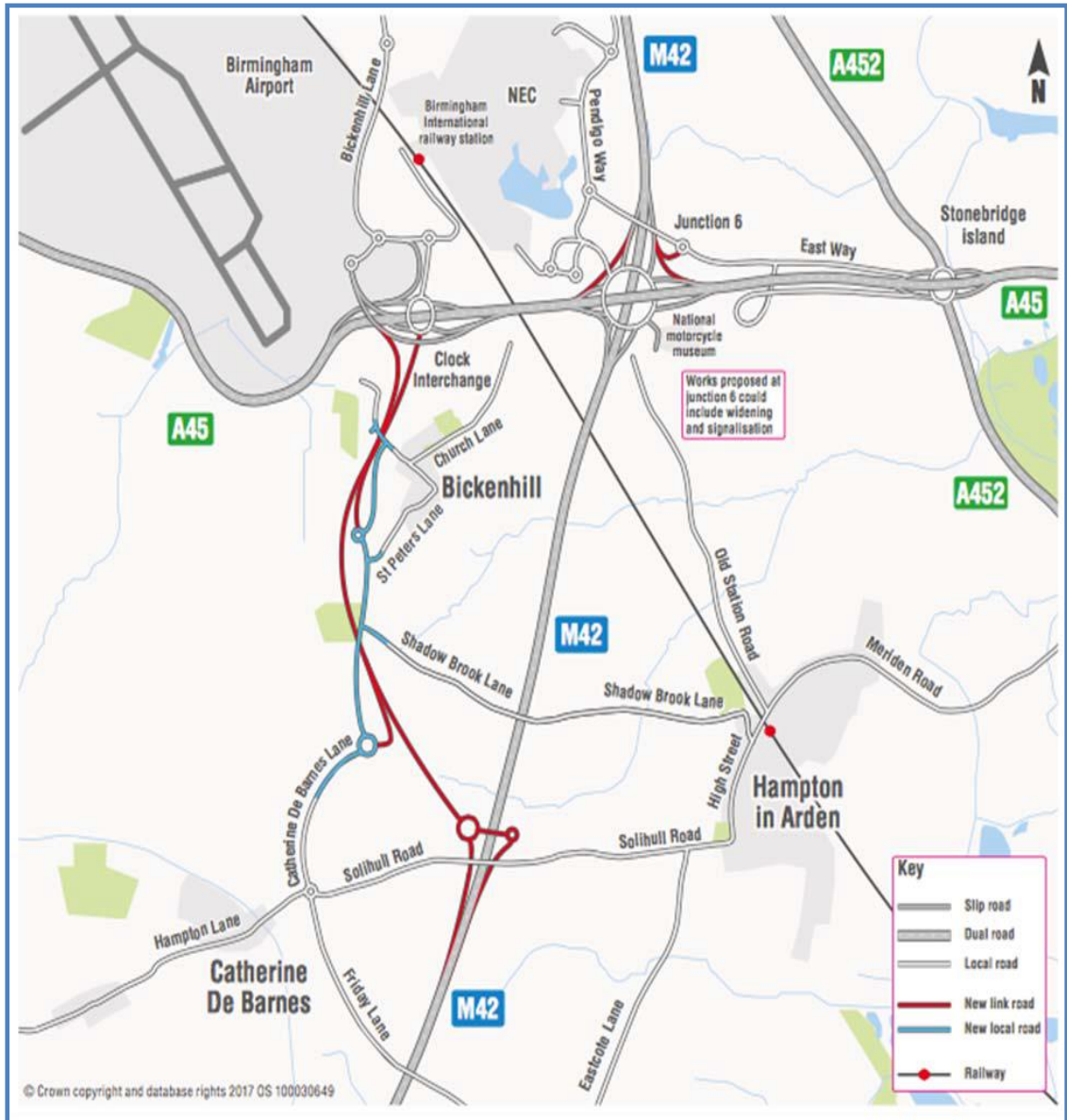
## 2 Introduction and Background

- 2.1.1 M42 Junction 6 (“J6”) is a crucial junction on the SRN and sits within the section of M42 which forms the southern and eastern arms of the Birmingham Box (denoted by the M42, M5 and M6 motorways) area on the SRN.
- 2.1.2 M42 J6 provides connections between the national motorway network and A45 Coventry Road which provides strategic access to Birmingham, to the west, and Coventry to the east. J6 lies on the eastern edge of Birmingham, approximately nine miles from the city centre, with its nearest town being Solihull.
- 2.1.3 M42 J6 lies at the heart of an area of dynamic growth and is surrounded by a unique mix of major assets that serve both the local and wider economy. It provides the main access to an expanding Birmingham International airport, Jaguar Land Rover, the National Exhibition Centre and Birmingham Business Park.
- 2.1.4 In February 2017, the High Speed 2 rail project (HS2) gained Royal Assent confirming the arrival of the HS2 line and the HS2 Birmingham Interchange Station for the region. In addition to HS2 and the committed growth, there is also Solihull Metropolitan Borough Council’s (SMBC) plan for the UK Central (UKC) mixed use development immediately to the north east of the Junction. UKC’s Urban Growth Company published their Hub Growth and Infrastructure Plan which outlines their plan for future aspirational growth in the area.
- 2.1.5 The ‘Road Investment Strategy: for the 2015/16 – 2019/20 Road Period’ (RIS1), published in March 2015, indicated the project as a committed new scheme. It was first announced in Autumn Statement 2014 (AS14), stating that the M42 J6 Improvement Scheme is a:
- “....comprehensive upgrade of the M42 Junction 6 near Birmingham Airport, allowing better movement of traffic on and off the A45, supporting access to the airport and preparing capacity for the new HS2 station.”*



- 2.1.6 Current congestion and journey reliability issues on the M42 at J6 are a significant constraint to future investment and economic growth. Without infrastructure investment to improve the junction, a major investment opportunity of national significance could be lost. Consequently, the J6 solution is not just to improve the SRN in this area but will also need to fit in with the overall development in the area.
- 2.1.7 The Preliminary Design of the preferred route was developed during Project Control Framework Stage 3 (Preliminary Design Stage) leading up to the Development Consent Order application submitted to the Planning Inspectorate on 2 January 2019. Stakeholder engagement and public consultation has been undertaken throughout this process to inform the scheme design.
- 2.1.8 The M42 Junction 6 (“the Scheme”) includes the following as shown in Figure 1 below:
- A new Junction (5A) on the M42, south of Junction 6 in the form of a dumb-bell arrangement with south facing slip roads only.
  - Improvements to Junction 6 including free flow links around the northwest and northeast quadrants of the junction.
  - Widening of the Clock Interchange roundabout on the SMBC local road network and improvements on the A45 between Clock interchange and Junction 6 consisting of updates to the white lining regime and modification to the signs strategy on the eastbound carriageway.
  - A new 2.4 kilometre dual carriageway link between the Clock Interchange and a new Junction 5A. The proposed junction will provide limited access and be single direction; providing a northbound off slip and a southbound on slip only
- 2.1.9 This report documents the requirement for road lighting on the Scheme. The economic assessment has been carried for the road lighting of the new mainline link road, new Junction 5A, Free Flow Links on the northwest and northeast quadrant of the Junction 6 and all other sections of the Scheme

Figure 1 - Scheme Layout Plan



- 2.1.10 It is assumed that the alterations to the B4438 Catherine-de-Barnes Lane will not be illuminated, shown in blue in Figure 1. This is to create consistency with the existing local network and to ensure journey quality is not adversely affected for users driving along its length.
- 2.1.11 There is an existing lighting system along the M42 and A45, however it is assumed that the lighting columns at the interaction areas with the proposed highway would require removal and new equipment installed as part of the Scheme.
- 2.1.12 The Scheme is located in close proximity to Birmingham Airport. The Airport operates an Airport Safeguarding Zone which consists of upper and lower vertical

limits on approach to the airport runway, these limits are the range between which flights operate within, on approach and departure from the airport runway.

- 2.1.13 Birmingham Airport requires that the Scheme considers the Airport Safeguarding Zone as a constraint through the design development process. Within this context, where street lighting is required and it is assessed to protrude above the Airport Safeguarding Zone, then further mitigation measures, where practicable, will be considered to minimise the impact upon the Safeguarding zone.
- 2.1.14 Operational safety is a major driver for Highways England and it has been emphasised by Highways England that this project must allow for the installation of LED luminaires throughout. The cost for the design and installation of the LED luminaires has been considered at an early stage in the project. The long-life LED lamps and associated reduction in maintenance requirements would significantly reduce the requirements for maintenance operatives to be active on the motorway network.
- 2.1.15 A further requirement is that the project must allow for the installation of a CMS to monitor and control the lighting. LED luminaires, in association with the CMS, will also result in a large reduction in energy consumption and carbon emissions.
- 2.1.16 An environmental impact assessment of the outcomes of this street lighting design was undertaken and is included in the Environmental Statement Chapter 8, titled Landscape.

### 3 Road Lighting Guidance and Standards

- 3.1.1 In deciding where lighting should be provided, safety, economic, environmental and social impacts have all been considered. The lighting economic assessment has been carried out considering the latest Highways England guidance. The following International, British and Highways England standards have also been used in carrying out the lighting assessment:
- International Commission on Illumination (CIE) - CIE115: 2010 - Technical Report - Lighting of roads for motor and pedestrian traffic.
  - British Standards (BS) - BS 5489-1: 2013 - Code of practice for the design of road lighting - Part 1: Lighting of roads and public amenity areas.
  - Design Manual for Roads and Bridges, Volume 8, Section 3 - TD 34/07 - Design of road lighting for the strategic motorway and all-purpose trunk road network.
  - Design Manual for Roads and Bridges, Volume 8, Section 3 - TA 49/07 - Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network.
  - Interim Advice Note IAN 160/12 - Appraisal of Technology Schemes.
  - Interim Advice Note IAN 167/12 Rev1 - Guidance for the Removal of Road Lighting.

- Design Manual for Roads and Bridges, Volume 6, Section 2- TD 22/06 - Layout of Grade Separated Junctions.

### 3.2 TA 49/07 – Appraisal of New and Replacement Lighting on the Strategic Motorway and All-Purpose Trunk Road Network

- 3.2.1 TA 49/07 sets out the requirements for the appraisal of road lighting on the SRN and is used in conjunction with the Highway England’s Scheme Appraisal Report (SAR) documentation process.
- 3.2.2 The primary purpose of road lighting is to reduce PIAs. This is a quantifiable benefit. Consequently, the most important consideration is the predicted accident cost saving, which should be greater than the lighting installation and 30-year operation costs in order to provide economic justification for road lighting.
- 3.2.3 The percentage darkness PIA saving due to lighting for a motorway main carriageway link is given as 10%. Where the motorway link is already lit, the percentage saving is calculated as follows:  $10\% / (100\% - 10\%) = 11.11\%$ . This allows for the fact the PIAs are already being saved due to the existing lighting.

### 3.3 TA 34/07 – Design of Road Lighting for the Strategic Motorway and All-Purpose Trunk Road Network

- 3.3.1 TD 34/07 sets out the design standards applicable to road lighting on motorways and all-purpose trunk roads and describes how to apply the British Standard BS 5489-1 to the design of road lighting for the SRN. The 2013 issue of BS 5489-1, in conjunction with CIE 115, has been used by the Operational Safety Team in the establishing the lighting design for the SAR costings.

### 3.4 TD 22/06 – Layout of Grade Separated Junctions

- 3.4.1 TD 22/06 provides advice on the requirements for road lighting at grade separated junctions where the main carriageway link is lit. The advice is that if the main carriageway is lit then the slip roads must be lit.
- 3.4.2 Advice on the extents of road lighting at grade separated junctions is also given. It is normal practice to light grade separated junction. The lighting of the grade separated junction would normally extend 60m along each entry or exit slip road where there is no lighting on the main carriageway. It should be noted that where the full length of the slip road is lit, the main carriageway must be lit all through the junction.

### 3.5 CIE 115/2010 – Lighting of Roads for Motor and Pedestrian Traffic

- 3.5.1 The advice given in CIE 115/2010 regarding the extent of road lighting at conflict areas, such as motorway junctions, has been applied in establishing the extents of road lighting for the individual junctions and motorway links in this assessment.
- 3.5.2 The extent of road lighting should be the distance that a vehicle would travel for five seconds at the expected traffic speed. At a speed of 70mph this equates to 156m. The minimum lighting on the slip roads, at a junction roundabout that is lit, should extend to 156m from the top of the slip road. This applies to both on and

off slip roads and the extent of the lighting supersedes the requirements of TD 22/06.

### 3.6 IAN 167/12 – Guidance for the Removal of Road Lighting

3.6.1 IAN 167/12 advises service providers on actions to be undertaken to select, assess and implement the removal of road lighting.

## 4 Accident Analysis

- 4.1.1 The number of PIAs would increase should the street lighting be omitted in line with the national average proportion of dark PIAs on the SRN at 28% as detailed in IAN167/12 Revision 1 - Guidance for the Removal of Road Lighting.
- 4.1.2 The number of accidents predicted by a previous consultant in PCF Stage 2 (Option Selection) of this scheme was 33 over the 30-year period. The estimated accident savings for slip roads is 24% and 10% on main carriageway links, as per IAN 161/15, these figures shall be used unless substantive evidence to the contrary can be provided.
- 4.1.3 Each section of the highway will be assessed for an individual BCR to ensure the implementation of street lighting is effective in all locations. The number of accidents saved has been broken down per km applying the 24% and 10% for junctions and links respectively. The Capitalisation Factor, as per Annex D of IAN 160/12 - Appraisal of Technology Schemes is applied to calculate the number of accidents over the 30-year assessment period. The total accidents saved for each element of the scheme are given in the Table-1.

**Table 1- PIA's saved for scheme sections**

Section	Length (km)	PIAs (year 1)	PIAs Saved (year 1)	PIAs Saved (30 years)
<b>Full scheme</b>	<b>11.44</b>	<b>5.83</b>	<b>1.40</b>	<b>33.00</b>
M42 Northbound Diverge Slip at Junction 5A	0.76	0.4	0.09	2.00
M42 Southbound Merge Slip at Junction 5A	0.96	0.5	0.12	3.00
New Junction 5A	0.75	0.4	0.09	2.00
Proposed Mainline Link Road	2.00	1.0	0.10	2.00
Barber's Coppice Roundabout	0.74	0.4	0.09	2.00
Merge Slip from Barber's Coppice Roundabout to proposed Mainline link	0.46	0.2	0.06	1.00
Realigned B4438 Catherine-De-Barnes Lane	0.68	0.3	0.03	1.00
Catherine-De-Barnes Lane North Overbridge	0.20	0.1	0.03	1.00
Bickenhill Roundabout	0.33	0.2	0.04	1.00
Diverge Slip from proposed Mainline link to Bickenhill Roundabout	0.36	0.2	0.04	1.00
Clock Interchange left only lane	0.36	0.2	0.04	1.00
Segregated Left Turn Lane to A45 West	0.69	0.3	0.08	2.00



Clock Interchange	0.83	0.4	0.10	2.00
A45E to M42N Free Flow Link, M42 Northbound Merge Slip	1.70	0.6	0.15	3.00
M42 Southbound Diverge Slip north of Junction 6	0.75	0.6	0.13	3.00
M42 Southbound Diverge to proposed East Way Roundabout	0.66	0.3	0.08	2.00

## 5 BCR Calculation

### 5.1 BCR Costs

- 5.1.1 The average value of a night time accident for a Rural Dual All Purpose highway for the opening year of 2023 is £144,154 as per the IAN 160/12 - Appraisal of Technology Schemes . This value will be used for as the cost per accident for this assessment.

#### ***Lighting costs over 30-year duration***

##### ***Energy related costs***

Average kW per luminaire: 0.195

Hours per year: 4100

Cost per kWh: £0.1021

##### ***Carbon related costs***

Average kW per luminaire: 0.195

Hours per year: 4100

CO<sub>2</sub> rate (kg/kWh): 0.43

Cost per tonne of CO<sub>2</sub>: £12

##### ***Maintenance Costs***

Cost per luminaire per year: £17

Cost per column per year: £76

##### ***Installation Costs***

Cost per luminaire: £620.11

Cost per column: £1,109.68

- 5.1.2 A preliminary design for the scheme areas has been completed to ensure that the total costing for implementing Street Lighting can be calculated. The drawings of the preliminary design across the scheme are attached in Appendix A.

**Table 2 – Scheme 30-year costs**

Section	Columns	Luminaires	Energy	Carbon	Maintenance	Other asset costs	Installation	Total
<b>Full scheme</b>	<b>287</b>	<b>349</b>	<b>£85,465.51</b>	<b>£43,193.15</b>	<b>£832,350.00</b>	<b>£758,724.26</b>	<b>£534,896.55</b>	<b>£2,254,629.47</b>
M42 Northbound Diverge Slip at Junction 5A	19	19	£4,652.85	£2,351.49	£53,010.00	£52,390.87	£32,866.01	£145,271.22
M42 Southbound Merge Slip at Junction 5A	19	19	£4,652.85	£2,351.49	£53,010.00	£56,432.21	£32,866.01	£149,312.56
New Junction 5A	17	21	£5,142.62	£2,599.01	£49,470.00	£43,665.81	£31,886.87	£132,764.32
New Mainline Link Road	51	102	£24,978.46	£12,623.79	£168,300.00	£131,712.44	£119,844.90	£457,459.58
Barber's Coppice Roundabout	18	18	£4,407.96	£2,227.73	£50,220.00	£42,272.27	£31,136.22	£130,264.18
Merge Slip from Barber's Coppice Roundabout to the New Mainline link	15	15	£3,673.30	£1,856.44	£41,850.00	£35,079.28	£25,946.85	£108,405.87
Realigned B4438 Catherine-de-Barnes Lane	24	24	£5,877.28	£2,970.30	£66,960.00	£43,756.19	£41,514.96	£161,078.74
Catherine-de-Barnes Lane North Overbridge	6	6	£1,469.32	£742.58	£16,740.00	£21,156.00	£10,378.74	£50,486.64
Bickenhill Roundabout	12	12	£2,938.64	£1,485.15	£33,480.00	£35,293.95	£20,757.48	£93,955.22
Diverge Slip from New Mainline link to Bickenhill Roundabout	11	11	£2,693.76	£1,361.39	£30,690.00	£21,135.30	£19,027.69	£74,908.13



Clock Interchange left only lane	5	5	£1,224.43	£618.81	£13,950.00	£9,245.99	£8,648.95	£33,688.19
Segregated Left Turn Lane to A45 West	14	14	£3,428.42	£1,732.68	£39,060.00	£37,700.00	£24,217.06	£106,138.15
Clock Interchange	20	25	£6,122.17	£3,094.07	£58,350.00	£47,335.18	£37,696.35	£152,597.77
A45E to M42N Free Flow Link, M42 Northbound Merge Slip	29	29	£7,101.72	£3,589.12	£80,910.00	£99,054.45	£50,163.91	£240,819.19
M42 Southbound Diverge Slip for Junction 6 of Junction 6	21	23	£5,632.40	£2,846.54	£59,610.00	£77,289.46	£37,565.81	£182,944.21
M42 Southbound Diverge to proposed East Way Roundabout	20	20	£4,897.74	£2,475.25	£55,800.00	£42,904.86	£34,595.80	£140,673.65



## 5.2 BCR Calculation Results

5.2.1 A summary of the BCR calculation results are shown in Table 3. Full details of the BCR calculations are provided in Appendix A.

**Table 3 BCR Calculation Results**

Section	30-year Cost of PIAs	Lighting Arrangement	
		30-year Cost of Lighting	BCR
Full scheme	£3,603,850.00	£2,254,629.47	1.60
M42 Northbound Diverge Slip at Junction 5A	£288,308.00	£145,271.22	1.98
M42 Southbound Merge Slip at Junction 5A	£432,462.00	£149,312.56	2.90
New Junction 5A	£288,308.00	£132,764.32	2.17
New Mainline Link Road	£288,308.00	£457,459.58	0.63
Barber's Coppice Roundabout	£288,308.00	£130,264.18	2.21
Merge Slip from Barber's Coppice Roundabout to proposed Mainline Link	£144,154.00	£108,405.87	1.33
Realigned B4438 Catherine-de-Barnes Lane	£144,154.00	£161,078.74	0.89
Catherine-de-Barnes Lane North Overbridge	£144,154.00	£50,486.64	2.86
Bickenhill Roundabout	£144,154.00	£93,955.22	1.53
Diverge Slip from proposed Mainline link to Bickenhill Roundabout	£144,154.00	£74,908.13	1.92
Clock Interchange left only lane	£144,154.00	£33,688.19	4.28
Segregated Left Turn Lane to A45 West	£288,308.00	£106,138.15	2.72
Clock Interchange	£288,308.00	£152,597.77	1.89
A45E to M42N Free Flow Link, M42 Northbound Merge Slip for Junction 6	£432,462.00	£240,819.19	1.80
M42 Southbound Diverge Slip for Junction 6	£432,462.00	£182,944.21	2.36
M42 Southbound Diverge to proposed East Way Roundabout	£288,308.00	£140,673.65	2.05
<b>Key</b>			
	BCR less than 2.0		
	BCR greater than or equal to 2.0		

## 6 Analysis of BCR Results and Additional Considerations

6.1.1 An analysis of the BCR results for each section evaluated is shown in Table 4.

**Table 4 - BCR Results Analysis**

Section	BCR Result	Analysis
Full scheme	1.60	The BCR result is below 2 for the full scheme to be illuminated. Therefore, it is not considered economically justifiable to install street lighting across the whole scheme against PIAs saved per year.
M42 Northbound Diverge Slip at Junction 5A	1.98	The M42 Northbound Diverge Slip for the proposed Junction 5A is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
M42 Southbound Merge Slip at Junction 5A	2.90	The M42 Southbound Merge Slip for the proposed Junction 5A is analysed separately and generated a BCR value of 2.90. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.
New Junction 5A	2.17	The dumbbell arrangement at the proposed Junction 5A is analysed separately and generated a BCR value of 2.17. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.
New Mainline Link Road	0.63	The link between the proposed Junction 5A and Clock Interchange is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.

Section	BCR Result	Analysis
Barber's Coppice Roundabout	2.21	The roundabout arrangement named Barber's Coppice Roundabout is analysed separately and generated a BCR value of 2.21. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.
Merge Slip from Barber's Coppice Roundabout to proposed Mainline Link	1.33	The merge slip from Barber's Coppice Roundabout to the New Mainline Link road is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
Realigned B4438 Catherine de Barnes Lane	0.89	The realigned Catherine-de-Barnes Lane is analysed separately and generated a BCR value below 1. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
Catherine-De-Barnes Lane North Overbridge	2.86	The Catherine-de-Barnes Lane North overbridge realignment is analysed separately and generated a BCR value of 2.86. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.
Bickenhill Roundabout	1.53	The proposed Bickenhill Roundabout is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
Diverge Slip from New Mainline link to Bickenhill Roundabout	1.92	The proposed diverge slip from the Mainline link to Bickenhill Roundabout is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
Clock Interchange left only lane	4.28	The left hand only lane at Clock Interchange is analysed separately and generated a BCR value of 4.28. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.

Section	BCR Result	Analysis
Segregated Left Turn Lane to A45 West	2.72	The segregated A45 West Lane is analysed separately and generated a BCR value of 2.72. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.
Clock Interchange	1.89	The roundabout arrangement at the Clock Interchange is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
A45E to M42N Free Flow Link, M42 Northbound Merge Slip for Junction 6	1.80	The M42 northbound merge slip road for Junction 6 is analysed separately and generated a BCR value below 2. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
M42 Southbound Diverge Slip for Junction 6	2.36	The M42 southbound diverge slip road for Junction 6 is analysed separately and generated a BCR value of 2.36. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.
M42 Southbound Diverge to the proposed East Way Roundabout	2.05	The proposed Easy Way roundabout arrangement is analysed separately and generated a BCR value of 2.05. This is considered a high BCR score and highlights that street lighting would be economically justifiable along this length of the highway.

## 7 Environmental and Social Impact Assessment

- 7.1.1 The BCR assessment of the street lighting design is a purely economic analysis and does not consider the social and environmental impact of implementing street lighting in detail. This section of the report provides an analysis of these two aspects to ensure the design is as sustainable as possible
- 7.1.2 The proposed mainline link road is designed in deep cutting to reduce the visual impact of the scheme on the green belt. The road is located in close proximity to the settlements of Bickenhill and Catherine-de-Barnes. These are both small villages in the district of Solihull located within the green belt around Birmingham. Although these villages are a short distance from the highly populated West Midlands conurbation they have characteristics of rural settlements. Therefore, the inclusion of street lighting along the proposed mainline link for the Scheme could have a major social and environmental impact from the light pollution produced. This can be 'Obtrusive Light' or 'Sky Glow' as specified in Guidance Notes for the Reduction of Obtrusive Light GN01 (2011).
- 7.1.3 To mitigate light pollution, the street lighting design will include the following aspects from Guidance Notes for the Reduction of Obtrusive Light GN01 (2011):
- Appropriate products are chosen and their location will reduce spill light and keep glare to a minimum.
  - Low mounting heights will be selected to allow lower main beam angles, which will assist in reducing glare.
  - The use of full horizontal cut off luminaires installed at 0° uplift will help minimise visual intrusion within the open landscape and reduce Sky Glow in the surrounding area.
- 7.1.4 In accordance with the guidance in Bat Conservation Trust (2014), *Artificial lighting and wildlife Interim Guidance: Recommendations to help minimise the impact artificial of lighting*, and Bat Conservation Trust and Institution of Lighting Engineers (2009), *Bats and Lighting in the UK Bats and the Built Environment Series*, the design of lighting will minimise light-spill onto adjacent habitats, including potential roosts and important foraging or commuting habitat that is regularly used by the local bat population. In general, the sensitive design of lighting with regard to bats will be achieved through a combination of the following measures:
- Avoiding unnecessary lighting.
  - The use of low mounting height and/or shielded lamps to minimise light-spill, where possible.
  - Application of low-intensity lighting, where possible.

## 8 Conclusions and Recommendations

8.1.1 The conclusions of the assessments are shown in Table 5.

**Table 5 - Conclusions**

Section	Conclusions & Recommendations
<b>Full scheme</b>	Street lighting not reasonably justifiable for the full scheme when analysed as a whole. However, lighting of some elements of the Scheme can be justified individually. Below is a breakdown of each section of the scheme to analyse whether street lighting is applicable in certain key areas.
<b>M42 Northbound Diverge Slip at Junction 5A</b>	The M42 is currently illuminated along the mainline at this location however the BCR highlights street lighting is not justifiable for the slip road. Despite the low BCR, it is recommended that the junction is illuminated to maintain continuity of road users' driving experience. Lighting in this location was considered to be environmentally acceptable.
<b>M42 Southbound Merge Slip at Junction 5A</b>	The M42 is currently illuminated along the mainline at this location and the BCR highlights street lighting is justifiable for the slip road. Therefore, it is recommended that this section of the highway is illuminated. Lighting in this location was considered to be environmentally acceptable.
<b>New Junction 5A</b>	Street lighting is justifiable for the proposed Junction 5A from the BCR analysis. Therefore, it is recommended that this section of the highway is illuminated. Lighting in this location was considered to be environmentally acceptable.
<b>New Mainline Link Road</b>	Street lighting is not reasonably justifiable for the mainline link road from the BCR analysis. Nor would it be environmentally acceptable.
<b>Barber's Coppice Roundabout</b>	Street lighting is justifiable for the roundabout from the BCR analysis. Therefore, it is recommended that this section of the highway is illuminated. Lighting in this location was considered to be environmentally acceptable.
<b>Merge Slip from Barber's Coppice Roundabout to the new mainline link</b>	Street lighting is not reasonably justifiable for the slip road from the BCR analysis. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.
<b>Realigned B4438 Catherine- de-Barnes Lane</b>	Street lighting not reasonably justifiable for the realigned road from the BCR analysis. Therefore, it is not considered economically justifiable to install street lighting against PIAs saved per year.

<p><b>Catherine-de-Barnes Lane North Overbridge</b></p>	<p>Street lighting is justifiable for the realignment over the structure from the BCR analysis. However, it is recommended that this section of the highway is not illuminated as the surrounding lanes are not lit, so there would be a negative environmental impact, and there is minimal traffic along this section of highway.</p>
<p><b>Bickenhill Roundabout</b></p>	<p>Street lighting is not reasonably justifiable for the roundabout from the BCR analysis and also will have a negative environmental and social impact. Therefore, it is not considered justifiable to install street lighting against PIAs saved per year. This is further reinforced by the proximity of the Airport Safeguarding Zone in this area which is sited at ground level as noted in Sections 2.1.12 and 2.1.13.</p>
<p><b>Diverge Slip from proposed mainline link to Bickenhill Roundabout</b></p>	<p>Street lighting not reasonably justifiable for the slip road from the BCR analysis and also will have a negative environmental and social impact. Therefore, it is not considered justifiable to install street lighting against PIAs saved per year.</p>
<p><b>Clock Interchange left only lane</b></p>	<p>Street lighting is justifiable for the left only lane from the BCR analysis. Therefore, it is recommended that this section of the highway is illuminated. Lighting in this location was considered to be environmentally acceptable.</p>
<p><b>Segregated Left Turn Lane to A45 West</b></p>	<p>The A45 is currently illuminated along the mainline at this location and the BCR highlights street lighting is justifiable for the new lane. It is recommended that the lane is illuminated for these reasons. Lighting in this location was considered to be environmentally acceptable.</p>
<p><b>Clock Interchange</b></p>	<p>The A45 is currently illuminated along the mainline at this location however the BCR highlights street lighting is not justifiable for the interchange. Despite the low BCR, it is recommended that the junction is illuminated to maintain continuity of road users driving experience. Lighting in this location was considered to be environmentally acceptable.</p>
<p><b>A45E to M42N Free Flow Link, M42 Northbound Merge Slip for Junction 6</b></p>	<p>Street lighting is justifiable for the slip road from the BCR analysis. Therefore, it is recommended that this section of the highway is illuminated. Lighting in this location was considered to be environmentally acceptable.</p>



<p><b>M42 Southbound Diverge Slip for Junction 6</b></p>	<p>The M42 is currently illuminated along the mainline at this location however the BCR highlights street lighting is not justifiable for the slip road. Despite the low BCR, it is recommended that the junction is illuminated to maintain continuity of road users' driving experience. Lighting in this location was considered to be environmentally acceptable.</p>
<p><b>M42 Southbound Diverge Slip to proposed East Way Roundabout</b></p>	<p>Street lighting is justifiable for the roundabout from the BCR analysis and it is connected to the M42 J6 slip which is also proposed to be illuminated. Therefore, it is recommended that this section of the highway is illuminated. Lighting in this location was considered to be environmentally acceptable.</p>

8.1.2 An environmental impact assessment of the outcomes of this street lighting design was undertaken and is included in the Environmental Statement Chapter 8, titled Landscape.

8.1.3 Due to the proportion of PIAs saved by street lighting being installed across the full Scheme, it is not justifiable to light the whole scheme. Therefore, the BCR values for separate locations across the scheme were analysed. This highlighted the following locations justify the implementation of street lighting:

- M42 Southbound Merge Slip at Junction 5A/
- New Junction 5A.
- Barber's Coppice Roundabout.
- Clock Interchange left only lane.
- Segregated Left Turn Lane to A45 West.
- M42 Southbound Diverge Slip for Junction 6.
- M42 Southbound Diverge to proposed East Way Roundabout.

8.1.4 The following locations gave a BCR score below 2 but have been recommended to be illuminated to meet the Standard requirements and to maintain road users driving experience:

- A45E to M42N Free Flow Link, M42 Northbound Merge Slip for Junction 6.
- M42 Northbound Diverge Slip at Junction 5A.
- Clock Interchange.

8.1.5 The following locations are not required to be illuminated from this assessment, either for economic or environmental reasons:

- New Mainline link road
- Catherine-de-Barnes Lane North Overbridge



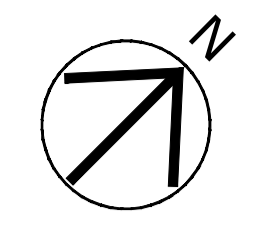
- Realigned B4438 Catherine-de-Barnes
- Bickenhill Roundabout
- Merge slip from Barber's Coppice Roundabout to the new mainline link road
- Diverge slip from the new mainline link to Bickenhill Roundabout

## **Appendix A – Preliminary Street Lighting Design for full scheme**



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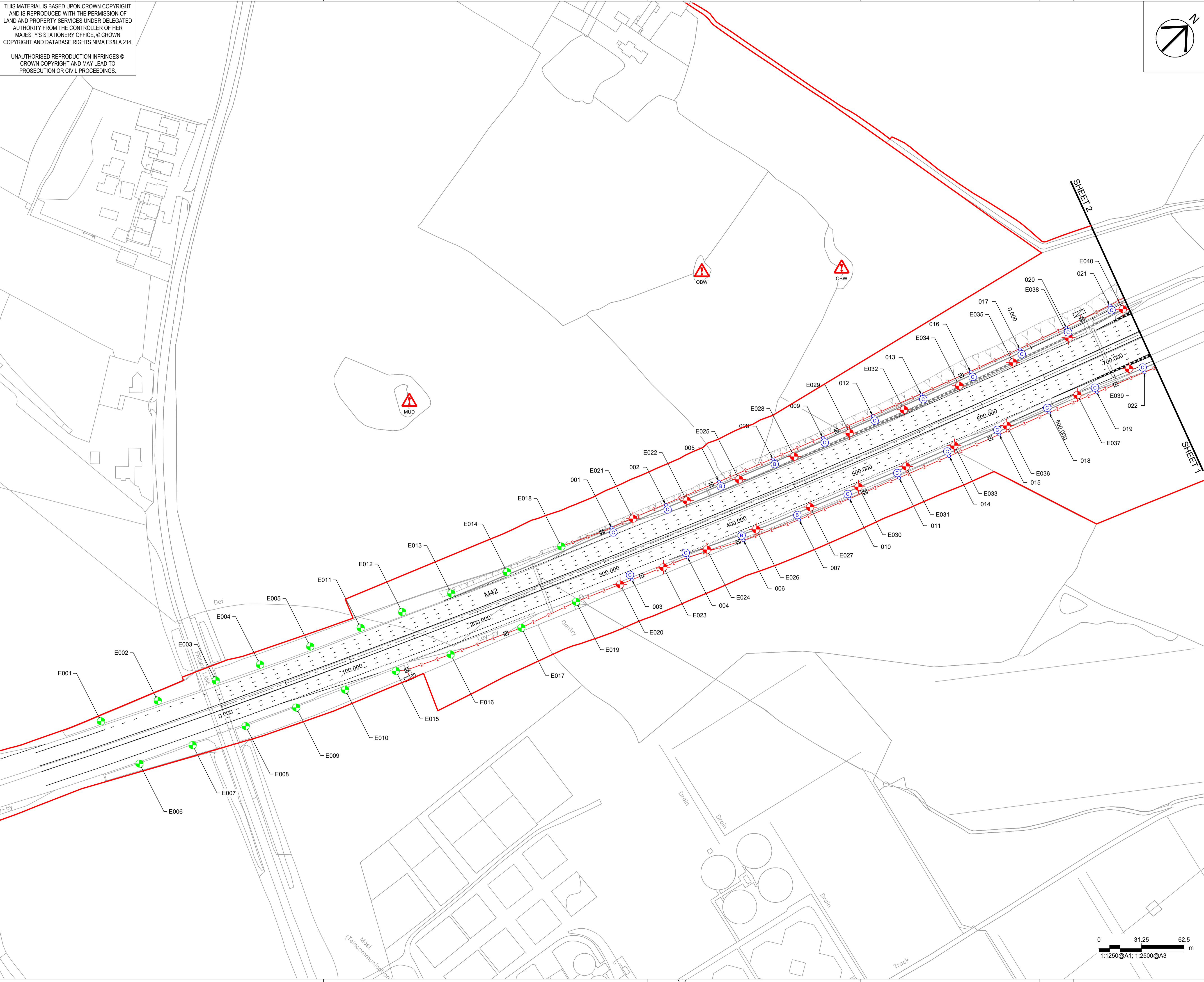
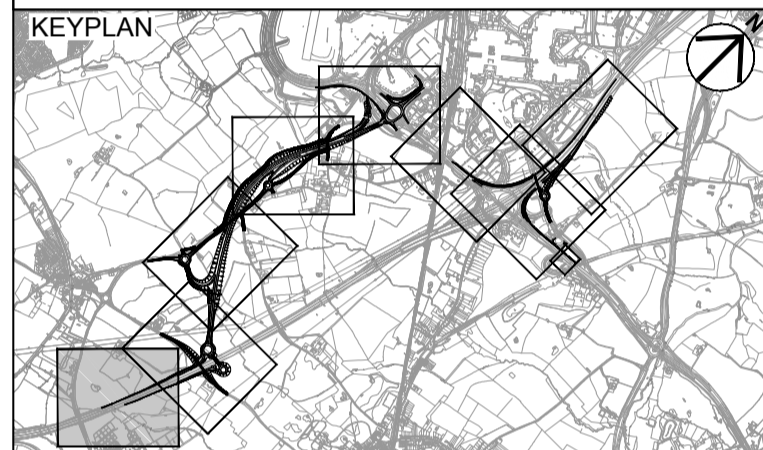


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WORKING IN PROXIMITY TO EXTREMELY SOFT GROUND
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Project Title:  
**M42 JUNCTION 6**

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**ROAD LIGHTING SHEET 1 OF 8**

Designed	Drawn	Checked	Approved	Date
LMT	LM	SR	JF	11/03/19

Internal Project No.: 60543032  
Scale @ A1: 1:1250  
Zone: M42

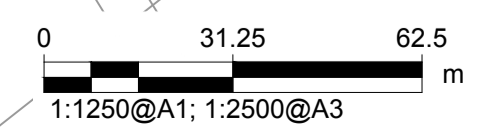
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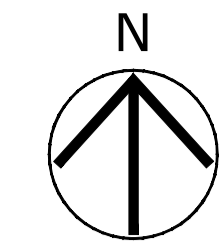


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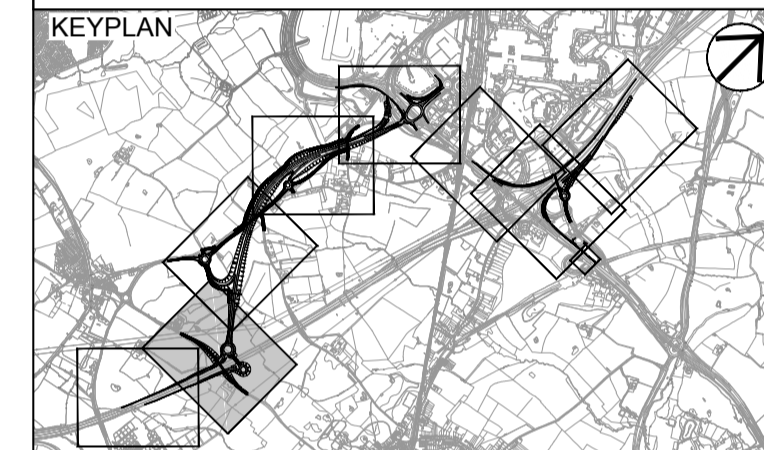
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**M42 JUNCTION 6**

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**ROAD LIGHTING SHEET 2 OF 8**

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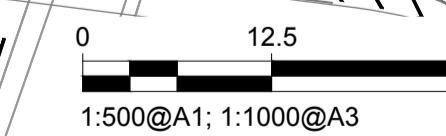
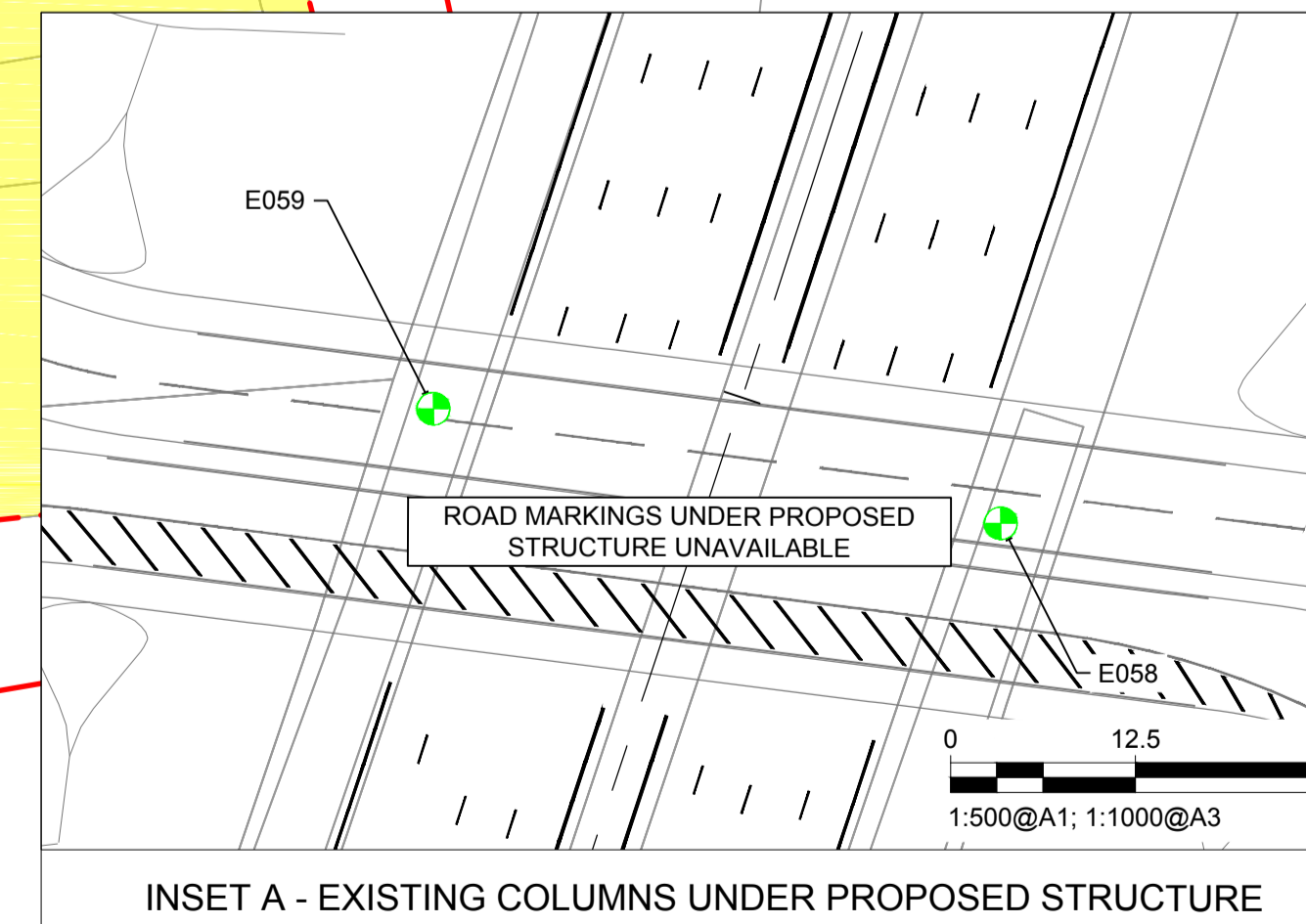
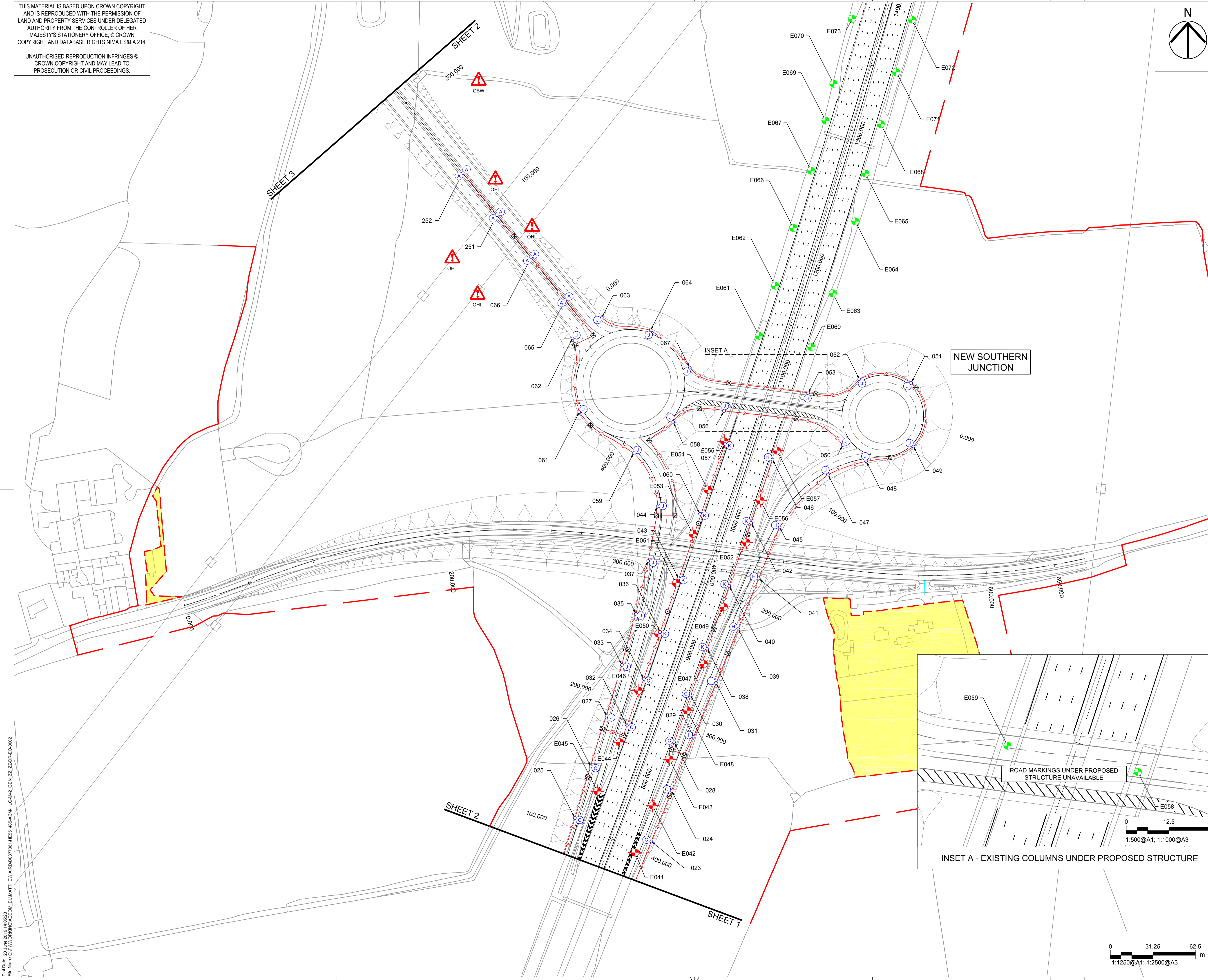
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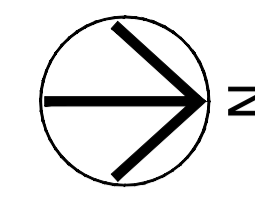


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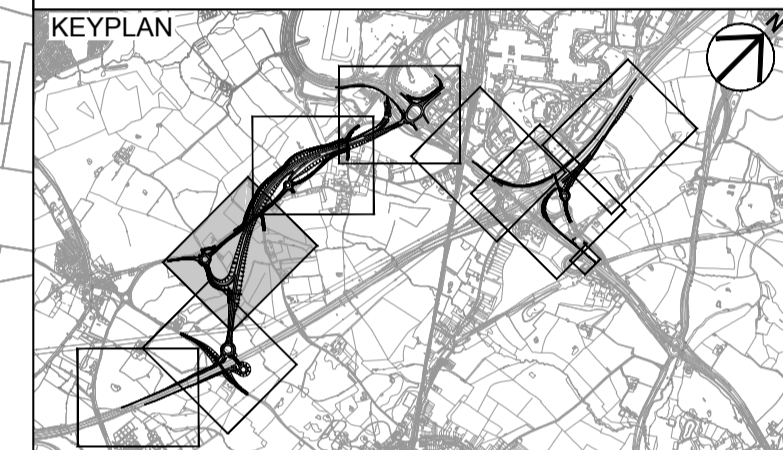
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Internal Project No. 60543032	Suitability S4			
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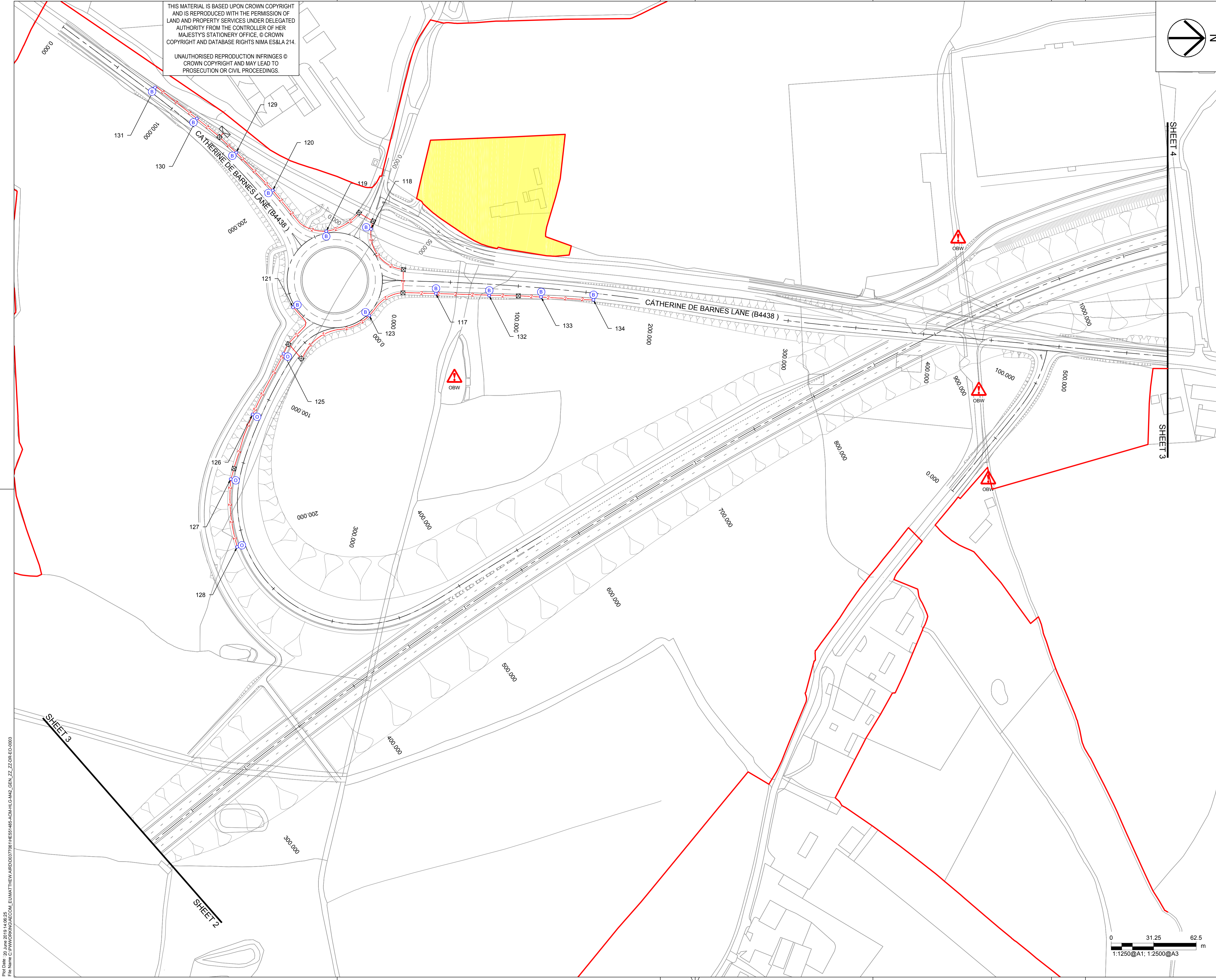
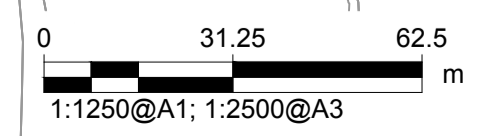
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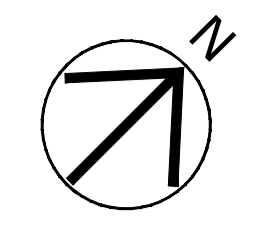
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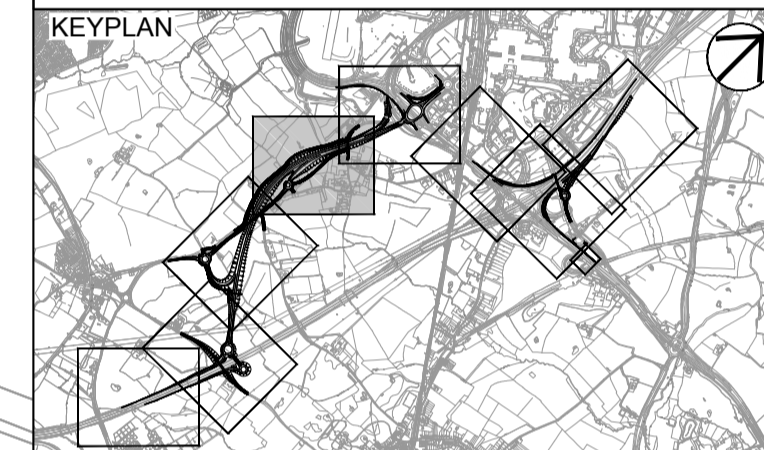
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LMT	LM	SR	JF	11/03/19
Internal Project No.	Suitability			
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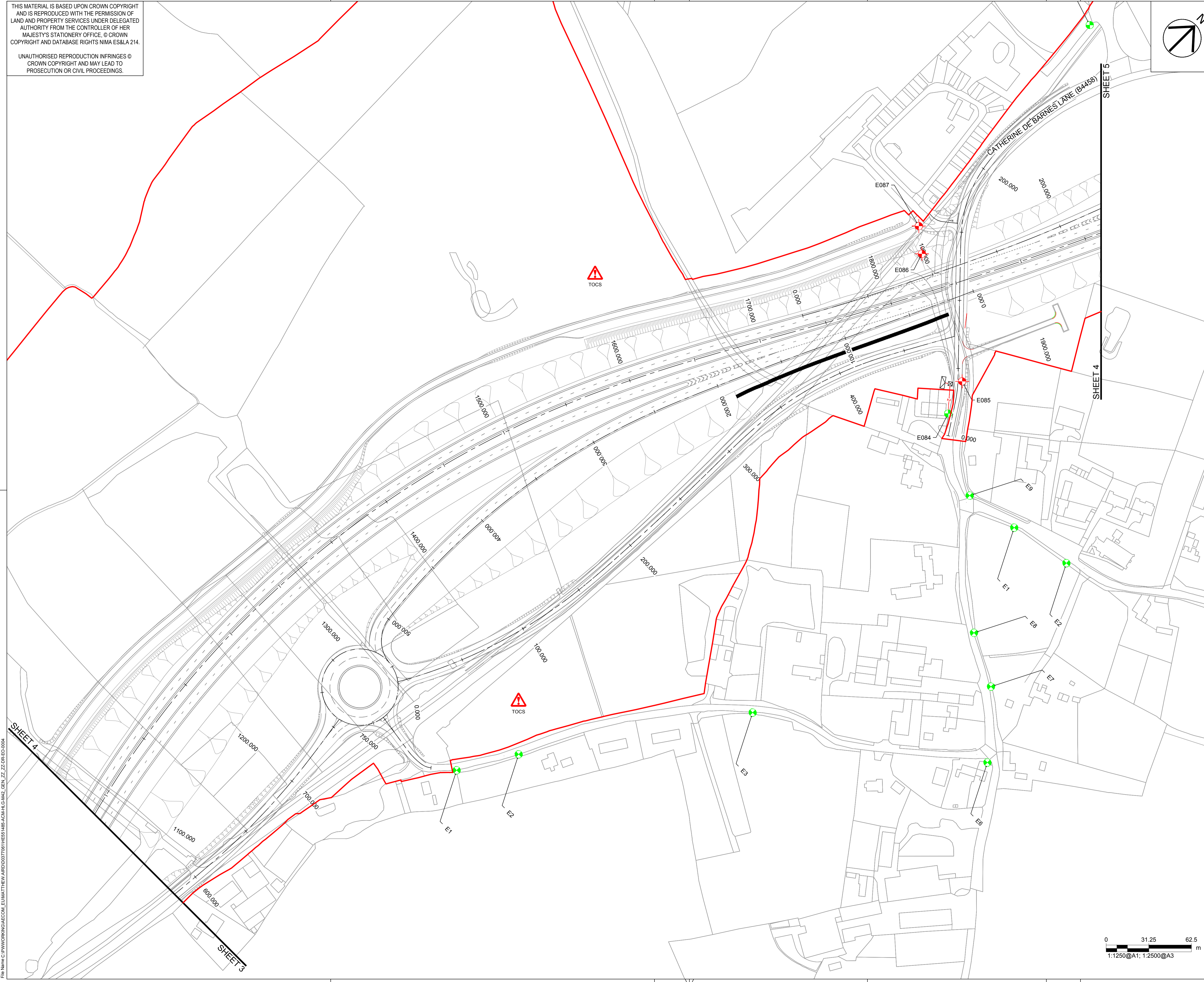
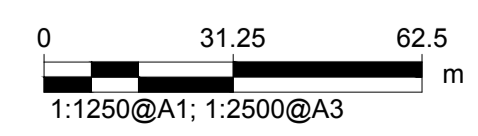
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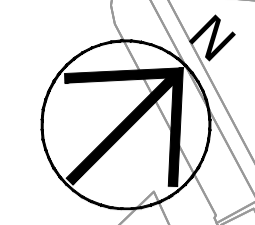


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**CONSTRUCTION**  
WORKING IN PROXIMITY TO OPEN BODY OF WATER  
WORKING IN PROXIMITY TO HIGH VOLTAGE CABLE

**MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION**  
WORKING IN PROXIMITY TO OPEN BODY OF WATER  
WORKING IN PROXIMITY TO HIGH VOLTAGE CABLE

- NOTES**
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  5. FOR LEGEND INFORMATION SEE DRAWING HE551485-ACM-HLG-M42\_GEN\_ZZ\_ZZ-DR-EO-0009.
  6. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH HE551485-ACM-HLG-M42\_SW\_ZZ\_ZZ-RP-EO-0001 AND HE551485-ACM-HLG-M42\_SW\_ZZ\_ZZ-RP-EO-0002.
  7. INSTALLATION OF PHILIPS LUMA LUMINAIRES SHOULD FOLLOW THE CHE MEMORANDUM 421/18 SAFEGUARDING FIX WITH THE PROPOSED METAL BANDING AND STAINLESS STEEL LANYARD SYSTEM.



Revision Details	By	Check	Date	Suffix
ISSUED FOR DF3B	JL	SR	27/03/18	P01
ISSUED FOR FINAL DF3B	JL	SR	21/06/18	P02
UPDATED AS PER INTERNAL REVIEW	JL	JF	06/10/18	P03
ISSUED FOR REVIEW AND COMMENT	JJO	JF	26/01/19	P04
ISSUED FOR APPROVAL	LM	JF	12/03/19	P05

**FOR STAGE APPROVAL**

Client: Highways England  
Floor 5  
Two Colmore Square  
38 Colmore Circus  
B4 6BN

Working on behalf of **highways england**

**M42 JUNCTION 6**

**ROAD LIGHTING SHEET 5 OF 8**

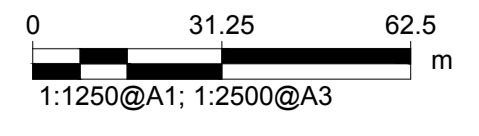
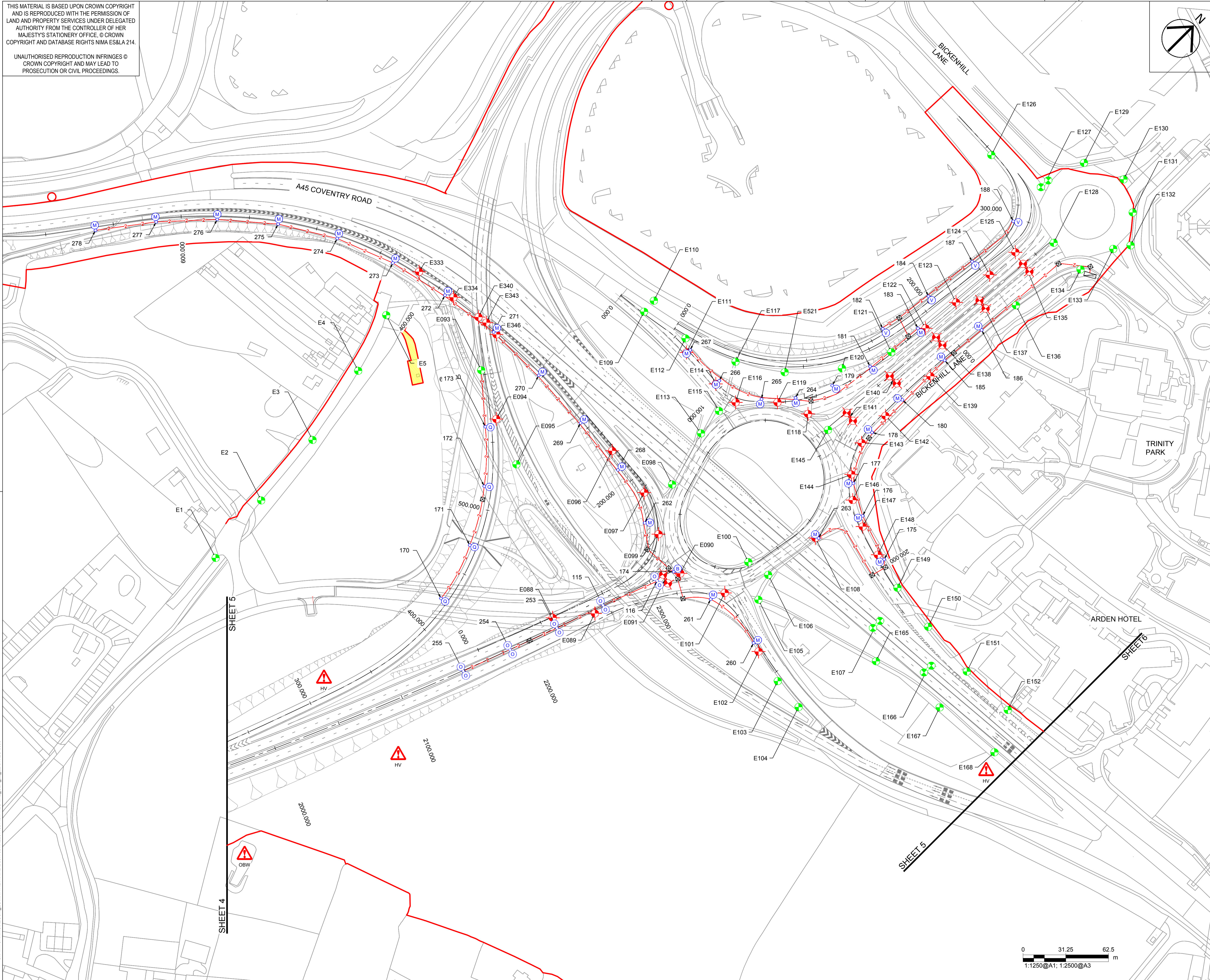
Designed	Drawn	Checked	Approved	Date
LMT	LM	SR	JF	11/03/19
Internal Project No.	Suitability			
60543032	S4			
Scale @ A1	Zone			
1:1250	M42			

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Registered office: Scott House, Alencon Link,  
Basingstoke, Hampshire RG21 7YP

Drawing Number	1 Originator	1 Volume	Rev
HE551485 -ACM -HLG -			P05
M42_GEN_ZZ_ZZ-DR-EO-0005			
Location	I Type	I Role	I Number

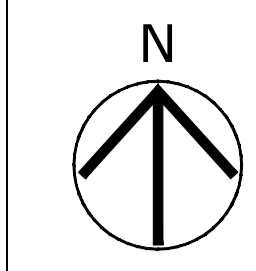


Plot Date: 20 June 2019 14:16:10  
 File Name: C:\P\WORKING\AECOM\_EU\MATTHEW.HARDY\03708\HE551485-ACM-HLG-M42\_GEN\_ZZ\_ZZ-DR-EO-0005



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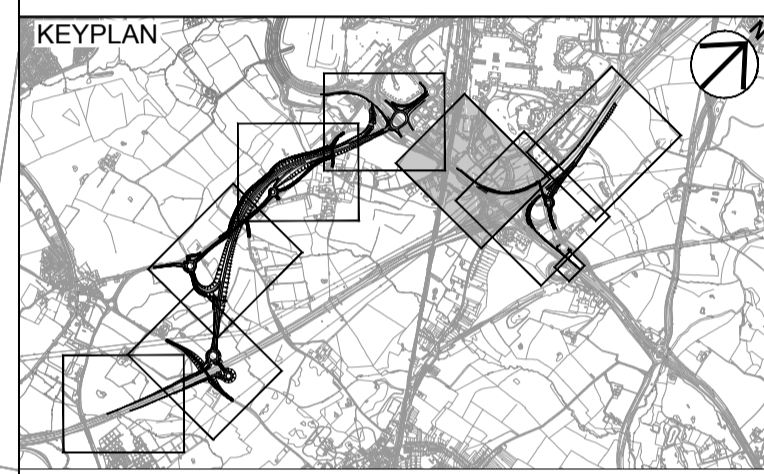
EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

**CONSTRUCTION**  
WORKING IN PROXIMITY TO OVERHEAD LINES

**MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION**  
WORKING IN PROXIMITY TO OVERHEAD LINES

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- INSTALLATION OF PHILIPS LUMA LUMINAIRES SHOULD FOLLOW THE CHE MEMORANDUM 42/1/18 SAFEGUARDING FIX WITH THE PROPOSED METAL BANDING AND STAINLESS STEEL LANYARD SYSTEM.



Issued For	By	Check	Date	Suffix
ISSUED FOR DF3B	JL	SR	27/03/18	P01
ISSUED FOR FINAL DF3B	JL	JF	21/06/18	P02
UPDATED AS PER INTERNAL REVIEW	JL	JF	28/01/19	P03
ISSUED FOR APPROVAL	LM	JF	12/03/19	P04

**FOR STAGE APPROVAL**

Client: Highways England  
 Floor 5  
 Two Colmore Square  
 38 Colmore Circus  
 B4 6BN

Working on behalf of

Project Title: **M42 JUNCTION 6**

Drawing Title: **ROAD LIGHTING SHEET 6 OF 8**

Designed	Drawn	Checked	Approved	Date
LMT	LM	SR	JF	11/03/19

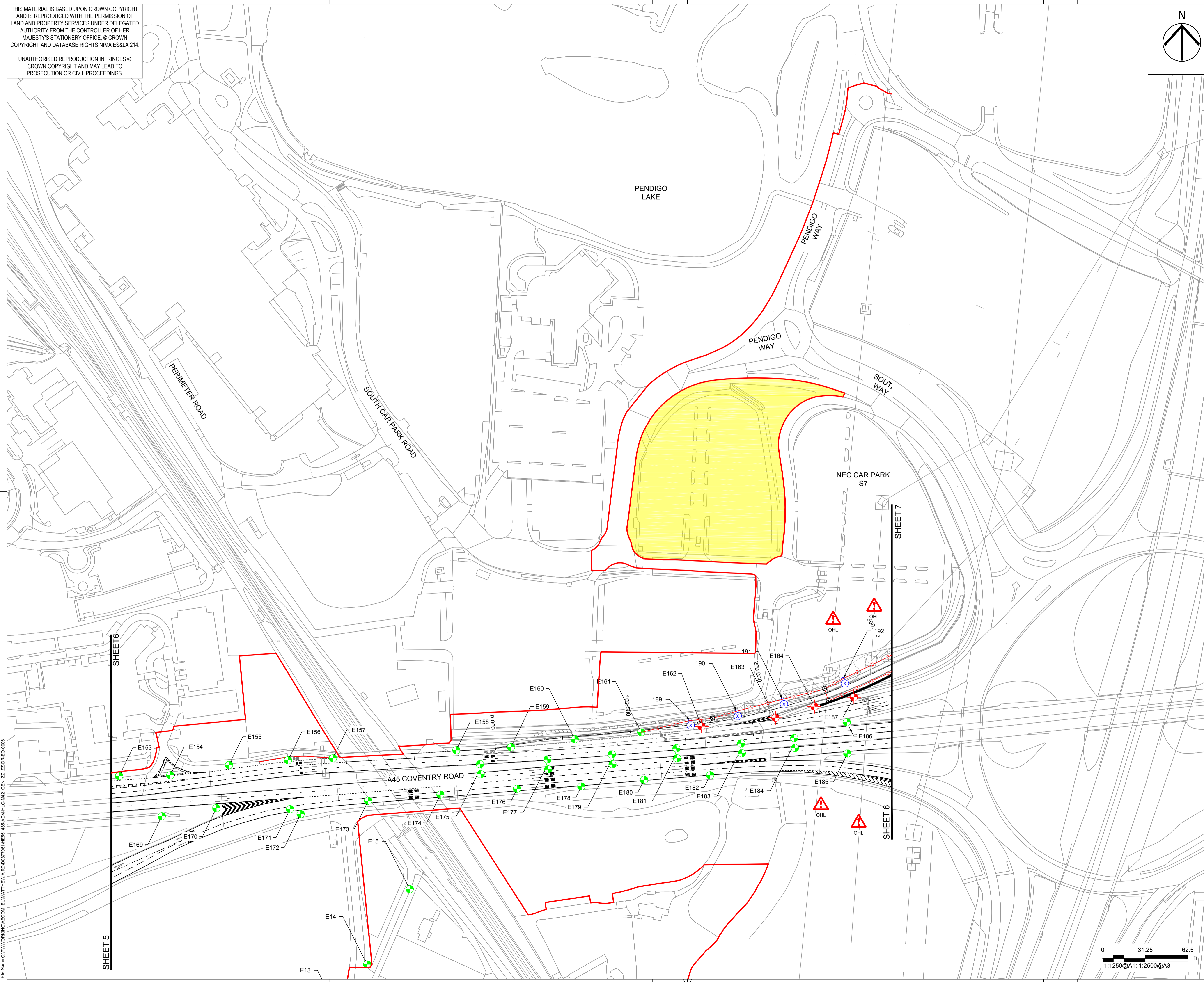
Internal Project No. 60543032  
 Scale @ A1: 1:1250  
 Suitability: S4  
 Zone: M42

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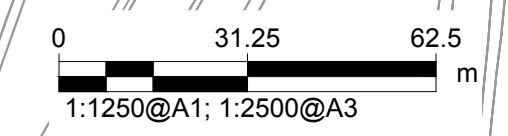
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Drawing Number	Highways England PIN	Originator	Volume	Rev
HE551485 -ACM -HLG -				P04
M42_GEN_ZZ_ZZ -DR-EO-0006				
Location	I Type	I Role	I Number	



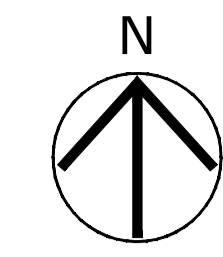
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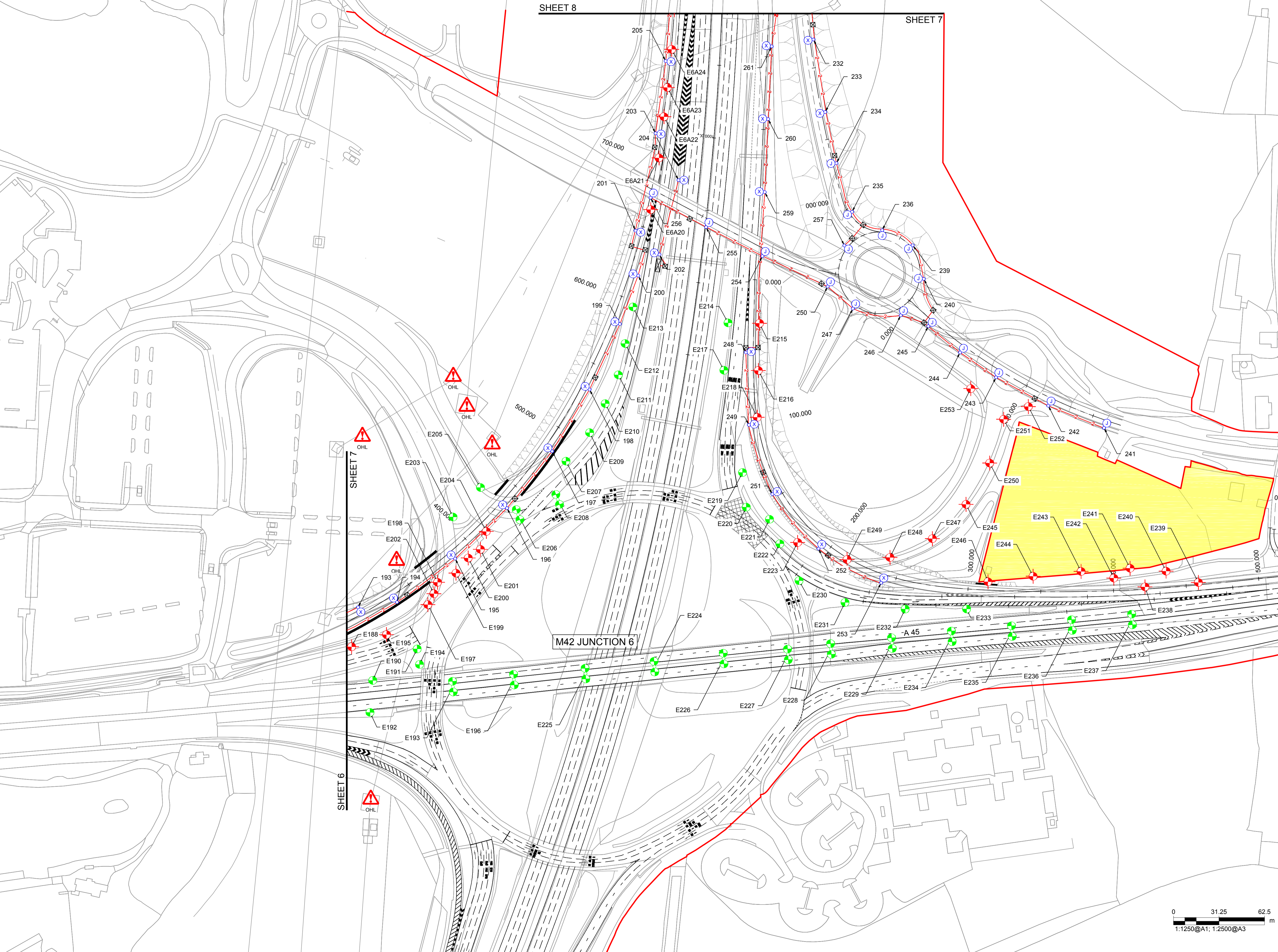
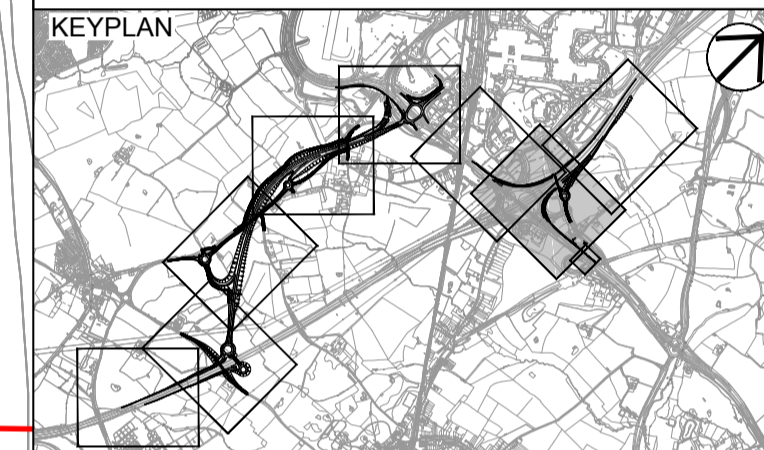
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**CONSTRUCTION**  
WORKING IN PROXIMITY TO OVERHEAD LINES

**MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION**  
WORKING IN PROXIMITY TO OVERHEAD LINES

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6. THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH HE551485-ACM-HLG-M42\_SW\_ZZ\_ZZ-RR-EO-0001 AND HE551485-ACM-HLG-M42\_SW\_ZZ\_ZZ-RR-EO-0002.
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Revision Details	By	Check	Date	Suffix
ISSUED FOR DF3B	JL	SR	27/03/18	P01
ISSUED FOR FINAL DF3B	JL	JF	21/06/18	P02
UPDATED AS PER INTERNAL REVIEW	JL	JF	26/01/19	P03
ISSUED FOR APPROVAL	LM	JF	12/03/19	P04

**FOR STAGE APPROVAL**

Client: Highways England  
Working on behalf of highways england  
Floor 5  
Two Colmore Square  
38 Colmore Circus  
BA 4 6BN

**M42 JUNCTION 6**

**ROAD LIGHTING SHEET 7 OF 8**

Designed	Drawn	Checked	Approved	Date
LMT	LM	SR	JF	11/03/19

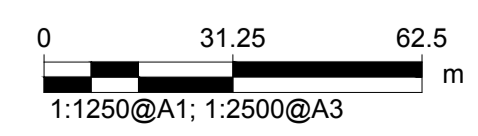
Internal Project No. 60543032  
Scale @ A1 1:1250  
Zone M42

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Drawing Number	Highways England PIN	1 Originator	1 Volume	Rev
HE551485 -ACM -HLG -	M42_GEN_ZZ_ZZ -DR-EO-0007			P04

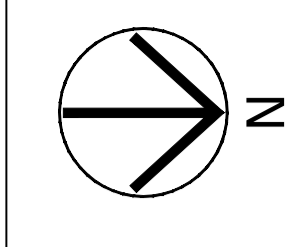


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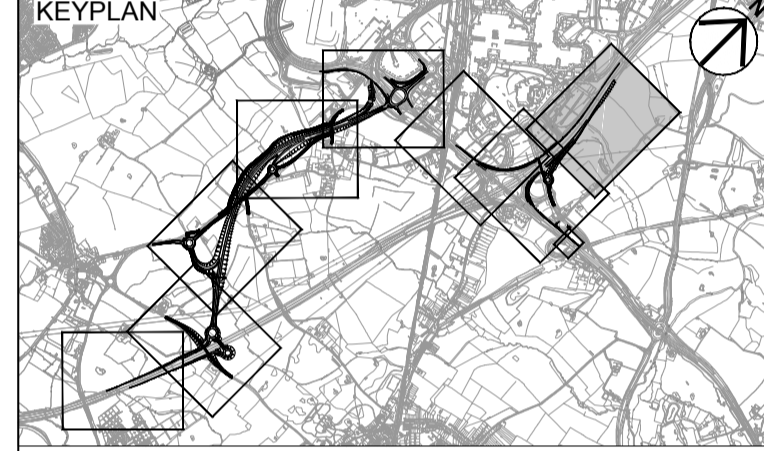
**CONSTRUCTION**

WORKING IN PROXIMITY TO OVERHEAD LINES  
WORKING IN PROXIMITY TO OPEN BODY OF WATER

**MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION**

WORKING IN PROXIMITY TO OVERHEAD LINES  
WORKING IN PROXIMITY TO OPEN BODY OF WATER

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Revision Details		By	Date	Suffix
ISSUED FOR DF3B	JL	SR	27/03/18	P01
ISSUED FOR FINAL DF3B	JL	JF	21/06/18	P02
UPDATED AS PER INTERNAL REVIEW	JL	JF	28/01/19	P03
ISSUED FOR APPROVAL	LM	JF	12/03/19	P04

**FOR STAGE APPROVAL**

Client  
Highways England  
Floor 5  
Two Colmore Square  
38 Colmore Circus  
B4 6BN

Working on behalf of  
**highways england**

Project Title  
**M42 JUNCTION 6**

Drawing Title  
**ROAD LIGHTING SHEET 8 OF 8**

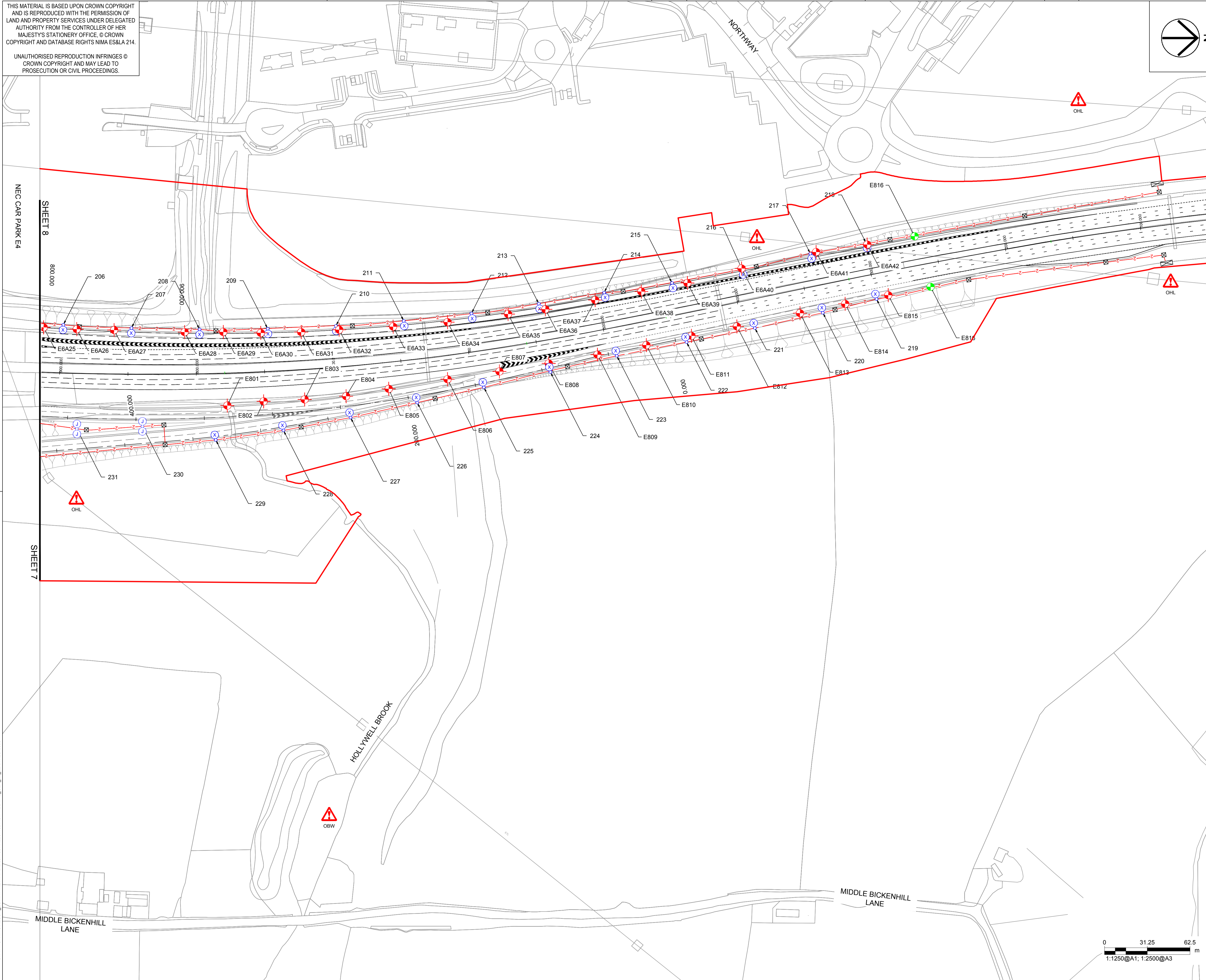
Designed	Drawn	Checked	Approved	Date
LM	LM	SR	JF	11/03/19
Internal Project No.	Suitability			
60543032	S4			
Scale @ A1	Zone			
1:1250	M42			

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Drawing Number	Highways England PIN	Originator	Volume	Rev
HE551485 -ACM -HLG -				P04
M42_GEN_ZZ_ZZ -DR-EO-0008				
Location	Type	Role	Number	



Plot Date: 20 June 2019 14:17:34  
 File Name: C:\P\WORKING\AECOM\_E\MAIN\THEV\HARD\037081HE551485-ACM-HLG-M42\_GEN\_ZZ\_ZZ-DR-EO-0008



**KEY**

EXISTING LIGHTING COLUMN AND LUMINAIRE TO BE REMOVED TO TIP.

EXISTING TWIN ARM LIGHTING COLUMN AND LUMINAIRES TO BE REMOVED TO TIP.

EXISTING LIGHTING COLUMN TO REMAIN UNAFFECTED BY WORKS.

EXISTING TWIN LIGHTING COLUMN TO REMAIN UNAFFECTED BY WORKS.

PROPOSED HIGHWAYS ENGLAND THREE PHASE FEEDER PILLAR.

PROPOSED HIGHWAYS ENGLAND EXISTING FEEDER PILLAR.

PROPOSED SMBC SINGLE PHASE FEEDER PILLAR.

PROPOSED DUCTING CHAMBER.

TRENCH AND INSTALL CABLE IN ORANGE 100mm TWIN WALL SMOOTH BORE FLEXIBLE PVC DUCT (IN-LINE NUMBER INDICATES QUANTITY OF DUCTS TO BE INSTALLED).

HAZARD WARNING:  
 OHL - OVERHEAD LINES  
 OBW - OPEN BODY OF WATER  
 TOCS - TAKE OFF CLIMB SURFACE  
 HV - HIGH VOLTAGE CABLE  
 MUD - EXTREMELY SOFT GROUND

LIMITS OF LAND TO BE ACQUIRED OR USED PERMANENTLY OR TEMPORARILY (THE ORDER LIMITS).

LAND NOT INCLUDED WITHIN THE ORDER LIMITS.

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 15m NOMINAL HEIGHT. INSTALL 2NO PHILIPS LUMA 3 BGP627 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DW10  
 KLM: 45.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 15m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 3 BGP627 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DW10  
 KLM: 50.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 15m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 3 BGP627 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DW10  
 KLM: 55.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 2 BGP625 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DS50  
 KLM: 35.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 2 BGP625 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DS50  
 KLM: 36.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 2NO PHILIPS LUMA 2 BGP625 200LEDS NEUTRAL WHITE LUMINAIRES AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: SIDE ENTRY  
 OPTIC: DS50  
 KLM: 36.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 15m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 2 BGP625 200 LE DS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DW10  
 KLM: 30.00

PROPOSED SMBC PLANTED ROOT FOLDED TUBULAR STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO HOLOPHANE VMAX L184 F4Q1 NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: V5  
 KLM: 19.19

PROPOSED HIGHWAYS ENGLAND FLANGE PLATED FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT FIXED TO CONCRETE SAFETY BARRIER. INSTALL 2NO PHILIPS LUMA 1 BGP623 200LED NEUTRAL WHITE LUMINAIRES AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: SIDE ENTRY  
 OPTIC: DM31  
 KLM: 20.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 1 BGP623 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DM31  
 KLM: 20.00

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 1 BGP623 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DM31  
 KLM: 22.00

PROPOSED SMBC PLANTED ROOT TUBULAR STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO HOLOPHANE VMAX L294 D4D4 NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: V8  
 KLM: 29.41

PROPOSED HIGHWAYS ENGLAND PLANTED ROOT FOLDED SHEET STEEL LIGHTING COLUMN OF 12m NOMINAL HEIGHT. INSTALL 1NO PHILIPS LUMA 2 BGP625 200LEDS NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: DW10  
 KLM: 37.00

PROPOSED SMBC PLANTED ROOT TUBULAR STEEL LIGHTING COLUMN OF 10m NOMINAL HEIGHT. INSTALL 1NO HOLOPHANE VMAX L184 L2Q1 NEUTRAL WHITE LUMINAIRE AT 0° TILT. EACH LUMINAIRE WITH C/W CMS ENABLED DRIVER. TERMINATE CABLES IN ISOLATOR AT THE BASE OF COLUMN.  
 MOUNTING: POST TOP  
 OPTIC: V5  
 KLM: 16.21

**SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION BOX**

IT IS ASSUMED THAT ALL WORKS ON THIS DRAWING WILL BE CARRIED OUT BY A COMPETENT CONTRACTOR WORKING, WHERE APPROPRIATE, TO AN APPROPRIATE METHOD STATEMENT.

THIS DRAWING IS TO BE USED ONLY FOR THE PURPOSE OF ISSUE THAT IT WAS ISSUED FOR AND IS SUBJECT TO AMENDMENT.

EXCEPTIONAL RISKS RELATING TO THE WORKS ASSOCIATED WITH THIS DRAWING ARE IDENTIFIED BELOW.

**CONSTRUCTION**

NOT APPLICABLE

**MAINTENANCE / OPERATION / DECOMMISSIONING / DEMOLITION**

NOT APPLICABLE

**NOTES**

- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DRAWINGS, ANY DISCREPANCIES, ERRORS OR OMISSIONS TO BE BROUGHT TO THE ATTENTION OF THE DESIGNER.
- CABLE/DUCTING ROUTES AND CHAMBER LOCATIONS ARE INDICATIVE AND SHALL BE DEVELOPED FOLLOWING DETAILED DESIGN ELECTRICAL CALCULATIONS.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
- DO NOT SCALE FROM THIS DRAWING, USE ONLY PRINTED DIMENSIONS.
- ALL DIMENSIONS IN METRES, ALL CHAINAGES, LEVELS AND COORDINATES ARE IN METRES UNLESS DEFINED OTHERWISE.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE PROJECT HEALTH & SAFETY FILE FOR ANY IDENTIFIED POTENTIAL RISKS.
- THIS DRAWING SHOULD BE READ IN CONJUNCTION WITH HE551485-ACM-HLG-M42\_SW\_ZZ\_ZZ-RP-EO-0001 AND HE551485-ACM-HLG-M42\_SW\_ZZ\_ZZ-RP-EO-0002.
- INSTALLATION OF PHILIPS LUMA LUMINAIRES SHOULD FOLLOW THE CHE MEMORANDUM 420/18 SAFEGUARDING FIX WITH THE PROPOSED METAL BANDING AND STAINLESS STEEL LANYARD SYSTEM.

ISSUED FOR DF3B	JL	SR	27/03/18	P01
ISSUED FOR FINAL DF3B	JL	JF	22/06/18	P02
ISSUED FOR FINAL DF3B	JL	JF	28/01/19	P03
ISSUED FOR APPROVAL	LM	JF	12/03/19	P04
Revision Details		By	Date	Suffix
		Check		

**FOR STAGE APPROVAL**

Client  
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Project Title  
**M42 JUNCTION 6**

Drawing Title  
**ROAD LIGHTING KEY SHEET**

Designed	Drawn	Checked	Approved	Date
LMT	LM	SR	JF	11/03/19
Internal Project No. 60543032			Suitability S4	
Scale @ A1 NTS		Zone M42		

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Drawing Number Highways England PIN	Originator	Volume	Rev
HE551485 -ACM	-HLG	-	P04
M42_GEN_ZZ_ZZ	-DR-EO-0009		
Location	I Type	I Role	I Number