



Nick Smith Associates

Lighting to the end of the tunnel

Lathom Pastures Phase II, Neverstitch road Skelmersdale

Client:	Bellway Homes (North West)	Issue Date:	04/12/2020
Project Number:	2663	Revision:	A



Document Issue Schedule: NSA 104

Project Name:	Lathom Pastures Phase II, Neverstitch road Skelmersdale		
Project Number:	2663	Issue Date:	04 December 2020

	DD	28	04										
	MM	09	12										
	YY	20	20										

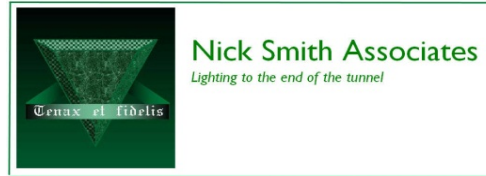
Document Schedule		Revision Details											
Doc Ref:	Title												
NSA105	Design Criteria document	*	A										
NSA106	Bill of Quantities	*	A										
NSA107	Project cost estimate												
NSA108	Cable Calculations												
NSA109	Risk Assessment	*	A										
	Local Authority Specification												
	Design consideration notes	*	A										
	Lighting Design Calculations	*	A										

Drawing Schedule													
DWG Ref	Title												
2663-D-01	Proposed Road Lighting and Illuminance Layout	*	A										
2663-D-02	Proposed Road Lighting and Illuminance Layout	*	A										

Issue Schedule													
Company	Name	Number of Copies											
Bellway Homes (North West)	Adrian Johnson	e	e										

emailed copy (AutoCAD format dwg unless detailed)
 e = otherwise
 PDF = Electronic Adobe PDF format
 number = number of copies issued
 * = Pre revision version

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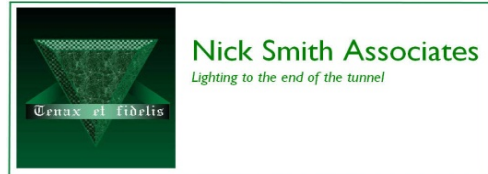
Project file download links

Project Name:	Lathom Pastures Phase II, Neverstitch road Skelmersdale		
Project Number:	2663	Issue Date:	04 December 2020

		DD	28	04									
		MM	09	12									
Drawings and Calculations Issue schedule		YY	20	20									
Rev	Link												
-	Taken down	-											
rev A	https://nicksmithassociates.sharefile.com/d-s352160f03d8448a69e5e449a204c4ef8	A											

All links give access to all project specific file, PDF files, drawings and calculations. Links area available for 30 days from the date shown

Lighting Class Criteria Form: NSA I 16



Section 278

Project Data			
Project Name:	Lathom Pastures Phase II, Neverstitch road Skelmersdale		
Project Number:	2663	Revision:	A
Local Authority:	Lancashire County Council		
Client:	Bellway Homes (North West)		

Table A.2 Lighting classes for traffic routes ($v > 40$ mph)

Traffic Flow	Lighting Class		
	Dual Carriageway		Single carriageway
	Junction density		
	High	Low	
High to Very High	M2	M3	M2
Low to moderate	M3	M4	M3
Very Low	M4	M5	M4

Table A.3 Lighting classes for traffic routes ($v \leq 40$ mph)

Traffic Flow	Lighting Class		
	Dual Carriageway		Single carriageway
	Junction density		
	High	Low	
High to Very High	M3	M4	M3
Low to moderate	M4	M5	M4
Very Low	M5	M6	M5

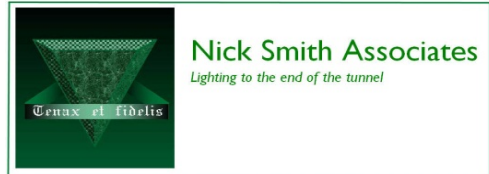
A) High to very high traffic flow might be defined as either having an ADT $> 40\,000$, or where the flow exceeds 65% of the lane maximum capacity for dual or multi-lane carriageways or 45% for single carriageways.

B) Low to moderate traffic flow might be defined as either having an ADT of between 7 000 and 40 000, or where the flow is between 35% and 65% for dual or multi-lane carriageways or between 15% and 45% for single carriageways.

C) Very low traffic flow might be defined as either having an ADT of $< 7\,000$, or where the flow is $< 35\%$ for dual or multi-lane carriageways or $< 15\%$ for single carriageways.

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Design Criteria Form: NSA 105



Section 278

Project Data	
Project Name:	Lathom Pastures Phase II, Neverstitch road Skelmersdale
Project Number:	2663
Revision:	A
Local Authority:	Lancashire County Council
Client:	Bellway Homes (North West)

Design Standard:		BS5489:2020	Class	M5	
Luminance		Illuminance		Conflict Area	
Ave Cd/m ²	0.50	E _{ave}	-	E _{ave}	-
U _o	0.35	E _{min}	-	U ₀	-
U _L	0.4	E _{Max Ave}			

Lantern Data			
Lantern Manufacturer	Urbis Schrader	IP Rating	IP66
Lantern Name	Axia 3	Optic Setting	5280
Lantern Code	AXIA 3.2 5280 - 32 OSLON SQUARE GIANT 373mA NW 230V 00-56-6 I		

Column Data	
Mounting Height	10 meters
Lantern Mounting	Post
Bracket fitted	No
Projection	0.5 meters
Inclination	0 degrees

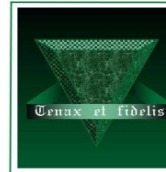
Lamp Data	
Wattage	38w
Lamp Type	LED

Maintenance Factor	
Lantern MF:	0.92
Lamp MF:	0.90
Project MF:	0.83

Column and Sign Supply Data
1. All columns are to be supplied by DNO supply
2. All illuminated sign on the verge are to be supplied by DNO supply

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Lighting Class Criteria Form: NSA I 16



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Lighting to the end of the tunnel

Section 38

Project Data			
Project Name:	Lathom Pastures Phase II, Neverstitch road Skelmersdale		
Project Number:	2663	Revision:	A
Local Authority:	Lancashire County Council		
Client:	Bellway Homes (North West)		

Lighting Class Derived from Table A5 (≤ 30mph)

Traffic flow	Lighting class		
	Ambient luminance		
	Pedestrian and cyclists only	Speed limit v ≤ 30 mph	Speed limit v ≤ 30 mph
	E1 to E4	very low (E1) & Low (E2)	moderate (E3) & High (E4)
Busy ^{A)}	P5	P4	P3
Normal ^{B)}	P5	P5	P4
Quiet ^{C)}	P6	P5	P4

Notes

1. The lighting class has been considered based to the possible impact on bats in the site vicinity

Chosen Lighting Levels

Class	Eave	Emin	Eave max
P5	3.00	0.60	4.50

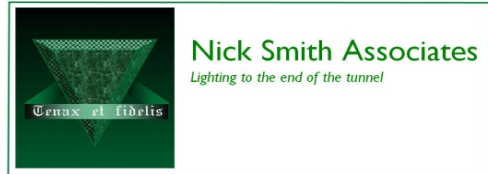
A) Busy traffic flow refers to areas where the traffic usage is high and can be associated with local amenities such as clubs, shopping facilities, public houses, etc.

B) Normal traffic flow refers to areas where the traffic usage is of a level equivalent to a housing estate access road.

C) Quiet traffic flow refers to areas where the traffic usage is of a level equivalent to a residential road and mainly associated with the adjacent properties or properties on other equivalent roads accessed from this road.

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Design Criteria Form: NSA 105



Section 38

Project Data			
Project Name:	Lathom Pastures Phase II, Neverstitch road Skelmersdale		
Project Number:	2663	Revision:	A
Local Authority:	Lancashire County Council		
Client:	Bellway Homes (North West)		

Design Standard:		BS5489:2020	Class P5		
Luminance		Illuminance		Conflict Area	
Ave Cd/m ²	-	E _{ave}	3	E _{ave}	-
U _o	-	E _{min}	0.6	U ₀	-
U _L	-	E _{Max Ave}	4.5		

Lantern Data			
Lantern Manufacturer	Urbis Schrader	IP Rating	IP66
Lantern Name	Axia 3	Optic Setting	5266
Lantern Code	AXIA 3.1 5266 Integrated lenses 8 OSOLON SQUARE GIANT@600mA		

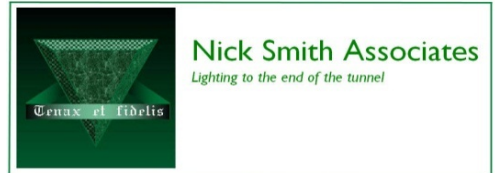
Column Data	
Mounting Height	6 meters
Lantern Mounting	Post
Bracket fitted	No
Projection	0.4 meters
Inclination	0 degrees

Lamp Data	
Wattage	16w
Lamp Type	LED

Maintenance Factor	
Lantern MF:	0.92
Lamp MF:	0.90
Project MF:	0.83

Column and Sign Supply Data
1. All columns are to be supplied by DNO supply
2. All illuminated sign on the verge are to be supplied by DNO supply

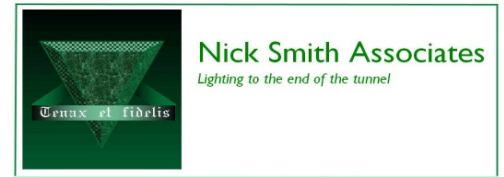
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Bill of Quantities (NSA106-I300)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Item No	Description	Qty	Unit	Cost	Total
	<u>Series I300: Road Lighting Columns and Brackets</u>				
13.01	Proposed steel galvanised 10m column with 0.5m single arm bracket at zero degree tilt and Urbis Schreder lantern (AXIA 3.2 5280 - 32 OSLON SQUARE GIANT 373mA NW 230V 00-56-61) with neutral white LED to deliver 7080 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	5	no		
13.02	Proposed steel galvanised 8m column with post mounted Urbis Schreder lantern (AXIA 3.3 5280 64 OSLON SQUARE GIANT 292mA NW 230V 00-56-61) with neutral white LED to deliver 7080 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	1	no		
13.03	Proposed steel galvanised 6m column with post mounted Urbis Schreder lantern (AXIA 3.1 5266 Integrated lenses 8 OSLON SQUARE GIANT@600mA) with warm white LED to deliver 1950 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	34	no		
13.04	Proposed steel galvanised 6m column with post mounted Urbis Schreder lantern (AXIA 3.1 5266 Integrated lenses 8 OSLON SQUARE GIANT@300mA) with warm white LED to deliver 1050 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	6	no		
13.05	Take up or down and remove to tip road lighting column including lantern and bracket	5	no		
				Total	

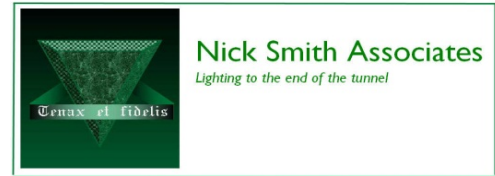


Elxon Codes (NSA 119)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Prepared by: N Smith	Date: 04/12/2020	Checked by: N Smith	Date: 04/12/2020	Revision A
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Item no	Description	Charge Code	Switch Regime	Wattage	Qty	Notes
13.01	Proposed steel galvanised 10m column with 0.5m single arm bracket at zero degree tilt and Urbis Schreder lantern (AXIA 3.2 5280 - 32 OSOLON SQUARE GIANT 373mA NW 230V 00-56-61) with neutral white LED to deliver 7080 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	42 038 0000 100	806	38w	5	
13.02	Proposed steel galvanised 8m column with post mounted Urbis Schreder lantern (AXIA 3.3 5280 64 OSOLON SQUARE GIANT 292mA NW 230V 00-56-61) with neutral white LED to deliver 7080 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	42 038 0000 100	806	38w	1	
13.03	Proposed steel galvanised 6m column with post mounted Urbis Schreder lantern (AXIA 3.1 5266 Integrated lenses 8 OSOLON SQUARE GIANT@600mA) with warm white LED to deliver 1950 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	42 016 0000 100	806	16w	34	

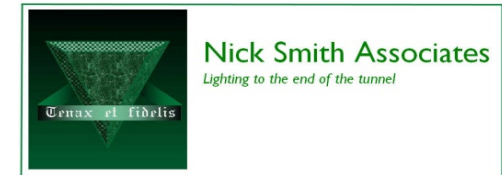


Elxon Codes (NSA 119)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Prepared by: N Smith	Date: 04/12/2020	Checked by: N Smith	Date: 04/12/2020	Revision A
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Item no	Description	Charge Code	Switch Regime	Wattage	Qty	Notes
13.04	Proposed steel galvanised 6m column with post mounted Urbis Schreder lantern (AXIA 3.1 5266 Integrated lenses 8 OSLON SQUARE GIANT@300mA) with warm white LED to deliver 1050 lumens, integral driver with 20 Lux Cell, Ratio 1:1, LED is pre-set to dim (see note 9)	42 008 0000 100	806	8w	6	



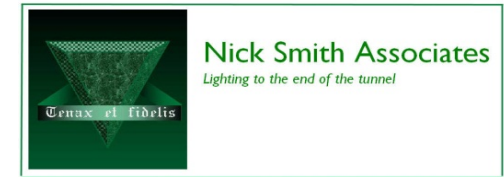
Risk Assessment (NSA 109)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Prepared by: N Smith	Date: 04/12/2020	Checked by: N Smith	Date: 04/12/2020	Revision: A
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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Wildlife	Partial	3	4	12	We have been notified of wildlife using the adjacent areas which might be affected by the proposed lighting design. We have recommended to the developer the lighting be in accordance with the ILP guidance note 08/18 Bats and artificial lighting in the UK document. As a result the lighting levels have been lowered, a warm white LED fitting has been used with the lantern mounted horizontal.
Column heights	Partial	6	2	12	The height of column is subjective. Higher columns even as low as 6m are often not considered suitable by ecologist. However lower column raise light levels and reflected light from the road surface and other surrounding materials. As a compromise only 6m column have been used where higher column would normally have been used.
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
	2 = possible occurrence		2 = major injury/ies		
	3 = occasional occurrence		3 = major injury to one person		
	4 = frequent occurrence		4 = major injury/ies to several people		
	5 = regular occurrence		5 = death of one person		
	6 = common occurrence		6 = multiple deaths		

Risk ratings above 20 may require project specific risk assessments from the contractor as the risk cannot be designed out of the project



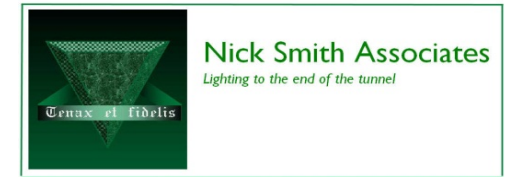
Risk Assessment (NSA 109)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Live Traffic		4	4	16	Provide systems of traffic management in accordance with chapter 8 and contractors procedures within CDM documentation
Lifting operations over live carriageway		1	4	4	Appropriate training for plant operators to ensure this does not happen. Do not permit this operation.
Lifting operations near live carriageway		4	4	16	Contractor to provide method statements and detailed risk assessments to cover this operation.
Accidents occurring to public and/or works vehicles while accessing or engrossing the Site		4	4	16	Undertake works in accordance with Chapter 8. Only designated access/egress points are to be used.
Works carried out during the maintenance period		2	4	8	Carry out work in accordance with Chapter 8 of the Signs Manual. Contractor to provide a method statement for approval by the Engineer.
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
	2 = possible occurrence		2 = major injury/ies		
	3 = occasional occurrence		3 = major injury to one person		
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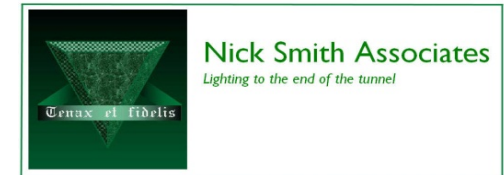
Risk Assessment (NSA 109)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Exposure of Statutory Undertakers Plant	Yes refer to statutory undertakers plans	3	4	12	Drawings giving approximate location using NRSWA notices received from Statutory Undertakers. Contractor to locate apparatus as part of Contractual requirements prior to commencement of any works. Excavation in the vicinity to be in accordance with HSE recommendations.
Interaction of traffic with the works		5	4	20	Undertake works in accordance with Chapter 8 and in accordance with the constraints specified the Contract documents.
Interaction of pedestrians with the works.		6	2	12	Undertake works in accordance with Chapter 8 the Contract Document. Site Specific Traffic Management contained in the each individual tender. The Contractor must provide a method statement for this operation.
Exposure to pollution and pollution of the environment	Yes	3	2	6	Environmental Protection Act 1990
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
	2 = possible occurrence		2 = major injury/ies		
	3 = occasional occurrence		3 = major injury to one person		
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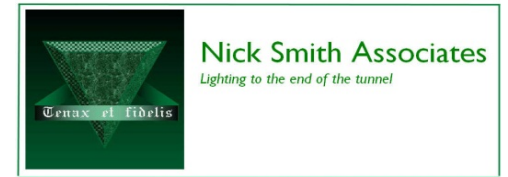
Risk Assessment (NSA 109)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Works in confined spaces	Yes	1	3	3	To comply with current legislation e.g. Breathing Apparatus etc. (Report on Examinations) Order 1961 The Lifting Operations and lifting equipment regulations 1992 The Construction (Health, Safety and Welfare) Regulations 1996 Factories Act Section 30 Control of Substances Hazardous to Health Regulations 2002 Personal Protective Equipment at Work Regulations 1999 Management of Health and Safety at Work Regulations 1992
Removal of DNO fuse carriers	Yes	3	5	15	Only Electricians holding G39/1 certificates allowed to perform this task.
Working on live electrical equipment	Yes	4	5	20	Only qualified electricians to do this. Contractor to submit method statements and risk assessments.
Storage and transportation of materials		4	2	8	Contractor to propose to the engineer for approval the location of stores/offices.
Disposal of materials		6	4	24	Lamp contain chemical elements such as mercury and sodium. Disposal methods must be agreed with the district E.S.O and also comply with COSHH regulations.
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
	2 = possible occurrence		2 = major injury/ies		
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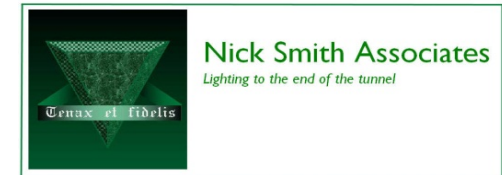
Risk Assessment (NSA 109)

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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Staff and operatives on site being injured by the Construction works	Yes	2	4	8	CDM regulations Highways Act 1980 The Lifting Operations and lifting equipment regulations 1992 The Construction (Health, Safety and Welfare) Regulations 1996 Control of substances Hazardous to Health Regulations 1988 Noise at work Regulation 1989 New Roads and Street Works Act 1991 Street Works (Qualifications of Supervisors and Operatives) Regulations 1992 Personal Protective Equipment at Work Regulations 1992 Health and Safety at Work etc. Act 1974
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
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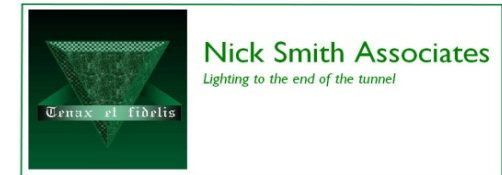
Risk Assessment (NSA 109)

Lathom Pastures Phase II, Neverstitch road Skelmersdale	Project Number 2663
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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Erection and maintenance of Traffic Management systems including diversion routes.		4	3	12	The diversion route signs and traffic management systems are to be erected in accordance with Chapter 8. When maintaining the traffic management system to make any alterations or amendments the contractor is to carry them out in accordance with Chapter 8. The Contractor is to provide a method statement for setting out traffic management systems. Work will not start until traffic management is approved by the Engineer.
Excavation works and traffic management left outside normal working day.	Yes	6	2	12	Undertake works in accordance with Chapter 8 and the contract document.
Vehicles running into excavations. Pedestrians, staff and operatives falling into an excavation.		3	4	12	Consider minimum distance of traffic from excavation and requirements for temporary safety / pedestrian barriers.
Use of Hazardous Materials	Yes	2	3	6	COSHH assessments to be provided for all materials but especially: Bituminous Asphalt's, Grout, Deck Waterproofing, Silane, Concrete
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
	2 = possible occurrence		2 = major injury/ies		
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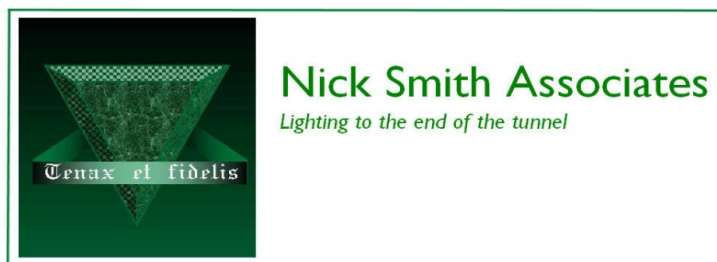
Risk Assessment (NSA 109)

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Risk Identified	Risk addressed by code of practice or standard	Frequency of Occurrence	Severity Risk	Risk Rating	Notes / Actions Required
Working at Height		6	3	18	Contractor to comply with work place regulations and also the personal protective equipment at work regulations 1992 (head protection) and chapter 8
Electrical Testing	Yes	6	3	18	Electrical testing should be carried out in accordance with BS7671, the electricity at work regulations, Health and Safety at work Act and CDM
Working in the Vicinity of LV or HV overhead lives	Yes	1	5	5	Operative to be G39 trained to allow identification of overhead line voltage cables. Work in accordance with ILE document GPI0 Safety During the Installation and Removal of Lighting columns and similar street furniture in the proximity of overhead lines
Installation of columns and raise and lower columns	Yes	1	3	3	The contractor should consider the use of a carrying cradle for the installation of raise and lower columns. Please refer to The Manual Handling Operations Regulations 1992
Probable frequency	1 = improbable occurrence	Probable severity	1 = trivial injury/ies		
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