A1 in Northumberland: Morpeth to Ellingham

Scheme Number: TR010041

6.1 Environmental Statement Appendix 2.1 Lighting Assessment – Confidential

APFP Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

June 2020

Infrastructure Planning

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

The A1 in Northumberland: Morpeth to Ellingham

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Environmental Statement

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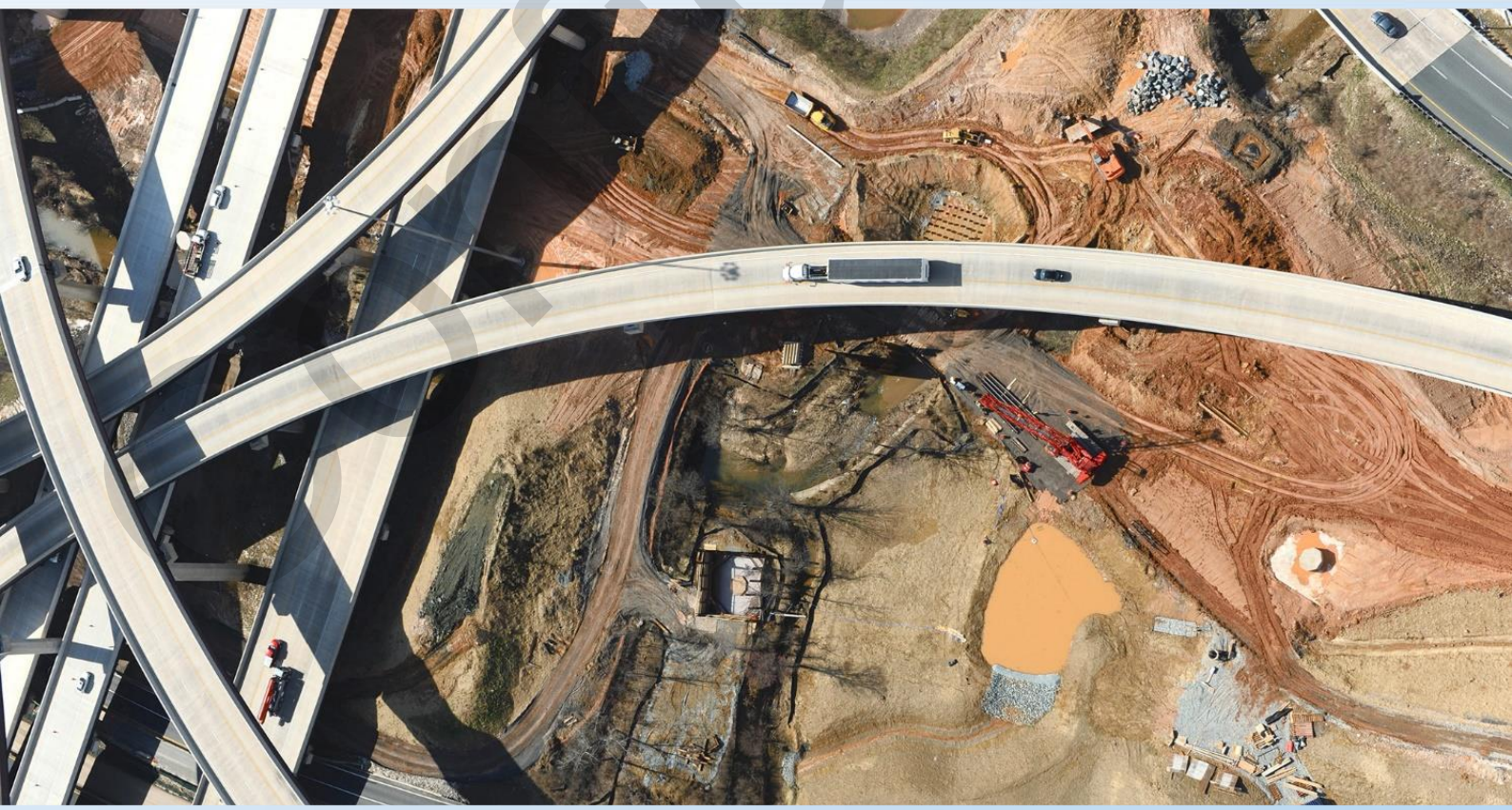
TA49 Lighting Assessment (Confidential)

A1 in Northumberland: Morpeth to Ellingham

Part A: Morpeth to Felton

A1 Morpeth to Felton

TA49 LIGHTING ASSESSMENT



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EXECUTIVE SUMMARY

WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Morpeth to Felton.

This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

The A1 Morpeth to Felton duelling upgrade involves widening the existing A1 but with a significant deviation from the existing A1 in the 'middle' of this section. There will be a new A1 between Priests Bridge and Burgham Park, to the west of the current A1 and of Tindale Hill and Causey Park Bridge. There will be three new junctions: at Highlaws; at Fenrother; and at Westmoor. Access to the A1 will be via the new junctions only and we will need to close most of the current local accesses onto the A1. There will be sections provided to the new junctions as part of the scheme.

When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to D) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved made through PIC savings.

It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness.

The RSE concluded that the existing route dark collision rate is 50% below the national average. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However the use of the following should be considered within the design;

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading

- Reflectors on the VRS or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

It is recommended that lighting should not be provided on any of the sections of the A1 Morpeth to Felton project. There is no economic or safety benefit supporting the installation of road lighting within the project.

The RSE has suggested areas which should be considered within the main line and slip roads/junctions within the design where feasible to mitigate the installation of road lighting.

The Table below summarises the requirement for road lighting following assessment by both the lighting engineer and the RSE;

TA49/07 Recommendations

SECTION	Economic Conclusion	Road Safety Conclusion	Combined Conclusion
Section A – Scheme limits to A697 Junction (ch500 – 2200)			
Section B – A697 Junction to Fenrother Junction (ch2200 – 5000)			
Section C – Fenrother Junction to Westmoor Junction (ch5000 – 11600)			
Section D – Westmoor Junction to Scheme Limits (ch11600 – 13600)			

Key

Lighting Required

Lighting Not Required

1 INTRODUCTION

1.2.1. WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Morpeth to Felton.

1.2.2. The A1 in Northumberland is an important route between England and Scotland, especially for long distance travel along the eastern side of the country. The A1 between Morpeth to Felton and Alnwick to Ellingham is currently a single carriageway.

1.2.3. This stretch of road needs improving because journey times are generally slow – it can be hard to overtake, leading to some drivers overtaking unsafely. There are limited alternative routes making it difficult to provide alternative routes if the A1 requires maintenance or if there are any unplanned events on the road.

1.2.4. This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

1.2.5. Following the economic assessment of the lighting requirements, the results will be reviewed by a Road Safety Engineer who will provide comments and recommendations from a safety aspect in accordance with items such as the road usage, accident history and the local environment.

1.3. PURPOSE AND SCOPE OF REPORT

1.3.1. The purpose of this report is to assess whether it is economically justifiable to provide road lighting throughout the scheme, whilst assessing the benefit of providing new lighting in the areas that are currently unlit. The report assesses the need for the replacement in accordance with Highways England DMRB.

1.3.2. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment has been completed in accordance with Technical Advice Note TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

1.3.3. In order to determine if the installation of road lighting is justified in accordance with Highways England requirements an outline design is completed to enable a build-up of Capital (CAPEX) and Operating (OPEX) costs. These cost are fed into Highways England's Scheme Appraisal Report (SAR) spread sheet in order to determine whether the costs are, as a minimum, fully recovered, principally through accident saving's over the life expectancy of the installation.

1.3.4. As part of this appraisal it is advised that a Road Safety Engineers Briefing Report (RSEB) is also carried out by a Road Safety Engineer (RSE) to provide an independent view of the application of road lighting and accident data in general.

1.3.5. The findings of this report are detailed within the Conclusions and Recommendations section of this report and are summarised within the Executive Summary.

2. PROJECT DETAILS

2.1. PROJECT BACKGROUND

2.1.1. The A1 Morpeth to Felton duelling upgrade involves widening the existing A1 but with a significant deviation from the existing A1 in the 'middle' of this section. There will be a new A1 between Priests Bridge and Burgham Park, to the west of the current A1 and of Tindale Hill and Causey Park Bridge. There will be three new junctions: at Highlaws; at Fenrother; and at Westmoor. Access to the A1 will be via the new junctions only and we will need to close most of the current local accesses onto the A1. There will be sections provided to the new junctions as part of the scheme.

2.1.2. The new junctions will provide access to local villages and maintain the east-west traffic sections, with new local roads where necessary to provide access to businesses and properties. The existing A1 between Priests Bridge and Burgham Park will be retained to provide access to the villages in this area. It will be reclassified as a local road. The underpass at Parkwood would be extended under the widened A1.

2.1.3. The A1 Alnwick to Ellingham dualling upgrade involves widening the A1 to dual carriageway along the existing road. There will be one new junction at South Charlton, connecting the A1, B6341 and B6347. Access will be provided for businesses and properties to the new junctions. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge.

2.1.4. This report considers the A1 Morpeth to Felton section only with a separate report considered for the A1 Alnwick to Ellingham.

2.2. PREFERRED ROUTE

2.2.1. As part of the preferred route announcement in September 2017 three options where considered for the proposed improvements between Morpeth and Felton;

2.2.2. Orange Option: upgrade the existing road to dual carriageway, either widening to the east or the west depending on the local features that we need to consider

2.2.3. Green Option: build a new carriageway to the west of the existing road between Priest's Bridge and Burgham Park

2.2.4. Blue Option: upgrade the majority of the existing road to dual carriageway, with approximately 1.2 miles (2 km) section of new carriageway to the east of the A1 near Causey Park Bridge

2.2.5. The Green route has been selected as the preferred route. The decision for the preferred route was made following consideration of numerous factors such as cost, benefits, ease of construction and environmental impacts.

2.2.6. This lighting assessment uses the green route as the base for considering if lighting is required within the scheme limits.

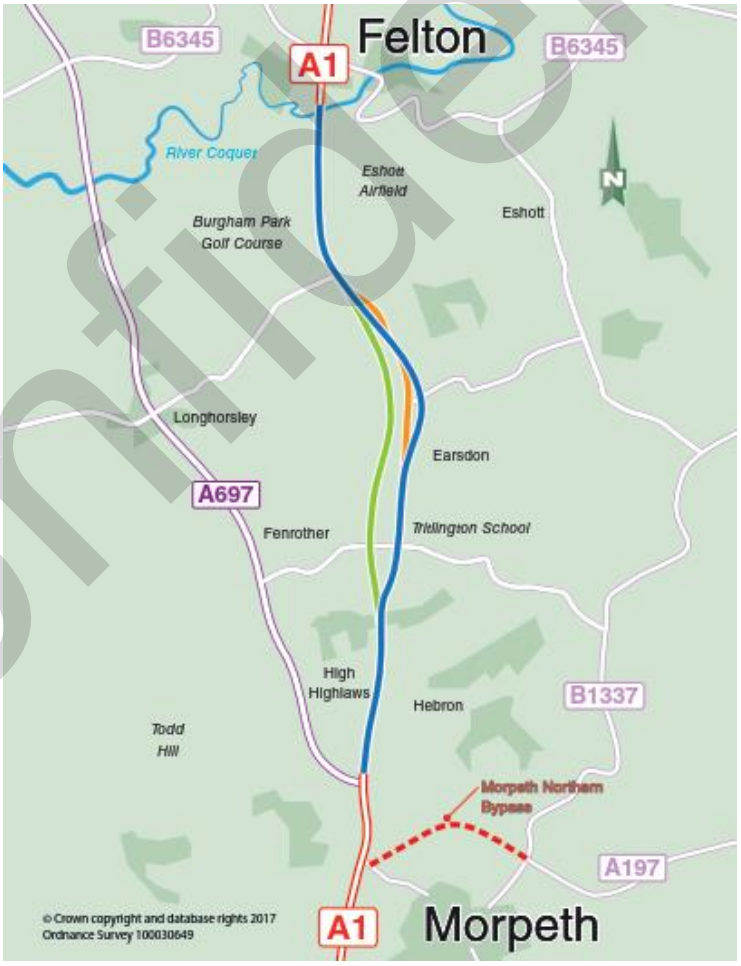


Figure 1 – Route Options

2.3. ROUTE SECTIONS

2.3.1. In order to split the scheme into smaller sections the proposed scheme has been separated into 4 separate sections to consider the requirements for lighting in smaller condensed sections rather than one full section for the scheme.

Section D – Westmoor Junction to Scheme Limits (ch11600 – 13600)

Section C – Fenrother Junction to Westmoor Junction (ch5000 – 11600)

Section B – A697 Junction to Fenrother Junction (ch2200 – 5000)

Section A – Scheme limits to A697 Junction (ch500 – 2200)

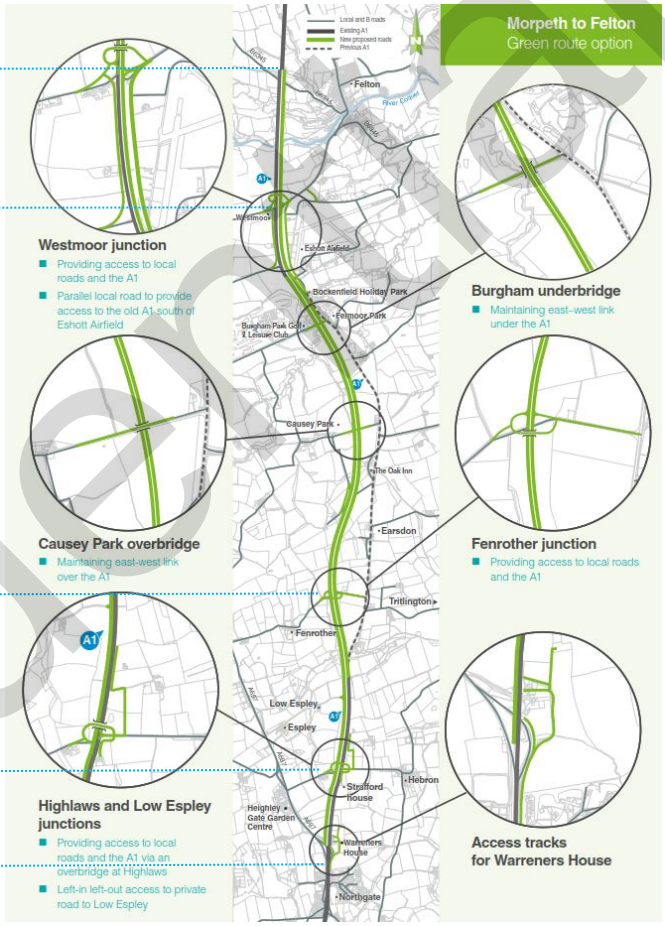


Figure 2 – Route Sections

3. EXISTING ALIGNMENT AND ROAD LIGHTING

3.1. EXISTING ALIGNMENT

3.1.1. For the purpose of this report the existing alignment has not been considered as the proposed route is both off line and not using the same principal geometry and route. However the RSE has considered the existing route and considered the accidents for the route.

3.2. EXISTING ROAD LIGHTING DESCRIPTION

3.2.1. None of the existing route or immediate connecting roads between the Morpeth to Felton are currently lit.

3.3. ECONOMICAL APPRAISAL PROCESS

3.3.1. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment needs to be completed in accordance with the Highways England's DMRB Technical Advice Note TA49/07.

3.3.2. The economic assessment aspect of this report follows the requirements of TA49/07 in which the Benefit Cost Ratio (BCR) is calculated. The BCR is a calculation that determines the value for money that could be provided in terms of accident savings provided by lighting if it was to be installed within the project. If the BCR is greater than 1.0 then the scheme benefits outweigh the costs, thus road lighting can be justified.

3.3.3. As part of this assessment it is advised that a RSEB is also carried out by a RSE to provide an independent review of the replacement of lighting and accident data in general. A full copy of the RSEB for this section of road under consideration is included in Appendix E.

3.3.4. To ensure a common approach in carrying out the economic assessment the Department for Transport (DfT) produced a Scheme Appraisal Report (SAR) template. Using the SAR, version 6.5d the following items have been used to populate the data required for the A1 Morpeth to Felton;

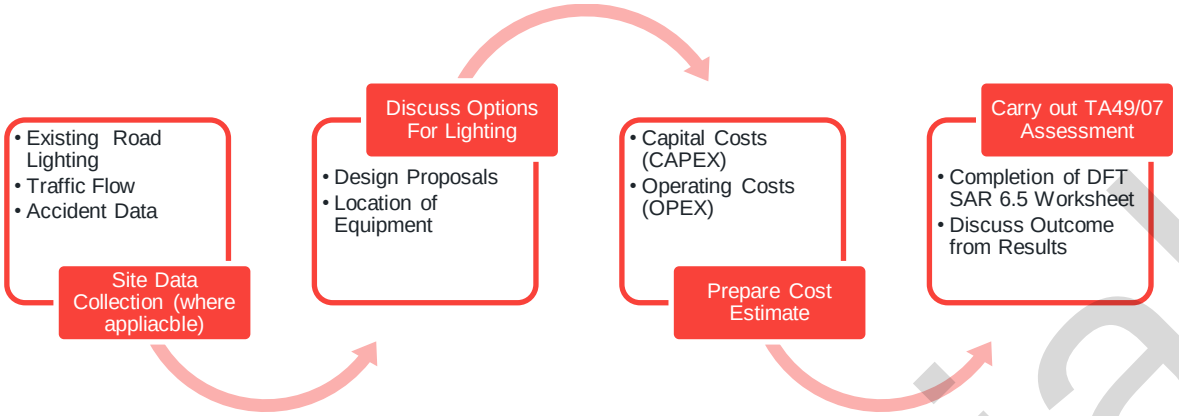
- Traffic flow data.
- Accident data from the previous 5 years (where applicable).
- Capital costs (CAPEX).
- Operating costs (OPEX).
- Installation costs.
- Decommissioning costs.
- Personal Injury Collision (PIC) saved in opening year.

3.3.5. The economic assessment process introduced by TA49/07 uses PIC savings as the basis for justification for lighting. This is achieved by using existing accident data, where applicable, as a benchmark and calculating how many night-time accidents would be saved by the renewal of lighting. This report has used 5 year historical road traffic accident data to inform a decision on the predicted accident savings based on the preferred route (as detailed in the RSEB) specific to the network as specified in TA49/07. It should be noted that the RSE report provides an in depth review of existing and proposed based on the new route.

3.3.6. The economic assessment process also incorporates average traffic flow information as provided within the Scheme Appraisal Report.

3.3.7. The economic assessment process for the A1 Morpeth to Felton followed within production of this report is summarised in Figure 3 below. This provides information on the level of input required at each stage in order to provide sufficient information for input into the economic assessment process.

Figure 3 – TA49/07 Process



3.4. SITE DATA COLLECTION

3.4.1. This report has used 5 year historical road traffic accident data specific to the network supplied by the project team. The data used is detailed within the RSE report and considers the existing accident data for the current route.

3.4.2. The PSV percentage was not available from the information obtained and has not been used in the SAR. The predicted traffic growth information was not available at the time of carrying out the SAR but an assumption has been made of 30% in line with Highways England SAR6.5 and DFT guidance.

4. OPTIONS FOR ROAD LIGHTING

4.1. OPTIONS BREAKDOWN

4.1.1. TA49/07 states that the assessment process should produce an outline design “in sufficient depth to enable costs to be estimated reasonably accurately”.

4.1.2. A road lighting design solution for each of the sections defined in Section 2.3 was developed and selected against the following criteria:

- The requirement for compliance with the latest design standards specified within the DMRB (i.e TD34).
- Incorporation of the latest lighting technology available with respect to luminaire optics and lighting column configuration.
- Selection of the most cost effective replacement option based on initial capital investment costs and life cycle maintenance.

4.1.3. Table 1 below provides the proposed road lighting design solution for each section which has been considered for the purposes of this TA49 assessment.

Table 1 – Proposed Road Lighting Design Solution for Each Section

Section	Proposed Lighting Solution
A	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
B	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
C	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
D	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.

4.2. DESIGN STANDARDS

4.2.1. The section of the A1 Morpeth to Felton under consideration in Table 2 will be designed in accordance with DMRB document TD34/07 *'Design for Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network'* which states that the road lighting shall be designed in accordance with BS5489-1:2013 *'Code of Practice for the Design of Road Lighting – Part 1: Lighting of Roads and Public Amenity Areas'*.

4.2.2. TD34/07 sets out the required extent of lighting that should be provided within a typical scenario, this guidance has been followed for the proposed outline design where applicable.

4.3. IDENTIFY LIGHTING CLASS

4.3.1. As part of the design process a lighting class has to be selected for each section of the A1 Morpeth to Felton in accordance with BS5489-1:2013. The required lighting class is selected based on the criteria set out in in Table 2 below which has been extracted from Table A.2 'Lighting Classes for traffic routes (v > 40mph)' of BS5489-1:2013.

Table 2 - Lighting Classes for Traffic Routes (v > 40mph) extracted from BS5489-1:2013

Traffic Flow	Lighting Class		
	Dual Carriageway		Single Carriageway
	Junction Density High	Junction Density Low	
High to very high	M2	M3	M2
Low to Moderate	M3	M4	M3
Very low	M4	M5	M4

4.3.2. Table 3 below provides the recommended lighting class for each section as determined from Table 2 above.

Table 3 - Proposed Lighting Class for Each Section

Section	Description	Proposed Lighting Class
A	Main Carriageway	M3
	Slip Road	M3
B	Main Carriageway	M3
	Slip Road	M3
C	Main Carriageway	M4

	Slip Road	M4
D	Main Carriageway	M4
	Slip Road	M4

4.3.3. Table 3 identifies a lighting class for the main carriageway and for the associated slip roads for each section. The required lighting parameters for each lighting class are highlighted in Table 4 below which has been extracted from Table 1 *'M Lighting Classes* 'of BS EN13201-2:2015.

Table 4 – M3 and M4 Lighting Class Parameters extracted from BS EN 13201-2:2015

Requirements	Lighting Class M3	Lighting Class M4
Lav in cd-m2 (Minimum Maintained)	1.0	0.75
Uo (Minimum)	0.4	0.4
UI (Minimum)	0.6	0.6
TI (Disability Glare) (Maximum)	15%	15%
Rei (Requirement for Edge illuminance) (Minimum)	0.5	0.5

4.4. DESIGN PARAMETERS

4.4.1. The basic road lighting design parameters for the A1 Morpeth to Felton have included the following: -

- IP 66, LED luminaire units (mounted at 0° tilt) to be used throughout to minimise the environmental impact (i.e. light spill) caused by the proposed lighting scheme.
- Only luminaires with a luminous intensity rating of G4 to G6 have been considered within this design.
- A maintenance factor of 0.83 was applied for all LED luminaire units.

4.5. PREPARE COST ESTIMATES

4.5.1. The TA49 economic assessment requires the input of capital cost (CAPEX) and operating costs (OPEX).

4.5.2. The capital cost associated with each section has been calculated using the unit lighting column rates provided in Appendix A. It should be noted that these rates have been derived for assessment purposes and although they have been based on UK industry rates they have not been verified by

production of accurate drawings or design calculations. The capital cost applicable to each section is detailed in Table 5 below.

Table 5 – Capital Cost Summary

Section	Location	CAPEX
A	A697 (Warreners House Junction) to Highlaws and Low Esplay Junction	£281,723.00
B	Highlaws and Low Esplay Junction to Fenrother Junction	£435,298.50
C	Fenrother Junction to Westmoor Junction	£734,370.00
D	Westmoor Junction to Scheme Limits (ch 13,600)	£232,394.50
All Sections		**£1,683,786.00**

4.5.3. All sections considered exceed the minimum £100,000 requirement to be considered under a TA49 appraisal in accordance with the SAR guidance.

4.5.4. The operating costs which consider maintenance, energy and decommissioning costs associated with each section have been calculated using the unit lighting column rate costs provided in Appendix B. It should be noted that these rates have been derived for assessment purposes only using industry standard rates.

4.5.5. The SAR6.5 template requires the input of the additional annual average maintenance costs calculated from the overall operating costs. However it is considered that additional maintenance costs should only be added to existing maintenance costs where existing lighting units are being retained. As there is no scope / provision to retain existing lighting units within this scheme the additional maintenance costs have been considered as the full maintenance cost per annum for the proposed lighting units. Therefore the annual average maintenance costs applicable to each section are detailed in Table 6 below.

Table 6 – Additional Annual Average Maintenance Costs

Section	Location	OPEX
A	A697 (Warreners House Junction) to Highlaws and Low Esplay Junction	£29,429.84
B	Highlaws and Low Esplay Junction to Fenrother Junction	£44,496.96
C	Fenrother Junction to Westmoor Junction	£87,579.56

D	Westmoor Junction to Scheme Limits (ch 13,600)	£27,515.07
All Sections	Sections A to D	**£189,039.43**

4.6. CARRY OUT TA49 ECONOMIC ASSESSMENT

4.6.1. TA49/07 instructs the assessor to use Highway England's publication Scheme Appraisal Report 6.5 (SAR6.5) to assess the monetised benefits of lighting.

4.6.2. The SAR6.5 template states that all lighting systems with a capital investment cost of greater than £100,000 should be assessed in accordance with SAR6.5. As detailed in Table 5.

4.6.3. The figures/information gathered are input into the SAR6.5 template which automatically calculates the monetised benefits of lighting. Appendix C contains all SAR6.5 worksheets for information.

5. ASSESSMENT OF RESULTS

5.1. INTERPRETATION OF RESULTS

5.1.1. In order to calculate the BCR the following figures were calculated for each section.

- Present Value Benefits (PVB); represents the monetised savings when considering accident savings in the opening year discounted to the base year (2010).
- Present Value Costs (PVC); are the costs applicable to the project discounted to the base year (2010) and converted to market prices by applying a factor equivalent to the general taxation level in the economy. This is necessary to enable comparison with monetised benefits on a like-for-like basis
- Net Present Value (NPV); is the comparison of PVC/PVB to enable a positive or negative lighting benefit.

5.1.2. Table 7 below provides a breakdown of figures (works costs) obtained from outline designs carried out for each individual section, together with figures automatically calculated when collated data is input into the SAR6.5 template. The accompanying SAR6.5 worksheets for the individual sections are provided within Appendix C, with the figures for the lit, unlit and whole sections determined by combining the costs and figures accordingly.

Table 7 - BCR Calculation Summary

Section	Capital Cost	PIC Saving in Yr 1	PVB	PVC	NPV (PVB-PVC)	BCR (PVB/PVC)
A	£281,723.00	0.00	£0.00	£651,808.00	-£651,808.00	0.000
B	£435,298.50	0.01	£8,668.00	£996,024.00	-£987,356.00	0.004
C	£734,370.00	0.07	£138,682.00	£1,880,072.00	-£1,741,390.00	0.064
D	£232,394.50	0.06	£34,670.00	£601,691.00	-£567,021.00	0.016
All Sections	£1,683,786.00	0.14	£182,020.00	£4,129,595.00	-£3,947,575.00	0.021
Key						
	BCR less than 1.0			Lighting not economically justified		
	BCR greater than or equal to 1.0			Lighting economically justified		

5.1.3. Table 7 above shows that each individual section returns a BCR of less than 1.0, indicating that a proposed lighting scheme in each individual section, and as a combined scheme, is not economically justifiable.

5.1.4. It should be noted that within the OPEX calculations completed, no energy saving initiatives have been applied. Should energy saving initiatives be applied in any future design, technology such as controlled dimming, through MoRLiCS compatible CMS systems, could increase the BCR figures and potentially provide a higher BCR in some instances when considering the proposed lighting installation. It however is unlikely to increase above the required level of 1.0.

6. ROAD SAFETY ENGINEERS REPORT

6.1. REQUIREMENTS

6.1.1. Within TA49/07 it is a requirement to engage the Road Safety Engineer (RSE) to make an independent assessment of the scheme under consideration. Within Appendix E there is copy of the full Road Safety Engineers Briefing report (RSEB) carried out by Road Safety Initiatives (RSI). A summary of the full RSEB is provided in Section 6.2 below.

6.1.2. This information provided within this report was completed by Lyn Turner (WSP RSE) on 28/11/2017.

6.1.3. The purpose of this RSEB is to review and understand the accident data for the existing route and consider how the proposed alignment will impact on the accidents. In addition to considering the likely benefit or dis-benefit any proposed road lighting may have on the accident rates for the route.

6.1.4. This RSEB also considers Interim Advice Note 167/12, Revision 1 Guidance for the Removal of Road Lighting. This is because IAN 167/12 provides supplementary requirements and guidance to TA49/07 and TD 34/07 (Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network).

6.1.5. The RSEB comprised an examination of relevant documents relating to the proposed scheme and analysis of provided five-year collision data and the impact on the proposed alignment and accident savings. The collision data considered has been derived from collision statistics validated by the DfT (known as Nationally Validated data). Collisions have been “rationalised” to exclude those where driver gross negligence has been shown to be a significant contributory factor, in accordance with advice given in IAN 167/12 where applicable.

6.2. SUMMARY OF REPORT

6.2.1. The dual carriageway section of the A1 is currently below the national averages for dark collision, where no street lighting is present, by more than 50%.

6.2.2. The Road Safety Engineers opinion as a qualified HD19 Audit Team Leader, as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway, with many highway hazards such as at-grade junctions removed and looking at the evidence of the historic collisions, they do not believe that at this time street lighting is required and conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

6.2.3. With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions, have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however other vehicles are susceptible too, such as loss of control type incidents. However, by upgrading these junctions to grade separated junctions, from the data it can be seen that 21 collisions have been

removed through rationalisation and these made up collision types such as junction and u-turning trends.

6.2.4. Ideally the junctions should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.

6.2.5. In the absence of these items, it cannot be categorically advised not to provide street lighting on the junctions, however there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

6.2.6. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

6.2.7. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

6.3. PREDICTED PIC SAVINGS

6.3.1. Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2015, this figure has decreased to 27%.

6.3.2. Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIA saving due to road lighting on links, suitable for appraisal.

6.3.3. For an all-purpose Dual carriageway the figure of 10% is noted.

6.3.4. Part of the scheme within this document is going to be on new links as the route deviates from the existing alignment. Other parts of the route are on the existing alignment but are replacing a single carriageway with a dual carriageway. All of the scheme extent is currently unlit.

6.3.5. The standard makes reference darkness savings on a new link which refers to Volume 13, COBA which has since been redrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

Table 8 – PIC Savings

	Section A	Section B	Section C	Section D	Total
Total Number of Rationalised collisions (5 Years)	0	11	12	6	38
Total During Darkness (5 Years)	0	1	4	2	7

Collisions in darkness per annum (actual)	0	0.2	0.8	0.4	1.4
Predicted Collision saving = no. of opening year darkness collisions x 10%	0	0.004	0.064	0.016	0.196

7. ASSESSMENT OF THE NON QUANTIFIABLE BENEFITS

7.1. REQUIREMENTS

7.1.1. TA49/07 uses predicted PIC cost savings to assess the need for lighting and although it is stated within the document that lighting may provide other non-quantifiable benefits (non-neutral impact) the guidance is limited and does not provide any definitive guidance with respect to how a non-quantifiable benefit may be assessed.

7.1.2. Therefore in the absence of any clear guidance an assessment matrix and associated guidance note has been developed to assess each section against the non-quantifiable issues identified for the purposes of this assessment. It should be noted that TA49/07 states that road construction departures from standards (such as narrow lanes) cannot be considered as a situation where lighting alone should be automatically introduced to mitigate the risk of the departure.

7.1.3. Table 8 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 8 - Non-Quantifiable Benefits of Lighting - Assessment Matrix

Description	Section A	Section B	Section C	Section D
Road Users				
Journey ambience	Positive	Positive	Positive	Positive
Driver Safety (accident reduction)	Neutral	Neutral	Neutral	Neutral
Driver security	Neutral	Neutral	Neutral	Neutral
Pedestrian safety	Neutral	Neutral	Neutral	Neutral
Night-time routine maintenance	Neutral	Neutral	Neutral	Neutral
Road Configuration				
Unusual number of lanes / constant lane changes	Neutral	Neutral	Neutral	Neutral
Poor site lines and visibility	Neutral	Neutral	Neutral	Neutral
Complex / unusual road Alignment	Neutral	Neutral	Neutral	Neutral
Severe bends	Neutral	Neutral	Neutral	Neutral
Narrow Lanes	Neutral	Neutral	Neutral	Neutral
Close proximity of junctions (<1000m)	Neutral	Neutral	Neutral	Neutral
Emergency Refuge (ER) / Hard Shoulder (HS)				
HS present	Positive	Positive	Positive	Positive
Discontinuous HS with ER	N/A	N/A	N/A	N/A
Discontinuous HS without ER	N/A	N/A	N/A	N/A

7.1.4. Table 9 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 9 - Non-Quantifiable Benefits of Lighting Guidance Note

Description	Note	Default Position	Comment
Road Users			
Journey ambience	1	Positive	-
Driver Safety (accident reduction)	2	Neutral	This value will always be neutral if the TA49 economic assessment has confirmed that lighting cannot be justified on economic grounds.
Driver security	3	Neutral	This value should always default to neutral if fear of crime / personal safety is not of significant concern at the given location
Pedestrian safety / security	4	Neutral	This value should always default to neutral if no pedestrian access / facility is provided.
Night-time routine maintenance	5	Neutral	Should be neutral unless regular night-time maintenance is essential and lighting is considered essential for the night-time routine maintenance activities.
Road Configuration			
Unusual number of lanes / constant lane changes	6	Neutral	This value should always default to neutral unless there are unusual quantities of lane changes.
Poor site lines and visibility	7	Neutral	This value should always default to neutral unless the assessor can determine that lighting would assist driver perception.
Complex / unusual road Alignment	8	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist driver direction and perception.
Severe bends	9	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist.
Narrow Lanes	10	Positive	If narrow lanes exist then lighting should be provided to highlight the areas of concern.
Close proximity of junctions (<1000m)	11	Positive	It has been shown that road junction in close proximity can benefit from lighting. For the purpose of this assessment the junction proximity has been taken from the end / commencement of the slip roads.
Emergency Refuge (ER) / Hard Shoulder (HS)			
HS present	12	Neutral	If a hard shoulder is present this should always default to neutral
Discontinuous	13	Neutral	If a hard shoulder is present this should always default to

hard shoulder with ER			neutral
Discontinuous HS without ER	14	Neutral	If a hard shoulder is present this should always default to neutral

7.1.5. Table 10 below provides the conclusion for each item identified for the assessment of non-quantifiable benefits.

Table 10 - Non-Quantifiable Benefits of Lighting, Section Conclusions

Section	Description	Non-quantifiable Benefit (i.e., positive)	Conclusion
A	▪ Journey Ambience ▪ Hard Shoulder Present	▪ Journey ambience alone cannot be considered justification for lighting. ▪ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
B	▪ Journey Ambience ▪ Hard Shoulder Present	▪ Journey ambience alone cannot be considered justification for lighting. ▪ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
C	▪ Journey Ambience ▪ Hard Shoulder Present	▪ Journey ambience alone cannot be considered justification for lighting. ▪ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.

D	▪ Journey Ambience ▪ Hard Shoulder Present	▪ Journey ambience alone cannot be considered justification for lighting. ▪ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder isn't present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.

8. CONCLUSION AND RECOMMENDATIONS

8.1. CONCLUSION

The TA49 economic assessment (quantifiable)

8.1.1. When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to D) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved through PIC savings.

8.1.2. It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

The TA49 lighting benefits assessment (Non-quantifiable)

8.1.3. The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness. This potential saving is not quantifiable and should be mitigated by other safety initiatives.

Road Safety Engineers Assessment

8.1.4. The RSE concluded that the existing route dark collision rate is 50% below the national average. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However the use of the following should be considered within the design;

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

8.1.5. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

8.1.6. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

8.2. RECOMMENDATION

8.2.1. It is recommended that lighting should not be provided on any of the sections of the A1 Morpeth to Felton project. There is no economic or safety benefit supporting the installation of road lighting within the project.

8.2.2. The RSE has suggested areas which should be considered within the main line and slip roads/junctions within the design where feasible to mitigate the installation of road lighting.

Appendix A

CAPITAL COSTS (CAPEX)

CAPEX Cost Sheet - Link A

Item	Description	TYPE A 12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	TYPE B 12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	TYPE C 10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output	TYPE D 10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Earth Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex cost prior to TM & Detailed Design Fee		**£3,640.00**	**£3,640.00**	**£3,015.00**	**£3,015.00**	**£0.00**	**£0.00**
Total Capex Cost		**£4,732**	**£4,732**	**£3,920**	**£3,920**	**£0**	**£0**
	Proposed Quantity	38	0	26	0	0	0
	Sub Total	£179,816.00	£0.00	£101,907.00	£0.00	£0.00	£0.00
	Link Total			**£281,723.00**			

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 16 earth electrodes per site/link; Item 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

CAPEX Cost Sheet - Link B

Item	Description	TYPE A 12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	TYPE B 12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	TYPE C 10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output	TYPE D 10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Earth Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex cost prior to TM & Detailed Design Fee		**£3,640.00**	**£3,640.00**	**£3,015.00**	**£3,015.00**	**£0.00**	**£0.00**
Total Capex Cost		**£4,732**	**£4,732**	**£3,920**	**£3,920**	**£0**	**£0**
	Proposed Quantity	63	0	35	0	0	0
	Sub Total	£298,116.00	£0.00	£137,182.50	£0.00	£0.00	£0.00
	Link Total			**£435,298.50**			

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 16 earth electrodes per site/link; Item 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

CAPEX Cost Sheet - Link C

		TYPE A	TYPE B	TYPE C	TYPE D		
Item	**Description**	**12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output**	**12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output**	**10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output**	**10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output**		
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Earth Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex cost prior to TM & Detailed Design Fee		**£3,640.00**	**£3,640.00**	**£3,015.00**	**£3,015.00**	**£0.00**	**£0.00**
Total Capex Cost		**£4,732**	**£4,732**	**£3,920**	**£3,920**	**£0**	**£0**
	Proposed Quantity	0	132	5	23	0	0
	Sub Total	£0.00	£624,624.00	£19,597.50	£90,148.50	£0.00	£0.00
	Link Total			**£734,370.00**			

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 16 earth electrodes per site/link; Item 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

CAPEX Cost Sheet - Section D

Item	Description	TYPE A 12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	TYPE B 12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	TYPE C 10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output	TYPE D 10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00		
2	Bracket Arm	£150.00	£150.00				
3	Luma 2 luminaire	£500.00	£500.00				
4	Luma 1 luminaire			£250.00	£250.00		
5	Passive Termination (Sensor)	£140.00	£140.00	£140.00	£140.00		
6	Termination	£70.00	£70.00	£70.00	£70.00		
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£75.00	£75.00	£50.00	£50.00		
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00		
9	Earth Electrode*	£35.00	£35.00	£35.00	£35.00		
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00		
11	Trenching*	£170.00	£170.00	£170.00	£170.00		
12	Cross Carriageway ducting*	£110.00	£110.00	£110.00	£110.00		
13	Chambers*	£60.00	£60.00	£60.00	£60.00		
14	DNO*	£140.00	£140.00	£140.00	£140.00		
15	Traffic Management - TM*	£728.00	£728.00	£603.00	£603.00		
16	Detailed Design Fee*	£364.00	£364.00	£301.50	£301.50		
Total Capex cost prior to TM & Detailed Design Fee		**£3,640.00**	**£3,640.00**	**£3,015.00**	**£3,015.00**	**£0.00**	**£0.00**
Total Capex Cost		**£4,732**	**£4,732**	**£3,920**	**£3,920**	**£0**	**£0**
	Proposed Quantity	0	40	0	11	0	0
	Sub Total	£0.00	£189,280.00	£0.00	£43,114.50	£0.00	£0.00
	Link Total			**£232,394.50**			

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 14 - Assumed suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - 20% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee.

Appendix B

OPERATING COSTS (OPEX)

OPEX Costs - Link A

Existing Annual Unit Operational Costs

Item	Description				
	Quantitity	0	0	0	0
1	Routine Maintenance	£17.00	£12.00	£0.00	£0.00
2	Scouting	£9.00	£9.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12.00	£6.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£274.54	£84.62	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£62.51	£22.32	£0.00	£0.00
Total Opex cost prior to TM		**£312.54**	**£111.62**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£375.04**	**£133.95**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F
	Quantitity	38	0	26	0	0	0
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Replacement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.84	£96.48	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£24.77	£21.70	£18.82	£0.00	£0.00
Total Opex cost prior to TM		**£94.08**	**£123.84**	**£108.48**	**£94.08**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£112.90**	**£148.61**	**£130.18**	**£112.90**	**£0.00**	**£0.00**
Total Opex Cost		**£4,290.05**	**£0.00**	**£3,384.58**	**£0.00**	**£0.00**	**£0.00**

Figure from Sheet 1. Energy Costs

Annual Energy Costs

System Wattage	558	172	0	0
Price per KWh (pence)	0.12	0.12	0.12	0.12
Burning Hours	4,100	4,100	4,100	4,100
Present Day Annual Energy Cost	£274.54	£84.62	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**	**£0.00**

UMSUG Values Used

Annual Energy Costs

System Wattage	171	233	201	171	119	86
Price per KWh (pence)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£82.08	£111.84	£96.48	£82.08	£57.12	£41.28
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£10,752.27**	**£0.00**	**£8,647.48**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions						
0.544kg Per Kwh	0	0	0	0	0	0
CO2 Emissions over 30 Years kg	0	0	0	0	0	0

CO2 Emissions						
0.544kg Per Kwh	3,535	0	2,843	0	0	0
CO2 Emissions over 30 Years kg	434,794,176	0	349,682,112	0	0	0

Decomissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£56,344.60**	
Capitalisation Factor (from PAR)	25.9	*From Table C.3 par guidance notes*
OYMC (Decommisioning Costs)	**£2,175.47**	

Exisitng OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£7,674.62**
OYMC (Energy)	**£19,399.75**
OYMC (Decommissioning Cost)	**£2,175.47**
CO2 Emissions over 30 Years Tonnes	**784.476**

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Propsoed Maintenance Cost - Existing Maintenance Cost — **£7,674.62**

OYMC (Energy)
= Propsoed Energy - Existing Energy — **£19,399.75**

OYMC (Decommisioning Costs) — **£2,175.47**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) — **£29,249.84** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years — **784,476**
= Proposed Emissions - Exisiting Emissions

OPEX Costs - Link B

Existing Annual Unit Operational Costs

Item	Description				
	Quantitity	0	0	0	0
1	Routine Maintenance	£17.00	£12.00	£0.00	£0.00
2	Scouting	£9.00	£9.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12.00	£6.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£274.54	£84.62	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£62.51	£22.32	£0.00	£0.00
Total Opex cost prior to TM		**£312.54**	**£111.62**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£375.04**	**£133.95**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F
	Quantitity	63	0	35	0	0	0
		12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Replacement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.84	£96.48	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£24.77	£21.70	£18.82	£0.00	£0.00
Total Opex cost prior to TM		**£94.08**	**£123.84**	**£108.48**	**£94.08**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£112.90**	**£148.61**	**£130.18**	**£112.90**	**£0.00**	**£0.00**
Total Opex Cost		**£7,112.45**	**£0.00**	**£4,556.16**	**£0.00**	**£0.00**	**£0.00**

Figure from Sheet 1. Energy Costs

Annual Energy Costs

System Wattage	558	172	0	0
Price per KWh (pence)	0.12	0.12	0.12	0.12
Burning Hours	4,100	4,100	4,100	4,100
Present Day Annual Energy Cost	£274.54	£84.62	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**	**£0.00**

UMSUG Values Used

Annual Energy Costs

System Wattage	171	233	201	171	119	86
Price per KWh (pence)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£82.08	£111.84	£96.48	£82.08	£57.12	£41.28
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£17,826.13**	**£0.00**	**£11,640.84**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions						
0.544kg Per Kwh	0	0	0	0	0	0
CO2 Emissions over 30 Years kg	0	0	0	0	0	0

CO2 Emissions						
0.544kg Per Kwh	5,861	0	3,827	0	0	0
CO2 Emissions over 30 Years kg	720,842,976	0	470,725,920	0	0	0

Decomissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£87,059.70**	
Capitalisation Factor (from PAR)	25.9	*From Table C.3 par guidance notes*
OYMC (Decommisioning Costs)	**£3,361.38**	

Exisitng OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£11,668.61**
OYMC (Energy)	**£29,466.97**
OYMC (Decommissioning Cost)	**£3,361.38**
CO2 Emissions over 30 Years Tonnes	**1,191,569**

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Propsoed Maintenance Cost - Existing Maintenance Cost — **£11,668.61**

OYMC (Energy)
= Propsoed Energy - Existing Energy — **£29,466.97**

OYMC (Decommisioning Costs) — **£3,361.38**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) — **£44,496.96** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years — **1,191,569**
= Proposed Emissions - Exisiting Emissions

OPEX Costs - Link C

Existing Annual Unit Operational Costs

Item	Description				
	Quantitity	0	0	0	0
1	Routine Maintenance	£17.00	£12.00	£0.00	£0.00
2	Scouting	£9.00	£9.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12.00	£6.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£274.54	£84.62	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£62.51	£22.32	£0.00	£0.00
Total Opex cost prior to TM		**£312.54**	**£111.62**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£375.04**	**£133.95**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F
	Quantitity	0	132	5	23	0	0
		12m road lighting column with a twin post top mounted luminaires each with a 21klm LED output	12m road lighting column with a twin post top mounted luminaires each with a 17klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 15klm LED output	10M Road Lighting Column with a Single Post Top luminaire with a 10klm LED output		
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Replacement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.84	£96.48	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£24.77	£21.70	£18.82	£0.00	£0.00
Total Opex cost prior to TM		**£94.08**	**£123.84**	**£108.48**	**£94.08**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£112.90**	**£148.61**	**£130.18**	**£112.90**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£19,616.26**	**£650.88**	**£2,596.61**	**£0.00**	**£0.00**

Figure from Sheet 1. Energy Costs

Annual Energy Costs

System Wattage	558	172	0	0
Price per KWh (pence)	0.12	0.12	0.12	0.12
Burning Hours	4,100	4,100	4,100	4,100
Present Day Annual Energy Cost	£274.54	£84.62	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions				
0.544kg Per Kwh	0	0	0	0
CO2 Emissions over 30 Years kg	0	0	0	0

UMSUG Values Used

Annual Energy Costs

System Wattage	171	233	201	171	119	86
Price per KWh (pence)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£82.08	£111.84	£96.48	£82.08	£57.12	£41.28
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£50,892.08**	**£1,662.98**	**£6,507.95**	**£0.00**	**£0.00**

CO2 Emissions						
0.544kg Per Kwh	0	16,731	547	2,140	0	0
CO2 Emissions over 30 Years kg	0	2,057,945,472	67,246,560	263,164,896	0	0

Decomissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£146,874.00**	
Capitalisation Factor (from PAR)	25.9	*From Table C.3 par guidance notes*
OYMC (Decommisioning Costs)	**£5,670.81**	

Exisitng OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£22,863.74**
OYMC (Energy)	**£59,063.01**
OYMC (Decommissioning Cost)	**£5,670.81**
CO2 Emissions over 30 Years Tonnes	2,388,357

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Propsoed Maintenance Cost - Existing Maintenance Cost — **£22,863.74**

OYMC (Energy)
= Propsoed Energy - Existing Energy — **£59,063.01**

OYMC (Decommisioning Costs) — **£5,670.81**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) — **£87,597.56** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years — **2,388,357**
= Proposed Emissions - Exisiting Emissions

OPEX Costs - Section D

Existing Annual Unit Operational Costs

Item	Description				
	Quantitity	0	0	0	0
1	Routine Maintenance	£17.00	£12.00	£0.00	£0.00
2	Scouting	£9.00	£9.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£12.00	£6.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£274.54	£84.62	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£62.51	£22.32	£0.00	£0.00
Total Opex cost prior to TM		**£312.54**	**£111.62**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£375.04**	**£133.95**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F
	Quantitity	0	40	0	11	0	0
1	Routine Maintenance	£12.00	£12.00	£12.00	£12.00	£0.00	£0.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Lamp Replacement (N/A for LED)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£82.08	£111.84	£96.48	£82.08	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£18.82	£24.77	£21.70	£18.82	£0.00	£0.00
Total Opex cost prior to TM		**£94.08**	**£123.84**	**£108.48**	**£94.08**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£112.90**	**£148.61**	**£130.18**	**£112.90**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£5,944.32**	**£0.00**	**£1,241.86**	**£0.00**	**£0.00**

Figure from Sheet 1. Energy Costs

Annual Energy Costs

System Wattage	558	172	0	0
Price per KWh (pence)	0.12	0.12	0.12	0.12
Burning Hours	4,100	4,100	4,100	4,100
Present Day Annual Energy Cost	£274.54	£84.62	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions				
0.544kg Per Kwh	0	0	0	0
CO2 Emissions over 30 Years kg	0	0	0	0

UMSUG Values Used

Annual Energy Costs

System Wattage	171	233	201	171	119	86
Price per KWh (pence)	0.12	0.12	0.12	0.12	0.12	0.12
Burning Hours 20/20 PECU	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£82.08	£111.84	£96.48	£82.08	£57.12	£41.28
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£15,421.84**	**£0.00**	**£3,112.50**	**£0.00**	**£0.00**

CO2 Emissions						
0.544kg Per Kwh	0	5,070	0	1,023	0	0
CO2 Emissions over 30 Years kg	0	623,619,840	0	125,861,472	0	0

Decomissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£46,478.90**	
Capitalisation Factor (from PAR)	25.9	*From Table C.3 par guidance notes*
OYMC (Decommisioning Costs)	**£1,794.55**	

Exisitng OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£7,186.18**
OYMC (Energy)	**£18,534.34**
OYMC (Decommissioning Cost)	**£1,794.55**
CO2 Emissions over 30 Years Tonnes	**749,481**

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Propsoed Maintenance Cost - Existing Maintenance Cost — **£7,186.18**

OYMC (Energy)
= Propsoed Energy - Existing Energy — **£18,534.34**

OYMC (Decommisioning Costs) — **£1,794.55**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) — **£27,515.07** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years
= Proposed Emissions - Exisiting Emissions — **749,481**

Appendix C

SCHEME APPRAISAL REPORTS (SAR 6.5)

HIGHWAYS AGENCY

A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR

HA Area / DBFO: Area 14

SAR file name: 14A1A1M2FLinkA_211217.xlsm

Trunk Road number: A1

Short name: A1 M2F Link A

N.B. Do not include Road Number in Short Name

Full title: A1 Morpeth to Felton

	Start Point or Mid-Point		End Point	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HA for budgetary purposes (current prices including non-recoverable VAT): £309,579

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

Completed / Amended by		Checked by		Approved by	
Name:	Chris Baguley	Name:	Chris Atkins	Name:	Stephen Halliday
Email:	chris.baguley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.halliday@wsp.com
Date:	02/06/2017	Date:	02/06/2017	Date:	02/06/2017

HA Project Manager

Name:

Email:

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (Brief reasons for carrying out the scheme)	New A1 scheme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
Proposed solution: (Brief description of proposed scheme)	Complete a Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road lighting for the applicable link / links of the A1
Other solutions considered: (State 'None' if there are none - do not leave blank)	None.
Expected outcomes: (Results considered probable given analyses conducted)	If BCR is less than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1

	Month	Year
Expected Date of Opening:	December	2022

Assessment Period

30 years

More Information

Justification for Assessment Period:

Road lighting assessed over 30 year period as per TA49/07.

History and Programme Dates

	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	21/11/2017		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (Do not leave blank)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

Severity Index: 0.0%

Additional information (eg overall accident rate; national comparison):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Price Year / Quarter: 2020 Q1	Estimate Year / Qtr RPI factor to 2010: 0.7551 Estimate Year / Qtr price growth factor: 1.5826 Estimate Year / Qtr cost growth factor: 1.0562	
1. Series 100 – Preliminaries (temp. accommodation, traffic management)			
2. Series 200 – Site Clearance			
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Barriers and Guardrails			
5. Series 500 – Drainage			
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (landscaping)			
8. Series 700 – Pavements			
9. Series 1100 – Kerbs and Footways			
10. Series 1200 – Traffic Signs (including signals) and Road Markings			
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications			£281,723.00
12. Series 1600 to 2500 – Structures (including Environmental Barriers)			
13. Series 2700 – Statutory Undertakers Works			
14. Series 2700 – Noise Insulation Works			
15. Series 2700 – Accommodation Works			
16. Series 3000 – Landscape and Ecology			
17. Technology Renewal Costs 15 Years After Construction: £		Disc'd to Constr'n Year:	
18. Other Costs - Specify:			
Total Works and Technology Renewals Costs (sum of items A1 - A18) discounted to Construction Year		**£281,723.00**	(a)

A1. Preparation and Supervision Costs	Estimate Price Year / Quarter: 2020 Q1				
1. Preparation	Default Costs (•)	OR	User Specified Costs ( )	£5,786.53	
2. Supervision	Default Costs (•)	OR	User Specified Costs ( )	£14,466.32	
Total Preparation and Supervision Costs (sum of items A1.1 - A1.2)				**£20,252.85**	(a1)

B. Land Costs	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. HA Valuer's estimate of cost of land acquisition			
2. Estimate of Part 1 compensation			
3. HA Valuer's estimate of rehousing costs			
4. HA Valuer's estimate of resaleable land residue (enter as –ve sum)			
Total Land Costs (sum of items B1 - B4)		**£0.00**	(b)

C. Other Costs	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. Public Transport Subsidies			
2. Local Government Investment Contributions (enter as -ve sum for contirbutions towards costs included in Part A)			
3. Other – Specify**:**			
Total Other Costs (sum of items C1 - C3)		**£0.00**	(c)

D. Contributions	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. SU Betterment; Deferment or renewal, etc			
2. Developer Contributions			
3. Other – Specify			
Total Contributions (sum of items D1 - D3)		**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes

1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: %	More Information	
3. Construction Year / Quarter	Construction Year / Quarter, or mid-point of construction period if period is longer than one quarter: 2021 Q1	Construction Year / Qtr price growth factor: 1.6253 Construction Year / Qtr cost growth factor: 1.0562 Construction Year / Qtr RPI factor to 2010: 0.7353	
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (including Risk, Non-Recoverable VAT and Optimism Bias)**	**£309,579**	

F. Present Value of Costs (PVC)

1. Change in Maintenance Costs	Additional annual average maintenance costs in Works Costs price-year prices (£): 29,249	More Information	
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**	**£651,808**	

A1 A1 M2F Link A Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	466,270	(b)
Investment costs:	185,538	(c)
Developer and other contributions:	0	(d)
Net Impact:	**651,808**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**651,808**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£0.652M**

Key Points: (Any special considerations or simplifications) Do not leave blank	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (Do not leave blank if Assessment Score is non-Neutral)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ 651,808

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Neutral		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		**Sub-Total:**	**Not Applicable**	0
			0.00				
SOCIETY: TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Neutral		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£0		0.00		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Disabled Users	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£0**		**0.00**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£0**		**0.00**		**0.0**	

SOCIETY: Accidents

Scheme Title: A1 Morpeth to Felton

Scheme Stage: Commitment of Works Expenditure

Date: 02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year: 0
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)

Time of Day of Accident Savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a)				0	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	154,290	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**0**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (from Table C.5): (d)	21.222	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**0**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (from Table C.3a): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**0**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (from Table C.5): (h)	25.877	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**0**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ◉ **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			**Number of Personal Injury Accidents (PIAs) Saved**	**£ Benefits in 2010 prices, discounted to 2010**
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				0	£0
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**0**	**£0**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score: PVB = £0.000M

Metrics: 0 accidents saved.

Key Points:
(Explanation for results)
Do not leave blank. N/A

HIGHWAYS AGENCY

A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

HA Area / DBFO: Area 14

SAR file name: 14A1A1M2FLinkB_211217.xlsm

Trunk Road number: A1

Short name: A1 M2F Link B

N.B. Do not include Road Number in Short Name

Full title: A1 Morpeth to Felton

	Start Point or Mid-Point		End Point	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HA for budgetary purposes (current prices including non-recoverable VAT): £478,339

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

Completed / Amended by		Checked by		Approved by	
Name:	Chris Baguley	Name:	Chris Atkins	Name:	Stephen Halliday
Email:	chris.baguley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.halliday@wsp.com
Date:	02/06/2017	Date:	02/06/2017	Date:	02/06/2017

HA Project Manager

Name:

Email:

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (Brief reasons for carrying out the scheme)	New A1 scheme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
Proposed solution: (Brief description of proposed scheme)	Complete a Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road lighting for the applicable link / links of the A1
Other solutions considered: (State 'None' if there are none - do not leave blank)	None.
Expected outcomes: (Results considered probable given analyses conducted)	If BCR is less than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1

	Month	Year
Expected Date of Opening:	December	2022

Assessment Period

30 years

More Information

Justification for Assessment Period:

Road lighting assessed over 30 year period as per TA49/07.

History and Programme Dates

	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	21/11/2017		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (Do not leave blank)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered: N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

Severity Index: 0.0%

Additional information (eg overall accident rate; national comparison):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Price Year / Quarter: 2020 Q1	Estimate Year / Qtr RPI factor to 2010:	0.7551
		Estimate Year / Qtr price growth factor:	1.5826
		Estimate Year / Qtr cost growth factor:	1.0562

1. Series 100 – Preliminaries (temp. accommodation, traffic management)		
2. Series 200 – Site Clearance		
3. Series 300 – Fencing		
4. Series 400 – Safety Fences, Barriers and Guardrails		
5. Series 500 – Drainage		
6. Series 600 – Earthworks		
7. Series 600 – Earthworks (landscaping)		
8. Series 700 – Pavements		
9. Series 1100 – Kerbs and Footways		
10. Series 1200 – Traffic Signs (including signals) and Road Markings		
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications	£435,298.00	
12. Series 1600 to 2500 – Structures (including Environmental Barriers)		
13. Series 2700 – Statutory Undertakers Works		
14. Series 2700 – Noise Insulation Works		
15. Series 2700 – Accommodation Works		
16. Series 3000 – Landscape and Ecology		
17. Technology Renewal Costs 15 Years After Construction: £	Disc'd to Constr'n Year:	
18. Other Costs - Specify:		
Total Works and Technology Renewals Costs (sum of items A1 - A18) discounted to Construction Year	**£435,298.00**	(a)

A1. Preparation and Supervision Costs	Estimate Price Year / Quarter: 2020 Q1				
1. Preparation	Default Costs (•)	OR	User Specified Costs ( )	£8,940.92	
2. Supervision	Default Costs (•)	OR	User Specified Costs ( )	£22,352.31	
Total Preparation and Supervision Costs (sum of items A1.1 - A1.2)				**£31,293.24**	(a1)

B. Land Costs	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. HA Valuer's estimate of cost of land acquisition			
2. Estimate of Part 1 compensation			
3. HA Valuer's estimate of rehousing costs			
4. HA Valuer's estimate of resaleable land residue (enter as –ve sum)			
Total Land Costs (sum of items B1 - B4)		**£0.00**	(b)

C. Other Costs	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. Public Transport Subsidies			
2. Local Government Investment Contributions (enter as -ve sum for contirbutions towards costs included in Part A)			
3. Other – Specify**:**			
Total Other Costs (sum of items C1 - C3)		**£0.00**	(c)

D. Contributions	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. SU Betterment; Deferment or renewal, etc			
2. Developer Contributions			
3. Other – Specify			
Total Contributions (sum of items D1 - D3)		**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes

1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment Mean Risk Allowance in Works Costs price year prices (£):	
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: %	More Information
3. Construction Year / Quarter	Construction Year / Quarter, or mid-point of construction period if period is longer than one quarter: 2021 Q1	Construction Year / Qtr price growth factor: 1.6253 Construction Year / Qtr cost growth factor: 1.0562 Construction Year / Qtr RPI factor to 2010: 0.7353
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (including Risk, Non-Recoverable VAT and Optimism Bias)**	**£478,339**

F. Present Value of Costs (PVC)

1. Change in Maintenance Costs	Additional annual average maintenance costs in Works Costs price-year prices (£): 44,497	More Information
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**	**£996,024**

A1 A1 M2F Link B Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	709,344	(b)
Investment costs:	286,680	(c)
Developer and other contributions:	0	(d)
Net Impact:	**996,024**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**996,024**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£0.996M**

Key Points: (Any special considerations or simplifications) Do not leave blank	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (Do not leave blank if Assessment Score is non-Neutral)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ 996,024

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		**Sub-Total:**	**Not Applicable**	0
			0.00				
SOCIETY: TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£8,668		0.01		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Disabled Users	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£8,668**		**0.01**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£8,668**		**0.01**		**0.0**	

SOCIETY: Accidents

Scheme Title: A1 Morpeth to Felton

Scheme Stage: Commitment of Works Expenditure

Date: 02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year: 0.004
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)

Time of Day of Accident Savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a)				0.004	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	154,290	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**617**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (from Table C.5): (d)	21.222	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**13,097**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (from Table C.3a): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**8,668**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (from Table C.5): (h)	25.877	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**0**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ◉ **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			Number of Personal Injury Accidents (PIAs) Saved	£ Benefits in 2010 prices, discounted to 2010
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				0	£8,668
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**0**	**£8,668**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score: PVB = £0.009M

Metrics: 0 accidents saved.

Key Points:
(Explanation for results)
Do not leave blank.
N/A

HIGHWAYS AGENCY

A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR

HA Area / DBFO: Area 14

SAR file name: 14A1A1M2FLinkC_211217.xlsm

Trunk Road number: A1

Short name: A1 M2F Link C

N.B. Do not include Road Number in Short Name

Full title: A1 Morpeth to Felton

	Start Point or Mid-Point		**End Point**	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HA for budgetary purposes (current prices including non-recoverable VAT): £806,983

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

Completed / Amended by		**Checked by**		**Approved by**	
Name:	Chris Baguley	Name:	Chris Atkins	Name:	Stephen Halliday
Email:	chris.baguley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.halliday@wsp.com
Date:	02/06/2017	Date:	02/06/2017	Date:	02/06/2017

HA Project Manager

Name:

Email:

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (Brief reasons for carrying out the scheme)	New A1 scheme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
Proposed solution: (Brief description of proposed scheme)	Complete a Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road lighting for the applicable link / links of the A1
Other solutions considered: (State 'None' if there are none - do not leave blank)	None.
Expected outcomes: (Results considered probable given analyses conducted)	If BCR is less than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1

Expected Date of Opening: Month: December Year: 2022

Assessment Period

30 years

More Information

Justification for Assessment Period:

Road lighting assessed over 30 year period as per TA49/07.

History and Programme Dates

	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	21/11/2017		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (Do not leave blank)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

Severity Index: 0.0%

Additional information (eg overall accident rate; national comparison):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Price Year / Quarter: 2020 Q1	Estimate Year / Qtr RPI factor to 2010:	0.7551
		Estimate Year / Qtr price growth factor:	1.5826
		Estimate Year / Qtr cost growth factor:	1.0562

1. Series 100 – Preliminaries (temp. accommodation, traffic management)		
2. Series 200 – Site Clearance		
3. Series 300 – Fencing		
4. Series 400 – Safety Fences, Barriers and Guardrails		
5. Series 500 – Drainage		
6. Series 600 – Earthworks		
7. Series 600 – Earthworks (landscaping)		
8. Series 700 – Pavements		
9. Series 1100 – Kerbs and Footways		
10. Series 1200 – Traffic Signs (including signals) and Road Markings		
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications	£734,370.00	
12. Series 1600 to 2500 – Structures (including Environmental Barriers)		
13. Series 2700 – Statutory Undertakers Works		
14. Series 2700 – Noise Insulation Works		
15. Series 2700 – Accommodation Works		
16. Series 3000 – Landscape and Ecology		
17. Technology Renewal Costs 15 Years After Construction: £	Disc'd to Constr'n Year:	
18. Other Costs - Specify:		
Total Works and Technology Renewals Costs (sum of items A1 - A18) discounted to Construction Year	**£734,370.00**	(a)

A1. Preparation and Supervision Costs	Estimate Price Year / Quarter: 2020 Q1				
1. Preparation	Default Costs (•)	OR	User Specified Costs ( )	£15,083.80	
2. Supervision	Default Costs (•)	OR	User Specified Costs ( )	£37,709.49	
Total Preparation and Supervision Costs (sum of items A1.1 - A1.2)				**£52,793.29**	(a1)

B. Land Costs	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. HA Valuer's estimate of cost of land acquisition			
2. Estimate of Part 1 compensation			
3. HA Valuer's estimate of rehousing costs			
4. HA Valuer's estimate of resaleable land residue (enter as –ve sum)			
Total Land Costs (sum of items B1 - B4)		**£0.00**	(b)

C. Other Costs	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. Public Transport Subsidies			
2. Local Government Investment Contributions (enter as -ve sum for contirbutions towards costs included in Part A)			
3. Other – Specify**:**			
Total Other Costs (sum of items C1 - C3)		**£0.00**	(c)

D. Contributions	Estimate Price Year / Quarter: Choose	RPI: 0.0	
1. SU Betterment; Deferment or renewal, etc			
2. Developer Contributions			
3. Other – Specify			
Total Contributions (sum of items D1 - D3)		**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes

1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment Mean Risk Allowance in Works Costs price year prices (£):	
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: %	More Information
3. Construction Year / Quarter	Construction Year / Quarter, or mid-point of construction period if period is longer than one quarter: 2021 Q1	Construction Year / Qtr price growth factor: 1.6253 Construction Year / Qtr cost growth factor: 1.0562 Construction Year / Qtr RPI factor to 2010: 0.7353
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (including Risk, Non-Recoverable VAT and Optimism Bias)**	**£806,983**

F. Present Value of Costs (PVC)

1. Change in Maintenance Costs	Additional annual average maintenance costs in Works Costs price-year prices (£): 87,598	More Information
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**	**£1,880,072**

A1 A1 M2F Link C Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	1,396,428	(b)
Investment costs:	483,644	(c)
Developer and other contributions:	0	(d)
Net Impact:	**1,880,072**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**1,880,072**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£1.880M**

Key Points: (Any special considerations or simplifications) Do not leave blank	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (Do not leave blank if Assessment Score is non-Neutral)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ 1,880,072

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		**Sub-Total:**	**Not Applicable**	0
			0.00				
SOCIETY: TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£138,682		0.07		0.01	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.01**	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Disabled Users	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£138,682**		**0.07**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£138,682**		**0.07**		**0.0**	

SOCIETY: Accidents

Scheme Title: A1 Morpeth to Felton

Scheme Stage: Commitment of Works Expenditure

Date: 02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year: 0.064
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)

Time of Day of Accident Savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a)				0.064	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	154,290	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**9,875**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (d) (from Table C.5):	21.222	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**209,557**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (from Table C.3a): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**138,682**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (h) (from Table C.5):	25.877	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**2**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ◉ **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			Number of Personal Injury Accidents (PIAs) Saved	£ Benefits in 2010 prices, discounted to 2010
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				2	£138,682
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**2**	**£138,682**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score: PVB = £0.139M

Metrics: 2 accidents saved.

Key Points:
(Explanation for results)
Do not leave blank. N/A

HIGHWAYS AGENCY

A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

HA Area / DBFO: Area 14

SAR file name: 14A1A1M2FLinkD_211217.xlsm

Trunk Road number: A1

Short name: A1 M2F Link D

N.B. Do not include Road Number in Short Name

Full title: A1 Morpeth to Felton

	Start Point or Mid-Point		End Point	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HA for budgetary purposes (current prices including non-recoverable VAT): £272,079

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

Completed / Amended by		Checked by		Approved by	
Name:	Chris Baguley	Name:	Chris Atkins	Name:	Stephen Halliday
Email:	chris.baguley@wsp.com	Email:	chris.atkins@wsp.com	Email:	stephen.halliday@wsp.com
Date:	02/06/2017	Date:	02/06/2017	Date:	02/06/2017

HA Project Manager

Name:

Email:

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (Brief reasons for carrying out the scheme)	New A1 scheme (dualing) requires consideration for the potential requirement for road lighting in accordance with TA49/07.
Proposed solution: (Brief description of proposed scheme)	Complete a Scheme Appraisal Report (SAR) to determine the Benefit Cost Ratio (BCR) of road lighting for the applicable link / links of the A1
Other solutions considered: (State 'None' if there are none - do not leave blank)	None.
Expected outcomes: (Results considered probable given analyses conducted)	If BCR is less than 1.0 then the HE may consider not providing road lighting for the applicable link / links of the A1

Expected Date of Opening: Month: December Year: 2022

Assessment Period

30 years

More Information

Justification for Assessment Period:

Road lighting assessed over 30 year period as per TA49/07.

History and Programme Dates

	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	21/11/2017		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (Do not leave blank)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered:

N/A for new road, predicited accident savings applied based on similar schemes/scenarios

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	0	0	0		0	0	0	0
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	0	0	0		0	0	0	0
AVERAGE:	per annum	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0

Severity Index: 0.0%

Additional information (eg overall accident rate; national comparison):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year / Quarter" in each of Parts A - D relates to the year and quarter to which the prices entered relate - i.e. the price base - rather than the current year and quarter.

A. Works Costs	Estimate Year / Qtr RPI factor to 2010:	0.7551
Estimate Price Year / Quarter: 2020 Q1	Estimate Year / Qtr price growth factor:	1.5826
	Estimate Year / Qtr cost growth factor:	1.0562

1. Series 100 – Preliminaries (temp. accommodation, traffic management)		
2. Series 200 – Site Clearance		
3. Series 300 – Fencing		
4. Series 400 – Safety Fences, Barriers and Guardrails		
5. Series 500 – Drainage		
6. Series 600 – Earthworks		
7. Series 600 – Earthworks (landscaping)		
8. Series 700 – Pavements		
9. Series 1100 – Kerbs and Footways		
10. Series 1200 – Traffic Signs (including signals) and Road Markings		
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications	£232,394.00	
12. Series 1600 to 2500 – Structures (including Environmental Barriers)		
13. Series 2700 – Statutory Undertakers Works		
14. Series 2700 – Noise Insulation Works		
15. Series 2700 – Accommodation Works		
16. Series 3000 – Landscape and Ecology		
17. Technology Renewal Costs 15 Years After Construction: £	Disc'd to Constr'n Year:	
18. Other Costs - Specify:		
Total Works and Technology Renewals Costs (sum of items A1 - A18) discounted to Construction Year	**£232,394.00**	(a)

A1. Preparation and Supervision Costs						
Estimate Price Year / Quarter: 2020 Q1						
1. Preparation	Default Costs	◉	OR	User Specified Costs	○	£9,546.64
2. Supervision	Default Costs	◉	OR	User Specified Costs	○	£23,866.61
Total Preparation and Supervision Costs (sum of items A1.1 - A1.2)						**£33,413.25** (a1)

B. Land Costs		
Estimate Price Year / Quarter: Choose	RPI:	0.0
1. HA Valuer's estimate of cost of land acquisition		
2. Estimate of Part 1 compensation		
3. HA Valuer's estimate of rehousing costs		
4. HA Valuer's estimate of resaleable land residue (enter as –ve sum)		
Total Land Costs (sum of items B1 - B4)	**£0.00**	(b)

C. Other Costs		
Estimate Price Year / Quarter: Choose	RPI:	0.0
1. Public Transport Subsidies		
2. Local Government Investment Contributions (enter as -ve sum for contirbutions towards costs included in Part A)		
3. Other – Specify**:**		
Total Other Costs (sum of items C1 - C3)	**£0.00**	(c)

D. Contributions		
Estimate Price Year / Quarter: Choose	RPI:	0.0
1. SU Betterment; Deferment or renewal, etc		
2. Developer Contributions		
3. Other – Specify		
Total Contributions (sum of items D1 - D3)	**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes

1. Risk Allowance	Does the scheme have a Risk Assessment ?	Without Risk Assessment	
	Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable:	%	More Information
3. Construction Year / Quarter	Construction Year / Quarter, or mid-point of construction period if period is longer than one quarter: 2021 Q1	Construction Year / Qtr price growth factor:	1.6253
		Construction Year / Qtr cost growth factor:	1.0562
		Construction Year / Qtr RPI factor to 2010:	0.7353
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (including Risk, Non-Recoverable VAT and Optimism Bias)**		**£272,079**

F. Present Value of Costs (PVC)

1. Change in Maintenance Costs	Additional annual average maintenance costs in Works Costs price-year prices (£):	27,515	More Information
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**		**£601,691**

A1 A1 M2F Link D Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	438,628	(b)
Investment costs:	163,063	(c)
Developer and other contributions:	0	(d)
Net Impact:	**601,691**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**601,691**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£0.602M**

Key Points: (Any special considerations or simplifications) Do not leave blank	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

NB This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (Do not leave blank if Assessment Score is non-zero)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

NB This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant eg a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (Do not leave blank if Assessment Score is non-Neutral)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ 601,691

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		**Sub-Total:**	**Not Applicable**	0
			0.00				
SOCIETY: TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£34,670		0.06		0.01	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.01**	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Disabled Users	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£34,670**		**0.06**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£34,670**		**0.06**		**0.0**	

SOCIETY: Accidents

Scheme Title: A1 Morpeth to Felton

Scheme Stage: Commitment of Works Expenditure

Date: 02/06/2017

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

Help
User Notes

PART A

Predicted number of personal injury accidents saved in opening year: 0.016
(If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value)

Time of Day of Accident Savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (PIAs) saved in Opening Year: (a)				0.016	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	154,290	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**2,469**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (from Table C.5): (d)	21.222	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**52,389**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (from Table C.3a): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**34,670**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (from Table C.5): (h)	25.877	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**0**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ◉ **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			Number of Personal Injury Accidents (PIAs) Saved	£ Benefits in 2010 prices, discounted to 2010
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				0	£34,670
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**0**	**£34,670**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score: PVB = £0.035M

Metrics: 0 accidents saved.

Key Points:
(Explanation for results)
Do not leave blank.
N/A

Appendix D

SCHEME DRAWINGS

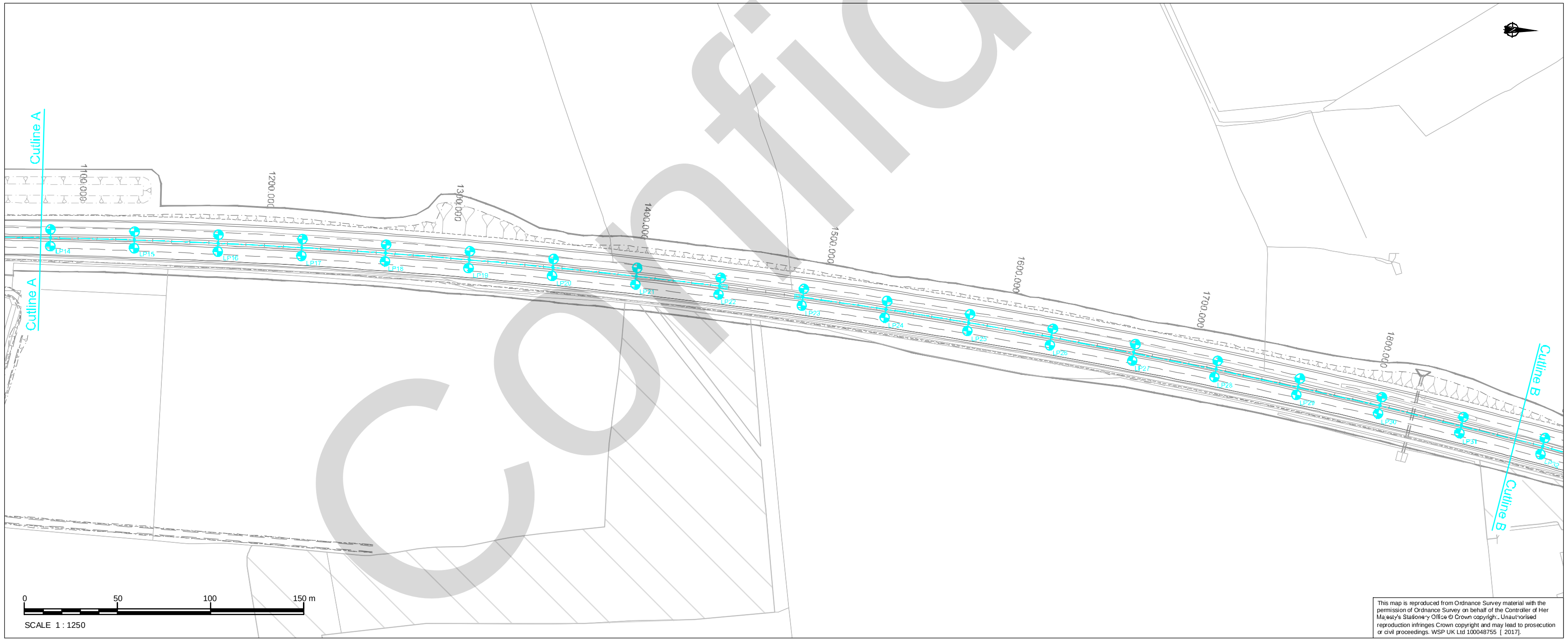
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards and risks normally associated with the types of work detailed on this drawing, note the following hazards and risks and information.

CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline, approx ch-1298.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia, approx ch-945.
-	300mm dia. water mains, approx ch-1390.
-	Telephone mains.
-	Piped culvert, approx ch-1823.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.



NOTES:

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2. ALL WORKS SHALL BE IN ACCORDANCE WITH THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS (MCHW) AND THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB).
3. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH SPECIFICATION APPENDICES 0500, 1300 AND 1400 (ALL RELEVANT LIGHTING SECTIONS).
4. PRIOR TO THE COMMENCEMENT OF ANY WORKS ON SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL UTILITIES INFORMATION, STATUTORY UNDERTAKERS C2 RETURNS AND CONTACT RELEVANT STATUTORY UNDERTAKERS (SEE APPENDIX 1/16). ALL SERVICES (INCLUDING MANHOLE AND SERVICE BOX COVERS) SHALL BE MARKED OUT ON SITE BEFORE WORKS BEGIN BY REFERENCE TO EXISTING SERVICE DRAWINGS, A VISUAL CHECK DURING DAYLIGHT AND BY USE OF CAT/GENNY.
5. LIGHTING WORKS IN THE VICINITY OF OVERHEAD LINES (ELECTRICITY POWER CABLES) SHALL BE UNDERTAKEN IN ACCORDANCE WITH ERG39/1 CLEARANCES AND SAFETY PROCEDURES.
6. NO EQUIPMENT SHALL NOT BE INSTALLED ON SITE WITHOUT REFERENCE TO THE SECTION DRAWINGS FOR THE AREA IN WHICH EQUIPMENT IS BEING INSTALLED.
7. THE CONTRACTOR FOR THE WORKS SHALL CONTACT THE STREET LIGHTING DESIGNER FOR GUIDANCE WHEN EQUIPMENT CAN NOT BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DRAWINGS / RELEVANT APPENDICES.
8. ALL NUMBERING ON THIS DRAWING IS INDICATIVE ONLY AND FINAL NUMBERING SHALL BE AGREED BY THE CONTRACTOR WITH THE OVERSEEING ORGANISATION.

KEY:

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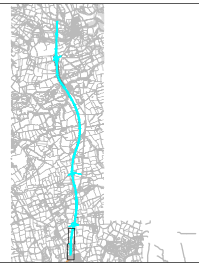
- PROPOSED 12M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 2 BGP623 DW10 LED LANTERN AT 0° INCLINATION EMITTING 17 KLM.
- PROPOSED 10M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 1 BGP623 DW10 LED LANTERN AT 0° INCLINATION EMITTING 15 KLM.
- PROPOSED 10M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 1 BGP623 DW10 LED LANTERN AT 0° INCLINATION EMITTING 10 KLM.
- PROPOSED ACCESS CHAMBER
- PROPOSED FEEDER PILLAR
- PROPOSED UPVC DUCT
- DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
B	30/11/2017	SECOND ISSUE	VC	MS	CB	SH
A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

.\logo\Jacobs_logo_2012.jpg

Client

.\Highways England Templates\4CF95D0F.jpg

Project

A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title

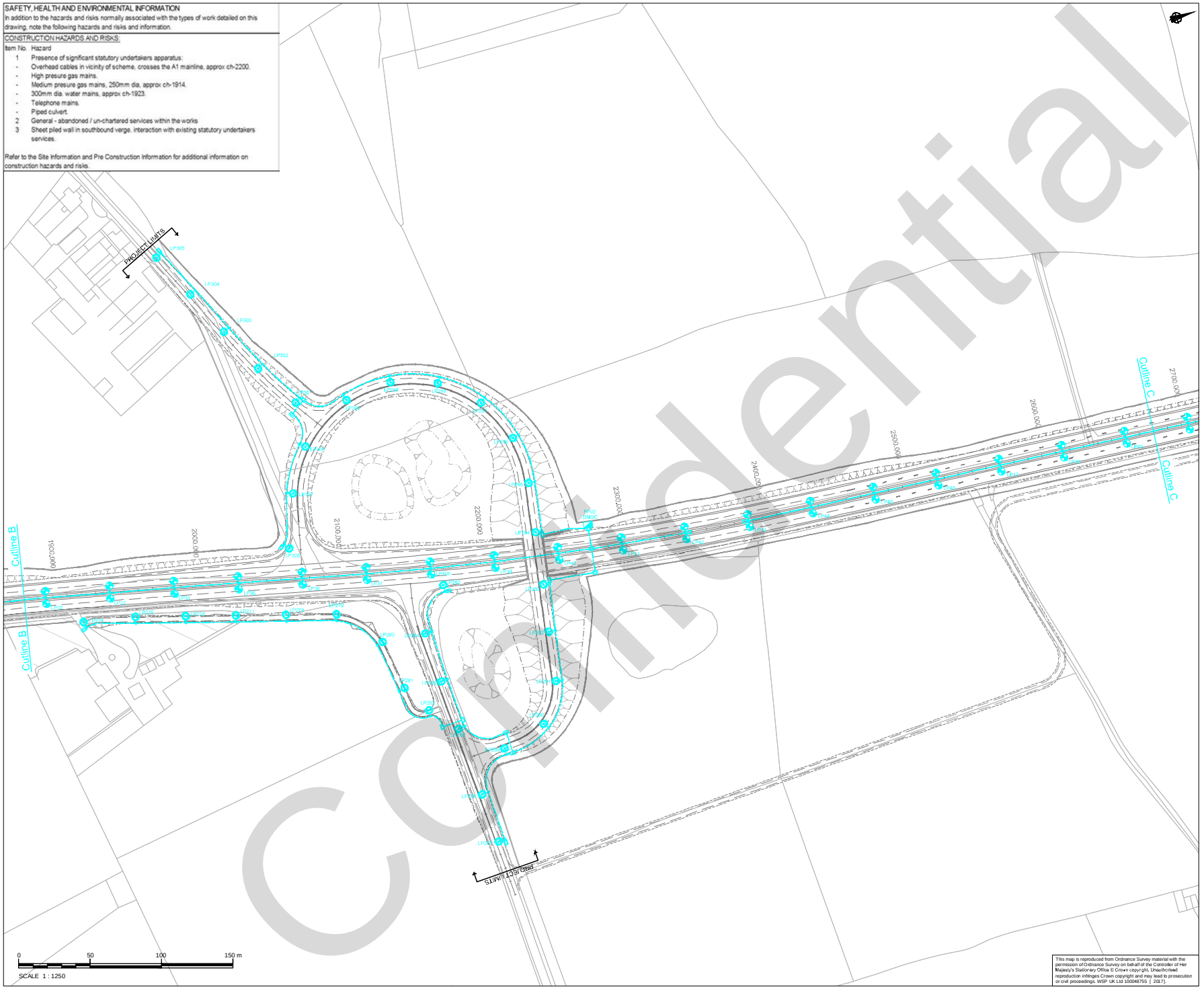
PROPOSED ROAD LIGHTING LAYOUT SHEET 1 OF 10

Drawing status

PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number	Rev
549146159-WSP-HLG-0000-DR-E0-0001	B



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards and risks normally associated with the types of work detailed on this drawing, note the following hazards and risks and information.

CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline, approx ch-2200.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia, approx ch-1914.
-	300mm dia. water mains, approx ch-1923.
-	Telephone mains.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL WORKS SHALL BE IN ACCORDANCE WITH THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS (MCHW) AND THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB).
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5. LIGHTING WORKS IN THE VICINITY OF OVERHEAD LINES (ELECTRICITY POWER CABLES) SHALL BE UNDERTAKEN IN ACCORDANCE WITH ERG39/1 CLEARANCES AND SAFETY PROCEDURES.
6. NO EQUIPMENT SHALL NOT BE INSTALLED ON SITE WITHOUT REFERENCE TO THE SECTION DRAWINGS FOR THE AREA IN WHICH EQUIPMENT IS BEING INSTALLED.
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KEY:

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- PROPOSED 10M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 1 BGP623 DW10 LED LANTERN AT 0°INCLINATION EMITTING 10 KLM.
- PROPOSED ACCESS CHAMBER
- PROPOSED FEEDER PILLAR
- PROPOSED UPVC DUCT
- DNOC — DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprvd
B	30/11/2017	SECOND ISSUE	VC	MS	CB	SH
A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

Client

Project
A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title
PROPOSED ROAD LIGHTING LAYOUT SHEET 2 OF 10

Drawing status
PRELIMINARY ISSUE

Scale	1:1250 DO NOT SCALE
Jacobs No.	B2104700
Client no.	551459
Drawing number	549146159-WSP-HLG-0000-DR-E0-0002
Rev	B

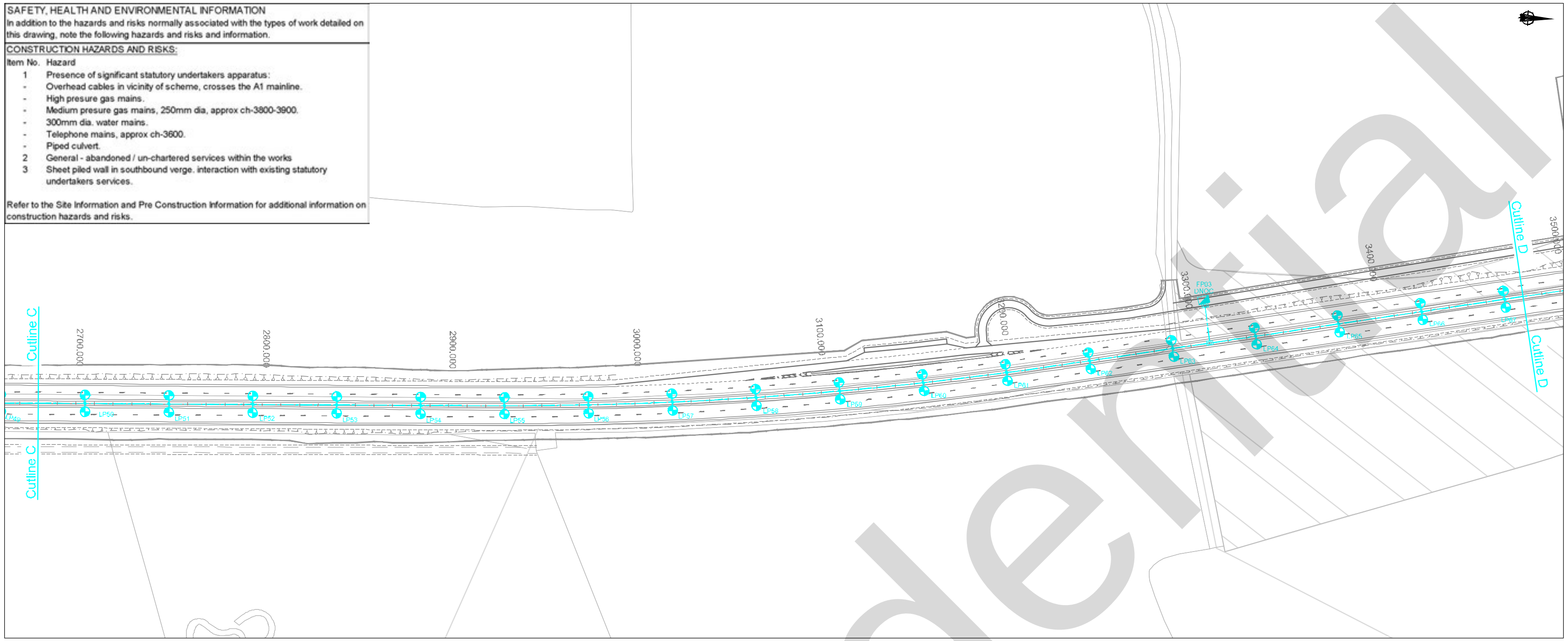
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

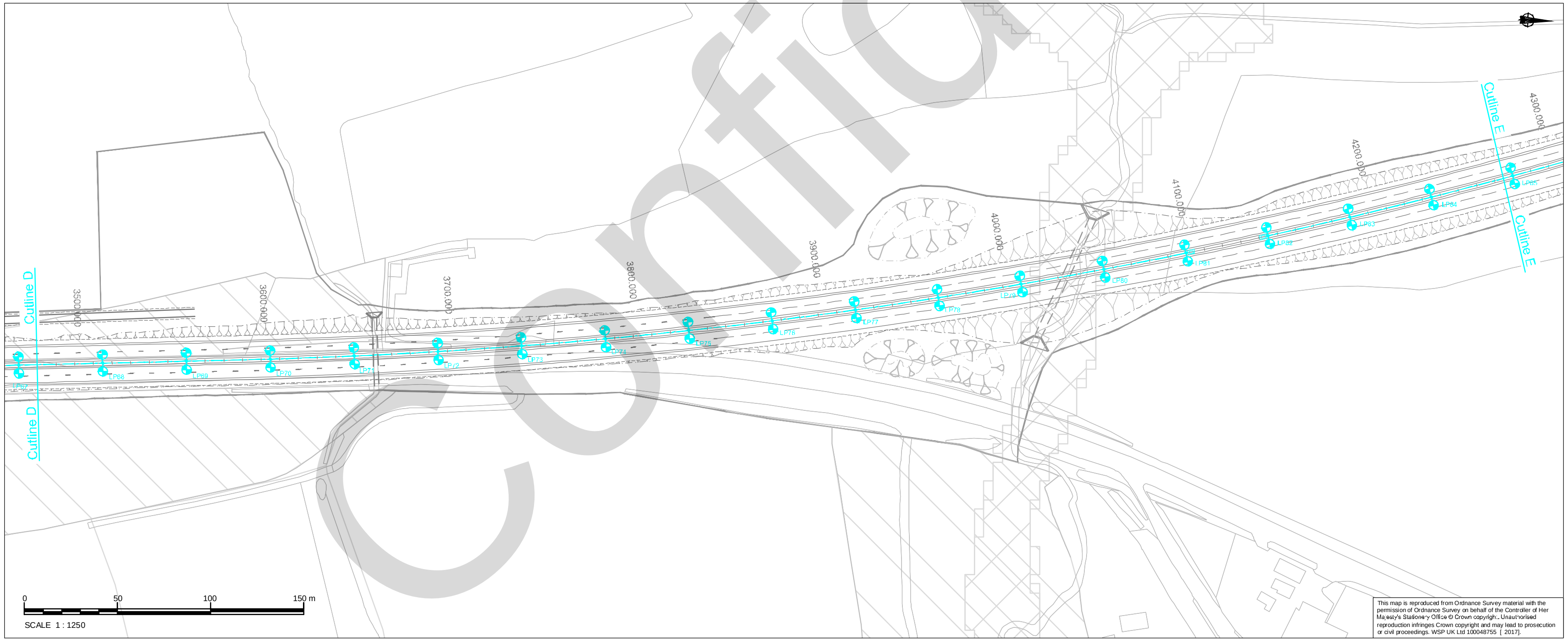
In addition to the hazards and risks normally associated with the types of work detailed on this drawing, note the following hazards and risks and information.

CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia, approx ch-3800-3900.
-	300mm dia. water mains.
-	Telephone mains, approx ch-3600.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.





NOTES:

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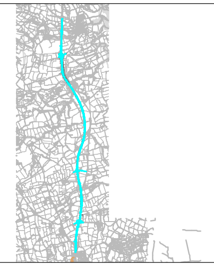
- PROPOSED UPVC DUCT
- DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
B	30/11/2017	SECOND ISSUE	VC	MS	CB	SH
A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

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Client

.\Highways England Templates\4CF95D0F.jpg

Project

A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title

PROPOSED ROAD LIGHTING LAYOUT SHEET 3 OF 10

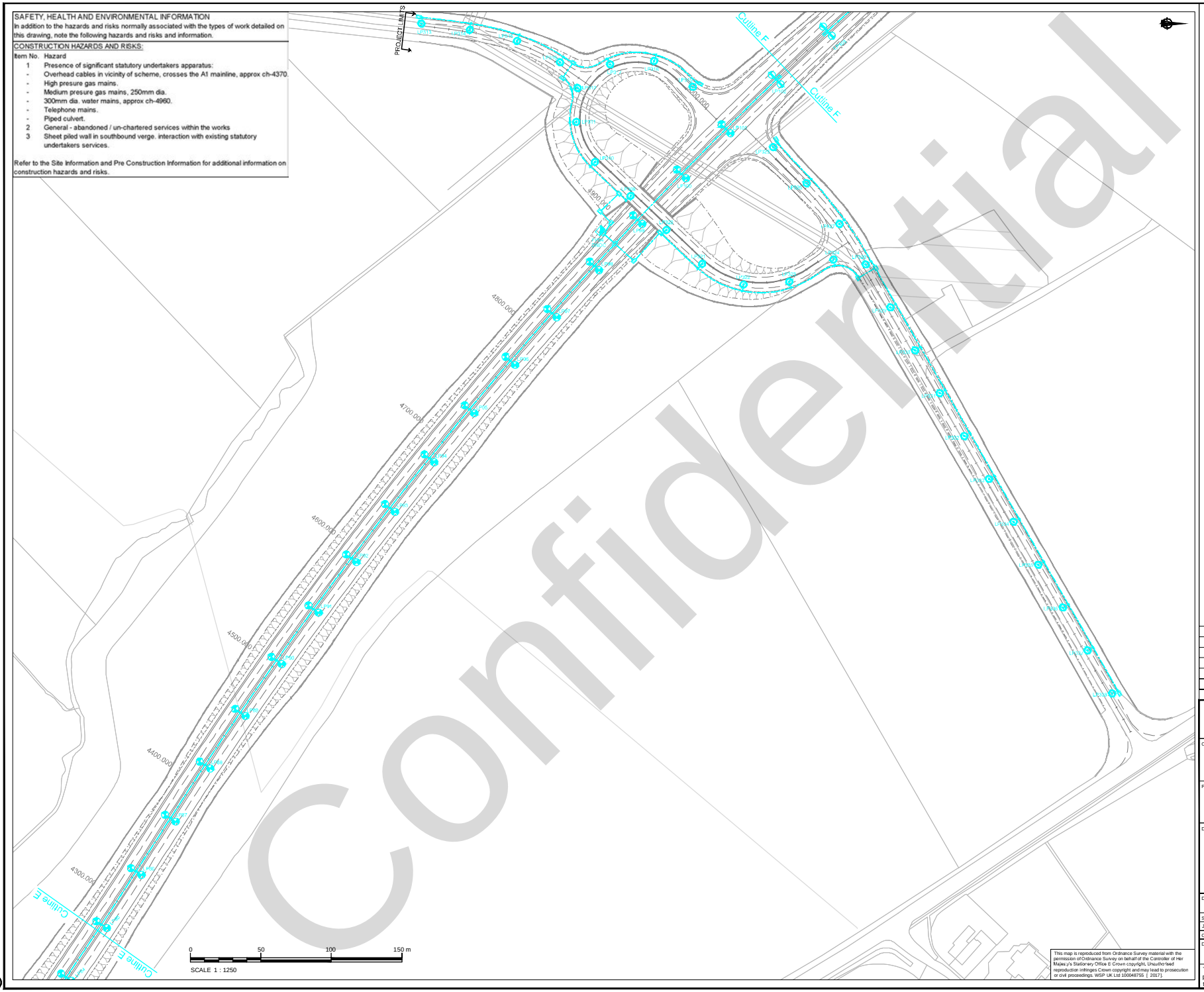
Drawing status

PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number: 549146159-WSP-HLG-0000-DR-E0-0003

Rev: B



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards and risks normally associated with the types of work detailed on this drawing, note the following hazards and risks and information.

CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline, approx ch-4370.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia.
-	300mm dia. water mains, approx ch-4960.
-	Telephone mains.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.

NOTES:

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- PROPOSED ACCESS CHAMBER
- PROPOSED FEEDER PILLAR
- PROPOSED UPVC DUCT
- DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
B	30/11/2017	SECOND ISSUE	VC	MS	CB	SH
A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

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Client

Project: A1 IN NORTHUMBERLAND MORPETH TO FELTON

Drawing title: PROPOSED ROAD LIGHTING LAYOUT SHEET 4 OF 10

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number: 549146159-WSP-HLG-0000-DR-E0-0004 Rev: B

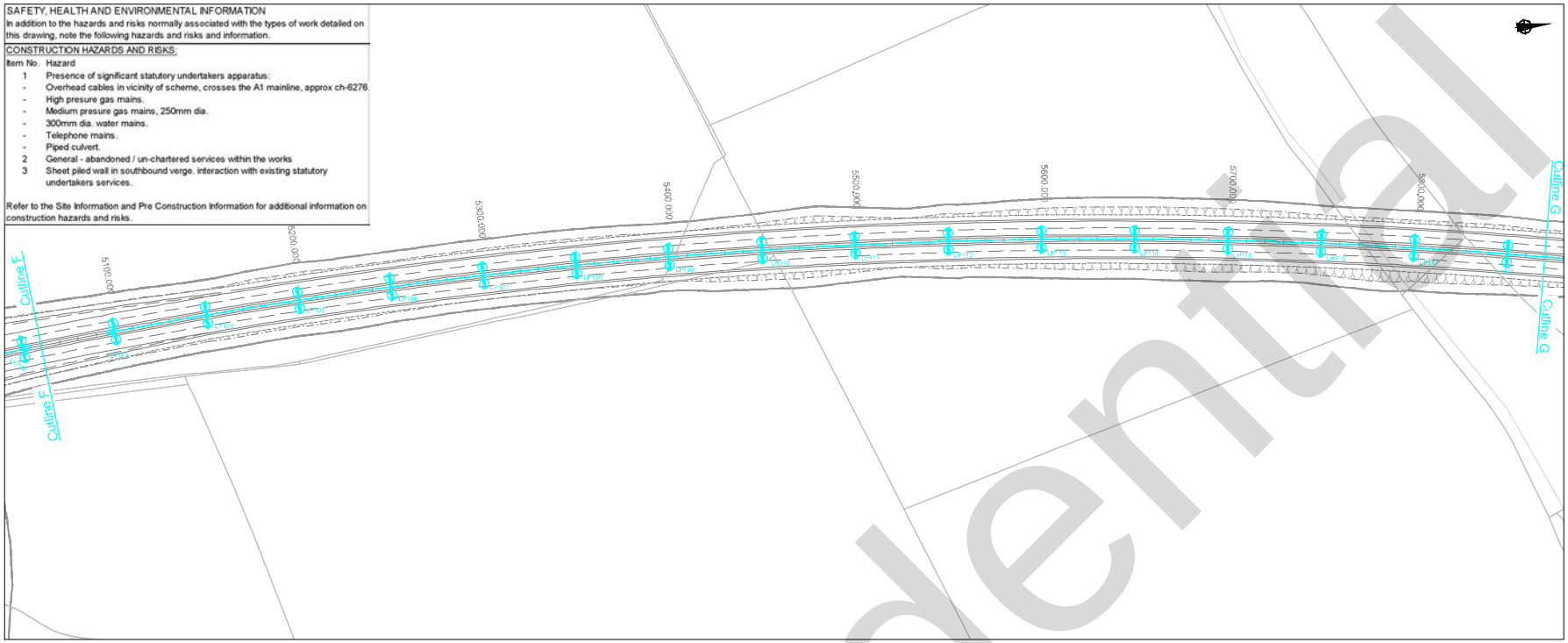
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

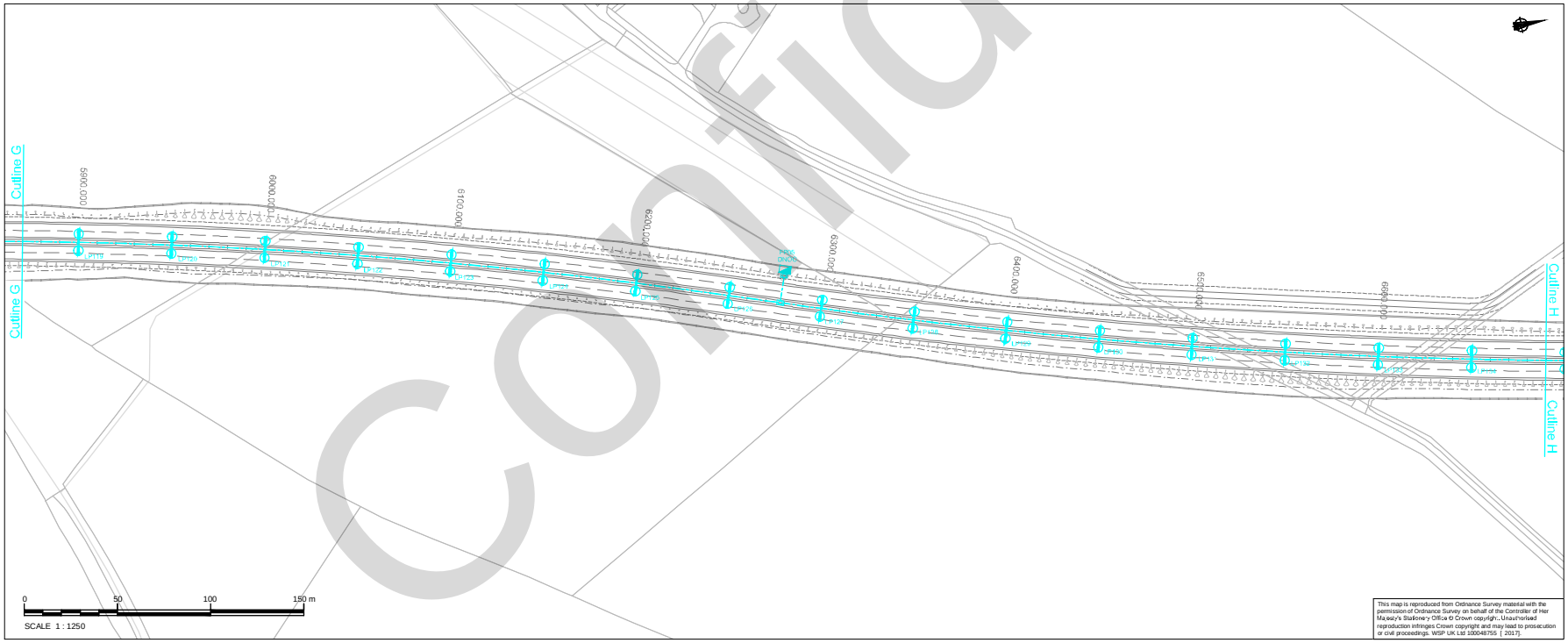
In addition to the hazards and risks normally associated with the types of work detailed on this drawing, note the following hazards and risks and information.

CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline, approx ch-6276.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia.
-	300mm dia. water mains.
-	Telephone mains.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.





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NOTES:

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- PROPOSED UPVC DUCT
- DNOC — DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprvd
B	30/11/2017	SECOND ISSUE	VC	MS	CB	SH
A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

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Client

Project: A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title: PROPOSED ROAD LIGHTING LAYOUT SHEET 5 OF 10

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number: 549146159-WSP-HLG-0000-DR-E0-0005 Rev B

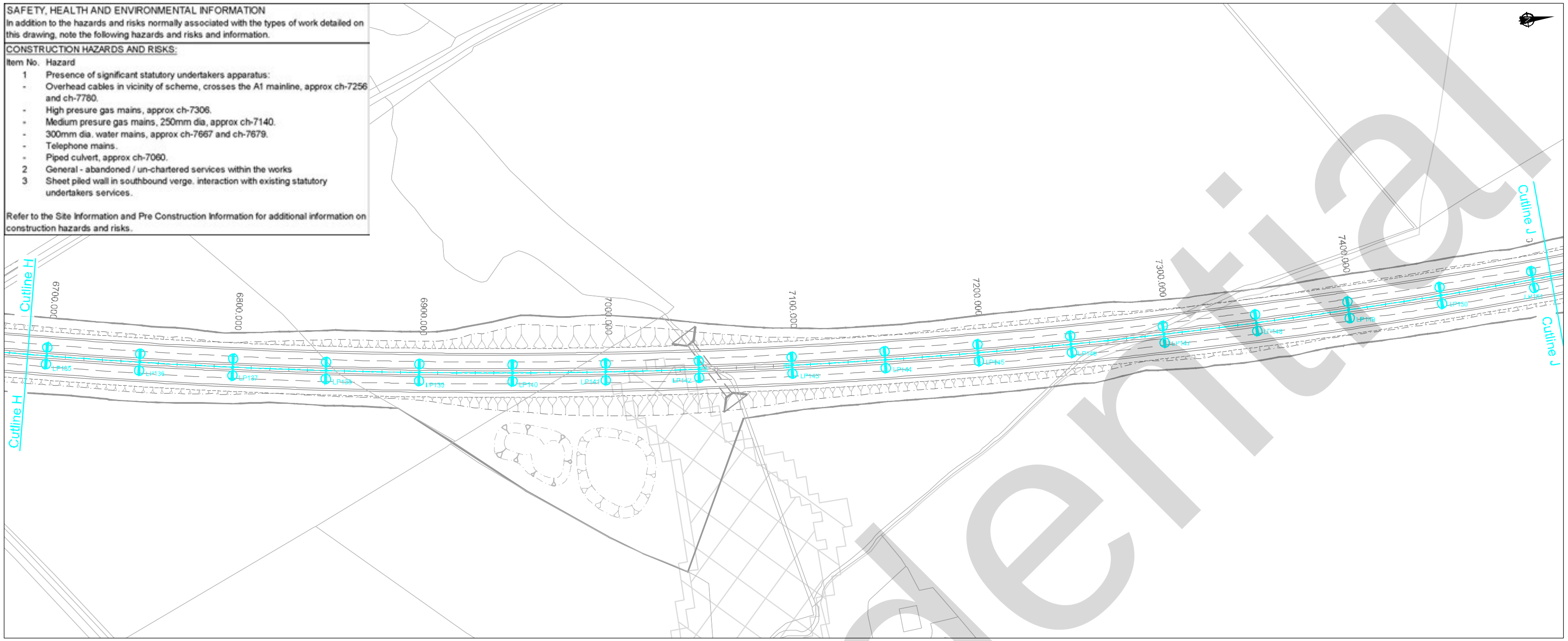
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

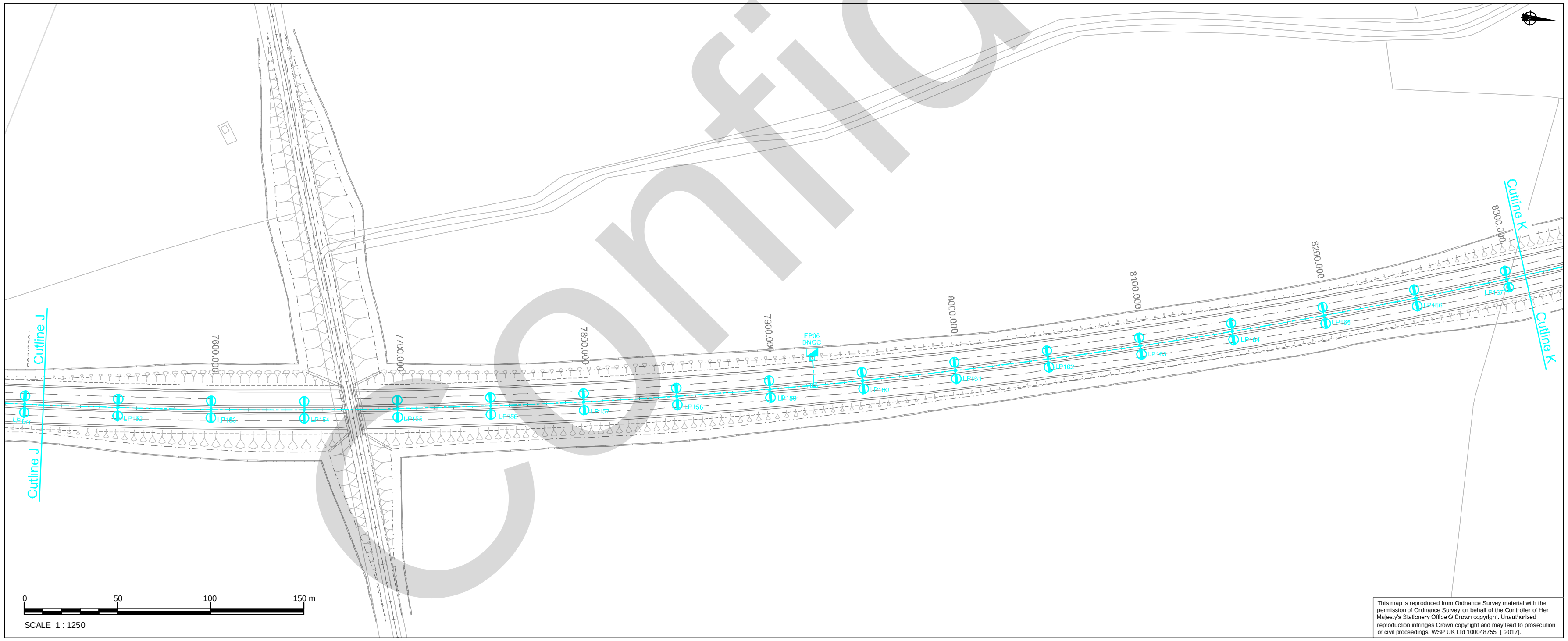
In addition to the hazards and risks normally associated with the types of work detailed on this drawing, note the following hazards and risks and information.

CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline, approx ch-7256 and ch-7780.
-	High presure gas mains, approx ch-7306.
-	Medium presure gas mains, 250mm dia, approx ch-7140.
-	300mm dia. water mains, approx ch-7667 and ch-7679.
-	Telephone mains.
-	Piped culvert, approx ch-7060.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.





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A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

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Client

.\Highways England Template\HCF95DF.jpg

Project

A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title

PROPOSED ROAD LIGHTING LAYOUT SHEET 6 OF 10

Drawing status

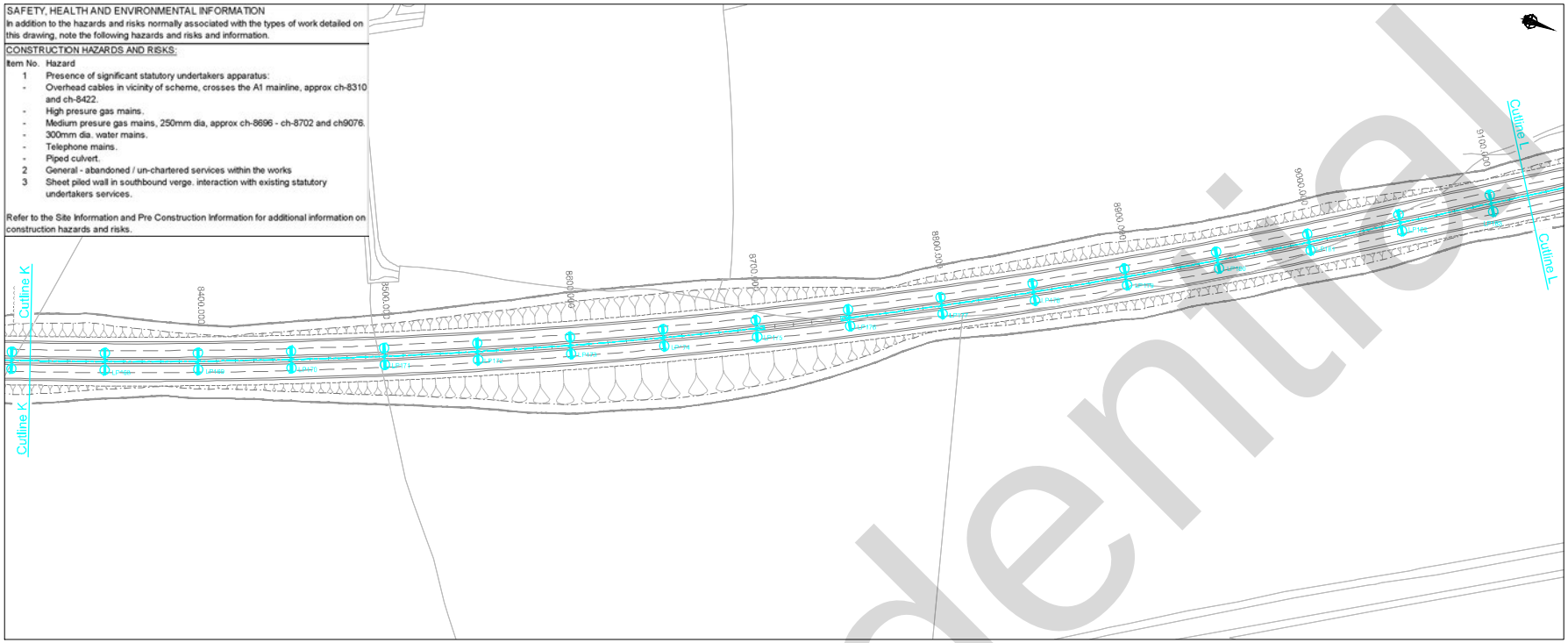
PRELIMINARY ISSUE

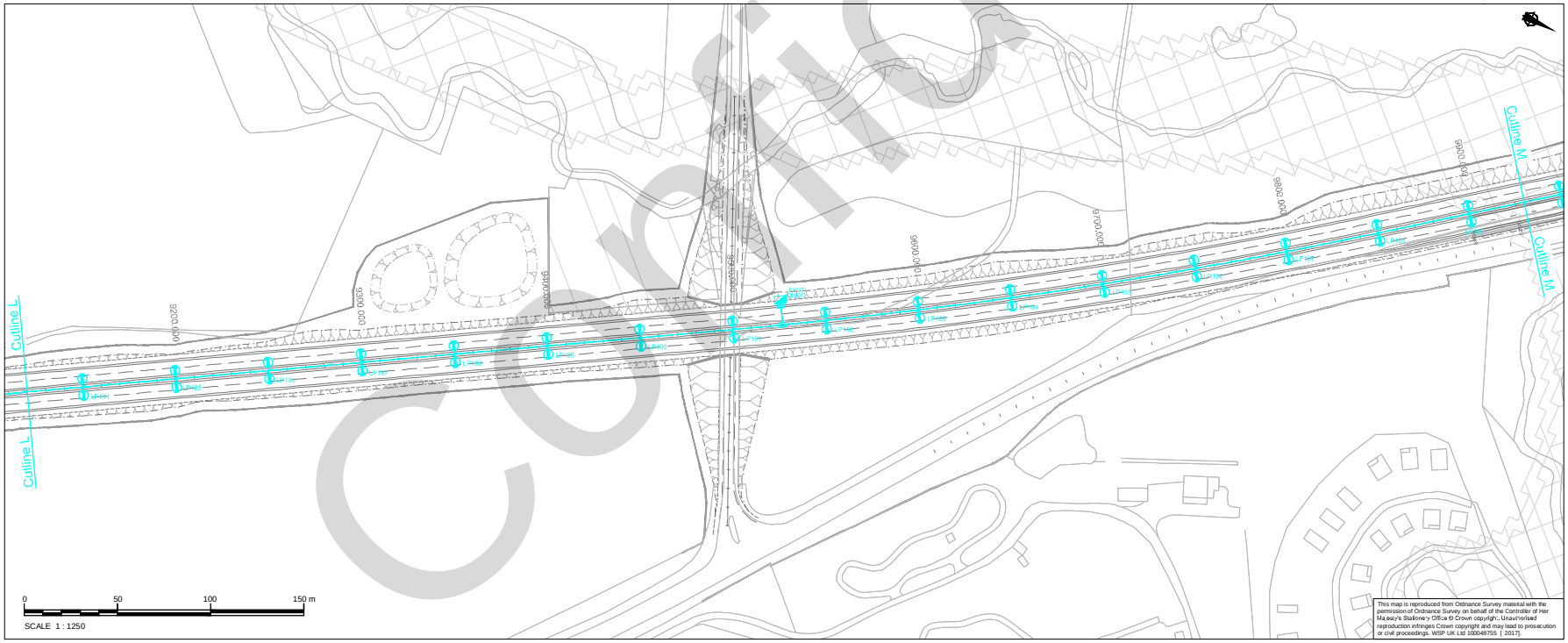
Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number	Rev
549146159-WSP-HLG-0000-DR-E0-0006	B

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.

\\ser01man1uk.uk.wspgroup.com\projects\01 Prospects\01 Prospects\03 Lighting and Electrical Services Bids_BIDS POST JUNE 2016\0200 - A1 Morpeth to Felton (TA49)\dwgs\CRC\DWGS\549146159-WSP-HLG-0000-DR-E0-0001-0010.dwg - 30/11/2017 15:53:38 - 549146159-WSP-HLG-0000-DR-E0-0006 - INVC00436





0 50 100 150 m

SCALE 1 : 1250

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

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CONSTRUCTION HAZARDS AND RISKS:

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1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline, approx ch-8310 and ch-8422.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia, approx ch-8696 - ch-8702 and ch9076.
-	300mm dia. water mains.
-	Telephone mains.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
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B	30/11/2017	SECOND ISSUE	VC	MS	CB	SH
A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

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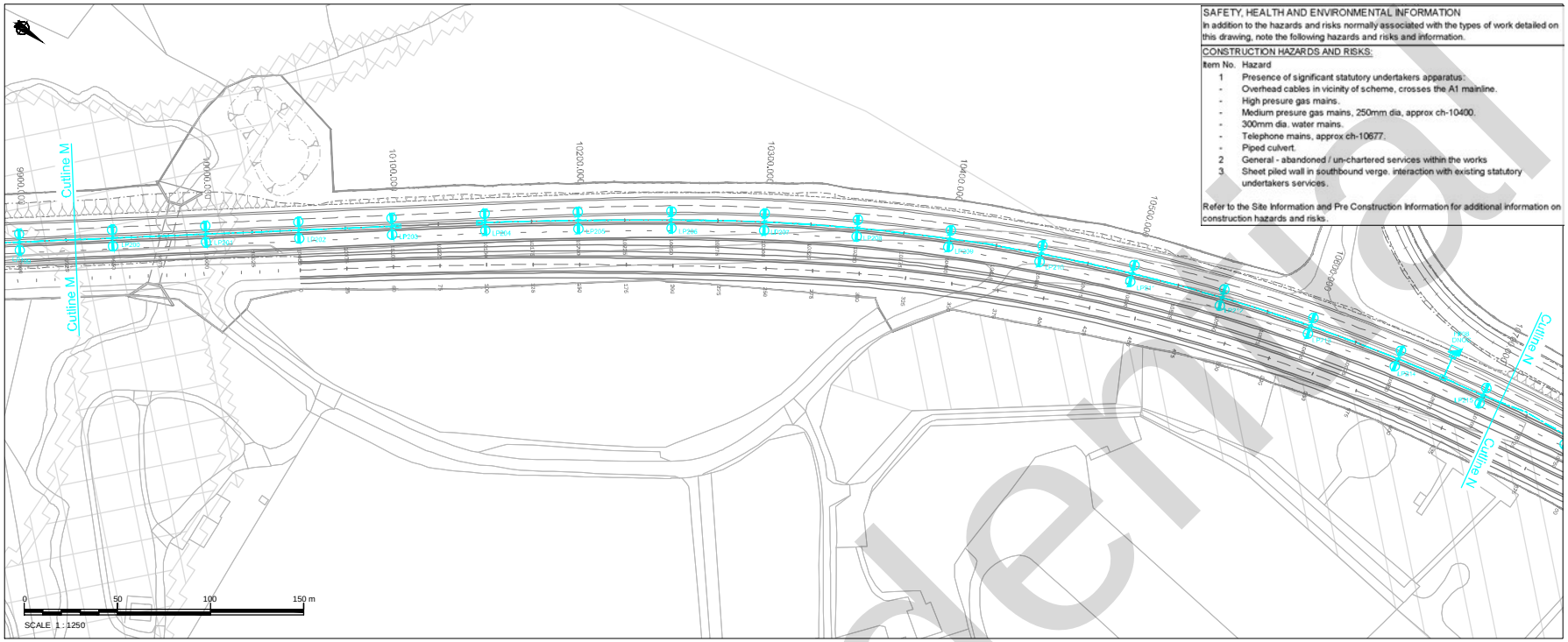
Client

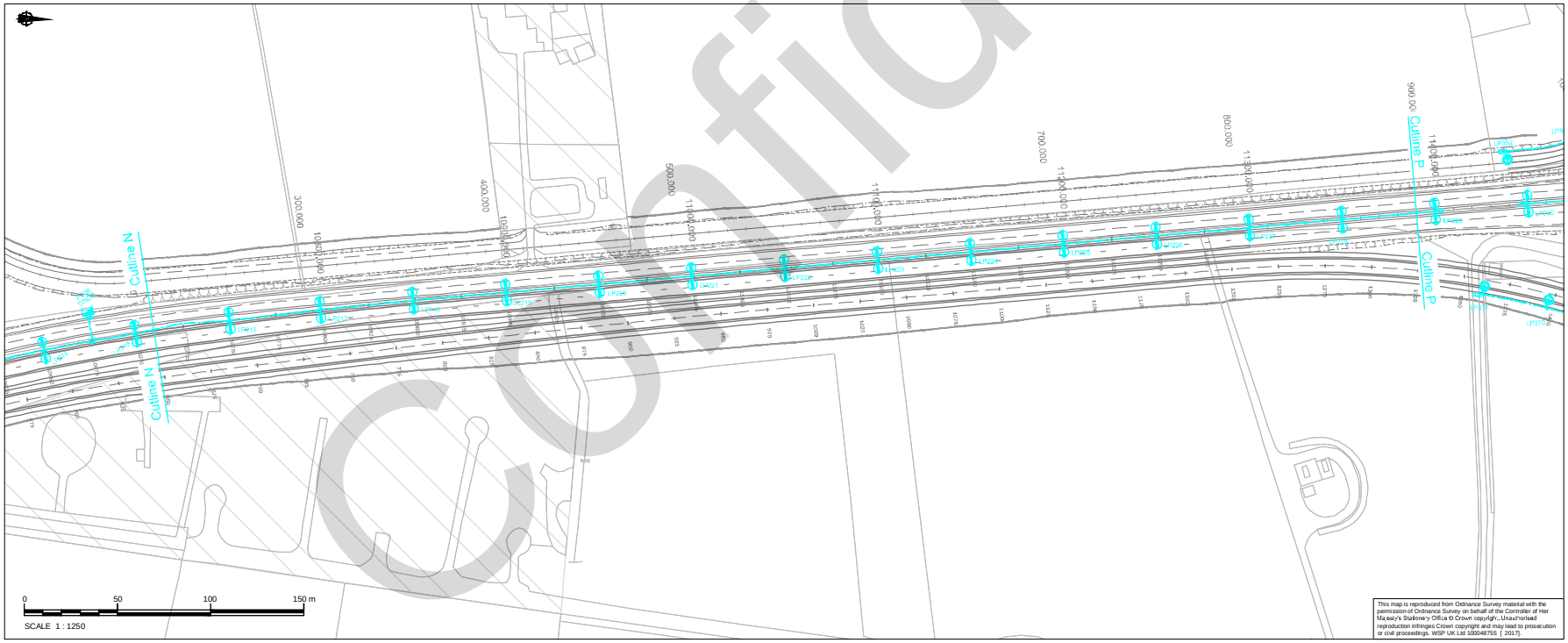
Project
A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title
PROPOSED ROAD LIGHTING LAYOUT SHEET 7 OF 10

Drawing status
PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-0000-DR-E0-0007	Rev B





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CONSTRUCTION HAZARDS AND RISKS:

Item No.	Hazard
1	Presence of significant statutory undertakers apparatus:
-	Overhead cables in vicinity of scheme, crosses the A1 mainline.
-	High presure gas mains.
-	Medium presure gas mains, 250mm dia, approx ch-10400.
-	300mm dia. water mains.
-	Telephone mains, approx ch-10677.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge. interaction with existing statutory undertakers services.

Refer to the Site Information and Pre Construction Information for additional information on construction hazards and risks.

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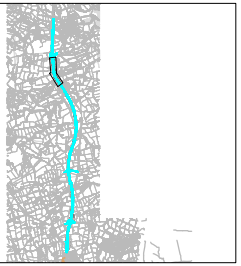

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A	15/11/2017	FIRST ISSUE	VC	MS	CB	SH

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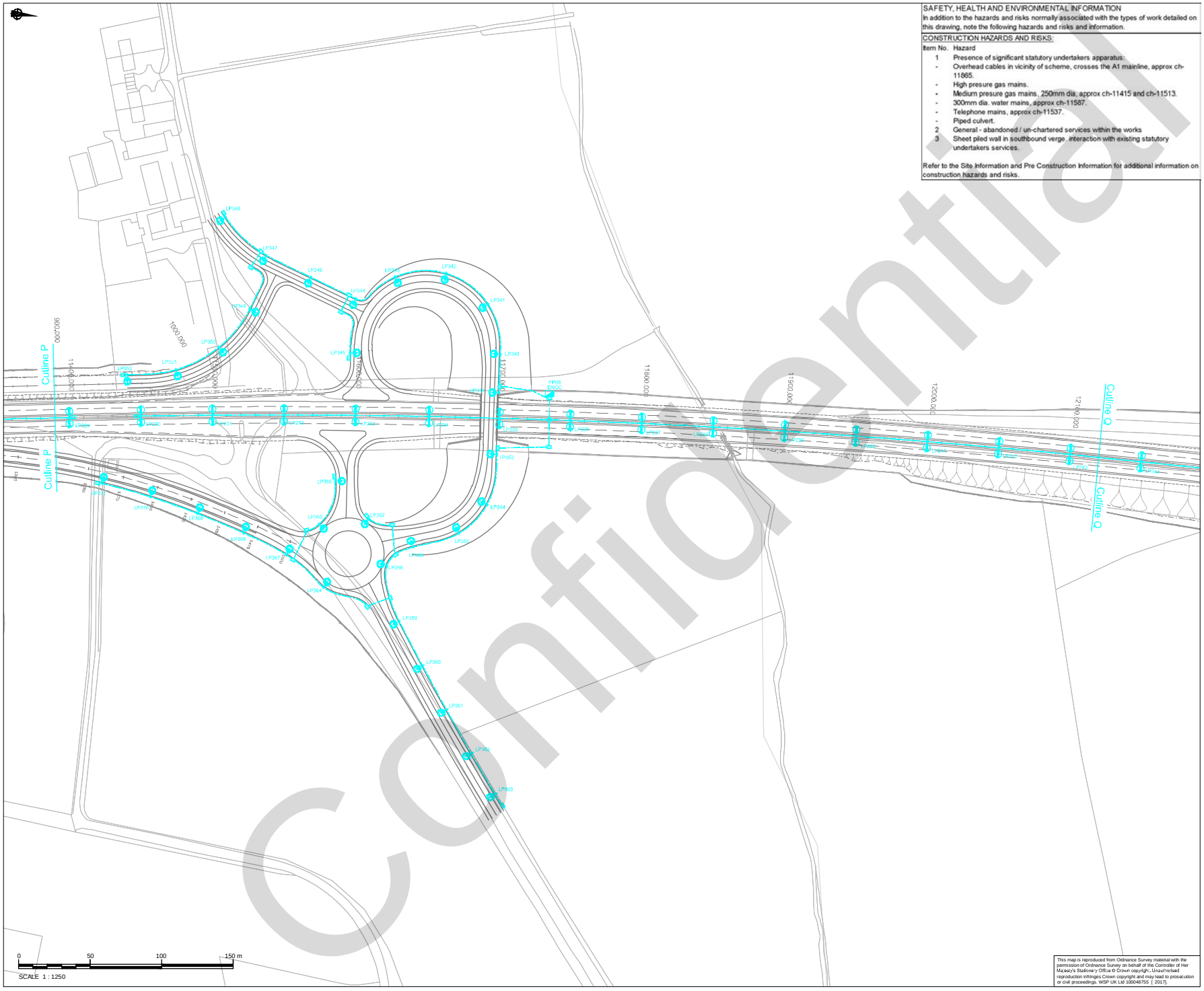
Client

Project
A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title
PROPOSED ROAD LIGHTING LAYOUT
SHEET 8 OF 10

Drawing status
PRELIMINARY ISSUE

Scale	1:1250 DO NOT SCALE
Jacobs No.	B2104700
Client no.	551459
Drawing number	549146159-WSP-HLG-0000-DR-E0-0008
Rev	B



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-	High presure gas mains.
-	Medium presure gas mains, 250mm dia, approx ch-11415 and ch-11513.
-	300mm dia. water mains, approx ch-11587.
-	Telephone mains, approx ch-11537.
-	Piped culvert.
2	General - abandoned / un-chartered services within the works
3	Sheet piled wall in southbound verge, interaction with existing statutory undertakers services.

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Client

Project
A1 IN NORTHUMBERLAND
MORPETH TO FELTON

Drawing title
PROPOSED ROAD LIGHTING LAYOUT
SHEET 9 OF 10

Drawing status
PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
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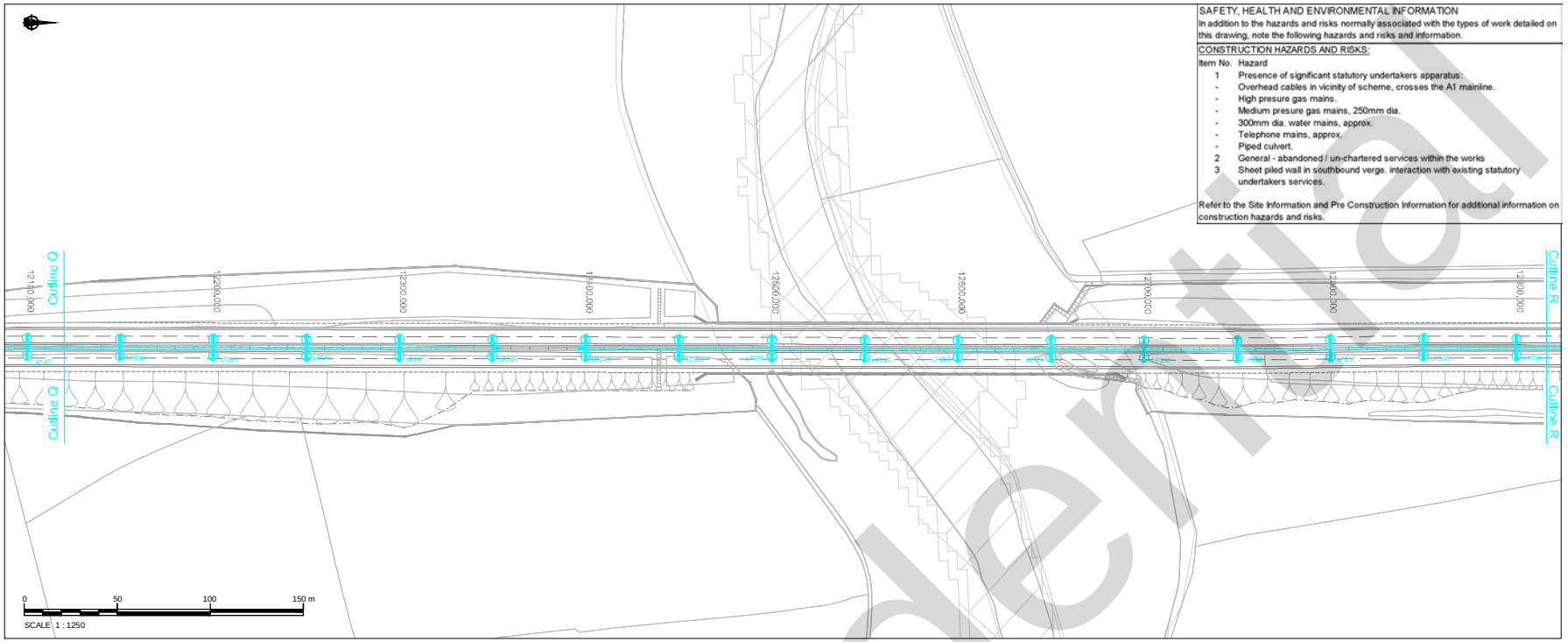
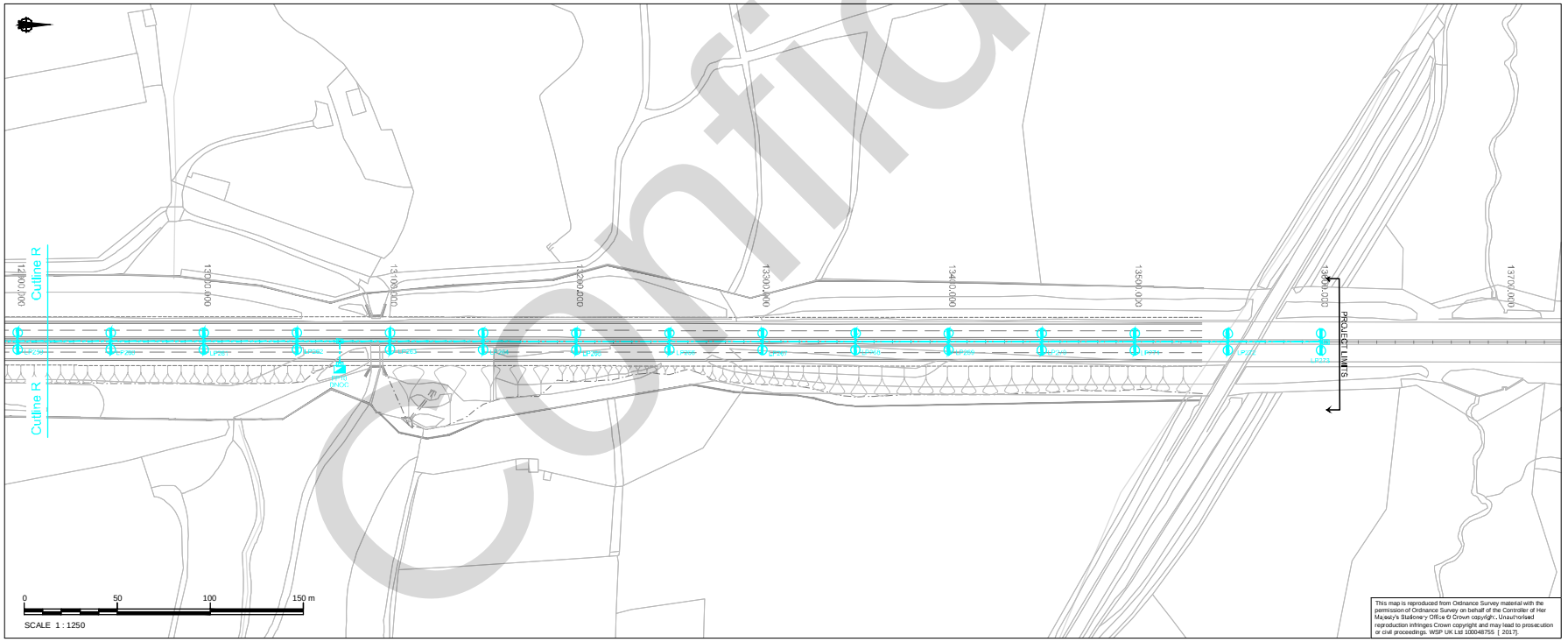
Client no.	551459	

Drawing number
549146159-WSP-HLG-0000-DR-E0-0009

Rev
B





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-	300mm dia. water mains, approx.
-	Telephone mains, approx.
-	Piped culvert.
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Client

Project: A1 IN NORTHUMBERLAND MORPETH TO FELTON

Drawing title: PROPOSED ROAD LIGHTING LAYOUT SHEET 10 OF 10

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number: 549146159-WSP-HLG-0000-DR-E0-0010 Rev B

Appendix E

ROAD SAFETY ENGINEERS REPORT

A1 IN NORTHUMBERLAND

MORPETH TO FELTON

Road Safety Engineers Briefing Report

CONFIDENTIAL

NOVEMBER 2017

A1 IN NORTHUMBERLAND

MORPETH TO FELTON

Highways England

Road Safety Engineers Report
Confidential

Project no: 70038006-D12
Date: NOVEMBER 2017

WSP
62-64 Hills Road
Cambridge
CB2 1LA

www.wsp.com

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	28/11/17			
Prepared by	Lyn Turner			
Signature	[redacted]			
Checked by	Neil Jones			
Signature	[redacted]			
Authorised by	Axel Kappeler			
Signature	[redacted]			
Project number	70038006-D12			
Report number	RSE - 01			
File reference	\\GBCMG100FIL01\cmp01shared\ITS Safety\Road Safety Reviews\North East RIP Schemes\A1iN M2F Road Safety Engineers Report Nov 17			

PRODUCTION TEAM

CLIENT

Group Director, Lighting & Energy Solutions	Stephen Halliday

WSP

Principal Consultant	Lyn Turner
Senior Consultant	Neil Jones
Associate Director	Axel Kappeler

TABLE OF CONTENTS

TABLES

APPENDICES

1 EXECUTIVE SUMMARY

With the intention of the scheme to upgrade the A1 from single carriageway to dual carriageway taking the majority of the new construction off line, through rationalisation from IAN167/12 this may remove 58% of the current single carriageway collisions. The remaining collision amount to 23% which occurred during the hours of darkness with no street lighting

However for the short section of existing dual carriageway with in the scheme extents, the data analysis demonstrates that this section of the A1 is currently below the national averages for dark collision, no street lighting present by more than 50%.

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Using the calculation within the TA49/07 the total collision saving would be 0.196 collisions saved.

The dual carriageway section of the A1 is currently below the national averages for dark collision, no street lighting present by more than 50%.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway, with many highway hazards such as at-grade junctions removed and looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however, other vehicles are susceptible also to loss of control type incidents.

By upgrading these junctions to grade separated junctions, from the historical collision data it can be seen that 21 collisions have been removed through rationalisation some of these collisions included junction and u-turning collision trends.

Ideally these junctions should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.

In the absence of the above measures, it cannot be categorically advised not provide street lighting on the junctions, however, there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- ‘intelligent’ style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

2 PROJECT BACKGROUND

2.1 BACKGROUND

WSP ITS Safety team have been approached to produce a Road Safety Engineers Report in accordance with DMRB TA49/07 Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network.

2.2 OBJECTIVES

To ascertain if street lighting is required on the A1 which is being upgraded from single to dual carriageway including the construction of new grade-separated junctions.

2.3 SITE DESCRIPTION

Morpeth to Felton is a 13km (8.0mile) rural single carriageway Section from town of Morpeth to the village of Felton, the existing A1 highway is a rural single carriageway trunk road, subject to the national speed limit. Section A has 20 at-grade major/minor road junctions, with many additional private and farm accesses. All at-grade junctions are accommodated with ghost island T-junctions with right turning provision.

Street lighting is not provided throughout this section of the A1 trunk road.

3 PERSONAL INJURY COLLISION (PIC) ANALYSIS

3.1 BACKGROUND INFORMATION

STATS19 data has been used for two reports for this project

- A1 in Northumberland Morpeth to Felton (Section A) Alignment Options Technical Appraisal Report (TAR) – Version 4.2 dated September 2016
- A1 in Northumberland - Section A and B Safety Plan – April 2017 ref:B2104701_245

Within the two reports the scheme extents and the data range are slightly different

- The TAR contains STATS19 data between 01/07/10 to 30/06/15 on the A1 between just south of the A192 at Northgate through to Newton on the Moor, however STATS19 data is only provided up to the B6345 overbridge at Felton
- The Safety Plan contains STATS19 data from 01/01/11 to 31/12/15 on the A1 between Morpeth and Felton, from the map supplied this appears to be from A192 at Northgate to the overbridge of the B6345 overbridge at Felton

The TAR STATS19 data collision plans covers some existing dual carriageway at both ends of the scheme.

The Safety Plan doesn't make it clear if the collisions on the dual carriageway around the section of the A1 from the A192 to the start of the single carriageway are included.

The Safety Plan has been compared to Road Casualties Great Britain 2013 using non-built up road for their comparisons, which for collisions occurring in the dark (assuming no street lighting) the national average was 26.7%, with the scheme extents being 20.7%.

Using the STATS19 data supplied in the TAR, the percentage for dark accidents, no street lighting for non-built up roads, speed limit 60mph from Road Casualties Great Britain 2015 is 21%, with our scheme extents showing a value of 23% (see analysis in table 3-4).

The Safety Plan supplied just the analysed data results and not the STATS19 collisions details, however as the TAR document supplied the complete STATS19 data this has been used to look at the collisions trends for the scheme extents to ascertain the change in risk the scheme brings with regards to street lighting.

3.2 GENERAL ANALYSIS

Personal Injury Collision data for the Morpeth to Felton section of the A1 has been sourced from the A1 in Northumberland Morpeth to Felton (Section A) Alignment Options Technical Appraisal Report – Version 4.2 dated September 2016

The extents of the collision data extends from A192 Northwards to Newton-on-the Moor.

The report used collision data between 01/07/2010 and 30/06/2015 which was considered to be acceptable for the purposes of this report as the full STATS19 data reports were available for detailed analysis. The data has been used to produce the analysis in the following pages.

During this time period there were 66 collisions in total 2 Fatalities, 7 Serious and 57 slight collisions. This resulted in 115 casualties made up of 2 fatalities, 12 serious injury and 101 slight injury casualties.

Table 3-1 Number of collisions per calendar year

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	12	12
01/01/11 to 31/12/11	1	1	10	12
01/01/12 to 31/12/12	1	1	14	16
01/01/13 to 31/12/13	0	3	7	10
01/01/14 to 31/12/14	0	2	8	10
01/01/15 to 30/06/15	0	0	6	6
Total	**2**	**7**	**57**	**66**

Note that 2010 and 2015 data are only 6 months each.

Table 3-2 Number of casualties per calendar year

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	17	17
01/01/11 to 31/12/11	1	2	12	15
01/01/12 to 31/12/12	1	2	24	27
01/01/13 to 31/12/13	0	4	16	20
01/01/14 to 31/12/14	0	4	18	22
01/01/15 to 30/06/15	0	0	14	14
Total	**2**	**12**	**101**	**115**

Note that 2010 and 2015 data are only 6 months each.

Given that 2010 and 2015 only provide 6 months of data, we can look at the average number of collisions per month

Table 3-3 Total number of collisions per month

DATE RANGE	TOTAL	AVERAGE COLLISIONS PER MONTH
01/07/10 to 31/12/10	12	2.00
01/01/11 to 31/12/11	12	1.00
01/01/12 to 31/12/12	16	1.33
01/01/13 to 31/12/13	10	0.83
01/01/14 to 31/12/14	10	0.83
01/01/15 to 30/06/15	6	1.00
Total	**66**	

In table 3-4 the complete data set has been analysed against the national averages, whilst 15 collisions (23%) have occurred on dual carriageway, at this time all have been compared against the Road Casualties Great Britain 2015 (RCGB15) A roads with speeds of 60mph.

From this table it can been seen that this data set is slightly above the national average of 21% for Dark collisions where street lighting is not present.

Table 3-4 Comparison of complete data set to National Averages

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total	National Average
Severity Ratio	0%	17%	13%	30%	20%	0%	14%	**22%**
Collisions occurring on a wet road surface	5	5	8	1	1	1	21	**36%**
	42%	42%	50%	10%	10%	17%	32%	
Total Collisions during the hours of darkness	4	4	5	0	1	1	15	**26%**
	33%	33%	31%	0%	10%	17%	23%	
Dark Collisions: Street Lighting present	0	0	0	0	0		0	**4%**
	0%	0%	0%	0%	0%	0%	0%	
Dark Collisions: No Street Lighting Present	4	4	5	0	1	1	15	**21%**
	33%	33%	31%	0%	10%	17%	23%	

Within the data there is a mix of dual carriageway and single carriageway collisions, Table 3-5 shows the split of collisions

Table 3-5 Total number of collisions carriageway

DATE RANGE	DUAL CARRIAGEWAY	SINGLE CARRIAGEWAY
01/07/10 to 31/12/10	3	9
01/01/11 to 31/12/11	5	7
01/01/12 to 31/12/12	0	16
01/01/13 to 31/12/13	4	6
01/01/14 to 31/12/14	3	7
01/01/15 to 30/06/15	0	6
Total	**15**	**51**

Dual carriageway included slip roads

From the collision data set, the statistics can be compared to Road Casualties Great Britain 2015 (RCGB15) to see how the route is performing against national targets.

3.3 SINGLE CARRIAGEWAY ANALYSIS

Table 3-6 Comparison of Single carriageway collisions with RCGB15

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total
Fatal	0	1	1	0	0	0	2
Serious	0	0	1	1	2	0	4
Slight	9	6	14	5	5	6	45
Total	9	7	16	6	7	6	51

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total	National Average
Severity Ratio	0%	14%	13%	17%	29%	0%	12%	**22%[1]**
Collisions occurring on a wet road surface	4	2	4	0	0	1	11	**36%[2]**
	44%	29%	25%	0%	0%	17%	22%	
Total Collisions during the hours of darkness	4	3	5	0	1	1	14	**26%[2]**
	44%	43%	31%	0%	14%	17%	27%	
Dark Collisions: Street Lighting present	0	0	0	0	0		0	**4%[2]**
	0%	0%	0%	0%	0%	0%	0%	
Dark Collisions: No Street Lighting Present	4	3	5	0	1	1	14	**21%[2]**
	44%	43%	31%	0%	14%	17%	27%	

[1] Road Casualties Great Britain 2015 Table RAS10006 Non-built up roads
[2] Road Casualties Great Britain 2015 Table RAS10007 Non-built up roads Speed Limit 60 mph

3.4 DUAL CARRIAGEWAY ANALYSIS

Table 3-7 Comparison of Dual carriageway collisions with RCGB15

Dual	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total
Fatal	0	0	0	0	0	0	0
Serious	0	1	0	2	0	0	3
Slight	3	4	0	2	3	0	12
Total	3	5	0	4	3	0	15

	01/07/10 - 31/12/10	01/01/11 - 31/12/11	01/01/12 - 31/12/12	01/01/13 - 31/12/13	01/01/14 - 31/12/14	01/01/15 - 30/06/15	5 Year Total	National Average
Severity Ratio	0%	20%	0%	50%	0%	0%	20%	**22%[1]**
Collisions occurring on a wet road surface	0	2	0	1	1	0	4	**31%[3]**
	0%	40%	0%	25%	33%	0%	27%	
Total Collisions during the hours of darkness	0	1	0	0	0	0	1	**30%[3]**
	0%	20%	0%	0%	0%	0%	7%	
Dark Collisions: Street Lighting present	0	0	0	0	0	0	0	**13%[3]**
	0%	0%	0%	0%	0%	0%	0%	
Dark Collisions: No Street Lighting Present	0	1	0	0	0	0	7	**15%[3]**
	0%	20%	0%	0%	0%	0%	7%	

[3] Road Casualties Great Britain 2015 Table RAS10007 Non-built up roads Speed Limit 70 mph

4 ASSUMPTIONS MADE

4.1 RATIONALISATION OF COLLISION STATISTICS

Within the Interim Advice Note 167/12 Revision 1 Guidance for the Removal of Road Lighting the standard states that “The PIA’s (Personal Injury Accidents) must be rationalised to exclude anywhere driver gross negligence (DGN) was a significant contributory factor. These include:-

- Intoxicated drivers. (drink or drugs)
- Suicides and attempted suicides.
- Excessive speeding (more than 50% over the speed limit)”

However, given that the scheme that is the subject of this report is upgrading a single carriageway to a dual carriageway, the author has further excluded any collisions that will be impossible within the new scheme, these include:

- All collision that have occurred at a T or staggered junction joining the mainline
- All collisions on the single carriageway that have resulted in head on collisions
- All collisions on the single carriage involving U turns
- All collision occurring at the merge from dual to single or single to dual

5 RATIONALISED COLLISION DATA

5.1 SINGLE CARRIAGEWAY COLLISIONS

By rationalising the collisions using the method described above, 21 collisions have been removed, leaving 30 collisions to be analysed further.

Table 5-1 Number of collisions per calendar year after rationalisation

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	6	6
01/01/11 to 31/12/11	0	0	3	3
01/01/12 to 31/12/12	0	1	10	11
01/01/13 to 31/12/13	0	0	2	2
01/01/14 to 31/12/14	0	1	4	5
01/01/15 to 30/06/15	0	0	3	3
Total	**0**	**2**	**28**	**30**

Note that 2010 and 2015 data are only 6 months each.

Of these 30 collisions 19 (63%) resulted in rear end shunt type collisions with 5 (16%) Lost control, 2 (7%) suffered mechanical failure, one collision involved a pedal cycle, one an animal in the road, one in road works and one involving ice falling off a lorry.

Table 5-2 Number of collisions per lighting conditions

DATE RANGE	DAYLIGHT	DARK NO LIGHTS	TOTAL
01/07/10 to 31/12/10	4	2	6
01/01/11 to 31/12/11	2	1	3
01/01/12 to 31/12/12	7	4	11
01/01/13 to 31/12/13	2		2
01/01/14 to 31/12/14	5		5
01/01/15 to 30/06/15	3		3
Total	**23**	**7**	**30**

Note that 2010 and 2015 data are only 6 months each.

The 7 collisions which occurred during the hours of darkness can be attributed to 3 loss of controls, 2 rear end shunts, 1 mechanical breakdown and one where ice fell off a lorry.

Of these 7 collisions, 3 occurred on a wet road surface, 2 occurred on a dry road surface and two occurred on ice/snow road conditions.

When comparing these to RCGB15 which as an average of 21% for Dark no lighting collisions, it can be seen that this area is slightly above average at 23%

5.2 DUAL CARRIAGEWAY COLLISIONS

By rationalising the collisions using the method described above, none of the dual carriageway collisions have been removed, so they are analysed further below. Of these collisions 12 occurred on the dual carriageway to the south of the new scheme, whilst three occurred on the dual carriageway to north of the scheme.

Table 5-3 Number of collisions per calendar year after rationalisation

DATE RANGE	FATAL	SERIOUS	SLIGHT	TOTAL
01/07/10 to 31/12/10	0	0	3	3
01/01/11 to 31/12/11	0	1	4	5
01/01/12 to 31/12/12	0	0	0	0
01/01/13 to 31/12/13	0	2	2	4
01/01/14 to 31/12/14	0	0	3	3
01/01/15 to 30/06/15	0	0	0	0
Total	**0**	**3**	**12**	**15**

Note that 2010 and 2015 data are only 6 months each.

SOUTHERN DUAL COLLISIONS

6 collisions occurred to lane changing, 3 resulted in loss of control, 2 occurred due to rear ends shunts and 1 occurred in road works. None of these collisions occurred during the hours of darkness.

NORTHERN DUAL COLLISIONS

One collision occurred due to lane changing, one can be attributed to a rear end shunt incident and the final collision occurred in the hours of darkness due to losing control on an icy road surface.

Table 5-4 Number of collisions per lighting conditions

DATE RANGE	DAYLIGHT	DARK NO LIGHTS	TOTAL
01/07/10 to 31/12/10	3		3
01/01/11 to 31/12/11	4	1	5
01/01/12 to 31/12/12	0		0
01/01/13 to 31/12/13	4		4
01/01/14 to 31/12/14	3		3
01/01/15 to 30/06/15	0		0
Total	**14**	**1**	**15**

Note that 2010 and 2015 data are only 6 months each.

When comparing these to RCGB15 which as an average of 15% for Dark no lighting collisions, it can be seen that this area is below average at 6%

5.3 COLLISIONS OCCURRING AT JUNCTIONS

EXISTING SINGLE CARRIAGEWAY

Looking at the at-grade junctions on the A1 that are currently present, from the proposed plans it can be seen that 7 of those junctions are being by-passed as the A1 scheme takes the new road construction off the line of the existing A1. There have been 14 collisions spread over these junctions, with two in the dark which occurred due to rear end shunt type collisions.

Junctions that remain but are changing to grade separated are:

LOW ESPLEY/ HIGHLAND JUNCTION

Nine collisions have occurred at this location in the 5 year period of this study, two of which were in the dark. Following the rationalisation four collisions can be removed. The remaining 5 collisions occurred due to 4 rear end shunts, 1 in the dark and a motorist that lost control for unknown reasons in the dark.

FELTON ROAD/ WEST MOOR JUNCTION

Two collisions have occurred at this location in the 5 year period of this study, neither of which were in the dark. Following the rationalisation one collisions can be removed and the remaining collisions can be attributed to a rear end shunt incident.

5.4 COLLISIONS OCCURRING IN SECTIONS (CHAINAGES)

Breaking the scheme extents into the following sections can demonstrate the existing collisions trends on the A1

Table 5-5 Sections and chainages on the A1

Section	A	B	C	D
Chainage	500-2200	2200-5000	5000-11600	11600-13600 (scheme limits)
Section Length	1700	2800	6600	2000

SECTION A - CHAINAGE 500-2200

Within this section of the existing A1 there is a section of dual carriageway that leads into the single carriageway. This section of the existing A1 had 6 collisions which were coded as STATS19 dual carriageway and 3 coded as single carriageway

DUAL CARRIAGEWAY COLLISIONS

Table 5-6 Number of dual carriageway collisions in section A

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
108	Slight	Daylight	Dry	Fine	Rear End Shunt
60	Slight	Daylight	Dry	Fine	Lane change
34	Serious	Daylight	Dry	Fine	Lane change
79	Slight	Daylight	Wet	Rain	Lost Control
139	Slight	Daylight	Wet	Fine	Lane change
66	Serious	Daylight	Dry	Fine	Rear End Shunt

None of the collisions on this section of the dual carriageway occurred during the hours of darkness.

SINGLE CARRIAGEWAY COLLISIONS

Table 5-7 Number of single carriageway collisions in section A

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
104	Slight	Day	Dry	Fine	Rear End Shunt
93	Slight	Day	Dry	Fine	Animal in carriageway
92	Serious	Day	Dry	Fine	Mechanical

None of the collisions on this section of the single carriageway occurred during the hours of darkness.

SECTION B - CHAINAGE 2200 - 5000

Through this section of the A1 the new A1 travels off the line of the original A1 at around chainage 3700. This existing section of the A1 is single carriageway.

Table 5-8 Number collisions in section B

	Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
New A1 On-line of Existing A1 (2200-3700)	117	Slight	Day	Dry	Fine	Rear End Shunt
	43	Slight	Day	not given	Fine	Rear End Shunt
	*95	Slight	Day	Flood	Rain	Lost Control
On Existing A1 but not part of new A1 (3700-500)	151	Slight	Day	Dry	Fine	Rear End Shunt
	36	Serious	Dark	Wet	Fine	Lost Control
	102	Slight	Day	Dry	Fine	Rear End Shunt
	159	Slight	Day	not given	Fine	Rear End Shunt
	11	Slight	Day	Dry	Fine	Rear End Shunt
	77	Slight	Day	not given	Fine	Rear End Shunt
	119	Slight	Day	Dry	Fine	Rear End Shunt
	116	Slight	Day	Dry	Fine	Rear End Shunt

*coded as dual but location suggests single carriageway

One collision occurred between these chainages, on the section of A1 which is becoming redundant in terms of trunk Road.

SECTION C - CHAINAGE 5000 - 11600

Part of this section of the A1 will become redundant in terms of trunk Road as the A1 continues off-line until chainage 9800 where it then returns to follow the original route.

Table 5-9 Number collisions in section C

	Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
On Existing A1 but not part of new A1	174	Slight	Day	Wet	Rain	Rear End Shunt
	91	Slight	Day	Dry	Fine	Rear End Shunt
	14	Slight	Dark	Dry	Fine	Mechanical
	113	Slight	Day	Dry	Fine	Rear End Shunt
	8	Slight	Dark	Ice	Fine	Lost Control
	41	Slight	Day	not given	Rain	Rear End Shunt
	16	Slight	Day	not given	Fine	Mechanical
	85	Slight	Day	not given	Fine	Rear End Shunt
	3	Slight	Day	Ice	Rain	Lost Control
	156	Slight	Dark	Wet	Rain	Rear End Shunt
	176	Slight	Dark	Wet	Fine	Ice fell off lorry
New A1 On-line of Existing A1	2	Slight	Day	Ice	Fine	Lost Control

Four of these collisions occurred during the hours of darkness, however, one occurred when ice fell off a lorry, one mechanical incident with the remaining two rear end shunt type collisions.

SECTION D - CHAINAGE 11600 - 13600

Within this section of the existing A1 there is a section of dual carriageway that the single carriageway leads into. This section of the existing A1 had 3 collisions which were coded as STATS19 dual carriageway and 3 coded as single carriageway

DUAL CARRIAGEWAY COLLISIONS

Table 5-10 Number of dual carriageway collisions in section D

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
124	Slight	Day	Dry	Fine	Rear End Shunt
122	Slight	Day	Dry	Fine	Lane Change
6	Serious	Dark	Ice	Rain	Lost Control

SINGLE CARRIAGEWAY COLLISIONS

Table 5-11 Number of single carriageway collisions in section D

Collision Ref. No	Severity	Lighting Conditions	Road Surface	Weather	Outcome
26	Slight	Dark	Snow	Snow	Lost Control
48	Slight	Day	Wet	Fine	Rear End Shunt
75	Slight	Day	Dry	Fine	Rear End Shunt

Two of these collisions occurred in the hours of darkness, one on the dual carriageway and one on the single carriageway

SUMMARY

Section A – No dark collisions

Section B – 1 dark collision occurring where no street lights are present and situated on the existing A1 which will become redundant trunk road

Section C – 4 dark collisions occurring where no street lights are present and situated on the existing A1 which will become redundant trunk road

Section D – 2 dark collisions, one on the dual carriageway and one on the single carriageway, street lighting not present in either collision

6 PREDICTED PIC SAVINGS

Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2015, this figure has decreased to 27%.

Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIA saving due to road lighting on links, suitable for appraisal.

For an all-purpose Dual carriageway the figure of 10% is noted.

Part of the scheme within this document is going to be on new links as the route deviates from the existing alignment. Other parts of the route are on the existing alignment but are replacing a single carriageway with a dual carriageway. All of the scheme extent is currently unlit.

The standard makes reference darkness savings on a new link which refers to Volume 13, COBA which has since been redrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

	Section				
	A	**B**	**C**	**D**	**Total**
Total Number of Rationalised collisions (5 Years)	9	11	12	6	38
Total During Darkness (5 Years)	0	1	4	2	7
Collisions in darkness per annum (actual)	0	0.2	0.8	0.4	1.4
Predicted Collision saving = no. of opening year darkness collisions x 10%	0	0.004	0.064	0.016	0.196

7 CONCLUSION

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Using the calculation within the TA49/07 the total collision saving would be 0.196 collisions saved.

The dual carriageway section of the A1 is currently below the national averages for dark collision, no street lighting present by more than 50%.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway, with many highway hazards such as at-grade junctions removed and looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions, have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however other vehicles are susceptible too, to loss of control type incidents. However, by upgrading these junctions to grade separated junctions, from the data it can be seen that 21 collisions have been removed through rationalisation and these made up collisions types such as junction and u-turning trends.

Ideally these junctions should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.

In the absence of these items, it cannot be categorically advised not provide street lighting on the junctions, however there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- ‘intelligent’ style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

Appendix A

COLLISION DATA

APPENDIX A-1

COLLISION DATA

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
112		0485111	Slight	Saturday	20/08/2011	14:30	418150/587600		

Location: A192 J/W Farmway Garage 100M South of Farmway, Morpeth **1st Rd:** A192 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60MPH	Single c'way	Other Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Junt appr	Yes	None		None	Male	44	-ve
2	Car	No	Wt turn rt	N W	On main	Junt appr	No	None		None	Female	24	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Female	24	Slight	No	Not ped	Not ped	Not ped	Other

Description: V2 Trav South on A192 Intending to Turn right into the Garade when V1 Trav South Behind V2 Failed to See That V2 Had Stopped and Collided with the Rear of V2.

User Information: **Contributory Factors:** 405V001A 406V001A

80		0354911	Slight	Monday	20/06/2011	18:40	418140/587660		

Location: Fairmoor J/W Slp Road Morpeth **1st Rd:** A192 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
30MPH	Single c'way	Slip-R Give	Daylight	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Lt hand bend	NW SE	On main	Junt appr	No	None		None	Male	18	N/C
2	Pedal Cycle	No	Rt hand bend	SE NW	On main	Leav main	No	None		None	Male	59	N/R

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	59	Slight	No	Not ped	Not ped	Not ped	Other

Description: V2 a Pedal Cycle Trav North West on A192 and Has V1 Trav the Wrong Way Having Missed the Turn left for the A1 Infront of It.

User Information: **Contributory Factors:** 302V001A 405V001A 602V001A 605V001B

105		0455814	Slight	Saturday	19/07/2014	16:47	418208/587769		

Location: A1 J/W A1 Slip Road to A192 Fairmoor, Morpeth **1st Rd:** A1 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
50MPH	Dual c'way	Slip-R Give	Daylight	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Junt appr	No	None		None	Male	19	-ve
2	Car	No	Going ahead	N S	On main	Junt appr	No	None		None	Female	21	-ve
3	Car	No	Waiting	N S	On main	Junt appr	No	None		None	Male	48	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Female	21	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Passenger	Female	21	Slight	Front	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1 App. J/W A192 Through Ongoing Roadworks, Lanes Reduced to One Lane, V3 Slows Due to Traffic Ahead, V2 Fails to Slow, Colliding with Rear of V3, V1 Colliding with Rear of V2

User Information: **Contributory Factors:** 406V002A 406V001A 308V002B 308V001B

120		0520111	Slight	Wednesday	07/09/2011	08:20	418190/587790		

Location: A1 J/W Fairmoor Morpeth **1st Rd:** A1 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70MPH	Dual c'way	Slip-R Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Chg rt lane	S N	On main	Junt appr	No	None		None	Male	38	-ve
2	Van/Goods < 3.5	No	Going ahead	S N	On main	Junt appr	No	None		Cent barr	Male	55	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	38	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	55	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 and V2 both Trav North on A1 Passing the Fairmoor Onslip. V1 Moved from Lane 1 into Lane 2 Causing a Veh 2 which Had Already Been Trav in Lane 2 to Swerve right and Go onto the Grass Verge. V1 and V2 Collided and V2 Also Collided with Barrier.

User Information: **Contributory Factors:** 403V001A 602V001A 404V001B 405V001B

133		0569714	Slight	Wednesday	09/07/2014	11:35	418196/587846		

Location: A1 Nr Fairmoor Onslip, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
50MPH	Dual c'way	NotJCT	Daylight	Fine	Dry	None	None	Rdworks	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	Single	Chg lt lane	S N	On main	Not at	No	None		None	Male	26	N/C
2	Goods > 7.5t	No	Going ahead	S N	On main	Not at	No	None		None	Male	40	N/C

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	40	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1, V1 in O/S Lane, V2 in N/S Lane, V1 Passing V2 Driver of V1 Misjudges Distances and Collides with O/S of V2

User Information: **Contributory Factors:** 205V001A

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
129		0556811	Slight	Friday	23/09/2011	07:54	418200/588040		

Location: A1 1/4 Mile South A697, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Lt hand bend	S N	On main	Not at	No	None		Tree	Female	29	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	29	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav North on A1 Approaching the J/W A697 Offslip when Driver V1 Has Lost Control Strikes the Nearside Kerb Enters Small Copse Before Hitting a Tree.

User Information: **Contributory Factors:** 509V001A 410V001A 306V001B

173	F5	0774510	Slight	Tuesday	30/11/2010	10:00	418210/588110		

Location: A1400m S of A697 Onslip Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	NotJCT	Daylight	Fine	Snow	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Over	None	Nearside	None	Male	29	N/R
2	Goods 3.5 - 7.	No	Going ahead	N S	On main	Not at	No	None		None	Male	35	N/R

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	29	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav South on A1 Changes Lane to Pass V2. Lane 2 Covered Withthick Ice and Snow . V1 Pulls Alongside V2 but then Skids and Leavesc/Way to Nearside and Overturns . Vehs Did Not Collide.

User Information: **Contributory Factors:** 410V000A 602V000A 103V000A 408V000A

108		0461414	Slight	Saturday	09/08/2014	11:40	418202/588210		

Location: A1 J/W A697 Morpeth **1st Rd:** A1 **2nd Rd:** A697

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Dual c'way	Slip-R Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	S N	On main	Junt appr	No	None		None	Male	50	-ve
2	Car	No	Waiting	S N	On main	Junt appr	No	None		None	Female	60	-ve
3	Car	C'van	Waiting	S N	On main	Junt appr	No	None		None	Male	60	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Passenger	Female	40	Slight	Front	Not ped	Not ped	Not ped	Other
2	2	Passenger	Male	36	Slight	Rear	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1 App. J/W A697, V3 Towing Caravan Brakes Due to Traffic ahead and Stops, V2 Slows and Stops Behind V3. V1 Fails to Slow in Time, Colliding with Rear of V2, Pushing V2 into Rear of V3.

User Information: **Contributory Factors:** 308V001B 406V001B

60		0305313	Slight	Monday	10/06/2013	12:15	418233/588311		

Location: A1 J/W A697 Onslip Morpeth **1st Rd:** A1 **2nd Rd:** A697

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	Slip-R Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Goods 3.5 - 7.	No	Chg lt lane	N S	On main	Junt appr	No	None		None	Male	61	-ve
2	Van/Goods < 3.	No	Stop	N S	On main	Junt appr	No	None		None	Male	28	-ve
3	Car	No	Going ahead	N S	On main	Junt appr	No	None		None	Female	26	-ve
4	Car	No	Stop	P P	On main	Junt appr	No	None		None	Untra.	-1	N/C
5	Car	No	Chg rt lane	NE S	On main	Enter main	No	None		None	Untra.	-1	N/C

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	26	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Passenger	Male	20	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs 1,2,3&4 Trav. S on A1 J/W A697 Onslip, V5 Trav. S on A697 Slip J/W A1, V4&4 Slow in N/S Lane, V1 Slows in N/S Lane, Changes Lane into O/S Lane, Collding with Rear of V2, V3 in O/S Lane, Collides with O/S of V1, V5 Enters A1 Trav. S

User Information: **Contributory Factors:** 308V001A 406V001A 409V001A 602V001B

66		0324013	Serious	Thursday	27/06/2013	11:28	418250/588306		

Location: A697 on Slip J/W A1 Morpeth **1st Rd:** A697 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Slip road	Slip-R Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	NE SW	On main	Junt appr	No	None		None	Female	23	-ve
2	Car	No	Going ahead	NE SW	On main	Junt appr	No	None		None	Male	22	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	23	Serious	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	22	Slight	No	Not ped	Not ped	Not ped	Other
3	2	Passenger	Female	79	Serious	Front	Not ped	Not ped	Not ped	Other

Description: V1&2 Trav. S on A697 Onslip App. J/W A1, for Reason Yet to Be Established V1 Collides with Rear of V2

User Information: **Contributory Factors:** 405V001A 406V002A

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
34		0146313	Serious	Monday	18/03/2013	06:10	418228/588434		

Location: Morpeth by Pass 100M N of J/W A697, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Dual c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Chg rt lane	N S	On main	Not at	No	None		None	Untra.	-1	N/C
2	Van/Goods < 3.5	No	O/T mov veh	N S	On main	Not at	No	None		None	Male	31	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	31	Serious	No	Not ped	Not ped	Not ped	Other
2	2	Passenger	Male	27	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1, V2 Pulls in O/S Lane to Overtake V1, V1 Moves into O/S Lane, V2 Brakes, Loses Control, V2 Leaves Carriageway to N/S

User Information: **Contributory Factors:** 601V002A

79		0353811	Slight	Thursday	23/06/2011	22:01	418091/588601		

Location: A697 J/W Fairmoor Morpeth **1st Rd:** A1 **2nd Rd:** A697

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	One Way St	Slip-R Give	Daylight	Rain	Wet	None	None	Oil or diesel	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	SE NW	On main	Leav main	Yes	None		Tree	Female	33	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	33	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav North Leaving A1 and Enters A697 as V1 Reaches Top of Road Before Entering Stretch of A697 up to Heighley Gate V1 Lost Control on Slippery Road and left Road to Offside and Collided with the Hedge.

User Information: **Contributory Factors:** 102V001A 103V001A

69		0329212	Slight	Saturday	16/06/2012	11:05	418226/588664		

Location: A1 300M N J/W A697, O/S North Gate House, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Rain	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	U turn	S S	On main	Not at	No	None		None	Male	77	-ve
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	65	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	65	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1&2 Trav. N on A1, Driver Unfamiliar with Area, Stops to Check Map, Them Attempts to Carry out U-Turn, Failing to See V2, V2 Collides with O/S of V1

User Information: **Contributory Factors:** 403V001A 405V001A

92		0405814	Serious	Saturday	12/07/2014	12:05	418230/588705		

Location: A1 1/4 Mile North of J/W A697, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	M/cycle > 500c	No	Stop	N S	On main	Not at	Yes	None		None	Male	60	-ve
2	Car	No	Waiting	N S	On main	Not at	No	None		None	Male	55	-ve
3	Car	No	Parked	P P	On main	Not at	No	None		None	Male	62	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	60	Serious	No	Not ped	Not ped	Not ped	Other
2	1	Passenger	Female	58	Serious	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1, V3 Suffers a Blow Out, Coming to a Stop in Carriageway, V2 Stops Behind B3, V1 Fails to Stop in Time, Colliding with Rear of V2 Causing Rider & Pillion to Fall from V1

User Information: **Contributory Factors:** 308V001A 406V001A 408V003A

139		0581713	Slight	Sunday	13/10/2013	11:20	418215/588800		

Location: A1 1 Mile S of J/W C130, Hebron **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	NotJCT	Daylight	Fine Wind	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Chg rt lane	SW NE	On main	Not at	No	None		None	Male	26	-ve
2	Car	No	Going ahead	SW NE	On main	Not at	No	None		Cent barr	Female	74	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	26	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Female	74	Slight	No	Not ped	Not ped	Not ped	Other
3	2	Passenger	Male	84	Slight	Front	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N/E on A1, V2 in N/S Lane, V1 in O/S Lane, V2 Pulls out into O/S Lane into Path of V1, V1 Brakes Hard, Unable to Stop in Time, Colliding with Rear of V2

User Information: **Contributory Factors:** 409V001A 406V001A 602V001A 406V002A

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
40	E06000048	0191814	Serious	Sunday	13/04/2014	02:45	418231/588805		9999

Location: A1 APP. 1/4 MILE N OF J/W A697, MORPETH **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	Yes	None	Offside	Ditch	Female	22	N/P
2	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	52	-ve
3	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	66	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Female	22	Serious	No	Not ped	Not ped	Not ped	Other
2	0	Passenger	Female	47	Serious	Front	Not ped	Not ped	Not ped	Other
3	0	Passenger	Male	32	Slight	Front	Not ped	Not ped	Not ped	Other

Description: V1 TRAV. N ON A1, V2&3 TRAV. S ON A1, FOR REASONS TO BE ESTABLISHED V1&2 COLLIDED HEAD ON, PASSENGER IN V1 EXITS V1 INTO CARRIAGEWAY, V3 COLLIDES WITH PASSENGER

User Information: **Contributory Factors:** 410V001A 503V001A 602V001A 606V001A

93		0424513	Slight	Sunday	11/08/2013	18:10	418238/588960		

Location: A1 1/2 Mile South J/W Hebron **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	Animal

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Yes	None		None	Male	18	-ve
2	Car	No	Stop	N S	On main	Not at	No	None		None	Male	43	-ve
3	Car	No	Stop	N S	On main	Not at	No	None		None	Male	60	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	18	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	43	Slight	No	Not ped	Not ped	Not ped	Other
3	3	Drv/Rider	Male	60	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1, V2&3 Take Evasivce Action to Avoid Animal in Carriagway, V1 Fails to React, Colliding with Rear of V2, then Rear of V3

User Information: **Contributory Factors:** 308V001B 307V001B 605V001B 406V003B

141		0588911	Fatal	Sunday	09/10/2011	17:28	419370/589670		

Location: A1 200M South Hebron **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	NE SW	On main	Not at	No	None		None	Male	33	N/R
2	Goods > 7.5t	Art	Going ahead	SW NE	On main	Not at	Yes	None		None	Male	31	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	33	Fatal	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	31	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav South West on A1 Just Passed Hebron Junction when for Reasons Yet to Be Established V1 Has Veered into the Opp Carriagway and Collided Head on with V2 Trav North East.

User Information: **Contributory Factors:** 403V001B

123	F5	0540110	Slight	Tuesday	31/08/2010	21:18	418400/589780		

Location: A1 J/W Hebron Junctionhebron **1st Rd:** A1 **2nd Rd:** C130

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Dark/no lights	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	NE SW	On main	Junt appr	No	None		None	Male	17	-ve
2	Car	No	Stop	NE SW	On main	Junt appr	No	None		None	Female	48	-ve
3	Other: Motor v	No	Wt turn rt	E W	On main	Junt appr	No	None		None	Male	-1	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	17	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Female	48	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1&2 Trav. S on A1 App. Hebron Junction, V3 on Unclassified Rd,Waiting to Turn L onto A1, V2 Slows on App to Junction, V1 Failsto Slow, Colliding with Rear of V2

User Information: **Contributory Factors:** 408V000B 406V000A 903V000A

67	E06000048	0325415	Slight	Wednesday	13/05/2015	16:35	418413/589777		9999

Location: A1 J/W HEBRON JUNCTION MORPETH **1st Rd:** A1 **2nd Rd:** U130

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Right turn	E N	On main	Enter main	No	None		None	Male	36	-ve
2	Car	No	Going ahead	N S	On main	Mid junction	No	None	Offside	None	Male	32	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Passenger	Female	28	Slight	Front	Not ped	Not ped	Not ped	Other
2	0	Passenger	Male	1	Slight	Rear	Not ped	Not ped	Not ped	Other

Description: V2 TRAV. S ON A1 APP. HEBRON JUNCTION, V1 STATIONARY ON HEBRON JUNCTION, TURNS RIGHT ONTO A1, FAILING TO NOTICE V2, V1 COLLIDING WITH V2, V2 LEAVES CARRIAGEWAY TO O/S

User Information: **Contributory Factors:** 405V001A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
57	E06000048		0288915	Slight	Friday	08/08/2015	14:25	418418/589778		9999

Location: A1 J/W HEBRON ROAD LOW ESPLEY, MORPETH **1st Rd:** A1 **2nd Rd:** C130

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Right turn	E N	On main	Enter main	No	None		None	Male	74	-ve
2	Car	Single	Going ahead	N S	On main	Mid junction	Yes	None		None	Male	40	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
2	0	Passenger	Male	53	Slight	Front	Not ped	Not ped	Not ped	Other
3	0	Passenger	Female	74	Slight	Front	Not ped	Not ped	Not ped	Other

Description: V1 TRAV. W ON HEBRON RD WAITING AT J/W A1, V2 TRAV. S ON A1 APP. J/W HEBRON RD, V1 FAILS TO NOTICE V2, TURNS RIGHT ONTO A1 INTO PATH OF V2, FRONT OF V2 COLLIDING WITH O/S OF V1

User Information: **Contributory Factors:** 403V001A 405V001A

177	F5		0836110	Slight	Monday	27/12/2010	16:25	418410/589800		

Location: A1 J/W Hebron Turn Offmorpath **1st Rd:** A1 **2nd Rd:** C130

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
40 MPH	Single c'way	T/Stag Give	Dark/no lights	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Goods > 7.5t	No	Going ahead	N S	On main	Junt appr	Over	None	Nearside	Sign	Male	39	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	39	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trv South on A1 Apprcaches Hebron Junction when V1 Has Skiddedand Overturned

User Information: **Contributory Factors:** 307V000B 410V000B

104			0455012	Slight	Tuesday	14/08/2012	10:50	418429/589871		

Location: A1 0.75 Miles North of J/W A697, Hebron **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Van/Goods < 3.	No	Going ahead	S N	On main	Not at	No	None		None	Male	47	-ve
2	Van/Goods < 3.	No	Stop	S N	On main	Not at	No	None		None	Male	27	-ve
3	Car	No	Stop	S N	On main	Not at	No	None		None	Male	48	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	47	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	27	Slight	No	Not ped	Not ped	Not ped	Other
3	3	Drv/Rider	Male	48	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1, Traffic Infront Begins to Slow to a Stop, V2&3 Slow, V1 Fails to Slow in Time, Colliding with Rear of V2, Pushing V2 Forward into Rear of V3

User Information: **Contributory Factors:** 308V001A 406V001A 405V001B

157			0682913	Slight	Wednesday	27/11/2013	14:30	418430/589885		

Location: A1 J/W Layby Hebron **1st Rd:** A1 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	Other Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	U turn	S S	Leav lay-by	Enter main	No	Kerb		None	Female	85	N/R
2	Car	No	Going ahead	S N	On main	Mid junction	Yes	Kerb		None	Male	22	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	85	Slight	No	Not ped	Not ped	Not ped	Other

Description: V2 Trav. N on A1, V1 Stationary in Layby on Northbound Carriageway, V1 Fails to See V2 Trav. N, V1 Pulls out into Carriageway, Carries out U-Turn, Front of V2 Colliding with R/O/S of V1

User Information: **Contributory Factors:** 403V001A 405V001A 406V001A

43	E06000048		0212014	Slight	Friday	18/04/2014	15:01	418445/589922		9999

Location: A1 100M N OF HEBRON JUNCTION, MORPETH **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	SW NE	On main	Not at	No	None		None	Female	51	-ve
2	Car	No	Stop	SW NE	On main	Not at	No	None		None	Male	69	-ve
3	Car	No	Stop	SW NE	On main	Not at	No	None		None	Female	26	-ve
4	Car	No	Stop	SW NE	On main	Not at	No	None		None	Male	68	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Female	51	Slight	No	Not ped	Not ped	Not ped	Other
2	0	Drv/Rider	Female	26	Slight	No	Not ped	Not ped	Not ped	Other
3	0	Drv/Rider	Male	68	Slight	No	Not ped	Not ped	Not ped	Other
4	0	Passenger	Male	8	Slight	Front	Not ped	Not ped	Not ped	Other
5	0	Passenger	Female	52	Slight	Front	Not ped	Not ped	Not ped	Other
6	0	Passenger	Female	19	Slight	Rear	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. N ON A1 IN HEAVY TRAFFIC, V4,3&2 STOP DUE TO STATIONARY TRAFFIC AHEAD, V1 FAILS TO STOP IN TIME, COLLIDING WITH REAR OF V2, SHUNTING V2 FORWARD INTO REAR OF V3, PUSHING V3 FORWARD INTO REAR OF V4

User Information: **Contributory Factors:** 406V001A 408V002A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
117	F5		0502210	Slight	Thursday	19/08/2010	07:53	418460/590070		

Location: Alhebron **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	43	-ve
2	Taxi	No	Going ahead	N S	On main	Not at	No	None		None	Male	51	-ve
3	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	34	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	3	Drv/Rider	Male	34	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav South on A1 Slowed to Allow a Wide Load to Pass, V2 Fails Tostop Colliding with V1, V3 Fails to Stop and Collides with V2

User Information:

Contributory Factors: 406V000A 406V000A 405V000A 405V000A 403V000B 406V000A

95			0426611	Slight	Wednesday	20/07/2011	10:50	418510/590490		

Location: A1 2 Miles North of A192 Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70MPH	Dual c'way	NotJCT	Daylight	Rain	Flood	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Rt hand bend	S N	On main	Not at	Yes	None		Cent barr	Male	27	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	27	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav North on A1 Has Lost Control on the right Hand Bend. V1 Has Tried to Avoid Standing Water in the Carriageway and Skidded Colliding with the Central Barrier.

User Information:

Contributory Factors: 708V001A 707V001A

90			0384612	Slight	Sunday	08/07/2012	12:44	418528/591392		

Location: A1 1 Mile North of Hebron Junction, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	OT	None		Ditch	Male	44	-ve
2	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	70	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	44	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	70	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav. N on A1, V2 Trav. S, Driver of V1 Distracted, Crosses White Line into Southbound Lane, Colliding with V2, V1 Leaves Carriageway to N/S, Colliding with Fence

User Information:

Contributory Factors: 509V001A 503V001A

161	F5		0649610	Slight	Friday	15/10/2010	14:58	418542/591542		

Location: Alpriestbridge **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	54	-ve
2	Car	No	Going ahead	S N	On main	Not at	Yes	None	Nearside	None	Male	19	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	19	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Passenger	Female	18	Slight	Front	Not ped	Not ped	Not ped	Other
3	2	Passenger	Female	22	Slight	Rear	Not ped	Not ped	Not ped	Other
4	2	Passenger	Male	21	Slight	Rear	Not ped	Not ped	Not ped	Other

Description: V1 Trav North on A1 Brakes for Traffic ahead V2 Trav Behind V1brakes but Collides with Rear of V2

User Information:

Contributory Factors: 109V000A

36			0181212	Serious	Wednesday	07/03/2012	04:28	418542/591544		

Location: A1 50M J/W Priestbridge, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60MPH	Single c'way	NotJCT	Dark/no lights	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Rt hand bend	S N	On main	Not at	No	None		Tree	Male	43	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	43	Serious	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav. N on A1, for Reasons Unknown V1 Leaves Carriageway to N/S Whilst Negotiating a right Hand Bend, V1 Collides with Tree

User Information:

Contributory Factors: 503V001B

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
102	FS		0450910	Slight	Sunday	25/07/2010	16:25	418554/591586		

Location: Alpriestbridge, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	56	-ve
2	Car	No	Waiting	N S	On main	Not at	No	None		None	Male	61	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Passenger	Male	21	Slight	Rear	Not ped	Not ped	Not ped	Other

Description: V1 V2 Trav South on A1, V2 Slows Due to Traffic Ahead, V1 Fails Toslow and Collides with Rear of V2

User Information: **Contributory Factors:** 406V000A 405V000B 408V000B 308V000A

159	E06000048	0692314	Slight	Monday	17/11/2014	13:39	419647/591812		9999	

Location: A1 PRIESTBRIDGE **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	SW NE	On main	Not at	No	None		None	Male	87	-ve
2	Car	No	Going ahead	SW NE	On main	Not at	No	None		None	Female	72	-ve
3	Car	No	Going ahead	SW NE	On main	Not at	No	None		None	Female	22	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Female	72	Slight	No	Not ped	Not ped	Not ped	Other
2	0	Drv/Rider	Female	22	Slight	No	Not ped	Not ped	Not ped	Other
3	0	Passenger	Female	21	Slight	Front	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. N/E ON A1, DRIVER OF V1 PRESSES BRAKE INSTEAD OF ACCELERATOR AND BRAKES SUDDENLY, V2 TRAV. BEHIND STOPS IN TIME, V3 HAS FAILED TO STOP IN TIME, COLLIDING WITH REAR OF V2

User Information: **Contributory Factors:** 602V001A 603V001A 406V003A

11		0031413	Slight	Thursday	17/01/2013	12:00	418756/592097			

Location: A1 J/W Layby Nr Jacksons Garage, Priestbridge, Morpeth **1st Rd:** A1 **2nd Rd:** U6059

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	Other Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	SW NE	On main	Junt cleared	No	None		None	Male	24	-ve
2	Car	No	Start	SW NE	On main	Junt cleared	No	None		None	Male	59	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	59	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Passenger	Male	60	Slight	Rear	Not ped	Not ped	Not ped	Other
3	2	Passenger	Female	63	Slight	Front	Not ped	Not ped	Not ped	Other

Description: V2 Trav. N on A1 Having Just left Layby, V1 Trav. N on A1, Driver Failed to Judge Speed of V2, Colliding with Rear of V2

User Information: **Contributory Factors:** 602V001A

77	E06000048	0349714	Slight	Sunday	22/06/2014	12:59	418795/592264		9999	

Location: A1 APP. 30M S OF TRITLINGTON JUNCTION, MORPETH **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	Yes	None		None	Female	44	-ve
2	Car	No	Stop	S N	On main	Not at	No	None		None	Male	60	-ve
3	Car	No	Waiting	S N	On main	Not at	No	None		None	Female	56	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Passenger	Female	68	Slight	Front	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. N ON A1, V3 SLOW AND STOPS DUE TO STATIONARY TRAFFIC AHEAD, V2 SLOWS, V1 FAILS TO SLOW, COLLIDING WITH REAR OF V2, PUSHING V2 FORWARD INTO REAR OF V3

User Information: **Contributory Factors:**

119		0516311	Slight	Monday	29/08/2011	12:20	418790/592290			

Location: A1 2.6 Miles North of A697, Nr Tritlington Junction, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine Wind	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	Yes	None		None	Male	43	-ve
2	Car	C'van	Stop	S N	On main	Not at	No	None		None	Male	48	-ve
3	Car	No	Stop	S N	On main	Not at	No	None		None	Male	47	-ve
4	Car	No	Stop	S N	On main	Not at	No	None		None	Male	42	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	48	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1, V2 Brakes Due to Traffic Ahead. V1 Brakes, Skids and Collides with Rear of Caravan Towed by V2, V3 Trav. Behind V2 Brakes Heavily, V4 Brakes, Colliding with Rear of V3

User Information: **Contributory Factors:** 308V001A 602V001B 308V004A 406V003A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
15		E06000048	0035115	Slight	Wednesday	21/01/2015	17:30	418806/592332		9999

Location: A1 J/W TRITLINGTON JUNCTION TRITLINGTON **1st Rd:** A1 **2nd Rd:** C129

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Dark/no lights	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	N S	On main	Junc appr	No	None		None	Male	60	-ve
2	Car	No	Waiting	N S	On main	Junc appr	No	None		None	Female	29	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Female	29	Slight	No	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. S ON A1 APP. TRITLINGTON JUNCTION, V2 STOPS DUE TO TRAFFIC AHEAD, V1 FAILS TO STOP, COLLIDING WITH REAR OF V2

User Information: **Contributory Factors:** 405V001A

116		0800012	Slight	Friday	14/09/2012	14:45	418821/592462	

Location: A1 100M North Tritlington Junction **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine Wind	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	No	None		None	Female	26	-ve
2	Car	No	Stop	S N	On main	Not at	No	None		None	Male	52	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	26	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1, V2 Slows Due to Traffic Ahead, V1 Fails to Slow in Time, Colliding with Rear of V2

User Information: **Contributory Factors:** 307V001B 308V001B 406V001A

174	F5	0777810	Slight	Wednesday	24/11/2010	10:03	418880/593190	

Location: Alapprox 400M South of Junction for Earsdon **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Rain	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Yes	None		None	Male	27	-ve
2	Car	No	Waiting	N S	On main	Not at	No	None		None	Untra.	-1	N/C
3	Car	No	Waiting	N S	On main	Not at	No	None		None	Female	45	N/C
4	Car	No	Waiting	N S	On main	Not at	No	None		None	Male	58	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	4	Drv/Rider	Male	58	Slight	No	Not ped	Not ped	Not ped	Other

Description: V2 3 and 4 All Stationary Facing South on A1. V1 Trav Southapproaches but is Unable to Slow in Time , Spun Veh Around V2 and V3 and Collided with V4

User Information: **Contributory Factors:** 602V000A

91		0404912	Slight	Saturday	28/07/2012	11:15	418902/593407	

Location: A1 250M S of Earsdon Junction, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	S N	On main	Not at	No	None		None	Female	35	-ve
2	Car	No	Waiting	S N	On main	Not at	No	None		None	Male	53	-ve
3	Car	No	Waiting	S N	On main	Not at	No	None		None	Male	51	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	35	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	53	Slight	No	Not ped	Not ped	Not ped	Other
3	1	Passenger	Male	14	Slight	Front	Not ped	Not ped	Not ped	Other
4	1	Passenger	Female	27	Slight	Rear	Not ped	Not ped	Not ped	Other
5	2	Passenger	Female	53	Slight	Front	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1, V3 Slows to a Stop Due to Build up of Traffic Ahead, V2 Slows and Stops Behind V3, V1 Failed to Stop in Time, Colliding with Rear of V2 Causing V2 to Be Pushed Forward into Rear of V3

User Information: **Contributory Factors:** 405V001A 406V001A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
113			0499614	Slight	Wednesday	20/08/2014	11:58	418910/593614		

Location: A1 Nr J/W C115, Earsdon **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	S N	On main	Not at	No	None		None	Female	64	N/R
2	Goods > 7.5t	Art	Stop	S N	On main	Not at	No	None		None	Male	55	N/R
3	Car	No	Stop	S N	On main	Not at	No	None		None	Male	49	N/R

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	64	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1, V2 Brakes, V1 Fails to Brake, Colliding with Rear of V2, V2 Has Dragged V1 a Shorts Distance Until V2 Stops, V3 Attempts to Avoid Collision but Collides with Rear of V1

User Information: **Contributory Factors:** 406V001A 406V001A

6			0012812	Slight	Monday	02/01/2012	07:25	418921/593893		

Location: A1 3 Miles from Hebron Junction, Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/unknown	Fine	Ice	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Yes	None		None	Male	67	-ve
2	Car	No	Going ahead	N S	On main	Not at	Yes	None		None	Female	55	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Female	55	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1, V2 Skids on Icy Road Surface, Driver Applies Brakes Causing V2 to Turn Sideways, Driver of V1 Following V2 Applies Brakes, Skids on Ice, Colliding with O/S of V2

User Information: **Contributory Factors:** 103V001A 103V002A

114			0497213	Serious	Friday	30/08/2013	11:43	418915/593630		

Location: A1 J/W Earsdon Junction Morpeth **1st Rd:** A1 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	M/cycle 125 -	No	Going ahead	S N	On main	Junt appr	Over	None		None	Male	64	-ve
2	Van/Goods < 3.	No	Stop	S N	On main	Junt appr	No	None		None	Untra.	-1	N/C

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	64	Serious	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1 App. Earsdon Junction, V2 Slows for Reason Unknown, V1 Trav. Behind Unable to Stop in Time, Causing Rider to Fall from V1, V2 Failed to Stop

User Information: **Contributory Factors:** 408V001A 408V001A

41	E06000048		0205315	Slight	Friday	03/04/2015	11:21	418919/593865		9999

Location: A1 APP. 1/2 MILE S OF CAUSEY PARK BRIDGE **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Rain		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	34	-ve
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	61	-ve
3	Car	No	Stop	S N	On main	Not at	No	None		None	Female	68	-ve
4	Car	No	Stop	S N	On main	Not at	No	None		None	Male	34	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Male	34	Slight	No	Not ped	Not ped	Not ped	Other
2	0	Passenger	Female	13	Slight	Rear	Not ped	Not ped	Not ped	Other
3	0	Passenger	Female	44	Slight	Front	Not ped	Not ped	Not ped	Other
4	0	Passenger	Female	6	Slight	Front	Not ped	Not ped	Not ped	Other
5	0	Passenger	Male	3	Slight	Rear	Not ped	Not ped	Not ped	Other
6	0	Passenger	Female	22	Slight	Rear	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. N ON A1, V4 BRAKES HEAVILY DUE TO TRAFFIC AHEAD, V4 SKIDS AND LOSES CONTROL, V3 BRAKES, TAKING EVASIVE ACTION, V1 COLLIDES WITH REAR OF V2, CAUSING V2 TO COLLIDE WITH REAR OF V3

User Information: **Contributory Factors:** 408V001A 408V002B

14			0033611	Slight	Friday	14/01/2011	19:15	418910/594010		

Location: A1 500M N of Earsdon , Morpeth **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Goods > 7.5t	No	Going ahead	S N	On main	Not at	No	None		None	Male	30	-ve
2	Car	No	Going ahead	N S	On main	Not at	No	None		None	Female	57	N/D

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Female	57	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav North on A1 when Nearside Wheel Became Detached and Struck V2 Trav South

User Information: **Contributory Factors:** 999V001A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
146			0613911	Slight	Sunday	23/10/2011	18:00	418940/594420		

Location: A1 J/W Causey Park Bridge Causey Park **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Dark/no lights	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Right turn	N S	On main	Junt appr	No	None		None	Female	24	-ve
2	Car	No	Going ahead	S N	On main	Junt appr	No	None		None	Male	30	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	30	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav South on A1 Has Tried to Turn right across the Carriageway and Has Turned into the Path of V2 Trav North on A1.

User Information: **Contributory Factors:** 403V001A 405V001A

126			0548312	Slight	Friday	12/10/2012	16:00	419055/595115		

Location: A1 J/W Chevington Road Causey Park **1st Rd:** C115 **2nd Rd:** A1

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	E W	On main	Junt appr	No	None		None	Male	26	N/C
2	Car	No	Wt turn lt	E W	On main	Junt appr	No	None		None	Male	49	N/C

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Passenger	Female	52	Slight	Front	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. W on Chevington Rd, V2 Stops at J/W A1, Waiting to Turn Left, V1 Fails to Stop in Time, Colliding with Rear of V2

User Information: **Contributory Factors:** 405V001A

149	E06000048		0641714	Slight	Sunday	26/10/2014	13:00	419060/595127		9999

Location: A1 J/W CHEVINGTON ROAD CAUSEY PARK **1st Rd:** A1 **2nd Rd:** C115

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine		None	Refuge	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Right turn	S E	On main	Leav main	No	None		None	Male	22	-ve
2	Car	No	Going ahead	N S	On main	Mid junction	Yes	None		None	Male	30	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Male	30	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 TRAV. N ON A1, STOPS AT J/W C115, WAITING TO TURN RIGHT, V2 TRAV. S ON A1, V1 TURNS RIGHT INTO PATH OF V2, COLLISION OCCURRED

User Information: **Contributory Factors:** 405V001A 406V001B

162			0724011	Slight	Thursday	01/12/2011	15:50	419040/595140		

Location: A1 J/W Chevington Road Causey Park **1st Rd:** A1 **2nd Rd:** C115

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Dark/no lights	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Junt appr	No	None		None	Male	67	-ve
2	Car	No	Stop	N S	On main	Junt appr	No	None		None	Male	18	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	18	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1, V2 Slows for Slow Moving Traffic Ahead, V1 Fails to Slow, Colliding with Rear of V2

User Information: **Contributory Factors:** 602V001A 405V001A

16	E06000048		0039515	Slight	Sunday	25/01/2015	16:34	419056/595291		9999

Location: A1 30M SOUTH J/W FIELDHEAD/CAUSEY PARK JUNCTION **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
40 MPH	Single c'way	NotJCT	Daylight	Fine		None	None	Rdworks	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Start	S N	On main	Not at	No	None		None	Male	70	-ve
2	Car	No	Waiting	S N	On main	Not at	No	None		None	Male	50	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Passenger	Male	51	Slight	Front	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. N ON A1, STATIONARY AT ROADWORKS, FOOT OF DRIVER OF V1 SLIPS FROM BRAKE ONTO ACCELERATOR CAUSING V1 TO MOVE FORWARD AND COLLIDE WITH REAR OF STATIONARY V2

User Information: **Contributory Factors:** 309V001A 405V001B 406V001B 410V001A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
85		E06000048	0371015	Slight	Saturday	27/06/2015	13:50	418474/596628		9999

Location: A1 1/4 MILE SOUTH OF BURGHAM PARK JUNCTION, BURGHAM **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine		None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	SE NW	On main	Not at	No	None		None	Male	63	-ve
2	Car	No	Waiting	SE NW	On main	Not at	No	None		None	Female	32	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	0	Drv/Rider	Male	63	Slight	No	Not ped	Not ped	Not ped	Other
2	0	Drv/Rider	Female	32	Slight	No	Not ped	Not ped	Not ped	Other

Description: VEHS TRAV. N/W ON A1, V2 BRAKES DUE TO SLOW MOVING VEHICLE AHEAD, DRIVER APPLIES BRAKES HARD COMING TO A STOP, V1 UNABLE TO STOP IN TIME, COLLIDING WITH REAR OF V2

User Information: **Contributory Factors:** 406V001A 405V001A 408V001A

176	F6		0793210	Slight	Friday	10/12/2010	06:45	418310/596870		

Location: A10.25 Miles S J/W Burgham Rd, Burgham **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Goods > 7.5t	Art	Going ahead	NW SE	On main	Not at	No	None		None	Untra.	-1	N/C
2	Goods > 7.5t	Art	Going ahead	NW SE	On main	Not at	No	None		None	Male	37	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	37	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Hgv Trav South on A1 when a Large Item of Ice Falls from Trailerof V1 . the Ice Hits Windscreen of V2 Going Through at Head Heightof Driver Who is Injured by Fragments of Glass

User Information: **Contributory Factors:** 308V000A 999V000A

106	F5		0456210	Slight	Saturday	24/07/2010	14:30	418190/596960		

Location: A1 J/W Clsburgham **1st Rd:** A1 **2nd Rd:** C137

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	SE NW	On main	Junt cleared	No	None		None	Male	49	-ve
2	Car	No	Waiting	SE NW	On main	Junt cleared	No	None		None	Male	34	-ve
3	Car	No	Waiting	SE NW	On main	Junt cleared	No	None		None	Male	61	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	34	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 V2 V3 Trav Nw on A1. V2 V3 Waiting it Traffic. V1 Approached Andcollided with Rear of V2 Pushing it into V3

User Information: **Contributory Factors:** 308V000A

28			0092212	Slight	Wednesday	15/02/2012	18:55	418214/596963		

Location: A1 1/2 Mile N of Helm Junction, Bockenfield **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Goods > 7.5t	Art	Going ahead	NW SE	On main	Not at	No	None		None	Male	58	-ve
2	Car	No	Going ahead	NW SE	On main	Not at	No	None		None	Male	27	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	27	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S/E on A1 in Slow Moving Traffic, Driver of V2 Pressed Brake Instead of Clutch, Coming to a Stop, V1 Failed to Stop in Time, Colliding with Rear of V2

User Information: **Contributory Factors:** 406V001A 309V002A

3			0001212	Slight	Monday	02/01/2012	08:29	418099/597049		

Location: A1 Burgham **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Rain	Ice	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	SE NW	On main	Not at	Yes	Kerb		Other	Male	60	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	60	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav. N/W on A1, Driver Loses Control Due to Icy Conditions, V1 Skids, Leaving Carriageway to N/S, Mounts Kerb onto Grassed Area, Colliding with Fence

User Information: **Contributory Factors:** 103V001A

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
156	F6		0682310	Slight	Thursday	04/11/2010	01:00	417870/597280		

Location: A11 Mile South of Westmoor **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Rain	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Not at	No	None		None	Untra.	-1	N/C
2	Other: Motor v	No	Going ahead	S N	On main	Not at	No	None		None	Male	59	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	59	Slight	No	Not ped	Not ped	Not ped	Other

Description: V2 Trav North on A1 Followed by V1. V1 Collides with Rear of V2. V1turns Around and Makes off from Scene

User Information:

Contributory Factors: 406V000A

2			0001112	Slight	Monday	02/01/2012	08:30	417456/598454		

Location: A1 1/2 Mile South of Felton by Pass, Felton **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Ice	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Over	Kerb		None	Female	51	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	51	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav. S on A1, Driver Loses Control on Downward Slope of Incline Due to Black Ice, V1 Leaves Carriageway to N/S, Rolling onto Roof

User Information:

Contributory Factors: 103V001A

59			0303113	Slight	Friday	14/06/2013	14:50	417432/598729		

Location: A1 J/W West Moor Junction West Moor **1st Rd:** A1 **2nd Rd:** C111

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	S N	On main	Junt appr	No	None		None	Male	19	-ve
2	Car	No	Going ahead	S N	On main	Junt appr	No	None		None	Male	60	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Passenger	Female	60	Slight	Front	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. N on A1 App. West Moor Junction in Line of Traffic, V1 Collides with Rear of V2

User Information:

Contributory Factors: 405V001B 406V001B

49			0240413	Slight	Monday	06/05/2013	10:38	417434/598769		

Location: A1 J/W Felton Junction West Moor **1st Rd:** A1 **2nd Rd:** C111

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	T/Stag Give	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Right turn	NE N	On main	Enter main	No	None		None	Male	51	-ve
2	Car	C'van	Going ahead	N S	On main	Mid junction	No	None		None	Male	70	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	70	Slight	No	Not ped	Not ped	Not ped	Other

Description: V2 Trav. S on A1 Towing Caravan, V1 Stationary Waiting to Turn right onto A1 from Southern Felton Junction, V1 Turns right onto A1, Front of V1 Colliding with N/S of V1

User Information:

Contributory Factors: 403V001A 403V002A

26			0078312	Slight	Sunday	29/01/2012	21:47	417416/599219		

Location: Felton by Pass 100M S of Bridge over Coquet, Felton **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Snow	Snow	None	None	Rd Surf defec	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Over	None		Other	Male	36	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	36	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav. S on A1, V1 Hit Large Amount of Snow/Slush, Driver Lost Control, Leaving Carriageway to O/S, V1 Overturned on Embankment

User Information:

Contributory Factors: 103V001A

No.	Area L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
167		0744412	Fatal	Monday	12/11/2012	07:48	417418/599279		

Location: Felton by Pass App. 1/4 Mile S of River Coquet, Felton **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Dark/no lights	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	49	-ve
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	32	-ve
3	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	37	N/R

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	49	Slight	No	Not ped	Not ped	Not ped	Other
2	3	Drv/Rider	Male	37	Fatal	No	Not ped	Not ped	Not ped	Other
3	3	Passenger	Male	38	Serious	Front	Not ped	Not ped	Not ped	Other

Description: V1 Trav. S on A1, V2&3 Trav. N on A1, for Reasons to Be Established V1 Has Veers into N/Bound Carriageway, Colliding with O/S of V2, V1 Continues S in N/Bound Carriageway, Colliding Head on with V3, V3 Leaves Carriageway to N/S

User Information:

Contributory Factors: 403V001A 405V001A 405V001B 410V001B 503V001B 508V001B

48		0236112	Slight	Monday	07/05/2012	16:55	417423/599409		

Location: A1 300M S of Bridge over River Coquet, Felton **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Stop	N S	On main	Not at	No	None		None	Male	30	N/R
2	Car	No	Stop	N S	On main	Not at	No	None		None	Male	32	N/R

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Passenger	Female	30	Slight	Front	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1 in Queue of Slow Moving Traffic, V1 Trav. Behind V2, Driver of V1 Sneezed and Lost Control of V1, Colliding with Rear of V2

User Information:

Contributory Factors: 410V001A 406V001B

75		0343912	Slight	Monday	07/05/2012	17:22	417425/599456		

Location: A1 300M S of Bridge over River Coquet, Thirston **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Dry	None	None	Rdworks	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	No	Roadworks		None	Female	37	-ve
2	Car	No	Waiting	N S	On main	Not at	No	Roadworks		None	Female	37	-ve
3	Van/Goods < 3.5	No	Waiting	N S	On main	Not at	No	Roadworks		None	Female	32	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Female	37	Slight	No	Not ped	Not ped	Not ped	Other
2	3	Drv/Rider	Female	32	Slight	No	Not ped	Not ped	Not ped	Other
3	3	Passenger	Female	15	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1, V3 Stops Due to Traffic Ahead, V2 Stops Behind V3, V1 Fails to Stop in Time, Colliding with Rear of V2, Shunting V2 Forward into Rear of V3

User Information:

Contributory Factors: 810C001A 509V001B

124	F6	0547110	Slight	Friday	27/06/2010	15:25	417444/599930		

Location: Alnorth of Bridge over River Coquet, Felton **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	Yes	None		None	Male	22	-ve
2	Car	No	Stop	N S	On main	Not at	No	None		None	Male	29	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	22	Slight	No	Not ped	Not ped	Not ped	Other
2	2	Drv/Rider	Male	29	Slight	No	Not ped	Not ped	Not ped	Other

Description: Vehs Trav. S on A1 in Lane 2, V1 Following V2, V2 Slows on Approachto Merge from Duel Carriageway to Single Carriageway, V2 Slowed Tomerge into Lane 1, V1 Failed to Slow, Colliding with Rear of V2

User Information:

Contributory Factors: 602V000A 405V000B

65		0318112	Slight	Sunday	17/06/2012	13:25	417459/600331		

Location: A1 Nr J/W Felton Park, Felton **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
60 MPH	Single c'way	NotJCT	Daylight	Fine	Wet	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Going ahead	N S	On main	Not at	No	None		None	Male	76	N/R
2	M/cycle > 500c	No	Going ahead	S N	On main	Not at	No	None		None	Male	51	N/R

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Drv/Rider	Male	51	Slight	No	Not ped	Not ped	Not ped	Other

Description: V1 Trav. S on A1, V2 Trav. N, Wing Mirror of V1 Colliding with V2, Causing Injury to Rider

User Information:

Contributory Factors: 406V001A 406V002A 405V001B 405V002B

No.	Area	L/A	Reference	Severity	Day	Date	Time	Grid Coords	Link/Node	Street
6			0009911	Serious	Saturday	08/01/2011	16:49	417460/600560		

Location: Felton by Pass **1st Rd:** A1 **2nd Rd:**

Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	NotJCT	Dark/no lights	Rain	Ice	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Chg lt lane	N S	On main	Not at	Over	None		None	Male	45	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	1	Drv/Rider	Male	45	Serious	No	Not ped	Not ped	Not ped	Other
2	1	Passenger	Male	55	Serious	Front	Not ped	Not ped	Not ped	Other

Description: V1 Trav South on A1 Hit Black Ice , Lost Control , Skidded and Overturned

User Information: **Contributory Factors:** 103V001A

122	F5		0534210	Slight	Saturday	04/09/2010	12:32	417471/600662		

Location: Felton by Passfelton **1st Rd:** A1 **2nd Rd:**

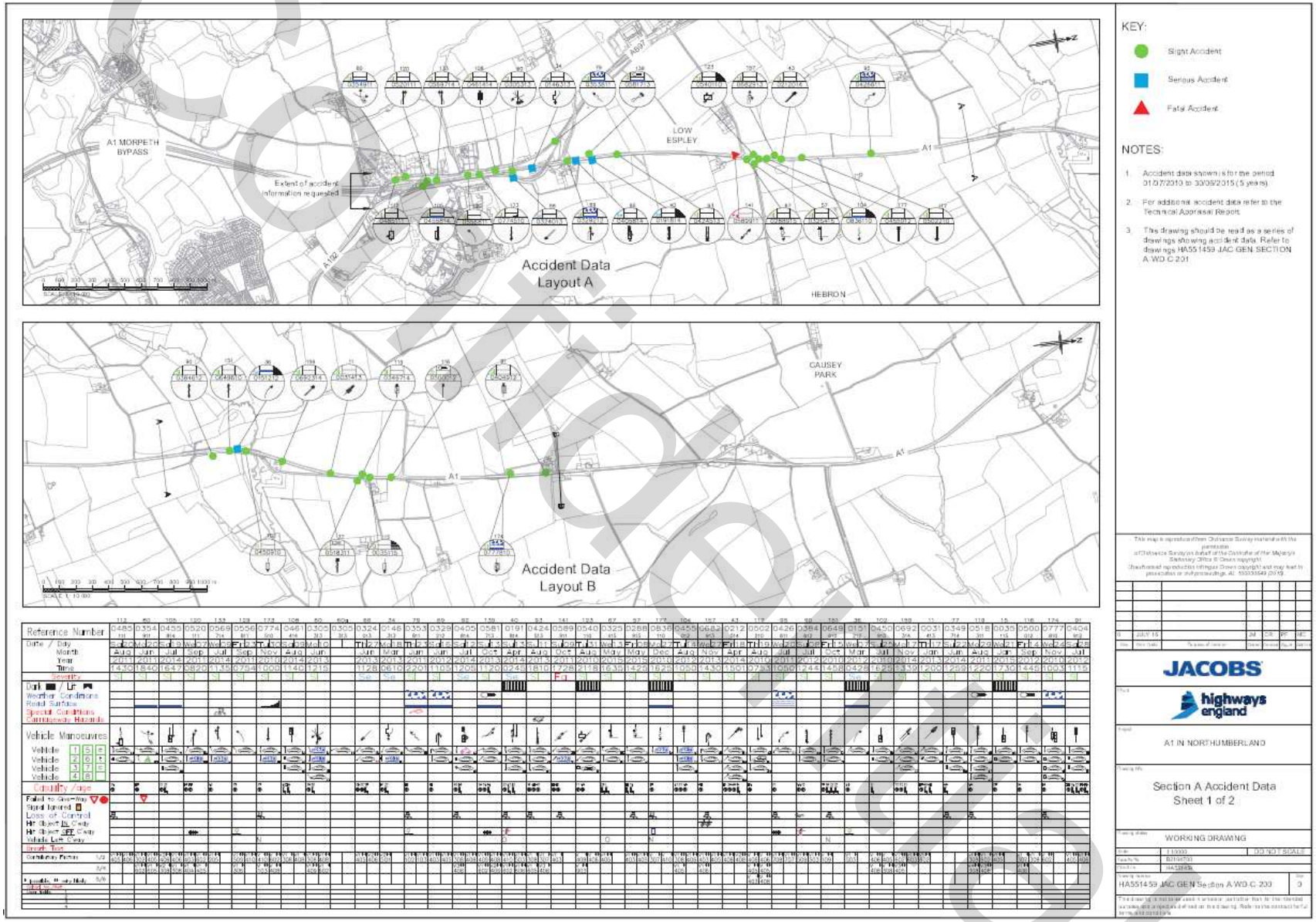
Speed	C'Way	Jct Det/Ctrl	Lighting	Weather	Rd Surf	PedX - Human	- Phy Fac	Special	Hazard
70 MPH	Dual c'way	NotJCT	Daylight	Fine	Dry	None	None	None	None

Veh	Vehicle type	Towing	Manoeuvre	Dir	Veh loc	Junct. loc	Skidding	Hit obj in	Left cway	Hit obj off	Sex	Age	B/T
1	Car	No	Chg rt lane	S N	On main	Not at	No	None		None	Female	38	-ve
2	Car	No	Going ahead	S N	On main	Not at	No	None		None	Male	29	-ve

Cas No	Veh ref	Cas Class	Sex	Age	Severity	Car Pass	Ped Direction	Ped Movement	Ped location	School Pupil
1	2	Passenger	Female	29	Slight	Front	Not ped	Not ped	Not ped	Other

Description: V1 Trav North on A1 Changes Lane to O/S Attempts to Change Gear Andcomes to a Stop V1 Trav Behind Brakes but Collides with V1

User Information: **Contributory Factors:** 309V000B



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TA49 Lighting Assessment (Confidential)

A1 in Northumberland: Morpeth to Ellingham

Part B: Alnwick to Ellingham

A1 Alnwick to Ellingham

TA49 LIGHTING ASSESSMENT

HE551459/WSP/HLG/A2E/RP/EO/00001
AUGUST 2018

PUBLIC

FIRST ISSUE / FOR REVIEW (P0) PUBLIC

PROJECT NO. 70044137
OUR REF. NO. HE551459/WSP/HLG/A2E/RP/EO/00001

DATE: AUGUST 2018

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QUALITY CONTROL

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APPENDICES

EXECUTIVE SUMMARY

WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Alnwick to Ellingham.

This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

The A1 Alnwick to Ellingham dualling upgrade involves widening the existing A1 either to the east or the west as indicated by local features. Farm access and the bridleway/public right of way near Broxfield will be maintained via a bridge. A new junction will provide ease of access with the A1, B6341 & B6347

When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to C) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved made through PIC savings.

It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However, from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness.

The Road Safety Engineer concluded that the existing route dark collision rate is below the national average although the severity of the collisions that have occurred, (58%) is above the national average killed and seriously injured (KSI) figure of 24%. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However, the use of the following should be considered within the design;

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

All the above measures are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

It is recommended that lighting should not be provided on any of the sections of the A1 Alnwick to Ellingham project. There is no economic or safety benefit supporting the installation of road lighting within the project.

The RSE has suggested options which should be considered within the design, if feasible, to mitigate the installation of road lighting.

The Table below summarises the requirement for road lighting following assessment by both the lighting engineer and the RSE;

TA49/07 Recommendations

SECTION	Economic Conclusion	Road Safety Conclusion	Combined Conclusion
Section A – Scheme limits to South Charlton Junction (ch53150 – 58250)			
Section B – South Charlton Junction with B6341 & B6347 (ch58250 – 59100)			
Section C – South Charlton Junction to scheme limits (ch59100 – 61100)			

Key

Lighting Required

Lighting Not Required

1 INTRODUCTION

1.1.1. WSP have been commissioned by Highways England to undertake PCF Stage 2 (Option Selection) for the A1 Alnwick to Ellingham.

1.1.2. The A1 in Northumberland is an important route between England and Scotland, especially for long distance travel along the eastern side of the country. The A1 between Alnwick to Ellingham is currently a single carriageway.

1.1.3. This stretch of road needs improving because journey times are generally slow – it can be hard to overtake, leading to some drivers overtaking unsafely. There are limited alternative routes making it difficult to provide alternative routes if the A1 requires maintenance or if there are any unplanned events on the road.

1.1.4. This report focuses on the road lighting element of the scheme and whether there is economic justification for road lighting in accordance with Design Manual for Roads and Bridges (DMRB) TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

1.1.5. Following the economic assessment of the lighting requirements, the results will be reviewed by a Road Safety Engineer who will provide comments and recommendations from a safety aspect in accordance with items such as the road usage, accident history and the local environment.

1.2 PURPOSE AND SCOPE OF REPORT

1.2.1. The purpose of this report is to assess whether it is economically justifiable to provide road lighting throughout the scheme, whilst assessing the benefit of providing new lighting in the areas that are currently unlit. The report assesses the need for the replacement in accordance with Highways England DMRB.

1.2.2. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment has been completed in accordance with Technical Advice Note TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

1.2.3. In order to determine if the installation of road lighting is justified in accordance with Highways England requirements an outline design is completed to enable a build-up of Capital (CAPEX) and Operating (OPEX) costs. These cost are fed into Highways England's Scheme Appraisal Report (SAR) spread sheet in order to determine whether the costs are, as a minimum, fully recovered, principally through accident saving's over the life expectancy of the installation.

1.2.4. As part of this appraisal it is advised that a Road Safety Engineers Briefing Report (RSEB) is also carried out by a Road Safety Engineer (RSE) to provide an independent view of the application of road lighting and accident data in general.

1.2.5. The findings of this report are detailed within the Conclusions and Recommendations section of this report and are summarised within the Executive Summary.

2 PROJECT DETAILS

2.1 PROJECT BACKGROUND

2.1.1. The A1 Alnwick to Ellingham dualling upgrade involves widening the A1 to dual carriageway along the existing road. There will be one new junction at South Charlton, connecting the A1, B6341 and B6347. Access will be provided for businesses and properties to the new junctions.

2.1.2. This scheme continues on from the Morpeth to Felton section. The A1 Morpeth to Felton duelling upgrade involves widening the existing A1 but with a significant deviation from the existing A1 in the 'middle' of this section. There will be a new A1 between Priests Bridge and Burgham Park, to the west of the current A1 and of Tindale Hill and Causey Park Bridge. There will be three new junctions: at Highlaws; at Fenrother; and at Westmoor. Access to the A1 will be via the new junctions only and it will be required to close most of the current local accesses onto the A1. There will be sections provided to the new junctions as part of the scheme.

2.1.3. This report considers the A1 Alnwick to Ellingham section only with a separate report considered for the A1 Morpeth to Felton.

2.2 PREFERRED ROUTE

2.2.1. As part of the preferred route announcement in September 2017 three options were considered for the proposed improvements between Alnwick to Ellingham;

2.2.2. Orange Option: upgrade the existing road to dual carriageway, either widening to the east or the west depending on the local features that we need to consider

2.2.3. Green Option: upgrade approximately 1.2 miles (2 km) of existing road to dual carriageway, and build a new carriageway to the east of the existing road at Heckley Fence, before crossing over to the west of the existing road at Elsnook Plantation and continuing until Shipperton Burn.

2.2.4. Blue Option: upgrade the majority of the existing road to dual carriageway, with approximately 2.2 miles (3.5 km) section of new carriageway built to the west of the existing route between Elsnook Plantation and Shipperton Burn

2.2.5. The Orange route has been selected as the preferred route. The decision for the preferred route was made following consideration of numerous factors and provides additional network resilience and overtaking opportunities. It also provides safety benefits by providing an overbridge junction connecting B6341, B6347 and the A1 at South Charlton.

2.2.6. This lighting assessment uses the orange route as the base for considering if lighting is required within the scheme limits.

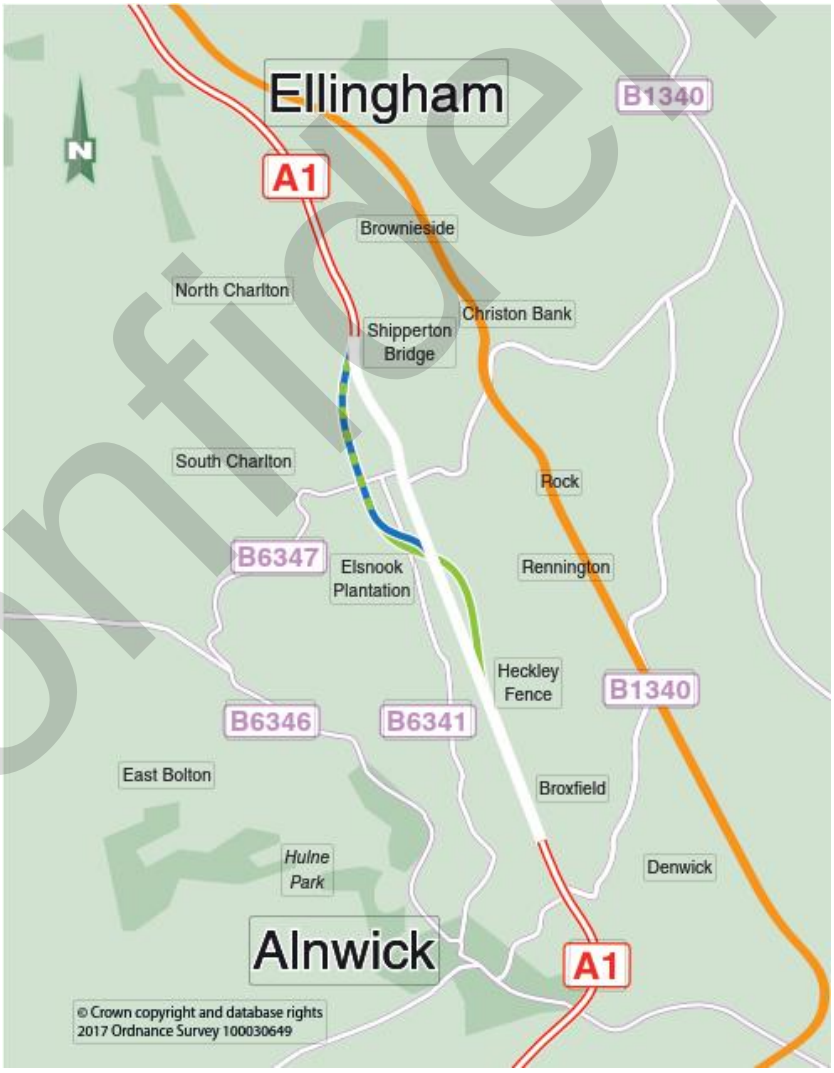


Figure 1 – Route Options

2.3 ROUTE SECTIONS

2.3.1. The proposed scheme has been separated into 3 distinct sections to facilitate the handling of large amounts of data. Deciding on the requirements for lighting in smaller condensed sections rather than one full section for the scheme will enable a more comprehensive understanding of the final recommendations.

Section C – Scheme limits to South Charlton Junction (**CH53150 – 58250**)

Section B – South Charlton Junction with B6341 & B6347 (**CH58250 – 59100**)

Section A – Scheme limits to south Charlton junction **(CH53150 – 58250)**

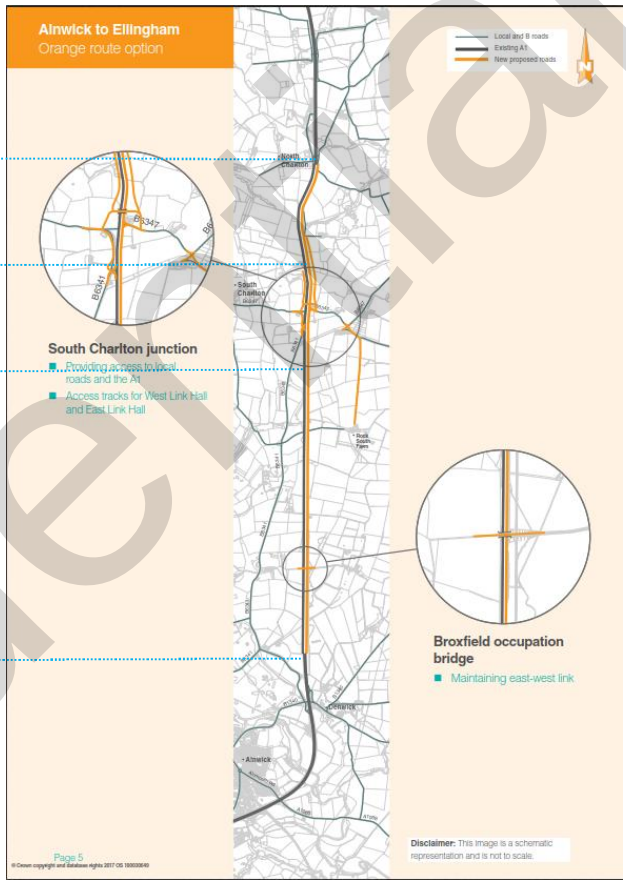


Figure 2 – Route Sections

3 EXISTING ALIGNMENT AND ROAD LIGHTING

3.1 EXISTING ALIGNMENT

3.1.1. For the purpose of this report the existing alignment has not been considered as the proposed route is both off line and not using the same principal geometry and route. However, the RSE has considered the existing route and the collisions for the route.

3.2 EXISTING ROAD LIGHTING DESCRIPTION

3.2.1. None of the existing route or immediate connecting roads between the Alnwick to Ellingham are currently lit.

3.3 ECONOMICAL APPRAISAL PROCESS

3.3.1. In order to assess if the road lighting proposal identified is economically justifiable an economic assessment needs to be completed in accordance with the Highways England's DMRB Technical Advice Note TA49/07.

3.3.2. The economic assessment aspect of this report follows the requirements of TA49/07 in which the Benefit Cost Ratio (BCR) is calculated. The BCR is a calculation that determines the value for money that could be provided in terms of accident savings provided by lighting if it was to be installed within the project. If the BCR is greater than 1.0 then the scheme benefits outweigh the costs, thus road lighting can be justified.

3.3.3. As part of this assessment it is advised that a RSEB is also carried out by a RSE to provide an independent review of the replacement of lighting and accident data in general. A full copy of the RSEB for this section of road under consideration is included in Appendix E.

3.3.4. To ensure a common approach in carrying out the economic assessment the Department for Transport (DfT) produced a Scheme Appraisal Report (SAR) template. Using the SAR 2017a the following items have been used to populate the data required for the A1 Alnwick to Ellingham;

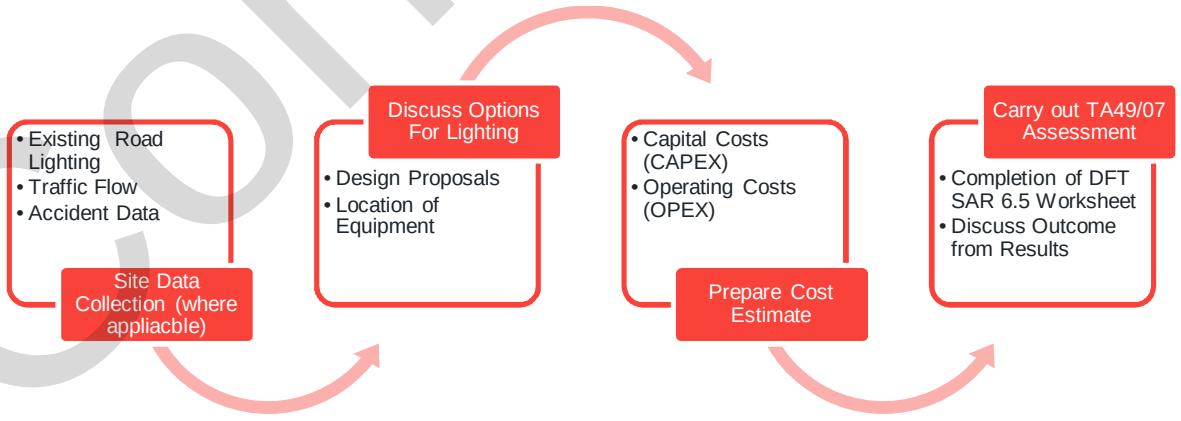
- Traffic flow data.
- Accident data from the previous 5 years (where applicable).
- Capital costs (CAPEX).
- Operating costs (OPEX).
- Installation costs.
- Decommissioning costs.
- Personal Injury Collision (PIC) saved in opening year.

3.3.5. The economic assessment process introduced by TA49/07 uses PIC savings as the basis for justification for lighting. This is achieved by using existing accident data, where applicable, as a benchmark and calculating how many night-time accidents would be saved by the renewal of lighting. This report has used 5 year historical road traffic accident data to inform a decision on the predicted accident savings based on the preferred route (as detailed in the RSEB) specific to the network as specified in TA49/07. It should be noted that the RSE report provides an in depth review of existing and proposed based on the new route.

3.3.6. The economic assessment process also incorporates average traffic flow information as provided within the Scheme Appraisal Report.

3.3.7. The economic assessment process for the A1 Alnwick to Ellingham followed within production of this report is summarised in Figure 3 below. This provides information on the level of input required at each stage in order to provide sufficient information for input into the economic assessment process.

Figure 3 – TA49/07 Process



3.4 SITE DATA COLLECTION

3.4.1. This report has used 5 year historical road traffic accident data specific to the network supplied by the project team. The data used is detailed within the RSE report and considers the existing accident data for the current route.

3.4.2. The PSV percentage was not available from the information obtained and has not been used in the SAR. The predicted traffic growth information was not available at the time of carrying out the SAR but an assumption has been made of 30% in line with Highways England SAR 2017a and DFT guidance.

4 OPTIONS FOR ROAD LIGHTING

4.1 OPTIONS BREAKDOWN

4.1.1. TA49/07 states that the assessment process should produce an outline design "in sufficient depth to enable costs to be estimated reasonably accurately".

4.1.2. A road lighting design solution for each of the sections defined in Section 2.3 was developed and selected against the following criteria:

- The requirement for compliance with the latest design standards specified within the DMRB (i.e TD34).
- Incorporation of the latest lighting technology available with respect to luminaire optics and lighting column configuration.
- Selection of the most cost effective replacement option based on initial capital investment costs and life cycle maintenance.

4.1.3. Table 1 below provides the proposed road lighting design solution for each section which has been considered for the purposes of this TA49 assessment.

Table 1 – Proposed Road Lighting Design Solution for Each Section

Section	Proposed Lighting Solution
A	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
B	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.
C	Main Carriageway: Road lighting columns of 12m nominal height complete with a post top mounted (twin stub bracket) and LED luminaires (2 No.) mounted within the central reservation. Slip Roads: Road lighting columns of 10m nominal height with a post-top mounted LED luminaire mounted in a single sided arrangement in the verge.

4.2 DESIGN STANDARDS

4.2.1. The section of the A1 Alnwick to Ellingham under consideration in Table 1 will be designed in accordance with DMRB document TD34/07 *'Design for Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network'* which states that the road lighting shall be designed in accordance with BS5489-1:2013 *'Code of Practice for the Design of Road Lighting – Part 1: Lighting of Roads and Public Amenity Areas'*.

4.2.2. TD34/07 sets out the required extent of lighting that should be provided within a typical scenario, this guidance has been followed for the proposed outline design where applicable.

4.3 IDENTIFY LIGHTING CLASS

4.3.1. As part of the design process a lighting class has to be selected for each section of the A1 Alnwick to Ellingham in accordance with BS5489-1:2013. The required lighting class is selected based on the criteria set out in in Table 2 below which has been extracted from Table A.2 'Lighting Classes for traffic routes (v > 40mph)' of BS5489-1:2013.

Table 2 - Lighting Classes for Traffic Routes (v > 40mph) extracted from BS5489-1:2013

Traffic Flow	Lighting Class		
	Dual Carriageway		Single Carriageway
	Junction Density High	Junction Density Low	
High to very high	M2	M3	M2
Low to Moderate	M3	M4	M3
Very low	M4	M5	M4

4.3.2. Table 3 below provides the recommended lighting class for each section as determined from Table 2 above.

Table 3 - Proposed Lighting Class for Each Section

Section	Description	Proposed Lighting Class
A	Main Carriageway	M4
	Slip Road	M4
B	Main Carriageway	M3
	Slip Road	M3
C	Main Carriageway	M3
	Slip Road	M3

4.3.3. Table 3 identifies a lighting class for the main carriageway and for the associated slip roads for each section. The required lighting parameters for each lighting class are highlighted in Table 4 below which has been extracted from Table 1 *'M Lighting Classes* 'of BS EN13201-2:2015.

Table 4 – M3 and M4 Lighting Class Parameters extracted from BS EN 13201-2:2015

Requirements	Lighting Class M3	Lighting Class M4
Lav in cd-m2 (Minimum Maintained)	1.0	0.75
Uo (Minimum)	0.4	0.4
UI (Minimum)	0.6	0.6
TI (Disability Glare) (Maximum)	15%	15%
Rei (Requirement for Edge illuminance) (Minimum)	0.5	0.5

4.4 DESIGN PARAMETERS

4.4.1. The basic road lighting design parameters for the A1 Alnwick to Ellingham have included the following: -

- IP 66, LED luminaire units (mounted at 0° tilt) to be used throughout to minimise the environmental impact (i.e. light spill) caused by the proposed lighting scheme.
- Only luminaires with a luminous intensity rating of G4 to G6 have been considered within this design.
- A maintenance factor of 0.83 was applied for all LED luminaire units.

4.5 PREPARE COST ESTIMATES

4.5.1. The TA49 economic assessment requires the input of capital cost (CAPEX) and operating costs (OPEX).

4.5.2. The capital cost associated with each section has been calculated using the unit lighting equipment rates provided in Appendix A. It should be noted that these rates have been derived for assessment purposes and although they have been based on UK industry rates they have not been verified by production of accurate drawings or design calculations. The capital cost applicable to each section is detailed in Table 5 below.

Table 5 – Capital Cost Summary

Section	Location	CAPEX
A	Scheme limits to South Charlton Junction	£788,791.50
B	South Charlton Junction with B6341 & B6347	£1,412,286.75
C	South Charlton Junction to scheme limits	£344,457.75
All Sections		**£2,545,539.00**

4.5.3. All sections considered exceed the minimum £100,000 requirement to be considered under a TA49 appraisal in accordance with the SAR guidance.

4.5.4. The operating costs which consider maintenance, energy and decommissioning costs associated with each section have been calculated using the unit lighting equipment costs provided in Appendix B. It should be noted that these rates have been derived for assessment purposes only using industry standard rates.

4.5.5. The SAR 2017a template requires the input of the additional annual average maintenance costs calculated from the overall operating costs. However, it is considered that additional maintenance costs should only be added to existing maintenance costs where existing lighting units are being retained. As there is no scope / provision to retain existing lighting units within this scheme the additional maintenance costs have been considered as the full maintenance cost per annum for the proposed lighting units. Therefore, the annual average maintenance costs applicable to each section are detailed in Table 6 below.

Table 6 – Additional Annual Average Maintenance Costs

Section	Location	OPEX
A	Scheme limits to South Charlton Junction	£44,621.44
B	South Charlton Junction with B6341 & B6347	£51,828.37
C	South Charlton Junction to scheme limits	£11,419.67
All Sections	Sections A to C	**£107,869.48**

4.6 CARRY OUT TA49 ECONOMIC ASSESSMENT

4.6.1. TA49/07 instructs the assessor to use Highway England's publication Scheme Appraisal Report 2017a (SAR 2017a) to assess the monetised benefits of lighting.

4.6.2. The SAR 2017a template states that all lighting systems with a capital investment cost of greater than £100,000 should be assessed in accordance with SAR 2017a. As detailed in Table 5.

4.6.3. The figures/information gathered are input into the SAR 2017a template which automatically calculates the monetised benefits of lighting. Appendix C contains all SAR 2017a worksheets for information.

5 ASSESSMENT OF RESULTS

5.1 INTERPRETATION OF RESULTS

5.1.1. In order to calculate the BCR the following figures were calculated for each section.

- Present Value Benefits (PVB); represents the monetised savings when considering accident savings in the opening year discounted to the base year (2010).
- Present Value Costs (PVC); are the costs applicable to the project discounted to the base year (2010) and converted to market prices by applying a factor equivalent to the general taxation level in the economy. This is necessary to enable comparison with monetised benefits on a like-for-like basis
- Net Present Value (NPV); is the comparison of PVC/PVB to enable a positive or negative lighting benefit.

5.1.2. Table 7 below provides a breakdown of figures (works costs) obtained from outline designs carried out for each individual section, together with figures automatically calculated when collated data is input into the SAR 2017a template. The accompanying SAR 2017a worksheets for the individual sections are provided within Appendix C, with the figures for the lit, unlit and whole sections determined by combining the costs and figures accordingly.

Table 7 - BCR Calculation Summary

Section	Capital Cost	PIC Saving in Yr 1	PVB	PVC	NPV (PVB-PVC)	BCR (PVB/PVC)
A	£788,791.50	0.02	£41,069.00	£1,469,780.00	-£1,428,711.00	0.030
B	£1,412,286.75	0.00	£0.00	£2,097,240.00	-£2,097,240.00	0.000
C	£344,457.75	0.00	£0.00	£488,270.00	-£488,270.00	0.000
All Sections	£1,470,137.59	0.02	£41,069.00	£4,055,290.00	-£4,014,221.00	0.010
Key						
	BCR less than 1.0			Lighting not economically justified		
	BCR greater than or equal to 1.0			Lighting economically justified		

5.1.3. Table 7 above shows that each individual section returns a BCR of less than 1.0, indicating that a proposed lighting scheme in each individual section, and as a combined scheme, is not economically justifiable.

5.1.4. It should be noted that within the OPEX calculations completed, no energy saving initiatives have been applied. Should energy saving initiatives be applied in any future design, technology such as controlled dimming, through MoRLiCS compatible CMS systems, could increase the BCR figures and potentially provide a higher BCR in some instances when considering the proposed lighting installation. It however is unlikely to increase above the required level of 1.0.

6 ROAD SAFETY ENGINEERS REPORT

6.1 REQUIREMENTS

6.1.1. Within TA49/07 it is a requirement to engage the Road Safety Engineer (RSE) to make an independent assessment of the scheme under consideration. Within Appendix E there is copy of the full Road Safety Engineers Briefing report (RSEB) carried out by Road Safety Initiatives (RSI). A summary of the full RSEB is provided in Section 6.2 below.

6.1.2. This information provided within this report was completed by Lyn Turner (WSP RSE) on May 2018.

6.1.3. The purpose of this RSEB is to review and understand the accident data for the existing route and consider how the proposed alignment will impact on the accidents. In addition to considering the likely benefit or dis-benefit any proposed road lighting may have on the accident rates for the route.

6.1.4. This RSEB also considers Interim Advice Note 167/12, Revision 1 Guidance for the Removal of Road Lighting. This is because IAN 167/12 provides supplementary requirements and guidance to TA49/07 and TD 34/07 (Design of Road Lighting for the Strategic Motorway and All Purpose Trunk Road Network).

6.1.5. The RSEB comprised an examination of relevant documents relating to the proposed scheme and analysis of provided five-year collision data and the impact on the proposed alignment and accident savings. The collision data considered has been derived from collision statistics validated by the DfT (known as Nationally Validated data). Collisions have been “rationalised” to exclude those where driver gross negligence has been shown to be a significant contributory factor, in accordance with advice given in IAN 167/12 where applicable.

6.2 SUMMARY OF REPORT

6.2.1. The dual carriageway section of the A1 is currently below the national averages for dark collision, where no street lighting is present.

6.2.2. The RSEs opinion as a qualified HD19 Audit Team Leader is that, as the route is to be upgraded to a new dual carriageway, it will be of a higher standard than the existing single carriageway. Many highway hazards, such as at-grade junctions, would be removed and looking at the evidence of the historic collisions, they do not believe that street lighting is required at this time. They have concluded that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

6.2.3. With regards to the new grade separated junctions, these could be more complex. It is widely known that compact junctions, have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers, however other vehicles are susceptible too, such as loss of control type incidents. By upgrading the B6347 junction to grade separated junctions, from the historical collision data it can be seen that 2 collisions have been removed through rationalisation as they occurred at the B6347 junction by right-turning manoeuvres. Associated queueing collisions and those collisions occurred at farm accesses which are to be closed will Also be saved.

6.2.4. Ideally the B6347 junction should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like STATS19 collision data to analyse against.

6.2.5. In the absence of these items, it cannot be categorically advised not to provide street lighting on the junctions, however there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- ‘intelligent’ style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

6.2.6. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

6.2.7. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

6.3 PREDICTED PIC SAVINGS

6.3.1. Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2015, this figure has decreased to 27%.

6.3.2. Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIA saving due to road lighting on links, suitable for appraisal.

6.3.3. For an all-purpose Dual carriageway the figure of 10% is noted.

6.3.4. Part of the scheme within this document is going to be on new links as the route deviates from the existing alignment. Other parts of the route are on the existing alignment but are replacing a single carriageway with a dual carriageway. All of the scheme extent is currently unlit.

6.3.5. The standard makes reference darkness savings on a new link which refers to Volume 13, COBA which has since been redrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

Table 8 – PIC Savings

	Section A	Section B	Section C	Total
Total Number of Rationalised collisions (5 Years)	2	2	0	4
Total During Darkness (5 Years)	1	0	0	1
Collisions in darkness per annum (actual)	0.2	0	0	0.2
Predicted Collision saving = no. of opening year darkness collisions x 10%	0.02	0	0	0.02

7 ASSESSMENT OF THE NON QUANTIFIABLE BENEFITS

7.1 REQUIREMENTS

7.1.1. TA49/07 uses predicted PIC cost savings to assess the need for lighting and although it is stated within the document that lighting may provide other non-quantifiable benefits (non-neutral impact) the guidance is limited and does not provide any definitive guidance with respect to how a non-quantifiable benefit may be assessed.

7.1.2. Therefore in the absence of any clear guidance an assessment matrix and associated guidance note has been developed to assess each section against the non-quantifiable issues identified for the purposes of this assessment. It should be noted that TA49/07 states that road construction departures from standards (such as narrow lanes) cannot be considered as a situation where lighting alone should be automatically introduced to mitigate the risk of the departure.

7.1.3. Table 9 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 9 - Non-Quantifiable Benefits of Lighting - Assessment Matrix

Description	Section A	Section B	Section C
Road Users			
Journey ambience	Positive	Positive	Positive
Driver Safety (accident reduction)	Neutral	Neutral	Neutral
Driver security	Neutral	Neutral	Neutral
Pedestrian safety	Neutral	Neutral	Neutral
Night-time routine maintenance	Neutral	Neutral	Neutral
Road Configuration			
Unusual number of lanes / constant lane changes	Neutral	Neutral	Neutral
Poor site lines and visibility	Neutral	Neutral	Neutral
Complex / unusual road Alignment	Neutral	Neutral	Neutral
Severe bends	Neutral	Neutral	Neutral
Narrow Lanes	Neutral	Neutral	Neutral
Close proximity of junctions (<1000m)	Neutral	Neutral	Neutral
Emergency Refuge (ER) / Hard Shoulder (HS)			
HS present	Positive	Positive	Positive
Discontinuous HS with ER	N/A	N/A	N/A
Discontinuous HS without ER	N/A	N/A	N/A

7.1.4. Table 10 below highlights the assessment matrix developed for the purposes of this assessment using the model developed in part with TA49 as a basis so that the non-quantifiable benefits of each section could be assessed in a structured manner.

Table 10 - Non-Quantifiable Benefits of Lighting Guidance Note

Description	Note	Default Position	Comment
Road Users			
Journey ambience	1	Positive	-
Driver Safety (accident reduction)	2	Neutral	This value will always be neutral if the TA49 economic assessment has confirmed that lighting cannot be justified on economic grounds.
Driver security	3	Neutral	This value should always default to neutral if fear of crime / personal safety is not of significant concern at the given location
Pedestrian safety / security	4	Neutral	This value should always default to neutral if no pedestrian access / facility is provided.
Night-time routine maintenance	5	Neutral	Should be neutral unless regular night-time maintenance is essential and lighting is considered essential for the night-time routine maintenance activities.
Road Configuration			
Unusual number of lanes / constant lane changes	6	Neutral	This value should always default to neutral unless there are unusual quantities of lane changes.
Poor site lines and visibility	7	Neutral	This value should always default to neutral unless the assessor can determine that lighting would assist driver perception.
Complex / unusual road Alignment	8	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist driver direction and perception.
Severe bends	9	Neutral	This value should always default to neutral unless there is definitive evidence that lighting would assist.
Narrow Lanes	10	Positive	If narrow lanes exist then lighting should be provided to highlight the areas of concern.
Close proximity of junctions (<1000m)	11	Positive	It has been shown that road junction in close proximity can benefit from lighting. For the purpose of this assessment the junction proximity has been taken from the end / commencement of the slip roads.
Emergency Refuge (ER) / Hard Shoulder (HS)			
HS present	12	Neutral	If a hard shoulder is present this should always default to neutral
Discontinuous hard shoulder with ER	13	Neutral	If a hard shoulder is present this should always default to neutral
Discontinuous HS without ER	14	Neutral	If a hard shoulder is present this should always default to neutral

7.1.5. Table 11 below provides the conclusion for each item identified for the assessment of non-quantifiable benefits.

Table 8 - Non-Quantifiable Benefits of Lighting, Section Conclusions

Section	Description	Non-quantifiable Benefit (i.e., positive)	Conclusion
A	¡ Journey Ambience ¡ Hard Shoulder Present	¡ Journey ambience alone cannot be considered justification for lighting. ¡ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder is not present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
B	¡ Journey Ambience ¡ Hard Shoulder Present	¡ Journey ambience alone cannot be considered justification for lighting. ¡ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder is not present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.
C	¡ Journey Ambience ¡ Hard Shoulder Present	¡ Journey ambience alone cannot be considered justification for lighting. ¡ As no hard shoulder is present it is considered that lighting could be beneficial in identifying broken down vehicles in locations where a hard shoulder is not present.	Mainline lighting and slip road lighting could be considered as a form of mitigation for safety where other safety measures cannot be implemented.

8 CONCLUSION AND RECOMMENDATIONS

8.1 CONCLUSION

The TA49 economic assessment (quantifiable)

8.1.1. When considering the implementation of road lighting through the TA49 appraisal process it has been demonstrated, through calculation, that lighting is not economically justified. This is mainly due to the number of PIC savings being determined as low should road lighting be proposed. All sections (A to C) and the scheme as a whole have resulted in BCR's of less than 1.0 being calculated. This confirms that the cost of providing a lighting scheme far outweighs any costs saved through PIC savings.

8.1.2. It is possible that OPEX savings could be considered such as controlled dimming through MoRLiCS compatible CMS systems or a reduction of the lighting extents. However from an economically quantifiable view point it is unlikely that any sections within the scheme would produce a BCR that exceeds 1.0 in order to justify a new lighting scheme if reduced OPEX costs were applied.

The TA49 lighting benefits assessment (Non-quantifiable)

8.1.3. The non-quantifiable assessment process considered has concluded that there is a level of non-quantifiable justification for the introduction of new lighting. It is considered that journey ambience alone cannot be considered for justification as this could be considered to be a direct link to the 10% accident savings lighting provides within the quantifiable element of the SAR process. It is possible however that lighting may help where there is no hard shoulder to identify broken down vehicles during the hours of darkness. This potential saving is not quantifiable and should be mitigated by other safety initiatives.

Road Safety Engineers Assessment

8.1.4. The RSE concluded that the existing route dark collision rate is below the national average. When combining this aspect with the upgrade from the current road layout to a new dual carriageway many of the existing hazards will also be removed further strengthening the case for dark collision reduction (such as removal of at grade junctions). This has enabled the RSE to conclude that road lighting will not be required within the project. However the use of the following should be considered within the design;

- 'intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the VRS or painting it black & white.

8.1.5. All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

8.1.6. The use of bike guard on the vehicle restraint system (VRS) will further improve safety for powered two wheelers.

8.2 RECOMMENDATION

8.2.1. It is recommended that lighting should not be provided on any of the sections of the A1 Alnwick to Ellingham project. There is no economic or safety benefit supporting the installation of road lighting within the project.

8.2.2. The RSE has suggested areas which should be considered within the main line and slip roads/junctions within the design where feasible to mitigate the installation of road lighting.

Appendix A

CAPITAL COSTS (CAPEX)

CAPEX Cost Sheet - Link A

Item	Description	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)					
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00					
2	Bracket Arm	£150.00	£150.00	£0.00	£0.00					
3	Luma 2 luminaire (includes CMS)	£500.00	£500.00	£0.00	£0.00					
4	Luma 1 luminaire (Includes CMS)	£0.00	£0.00	£250.00	£250.00					
5	Passive Termination (Sensor)	£0.00	£0.00	£0.00	£0.00					
6	Termination	£140.00	£140.00	£70.00	£70.00					
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£0.00	£0.00	£0.00	£0.00					
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00					
9	Earth Electrode*	£25.00	£25.00	£25.00	£25.00					
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00					
11	Trenching*	£170.00	£170.00	£170.00	£170.00					
12	Cross Carriageway ducting*	£105.00	£105.00	£105.00	£105.00					
13	Chambers*	£60.00	£60.00	£60.00	£60.00					
14	DNO*	£25.00	£25.00	£25.00	£25.00					
15	VCB allowance for column mounting*	£4,000.00	£4,000.00	£4,000.00	£4,000.00					
16	Traffic Management - TM*	£0.00	£0.00	£0.00	£0.00					
17	Detailed Design Fee*	£368.25	£368.25	£334.75	£334.75					
Total Capex cost prior to TM & Detailed Design Fee		**£7,365.00**	**£7,365.00**	**£6,695.00**	**£6,695.00**					
Total Capex Cost		**£7,733**	**£7,733**	**£7,030**	**£7,030**	**£0**	**£0**	**£0**	**£0**	**£0**
	Proposed Quantity	0	102	0		0	0	0	0	0
	Sub Total	£0.00	£788,791.50	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
	Link Total					£788,791.50				

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 60 earth electrodes allowed for scheme; Item 14 - Assumed transfer and suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - Additional £100 per M (based on 40m spacings) allowed for Wider VCB cimpared to standard width; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 & 17 - 5% of Total Capex Cost prior to TM & Detailed Design Fee (where applicable).

CAPEX Cost Sheet - Link B

Item	Description	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)					
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00					
2	Bracket Arm	£150.00	£150.00	£0.00	£0.00					
3	Luma 2 luminaire (includes CMS)	£500.00	£500.00	£0.00	£0.00					
4	Luma 1 luminaire (Includes CMS)	£0.00	£0.00	£250.00	£250.00					
5	Passive Termination (Sensor)	£0.00	£0.00	£0.00	£0.00					
6	Termination	£140.00	£140.00	£70.00	£70.00					
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£0.00	£0.00	£0.00	£0.00					
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00					
9	Earth Electrode*	£25.00	£25.00	£25.00	£25.00					
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00					
11	Trenching*	£170.00	£170.00	£170.00	£170.00					
12	Cross Carriageway ducting*	£105.00	£105.00	£105.00	£105.00					
13	Chambers*	£60.00	£60.00	£60.00	£60.00					
14	DNO*	£25.00	£25.00	£25.00	£25.00					
15	VCB allowance for column mounting*	£4,000.00	£4,000.00	£4,000.00	£4,000.00					
16	Traffic Management - TM*	£0.00	£0.00	£0.00	£0.00					
17	Detailed Design Fee*	£368.25	£368.25	£334.75	£334.75					
Total Capex cost prior to TM & Detailed Design Fee		**£7,365.00**	**£7,365.00**	**£6,695.00**	**£6,695.00**					
Total Capex Cost		**£7,733**	**£7,733**	**£7,030**	**£7,030**	**£0**	**£0**	**£0**	**£0**	**£0**
	Proposed Quantity	19	0	180		0	0	0	0	0
	Sub Total	£146,931.75	£0.00	£1,265,355.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
	Link Total					£1,412,286.75				

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 60 earth electrodes allowed for scheme; Item 14 - Assumed transfer and suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - Additional £100 per M (based on 40m spacings) allowed for Wider VCB cimpared to standard width; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 & 17 - 5% of Total Capex Cost prior to TM & Detailed Design Fee (where applicable).

CAPEX Cost Sheet - Link C

Item	Description	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)					
1	Column	£1,600.00	£1,600.00	£1,400.00	£1,400.00					
2	Bracket Arm	£150.00	£150.00	£0.00	£0.00					
3	Luma 2 luminaire (includes CMS)	£500.00	£500.00	£0.00	£0.00					
4	Luma 1 luminaire (Includes CMS)	£0.00	£0.00	£250.00	£250.00					
5	Passive Termination (Sensor)	£0.00	£0.00	£0.00	£0.00					
6	Termination	£140.00	£140.00	£70.00	£70.00					
7	2.5mm^2 2 core Cu cable XLPE/SWA/PVC*	£0.00	£0.00	£0.00	£0.00					
8	25mm^2 3 core Cu cable XLPE/SWA/PVC*	£480.00	£480.00	£480.00	£480.00					
9	Earth Electrode*	£25.00	£25.00	£25.00	£25.00					
10	Feeder Pillar*	£110.00	£110.00	£110.00	£110.00					
11	Trenching*	£170.00	£170.00	£170.00	£170.00					
12	Cross Carriageway ducting*	£105.00	£105.00	£105.00	£105.00					
13	Chambers*	£60.00	£60.00	£60.00	£60.00					
14	DNO*	£25.00	£25.00	£25.00	£25.00					
15	VCB allowance for column mounting*	£4,000.00	£4,000.00	£4,000.00	£4,000.00					
16	Traffic Management - TM*	£0.00	£0.00	£0.00	£0.00					
17	Detailed Design Fee*	£368.25	£368.25	£334.75	£334.75					
Total Capex cost prior to TM & Detailed Design Fee		**£7,365.00**	**£7,365.00**	**£6,695.00**	**£6,695.00**					
Total Capex Cost		**£7,733**	**£7,733**	**£7,030**	**£7,030**	**£0**	**£0**	**£0**	**£0**	**£0**
	Proposed Quantity	0	0	49		0	0	0	0	0
	Sub Total	£0.00	£0.00	£344,457.75	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
	Link Total					£344,457.75				

*Capex costs are based on the following assumptions: Item 7, 8 & 11 - 40m Column spacings; All items - include Installation; Item 10 - 80 columns per feeder pillar; Item 10 - 60 earth electrodes allowed for scheme; Item 14 - Assumed transfer and suitable DNO mains cable laid in the vicinity of Feeder Pillar; Item 15 - Additional £100 per M (based on 40m spacings) allowed for Wider VCB cimpared to standard width; Item 16 - 10% of Total Capex Cost prior to TM & Detailed Design Fee; Item 16 & 17 - 5% of Total Capex Cost prior to TM & Detailed Design Fee (where applicable).

Appendix B

OPERATING COSTS (OPEX)

OPEX Costs - Link A

Existing Annual Unit Operational Costs

Item	Description			
	Quantity	0	0	0
1	Routine Maintenance	£0.00	£0.00	£0.00
2	Scouting	£0.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00
5	Energy Consumpton	£0.00	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£0.00	£0.00	£0.00
Total Opex cost prior to TM		**£0.00**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£0.00**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I
	Quantity	0	182	0	0	0	0	0	0	0
		12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)	0	0	0	0	0
1	Routine Maintenance	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Ongoing Luminaire Costs (Driver replacement (at 15yrs), CMS service charges, etc.)	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40
Total Opex cost prior to TM		**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**
Total Opex Cost (Per Unit)		**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**
Total Opex Cost		**£0.00**	**£2,692.80**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**

Figure from Sheet 1 Energy Costs

Annual Energy Costs

System Wattage	0	0	0
Price per KWh (pence)	0.13	0.13	0.13
Burning Hours (70/35 PECU)	4,100	4,100	4,100
Present Day Annual Energy Cost	£0.00	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions			
0.544kg Per Kwh	0	0	0
CO2 Emissions over 30 Years kg	0	0	0

Manufacturer Values Used

Annual Energy Costs

System Wattage	242	196	85	56	0	0	0	0	0
Price per KWh (pence)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Burning Hours (20/20 PECU)	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£125.84	£101.92	£44.20	£29.12	£0.00	£0.00	£0.00	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£35,837.58**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions									
0.544kg Per Kwh	0	10,876	0	0	0	0	0	0	0
CO2 Emissions over 30 Years kg	0	1,337,704,704	0	0	0	0	0	0	0

Decommissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£157,758.30**	
Capitalisation Factor (from PAR)	**25.9**	*From Table C.3 SAR guidance notes*
OYMC (Decommissioning Costs)	**£6,091.05**	

Existing OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£2,692.80**
OYMC (Energy)	**£35,837.58**
OYMC (Decommissioning Cost)	**£6,091.05**
CO2 Emissions over 30 Years Tonnes	**1,337,705**

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Proposed Maintenance Cost - Existing Maintenance Cost (where applicable) **£2,692.80**

OYMC (Energy)
= Proposed Energy **£35,837.58**

OYMC (Decommisioning Costs) **£6,091.05**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) **£44,621.44** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years **1,337,705**
= Proposed Emissions - Existing Emissions (where applicable)

OPEX Costs - Link B

Existing Annual Unit Operational Costs

Item	Description			
	Quantity	0	0	0
1	Routine Maintenance	£0.00	£0.00	£0.00
2	Scouting	£0.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00
5	Energy Consumpton	£0.00	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£0.00	£0.00	£0.00
Total Opex cost prior to TM		**£0.00**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£0.00**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I
	Quantity	19	0	180	0	0	0	0	0	0
		12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)	0	0	0	0	0
1	Routine Maintenance	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Ongoing Luminaire Costs (Driver replacement (at 15yrs), CMS service charges, etc.)	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40
Total Opex cost prior to TM		**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**
Total Opex Cost (Per Unit)		**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**
Total Opex Cost		**£501.60**	**£0.00**	**£4,752.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**

Figure from Sheet 1 Energy Costs

Annual Energy Costs

System Wattage	0	0	0
Price per KWh (pence)	0.13	0.13	0.13
Burning Hours (70/35 PECU)	4,100	4,100	4,100
Present Day Annual Energy Cost	£0.00	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions			
0.544kg Per Kwh	0	0	0
CO2 Emissions over 30 Years kg	0	0	0

Manufacturer Values Used

Annual Energy Costs

System Wattage	242	196	85	56	0	0	0	0	0
Price per KWh (pence)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Burning Hours (20/20 PECU)	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£125.84	£101.92	£44.20	£29.12	£0.00	£0.00	£0.00	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£8,242.36**	**£0.00**	**£27,426.72**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions									
0.544kg Per Kwh	2,501	0	8,323	0	0	0	0	0	0
CO2 Emissions over 30 Years kg	307,661,376	0	1,023,753,600	0	0	0	0	0	0

Decommissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£282,457.35**	
Capitalisation Factor (from PAR)	25.9	*From Table C.3 SAR guidance notes*
OYMC (Decommissioning Costs)	**£10,905.69**	

Existing OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£5,253.60**
OYMC (Energy)	**£35,669.08**
OYMC (Decommissioning Cost)	**£10,905.69**
CO2 Emissions over 30 Years Tonnes	**1,331,415**

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Proposed Maintenance Cost - Existing Maintenance Cost (where applicable) **£5,253.60**

OYMC (Energy)
= Proposed Energy **£35,669.08**

OYMC (Decommisioning Costs) **£10,905.69**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) **£51,828.37** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years **1,331,415**
= Proposed Emissions - Existing Emissions (where applicable)

OPEX Costs - Link C

Existing Annual Unit Operational Costs

Item	Description			
	Quantity	0	0	0
1	Routine Maintenance	£0.00	£0.00	£0.00
2	Scouting	£0.00	£0.00	£0.00
3	Lamp Replacement (3 year cycle SON-T, N/A for LED)	£0.00	£0.00	£0.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00
5	Energy Consumpton	£0.00	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£0.00	£0.00	£0.00
Total Opex cost prior to TM		**£0.00**	**£0.00**	**£0.00**
Total Opex Cost (Per Unit)		**£0.00**	**£0.00**	**£0.00**
Total Opex Cost		**£0.00**	**£0.00**	**£0.00**

Proposed Annual Unit Operational Costs

Item	Description	Type A	Type B	Type C	Type D	Type E	Type F	Type G	Type H	Type I
	Quantity	0	0	49	0	0	0	0	0	0
		12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (21.00klum)	12M Road Lighting Column with a Twin Bracket Arm incorporating LED Luminaires (17.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (15.00klum)	10M Road Lighting Column with a Single Post Top incorporating LED Luminaires (10.00klum)	0	0	0	0	0
1	Routine Maintenance	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00	£17.00
2	Scouting (N/A for CMS)	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
3	Ongoing Luminaire Costs (Driver replacement (at 15yrs), CMS service charges, etc.)	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00	£5.00
4	Non-Routine Maintenance	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
5	Energy Consumpton	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
6	TM (20% of Total Opex cost prior to TM)	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40	£4.40
Total Opex cost prior to TM		**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**	**£22.00**
Total Opex Cost (Per Unit)		**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**	**£26.40**
Total Opex Cost		**£0.00**	**£0.00**	**£1,293.60**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**

Figure from Sheet 1 Energy Costs

Annual Energy Costs

System Wattage	0	0	0
Price per KWh (pence)	0.13	0.13	0.13
Burning Hours (70/35 PECU)	4,100	4,100	4,100
Present Day Annual Energy Cost	£0.00	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions			
0.544kg Per Kwh	0	0	0
CO2 Emissions over 30 Years kg	0	0	0

Manufacturer Values Used

Annual Energy Costs

System Wattage	242	196	85	56	0	0	0	0	0
Price per KWh (pence)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
Burning Hours (20/20 PECU)	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000	4,000
Present Day Annual Energy Cost	£125.84	£101.92	£44.20	£29.12	£0.00	£0.00	£0.00	£0.00	£0.00
Energy Component	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473	3.4473
OYMC (Energy)	**£0.00**	**£0.00**	**£7,466.16**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**	**£0.00**

CO2 Emissions									
0.544kg Per Kwh	0	0	2,266	0	0	0	0	0	0
CO2 Emissions over 30 Years kg	0	0	278,688,480	0	0	0	0	0	0

Decommissioning Costs

Decommissioning Cost (= 20% of Total Capital Cost)	**£68,801.55**	
Capitalisation Factor (from PAR)	25.3	*From Table C.3 SAR guidance notes*
OYMC (Decommissioning Costs)	**£2,659.91**	

Existing OYMC Costs

OYMC (Maintenance Cost)	**£0.00**
OYMC (Energy)	**£0.00**
CO2 Emissions over 30 Years Tonnes	**0**

Proposed OYMC Costs

OYMC (Maintenance Cost)	**£1,293.60**
OYMC (Energy)	**£7,466.16**
OYMC (Decommissioning Cost)	**£2,659.91**
CO2 Emissions over 30 Years Tonnes	**278,688**

FINAL CALCULATION FOR USE IN THE REPORT

OYMC (Maintenance Cost)
= Proposed Maintenance Cost - Existing Maintenance Cost (where applicable) **£1,293.60**

OYMC (Energy)
= Proposed Energy **£7,466.16**

OYMC (Decommisioning Costs) **£2,659.91**

OYMC (Maintenance Cost) + OYMC (Energy) + OYMC (Decommissioning Cost) **£11,419.67** *Input this value into SAR worksheet "Cost Master" Maintenance PVC box*

CO2 Emissions over 30 Years **278,688**
= Proposed Emissions - Existing Emissions (where applicable)

Appendix C

SCHEME APPRAISAL REPORTS

(SAR 2017A)

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A1 A2E Link A Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A2E Link A Commitment of Works Expenditure Standard SAR

HE Area / DBFO: Area 14

SAR file name: 14A1A2ELinkA_020718.xlsm

Trunk Road number: A1

Short name: A2E Link A

N.B. Do not include Road Number in Short Name

Full title: A1 Alnwick to Ellingham

	Start Point or Mid-Point		End Point	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HE for budgetary purposes (*current prices including non-recoverable VAT*): £913,356

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

	Completed / Amended by	Checked by	Approved by
Name:	Kelly Smith	Stephen Halliday	Chris Atkins
Email:	kelly.smith2@wsp.com	stephen.halliday@wsp.com	chris.atkins@wsp.com
Date:	02/07/2018	02/07/2018	02/07/2018

HE Project Manager

Name:

Email:

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A1 A2E Link A Commitment of Works Expenditure Standard SAR

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (*Brief reasons for carrying out the scheme*)
New A1 scheme (widening) requires consideration for the potential requirement for road lighting in accordance with TA49/07

Proposed solution: (*Brief description of the proposed scheme*)
Complete a scheme appraisal report (SAR) to determine the Benefit Cost Ration (BCR) of road lighting for the aplplicable link / links of the A1

Other solutions considered: (*State 'None' if there are none - do not leave blank*)
None

Expected outcomes: (*Results considered probable given analyses conducted*)
If BCR is less than 1 then the HE may consider not providing road lighting for the applicable link / links of the A1

	Month	Year
Expected Date of Opening:	Oct - Dec	2022

Assessment Period

30 years

More Information

Justification for Assessment Period:
Road lighting assessed over 30 year period as per TA49/07

History and Programme Dates	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	05/04/2018		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

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A1 A2E Link A Commitment of Works Expenditure Standard SAR

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (*State 'None' if there are none - do not leave blank*)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered: Alnwick to Ellingham

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	2	1	3		0	1	5	6
	01/01/2014	1	0	0	1		1	0	2	3
	01/01/2015	1	0	0	1		1	1	0	2
	01/01/2016	0	0	1	1		0	0	2	2
TOTAL:	5	2	2	2	6		2	2	9	13
AVERAGE:	per annum	0.4	0.4	0.4	1.2		0.4	0.4	1.8	2.6
				Severity Index:	66.7%					

Additional information (*e.g. overall accident rate, national comparison*):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year" in each of Parts A - D relates to the year to which the prices entered relate - i.e. the price base - rather than the current year.

A. Works Costs	Estimate Price Year: 2017	Estimate Year GDPI factor to 2010:	0.9017
		Estimate Year price growth factor:	1.0337
		Estimate Year cost growth factor:	1.0000
1. Series 100 – Preliminaries (*temporary accommodation, traffic management*)			
2. Series 200 – Site Clearance			
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Barriers and Guardrails			
5. Series 500 – Drainage			
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (*landscaping*)			
8. Series 700 – Pavements			
9. Series 1100 – Kerbs and Footways			
10. Series 1200 – Traffic Signs (*including signals*) and Road Markings			
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications		£788,791.50	
12. Series 1600 to 2500 – Structures (*including Environmental Barriers*)			
13. Series 2700 – Statutory Undertakers Works			
14. Series 2700 – Noise Insulation Works			
15. Series 2700 – Accommodation Works			
16. Series 3000 – Landscape and Ecology			
17. Technology Renewal Costs 15 Years After Construction: £		Disc'd to Constr'n Year:	
18. Other Costs - Specify:			
Total Works Costs (*sum of items A.1 - A.18*) discounted to Construction Year		**£788,791.50**	(a)

A1. Preparation and Supervision Costs	Estimate Price Year: 2017		
1. Preparation	Default Costs: ◉ OR User-Specified Costs: ○	£17,072.07	
2. Supervision	Default Costs: ◉ OR User-Specified Costs: ○	£42,680.17	
Total Preparation and Supervision Costs (*sum of items A1.1 - A1.2*)		**£59,752.24**	(a1)

B. Land Costs	Estimate Price Year: Choose	GDPI:	0.00
1. HE Valuer's estimate of cost of land acquisition			
2. Estimate of Part 1 compensation			
3. HE Valuer's estimate of rehousing costs			
4. HE Valuer's estimate of resaleable land residue (*enter as –ve sum*)			
Total Land Costs (*sum of items B.1 - B.4*)		**£0.00**	(b)

C. Other Costs	Estimate Price Year: Choose	GDPI:	0.00
1. Public Transport Subsidies			
2. Local Government Investment Contributions			
3. Other – Specify:			
Total Other Costs (*sum of items C.1 - C.3*)		**£0.00**	(c)

D. Contributions	Estimate Price Year: Choose	GDPI:	0.00
1. SU Betterment; Deferment or renewal, etc			
2. Developer Contributions			
3. Other – Specify			
Total Contributions (*sum of items D.1 - D.3*)		**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes			
1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: % **More Information**		
3. Construction Year	Construction Year (*mid-point of construction period if period is longer than one year*): 2021	Construction Year price growth factor: Construction Year cost growth factor: Construction Year GDPI factor to 2010:	1.1186 1.0000 0.8332
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (*including Risk, Non-Recoverable VAT and Optimism Bias*)**	**£913,356**	

F. Present Value of Costs (PVC)			
1. Change in Maintenance Costs	Additional annual average maintenance and renewal costs in Works Costs price-year prices (£): 44,624 **More Information**		
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**	**£1,469,780**	

hways land

A1 A2E Link A Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	849,459	(b)
Investment costs:	620,320	(c)
Developer and other contributions:	0	(d)
Net Impact:	**1,469,780**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**1,469,780**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£1.470M**

Key Points: (*Any special considerations or simplifications; state 'None' if there are none - do not leave blank*)	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

N.B. This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (*Do not leave blank if Assessment Score is non-zero*)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

N.B. This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant *e.g.* a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (*Do not leave blank if Assessment Score is non-Neutral*)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ **1,469,780**

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		**Sub-Total:**	**Not Applicable**	0
			0.00				
SOCIETY: TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Slight Beneficial		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£41,069		0.03		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Equality Act Compliance	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£41,069**		**0.03**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**0.0**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£41,069**		**0.03**		**0.0**	

SOCIETY: Accidents

Return to 'Standard Impact Assess' Worksheet

Print Preview This Worksheet

Help

User Notes

Scheme Title: A1 Alnwick to Ellingham

Scheme Stage: Commitment of Works Expenditure

Date: 02/07/2018

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

PART A

Predicted number of personal injury accidents saved in Opening Year: 0.02
(*If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value*)

Time of day of accident savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (*PIAs*) saved in Opening Year: (a)				0.02	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	141,456	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**2,829**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (d) (*from Table C.5*):	21.935	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**62,058**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (*from Table C.3a*): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**41,069**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (h) (*from Table C.5*):	26.729	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**1**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ● **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			**Number of Personal Injury Accidents (PIAs) Saved**	**£ Benefits in 2010 prices, discounted to 2010**
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				1	£41,069
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**1**	**£41,069**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score: PVB = £0.041M

Metrics: 1 accidents saved.

Key Points: (*Explanation for results - do not leave blank*): One night-time fatality

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A1 A2E Link B Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A2E Link B Commitment of Works Expenditure Standard SAR

HE Area / DBFO: Area 14

SAR file name: 14A1A2ELinkB_020718.xlsm

Trunk Road number: A1

Short name: A2E Link B

N.B. Do not include Road Number in Short Name

Full title: A1 Alnwick to Ellingham

	Start Point or Mid-Point		End Point	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HE for budgetary purposes (*current prices including non-recoverable VAT*): £1,635,312

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

	Completed / Amended by	Checked by	Approved by
Name:	Kelly Smith	Stephen Halliday	Chris Atkins
Email:	kelly.smith2@wsp.com	stephen.halliday@wsp.com	chris.atkins@wsp.com
Date:	02/07/20189	02/07/2018	02/07/2018

HE Project Manager

Name:

Email:

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A1 A2E Link B Commitment of Works Expenditure Standard SAR

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (*Brief reasons for carrying out the scheme*)
New A1 scheme (widening) requires consideration for the potential requirement for road lighting in accordance with TA49/07

Proposed solution: (*Brief description of the proposed scheme*)
Complete a scheme appraisal report (SAR) to determine the Benefit Cost Ration (BCR) of road lighting for the aplplicable link / links of the A1

Other solutions considered: (*State 'None' if there are none - do not leave blank*)
None

Expected outcomes: (*Results considered probable given analyses conducted*)
If BCR is less than 1 then the HE may consider not providing road lighting for the applicable link / links of the A1

	Month	Year
Expected Date of Opening:	Oct - Dec	2022

Assessment Period

30 years

More Information

Justification for Assessment Period:
Road lighting assessed over 30 year period as per TA49/07

History and Programme Dates	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	05/04/2018		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (*State 'None' if there are none - do not leave blank*)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered: Alnwick to Ellingham

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	1	0	1		0	2	0	2
	01/01/2014	0	0	1	1		0	0	2	2
	01/01/2015	0	0	0	0		0	0	0	0
	01/01/2016	0	1	0	1		0	2	2	4
TOTAL:	5	0	2	1	3		0	4	4	8
AVERAGE:	per annum	0.0	0.4	0.2	0.6		0.0	0.8	0.8	1.6
				Severity Index:	66.7%					

Additional information (*e.g. overall accident rate, national comparison*):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year" in each of Parts A - D relates to the year to which the prices entered relate - i.e. the price base - rather than the current year.

A. Works Costs	Estimate Price Year: 2017	Estimate Year GDPI factor to 2010:	0.9017
		Estimate Year price growth factor:	1.0337
		Estimate Year cost growth factor:	1.0000
1. Series 100 – Preliminaries (*temporary accommodation, traffic management*)			
2. Series 200 – Site Clearance			
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Barriers and Guardrails			
5. Series 500 – Drainage			
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (*landscaping*)			
8. Series 700 – Pavements			
9. Series 1100 – Kerbs and Footways			
10. Series 1200 – Traffic Signs (*including signals*) and Road Markings			
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications		£1,412,286.75	
12. Series 1600 to 2500 – Structures (*including Environmental Barriers*)			
13. Series 2700 – Statutory Undertakers Works			
14. Series 2700 – Noise Insulation Works			
15. Series 2700 – Accommodation Works			
16. Series 3000 – Landscape and Ecology			
17. Technology Renewal Costs 15 Years After Construction: £		Disc'd to Constr'n Year:	
18. Other Costs - Specify:			
Total Works Costs (*sum of items A.1 - A.18*) discounted to Construction Year		**£1,412,286.75**	(a)

A1. Preparation and Supervision Costs	Estimate Price Year: 2017		
1. Preparation	Default Costs: ◉ OR User-Specified Costs: ○	£30,566.58	
2. Supervision	Default Costs: ◉ OR User-Specified Costs: ○	£76,416.44	
Total Preparation and Supervision Costs (*sum of items A1.1 - A1.2*)		**£106,983.02**	(a1)

B. Land Costs	Estimate Price Year: Choose	GDPI:	0.00
1. HE Valuer's estimate of cost of land acquisition			
2. Estimate of Part 1 compensation			
3. HE Valuer's estimate of rehousing costs			
4. HE Valuer's estimate of resaleable land residue (*enter as –ve sum*)			
Total Land Costs (*sum of items B.1 - B.4*)		**£0.00**	(b)

C. Other Costs	Estimate Price Year: Choose	GDPI:	0.00
1. Public Transport Subsidies			
2. Local Government Investment Contributions			
3. Other – Specify:			
Total Other Costs (*sum of items C.1 - C.3*)		**£0.00**	(c)

D. Contributions	Estimate Price Year: Choose	GDPI:	0.00
1. SU Betterment; Deferment or renewal, etc			
2. Developer Contributions			
3. Other – Specify			
Total Contributions (*sum of items D.1 - D.3*)		**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes			
1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: % **More Information**		
3. Construction Year	Construction Year (*mid-point of construction period if period is longer than one year*): 2021	Construction Year price growth factor:	1.1186
		Construction Year cost growth factor:	1.0000
		Construction Year GDPI factor to 2010:	0.8332
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (*including Risk, Non-Recoverable VAT and Optimism Bias*)**	**£1,635,312**	

F. Present Value of Costs (PVC)			
1. Change in Maintenance Costs	Additional annual average maintenance and renewal costs in Works Costs price-year prices (£): 51,828 **More Information**		
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**	**£2,097,240**	

hways land

A1 A2E Link B Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	986,592	(b)
Investment costs:	1,110,649	(c)
Developer and other contributions:	0	(d)
Net Impact:	**2,097,240**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**2,097,240**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£2.097M**

Key Points: (*Any special considerations or simplifications; state 'None' if there are none - do not leave blank*)	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

N.B. This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (*Do not leave blank if Assessment Score is non-zero*)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

N.B. This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant *e.g.* a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (*Do not leave blank if Assessment Score is non-Neutral*)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ 2,097,240

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY: TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Neutral		Not Applicable		0.00	
ECONOMY: Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY: Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
ENVIRONMENT: Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT: Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT: Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
			1.00		**Sub-Total:**	**Not Applicable**	0
			0.00				
SOCIETY: TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
	IRV	Neutral		Not Applicable		0.00	
SOCIETY: Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Accidents		£0		0.00		0.00	
SOCIETY: Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY: Option Values		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**0.00**	
PUBLIC ACCOUNTS: Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Equality Act Compliance	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£0**		**0.00**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**0.0**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£0**		**0.00**		**0.0**	

SOCIETY: Accidents

Return to 'Standard Impact Assess' Worksheet

Print Preview This Worksheet

Help

User Notes

Scheme Title: A1 Alnwick to Ellingham

Scheme Stage: Commitment of Works Expenditure Date: 02/07/20189

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

PART A

Predicted number of personal injury accidents saved in Opening Year: 0
(*If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value*)

Time of day of accident savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (*PIAs*) saved in Opening Year: (a)				0	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	141,456	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**0**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (d) (*from Table C.5*):	21.935	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**0**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (*from Table C.3a*): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**0**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (h) (*from Table C.5*):	26.729	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**0**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ● **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			**Number of Personal Injury Accidents (PIAs) Saved**	**£ Benefits in 2010 prices, discounted to 2010**
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				0	£0
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**0**	**£0**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

Assessment Score: PVB = £0.000M

Metrics: 0 accidents saved.

Key Points: (*Explanation for results - do not leave blank*) N/A

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A1 A2E Link C Commitment of Works Expenditure Standard SAR

TITLE WORKSHEET

SAR name: A1 A2E Link C Commitment of Works Expenditure Standard SAR

HE Area / DBFO: Area 14

SAR file name: 14A1A2ELinkC_020718.xlsm

Trunk Road number: A1

Short name: A2E Link C

N.B. Do not include Road Number in Short Name

Full title: A1 Alnwick to Ellingham

	Start Point or Mid-Point		End Point	
	Easting (6 digits)	Northing (6 digits)	Easting (6 digits)	Northing (6 digits)
Location OSGR:				

Does the scheme involve Compulsory Purchase or Highways Act Orders? No

Scheme stage: Commitment of Works Expenditure

Scheme category: Safety

Scheme cost range: >£100K

SAR type: Standard SAR

Total cost to HE for budgetary purposes (*current prices including non-recoverable VAT*): £398,854

Agent's Scheme Ref.:

Current PIN: TBC

Previous PINs:

	Completed / Amended by	Checked by	Approved by
Name:	Kelly Smith	Chris Atkins	Stephen Halliday
Email:	kelly.smith2@wsp.com	chris.atkins@wsp,com	stephen.halliday@wsp.com
Date:	03/05/2018		

HE Project Manager

Name:

Email:

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A1 A2E Link C Commitment of Works Expenditure Standard SAR

SCHEME DETAILS WORKSHEET

N.B. Excessively long comments on this and / or other pages should instead be entered in a separate document file or files and referenced in the Attachments page.

Problem to be addressed: (*Brief reasons for carrying out the scheme*)
New A1 scheme (widening) requires consideration for the potential requirement for road lighting in accordance with TA49/07

Proposed solution: (*Brief description of the proposed scheme*)
Complete a scheme appraisal report (SAR) to determine the Benefit Cost Ration (BCR) of road lighting for the aplplicable link / links of the A1

Other solutions considered: (*State 'None' if there are none - do not leave blank*)
None

Expected outcomes: (*Results considered probable given analyses conducted*)
If BCR is less than 1 then the HE may consider not providing road lighting for the applicable link / links of the A1

	Month	Year
Expected Date of Opening:	Oct - Dec	2022

Assessment Period

30 years

More Information

Justification for Assessment Period:
Road lighting assessed over 30 year period as per TA49/07

History and Programme Dates	Data Entry Completed	SAR Completed	Additional Comments
Conception:			
Start of Public Consultation:			
Preferred Solution Decision:			
Draft Order Publication:			
Intermediate:			
Commitment of Works Expenditure:	05/04/2018		
Commencement of Operation:			

N.B. 'Data Entry Completed' indicates the date in which the person filling in the SAR reached the point where no more user data was required. 'SAR Completed' indicates the date when others filled in all additional approvals information.

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A1 A2E Link C Commitment of Works Expenditure Standard SAR

TRAFFIC & ACCIDENTS WORKSHEET

Details of the Key Trunk Road in the Scheme

Road type: All-Purpose

Road width: D2

Speed limit: 50mph or more

AADT (vehicles): 30,000 Two-way

Percentage HGVs: 10%

Year of AADT: 2015

Predicted Traffic Growth Between Opening Year and Final Assessment Year

Traffic Growth should relate to all vehicle types combined and for those time periods (e.g. weekday peak period, 12-hour or daily) in which monetised benefits are received. Where more than one link receives monetised benefits, growth should be the flow-weighted average growth on those links.

30%

Source of traffic growth forecasts: (*State 'None' if there are none - do not leave blank*)

SAR6.5 User Notes and DFT paper 'Road Traffic Forecasts 2015' https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/411471/road-traffic-forecasts-2015.pdf

Reported Injury Accident Information

Geographic area covered: Alnwick to Ellingham

	12-month period from	Accidents Fatal	Serious	Slight	TOTAL		Casualties Fatal	Serious	Slight	TOTAL
	01/01/2012	0	0	0	0		0	0	0	0
	01/01/2013	0	1	1	2		0	2	1	3
	01/01/2014	0	0	0	0		0	0	0	0
	01/01/2015	0	0	1	1		0	0	2	2
	01/01/2016	0	0	0	0		0	0	0	0
TOTAL:	5	0	1	2	3		0	2	3	5
AVERAGE:	per annum	0.0	0.2	0.4	0.6		0.0	0.4	0.6	1.0
				Severity Index:	33.3%					

Additional information (*e.g. overall accident rate, national comparison*):

COSTS MASTER INPUT WORKSHEET

N.B. The term "Estimate Price Year" in each of Parts A - D relates to the year to which the prices entered relate - i.e. the price base - rather than the current year.

A. Works Costs	Estimate Price Year: 2017	Estimate Year GDPI factor to 2010:	0.9017
		Estimate Year price growth factor:	1.0337
		Estimate Year cost growth factor:	1.0000
1. Series 100 – Preliminaries (*temporary accommodation, traffic management*)			
2. Series 200 – Site Clearance			
3. Series 300 – Fencing			
4. Series 400 – Safety Fences, Barriers and Guardrails			
5. Series 500 – Drainage			
6. Series 600 – Earthworks			
7. Series 600 – Earthworks (*landscaping*)			
8. Series 700 – Pavements			
9. Series 1100 – Kerbs and Footways			
10. Series 1200 – Traffic Signs (*including signals*) and Road Markings			
11. Series 1300 to 1500 – Lighting, Electrical Work and Communications		£344,457.75	
12. Series 1600 to 2500 – Structures (*including Environmental Barriers*)			
13. Series 2700 – Statutory Undertakers Works			
14. Series 2700 – Noise Insulation Works			
15. Series 2700 – Accommodation Works			
16. Series 3000 – Landscape and Ecology			
17. Technology Renewal Costs 15 Years After Construction: £		Disc'd to Constr'n Year:	
18. Other Costs - Specify:			
Total Works Costs (*sum of items A.1 - A.18*) discounted to Construction Year		**£344,457.75**	(a)

A1. Preparation and Supervision Costs	Estimate Price Year: 2017		
1. Preparation	Default Costs: ◉ OR	User-Specified Costs: ○	£7,455.21
2. Supervision	Default Costs: ◉ OR	User-Specified Costs: ○	£18,638.02
Total Preparation and Supervision Costs (*sum of items A1.1 - A1.2*)		**£26,093.23**	(a1)

B. Land Costs	Estimate Price Year: Choose	GDPI:	0.00
1. HE Valuer's estimate of cost of land acquisition			
2. Estimate of Part 1 compensation			
3. HE Valuer's estimate of rehousing costs			
4. HE Valuer's estimate of resaleable land residue (*enter as –ve sum*)			
Total Land Costs (*sum of items B.1 - B.4*)		**£0.00**	(b)

C. Other Costs	Estimate Price Year: Choose	GDPI:	0.00
1. Public Transport Subsidies			
2. Local Government Investment Contributions			
3. Other – Specify:			
Total Other Costs (*sum of items C.1 - C.3*)		**£0.00**	(c)

D. Contributions	Estimate Price Year: Choose	GDPI:	0.00
1. SU Betterment; Deferment or renewal, etc			
2. Developer Contributions			
3. Other – Specify			
Total Contributions (*sum of items D.1 - D.3*)		**£0.00**	(d)

E. Scheme Costs for Budgeting Purposes			
1. Risk Allowance	Does the scheme have a Risk Assessment ? Without Risk Assessment Mean Risk Allowance in Works Costs price year prices (£):		
2. Non-Recoverable VAT	Percentage of cost for which VAT is not recoverable: %	More Information	
3. Construction Year	Construction Year (*mid-point of construction period if period is longer than one year*): 2021	Construction Year price growth factor:	1.1186
		Construction Year cost growth factor:	1.0000
		Construction Year GDPI factor to 2010:	0.8332
4. Scheme Costs	**TOTAL Scheme Implementation Costs in Construction Year Prices (*including Risk, Non-Recoverable VAT and Optimism Bias*)**	**£398,854**	

F. Present Value of Costs (PVC)			
1. Change in Maintenance Costs	Additional annual average maintenance and renewal costs in Works Costs price-year prices (£): 11,420	More Information	
2. Scheme PVC	**TOTAL PVC in 2010 Market Prices, Discounted to 2010:**	**£488,270**	

hways land

A1 A2E Link C Commitment of Works Expenditure Standard SAR

PUBLIC ACCOUNTS WORKSHEET

Local Government Funding

	TOTAL £	
Investment costs:	0	(a)

Central Government Funding: Transport

Operating costs:	217,382	(b)
Investment costs:	270,888	(c)
Developer and other contributions:	0	(d)
Net Impact:	**488,270**	**(e) = (b) + (c) + (d)**

NB:

1. *Costs appear as positive numbers, while increases in revenues and 'Developer and Other Contributions' appear as negative numbers.*
2. *Costs over whole Assessment Period in 2010 market prices discounted to 2010.*
3. *Unless the scheme affects grants and subsidies or government revenues other than fuel tax, this table is sufficient. In all other cases please refer to the ACO.*

Central Government Funding: Non-Transport

Indirect Tax Revenues:	0	(f) (*from 'TEE' worksheet - Standard SARs only*)

TOTALS

Broad Transport Budget:	**488,270**	**(g) = (a) + (e) = Present Value of Costs (PVC)**
Wider Public Finances:	**0**	**(h) = (f) = Indirect Tax Revenues**

Assessment Score (PVC):	**£0.488M**

Key Points: (*Any special considerations or simplifications; state 'None' if there are none - do not leave blank*)	N/A

NON-WEBTAG VM WORKSHEET

PART A: ROADWORKER SAFETY

N.B. This impact is relevant to improvement schemes which are expected to reduce or increase accidents involving roadworkers or the potential for such accidents.

Risk Level	ROADWORKER RISK EXPOSURE			Risk Weighting	Assessment
	Without Scheme (Person-Hrs)	With Scheme (Person-Hrs)	Change (Person-Hrs)		
High Risk			0	3	0
Medium Risk			0	2	0
Low Risk			0	1	0
				Assessment Score:	**Not Applicable**

Risk exposure values should be entered for the whole assessment period in relation to maintenance activities that will be change as a result of the scheme ie changes in how highway elements are to be maintained, or changes in the elements to be maintained. The risk exposure values entered for each risk category will represent the sum of the hours spent on all highway elements where the scheme affects the maintenance of more than one element.

Explanation for changes to risk exposure: (*Do not leave blank if Assessment Score is non-zero*)

VM Points: N/A

PART B: EQUALITY ACT COMPLIANCE

N.B. This impact is relevant to improvement schemes which improve or reduce compliance with the requirements of the Equality Act 2010. It does not apply to new highway features which have been designed to be EA compliant *e.g.* a new pedestrian crossing.

Assessment Score: Choose

Assessment Score Definitions

Justification for Assessment Score: (*Do not leave blank if Assessment Score is non-Neutral*)

VM Points: N/A

WEBTAG APPRAISABLE VM WORKSHEET

COSTS SUMMARY FOR SCHEME:

Scheme Costs (PVC): £ 488,270

RESULTS SUMMARY FOR WEBTAG SCHEME IMPACTS:

	IMPACT		Assessment Score (PVB or Qualitative)		BCR (PVB ÷ PVC)		VM Points	
ECONOMY:	TEE (Business Users)		Not Applicable		Not Applicable		Not Applicable	
ECONOMY:	Reliability (Business Users)	DDV	Neutral		Not Applicable		0.00	
		IRV	Neutral		Not Applicable		0.00	
ECONOMY:	Regeneration		Not Applicable		Not Applicable		Not Applicable	
ECONOMY:	Wider Impacts		Not Applicable		Not Applicable		Not Applicable	
						Sub-Total:	**0.00**	
ENVIRONMENT:	Noise		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT:	Air Quality		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT:	Greenhouse Gases		Not Applicable		Not Applicable		Not Applicable	
ENVIRONMENT:	Landscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT:	Townscape		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT:	Heritage of Historic Resources		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT:	Biodiversity		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
ENVIRONMENT:	Water Environment		Not Applicable	0.00	Not Applicable		Not Applicable	5.00
				1.00		**Sub-Total:**	**Not Applicable**	0
				0.00				
SOCIETY:	TEE (Commuting and Other Users)		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Reliability (Commuting and Other Users)	DDV	Neutral		Not Applicable		0.00	
		IRV	Neutral		Not Applicable		0.00	
SOCIETY:	Physical Activity		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Journey Quality		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Accidents		£0		0.00		0.00	
SOCIETY:	Security		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Access to Services		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Affordability		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Severance		Not Applicable		Not Applicable		Not Applicable	
SOCIETY:	Option Values		Not Applicable		Not Applicable		Not Applicable	
						Sub-Total:	**0.00**	
PUBLIC ACCOUNTS:	Wider Public Finances		Not Applicable		Not Applicable		Not Applicable	
						Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR NON-WEBTAG SCHEME IMPACTS:

	IMPACT	Assessment Score		BCR		VM Points	
NON-WEBTAG	Roadworker Safety	Not Applicable		Not Applicable		Not Applicable	
	Equality Act Compliance	Not Applicable		Not Applicable		Not Applicable	
					Sub-Total:	**Not Applicable**	

RESULTS SUMMARY FOR ALL SCHEME IMPACTS:

		Total PVB		Total BCR		Total VM Points	
ALL IMPACTS	**WebTAG Impacts: Monetised**	**£0**		**0.00**		**0.0**	
	WebTAG Impacts: Unmonetised	**Not Applicable**		**Not Applicable**		**0.0**	
	Non-WebTAG Impacts	**Not Applicable**		**Not Applicable**		**Not Applicable**	
	TOTAL FOR SCHEME	**£0**		**0.00**		**0.0**	

SOCIETY: Accidents

Return to 'Standard Impact Assess' Worksheet

Print Preview This Worksheet

Help

User Notes

Scheme Title: A1 Alnwick to Ellingham

Scheme Stage: Commitment of Works Expenditure

Date: 02/07/2018

For advice and guidance on completing this worksheet, please refer to WebTag Unit A4.1 -
WebTAG: TAG unit A4-1 social impact appraisal, November 2014 - Publications - GOV.UK
Complete white cells only

PART A

Predicted number of personal injury accidents saved in Opening Year: 0
(*If the scheme results in a predicted increase in Accident rates, enter as a NEGATIVE value*)

Time of day of accident savings: Night Time only
(N.B. Choose "Night Time only" for schemes affecting accidents specifically at night.)

Number of Personal Injury Accidents (*PIAs*) saved in Opening Year: (a)				0	accidents
Opening Year	Road Type	Time of Day	Average cost of an accident in Opening Year: (b)	141,456	£ / Year
2022	Rural Dual AP	Night Time only			
Annual accident benefits in Opening Year: (a) × (b) = (c)				**0**	**£ / Year**
Road Type	Assessment Period (years)	Traffic Growth Over Assessment Period	Accident benefits capitalisation factor (d) (*from Table C.5*):	21.935	
Rural Dual AP	30	30%			
Accident benefits over Assessment Period discounted to Opening Year: (c) × (d) = (e)				**0**	**£ in 2010 prices**
Discount factor from Opening Year to 2010 (*from Table C.3a*): (f)				0.662	
Accident benefits over Assessment Period discounted to 2010: (e) × (f) = (g)				**0**	**£ in 2010 prices discounted to 2010**
Road Type	Assessment Period (years)	Traffic Growth over Assessment Period	Accident numbers capitalisation factor (h) (*from Table C.5*):	26.729	
Rural Dual AP	30	30%			
Number of accidents saved over Assessment Period: (a) × (h) = (i)				**0**	**accidents**

PART B

Has COBA analysis been undertaken? ○ **Yes** ● **No**

N.B. If COBA has been used, data entered into the top row of the table below should be copied from the COBA output.

	Number of Casualties Saved			**Number of Personal Injury Accidents (PIAs) Saved**	**£ Benefits in 2010 prices, discounted to 2010**
	Fatal	**Serious**	**Slight**		
Accident impact over Assessment Period (j):				0	£0
Accident impact during construction (k):					
Accident impact during future maintenance (l):					
Total accident impact [(m) = (j) + (k) + (l)]:				**0**	**£0**

If either row (k) or row (l) or both are omitted, an appropriate Key Points entry must be made.

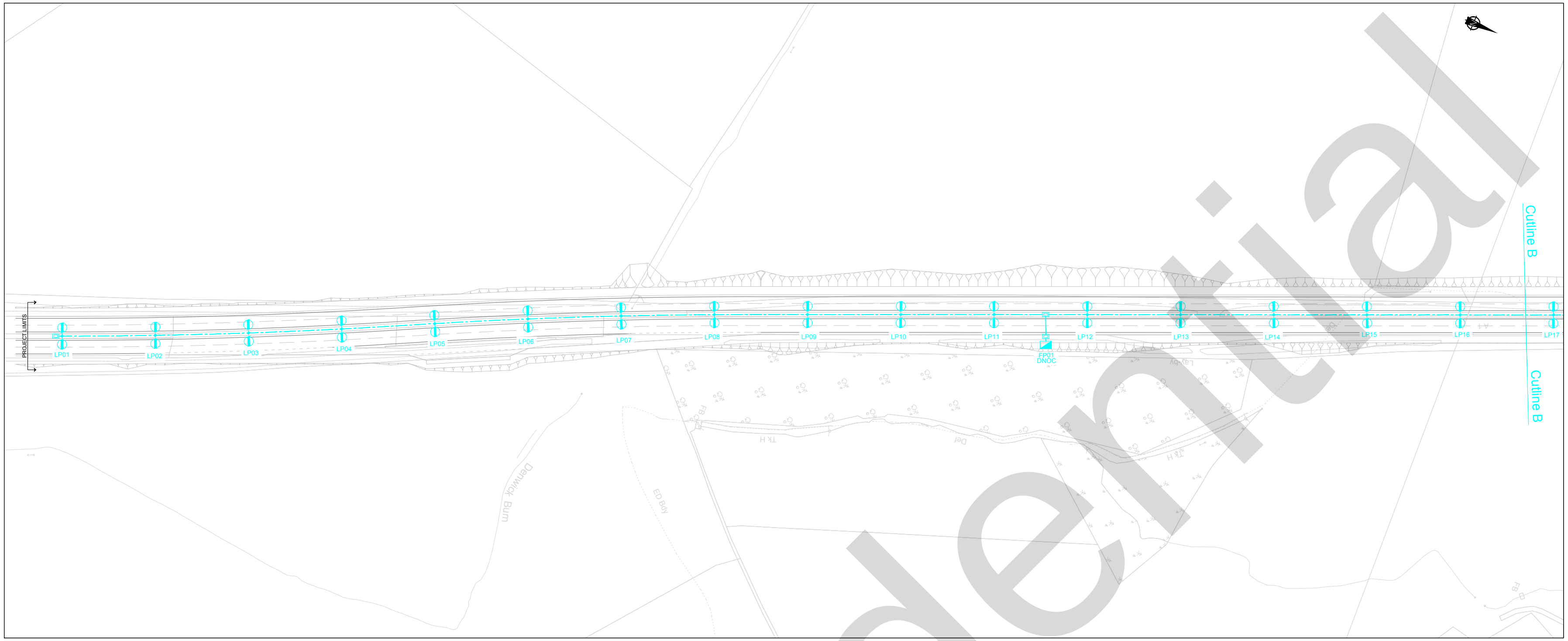
Assessment Score: PVB = £0.000M

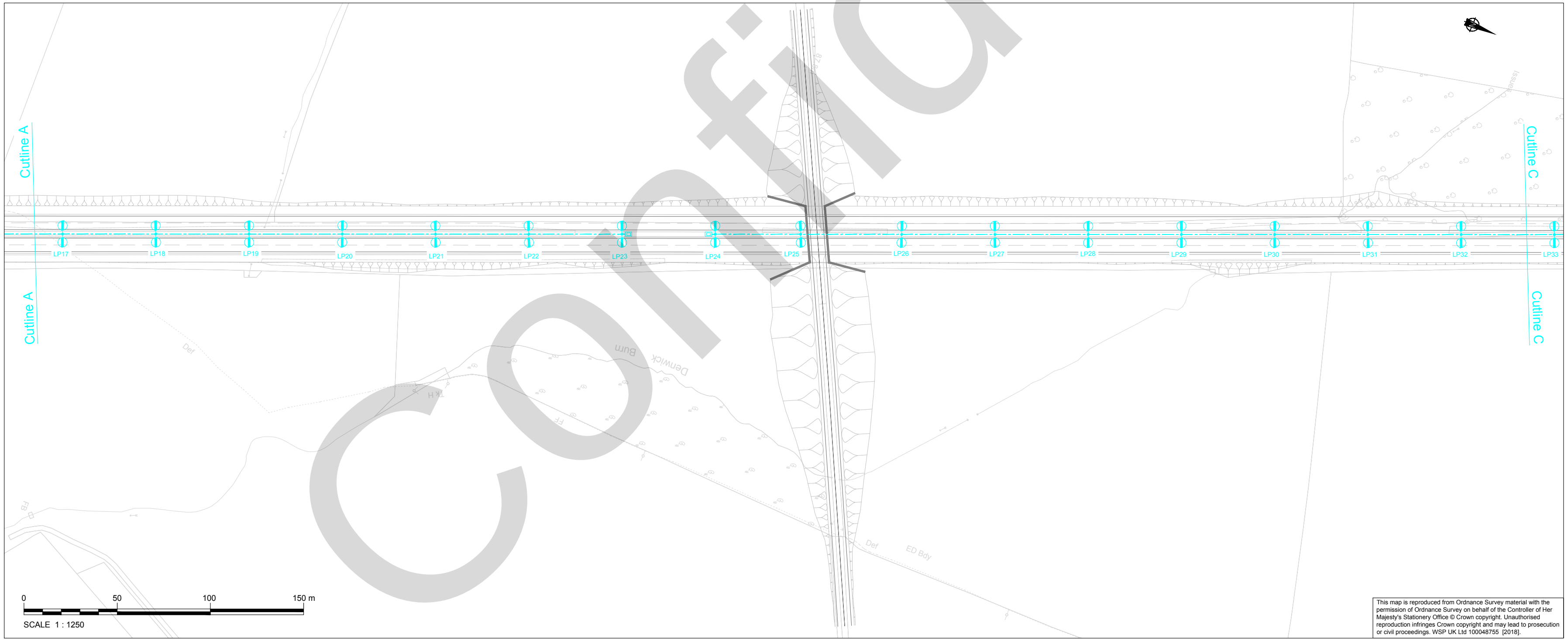
Metrics: 0 accidents saved.

Key Points: (*Explanation for results - do not leave blank*) N/A

Appendix D

SCHEME DRAWINGS



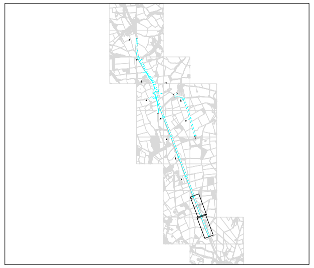


NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL WORKS SHALL BE IN ACCORDANCE WITH THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS (MCHW) AND THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB).
3. THE DRAWINGS DO NOT DETAIL STATUTORY UNDERTAKERS INFORMATION. PRIOR TO THE COMMENCEMENT OF ANY WORKS ON SITE, THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL UTILITIES INFORMATION, STATUTORY UNDERTAKERS C2 RETURNS AND CONTACT RELEVANT STATUTORY UNDERTAKERS (SEE APPENDIX 1/16). ALL SERVICES (INCLUDING MANHOLE AND SERVICE BOX COVERS) SHALL BE MARKED OUT ON SITE BEFORE WORKS BEGIN BY REFERENCE TO EXISTING SERVICE DRAWINGS, A VISUAL CHECK DURING DAYLIGHT AND BY USE OF CAT/GENNY.
4. LIGHTING WORKS IN THE VICINITY OF OVERHEAD LINES (ELECTRICITY POWER CABLES) SHALL BE UNDERTAKEN IN ACCORDANCE WITH ERG39/1 CLEARANCES AND SAFETY PROCEDURES.
5. NO EQUIPMENT SHALL NOT BE INSTALLED ON SITE WITHOUT REFERENCE TO THE SECTION DRAWINGS FOR THE AREA IN WHICH EQUIPMENT IS BEING INSTALLED.
6. THE CONTRACTOR FOR THE WORKS SHALL CONTACT THE STREET LIGHTING DESIGNER FOR GUIDANCE WHEN EQUIPMENT CAN NOT BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DRAWINGS / RELEVANT APPENDICES.
7. ALL NUMBERING ON THIS DRAWING IS INDICATIVE ONLY AND FINAL NUMBERING SHALL BE AGREED BY THE CONTRACTOR WITH THE OVERSEEING ORGANISATION.

KEY:

- PROPOSED 12M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 2 BGP625 DW10 LED LANTERN AT 0° INCLINATION EMITTING 21 KLM.
- PROPOSED 12M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 2 BGP623 DW10 LED LANTERN AT 0° INCLINATION EMITTING 17 KLM.
- PROPOSED 10M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 1 BGP623 DW10 LED LANTERN AT 0° INCLINATION EMITTING 15 KLM.
- PROPOSED ACCESS CHAMBER
- PROPOSED FEEDER PILLAR
- PROPOSED UPVC DUCT
- DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.
- PROJECT LIMITS EXTENTS OF SCHEME.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

.\logo\Jacobs_logo_2012.jpg

Client: .\Highways England Templates\4CF95D0F.jpg

Project: A1 IN NORTHUMBERLAND ALNWICK TO ELLINGHAM

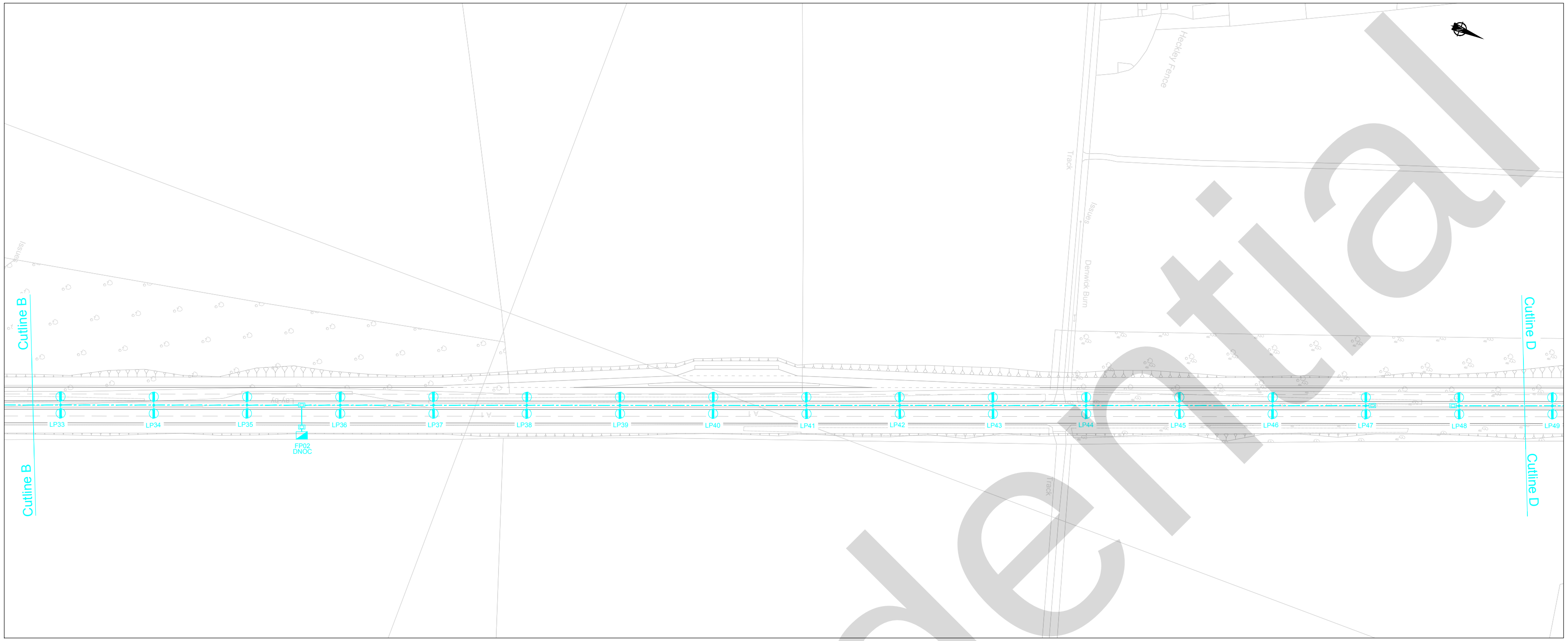
Drawing title: PROPOSED ROAD LIGHTING LAYOUT SHEET 1 OF 8

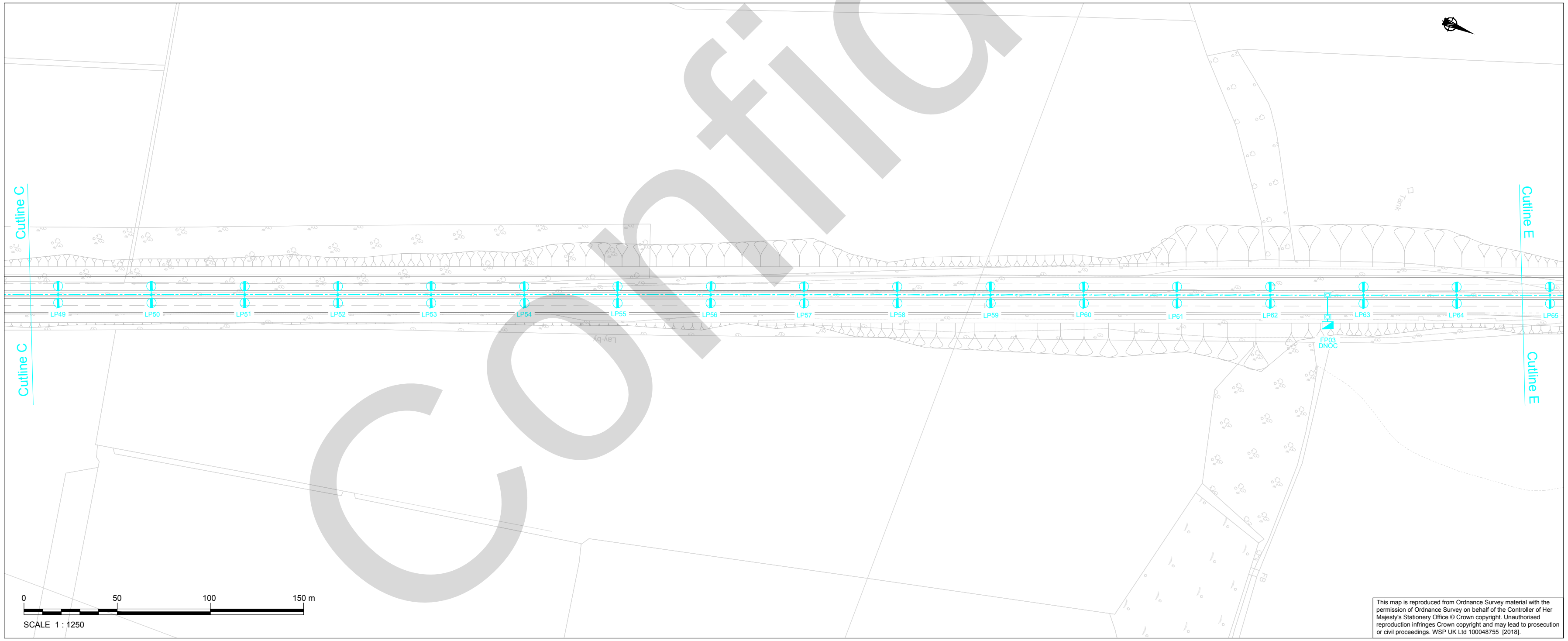
Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number: 549146159-WSP-HLG-A2E-DR-E0-0001 — Rev: A

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terDP and conditions.





NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL WORKS SHALL BE IN ACCORDANCE WITH THE MANUAL OF CONTRACT DOCUMENTS FOR HIGHWAY WORKS (MCHW) AND THE DESIGN MANUAL FOR ROADS AND BRIDGES (DMRB).
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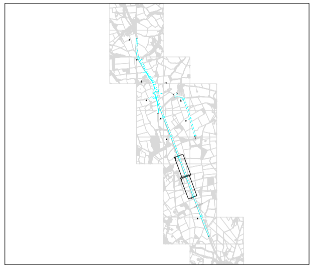
4. LIGHTING WORKS IN THE VICINITY OF OVERHEAD LINES (ELECTRICITY POWER CABLES) SHALL BE UNDERTAKEN IN ACCORDANCE WITH ERG39/1 CLEARANCES AND SAFETY PROCEDURES.
5. NO EQUIPMENT SHALL NOT BE INSTALLED ON SITE WITHOUT REFERENCE TO THE SECTION DRAWINGS FOR THE AREA IN WHICH EQUIPMENT IS BEING INSTALLED.
6. THE CONTRACTOR FOR THE WORKS SHALL CONTACT THE STREET LIGHTING DESIGNER FOR GUIDANCE WHEN EQUIPMENT CAN NOT BE INSTALLED IN ACCORDANCE WITH THE CONTRACT DRAWINGS / RELEVANT APPENDICES.
7. ALL NUMBERING ON THIS DRAWING IS INDICATIVE ONLY AND FINAL NUMBERING SHALL BE AGREED BY THE CONTRACTOR WITH THE OVERSEEING ORGANISATION.

KEY:

- PROPOSED 12M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 2 BGP625 DW10 LED LANTERN AT 0^{o} INCLINATION EMITTING 21 KLM.
- PROPOSED 12M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 2 BGP623 DW10 LED LANTERN AT 0^{o} INCLINATION EMITTING 17 KLM.
- PROPOSED 10M LIGHTING COLUMN WITH POST TOP MOUNTED PHILLIPS LUMA 1 BGP623 DW10 LED LANTERN AT 0^{o} INCLINATION EMITTING 15 KLM.
- PROPOSED ACCESS CHAMBER
- PROPOSED FEEDER PILLAR
- PROPOSED UPVC DUCT
- DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.

PROJECT LIMITS — EXTENTS OF SCHEME.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

.\logo\Jacobs_logo_2012.jpg

Client: .\Highways England Templates\4CF95D0F.jpg

Project: A1 IN NORTHUMBERLAND ALNWICK TO ELLINGHAM

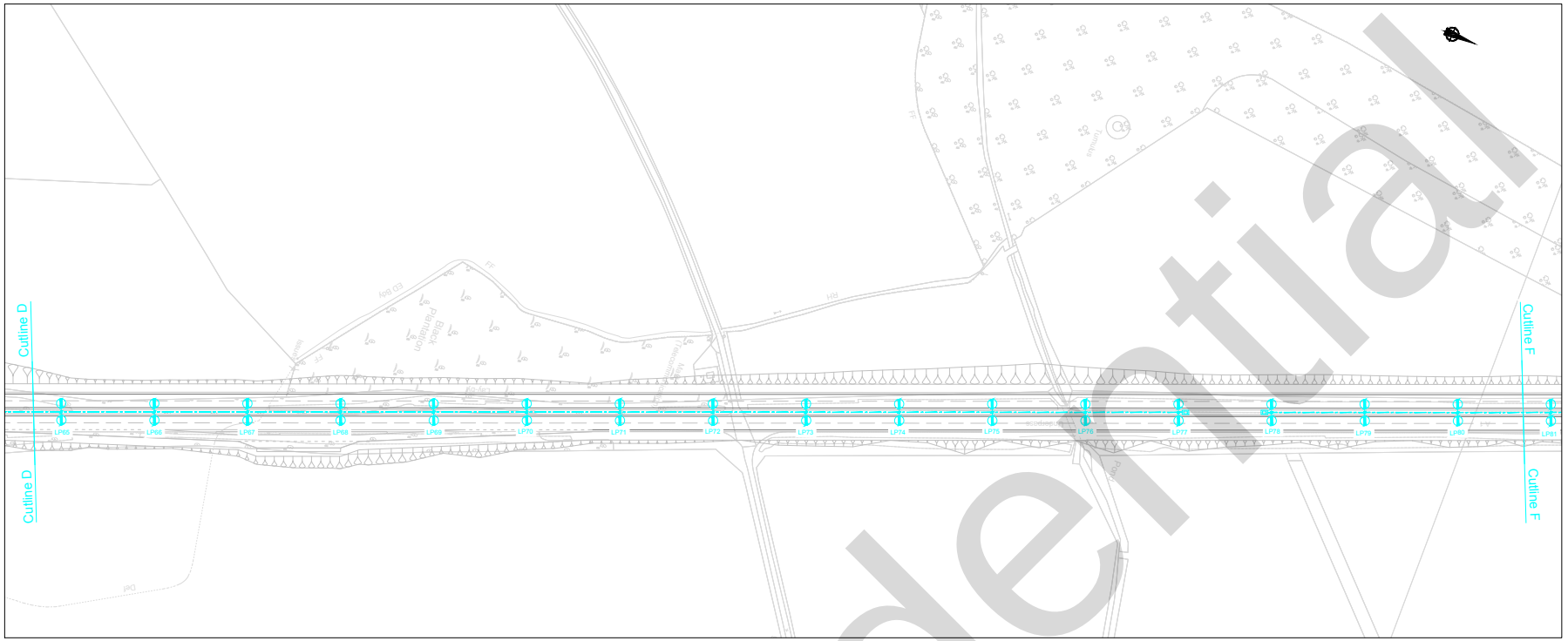
Drawing title:

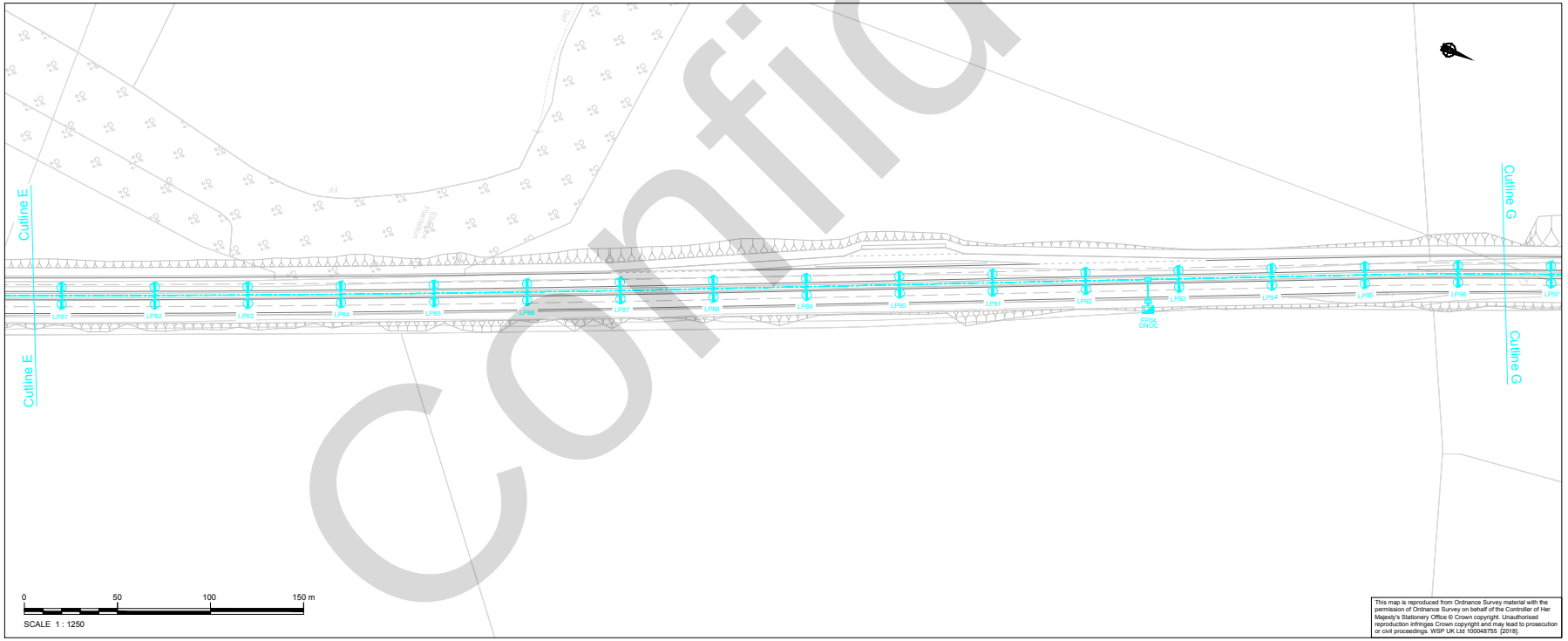
PROPOSED ROAD LIGHTING LAYOUT SHEET 2 OF 8

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-A2E-DR-E0-0002	Rev A

This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terDP and conditions.





0 50 100 150 m

SCALE 1 : 1250

NOTES:

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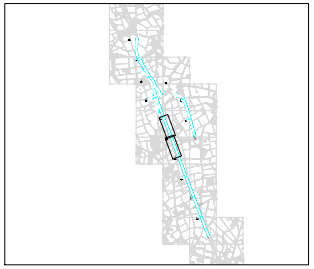
- PROPOSED FEEDER PILLAR
- PROPOSED UPVC DUCT
- DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.

PROJECT LIMITS — EXTENTS OF SCHEME.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

.\logo\Jacobs_logo_2012.jpg

Client

Project
A1 IN NORTHUMBERLAND
ALNWICK TO ELLINGHAM

Drawing title
PROPOSED ROAD LIGHTING LAYOUT SHEET 3 OF 8

Drawing status
PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-A2E-DR-E0-0003	Rev A

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- PROPOSED UPVC DUCT
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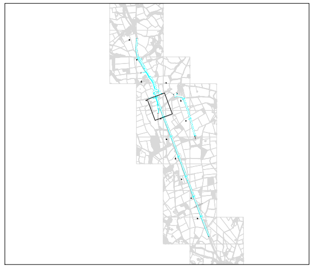
PROJECT LIMITS — EXTENTS OF SCHEME.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

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Client: .\Highways England Templates\4CF95D0F.jpg

Project: A1 IN NORTHUMBERLAND ALNWICK TO ELLINGHAM

Drawing title:

PROPOSED ROAD LIGHTING LAYOUT SHEET 4 OF 8

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-A2E-DR-E0-0004	Rev A

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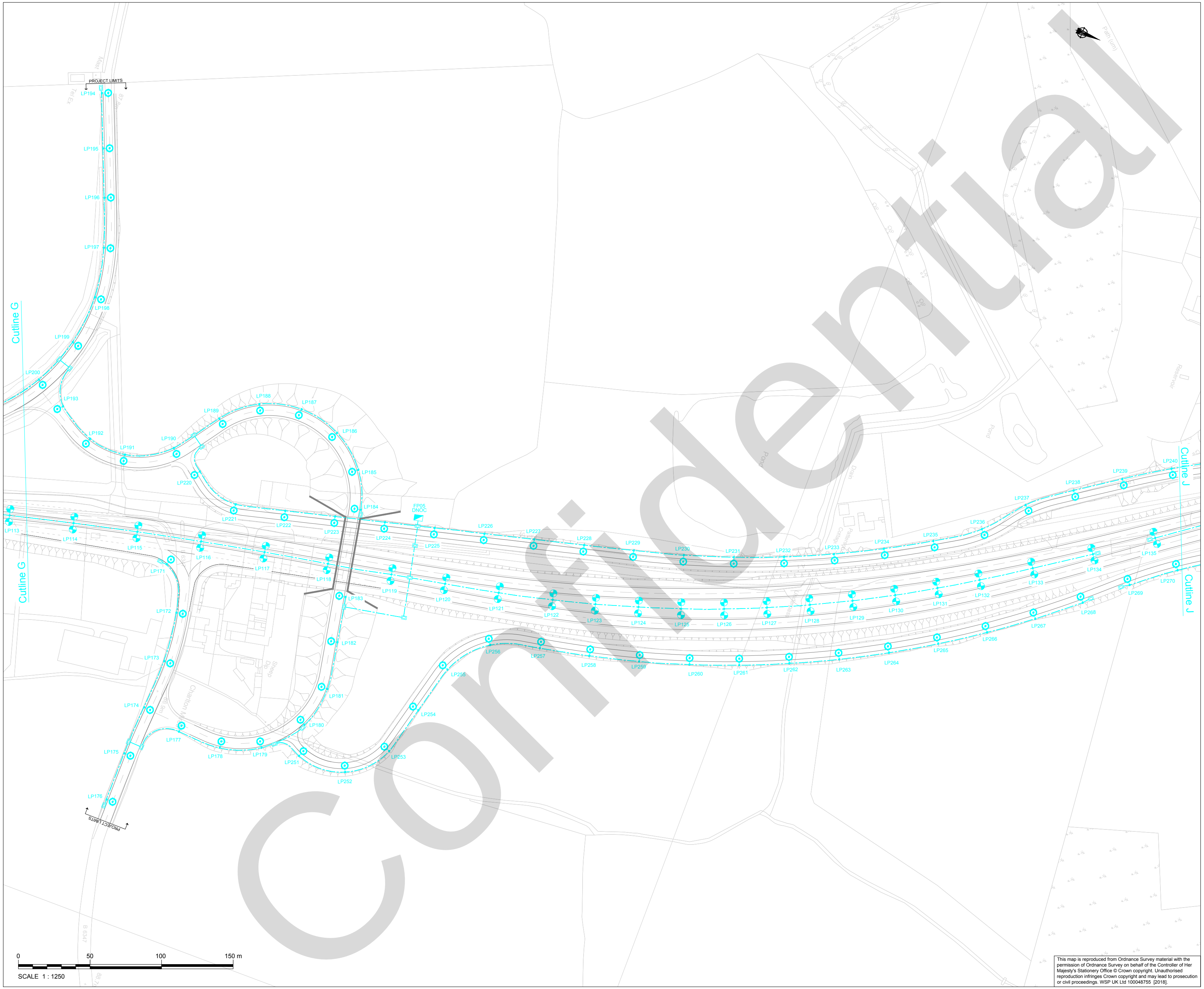
\\ser01man1uk.uk.wspgroup.com\projects\01 Prospects\03 Lighting and Electrical Services Bids_BIDS POST JUNE 2016\0200 - A1 Morpeth to Felton (TA49)\dwgs\A1 A2E\HE551459-WSP-HLG-0000-DR-E0-0001-0008.dwg - 04/05/2018 16:46:23 - 549146159-WSP-HLG-A2E-DR-E0-0004 - INVC00436



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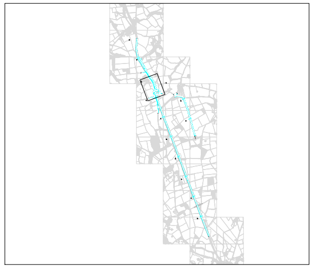

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

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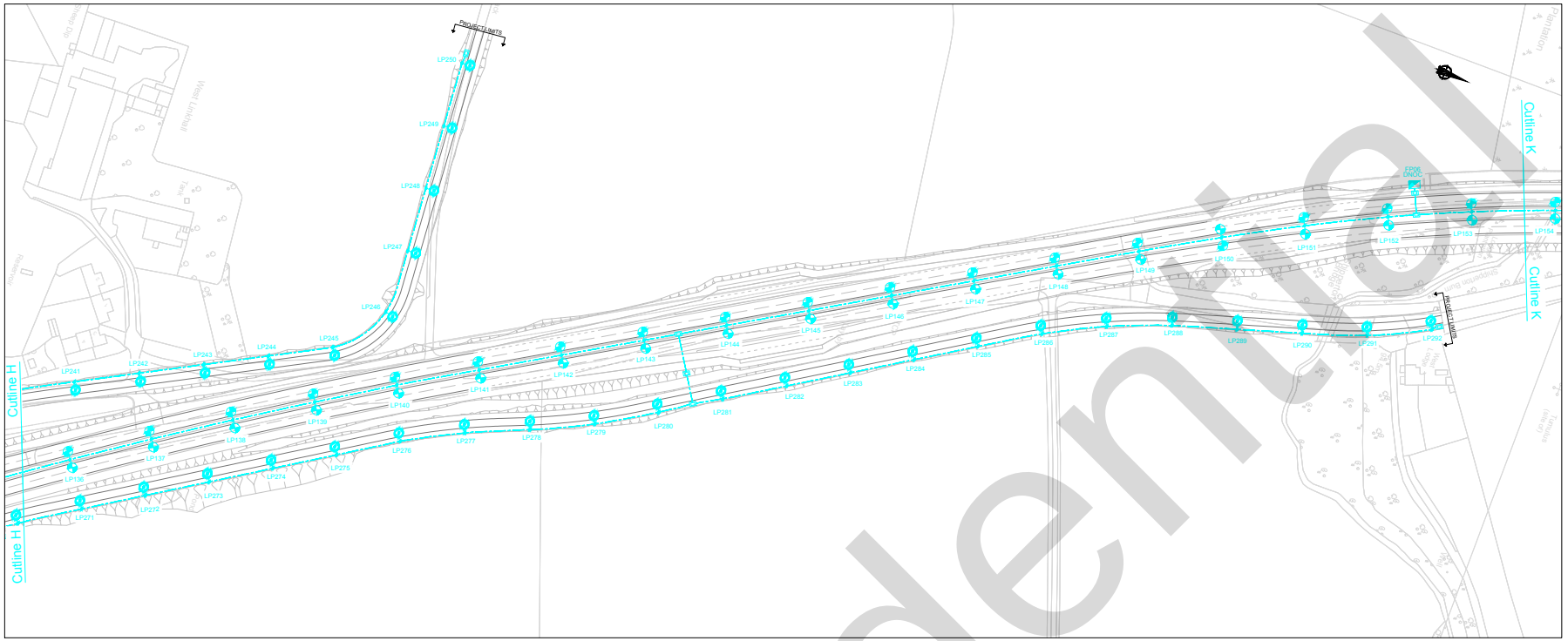
Client
.\Highways England Templates\4CF95D0F.jpg

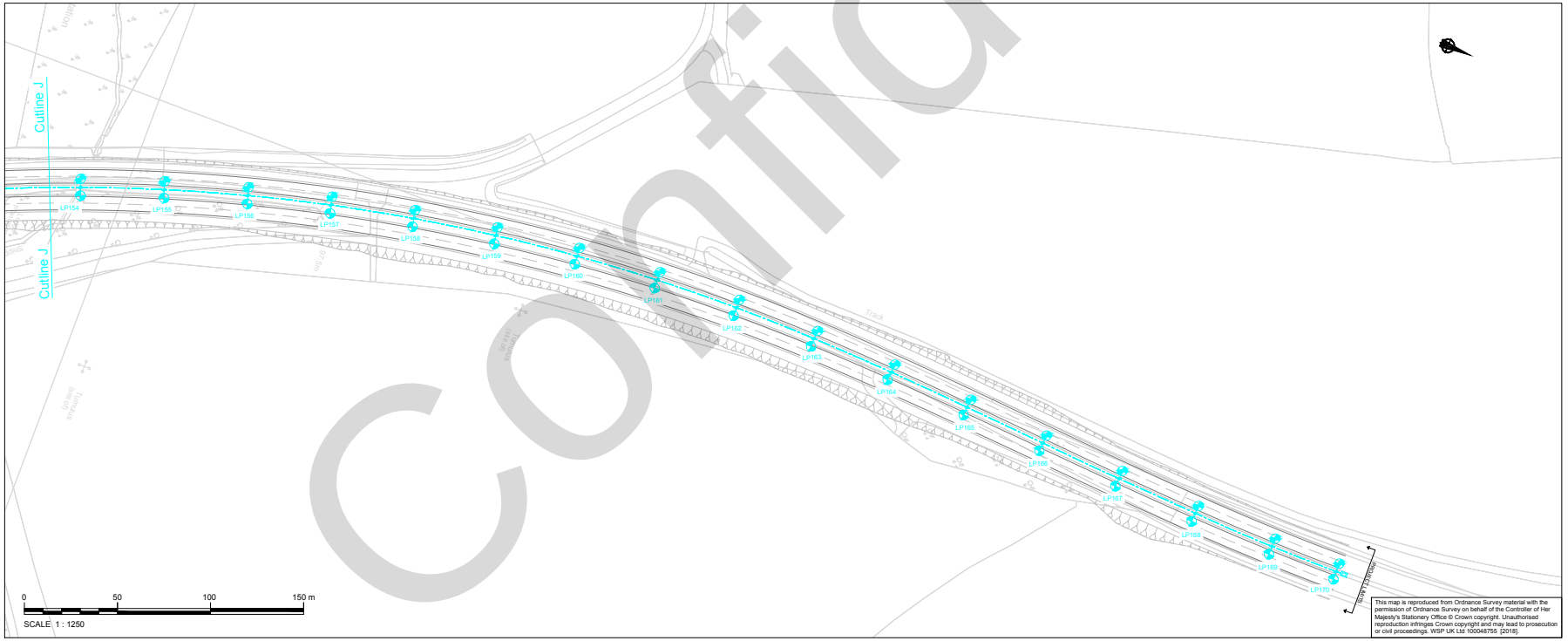
Project
A1 IN NORTHUMBERLAND
ALNWICK TO ELLINGHAM

Drawing title
PROPOSED ROAD LIGHTING LAYOUT SHEET 5 OF 8

Drawing status
PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-A2E-DR-E0-0005	Rev A





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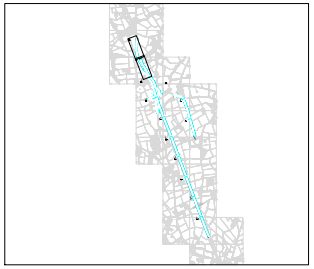

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Rev	Rev. Date	Purpose of revision	Drawn	Check	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

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Client

Highways England Template\4CF960DF.jpg

Project

A1 IN NORTHUMBERLAND
ALNWICK TO ELLINGHAM

Drawing title

PROPOSED ROAD LIGHTING LAYOUT SHEET 6 OF 8

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-A2E-DR-E0-0006	Rev A

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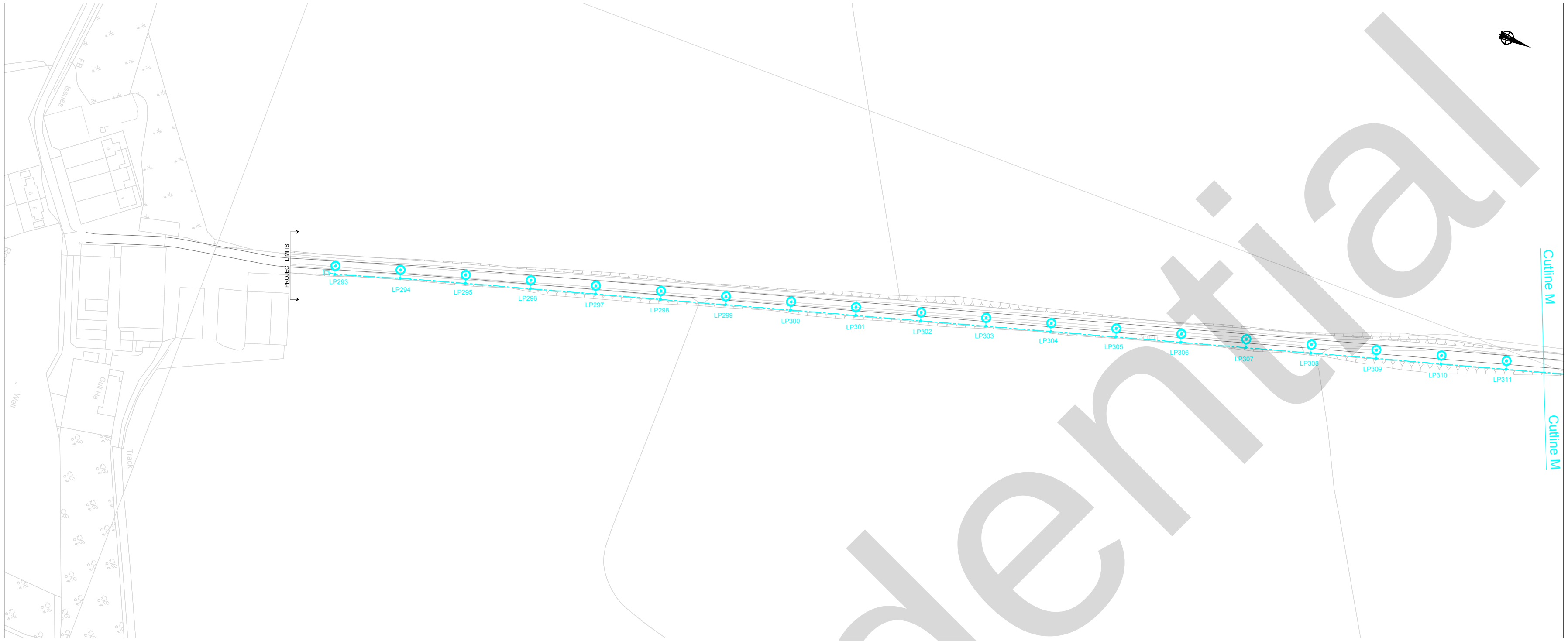

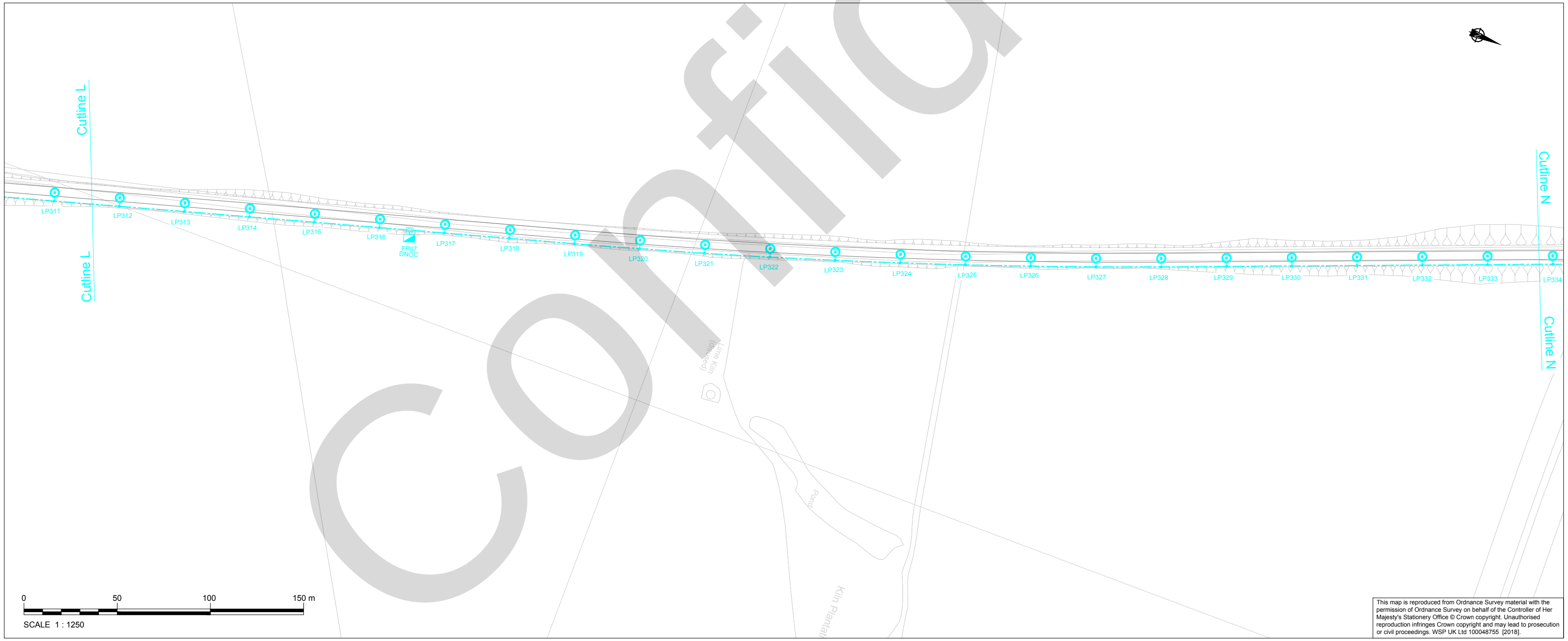

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- PROJECT LIMITS EXTENTS OF SCHEME.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

.\logo\Jacobs_logo_2012.jpg

Client: .\Highways England Template\4CF95D0F.jpg

Project: A1 IN NORTHUMBERLAND ALNWICK TO ELLINGHAM

Drawing title:

PROPOSED ROAD LIGHTING LAYOUT SHEET 7 OF 8

Drawing status: PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	
Drawing number	549146159-WSP-HLG-A2E-DR-E0-0007	Rev A

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0 50 100 150 m

SCALE 1 : 1250

NOTES:

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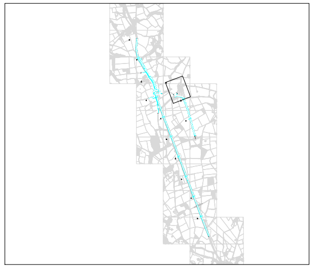
PROPOSED FEEDER PILLAR

PROPOSED UPVC DUCT

DNOC DISTRIBUTION NETWORK OPERATOR CONNECTION REQUIRED.

PROJECT LIMITS EXTENTS OF SCHEME.



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
A	01/05/2018	FIRST ISSUE	VC	DP	RP	KS

.\logo\Jacobs_logo_2012.jpg

Client

.\Highways England Templates\4CF95D0F.jpg

Project

A1 IN NORTHUMBERLAND
ALNWICK TO ELLINGHAM

Drawing title

PROPOSED ROAD LIGHTING LAYOUT SHEET 8 OF 8

Drawing status

PRELIMINARY ISSUE

Scale	1:1250	DO NOT SCALE
Jacobs No.	B2104700	
Client no.	551459	

Drawing number: 549146159-WSP-HLG-A2E-DR-E0-0008

Rev: A

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Appendix E

ROAD SAFETY ENGINEERS REPORT

A1 IN NORTHUMBERLAND

ALNWICK TO ELLINGHAM

Road Safety Engineer's Briefing Report

CONFIDENTIAL

MAY 2018

A1 IN NORTHUMBERLAND

ALNWICK TO ELLINGHAM

Highways England

Road Safety Engineer's Report
Confidential

Project no: 70044137-K34
Date: MAY 2018

WSP
62-64 Hills Road
Cambridge
CB2 1LA

www.wsp.com

QUALITY MANAGEMENT

ISSUE/REVISION	FIRST ISSUE	REVISION 1	REVISION 2	REVISION 3
Remarks				
Date	01/05/18			
Prepared by	Lyn Turner			
Signature	[redacted]			
Checked by	Neil Jones			
Signature	[redacted]			
Authorised by	Axel Kappeler			
Signature	[redacted]			
Project number	70044137-K34			
Report number	RSE - 01			
File reference	\\GBCMG100FIL01\cmp01shared\ITS Safety\Road Safety Reviews\North East RIP Schemes\A1iN - lighting assessment\A1iN A2E\A1iN A2E Road Safety Engineers Report May 18			

PRODUCTION TEAM

CLIENT

Principal Engineer Lighting & Energy Solutions	***Kelly Smith*** MSc BEng(Hons) AMCIBSE MSLL AMILP

WSP

Principal Consultant	Lyn Turner
Senior Consultant	Neil Jones
Associate Director	Axel Kappeler

TABLE OF CONTENTS

TABLES

APPENDICES

APPENDIX A COLLISION DATA

APPENDIX A-1 COLLISION DATA

1 EXECUTIVE SUMMARY

WSP ITS Safety team have been approached to produce a Road Safety Engineer's Report in accordance with DMRB TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network' in conjunction with the upgrading of the A1 between Alnwick and Ellingham.

The objective of the Road Safety Engineer's Report is to ascertain if street lighting is required on the A1 between Alnwick and Ellingham which is being upgraded from single to dual carriageway including the construction of new grade-separated junctions.

On this section of carriageway in the previous 5 years (2012 to 2016 inclusive) there have been 12 collisions in total consisting of 2 fatal, 5 serious and 5 slight collisions. This resulted in 26 casualties made up of 2 fatalities, 8 serious injury and 16 slight injury casualties.

Only one collision has occurred during the hours of darkness (with no street lighting) which was a fatal collision in 2014.

For the section of existing single carriageway within the scheme extents, the data analysis demonstrates that this section of the A1 is currently below the national averages for dark collisions, no street lighting present. However the severity of the collisions that have occurred, (58%) is above the national average killed and seriously injured (KSI) figure of 24%.

With the intention of the scheme to upgrade the A1 from single carriageway to dual carriageway with the majority of the new construction on the existing line of the carriageway, through rationalisation from IAN167/12, this may remove 33% (4 collisions) of the current single carriageway collisions.

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Looking at TA40/07 assuming this link is categorised as 'Darkness Personal Injury Collision (PIC) Saving on a New Link' the predicted PIC saving should be calculated by multiplying the number of opening year darkness PICs by the appropriate percentage A from Table 1, in this case 10%. Thus giving a 0.02 PIC saving per year.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, seeing as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway with many highway hazards such as at-grade junctions and associated queuing removed, and by looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junction, these could be more complex. It is widely known that compact junctions have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers. However, other vehicles are susceptible also to loss of control type incidents.

By upgrading the B6347 junction to grade separated junctions, from the historical collision data it can be seen that 2 collisions have been removed through rationalisation as they occurred at the B6347 junction by right-turning manoeuvres. Associated queueing collisions and those collisions occurred at farm accesses which are to be closed will also be saved.

Ideally the B6347 junction should be assessed on a junction by junction basis using the GD04 assessment or COBALT tool or the comparison of like for like junctions and STATS19 collision data to analyse against.

In the absence of the above measures, it cannot be categorically advised to not provide street lighting on the junctions, however, there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

- 'Intelligent' style road studs to pre-light the route
- Use of a white lining system that included the reflective beading
- Reflectors on the vehicle restraint system (VRS) or painting it black & white.

All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the VRS will further improve safety for powered two wheelers.

2 PROJECT BACKGROUND

2.1 BACKGROUND

WSP ITS Safety team have been approached to produce a Road Safety Engineer's Report in accordance with DMRB TA49/07 'Appraisal of new and replacement lighting on the strategic motorway and all-purpose trunk road network'.

2.2 OBJECTIVES

The objective of the Road Safety Engineer's Report is to ascertain if street lighting is required on the A1 between Alnwick and Ellingham which is being upgraded from single to dual carriageway including the construction of new grade-separated junctions.

2.3 SITE DESCRIPTION

Alnwick to Ellingham (A2E) is an 8.5km (5.3 miles) rural single carriageway section from the Alnwick bypass dual carriageway to the Brownieside dual carriageway just south of Ellingham. Alnwick is situated 27.8km (17.3 miles) north of Morpeth and 42.8km (26.6miles) south of Berwick. This section of the A1 is a rural single carriageway trunk road, subject to the national speed limit.
The cross section of the road is relatively consistent throughout this section; with hard strips and verges. The majority of the geometry over the length of Section B is to design standards; however, some elements fall short of current design standards.

- The Alnwick to Ellingham (A2E) Section of the A1 is positioned entirely on the existing A1 and has four at-grade major-minor road junctions, with many additional private and farm accesses. Two of the junctions are accommodated with full standard ghost island T-junctions with right turning provision. Major settlements served by this section of the A1 include South Charlton to the West and Christon Bank to the East, both via the B6347.

3 PERSONAL INJURY COLLISION (PIC) ANALYSIS

3.1 BACKGROUND INFORMATION

STATS19 data has been used in this report which has been sourced from the Highways England Area 14 collision database.

The database is held in a excel spreadsheet format and includes all the routes in Area 14 with data ranging from 1994 to 2016.

For the A2E project, data has been extracted from the collision database based on ordnance survey grid references for the scheme, which are as follows:

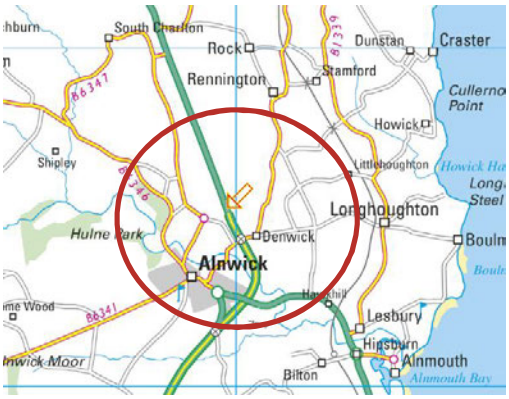
- Alnwick - 419717;615250
- Ellingham – 416992, 622671

Road Casualties Great Britain 2016 has been used as a comparison document.

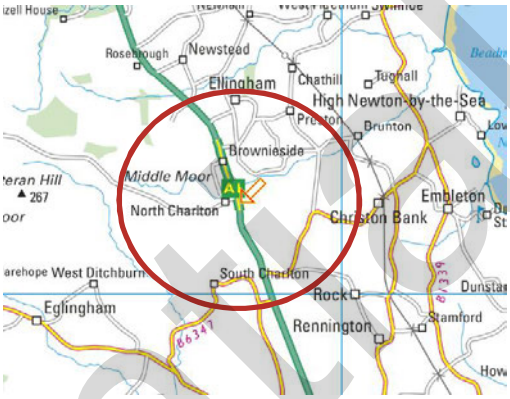
3.2 GENERAL ANALYSIS

Personal Injury Collision data for the Alnwick to Ellington section of the A1 has been sourced from the Area 14 collision database spreadsheet, as described above.

The extents of the collision data extends from Alnwick to Ellingham.



Alnwick – Start of scheme extents



Ellingham – End of scheme extents

The report used collision data between 01/01/2012 and 31/12/2016 which was considered to be acceptable for the purposes of this report as the full STATS19 data reports were available for detailed analysis. The data has been used to produce the analysis in the following pages.

During this time period there were 12 collisions in total consisting of 2 fatal, 5 serious and 5 slight collisions. This resulted in 26 casualties made up of 2 fatalities, 8 serious injury and 16 slight injury casualties.

Table 3-1 Number of collisions per calendar year

	2012	2013	2014	2015	2016	5 Year Total
Fatal	0	0	1	1	0	2
Serious	0	4	0	0	1	5
Slight	0	2	1	1	1	5
Total	0	6	2	2	2	12

Three of the six collisions that occurred in 2013 happened during the month of August. One attributed to illness, one to loss of control and the final one to a rear end shunt collision.

Table 3-2 Number of casualties per calendar year

	2012	2013	2014	2015	2016	5 Year Total
Fatal	0	0	1	1	0	2
Serious	0	5	0	1	2	8
Slight	0	6	4	2	4	16
Total	0	11	5	4	6	26

Table 3-3 Total number of collisions per month

Date range	Total	average collisions per month
2012	0	0.00
2013	6	0.50
2014	2	0.17
2015	2	0.17
2016	2	0.17
Total	**12**	

From Table 3-4 it can been seen that this data set is significantly lower than the national average of 18% for Dark collisions where street lighting is not present.
From the collision data set, the statistics can be compared to Road Casualties Great Britain 2016 (RCGB16) to see how the route is performing against national targets.

Table 3-4 Comparison of complete data set to National Averages

	2012	2013	2014	2015	2016	5 Year Total	National Average
Collision Severity Ratio	0%	67%	50%	50%	50%	58%	**24%**
Collisions occurring on a wet road surface	0	2	0	0	0	2	**32%**
	0%	33%	0%	0%	0%	17%	
Total Collisions during the hours of darkness	0	0	1	0	0	1	**27%**
	0%	0%	50%	0%	0%	8%	
Dark Collisions: Street Lighting present	0	0	0	0	0	0	**7%**
	0%	0%	0%	0%	0%	0%	
Dark Collisions: No Street Lighting Present	0	0	1	0	0	1	**18%**
	0%	0%	50%	0%	0%	8%	

The high KSI rate can be linked to collisions were vehicles have crossed the carriageway or swerved into the opposite carriageway – these collision types will be remove with the proposed works. However care should be taken with small datasets which can lead to over inflated percentages.

One collision occurred in the hours of darkness with no street lighting present in the 5 year dataset.

4 ASSUMPTIONS MADE

4.1 RATIONALISATION OF COLLISION STATISTICS

Within the Interim Advice Note 167/12 Revision 1 Guidance for the Removal of Road Lighting the standard states that “The PIC’s (Personal Injury Collisions) must be rationalised to exclude anywhere driver gross negligence (DGN) was a significant contributory factor. These include:-

- Intoxicated drivers. (drink or drugs)
- Suicides and attempted suicides.
- Excessive speeding (more than 50% over the speed limit)”

However, given that the scheme that is the subject of this report is upgrading a single carriageway to a dual carriageway, the author has further excluded any collisions that will be impossible within the new scheme, these include:

- All collision that have occurred at a T or staggered junction joining the mainline
- All collisions on the single carriageway that have resulted in head on collisions
- All collisions on the single carriageway involving U turns
- All collision occurring at the merge from dual to single or single to dual

5 RATIONALISED COLLISION DATA

5.1 SINGLE CARRIAGEWAY COLLISIONS

By rationalising the collisions using the method described above, 4 collisions have been removed, 3 that occurred at T or staggered junctions and one due to excess speeding (STATS19 contributory factor 306) leaving 8 collisions to be analysed further.

Table 5-1 Number of collisions per calendar year after rationalisation

	2012	2013	2014	2015	2016	5 Year Total
Fatal	0	0	1	0	0	1
Serious	0	3	0	0	0	3
Slight	0	2	0	1	1	4
Total	0	5	1	1	1	8

Of these 8 collisions the following contributory factors can be assigned.

- Loss of control 5 collisions (one involved illness) 62.5%
- Rear end shunts 2 collisions 25%
- Fatigue 1 collision 12.5%

Table 5-2 Number of collisions per lighting conditions

Date range	Daylight	Dark No lights	Total
2012	0		0
2013	5		5
2014		1	1
2015	1		1
2016	1		1
Total	**7**	**1**	**8**

The collision which occurred during the hours of darkness can be attributed to loss of control on 11 December 2014 at 0701 in fine weather conditions, no road surface details are available, however the STATS19 recorded slippery road due to weather.

When comparing these to RCGB15 which has an average of 18% for Dark no lighting collisions, it can be seen that the scheme extents are lower than average at 12.5%

5.2 COLLISIONS OCCURRING AT JUNCTIONS

EXISTING SINGLE CARRIAGEWAY

Looking at the at-grade junctions on the A1 that are currently present, it appears that many are farm tracks that lead off the A1, with only one junction at the B6347 which is currently a T-Junction with right turning bays on the A1. Three collisions have occurred at junctions on the A1, one at the farm access for Heckley Fence, Alnwick and two at the B6347 Junction.

It appears that all farm accesses are to be closed and the B6347 changing to a grade separated junction.

B6347 JUNCTION

Two collisions have occurred at this location in the 5 year period of this study, both of the collisions occurred during daylight hours in fine weather conditions. Following the rationalisation both collisions have been removed.

6 PREDICTED PIC SAVINGS

Design Manual for Roads and Bridges TA49/07 gives a formula for predicting collision savings. The standard talks about the proportion of darkness collisions on all types of strategic roads is on average 28% of the total collisions occurring during the hours of daylight and darkness, however, this figure was sought from Road Casualties Great Britain 2004. Looking at Road Casualties Great Britain 2016, this figure has decreased to 27%.

Within TA49/07 section 4, table 1 gives a generalised indication of the darkness PIC savings due to road lighting on links, suitable for appraisal.

For an all-purpose dual carriageway a figure of 10% is noted.

The new route is being constructed on the existing alignment but dual carriageway is replacing the single carriageway. All of the scheme extent is currently unlit.

The standard makes reference to darkness savings on a new link which refers to Volume 13, COBA which has since been withdrawn. The standard also makes reference to darkness savings on an existing unlit link. Both refer to the calculation of the number of opening year darkness collisions multiplied by the 10% figure which will give the predicted collision saving.

	Total
Total Number of Rationalised collisions (5 Years)	8
Total During Darkness	1
Collisions in darkness per annum (actual)	0.2
Predicted PIC saving = no. of opening year darkness collisions x 10%	0.02

7 CONCLUSION

TA49/07 assumes a collision saving of 10% on all purpose dual carriageway and motorway due to the addition of road lighting.

Looking at TA40/07 assuming this link is categorised as 'Darkness PIC Saving on a New Link' the predicted PIC saving should be calculated by multiplying the number of opening year darkness PICs by the appropriate percentage A from Table 1, in this case 10%. Thus giving a 0.02 PIC saving per year.

In my opinion as a Road Safety Engineer qualified to HD19 Audit Team Leader, seeing as the route is to be upgraded to a new dual carriageway which will be of a higher standard than the existing single carriageway with many highway hazards such as at-grade junctions and associated queuing removed, and by looking at the evidence of the historic collisions, I do not believe that at this time street lighting is required and I conclude that on the mainline the numbers of dark collisions should not increase by more than the 10% as stated in TA49/07. However, the use of items listed below and regular maintenance of the route will also help in the reduction of collisions on the new route.

With regards to the new grade separated junction, these could be more complex. It is widely known that compact junctions have a collision record due to the tight nature of the radii, leading to loss of control collisions, with the most vulnerable vehicle type powered two wheelers. However, other vehicles are susceptible also to loss of control type incidents.

By upgrading the B6347 junction to grade separated junctions, from the historical collision data it can be seen that 2 collisions have been removed through rationalisation as they occurred at the B6347 junction by right-turning manoeuvres. Associated queueing collisions and those collisions occurred at farm accesses which are to be closed will also be saved.

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In the absence of the above measures, it cannot be categorically advised to not provide street lighting on the junctions, however, there are other methods in which to highlight the junctions to the motorists during the hours of darkness or inclement weather. These can include the use of:

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All the above measure are effective in reducing collisions during the hours of darkness in addition to their known benefits in daylight conditions.

The use of bike guard on the VRS will further improve safety for powered two wheelers.

Appendix A

COLLISION DATA

APPENDIX A-1

COLLISION DATA

Reference Number	Severity	No. of Vehicles	No. of Casualties	Date	Time (24hr)	Road Surface	Junction Detail	Lighting Conditions	Weather Conditions	Grid Ref: Easting	Grid Ref: Northing	Location	Description	Cont. Factor		
														1	2	3
0122013	2	2	4	07/03/2013	1718	1	3	1	1	418948	617294	A1 J/W Heckley Fence Alnwick	V1 Trav. N/W on A1 Drifts into Southbound Lane, Colliding with V2 Trav. S/E on A1, Front of V1 Colliding with O/S of V2, Vehicles Leave Carriageway to N/S	Driver using mobile phone	Swerved	
0424913	2	1	1	11/08/2013	1433	1	0	1	1	418984	617148	A1 App. 2 Miles North of Denwick	V1 Trav. N/W on A1, for Reasons to Be Established V1 left Road to N/S, Colliding with Road Sign	Illness		
0432713	2	2	2	19/08/2013	1520	1	0	1	1	417890	620057	A1 0.567M South of South Charlton	Vehs Trav. S on A1, for Reasons Yet to Be Established V1 Has Collided with V2, V2 Crosses into Northbound Carriageway, Leaving Carriageway to O/S down Embankment	Failed to look properly	loss of control	

Reference Number	Severity	No. of Vehicles	No. of Casualties	Date	Time (24hr)	Road Surface	Junction Detail	Lighting Conditions	Weather Conditions	Grid Ref: Easting	Grid Ref: Northing	Location	Description	Cont. Factor		
														1	2	3
0462613	3	3	1	21/08/2013	0920	1	0	1	1	417025	622019	A1 App. 1 Mile N J/W B5347, Charlton Mires	Vehs Trav. S/E on A1, V3 Stops Due to Stationary Traffic Ahead, V2 Stops Behind V3, V1 Fails to Stop Colliding with Rear of V2, Pushing V2 Forward into Rear of V3	Failed to look properly		
0580213	3	1	1	25/10/2013	1449	2	0	1	1	419566	615632	A1 1 Mile N J/W B1340 Offslip, Denwick	V1 Trav. N/W on A1, F/N/S of V1 to Close to Edge of Carriageway, V1 Drops into Gravel Causing Driver to Lose Control, V1 Spins into O/S Carriageway, Leaves to O/S, Colliding with Sign and Barrier, then Rebounds onto Carriageway	Failed to look properly	slippery road	
0700813	2	2	2	16/12/2013	1101	2	0	1	1	417389	621375	A1 App. 0.5 Miles N of J/W B6347, Charlton Mires	Vehs Trav. S/E on A1, V1 Trav. Behind V2, V2 Braked Due to Vehicle Ahead, V1 Failed to Stop, Colliding with Rear of V2	Careless, reckless or in a hurry	sudden braking	sudden braking

Reference Number	Severity	No. of Vehicles	No. of Casualties	Date	Time (24hr)	Road Surface	Junction Detail	Lighting Conditions	Weather Conditions	Grid Ref: Easting	Grid Ref: Northing	Location	Description	Cont. Factor		
														1	2	3
0305814	3	3	2	30/05/2014	1114		3	1	1	417711	620601	A1 J/W B6347 CHARLTON MIRES	V2 TRAV. S/E ON A1 APP. J/W B6347, V1 TRAV. N/E ON A1 TURNS RIGHT TOWARDS B6347 INTO PATH OF V2, FRONT OF V1 COLLIDES WITH F/O/S OF V2 V2 LEAVES CARRIAGEWAY TO N/S, COLLIDES WITH ROAD SIGN, THEN COLLIDES WITH F/O/S OF V3, V3 STATIONARY ON B6347 WAITING TO ENTER A1	Poor turn or manoeuvre	failed to look properly	

Reference Number	Severity	No. of Vehicles	No. of Casualties	Date	Time (24hr)	Road Surface	Junction Detail	Lighting Conditions	Weather Conditions	Grid Ref: Easting	Grid Ref: Northing	Location	Description	Cont. Factor		
														1	2	3
0746214	1	3	3	11/12/2014	0701		0	6	1	419578	615615	A1 APP. 1/2 MILE N OF DENWICK OFFSLIP, ALNWICK	V1 TRAV. N/W ON A1, V2&3 TRAV. S/E ON A1, FOR REASONS NOT YET KNOWN V1 VEERS INTO SOUTHBOUND LANE, COLLIDING WITH FRONT OF V2, V2 LEAVES CARRIAGEWAY TO N/S, COMING TO A STOP ON N/S VERGE, V1 THEN COLLIDES HEAD ON WITH V3	sudden braking	loss of control	slippery road
0085915	1	3	2	06/02/2015	0825		0	1	1	418422	618705	A1 75M NORTH J/W ROCK SOUTH FARM COTTAGES, SOUTH CHARLTON	V1&3 TRAV. S/E ON A1, V2 TRAV. N/W ON A1, V1 TRAVELLING AT EXCESS SPEED, OVERTAKES V3, V1 COLLIDES WITH V2, V2 LEAVES CARRIAGEWAY TO N/S AND OVERTURNS	Exceeding speed limit	careless reckless or in a hurry	failed to judge other person speed or path

Reference Number	Severity	No. of Vehicles	No. of Casualties	Date	Time (24hr)	Road Surface	Junction Detail	Lighting Conditions	Weather Conditions	Grid Ref: Easting	Grid Ref: Northing	Location	Description	Cont. Factor		
														1	2	3
0270015	3	1	2	27/04/2015	1509		0	1	1	417630	620913	A1 APP. 300M N OF J/W B6347, CHARLTON MIRES	V1 TRAV. N/W ON A1 NEGOTIATING LEFT HAND BEND, DRIVER DISTRACTED, V1 CONTINUES STRAIGHT AHEAD, LEAVING CARRIAGEWAY TO O/S	distraction in vehicle		
P127716	3	2	2	19/02/2016	1640		0	1	1	419480	615885	A1 1 MILE N/W OF DENWICK	V1 TRAV. N/W ON A1, V2 TRAV. S/E ON A1, DRIVER OF V1 SUFFERS A MICRO SLEEP CAUSING V1 TO ENTER OPPOSITE CARRIAGEWAY, COLLIDING WITH O/S OF V2	fatigue		

Reference Number	Severity	No. of Vehicles	No. of Casualties	Date	Time (24hr)	Road Surface	Junction Detail	Lighting Conditions	Weather Conditions	Grid Ref: Easting	Grid Ref: Northing	Location	Description	Cont. Factor		
														1	2	3
0050825	2	2	4	12/03/2016	1251		3	1	1	417721	620553	A1 B6347	Vehicle 2 driven north on A1. Vehicle 1 driven south on A1. Driver vehicle 1 makes right turn from A1 onto B6347 South Charlton junction across the path of vehicle 2 giving driver no chance to avoid collision. Front near side of vehicle 2 collides with near side of vehicle 1. Both vehicles extensively damaged. Driver vehicle 1 sustains serious internal injuries.	Failed to look properly		

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