

# Guidance on the installation and use of scaffold guard structures over the strategic road network



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## Publishing information

This document is published by National Highways.

## Introduction

The electricity Transmission network operators (TNO) and Distribution network operators (DNO) manage the electricity transmission and distribution networks throughout the UK. Some of the electricity lines cross the strategic road network (SRN) in England. The critical operation of restringing (replacing the conductors) is essential to maintain/improve the general electricity network capability, and this sometimes requires the installation and use of scaffold guard structures over the SRN.

The purpose of this document is to provide guidance on the approval process for the installation and use of scaffold guard structures over the SRN.

The document sets out the procedures and approval process with the view to:-

- clarifying the roles and responsibilities;
- ensuring compliance with current standards and regulations; and,
- addressing some specific technical matters such as those relating to ground investigations and use of ground anchors.

This guidance should be used by electricity companies to facilitate the approval process where temporary scaffold guard structures are proposed over the SRN.

To facilitate the highway structures technical approval (TA) procedure a model approval in principle (AIP) document in accordance with CG 300 [Ref. 16] has been included within this guidance. The model AIP document is applicable for a structure type which spans between two tubular metal scaffold towers one erected on each side of the carriageway.

This guidance recommends that electricity companies start discussions with National Highways early in the project identification/development stage to help ensure that their project delivery objectives are met.

This document should be used to control and manage the operations involving the installation and use of scaffold guards erected over the SRN by electricity companies such as for restringing their overhead lines.



# Abbreviations

## Abbreviations

Abbreviation	Definition
AIP	Approval in principle
CDM	The Construction (Design and management) regulations 2015
CEng	Chartered Engineer
DMRB	Design manual for roads and bridges
MCHW	Manual of contract documents for highway works
MICE	Member of the Institution of Civil Engineers
MIStructE	Member of the Institution of Structural Engineers
NASC	National access and scaffolding confederation
NH	National Highways
NG	National Grid or National Grid Group
NRSWA	New Roads and Street Works Act
SRN	Strategic road network
TA	Technical approval
TAA	Technical approval authority
TAS	Technical approval schedule
TTRO	Temporary traffic regulation order

# Terms and definitions

## Terms

<b>Term</b>	<b>Definition</b>
Approval in principle	the document, which records the agreed basis and criteria for the detailed design or assessment of a highway structure in accordance with CG 300 [Ref. 16].
Competent person(s)	person(s) with sufficient training and experience to take responsibility for an identified task. It is important that they have a detailed knowledge of the type of structure, and particularly of those matters which are essential for its structural reliability. Competent persons will have an awareness of the limitations of their own experience and knowledge.
Distribution network operator(s)	company that owns, operates the power lines and infrastructure that connects homes and commercial properties to the electricity transmission network.
Electricity company	generic appellation used in this document to cover all the electricity transmission and distribution network operators
Licensee	organisation (for the purpose of this document that is the transmission company) to which a licence is granted to erect or retain on or over a highway a scaffold guard structure.
Transmission network operator(s)	company that owns, operates, and maintains the national electrical power distribution and transmission network. In this document that is National Grid and the distribution network operators.



# 1. Scope

## Aspects covered

1.1 This document is for the use of: -

- 1) National Highways to exercise positive control of operations involving scaffold guard structures; and,
- 2) the Electricity company in connection with the erection, modification, or dismantling of overhead transmission lines over the existing SRN.

1.2 This document shall be applicable where the Electricity company proposes to install and use scaffold guard structures designed and constructed in accordance with ENA TS 43-119 [Ref 21].

NOTE Electricity Networks Association technical specification ENA TS 43-119 [Ref 21] 'Design and use of temporary scaffold guards and conductor support systems', is accepted in this guidance as the established and recognised industry code of practice.

1.3 This document shall take precedence where there are any conflicting statements between it and ENA TS 43-119 [Ref 21].

1.4 This guidance applies to scaffold guard structures which span the carriageway between two tubular metal scaffold towers one on each side of the carriageway.

1.5 The Electricity company shall ensure that Competent persons are engaged in the design, installation, use and dismantling of the scaffold guard structure.

1.6 The Electricity company shall be responsible for submitting all necessary supplementary documents relevant to their proposals within specified time limits including all details pertaining to the specific site to allow thorough examination and review by National Highways.

1.7 This document sets out the procedure to be followed by the Electricity company with respect to: -

- 1) notifying National Highways of their works;
- 2) applying for a licence under section 169 of the Highways Act 1980 [Ref 26];
- 3) obtaining approval and certification for geotechnical activities in accordance with CD 622 [Ref. 19];
- 4) obtaining structures technical approval and certification in accordance with CG 300 [Ref 16]; and,
- 5) complying with relevant statutory and other requirements (e.g CDM Regulations 2015 [Ref. 24] and NRSWA 1991 [Ref. 27]).

- 1.8 The model structures AIP document in Appendix F should be developed and adapted by the Electricity company to reflect the specific requirements for each site and included with the formal submission in section 5 of this document.
- 1.9 The indicative timeline in Appendix A for the approval process does not include lead times the Electricity company requires for: -
- 1) the appointment of suppliers;
  - 2) the execution of surveys, ground investigations and designs;
  - 3) planning/booking electrical outage dates or,
  - 4) negotiating and securing road space or other access agreements necessary for the execution of the works.
- 1.10 The details of the processes for securing road space and applying for TTRO including the scheduling of electrical outage dates are not covered in this guidance but shall be part of the early discussions between National Highways and the Electricity company.

### **Contractual responsibilities and procedure**

- 1.11 This document shall not in any way modify or reduce the contractual and statutory responsibilities of any party for the work carried out or the legal responsibilities of the Electricity company, third party organisations or other persons involved including professional engineers.
- 1.12 Where departing from the procedures, format or terms used in this document, the Electricity company shall demonstrate that the following objectives are achieved: -
- 1) the required design principles are formally agreed by National Highways; and,
  - 2) execution of the works is not allowed to proceed until there is a formal acceptance of the proposals in accordance with the requirements of this document.
- 1.13 The model structures AIP document and certificates provided in the appendices can be amended as necessary and agreed with the TAA, to suit specific site requirements.

## 2. Preliminary enquiry and early consultations

2.1 The Electricity company shall instigate and maintain dialogue with National Highways to secure the efficient implementation of the planned work and avoidance of unnecessary delay.

2.2 National Highways believes that close liaison and open discussions with the Electricity company as early as possible will help achieve a positive outcome. Liaison with National Highways should start at the early scheme identification/development stage.

2.3 The Electricity company shall raise an initial enquiry with the National Highways region where the works are planned.

NOTE 2 National Highways' regional organisation can be found on the National Highways website. Details can be obtained by raising an enquiry with National Highways by email at [info@nationalhighways.co.uk](mailto:info@nationalhighways.co.uk) or by telephone on 0300 123 5000.

2.4 The National Highways regional team or employee with delegated responsibility for coordinating the review and processing of third-party applications in the maintenance area/region where the works are planned is expected to be National Highways contact/project manager.

2.4.1 National Highways contact/project manager shall be confirmed to the Electricity company.

2.5 The Electricity company shall arrange a formal meeting to be convened at the earliest opportunity with the National Highways contact/project manager.

2.6 National Highways and the Electricity company shall work collaboratively to discuss and resolve issues around but not limited to: -

- 1) scheduling of electrical outage date(s);
- 2) anticipated start date;
- 3) preliminary notice;
- 4) making the licence application;
- 5) surveys and site investigations;
- 6) the formal submission;
- 7) securing road space for the works;
- 8) TTRO;
- 9) technical approvals;
- 10) traffic management; and,
- 11) programming.

NOTE Electrical outage to facilitate overhead line works are usually planned well in advance of the anticipated start date to ensure electricity supplies are not disrupted. It is therefore important that the Electricity company consults with National Highways before confirming electrical outage date(s) to avoid the risk of delays which may arise due to clashes with National Highways planned activities on the SRN.

2.6.1 Provisional schedule for submitting the preliminary notice, licence application and the formal submission should be discussed.

2.7 Further formal meetings between the Electricity company and National Highways shall be scheduled at mutually agreed intervals.

2.7.1 Where appropriate supply chain contractors/organisations engaged by the Electricity company should be invited to the meetings.

### 3 Preliminary notice

3.1 The Electricity company shall submit a preliminary notice of the planned operation involving the erection of temporary scaffold guard structures.

NOTE 1 The preliminary notice is the formal advice to National Highways of the intention to undertake planned operation involving the installation and use of a temporary scaffold guard structure on and over the SRN under the provisions of section 169 of the Highways Act 1980 [Ref 26].  
A model preliminary notice form is given in Appendix B.

NOTE 2 The preliminary notice can be submitted either before the licence application or concurrently with the licence application.

3.2 The preliminary notice shall be submitted at least 26 weeks prior to the anticipated start date of planned site works in accordance with the indicative approval process timeline in Appendix A.

3.2.1 The notice period may be overridden: -  
1) where the need for emergency works arises; or,  
2) other essential approved unplanned works arise.

3.3 The definition of 'emergency works' shall be in accordance with section 52 of the New Roads and Street Works Act 1991 [Ref 27].

3.4 The anticipated start date and/or duration of the works stated on the preliminary notice shall be as agreed with National Highways during the early consultation discussions in section 2 of this document.

3.5 National Highways should confirm whether, subject to satisfactory review and approval of the formal submission in section 5 of this document, the proposed works can be supported for the anticipated dates.

## 4. Application for licence

4.1 Under section 169 of the Highways Act 1980 [Ref 26] no person shall erect or retain on or over a highway any scaffolding unless authorised to do so by a licence in writing issued by the highway authority.

NOTE 1 The Secretary of State's powers under section 169 of the Highways Act 1980 [Ref 26] are exercised by National Highways as the Overseeing Organisation (highway authority) for the SRN in England.

4.1.1 Where the scaffold guard is not on National Highways' land and if the scaffold tower(s) is(are) located beyond a distance where it(they) can fall on National Highways' land, then the erection of the tower structure(s) may commence in advance of the licence under section 169 of the Highways Act 1980 [Ref 26] being granted.

NOTE Work must not start on any element of the proposal which impact the highway or highway land before the section 169 licence has been granted.

4.2 The licence application shall include a scaled map showing the part of the highway (to be coloured pink on the map) which will be affected by the scaffold guard proposal.

4.3 The application for the Licence shall be made a minimum 26 weeks prior to the anticipated start date of the planned works.

NOTE The indicative timeline for the approval process of a proposal for the installation and use of scaffold guard structures is given in Appendix A.

4.4 The Electricity company shall lodge the licence application and the preliminary notice in section 3 of this document with the appropriate National Highways regional team.

NOTE A model licence application is given in Appendix C.  
A model licence as required under section 169 of the Highways Act 1980 [Ref 26] is given in Appendix D.

4.5 National Highways should acknowledge receipt of the licence application and preliminary notice within 7 days of receipt.

4.6 The Licence shall not be issued until all the various elements of the formal submission in section 5 of this document have been accepted and/or approved as require by National Highways.

4.7 The Licence shall be valid for the period stated on it.

4.8 Site works shall: -

- 1) not commence until the date specified on the Licence; and,
- 2) be carried out within the specific limitations of time and date on the Licence.

4.9 Alterations to the time and date limitations shall be agreed with National Highways.

4.10 National Highways shall have the right to revoke the section 169 licence in accordance with the terms of the Licence.

NOTE The notice period required is stated on the Licence.

4.11 The Licensee shall indemnify and keep indemnified National Highways in accordance with the Licence.



## 5. Formal submission

5.1 The Electricity company shall follow the preliminary notice and licence application in sections 3 and 4 respectively of this document with a formal submission for the proposed operation involving the erection of a temporary scaffold and its use in conductor stringing over the SRN.

5.2 The formal submission shall be made a minimum 20 weeks in advance of the anticipated start date of the planned site works.

NOTE 1 The indicative timeline for the approval process is given in Appendix A.

NOTE 2 The length of time required for the procurement, planning, execution and reporting of activities such as surveys, ground investigations, and design can add up to 20 to 30 weeks to the approval process if they do not start at early project inception/development stages. These issues are to be addressed in the early consultations required in section 2 of this document.

5.3 The formal submission shall be lodged with National Highways.

5.3.1 National Highways should acknowledge receipt of the formal submission. It is anticipated that this will be made within 7 days of receipt.

5.4 The formal submission shall include: -

- 1) the approval and certification for geotechnical activities in accordance with CD 622 [19] (refer to section 6);
- 2) an AIP document in accordance with CG 300 [16] (refer to section 7); and,
- 3) a method statement giving all the necessary information including: -
  - a) scaled plans;
  - b) work programme;
  - c) general arrangements drawings;
  - d) site specific risk assessments;
  - e) erection methodology;
  - f) traffic safety and management arrangements;
  - g) requirements for advisory speed for limited periods during erection and dismantling;
  - h) means of entering and leaving the working space;
  - i) highway barriers and cones;
  - j) design criteria;
  - k) positions of underground services;
  - l) full schedule of the timing of operations and all activities involved;
  - m) health and safety plans;
  - n) statutory notifications (e.g to Health and Safety Executive); and,

o) consultations with affected third parties.

NOTE 1 The list in clause 5.4 (3) above is not exhaustive.

NOTE 2 Review of the formal submission can be an iterative process.

NOTE 3 The quality of information in the formal submission can affect the time it takes to complete the review process. Incomplete or poor quality information submitted to National Highways can delay technical approval, certification, and issuance of a licence.

5.5 The review/appraisal and acceptance/approval by National Highways of the formal submission should be completed within 12 weeks of acknowledging receipt of the complete submission as shown in Appendix A.

5.6 The different elements of the formal submission shall be allocated to National Highways teams/staff with the relevant expertise and competence to support the review/appraisal of the submission.

5.7 The structures AIP document included in the formal submission shall be reviewed by the regional highway structures TAA.

5.7.1 The detailed design should not commence until the AIP document has been agreed by the structures TAA.

NOTE The structures TAA requires 6 weeks to process the AIP document and where the first AIP submission is not agreed, 6 weeks to process each subsequent submission.

5.8 The general arrangement drawings shall show the dispositions of the towers, anchor blocks, kentledge and ground anchors.

## 6. Geotechnical approval and certification

- 6.1 The Electricity company shall obtain technical approval and certification for geotechnical activities in accordance with CD 622 [Ref. 19].
- 6.2 The foundation design shall be subject to: -
- 1) geotechnical reporting and certification in accordance with CD 622 [Ref 19]; and,
  - 2) highway structures technical approval in accordance with CG 300 [Ref 16].
- 6.2.1 CD 622 [Ref 19] geotechnical reporting and certification procedures may be condensed subject to agreement of National Highways geotechnical specialists to reflect the complexity of the geotechnical requirements and proposed foundation design for each site.
- 6.2.2 The Electricity company should: -
- 1) start the geotechnical activities and reporting for the CD 622 [Ref. 19] process prior to the start of the indicative approval process timeline given in Appendix A of this document; and,
  - 2) allow sufficient time to ensure all the geotechnical approval and certification are obtained.
- NOTE 1 Starting the geotechnical activities and reporting concurrently with the 26-week indicative approval process timeline increases the risk of delay in the approval particularly for sites where ground conditions are challenging.
- NOTE 2 The indicative timeline given for the approval process does not include any lead times the Electricity company requires for the appointment of suppliers and/or execution of surveys, ground investigation and foundation design.
- 6.3 Early engagement with the regional National Highways geotechnical specialist shall be an essential part of the early consultations prescribed in section 2 of this document.

## 7. Highway structures technical approval

### General

7.1 The Electricity company shall obtain highway structures technical approval (TA) for the temporary scaffold guard structure in accordance with CG 300 [Ref. 16].

NOTE 1 National Highways (NH) requires that, all structures erected within the highway boundary, on NH land, or where they can fall onto NH land, are designed, installed, used, and decommissioned by Competent persons and are safe. To provide assurance that these requirements are met, highway structures technical approval as set out in CG 300 [Ref.16] is followed.

NOTE 2 CG 300 [Ref. 16] requires that the following are submitted to the highway structures TAA: -

- 1) an approval in principle (AIP) document; and,
- 2) signed design and check certificates.

NOTE 3 To facilitate the highway structures technical approval process the TAA has included a model AIP document in Appendix F which can be used to develop the site-specific AIP submission for the proposed scaffold guard.

7.1.1 Calculations, detailed design drawings and risk assessments should not be submitted to the TAA at any point in the technical approval process.

### Approval in principle (AIP) document

7.2 The Electricity company shall submit a scheme/site specific approval in principle (AIP) document in accordance with CG 300 [Ref 16].

7.2.1 Section 8, Section 9, Section 10, and Section 11 of this document may be used to develop the AIP document in accordance with CG 300 [Ref. 16].

7.2.2 The model AIP document in Appendix F should be amended as appropriate for each scheme and included in the formal submission in section 5 for review and agreement by the TAA.

7.3 The model AIP document in Appendix F is applicable where the structure has two tubular metal scaffold towers one on each side of the carriageway.

7.4 CG 300 [Ref. 16] requires that the AIP document includes a technical approval schedule (TAS) which lists all the standards and publications relevant to the design.

A full list of the current National Highways structures TAS can be obtained from <https://www.standardsforhighways.co.uk/dmrb/search?q=TAS&pageNumber=1> .

7.5 The designer shall list only the standards and other documents used in the design of the scaffold guard installation in the TAS.

7.6 Methods for dealing with aspects not covered by the standards in clause 7.4 shall be in accordance with the Electricity company requirements and National Highways departures approval system.

Authorities consulted and any special conditions required.

7.7 All consultees are to be listed including special conditions (if any) of the consulted statutory undertakers and parties consulted.

The full details of consultations with statutory undertakers, and other third parties should be included with the formal submission in section 5 of this document.

Proposed category and design supervision level

7.8 The level of supervision for the design and check shall be category 2 or 3 in accordance with CG 300 [Ref. 16] as agreed with the TAA.

**Certification**

Design and check

7.9 The design and check shall be undertaken by Competent persons.

NOTE The Electricity company is responsible for ensuring that organisations or persons employed to undertake design and check on their behalf have the competencies required to do so.

7.10 The check team shall be provided with a full set of drawings prepared by the design team and will carry out the check independently, with only necessary consultation, and provide separate calculations to the electricity company.

7.11 Upon completion of the design and check, the Electricity company shall provide signed design and check certificates for the scaffold guard structure.

NOTE 1 Model design and check certificates are given in Appendix G and Appendix H respectively.

NOTE 2 The model certificates in Appendix G, and Appendix H have been adapted from the latest version of CG 300 [Ref. 16] at the time of this publication. The designer should check that the model certificates are in accordance with the most up to date version of CG 300 [Ref. 16].

7.12 The design and check certificates shall include a schedule of all the drawings issued for construction.

7.13 Design and check certificates shall be signed respectively by the: -  
1) design team leader of the design organisation; and,  
2) check team leader of the check organisation.

- 7.14 The design team leader shall be: -
- 1) an appropriately qualified chartered civil or structural engineer; or,
  - 2) of equivalent professional status accepted by the TAA.
- 7.15 The check team leader shall be an appropriately qualified chartered civil or structural engineer.
- 7.16 The signed certificates shall be submitted to the TAA for acceptance after endorsement by the Electricity company at least 5 weeks before the start of construction of the temporary works.

#### Construction compliance

- 7.17 Upon completion of the installation, the Electricity company shall submit documented evidence to National Highways confirming that the installation has been constructed, tested, and commissioned in accordance with the agreed approval in principle, design and check certificates and construction drawings.
- 7.18 The evidence of construction compliance shall be endorsed by the Electricity company and/or its contractor with overall responsibility for construction of the completed installation on behalf of the Electricity company.
- 7.18.1 The evidence of construction compliance may be either:-
- 1) a copy of the certification/record required in the contractual arrangements between the Electricity company and its installation contractor; or,
  - 2) the model certificate of construction compliance in Appendix I of this guidance.
- 7.19 The evidence of construction compliance shall be certified before the installation is used.

## 8. Proposed structure

### Description of structure and design working life

- 8.1 The proposed structure is a temporary scaffold guard structure.
- 8.2 The structure shall be in accordance with ENA TS 43-119 [Ref. 21] and the additional requirements in this section.
- 8.3 The design working life of the structure is category 1 in accordance with Table 1 of CD 350 [Ref. 17].

### Structural type

- 8.4 The structure shall consist of two tubular metal scaffold towers one erected on each side of the carriageway.

NOTE Typical structure arrangements for scaffold towers are given in Appendix E.

- 8.5 The two tubular metal scaffold towers shall carry between them a suspended net cradle guard used for providing protection to road traffic passing underneath.

### Foundation type and stability

- 8.6 The foundation type shall be in accordance with the geotechnical requirements in section 6 of this guidance.
- 8.7 The choice of concrete blocks, kentledge blocks and ground anchors as part of the foundations for stability shall be subject to ground conditions and acceptance by National Highways geotechnical specialists.
- 8.8 The foundations shall be designed to carry and disperse the load imposed both locally at each ground bearing vertical element of the scaffold towers and by the whole weight of the scaffold and nets.
- 8.9 A sole plate shall be placed under each ground bearing vertical element of the scaffold towers.
- 8.10 Each sole plate shall be sized such that it disperses the imposed loads without penetration or deformation of the supporting ground.
- 8.11 The supporting ground shall be well compacted and free from irregularities so that the sole plate is stable and well bedded.
- 8.12 Spreaders shall be used under the sole plates to distribute the vertical loads uniformly over a larger area.
- 8.13 Vertical scaffold members shall be restrained to preclude upward or lateral movement with the net guard in place.



## **Span arrangements**

- 8.14 The length, height and width apart of the towers shall be determined by the: -
- 1) width of the motorway or all-purpose trunk road;
  - 2) angle of the overhead line crossing; and,
  - 3) distance between the outside circuits, to which last dimension margins of 5 metres are added in determining the required dimension over the ends of the catcher guards.

NOTE Not more than 2 metres of the 5 metres projection on the structures may take the form of a catcher guard inclined at not more the 45° from vertical.

## **Classes and levels**

### Consequence class

- 8.15 The consequence of failure shall be CC2 or CC3 in accordance with CD 350 [Ref. 17] and BS EN 1990 [Ref. 6] Annex B Section B3 Clause B3.1.

### Reliability class

- 8.16 Partial load factors which are analogous to reliability class 2 or 3 (RC2 or RC3) in NA to BS EN 1993-3-1 [Ref. 5] shall be used.

### Inspection level

- 8.17 Inspection level shall be IL2 or IL3 in accordance with CD 350 [Ref. 17] and BS EN 1990 [Ref. 6] Annex B Section B5.
- 8.18 The installation including the scaffold guard structures and anchors shall be inspected upon completion by Competent person(s). Further requirements for handover and in-service inspections are given in section 11 of this document.

## **Road restraint systems requirements**

- 8.19 Road restraint systems shall be in accordance with CD 377 [Ref 18], MCHW Series 400 [20], traffic signs manual chapter 8 [Ref. 23], BS EN 1317 [Ref. 7], [Ref. 8], [Ref. 9], [Ref. 10], and [Ref. 12] and DD ENV 1317-4 [Ref. 11].
- 8.20 Temporary safety barriers shall provide a minimum H4a containment.
- 8.21 The arrangement of temporary safety barriers on the highways shall comply with the requirements in section 10 of this document.

## 9. Design criteria

### General

9.1 The design, erection and dismantling of scaffold guard structures is subject to the provisions of health and safety law including the Health and Safety at Work etc. Act 1974 [Ref. 25]; and The Construction (Design and Management) Regulations 2015 (CDM 2015) [Ref. 24].

9.2 The rules for the design, construction and guidance on the actions to be used for scaffold guard structures shall be in accordance with: -

- 1) BS EN 12811-1 [Ref. 13];
- 2) BS 5975 [Ref. 14];
- 3) ENA TS 43-119 [Ref. 21]
- 4) TG 20 [Ref. 22]; and,
- 5) the additional design criteria in this section.

NOTE 1 Where there is ambiguity or conflicting information with ENA TS 43-119 [Ref. 21] and/or TG 20 [Ref. 22] the requirements in this document take precedence.

NOTE 2 ENA TS 43-119 [Ref. 21] is accepted as the established electricity industry guidance for the design and use of temporary scaffold guards conductor support systems.

NOTE 3 TG 20 [Ref. 22] is a good practice guidance for tube and fitting access scaffolding published by NASC.

9.3 Steelwork shall be designed in accordance with BS EN 1993-1-1 [Ref. 4] and the relevant parts of BS EN 1993-3-1 [Ref. 5].

### Actions

9.4 All permanent and variable actions on the platform shall be evaluated.

#### Permanent and variable actions

9.5 The self-weight of all scaffold guard materials shall be determined and included in the design of the scaffold guard structure and foundations.

NOTE 1 The self-weight comprises the mass of scaffolding materials, including scaffold tubes, couplers and fittings, and the boards which make up the platform derived in accordance with BS EN 1991-1-1 [Ref. 1].

NOTE 2 Permanent superimposed actions include the mass of the cradle net, catenary wires and the force components of the tension guy ropes when the assembly is complete.

9.6 Where applicable variable actions such as personnel shall be included in the evaluation of the actions on the structure.

NOTE Construction materials are not to be stored on the platform.

### Snow and ice actions

- 9.7 Where the structure is erected and/or used during the periods of 1<sup>st</sup> November – 31<sup>st</sup> March it shall be designed to support the additional actions due to the accumulation/formation of snow and ice on the components.
- 9.8 Snow loading derived in accordance with BS EN 1991-1-3 [Ref. 2] shall be included where the structure is expected to be in service during periods when snow is likely.
- 9.9 Site specific ice loading on scaffold members shall be determined in accordance with BS EN 1993-3-1 [Ref. 5].
- 9.10 Site specific ice loading on netting shall be determined in accordance with BS EN 1993-3-1 [Ref. 5].
- 9.11 The maximum density of ice in conjunction with wind shall be taken as 9 kN/m<sup>3</sup>.
- 9.12 When ice formation is expected the maximum hourly mean wind velocity at the reference height should be in accordance with BS 5975 [Ref. 14].

### Wind action

- 9.13 Wind load on the structure shall be determined in accordance with BS EN 1991-1-4 [Ref. 3].

### Incidental actions

- 9.14 The effects of static, impact and dynamic actions shall be as given in ENA TS 43-119 [Ref. 21].

## **Minimum clearances at scaffold guard structures**

### Horizontal and vertical clearances

- 9.15 The scaffold guard structure shall be designed, constructed, and maintained to provide minimum horizontal and vertical clearances in accordance with ENA TS 43-119 [Ref. 21] for power lines over motorways and all-purpose trunk roads. The current minimum clearances are as given in Table 9.15.

**Table 9.15 Minimum clearances to scaffold guards**

Crossing type	Minimum horizontal clearance	Minimum vertical clearance to underside of net	Minimum scaffold height
Motorway and All-purpose trunk roads	4.5 metres <sup>3</sup>	6.1 metres <sup>1 &amp; 2</sup>	See 2
		7.6 metres (for high load routes) <sup>1 &amp; 2</sup>	
<p><b>Notes</b></p> <ol style="list-style-type: none"> <li>1. Minimum vertical clearance at time of conductor impact.</li> <li>2. Actual scaffold height = applicable minimum vertical clearance + calculated sag (including creep) of the net under the most onerous loading condition. Any difference in ground levels must be included in these calculations.</li> <li>3. Minimum horizontal clearance is measured to the highway face of the scaffold structures as follows: -               <ol style="list-style-type: none"> <li>a) for motorway from the outside edge of the hard shoulder; or,</li> <li>b) for all-purpose trunk roads from the edge of carriageway.</li> </ol> </li> </ol>			

**NOTE 1** The minimum vertical clearances provided in Table 9.15 are taken from ENA TS 43-119 [Ref. 21] as applicable to motorways and all-purpose trunk roads. These clearances have been accepted by National Highways at the time of publishing this guidance as the current minimum industry requirements at power lines where temporary scaffold guard structures are proposed.

**NOTE 2** Typical cross-section components of motorways and all-purpose trunk roads are set out in CD 127 [Ref. 15].

9.16 Clearances to scaffold guard structures and catenary wires over canals, rivers, railways, local authority roads, and other infrastructure shall be subject to individual agreement with the relevant authority.

**Electrical clearances**

9.17 The minimum clearances from any part of the scaffold structure, netting and catenary wires to the line and earth conductors shall be in accordance with electrical clearance requirements in ENA TS 43-119 [Ref. 21].

**Ground anchors**

9.18 Where ground anchors are proposed the design and execution shall be to relevant standards and subject to CD 622 [Ref. 19] technical approval and certification.

Technical approval and certification of geotechnical activities is covered in section 6 of this guidance.

## 10. Traffic safety and management

### General

10.1 Traffic safety and management shall be in accordance with Traffic Signs Manual Chapter 8 [Ref. 23] and agreed with National Highways.

NOTE Traffic Signs Manual Chapter 8 [Ref. 23] provides guidance for those responsible for the design and operation of temporary traffic management arrangements.

10.2 The traffic management procedures shall only be implemented on the highway by: -  
1) National Highways; or,  
2) other specialist provider approved by National Highways.

10.3 No running lanes or hard shoulders shall be obstructed in any way unless prior agreement in writing has been obtained from National Highways.

10.4 Any restrictions required on the highway for the installation or dismantling of the scaffold guard structure shall be subject to prior agreement by National Highways.

NOTE 1 Road closure will require Temporary Traffic Regulation Order (TTRO).

### Permitted traffic speed

10.5 Traffic speeds on the motorways or all-purpose trunk roads shall be unaffected by the overline in-service operations.

10.5.1 An advisory reduced speed may be required for limited periods during erection and dismantling of the scaffold towers.

10.6 The detailed requirements for advisory reduced speed limits for limited periods during the erection and dismantling shall be in accordance with the information included in the programme of works submitted to National Highways.

10.7 The use of advisory reduced speed for limited periods during erection and dismantling shall be subject to agreement of National Highways.

### Protection of scaffold towers and other supports

10.8 All temporary protection provided to scaffold towers shall be in accordance with the requirements for road restraint systems in section 8 of this guidance and the additional requirements in this section.

10.9 The scaffold towers and the edge of the carriageway shall: -  
1) have a minimum clear distance of 4.5 metres between them; and,  
2) be separated with temporary safety barriers in accordance with CD 377 [Ref. 18] as protection.

NOTE 1 Temporary safety barriers can be placed within the 4.5 metres clearance between the scaffold towers and the edge of carriageway provided the minimum requirements for 'safety zone' or 'clearance' to the 'working width', 'vehicle intrusion', and 'set back' as given in this section are met.

NOTE 2 Definitions of 'safety zone', 'clearance', 'vehicle intrusion', 'working width', 'set back' and 'edge of carriageway' are in accordance with CD 127 [Ref. 15], CD 377 [Ref.18] and Traffic Signs Manual Chapter 8 [Ref. 23].

10.10 Temporary safety barriers shall be installed in accordance with the manufacturer's installation requirements.

10.10.1 For all-purpose trunk roads, it may be necessary to prepare the verge to receive the temporary safety barriers which provide protection to the scaffold towers.

10.11 Where temporary safety barriers are placed on the hard shoulder to provide protection to the scaffold towers, the hard shoulder shall be closed for the duration of the overline operation.

10.12 Where temporary safety barriers are placed within the minimum 4.5 metres clearance between the scaffold towers and the edge of carriageway there shall be: -

- 1) a minimum 500mm 'safety zone' or 'clearance' to the 'working width' or 'vehicle intrusion'; and,
- 2) 'set back' to the running lanes in accordance with CD 377 [Ref. 18].

10.13 Where the minimum 4.5 metres clearance between the scaffold tower and the edge of carriageway is impossible to achieve or inappropriate for the site the temporary safety barrier shall be provided with: -

- 1) an increased minimum clearance of 1000mm as the 'safety zone';
- 2) 'set back' to the running lanes in accordance CD 377 [Ref. 18];
- 3) 'vehicle intrusion' width for the system, and,
- 4) subject to the agreement of National Highways.

10.13.1 National Highways agreement where the minimum horizontal clearance between the scaffold tower and the edge of carriageway is unachievable may be through the departures approval system.

10.14 Where the scaffold tower is located more than 4.5metres from the edge of the carriageway the level of protection shall be H4a unless it is determined through a risk assessment process that normal containment level (N1 or N2) is sufficient, or no barrier is required.

NOTE National Highways' Road restraint risk assessment process (RRRAP) for temporary hazards associated with CD 377 [Ref. 18] provide requirements for risk assessment and hazard mitigation.

## **Access and egress**

- 10.15 During the erection and dismantling of the scaffolds, the area for plant and materials to be delivered and unloaded or loaded shall be sited outside of the temporary safety barrier working width.
- 10.16 Where it is assessed to be required, daily access and egress shall be provided for workers both during the initial erection phase and the overline operation.
- 10.17 To facilitate access and egress for personnel a 'working width' shall be created at a suitable location close to the site of the scaffold towers in accordance with the requirements of the Traffic Signs Manual Chapter 8 [Ref. 23].

## **Resilience and security**

- 10.18 Anti-climbing devices and warning notices shall be provided in accordance with ENA TS 43-119 [Ref. 21] and the additional requirement given in this section.

NOTE A typical arrangement for the anti-climbing provision is shown in Appendix E Figure 3.

- 10.19 Minimum 2.0m high temporary fencing shall be erected around base of scaffold including concrete blocks, kentledge and anchors to help prevent unauthorised access and damage.

- 10.19.1 Permanent (24 hour) site security with CCTV may be provided to further mitigate against unauthorised access subject to site specific risk assessment.

NOTE In some urban or semi-rural locations where pedestrian traffic is expected permanent 24hr CCTV security could deter unauthorised access.



# 11. Proposed arrangements for erection, inspection and maintenance

## General

- 11.1 The organisation employed by the Electricity company with responsibility for installing and dismantling the scaffold guard structure shall have membership of a recognised association or otherwise produce evidence of competence and experience.

NOTE The national access and scaffolding confederation (NASC) is a recognised body for access and scaffolding in England.

- 11.2 Traffic management arrangements shall in accordance with section 10 of this guidance.

## Access arrangements to the structure

- 11.3 All access/egress to the structure and the works including by personnel shall be made using the designated points.
- 11.4 The erection and dismantling of the scaffold structure shall be undertaken and supervised by Competent persons.
- 11.5 A competent supervisor conversant with the work shall be provided in each working area during the erection and dismantling of the structure.
- 11.6 A safety person shall ensure that no one causes any act to be performed or does anything, which constitutes a danger to their person or others including the road user.

## Inspection

- 11.7 The complete guard and its scaffolding structures shall be inspected on completion by Competent persons before being handed over for use to the electricity company.
- 11.8 The scaffold structure, foundation and anchors shall be inspected weekly and in accordance with any relevant statutory regulations.
- 11.9 Where adverse weather conditions prevail, or are expected, the frequency of inspections shall be increased with the frequency of inspections subject to risk assessment.
- 11.10 The attachments, such as the catenary ropes and guys, shall also be inspected and included in the statutory certification.

- 11.11 Any deficiencies identified during inspections shall be recorded and rectified:-
- 1) before use; and,
  - 2) to maintain the structures in good condition.
- 11.12 Certificate of inspections of the installation shall be held by the Electricity company.
- 11.13 The certificate of inspections shall be made available on request to National Highways, Health and Safety Executive and any other body with authority to request the inspection records.

### **Maintenance**

- 11.14 Where it is assessed necessary maintenance gangs shall be provided for the duration of the works.
- 11.15 Relevant emergency contact details shall be provided to ensure immediate and effective response in the event of an emergency.

## References

### British and European standards

Ref 1	BSI. BS EN 1991-1-1, 'Eurocode 1 - Actions on Structures - Part 1-1: General actions- Densities, self-weight, imposed loads for buildings'
Ref 2	BSI. BS EN 1991-1-3, 'Eurocode 1: Actions on structures. General actions - Snow loads'
Ref 3	BSI. BS EN 1991-1-4, 'Eurocode 1: Actions on structures. Part 1-4: General actions - Wind actions'
Ref 4	BSI. BS EN 1993-1-1, 'Eurocode 3. 'Design of steel structures. General rules and rules for buildings'
Ref 5	BSI. BS EN 1993-3-1, 'Eurocode 3 - Design in steel structures - Towers, masts and chimneys - towers and masts'
Ref 6	BSI. BS EN 1990:2002+A1:2005, 'Eurocode: Basis of structural design'
Ref 7	BSI. BS EN 1317-1, 'Road restraint systems. Terminology and general criteria for test methods.'
Ref 8	BSI. BS EN 1317-2, 'Road restraint systems. Performance classes, impact test acceptance criteria and test methods for safety barriers including vehicle parapets '
Ref 9	BS EN 1317-3, 'Performance classes, impact test acceptance criteria and test methods for crash cushions'
Ref 10	BSI. BS EN 1317-4, 'Road restraint systems. Performance classes, impact test acceptance criteria and test methods for transitions and removable barrier sections'
Ref 11	DD ENV 1317-4:2002, Road restraint systems. Performance classes, impact test acceptance criteria and test methods for terminals and transitions of safety barriers
Ref 12	BSI. BS EN 1317-5, 'Product requirements and evaluation of conformity for vehicle restraint systems'
Ref 13	BS EN 12811-1:2003, Temporary works equipment. Scaffolds. Performance requirements and general design.

Ref 14	BS 5975, Code of practice for temporary works procedures and the permissible stress design of falsework
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### **Design Manual for Roads and Bridges (DMRB) documents**

Ref 15	National Highways. CD 127, 'Cross-sections and headrooms'
Ref 16	National Highways. CG 300, 'Technical approval of highway structures'
Ref 17	National Highways. CD 350, 'The design of highway structures'
Ref 18	National Highways. CD 377, 'Requirements for road restraint systems'
Ref 19	National Highways. CD 622, 'Managing geotechnical risk'

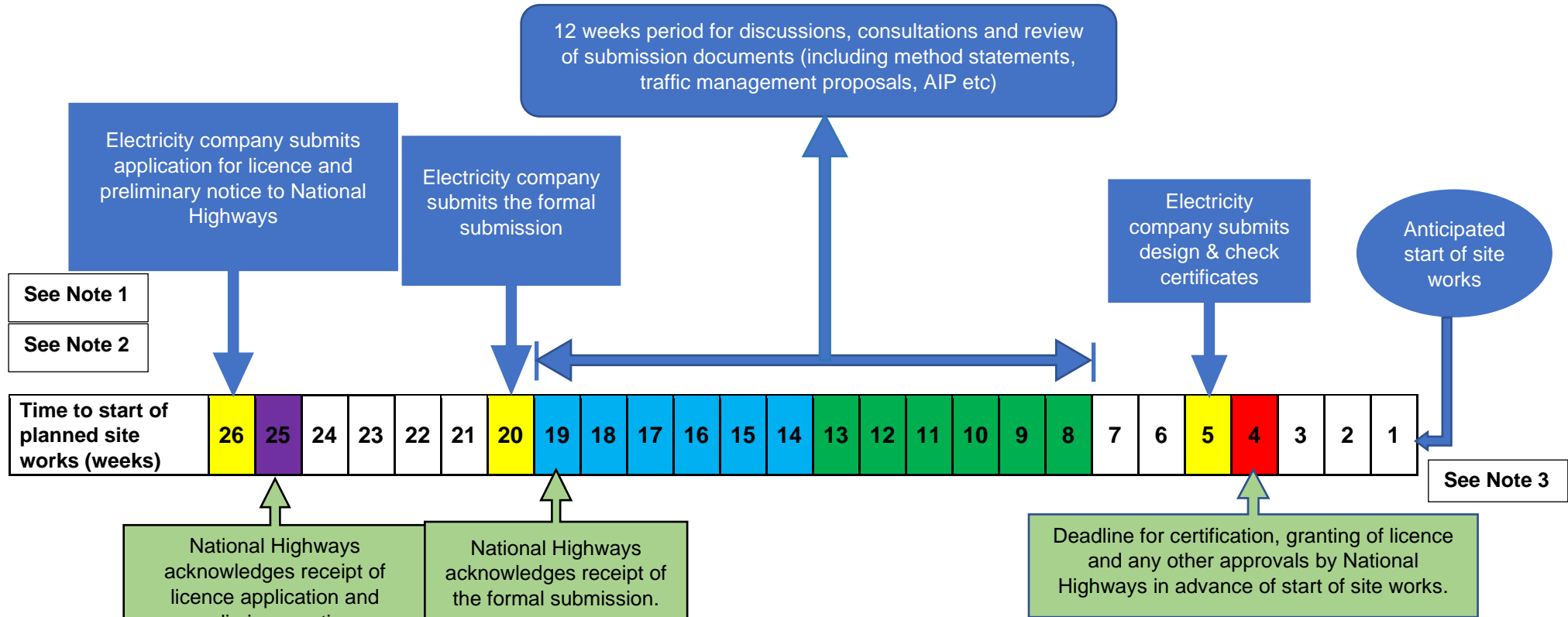
### **Manual of Contract Documents for Highway Works (MCHW)**

Ref 20	National Highways. MCHW SHW, 'Manual of Contract Documents for Highway Works Volume 1: Specification for Highway Works' Volume 2: Notes for Guidance on the Specification for Highway Works' Volume 3: Highway Construction Details'
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### **Other reference documents**

Ref 21	ENA TS 43-119 'Design and use of temporary scaffold guards and conductor support systems', Issue 2. Energy networks association technical specification
Ref 22	TG 20 Good practice guidance for tube & fitting scaffolding. NASC 2021
Ref 23	TSO. Department for Transport (UK Gov). TSM Chapter 8, 'Traffic Signs Manual Chapter 8' (Part 1: Design, Part 2: Operations, and Part 3: Update)
Ref 24	The Construction (Design and management) regulations 2015
Ref 25	The National Archives. legislation.gov.uk. HASAWA 1974 c.37, 'Health and Safety at Work etc. Act 1974'
Ref 26	The National Archives. legislation.gov.uk. Highways Act 1980, 'Highways Act 1980'
Ref 27	The National Archives. legislation.gov.uk. NRSWA 1991, 'New Roads and Street Works Act 1991'

# Appendix A Indicative approval process timeline for scaffold guard structures



- TAA usually requires 6 weeks review and process the AIP document submitted in accordance with CG 300
- Detailed design and check may be completed during this period.

- Note 1:** Electricity companies are advised to initiate preliminary inquiry and consultations at the project identification/development stage to ensure that the anticipated start and electrical outage dates are agreed prior to the commencement of the indicative approval process timeline.
- Note 2:** Electricity companies should start the approval process and certification for geotechnical activities in accordance with CD 622 [21] before the start of the 26-weeks approval timeline.
- Note 3:** Certificate of construction compliance to be endorsed by the Electricity company upon completion before the installation can be used.

## Appendix B Model Preliminary Notice

**Highways Act 1980 Section 169  
Notice to erect or retain scaffolding on and over the highway**

**Notice of intended works in connection with the erection, modification or dismantling of overhead electricity lines over existing motorway and trunk roads.**

Electricity company name: - .....  
 Address: - .....  
 .....  
 Contact: - .....  
 Tel no.: - ..... E-mail.....

**PRELIMINARY NOTICE**

Works are proposed for a crossing of the ..... motorway/all-purpose trunk road between Junction.....and..... at **OS Grid Reference:** X (Easting).....and Y (Northern).....  
*(Please include any other relevant descriptive/locating feature as appropriate)*

Brief description of the works .....  
 .....  
 .....

**Intended start date of the works**.....

**Likely duration of the works**.....

**ACKNOWLEDGEMENT OF RECEIPT OF NOTICE (by National Highways)**

Notification of your proposed works has been received.  
 The person dealing with the proposal is .....  
 Address: .....  
 .....  
 Tel No.: .....  
 E-mail: .....

All queries on the above proposal shall be forwarded to the above-named person unless informed otherwise.

This proposal has been given the National Highways Reference No. ....

**The works are not yet approved.**

Please contact us as soon as possible to arrange a meeting at a mutually convenient time to discuss the detailed requirements for the approval process.

Signed for National Highways.....Date.....

Name.....

Position.....

## Appendix C Model Licence Application

### Application to erect or retain scaffolding on and over the highway Highways Act 1980 Section 169

Please complete and return to National Highways Please complete electronically or in BLOCK CAPITALS using black ink.	
Name of electricity company:	
Business Address:	
Contact Name	
Email address	
Telephone number	

We hereby apply for permission under the provisions of Section 169 of the Highways Act 1980 to install and use a scaffold guard structure for a crossing of the..... motorway/all-purpose trunk road between Junction ..... and ..... at  
**OS Grid Reference:** X (Easting).....and Y (Northern).....  
*(Please include any other relevant descriptive/locating feature as appropriate)*

**Period required: From:** ..... **To:** .....

We accept that if granted permission it will be under the terms and conditions of the Section 169 Licence. *(Refer to Appendix B of the National Highways guidance on installation and use of scaffold guard structures over the strategic road network for the model Licence).*

We accept that the licence will only be issued after all the various elements of the formal submission have been accepted/approved in accordance with National Highways guidance on the installation and use of scaffold guard structures over the strategic road network.

**Dated the** .....**20**.....  
**Signed** .....  
**Name:** .....  
**Position:** .....

**Include a scaled map showing the part of the highway (to be coloured pink on the map) which will be affected by the scaffold guard proposal with the application.**

*Note: The licence application and preliminary notice should not be submitted to National Highways until after preliminary enquiry/early consultation meeting/discussion has taken place as required in the National Highways guidance on the installation and use of scaffold guard structures over the strategic road network.*



## Appendix D Model Licence

### HIGHWAYS ACT 1980 SECTION 169 LICENCE LICENCE TO ERECT AND RETAIN A STRUCTURE ON AND OVER A HIGHWAY

1. National Highways Limited (the "Authority") as highway authority for the ..... trunk road (the "trunk road") hereby grants to .....(name) (company number) of ..... (address) (the "Licensee") under section 169 of the Highways Act 1980 a licence to erect and retain scaffolding (*if other structure set out here particulars of the structure*) (the "relevant structure") on and over that part of the trunk road shown coloured pink on the map attached hereto drawing number.....upon the terms and subject to the conditions specified herein and subject also to the provisions contained in section 169, and the Licensee hereby accepts this licence upon and subject to the terms, conditions, and provisions aforesaid e.g. without limitation s169(4) (which may also be subject to s169(6)), regarding adequate lighting, complying with traffic signage directions in writing from the Authority and complying with requests from Statutory Undertakers for protection of the undertakers' apparatus or access to apparatus it owns, used or maintains
2. The relevant structure shall be erected and retained by the Licensee in a manner which causes the minimum obstruction to users of the trunk road and the Licensee shall comply with any directions given to him in writing by the Authority with respect to ensuring the minimum obstruction of the trunk road by the relevant structure and the Licensee must comply with any other requirements deemed appropriate by the Authority in protecting the trunk road.
3. The Licensee shall keep the relevant structure in a good state of repair and condition.
4. The Licensee shall afford the Authority such facilities as the Authority may require for inspecting the relevant structure.
5. The relevant structure shall not be used by the Licensee for any purpose other than a purpose in connection with (*here set out the relevant building demolition alteration repair maintenance or cleaning work of named premises*) (*hereinafter referred to as the "Works"*).
6. The Licensee shall not do or permit or suffer to be done upon or from the relevant structure anything which in the opinion of the Authority would, or would not, be likely to cause injury or damage or become a danger or nuisance to users of the trunk road or occupiers of adjoining premises.

7. The Licensee shall keep that part of the trunk road, on or over which the relevant structure is erected and retained, and such other parts of the trunk road as may be affected by the Works undertaken upon or from the relevant structure, free from damage and clean and tidy.
8. This Licence is personal to the Licensee and shall not be assigned.
9. The Licensee shall indemnify and keep indemnified the Authority, and hereby indemnifies and keeps indemnified the Authority against all losses and claims for injuries or damage to any person or property whatsoever which may arise out of or in consequence of the erection retention or removal of the relevant structure or the carrying out of the Works and against all claims demands proceedings, damages, costs, charges and expenses whatsoever in respect thereof or in relation thereto.
10. Throughout the execution of the Works the Licensee (but without limiting his obligations and responsibilities under the preceding condition) shall insure against any damage loss or injury which may occur to any property or person by or arising out of the execution of the Works or the erection, retention or removal of the relevant structure such insurance to be effected with an insurer and in terms approved by the Authority (which approval shall not be unreasonably withheld). Whenever required the Licensee shall produce to the Authority the policy or policies of insurance and the receipts for payment of the current premiums.
11. This Licence may be determined by either party to this Licence giving not less than 2 days' notice in writing to the other party.
12. This Licence may be determined forthwith by notice in writing given by the Authority in the event the Licensee fails for a period of 5 days to remedy any breach, (capable of remedy and not of an urgent nature), of any of the terms and conditions of this Licence after being required to remedy the same by notice in writing from the Authority specifying the breach and requiring the same to be remedied. Or in the event the Licensee is in breach of any of the terms or conditions of this Licence which in the opinion of the Authority is incapable of being remedied or is an emergency or urgent for safety reasons and is stated so to be by the Authority then the Authority may terminate the Licence immediately.
13. Upon completion of the Works or earlier determination of this Licence in accordance with the terms and conditions of this Licence the Licensee shall forthwith remove the relevant structure from the trunk road and leave the trunk road free from damage and clean and tidy.

Dated the ..... 20 ..... (following signature by both parties to this Licence).

Signed on behalf of the Authority (National Highways Limited)

in the presence of: - .....(PB8)

Signed on behalf of the Licensee  
in the presence of: -

.....

## Appendix E Typical structure arrangement

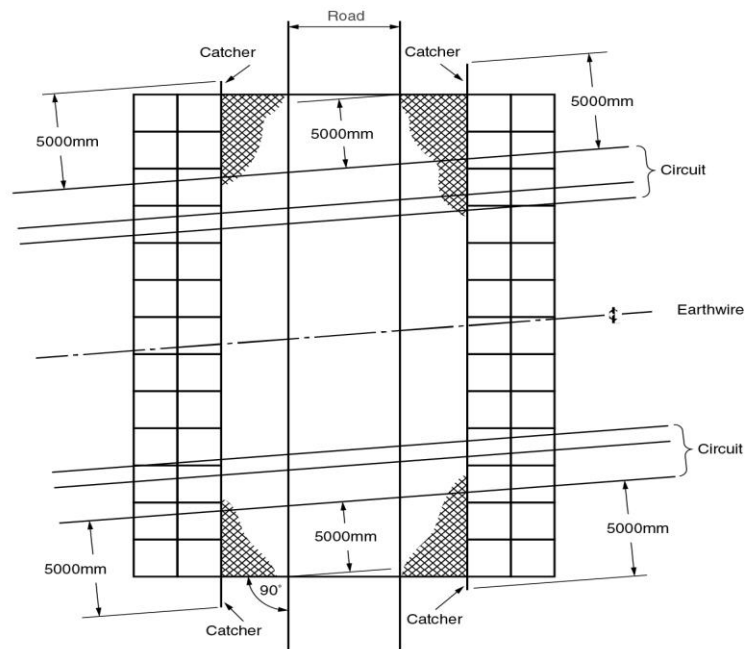


Figure 1a

Plan view of a typical temporary scaffold for a double circuit outage with the scaffold towers being perpendicular to the road

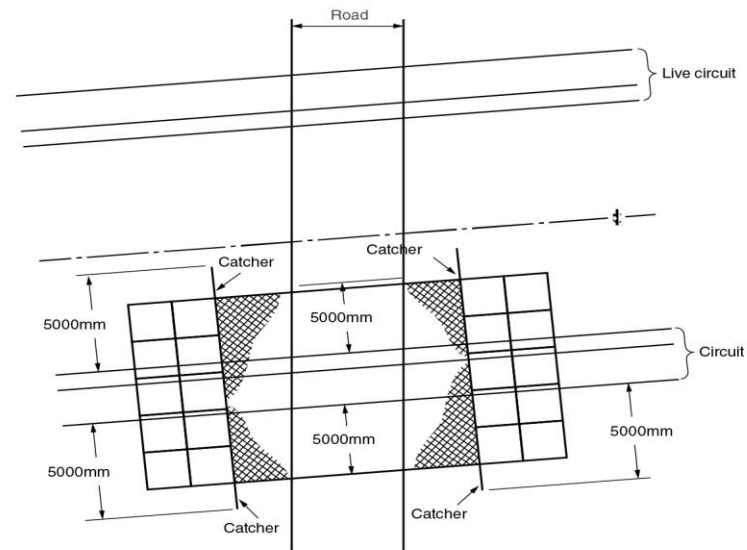


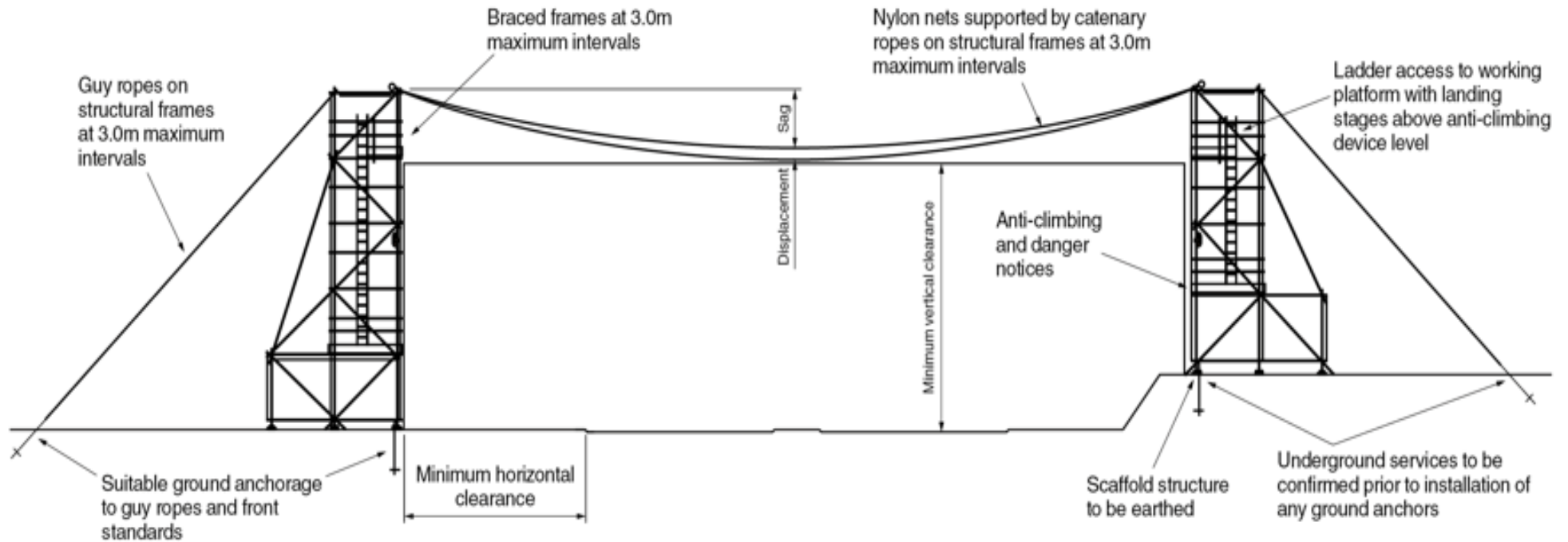
Figure 1b

Plan view of typical scaffold guard for a single circuit outage with the scaffold towers being perpendicular to the overhead line

**Figure 1 – Plan view of typical scaffold arrangements for overhead line crossing over road**

### Notes –

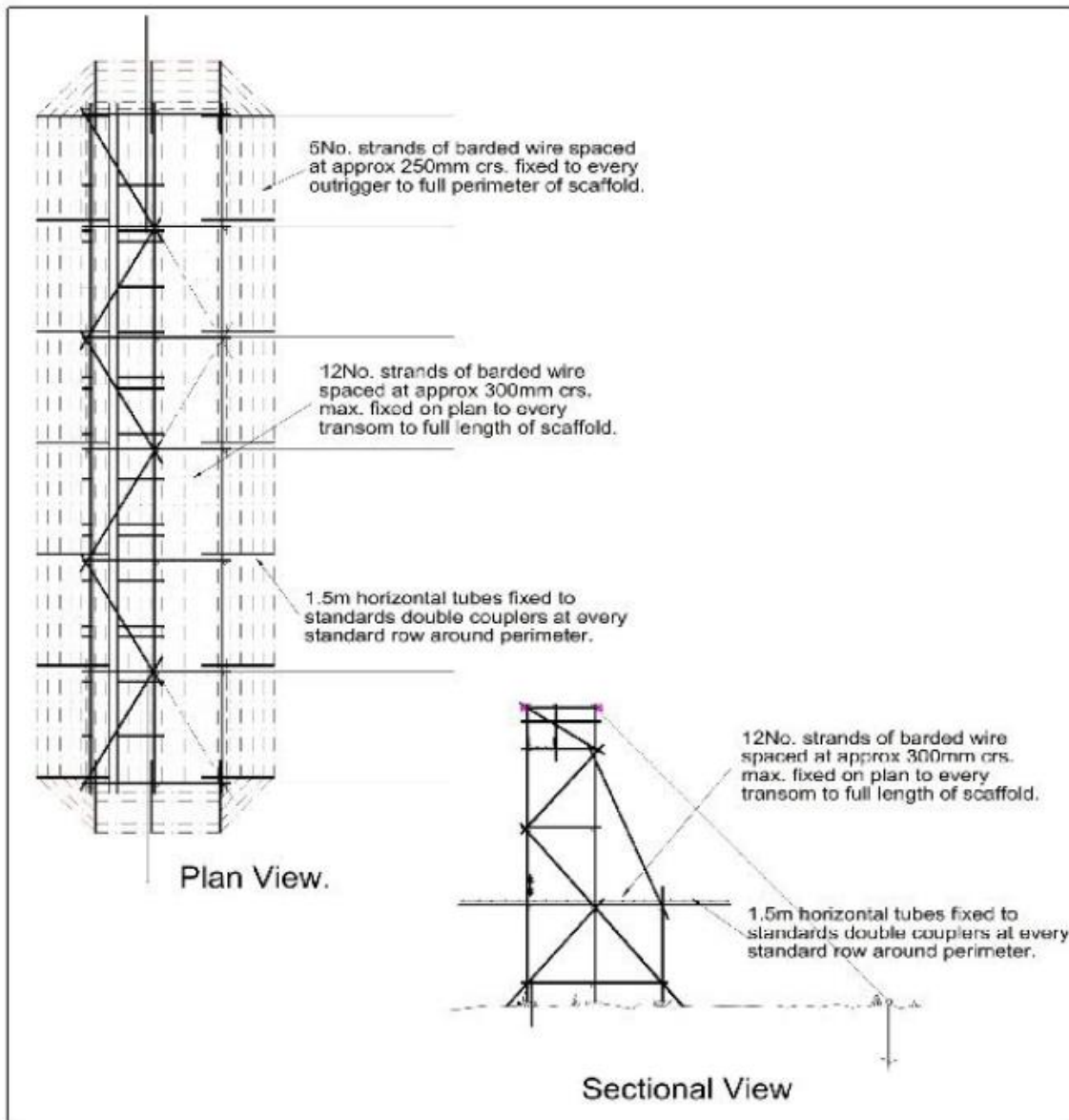
- 1) This drawing is not to scale
- 2) All dimensions given are minimum values
- 3) All dimensions given are in millimetres
- 4) Not more than 2000mm of the 5000mm projection on the structures may take the form of a catcher guard inclined at not more the 45° from vertical.



**Figure 2 – Elevation of typical scaffold guard structure over road**

**Notes –**

- 1) This drawing is not to scale
- 2) The minimum horizontal and vertical clearances are given in Table 8.15



**Figure 3 – Typical arrangement of anti-climbing provision**

**Notes –**

- 1) This drawing is not to scale

## Appendix F Model approval in principle (AIP) document

*[This model AIP document has been formatted in accordance with the latest version CG 300 Technical approval of highway structures at the time of this publication.]*

*The contents of Section 7, Section 8, Section 9, Section 10, and Section 11 of this guidance document have been drafted to assist the designer in developing the site-specific AIP document in accordance with CG 300 [Ref. 16].*

*The model AIP document should be completed and amended as necessary by the designer to make it site-specific and included as part of the formal submission required in section 5 of this guidance].*

### Project details

**Name of project:** *[Insert name of project]*

This Approval in Principle (AIP) document covers the use of temporary scaffold guards by ..... *(enter name of the Electricity company)* in connection with erection, modification or dismantling of overhead transmissions for the crossing of the ..... motorway/all-purpose trunk road *(delete as appropriate)* between junction ..... and..... at OS Grid Reference: X (Easting)..... Y (Northing)..... *(Please include any other relevant descriptive/locating feature as appropriate)*

This AIP covers the principles for the design, construction, operation of temporary scaffold guard structure(s) which shall be used in line crossings of motorways and trunk roads, in the case of live line voltages for.....*(enter voltage as 400kV, 275kV, 132kV, 66kV or other values)* at the above site to be carried out by .....*(enter name of the Electricity company)*.

### F1. Highway details

#### F1.1 Type of highway

Highway affected by the proposed temporary structure shall be the..... *(enter name of road)* motorway(s) and/or all-purpose trunk road(s) *(delete or describe as appropriate)*.

#### F1.2 Design traffic speed (and permitted traffic speed)

*[Enter speed limit of road(s) affected]*

## **F2. Site details**

### **F2.1 Obstacles crossed**

Obstacles crossed shall be the ..... (*enter name of road motorway/all-purpose trunk road*) between junction ..... and..... at OS Grid Reference X (Easting).....and Y(Northing).....  
(*Please include any other relevant descriptive/locating feature as appropriate*)

## **F3. Proposed structure**

### **F3.1 Description of structure and design working life**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.2 Structure type**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.3 Foundation type**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.4 Span arrangements**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.5 Articulation arrangements**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.6 Classes and levels**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.7 Road restraint systems requirements**

*Refer to Section 8 of this guidance.*

*[Designer to enter structure specific description]*

### **F3.8 Proposals for water management**

*[Designer to enter structure specific description]*

### **F3.9 Proposed arrangements for future maintenance and inspection**

The proposed arrangements for erection, inspection and maintenance shall be in accordance with section 11 of National Highways '*Guidance on the installation and use of scaffold guard structures over the strategic road network*'.

*[Designer to enter structure specific description]*



### **F3.10 Environment and sustainability**

*[Designer to enter structure specific description]*

### **F3.11 Durability - materials and finishes**

*[Designer to enter structure specific provisions]*

### **F3.12 Risks and hazards considered for design, execution, maintenance and demolition. Consultation with and/or agreement from Overseeing Organisation**

The design, execution and maintenance of the structure shall use conventional/specialist materials and methods as specified by .... *(enter name of Electricity company)*

A detailed site-specific risk assessment has been undertaken and included with the formal submission as required in section 5 of National Highways 'Guidance on the installation and use of scaffold guard structures over the strategic road network'.

*NOTE: The risk assessment must not be included in the AIP and must not be submitted to the TAA.*

The Principal Designer *(enter name of organisation/person)* has reviewed the list of risks and hazards and is satisfied with the risk management measures proposed.

*The site-specific risk assessment should consider but not be limited to the following hazards: -*

- 1. working at height –*
- 2. working close to live carriageway–*
- 3. high wind speeds –*
- 4. impact from tools falling –*
- 5. plant movements –*
- 6. unauthorised access –*

### **F3.13 Estimated cost of proposed structure together with other structural forms considered (including where appropriate proprietary manufactured structure), and the reasons for their rejection (including comparative whole life costs with dates of estimates). Reference should be made to any options reports done.**

*[Designer to enter structure specific provisions]*

### **F3.14 Proposed arrangements for construction**

The traffic and safety management shall be in accordance with section 9 of National Highways 'Guidance on the installation and use of scaffold guard structures over the strategic road network'.

*[Include any additional site-specific traffic and safety management measures]*

### **F3.15 Resilience and security**

The provisions for resilience and security shall be in accordance with section 10 of National Highways '*Guidance on the installation and use of scaffold guard structures over the strategic road network*'.  
*[Include any additional site-specific resilience and security measures].*

### **F4. Design criteria**

The design criteria of the scaffold guard structure shall be in accordance with section 9 of National Highways '*Guidance on the installation and use of scaffold guard structures over the strategic road network*'.  
*[Designer to enter structure specific provisions]*  
Standards and documents are listed in the technical approval schedule.  
*[Designer to append the TAS]*

### **F5. Structural analysis**

Methods of analysis proposed for superstructure, substructure and foundations. *[Designer to enter details]*

Description and diagram of idealised structure to be used for analysis  
*[Designer to enter details]*

### **F6. Geotechnical conditions**

The geotechnical conditions shall be in accordance with section 6 of National Highways '*Guidance on the installation and use of scaffold guard structures over the strategic road network*'.

*[Designer to provide summary of the ground conditions and statement of the parameters to be used in the foundation and anchorage design.]*

*[Append statement/evidence to confirm approval and certification in accordance with CD 622 for geotechnical activities as agreed with National Highways geotechnical specialists if available]*

*Where the approval and certification for geotechnical activities in accordance with CD 622 is yet to be obtained, the designer should summarise available information and give an indication when geotechnical certification will be obtained.*

The design of the structure and foundations shall be in accordance with the recommendations of the geotechnical investigation report.

### **F7. Check**

The design and check shall be category 2 or 3 *(to be agreed by TAA)*

### **F8. Drawings and documents**

List of drawings (including numbers) and documents accompanying the submission. *[Designer to include list]*

*[Scaled plans, general arrangement drawings and other relevant drawings forming part of the submission in section shall be appended in this AIP].*

**F9. The above is submitted for acceptance**

**Section 1<sup>1</sup>**

We confirm that details of the proposed scaffold guard structure shall be designed in accordance with National Highways 'Guidance on the installation and use of scaffold guard structures over the strategic road network' and in accordance with this AIP document and we recommend that TAA accept it.

Signed .....

Name ..... (Design Team Leader)

Engineering Qualifications .....<sup>2</sup>

Name of Organisation .....

Date .....

Signed .....

Name ..... (Check Team Leader)

Engineering Qualifications .....<sup>2</sup>

Name of Organisation .....

Date .....

**Section 2<sup>1</sup>**

We acknowledge the design proposals in this AIP document as being in accordance with our requirements and we recommend that the TAA accept it

Signed .....

Name .....

Position held.....

Electricity company.....

Date .....

**Section 3<sup>1</sup>**

**The above is rejected/agreed subject to the amendments and conditions shown below.**

Signed.....

Name .....

Position held .....

Engineering Qualifications .....<sup>2</sup>

TAA .....

Date .....

- 1. Section 1 – signed by design/check team leader  
Section 2 – signed by the Electricity company  
Section 3 – signed by National Highways (TAA)

- 2. CEng MICE, CEng MIStructE or equivalent.

*See below for Appendix to AIP document*

**APPENDIX**

*Designer to append the following: -*

- i) scaled plans and general arrangement drawings;*
- ii) idealised structure diagram as required in F5; and,*
- iii) TAS*
- iv) statement/evidence to confirm approval and certification in accordance with CD 622 for geotechnical activities as agreed with National Highways geotechnical specialists*

## Appendix G Model design certificate

**Project details:**  
**Name of Project:**

### DESIGN CERTIFICATE (page 1 of 2)

*Model form of certificate to be used by the Electricity company for scaffold guards which have been given approval based on a Preliminary Notice and Method Statement.*

#### Section 1<sup>1</sup>

We certify that reasonable professional skill and care has been used in the preparation of the design of scaffold guards for a crossing of the ..... motorway/all-purpose trunk road between Junction..... and ..... at OS Grid Reference X (Easting).....and Y (Northing).....  
*(Please include any other relevant descriptive/locating feature as appropriate)* with a view to securing that: -

- 1) it has been designed in accordance with: -
  - i) the signed Approval in Principle agreed by the TAA on .....<sup>2</sup> including the following:<sup>3</sup>
- 2) the design proposals reflect the requirements of National Highways for all the affected highway;
- 3) the implications of the geotechnical investigation report giving details of the ground conditions, the presence of services and all other matters pertaining to the crossing have been fully considered in the design of the structure and foundations; and,
- 4) the design has been accurately translated into the detail and constructional drawings. The unique numbers of these drawings are as follows: -<sup>4</sup>

*[list construction drawings]*

Signed .....  
Name .....  
Design Team Leader.....  
Engineering Qualifications .....<sup>5</sup>  
Position held .....<sup>6</sup>  
Organisation .....  
Date .....

**Project details:**  
**Name of Project:**

**DESIGN CERTIFICATE** (page 2 of 2)

**Section 2<sup>1</sup>**

The certificate is received, and we confirm the design as being in accordance with our proposals and requirements

Signed .....  
Name .....  
Position held.....<sup>6</sup>  
Electricity company.....  
Date .....

**Section 3<sup>1</sup>**

The certificate is accepted by the technical approval authority (TAA)

Signed .....  
Name .....  
Position held.....  
Engineering Qualifications.....<sup>5</sup>  
TAA.....  
Date .....

*See notes below*

Notes

1. Each section to be signed by the relevant organisation as follows: -
  - a) Section 1- design organisation;
  - b) Section 2- Electricity company;
  - c) Section 3 – National Highways (TAA).
2. Insert date AIP was agreed by the TAA including the dates of any addenda. Note the AIP is valid for three years after the date of agreement by the TAA. If the construction has not yet commenced within this period, the AIP should be re-submitted to the TAA for review.
3. List here, if any, the departures from the requirements given or any aspects not considered in the guidance document, additional methods, criteria or specification clauses.
4. List all the drawings included with this certificate.
5. CEng MICE, CEng MIStructE or other equivalent professional status accepted by the TAA.
6. Signed for the relevant organisation by:
  - a) Principal of the organisation responsible for the design/check; and,
  - b) Director of the Electricity company (or person authorised to sign on behalf of the Electricity company).

# Appendix H Model check certificate

**Project details:**  
**Name of Project**

## CHECK CERTIFICATE (page 1 of 2)

*Model form of certificate to be used by the Electricity company for scaffold guards which have been given approval based on a Preliminary Notice and Method Statement.*

### Section<sup>1</sup>

We certify that reasonable professional skill and care has been used in the checking of the design of scaffold guards for a crossing of the ..... motorway/all-purpose trunk road between Junction..... and .....

*(Please include any other relevant descriptive/locating feature as appropriate)*

at OS Grid Reference X (Easting).....and Y (Northing).....

with a view to securing that: -

1. it has been designed in accordance with: -
  - i) the signed Approval in Principle accepted by the TAA on .....<sup>2</sup> including the following:<sup>3</sup>
2. the design proposals reflect the requirements of National Highways for all the affected highway;
3. the implications of the site investigation report giving details of the ground conditions, the presence of services and all other matters pertaining to the crossing have been fully considered in the design of the structure and foundations; and,
4. the design has been accurately translated into the detail and constructional drawings. The unique numbers of these drawings are as follows: -<sup>4</sup>

Signed .....

Check Team Leader. ....

Name .....

Engineering Qualifications<sup>5</sup> .....

Position held <sup>6</sup> .....

Name of Organisation.....

Date .....

**Project details:  
Name of Project**

**CHECK CERTIFICATE** (page 2 of 2)

**Section 2<sup>1</sup>**

The certificate is received, and we confirm the checked design as being in accordance with our proposals and requirements

Signed .....  
Name .....  
Position held.....<sup>6</sup>  
Electricity company.....  
Date .....

**Section 3<sup>1</sup>**

The certificate is accepted by the Technical Approval Authority (TAA)

Signed .....  
Name .....  
Position held.....  
Engineering Qualifications.....  
TAA.....  
Date .....

*See notes below*

Notes

1. Each section to be signed by the relevant organisation as follows: -
  - a) Section 1- checking organisation;
  - b) Section 2- Electricity company; or,
  - c) Section 3 – National Highways (TAA).
2. Insert date of agreement of the AIP by the TAA including the dates of any addenda. Note the AIP is valid for three years after the date of agreement by the TAA. If the construction has not yet commenced within this period, the AIP should be re-submitted to the TAA for review;
3. List here, if any, the departures from the requirements given or any aspects not considered in the guidance document, additional methods, criteria or specification clauses;
4. List all the drawings included with this certificate;
5. CEng MICE, CEng MIStructE or equivalent; and,
6. Signed for the relevant organisation by:
  - a) Principal of the organisation responsible for the check;
  - b) Director of the Electricity company (or person authorised to sign on behalf of the Electricity company)



# Appendix I Model certificate of construction compliance

**Project details:**

**Name of project**

## Certificate of construction compliance

Approval in Principle document dated (*enter date*)

Construction drawings listed within the design and check certificate/certificates<sup>1</sup> (*enter date*): -

As constructed drawings, the unique numbers of these drawings are:

Drawing number	Title	Revision	Date

### Section 1<sup>1</sup>

We certify that the scaffold guard structure for a crossing of the ..... motorway/all-purpose trunk road between Junction..... and ..... (*Please include any other relevant descriptive/locating feature as appropriate*) at OS Grid Reference X (Easting).....and Y (Northing).....and its foundations have been constructed in accordance: -

1. with the construction drawings listed within the above design and check certificates;
2. specified details; and,
3. health and safety requirements.

Signed. ....  
 Name ..... Contractor's Representative  
 Position held .....  
 Name of organisation ..... Date.....

### Section 2<sup>2</sup>

We have considered and accept that the installation is in accordance with design, specification and health and safety requirements.

Signed. ....  
 Name .....  
 Position held .....  
 Electricity company .....  
 Date .....

1. This section is to be completed by a representative authorised to sign on behalf of the organisation appointed by the Electricity company with overall responsibility for execution of the installation.
2. This section is to be completed by a Director of the Electricity company (or person authorised to sign on behalf of the Electricity company).