

Our ref: SM/CWWDCO Deadline 8 .
Your ref: WW010003

Lead Member of the Examining Authority
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Date 17 April 2024

Dear Sir,

**Re: Application by Anglian Water Services Limited for an Order granting
Development Consent for the Cambridge Waste Water Treatment Plant Relocation
Project
Planning Inspectorate Reference Number: WW010003
Deadline 8 Final Submissions of National Highways Limited**

Please find attached a copy of National Highways Deadline 8 Final Submissions related to information requested by the Examining Authority during Examination, the safety of users of the strategic road network and further to National Highways Deadline 7 response.

1. Amended Provisions for the Protection of National Highways – Part 5 which will also be required if the Examining Authority considers that the Applicant is subject to the New Roads and Street Works Act 1991 to include references to DMRB CG 300 Technical Approval for Highway Structures. Paragraphs 2 (2) (e) (page 1), definition of highway structures (page 2), 4 (1), 12 (1) and 14 (1) with apologies for the delayed submission. The additional amendments to Part 5 are in bold.
2. A copy of DMRB CG 300 for ease of reference for the Examining Authority.

If the Examining Authority require further clarification, please contact Sarah Marshall
[REDACTED] [@nationalhighways.co.uk](mailto:[REDACTED]@nationalhighways.co.uk)

Yours sincerely

[REDACTED]
Sarah Marshall
Head of Planning & Highways Legal Team (South)
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Enc.

Deadline 8 Final Submissions of National Highways Limited

**Application by Anglian Water Services Limited for an Order granting Development Consent for the Cambridge Waste
Water Treatment Plant Relocation Project**

Planning Inspectorate Reference Number: WW010003

Final Deadline 8 Submissions made by National Highways

1. National Highways Safety Engineering and Standards Division (Structures) deal with Highway Structures over or under or impacting the strategic road network. It is considered necessary for the safety of users of the strategic road network that provision in the Provisions for the Protection of National Highways includes reference to DMRB CG 300 Technical Approval of Highway Structures.
2. By reference to the above, paragraphs 2(2) (e), a definition of highway structures on page 2, paragraphs 4 (1), 12 (1) and 14 (1) have been amended to refer to DMRB CG 300.
3. A copy of the Amended National Highways Protective Provisions has been attached at Appendix 1.
4. A copy of DMRB CG 300 has been attached at Appendix 2.

APPENDIX 1

National Highways Standard Protective Provisions (Amended to include reference to DMRB CG 300)

PART 5

FOR THE PROTECTION OF NATIONAL HIGHWAYS LIMITED

Application etc.

1.—(1) The provisions of this Part of this Schedule apply for the protection of National Highways and have effect unless otherwise agreed in writing between the undertaker and National Highways.

(2) Nothing in this Order affects or prejudices the operation of the powers and duties of National Highways or the Secretary of State under the 1980 Act, the 1984 Act, the 1991 Act, the Transport Act 2000, or the Town and Country Planning (General Permitted Development) (England) Order 2015.

Interpretation

2.—(1) Where the terms defined in article 2 (Interpretation) of this Order are inconsistent with sub-paragraph (2), the latter prevail.

(2) In this Part of this Schedule—

“administration fee” means the fee payable pursuant to the provisions of this Part of this Schedule that represent the general internal costs of National Highways in administering the implementation of the specified work and the requirements of this Part of this Schedule and charged as a flat fee based on the final cost of the specified works;

“as built information” means one electronic copy of the following information—

- (a) as constructed drawings in both PDF and AutoCAD DWG formats for anything designed by the undertaker, in compliance with Interim Advice Note 184 or any successor document;
- (b) list of suppliers and materials used, as well as any relevant test results and CCTV surveys (if required to comply with DMRB standards);
- (c) product data sheets and technical specifications for all materials used;
- ~~(d)~~ as constructed information for any utilities discovered or moved during the works;

~~(d)~~**(e) design and construction of the tunnel shall be subject to technical approval and certification by National Highways Safety Engineering and Standards Division in accordance with DMRB document CG 300**

~~(e)~~**(f)** method statements for the works carried out;

~~(f)~~**(g)** In relation to road lighting, signs, and traffic signals, any information required by series 1300 and 1400 of the Specification for Highway Works or any replacement or modification of it;

~~(g)~~**(h)** organisation and method manuals for all products used;

~~(h)~~**(i)** as constructed programme;

~~(i)~~**(j)** test results and records as required by the detailed design information and during construction phase of the project;

~~(j)~~**(k)** a stage 3 road safety audit subject to any exceptions to the road safety audit standard as agreed by the undertaker and National Highways;

~~(k)~~**(l)** the health and safety file; and

~~(l)~~**(m)** such other information as is required by National Highways to be used to update all relevant databases and to ensure compliance with National Highways' Asset Data Management Manual as is in operation at the relevant time.

“condition survey” means a survey of the condition of National Highways structures, assets (including, but not limited to, drainage and cabling) and pavements within the Order limits that in the reasonable opinion of National Highways may be affected by a specified work and further to include, where the undertaker, following due diligence and assessment, identifies a specified part of the highways drainage system maintained by National Highways that National Highways reasonably considers may be materially and adversely affected by a specified work, a CCTV survey of specified drains;

“contractor” means any contractor or subcontractor appointed by the undertaker to carry out the specified works;

“defects period” means the period from the date of the provisional certificate to the date of the final certificate which shall be no less than 12 months from the date of the provisional certificate;

“detailed design information” means such of the following drawings, specifications and calculations as are relevant to the development—

- (a) site clearance details;
- (b) boundary, environmental and mitigation fencing;
- (c) road restraints systems and supporting road restraint risk appraisal process assessment;
- (d) drainage and ducting as required by DMRB CD 535 Drainage asset data and risk management and DMRB CS551 Drainage surveys – standards for Highways;
- (e) earthworks including supporting geotechnical assessments required by DMRB CD622 Managing geotechnical risk and any required strengthened earthworks appraisal form certification;
- (f) pavement, pavement foundations, kerbs, footways and paved areas;
- (g) traffic signs and road markings;
- (h) traffic signal equipment and associated signal phasing and timing detail;
- (i) road lighting (including columns and brackets);
- (j) electrical work for road lighting, traffic signs and signals;
- (k) motorway communications as required by DMRB;
- (l) highway structures and any required structural approval in principle;
- (m) landscaping;
- (n) proposed departures from DMRB standards;
- (o) walking, cycling and horse riding assessment and review report;
- (p) stage 1 and stage 2 road safety audits and exceptions agreed;
- (q) utilities diversion;
- (r) topographical survey;
- (s) maintenance and repair strategy in accordance with DMRB GD304 Designing health and safety into maintenance or any replacement or modification of it;
- (t) health and safety information including any asbestos survey required by GG105 or any successor document;
- (u) other such information that may be required by National Highways to be used to inform the detailed design of the specified works; and
- (v) regime of California Bearing Ratio testing.

“DMRB” means the Design Manual for Roads and Bridges or any replacement or modification of it;

“final certificate” means the certificate relating to those aspects of the specified works that have resulted in any alteration to the strategic road network to be issued by National Highways pursuant to paragraph 11;

“the health and safety file” means the file or other permanent record containing the relevant health and safety information for the authorised development required by the Construction Design and Management Regulations 2015 (or such updated or revised regulations as may come into force from time to time);

“highway structures” means any structure crossing or supporting part of or all of the strategic road network;

“initial deposit” means the sum calculated by National Highways (acting reasonably) payable to National Highways to cover all initial stages of work until such time as the cost of the specified work and the NH costs payable under paragraph 6 of this Part can be estimated;

“nominated persons” means the undertaker’s representatives or the contractor’s representatives on site during the carrying out of the specified works as notified to National Highways from

time to time;

“programme of works” means a document setting out the sequence and timetabling of the specified works;

“provisional certificate” means the certificate of provisional completion relating to those aspects of the specified works that have resulted in any alteration to the strategic road network to be issued by National Highways in accordance with paragraph 7 when it considers the specified works are substantially complete and may be opened for traffic;

“road safety audit” means an audit carried out in accordance with the road safety audit standard;

“road safety audit standard” means DMRB Standard HD GG19 or any replacement or modification of it;

“road space booking” means road space bookings in accordance with National Highways’ Asset Management Operation Requirements (AMOR) including Network Occupancy Management System (NOMS) used to manage road space bookings and network occupancy;

“Specification for Highways Works” means the specification for highways works forming part of the manual of contract documents for highway works published by National Highways and setting out the requirement and approvals procedures for work, goods or materials used in the construction, improvement or maintenance of the strategic road network;

“specified works” means—

- (a) highway works, signalisation and any other works under this Order on that part of the strategic road network within the area shown edged blue (being Work No. 1) on sheet 6 of the highways plans including any maintenance of such works and including the exercise of any powers within Part 3 of this Order over the strategic road network; or
- (b) the installation and maintenance of such parts of the authorised development under or over the strategic road network (including any structure), authorised by this Order;

“strategic road network” means any part of the road network including trunk roads, special roads or streets and including any structure on such roads or streets for which National Highways is the highway authority;

“utilities” means any pipes, wires, cables or equipment belonging to any person or body having power or consent to undertake street works under the New Roads and Street Works Act 1991; and

“winter maintenance” means maintenance of the road surface to deal with snow and ice.

(3) References to any standards, manuals, contracts, regulations and directives including to specific standards forming part of the DMRB are, for the purposes of this Part of this Schedule, to be construed as a reference to the same as amended, substituted or replaced, and with such modifications as are required in those circumstances.

Works outside the Order limits

3. In the event that the undertaker proposes the carrying out of works to the strategic road network that are outside of the Order limits in connection with the authorised development, the undertaker must enter into an agreement with National Highways in respect of the carrying out of those works prior to the commencement of those works. For the avoidance of doubt, the reference to works in this paragraph 3 does not include traffic regulation orders identified on the access and traffic regulation order plans.

Part (a) of the specified works

Prior approvals and security

.4—(1) Any specified works which involve tunnelling, boring or otherwise installing the pipeline under the strategic road network without trenching from the surface, must be designed by the undertaker in accordance with DMRB CD622 and be subject to technical approval and certification by National Highways Safety Engineering and Standards Division in accordance with DMRB document CG 300 unless otherwise agreed in writing by National Highways.

(2) The specified works must not commence until—

(a) the programme of works has been approved by National Highways;

(b) the detailed design of the specified works comprising of the following details, insofar as considered relevant by National Highways, has been submitted to and approved by National Highways—

(i) the detailed design information;

(ii) the identity and suitability of the contractor and nominated persons; and

(iii) a process for stakeholder liaison, with key stakeholders to be identified and agreed between National Highways and the undertaker;

(c) a condition survey and regime of monitoring of any National Highways assets or structures that National Highways reasonably considers will be affected by the specified works, has been agreed in writing by National Highways; and

(d) an acceptable security in favour of National Highways for the indemnity set out in paragraph 14 below has been put in place, which security must be maintained in place until the expiry of 12 months following the completion of all of the specified works.

~~4~~(34) Part (a) of the specified works must not commence until in respect of that part of the specified works—

- (a) A stage one and stage two road safety audit has been carried out and all recommendations raised by them or any exceptions are approved by National Highways;
- (b) the programme of works has been approved by National Highways;
- (c) the detailed design of the specified works comprising of the following details, insofar as considered relevant by National Highways, has been submitted to and approved by National Highways—
 - (i) the detailed design information, incorporating all recommendations and any exceptions provided by National Highways under sub-paragraph (a);
 - (ii) details of the proposed road space bookings;
 - (iii) the identity and suitability of the contractor and nominated persons;
 - (iv) a process for stakeholder liaison, with key stakeholders to be identified and agreed between National Highways and the undertaker; and
 - (v) information demonstrating that the walking, cycling and horse riding assessment and review process undertaken by the undertaker in relation to the specified works has been adhered to in accordance with DMRB GG142 - Designing for walking, cycling and horse riding.
- (d) a scheme of traffic management has been submitted by the undertaker and approved by National Highways such scheme to be capable of amendment by agreement between the undertaker and National Highways from time to time;
- (e) stakeholder liaison has taken place in accordance with the process for such liaison agreed between the undertaker and National Highways under sub-paragraph (c)(iv) above;
- (f) National Highways has approved the audit brief and CVs for all road safety audits and exceptions to items raised in accordance with the road safety audit standard;
- (g) the undertaker has paid to National Highways the estimate of the NH costs notified to it pursuant to paragraph 6 of this Part of this Schedule;
- (h) the scope of all maintenance operations (routine inspections, incident management, reactive and third party damage) to be carried out by the undertaker during the construction of part (a) of the specified works (which must include winter maintenance) has been agreed in writing by National Highways;
- (i) the undertaker has procured to National Highways warranties from the contractor and designer of the specified works in favour of National Highways to include covenants requiring the contractor and designer to exercise all reasonable skill, care and diligence in designing and constructing part (a) of the specified works, including in the selection of materials, goods, equipment and plant; and
- (j) the condition survey and a reasonable regime of monitoring the structures, assets and pavements that are the subject of the condition survey has been submitted to and approved

by National Highways.

~~(2)~~ ~~(4)~~ Except where an approval has been provided under paragraph (1), the undertaker must not exercise—

- (a) article 5 (maintenance of authorised development);
- (b) article 12 (temporary closure of streets);
- (c) article 17 (traffic regulation);
- (d) article 19 (discharge of water);
- (e) article 20 (protective works to buildings);
- (f) article 21 (authority to survey and investigate the land);
- (g) article 23 (felling or lopping of trees and removal of hedgerows);
- (h) article 35 (temporary use of land for carrying out the authorised development); or
- (i) article 36 (temporary use of land for maintaining the authorised development) of this Order,

over any part of the strategic road network without the consent of National Highways, and National Highways may in connection with any such exercise require the undertaker to provide details of any proposed road space bookings and/or submit a scheme of traffic management for National Highways' approval.

~~(3)~~ ~~(5)~~ National Highways must prior to the commencement of part (a) of the specified works or the exercise of any power referenced in sub-paragraph ~~(4)~~, inform the undertaker of the identity of the person who will act as a point of contact on behalf of National Highways for consideration of the information required under sub-paragraph ~~(2)~~ or ~~(3)~~.

~~(4)~~ ~~(6)~~ Any approval required or sought from National Highways required under this paragraph must not be unreasonably withheld or delayed, must be given in writing and may be subject to any reasonable conditions as National Highways considers necessary.

~~(5)~~ (7) If National Highways fails to notify the undertaker of its decision in respect of any approval under this paragraph within 28 days of the specified day, the undertaker may serve upon National Highways written notice requiring National Highways to give its decision within a further 28 days beginning on the date upon which National Highways received written notice from the undertaker. Subject to sub-paragraph (6), if by expiry of the further 28 days National Highways has failed to notify the undertaker of its decision, National Highways is deemed to have given the relevant approval.

~~(6)~~ (8) Any further notice given by the undertaker to National Highways under sub-paragraph (5) must include a written statement that the provisions of sub-paragraph ~~(7)~~ (5) apply to the relevant approval.

~~(7)~~ (9) In this paragraph, “specified day” means—

- ~~(a)~~ (a) the day on which particulars of the matter are received by National Highways under the provisions of this Part of this Schedule; or
- ~~(b)~~ (b) the day on which the undertaker provides National Highways with any further particular of the matter that have been reasonably requested by National Highways within 28 days of the date in sub-paragraph ~~(7)~~ (5),

whichever is the later.

~~(8)~~ (10) National Highways must provide the undertaker with a list, which is to be agreed between the parties acting reasonably, of all the structures, assets and pavements to be subject to both a condition survey and reasonable regime of monitoring pursuant to sub-paragraph (1)(f) of this Part before the first condition survey is conducted and the reasonable regime of monitoring is implemented.

Construction of part (a) of the specified works

5.—(1) The undertaker must give National Highways 28 days’ notice in writing of the date on which part (a) of the specified works will start unless otherwise agreed by National Highways. The undertaker must comply with National Highways’ road space booking procedures prior to and during the carrying out of part (a) of the specified works and no such specified works for which a road space booking is required shall commence without a road space booking having first been secured, save that consent to a request for road booking space shall be deemed to have been given if neither given nor refused within 28 days of the request.

(2) Part (a) of the specified works must be carried out by the undertaker to the satisfaction of National Highways in accordance with—

- (a) the relevant detailed design information and programme of works approved pursuant to paragraph 4~~(2)~~ above or as subsequently varied by agreement between the undertaker and National Highways;
- (b) the DMRB, the Manual of Contract Documents for Highway Works, including the specification for highway works, together with all other relevant standards as required by National Highways to include, inter alia, the Traffic Signs Manual and the Traffic Signs Regulations and General Directions 2016 save to the extent that exceptions from those standards apply which have been approved by National Highways; and
- (c) all aspects of the Construction (Design and Management) Regulations 2015 or any statutory amendment or variation of the same and in particular the undertaker, as client, must ensure that all client duties (as defined in the said regulations) are undertaken to the satisfaction of National Highways.

(3) If any part of the specified works is constructed-

(a) other than in accordance with the requirements of this Part of this Schedule; or

(b) in a way that causes damage to the highway, highway structure or asset or any other land of National Highways may by notice in writing require the undertaker, at the undertaker’s own expense, to comply promptly with the requirements of this Part of this Schedule or remedy any damage notified to the undertaker under this Part of this Schedule, to the satisfaction of National Highways, acting reasonably.

(4) If during the carrying out of the authorised development the undertaker or its appointed contractors or agents causes damage to the strategic road network then National Highways may by notice in writing require the undertaker, at its own expense, to remedy the damage.

(5) If within 28 days on which a notice under sub-paragraph (4) or sub-paragraph (5) is served on the undertaker (or in the event of there being, in the opinion of National Highways, a danger to road users, within such lesser period as National Highways may stipulate), the undertaker has failed to take the steps required by that notice, National Highways may carry out the steps required of the undertaker and may recover any expenditure reasonably incurred by National Highways in so doing.

(6) Nothing in this Part of this Schedule prevents National Highways from carrying out any work or taking any such action as it reasonably believes to be necessary as a result of or in connection with the carrying out or maintenance of the authorised development without prior notice to the undertaker in the event of an emergency or to prevent the occurrence of danger to the public and National Highways may recover any expenditure it reasonably incurs in so doing.

(7) In constructing the specified works, the undertaker must at its own expense divert or protect all utilities.

(8) The undertaker must notify National Highways if it fails to complete the specified works in accordance with the agreed programme of works pursuant to paragraph 4 of this Part, or suspends the carrying out of any specified work beyond 14 days, and National Highways reserves the right to withdraw any road space booking granted to the undertaker to ensure compliance with its network occupancy requirements.

~~(2)~~ (9) The undertaker must permit and must require the contractor to permit at all reasonable times and upon reasonable notice persons authorised by National Highways (whose identity must have been previously notified to the undertaker by National Highways) to gain access to part (a) of the specified works for the purposes of inspection and supervision of the specified works.

~~(3)~~ (10) If any part of part (a) of the specified works is constructed—

(a) other than in accordance with the requirement of this Part of this Schedule; or

- (b) in a way that causes damage to the highway, highway structure or asset or any other land of National Highways,

National Highways may by notice in writing require the undertaker, at the undertaker's own expense, to comply promptly with the requirements of this Part of this Schedule or remedy any damage notified to the undertaker under this Part of this Schedule, to the satisfaction of National Highways.

~~(4)~~ (11) If within 28 days on which a notice under sub-paragraph ~~(11)~~ is served on the undertaker (or in the event of there being, in the opinion of National Highways, a danger to road users, within such lesser period as National Highways may stipulate), the undertaker has failed to take the steps required by that notice, National Highways may carry out the steps required of the undertaker and may recover any expenditure incurred by it in so doing, such sum to be payable within 30 days of a written demand, including itemised costs.

~~(5)~~ (12) Nothing in this Part of this Schedule prevents National Highways from carrying out any work or taking such action as it reasonably believes to be necessary as a result of or in connection with the carrying out or maintenance of the authorised development without prior notice to the undertaker in the event of an emergency or to prevent the occurrence of danger to the public and National Highways may recover any expenditure it reasonably incurs in so doing.

~~(6)~~ (13) In constructing the specified works, the undertaker must at its own expense divert or protect all utilities and all agreed alterations and reinstatement of highway over existing utilities must be constructed to the satisfaction of National Highways.

~~(7)~~ (14) During the construction of part (a) of the specified works the undertaker must carry out all maintenance (including winter maintenance) in accordance with the scope of maintenance operations agreed by National Highways pursuant to paragraph 4~~(2)~~(h) and the undertaker must carry out such maintenance at its own cost.

Payments

6.—(1) The undertaker must pay to National Highways a sum equal to the whole of any costs and expenses which National Highways incurs (including costs and expenses for using internal or external staff) in relation to part (a) of the specified works and in relation to any approvals sought under this Order, or otherwise incurred under this Part of this Schedule, including—

- (a) the checking and approval of the information required under paragraph 4~~(2)~~;
- (b) the supervision of the specified works including supervision required in respect of any remedial or other works needed for the issue of the provisional certificate and/or the final certificate;
- (c) the checking and approval of the information required to determine approvals under this Order which are not covered by the administration fee;
- (d) all costs in relation to the transfer of any land or grant of rights which may be required for the specified works;
- (e) the administration fee;
- (f) all legal costs incurred which are not already covered by (a) to (e) above; and
- (g) any value added tax which is payable by National Highways in respect of such costs and expenses in (a) to (f) and for which it cannot obtain reinstatement from HM Revenue and Customs,

together comprising the “NH costs”.

(2) The undertaker must pay to National Highways upon demand and prior to such costs being incurred the total costs that National Highways believe will be properly and necessarily incurred by National Highways in undertaking any statutory procedure or preparing and bringing into force any traffic regulation order or orders necessary to carry out or for effectively implementing the authorised development and which are not already contained within this Order.

(3) National Highways must provide to the undertaker written notification of the amount required as the initial deposit in respect of the NH costs as soon as reasonably practicable and the undertaker must pay an amount equal to the sum within 28 days of receipt of the notification.

(4) National Highways must provide the undertaker with an itemised schedule showing its estimate of the NH costs, including its estimate of the administration fee, prior to the commencement of part (a) of the specified works and the undertaker must pay to National highways an amount equal to the estimated sum within 28 days of receipt of the notification and in any event prior to National Highways incurring any cost and prior to commencing part (a) of the specified works.

(5) If at any time the payments referred to in sub-paragraph (3) or (4) has become payable, National highways reasonably believes that the NH costs will exceed the relevant estimate it may give written notice to the undertaker of the amount that it believes its costs will exceed the relevant estimate (the excess) and the undertaker must pay to National Highways within 28 days of the date of the written notice a sum equal to the excess.

(6) National Highways must give the undertaker an itemised final account of the costs referred to in sub-paragraph (1) above within 91 days of the issue of the provisional certificate issued pursuant to paragraph 7(4).

(7) Within 28 days of the issue of the final account—

- (a) if the final account shows a further sum as due to National Highways the undertaker must pay to National Highways the sum shown due to it;
- (b) if the account shows that the payment or payments previously made by the undertaker have exceeded the costs incurred by National Highways, National Highways must refund the difference to the undertaker within 28 days.

(8) If any payment due under any of the provisions of this Part of this Schedule is not made on or before the date on which it falls due the party from whom it was due must at the same time as making the payment pay to the other party interest at 1% above the rate payable in respect of compensation under section 32 (rate of interest after entry on land) of the 1961 Act starting on the date upon which the payment fell due and ending with the date of payment of the sum on which interest is payable together with that interest.

Provisional Certificate for part (a) of the specified works

7.—(1) Following any closure or partial closure of any part of the strategic road network for the purposes of carrying out part (a) of the specified works, National Highways will carry out a site inspection to satisfy itself that the part of the strategic road network is, in its opinion, safe for traffic and the undertaker must comply with any requirements of National Highways prior to the reopening of that part of the strategic road network.

(2) As soon as the undertaker considers that the provisional certificate may be properly issued it must apply to National Highways for the provisional certificate.

(3) Following an application for a provisional certificate, National Highways must as soon as reasonably practicable and within 28 days of receipt of the application under sub-paragraph (2)—

- (a) inspect part (a) of the specified works; and
- (b) provide the undertaker with a written list of works that are required for the provisional certificate to be issued or confirmation that no further works are required for this purpose.

(4) When—

- (a) a stage 3 road safety audit for part (a) of the specified works has been carried out and all recommendations raised including remedial works have (subject to any exceptions agreed) been approved by National Highways;
- (b) part (a) of the specified works incorporating the approved remedial works under sub-paragraph (4)(a) and any further works notified to the undertaker pursuant to sub-paragraph (3)(b) have been completed to the satisfaction of National Highways; and
- (c) the as built information has been provided to National Highways

National Highways must issue the provisional certificate (not to be unreasonably withheld or delayed).

(5) The undertaker must submit a stage 4 road safety audit as required by and in line with the timescales stipulated in the road safety audit standard. The undertaker must comply with the findings of the stage 4 road safety audit and must provide updated as-built information to National Highways.

Opening

8. The undertaker must notify National Highways not less than 14 days in advance of the intended date of opening to the public of part (a) of the specified works and the undertaker must notify National Highways of the actual date part (a) of the specified works will be opened to the public within 14 days of that date.

Final condition survey

9.—(1) The undertaker must, within 28 days of making its application for a provisional certificate pursuant to paragraph 7(2), arrange for the structures, assets and pavements that were the subject of the condition survey to be re-surveyed and must submit the re-survey to National Highways for its approval.

(2) If the re-survey carried out pursuant to paragraph 9(1) of this Part indicates that any damage has been caused to a structure, asset or pavement, the undertaker must submit a scheme for remedial works in writing to National Highways for its approval in writing and the undertaker must carry out the remedial works at its own cost and in accordance with the scheme submitted.

(3) If the undertaker fails to carry out the remedial work in accordance with the approved scheme, National Highways may carry out the steps required of the undertaker and may recover any expenditure it reasonably incurs in so doing, such sum to be paid within 30 days of receipt of the demand.

(4) National Highways may, at its discretion, at the same time as giving its approval to the re-survey pursuant to paragraph 9(1) of this Part give notice in writing that National Highways will remedy any damage identified in the re-survey and National Highways may recover any expenditure it reasonably incurs in so doing.

(5) The undertaker must make available to National Highways upon request copies of any survey or inspection reports produced pursuant to any inspection or survey of any of part (a) of the specified works following its completion that the undertaker may from time to time carry out.

Defects Period

10.—(1) The undertaker must at its own expense remedy any defects in the part (a) specified works as are reasonably required by National Highways to be remedied during the defects period. All identified defects must be remedied in accordance with the following timescales—

- (a) in respect of matters of urgency, within 24 hours of receiving notification for the same (urgency to be determined at the absolute discretion of National Highways);
- (b) in respect of matters which National Highways considers to be serious defects or faults, within 14 days of receiving notification of the same; and
- (c) in respect of all other defects notified to the undertaker, within 4 weeks of receiving notification of the same or other such time period as is agreed.

(2) Following the issue of provisional certificate National Highways has responsibility for maintenance of the highway save for any soft landscaping works which must be established and which must thereafter be maintained for a period of 12 months by and at the expense of the undertaker.

Final Certificate

11.—(1) The undertaker must apply to National Highways for the final certificate no sooner than 12 months from the date of the provisional certificate.

(2) Following receipt of the application for the final certificate, National Highways must as soon as reasonably practicable and within 28 days of receipt of the application under this paragraph—

- (a) inspect part (a) if the specified works; and
- (b) provide the undertaker with a written list of any further works required to remedy or make good any defect or damage in part (a) of the specified works or confirmation that no such works are required for this purpose.

(3) The undertaker must carry out such works notified to it pursuant to sub-paragraph (2).

(4) When National Highways is satisfied that any defects or damage arising from defects during the defects period and any defects notified to the undertaker pursuant to sub-paragraph (2) and any remedial works required as a result of the stage 4 road safety audit have been made good to the satisfaction of National Highways, National Highways must issue the final certificate, such certificate not to be unreasonably withheld or delayed.

Part (b) of the specified works

.12—(1) Any specified works which involve tunnelling, boring or otherwise installing the pipeline under the strategic road network without trenching from the surface, must be designed by the undertaker in accordance with DMRB CD622 and be subject to technical approval and certification by National Highways Safety Engineering and Standards Division in accordance with DMRB document CG 300 unless otherwise agreed in writing by National Highways.

(2) The specified works must not commence until—

(a) the programme of works has been approved by National Highways;

(b) the detailed design of the specified works comprising of the following details, insofar as considered relevant by National Highways, has been submitted to and approved by National Highways—

(i) the detailed design information;

(ii) the identity and suitability of the contractor and nominated persons; and

(iii) a process for stakeholder liaison, with key stakeholders to be identified and agreed between National Highways and the undertaker;

(c) a condition survey and regime of monitoring of any National Highways assets or structures that National Highways reasonably considers will be affected by the specified works, has been agreed in writing by National Highways; and

(d) an acceptable security in favour of National Highways for the indemnity set out in paragraph 14 below has been put in place, which security must be maintained in place until the expiry of 12 months following the completion of all of the specified works.

12 **(3+)** Not less than 56 days before the commencement of part (b) of the specified works the undertaker must submit to National Highways a plan.

(2) (4) The plan to be submitted to National Highways under sub-paragraph (1) must include a method statement and describe—

- (a) the exact position of the works;
- (b) the level at which these are proposed to be constructed or renewed;
- (c) the manner of their construction or renewal including details of excavation, positioning, etc.;
- (d) any intended maintenance regimes; and
- (e) a ground monitoring scheme.

(3) (5) The undertaker must not commence any works to which sub-paragraph **(3+)** applies until National Highways has given written approval of the plan so submitted.

(4) (6) Any approval of National Highways required under sub-paragraph **(53)**—

~~(a)~~ (a) may be given subject to reasonable conditions for any purpose mentioned in sub-paragraphs ~~(75)~~ or ~~(97)~~;

~~(b)~~ (b) must not be unreasonably withheld or delayed; and

if National Highways fails to respond to a plan submitted under sub-paragraph (1) within 42 days of its submission, the undertaker may send a written reminder to National Highways, and if National Highways has neither given nor refused its approval within 14 days of the issue of such reminder, such approval shall be deemed to have been given.

~~(5)~~ (7) In relation to any work to which subparagraph (1) applies, National Highways may require such modifications to be made to the plans as may be necessary for the purpose of securing the strategic road network against interference or risk of damage or for the purpose of providing or securing proper and convenient means of access to any apparatus.

~~(6)~~ (8) Works to which this paragraph applies must only be executed in accordance with the plan, submitted under sub-paragraph (1) or as relevant sub-paragraph (5), as approved or as amended from time to time by agreement between the undertaker and National Highways and in accordance with such requirements as may be made in accordance with sub-paragraphs (5) or (7) by National Highways for the protection of the strategic road network, or for securing access to it, and National Highways will be entitled to watch and inspect the execution of those works.

~~(7)~~ (9) Where National Highways requires any protective works to be carried out by itself or by the undertaker (whether of a temporary or permanent nature) such protective works, inclusive of any

measures or schemes required and approved as part of the plan approved pursuant to this paragraph, must be carried out to National Highways' satisfaction prior to the commencement of part (b) of the specified works (or any relevant part thereof) for which protective works are required and the undertaker must give 56 days' notice of such works from the date of submission of a plan pursuant to this paragraph (except in an emergency).

~~(8)~~ (10) Nothing in this paragraph precludes the undertaker from submitting at any time or from time to time, but in no case less than 56 days before commencing the execution of part (b) of the specified works, a new plan, instead of the plan previously submitted, and having done so the provisions of this paragraph will apply to and in respect of the new plan.

~~(9)~~ (11) The undertaker will not be required to comply with sub-paragraph ~~(34)~~ where it needs to carry out emergency works but in that case it must give to National Highways notice as soon as is reasonably practicable and a plan of those works and must comply with sub-paragraphs ~~(65)~~, ~~(76)~~ and

(12) insofar as is reasonably practicable in the circumstances.

13. Construction of part (b) of the specified works

(1) The undertaker must give National Highways 28 days' notice in writing of the date on which part (a) of the specified works will start unless otherwise agreed by National Highways. The undertaker must comply with National Highways' road space booking procedures prior to and during the carrying out of part (a) of the specified works and no such specified works for which a road space booking is required shall commence without a road space booking having first been secured, save that consent to a request for road booking space shall be deemed to have been given if neither given nor refused within 28 days of the request.

(2) Part (a) of the specified works must be carried out by the undertaker to the satisfaction of National Highways in accordance with—

(d) the relevant detailed design information and programme of works approved pursuant to paragraph 13(1) above or as subsequently varied by agreement between the undertaker and National Highways;

(e) the DMRB, the Manual of Contract Documents for Highway Works, including the specification for highway works, together with all other relevant standards as required by National Highways to include, inter alia, the Traffic Signs Manual and the Traffic Signs Regulations and General Directions 2016 save to the extent that exceptions from those standards apply which have been approved by National Highways; and

(f) all aspects of the Construction (Design and Management) Regulations 2015 or any statutory amendment or variation of the same and in particular the undertaker, as client, must ensure that all client duties (as defined in the said regulations) are undertaken to the satisfaction of National Highways.

(3) If any part of the specified works is constructed-

(a) other than in accordance with the requirements of this Part of this Schedule; or

(b) in a way that causes damage to the highway, highway structure or asset or any other land of National Highways may by notice in writing require the undertaker, at the undertaker's own expense, to comply promptly with the requirements of this Part of this Schedule or remedy any damage notified to the undertaker under this Part of this Schedule, to the satisfaction of National Highways, acting reasonably.

(4) If during the carrying out of the authorised development the undertaker or its appointed contractors or agents causes damage to the strategic road network then National Highways may by notice in writing require the undertaker, at its own expense, to remedy the damage.

(5) If within 28 days on which a notice under sub-paragraph (4) or sub-paragraph (5) is served on the undertaker (or in the event of there being, in the opinion of National Highways, a danger to road users, within such lesser period as National Highways may stipulate), the undertaker has failed to take the steps required by that notice, National Highways may carry out the steps required of the undertaker and may recover any expenditure reasonably incurred by National Highways in so doing.

(6) Nothing in this Part of this Schedule prevents National Highways from carrying out any work or taking any such action as it reasonably believes to be necessary as a result of or in connection with the carrying out or maintenance of the authorised development without prior notice to the undertaker in the event of an emergency or to prevent the occurrence of danger to the

public and National Highways may recover any expenditure it reasonably incurs in so doing.
(7) In constructing the specified works, the undertaker must at its own expense divert or protect all utilities.

(8) The undertaker must notify National Highways if it fails to complete the specified works in accordance with the agreed programme of works pursuant to paragraph 4 of this Part, or suspends the carrying out of any specified work beyond 14 days, and National Highways reserves the right to withdraw any road space booking granted to the undertaker to ensure compliance with its network occupancy requirements.

(9) The undertaker must permit and must require the contractor to permit at all reasonable times and upon reasonable notice persons authorised by National Highways (whose identity must have been previously notified to the undertaker by National Highways) to gain access to part (a) of the specified works for the purposes of inspection and supervision of the specified works.

(10) If any part of part (a) of the specified works is constructed—

(c) other than in accordance with the requirement of this Part of this Schedule; or

(d) in a way that causes damage to the highway, highway structure or asset or any other land of National Highways.

National Highways may by notice in writing require the undertaker, at the undertaker's own expense, to comply promptly with the requirements of this Part of this Schedule or remedy any damage notified to the undertaker under this Part of this Schedule, to the satisfaction of National Highways.

(11) If within 28 days on which a notice under sub-paragraph (4) is served on the undertaker (or in the event of there being, in the opinion of National Highways, a danger to road users, within such lesser period as National Highways may stipulate), the undertaker has failed to take the steps required by that notice, National Highways may carry out the steps required of the undertaker and may recover any expenditure incurred by it in so doing, such sum to be payable within 30 days of a written demand, including itemised costs.

(12) Nothing in this Part of this Schedule prevents National Highways from carrying out any work or taking such action as it reasonably believes to be necessary as a result of or in connection with the carrying out or maintenance of the authorised development without prior notice to the undertaker in the event of an emergency or to prevent the occurrence of danger to the public and National Highways may recover any expenditure it reasonably incurs in so doing.

(13) In constructing the specified works, the undertaker must at its own expense divert or protect all utilities and all agreed alterations and reinstatement of highway over existing utilities must be constructed to the satisfaction of National Highways.

(14) During the construction of part (a) of the specified works the undertaker must carry out all maintenance (including winter maintenance) in accordance with the scope of maintenance operations agreed by National Highways pursuant to paragraph 4(1)(h) and the undertaker must carry out such maintenance at its own cost.

(7)

Condition survey and as built details

14.—(1) The undertaker must, as soon as reasonably practicable after completing the specified work, arrange for any highways structures and assets that were the subject of the condition survey under paragraph 227(2)(c) to be re-surveyed and must submit the re-survey to National Highways for its approval. The re-survey will include a renewed geotechnical assessment required by DMRB CD622 and DMRB CG 300 if the specified works include any works beneath the strategic road network.

(2) If the re-surveys carried out pursuant to sub-paragraph 230(1) indicates that any damage has been caused to a structure or asset, the undertaker must submit a scheme for remedial works in writing to National Highways. National Highways must remedy any damage identified in the resurveys and National Highways may recover any expenditure it reasonably incurs in so doing from the undertaker.

(3) The undertaker must make available to National Highways upon request copies of any survey or inspection reports produced pursuant to any inspection or survey of any specified work following its completion that the undertaker may from time to time carry out.

(4) Within 30 days of completion of the specified works, the as built details must be provided by the undertaker to National Highways.

Insurance

1315. Prior to the commencement of the specified works the undertaker must effect public liability insurance with an insurer in the minimum sum of £10,000,000 (ten million pounds) in respect of any one claim against any legal liability for damage, loss or injury to any property or any person as a direct result of the execution or use of the specified works by the undertaker.

Indemnity

1416.—(1) The undertaker must indemnify National Highways from and against all costs, expenses, damages, losses and liabilities suffered by National Highways arising from or in connection with any claim, demand, action or proceedings (including but not limited to statutory claims) resulting

from the construction, maintenance or use of the specified works or exercise of any power under this Order PROVIDED THAT—

- (a) National Highways notifies the undertaker upon receipt of any claim; and
- (b) National Highways notifies the quantum of the claim to the undertaker in writing.

(2) Within 14 days of the receipt of the notification referred to in sub-paragraph (1)(b) the undertaker must pay to National Highways the amount specified as the quantum of such claim.

(3) The indemnity provided by this clause shall not apply in respect of any cost, expense, damage, loss and/or liability which may arise out of or be incidental to any negligent or defective act, default or omission on the part of National Highways, its agents, workmen or employees.

Maintenance of the specified works

15.17.—(1) The undertaker must, prior to the commencement of any works of maintenance to the specified works, give National Highways 28 days' notice in writing of the date on which those works will start unless otherwise agreed by National Highways, acting reasonably.

(2) If, for the purposes of maintaining the specified works, the undertaker needs to occupy any road space, the undertaker must comply with National Highways' road space booking requirements and no maintenance of the specified works for which a road space booking is required shall commence without a road space booking having first been secured.

(3) The undertaker must comply with any requirements that National Highways may notify to the undertaker, such requirements to be notified to the undertaker not less than 7 days in advance of the planned commencement date of the maintenance works.

(4) The provisions of paragraph 7 shall apply to the opening of any part of the strategic road network following occupation of any road space under this paragraph.

Land or rights

16-18. If the transfer of any land from or to National Highways or the grant of rights in, on, over or under land for the benefit of the undertaker is required in respect of the specified works, National Highways and the undertaker hereby agree to cooperate in the execution of any transfer or deed of grant or easement as may be necessary. National Highways further agrees that the undertaker may exercise any powers under Part 5 of this Order as may be necessary for the acquisition of such rights.

Expert determination

1719.—(1) Save as set out in sub-paragraph (5) of this paragraph, article 52 (arbitration) of the Order does not apply.

(2) Any difference under this Part of this Schedule may be referred to and settled by a single independent and suitable person who holds appropriate professional qualifications and is a member of a professional body relevant to the matter in dispute acting as an expert, such person to be agreed by the differing parties or, in the absence of agreement, identified by the President of the Institution of Civil Engineers.

(3) All parties involved in settling any difference must use best endeavours to do so within 21 days from the date of a dispute first being notified in writing by one party to the other and in the absence of the difference being settled within that period the expert must be appointed within 21 days of the notification of the dispute.

(4) The expert must—

- (a) invite the parties to make submissions to the expert in writing and copied to the other party to be received by the expert within 21 days of the expert's appointment;
- (b) permit a party to comment on the submissions made by the other party within 21 days of receipt of the submission;
- (c) issue a decision within 42 days of receipt of the submissions under sub-paragraph (b); and
- (d) give reasons for the decision.

(5) Any determination by the expert is final and binding, except in the case of manifest error in which case the difference that has been subject to expert determination may be referred to and settled by arbitration under article 52 (arbitration).

(6) The fees of the expert are payable by the parties in such proportions as the expert may determine or, in the absence of such determination, equally.

APPENDIX 2

Copy of DMRB CG 300

Design Manual for Roads and Bridges



Llywodraeth Cymru
Welsh Government



Highway Structures & Bridges
General Information

CG 300

Technical approval of highway structures

(formerly BD 2/12)

Version 0.1.0

Summary

Former DMRB document BD 2/12 has been amended as follows to form this document:

*Amended clauses and model AIP to include Principal Designer, which is stipulated in Construction (Design and Management) Regulations 2015 *Added provisions for structures options reports.*Clause 2.29.7 added 'Water management' as a specific aspect for assessment.*Clauses 3.5 - 3.12 have alterations to some height/span ranges for some structures following feedback.*Added Type N classification to temporary works section to reflect provisions within PAS 8811 (see references).*Amended procedure to require Designer to agree design or assessment criteria within AIP with checker prior to submission to TAA.* Requirements included to identify safety critical fixings.*Updates to model forms.

Application by Overseeing Organisations

Any specific requirements for Overseeing Organisations alternative or supplementary to those given in this document are given in National Application Annexes to this document.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

This is a controlled document.

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Latest release notes

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CG 300	0.1.0	April 2021	Core document, England NAA	Incremental change to requirements

Various changes and amendments for clarity and administration purposes. No technical changes.

Previous versions

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CG 300	0	March 2020		

Foreword

Publishing information

This document is published by Highways England

This document supersedes BD 2/12, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This document specifies the technical approval (TA) procedures for highway structures on motorways, trunk roads or any road designated by the Overseeing Organisation.

In the early 1970s, structure failures at Yarra (Australia), Milford Haven (Pembrokeshire, Wales), Koblenz (Germany) and over the Danube (Austria) occurred during erection. Resulting from these failures and the subsequent Merrison Report [Ref 2.I], the following important changes were made by the then Ministry of Transport:

- 1) the Department would continue to examine design criteria and methods but not computations;
- 2) the requirements by the Department for a certificate of independent check of the design and computations; and,
- 3) the application of approval in principle (AIP) stage to all but minor structures, which would cover the selection of bridge type, the materials for its construction and methods of analysis and design to be adopted.

The TA procedures as described in this document generally require the proposer to submit an AIP to the Checker for agreement prior to submission to the Overseeing Organisation and to receive endorsement of the AIP before proceeding with any design or assessment. The completed design or assessment cannot be implemented until the Overseeing Organisation is in receipt of certified confirmation that the implementation documents are accurate and fully in compliance with the requirements of the AIP. TA procedures for proprietary manufactured structures and products are also covered in this document.

The TA procedural requirements impose a discipline on the process that encourages good practice and should reduce the possibility of errors affecting structural fitness for purpose. Most importantly however, the procedures minimise the possible risks to highway users and others who are being affected. The procedures can be applied to any other circumstances where the highway authority considers the requirements to be appropriate.

The fundamental objectives of the TA procedures are to give increased assurance for the required execution, refurbishment or demolition of highway structures. This will help ensure that the proposals are safe to implement, that any new structures procured are serviceable in use, economic to build and maintain, comply with the objectives of sustainability, have due regard for the environment and that they satisfactorily perform their intended functions. The TA procedures also ensure, as far as reasonably practicable, that highway users, the public and any others who may be affected are protected from adverse effects resulting from any work carried out to any highway structure.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 9.N] apply to this document.

Mutual Recognition

Where there is a requirement in this document for compliance with any part of a "British Standard" or other technical specification, that requirement can be met by compliance with the mutual recognition clause in GG 101 [Ref 9.N].

Abbreviations

Abbreviations

Abbreviation	Definition
AIP	Approval in principle
CEng	Chartered Engineer
CPR	Construction Products Regulations
EOTA	European Organisation for Technical Approvals
ETA	European Technical Approval
M&E	Mechanical and electrical
MICE	Member of the Institution of Civil Engineers
MIStructE	Member of the Institution of Structural Engineers
O/AIP	Outline approval in principle
TA	Technical approval
TAA	Technical approval authority
TAS	Technical approval schedule
TDA	Tunnel design authority
TDSCG	Tunnel design and safety consultation group

Terms and definitions

Terms

Term	Definition
All lane running	England only term for a smart motorway which includes the permanent conversion of a hard shoulder to a running lane
Approval in principle	the document, which records the agreed basis and criteria for the detailed design or assessment of a highway structure
Assessment team	the group of engineers responsible for the assessment. It may comprise an appropriate mix of specialists under the direction of a team leader.
Assessor	the organisation responsible for the overall assessment
Buildability	the extent to which the design facilitates ease and safety of construction, allowing the most efficient and economic use of resources, subject to the overall requirements for the completed project
Category	the classification of the proposals, which determines the need for AIP, the form of check to be applied and the certificates to be prepared
CE marking	the marking that the manufacturer applies to declare compliance of a product with relevant EU product regulations including the Construction Products Regulation (CPR) 305/2011/EU [Ref 2.N]
Checker	the organisation responsible for the independent check of the design or assessment
Check team	the group of engineers responsible for the independent check of the design or assessment. It may comprise an appropriate mix of specialists under the direction of a check team leader.
Construction compliance	confirmation that the execution works undertaken are in compliance with the agreed documents (such as AIP, design, specification, drawings, etc.)
Contractor	the organisation contracted by the Overseeing Organisation to undertake execution works on its behalf. Also known as Principal Contractor
Contractor's representative	a representative of the Contractor, with responsibility for overseeing the execution works
Departure	criterion, which departs from, or is an aspect not covered by, the standards contained in, the technical approval schedule
Designer	the organisation responsible for the overall design or assessment. Also known as Principal Designer

Terms (continued)

Term	Definition
Design team	the group of engineers responsible for the design. It may comprise an appropriate mix of specialists under the direction of a design team leader
Eurocodes	as defined in BS EN 1990 [Ref 7.N]
Execution	as defined in BS EN 1990 [Ref 7.N]
Foundation	generally in a highway structure, that part of the substructure in direct contact with, and transmitting load to, the ground. Note: Specific elements forming the foundation are to be given in the AIP
Ground investigation report	a report that contains geotechnical information relevant to the design or assessment. See CD 622 [Ref 10.N]
Highway boundary	limits of the highway that are the responsibility of the Overseeing Organisation. This includes the road, footpaths, verges, slopes, etc. within those limits
Highway structure	structure or installation coming within the scope of this document and situated under, over or adjacent to a motorway or other trunk road or road designated by the Overseeing Organisation
Lighting column system	range of combinations of column heights and lengths of brackets together with the weights and windage areas of lanterns and attachments for which the column has been designed
Maintaining agent	the organisation with delegated responsibility for the maintenance of a highway structure
Outline approval in principle	the document, which records the agreed basis and outline criteria for the detailed design of a highway structure
Overseeing Organisation	this refers to the following organisations (or their successors): Highways England; Transport Scotland; Welsh Government (Llywodraeth Cymru) and The Department for Infrastructure (Northern Ireland). Additionally, it will refer to any other organisation that chooses to use this document for technical approval.
Principal	a senior representative of the designer, assessor, checker, contractor or works examiner having authority to sign certificates on its behalf
Principal Contractor	the organisation or individual appointed by the client to plan, manage and monitor and coordinate the construction phase of work where there is more than one contractor
Principal Designer	the organisation or individual appointed by the client to plan, manage and monitor the pre-construction phase, and where appropriate liaise with the principal contractor during the construction phase

Terms (continued)

Term	Definition
Project manager of the Overseeing Organisation	representative of the Overseeing Organisation with responsibility for project management of execution works to highway structures
Proposal	the proposal relating to the design or assessment of a highway structure including the mechanical and electrical (M&E) installations covered by this document
Proprietary manufactured structure or products	a structure with CE marking or product with CE marking manufactured to a system covered by a patent and/or a registered design
Road tunnel	a subsurface highway structure enclosed for a length of 1 50 m or more
Safety critical fixing	application in which the failure of a post-installed reinforcement or anchor can: <ol style="list-style-type: none"> 1) result in the collapse or partial collapse of the structure; 2) cause risk to human life; or, 3) lead to significant economic loss
Service tunnel	a tunnel structure installed by trenchless technology beneath a highway for any purpose. This can be regarded as a service crossing if the internal diameter is 2m or less
Structure resilience	the ability of structure to resist deliberate damage which may arise from the actions of vandals, thieves and terrorists
Structure robustness	the ability of a structure not to be damaged disproportionately in the event of accident, misuse or deterioration
Substructure	generally in a highway structure, the wing walls, piers, columns, towers and abutments that support the superstructure Note: Specific elements forming the substructure are to be given in the AIP.
Superstructure	generally in a highway structure, that part of the structure which is supported by the piers, columns and abutments. Note: Specific elements forming the superstructure are to be given in the AIP
Team leader	the person responsible for overseeing and co-coordinating the work of the design, assessment or check team and having authority to sign on behalf of the team. The team leader is to be appropriately qualified and competent in relevant fields of engineering related to the work and is to be a chartered member of a relevant institution or suitable equivalent.

Terms (continued)

Term	Definition
Technical approval	the submission of proposals for agreement by the technical approval authority and the subsequent provision and acceptance of certificates confirming that the design, assessment, specification or construction works complies with the agreed approval in principle and design/assessment and specification certificates as appropriate
Technical approval authority	the organisation responsible for agreeing the approval in principle and subsequently accepting the relevant certificates
Technical approval schedule	the schedule of documents to be used for the design or assessment of a highway structure
Third party	any person, organisation or other legal identity that is not employed directly or indirectly by the Overseeing Organisation
Tunnel Design Authority (TDA)	A central high level governance group - As ENAA for CD 352 [Ref 1.1]
UK national standards (Eurocodes)	the suite of Eurocodes to be implemented by BSI as UK national standards, covering structural design of all civil engineering works, including bridges
UK national standards (non-Eurocodes)	British Standards that, prior to being replaced by UK national standards (Eurocodes), were used for the design of highway structures or British Standards that apply to aspects not covered by Eurocodes
Works Examiner	the organisation nominated in the contract to undertake independent examination of the execution, commissioning (of M&E) or testing of works carried out by the Contractor

1. Scope

Aspects covered

1.1 Subject to any exclusions expressly stated in this document, technical approval (TA) procedures shall be applied to all proposals, including third party proposals and private developments, that are:

- 1) within the highway boundary;
- 2) outside the highway boundary, where the structures are to be adopted by the Overseeing Organisation;
- 3) outside the highway boundary where works can affect the highway or highway structure; and,
- 4) outside the highway boundary where works can affect the safety of the highway user.

NOTE Proposals can relate to construction, widening, assessment, improvement, repair (where structural integrity is implicated), and demolition.

1.2 The scope of TA shall be in accordance with Sections 3 to 6 of this document.

1.2.1 In cases where the design and construction of a third party proposal for temporary works or temporary structures are outside the competence of the Overseeing Organisation, the special requirements given in respective National Annexes may be implemented.

1.3 TA procedures shall apply to temporary works where the permanent works proposal has identified the need for an independent check.

1.4 TA procedures shall not apply where there are no public safety issues.

NOTE Temporary work in green field sites or works within the highway boundary where there will be no interface with the public are examples of works where there are no public safety issues.

Contractual responsibilities and procedure

1.5 TA 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 professional engineers.

NOTE This document is written such that it is applicable in principle to all current and likely future forms of procurement (refer to respective National Annexes for exceptions).

1.6 Where departing from the procedures, format or terms used in this document, the Designer/Assessor shall ensure that the following objectives are achieved:

- 1) the required design or assessment principles are formally agreed prior to award of any contract; and,
- 2) execution of the works is not allowed to proceed until there is formal agreement to a comprehensive submission of the design or assessment principles in accordance with the requirements of this document.

NOTE Formal agreement of design or assessment principles can avoid contractual repercussions.

1.7 The model AIP forms and certificates provided in the appendices shall be amended and agreed with the Overseeing Organisation, to suit specific contract requirements.

1.8 Timings and procedures shall be identified in the scheme specific contract requirements.

NOTE It is recommended to consult the TAA in advance to agree timings and include these in the works programme.

1.9 The contract requirements shall clarify whether the proposals and the AIP are of an outline nature or whether they are comprehensive and sufficient for detailed design or assessment.

NOTE 1 Outline proposals are sufficient for the invitation or acceptance of tenders.

NOTE 2 For detailed design, the principles, detailed requirements and recommendations of this document apply

1.9.1 The TAA should be consulted to agree the TA procedures where there are any uncertainties with regard to procurement.

NOTE For example, TA for the design can typically be completed in detail before tender; in other forms of procurement where design and the TA process is incomplete prior to inviting tenders, submission of a final detailed AIP can take place following award of contract.

Implementation

- 1.10 This document shall be implemented forthwith on all schemes involving the assessment, design, execution, operation and maintenance of highway structures on the Overseeing Organisations' motorway and all-purpose trunk roads according to the implementation requirements of GG 101 [Ref 9.N].
- 1.11 This document shall be used to implement the procedures for private development within the highway boundary.

Use of GG 101

- 1.12 The requirements contained in GG 101 [Ref 9.N] shall be followed in respect of activities covered by this document.

2. General requirements and principles

Overseeing Organisation's requirements

2.1 Technical requirements for the design, execution, operation and maintenance, decommissioning and demolition of highway structures shall be contained in the technical approval schedule (TAS).

2.1.1 In some forms of contract, such as design and construct, technical requirements may be contained in the contract requirements.

NOTE The TAs includes the DMRB, the British Standards (including Eurocodes, National Annexes and Published Documents), MCHW and other supplementary standards for specific projects requirements.

2.2 All submissions shall be in an agreed electronic format in accordance with the Overseeing Organisations' requirements, unless set out otherwise in contract documents.

2.3 The format selected shall allow the Designer, Checker and TAA to review all information and, when required, attach unique electronic signatures.

2.4 Third party proposals covered in Section 1 shall be dealt with as follows:

- 1) the principles given for the TA procedures in this document are adopted;
- 2) the TAA does not take on the responsibility that belongs to the third party;
- 3) the principles of special requirements given in the respective NAAs are applied where the Overseeing Organisation does not have a specific competence or expertise to give an opinion on whether the third party proposal or temporary works are safe or not; and,
- 4) for third party proposal of temporary work or temporary structure, Section 4 of this document is to be followed.

NOTE Third party proposals includes any from adjacent landowners, statutory undertakers, private developers, government bodies, etc.

Proprietary manufactured structures and products

2.5 Proprietary manufactured structures and products shall be subject to the full TA procedures, with the exception of those that comply with the requirements of the Construction Products Regulations (CPR) 305/2011/EU [Ref 2.N].

2.6 Proprietary manufactured structures and products shall be used for their intended purpose.

NOTE 1 An essential consideration for adoption of proprietary manufactured structures or products is the avoidance of discrimination against any structure or product that has the required declared performance either under a CE mark applied in compliance with the CPR or a recognised product registration system and would satisfy the specified end use.

NOTE 2 Any discrimination that does create a "barrier to trade" is in contravention of European Community legislation. The procedures are to avoid two forms of discrimination in particular: (a) discrimination between different forms of construction or product that will satisfy the same end use, and (b) discrimination between directly competing proprietary systems or products.

2.7 Proprietary manufactured structures or products with CE marking in accordance with CPR procedures shall be accepted for their correct intended use and satisfy the specified performance requirements.

2.8 The TA procedures shall not be applied to any aspect related to this acceptance except to confirm that the declared performance of the product meets that required.

2.9 Additional requirements must not be imposed on manufactured structures with CE markings or products with CE markings that are used for their intended use.

2.10 Where there are potential safety issues with the use of manufactured structures with CE markings or products with CE markings, TAA shall be consulted.

- 2.11 TA procedures shall apply for installation of CE marked structures or products, but not their manufacture.
- 2.12 TA procedures shall apply where unintended use is proposed for CE marked structures or products.

NOTE Further information is given in 3.12(6) and Appendix P.

Use of UK National Standards

- 2.13 For the design of highway structures using UK National Standards (Eurocodes), reference shall be made to the Overseeing Organisations' current requirements for the use of Eurocodes for the design of highway structures.
- 2.14 For the design of highway structures using UK National Standards (Eurocodes), the model AIP form in Appendix A shall be used.
- 2.15 For the design or assessment of highway structures using UK National Standards (non-Eurocodes), the model AIP form in Appendix B shall be used.

NOTE Model forms are intended to be generic and can be enhanced and edited to suit particular proposals as required.

Options report

- 2.16 An options report shall be submitted for all works listed below, unless indicated otherwise by the Overseeing Organisation:
- 1) where there are a number of realistic cost effective alternatives for permanent structures expected to be category 2 or 3 (as described in Sections 3 to 6 of this document);
 - 2) for structures to be category 0 or 1 with an estimated construction cost in excess of £0.5M; and,
 - 3) where directed.
- 2.17 The options report shall be prepared by the Designer.
- 2.18 The format, content and level of detail of the options report shall be as agreed with the Overseeing Organisation.

NOTE 1 Guidance is provided in Appendix O.

NOTE 2 It is intended that the options are limited to the primary alternatives rather than numerous iterations of similar or unrealistic options. Typically, the option report sets out possible alternative structure solutions considering factors such as complexity, buildability, durability, risk, programme, cost, etc..

- 2.19 An options report for assessment shall not be required, unless this has been included as an alternative to new work options above.

Category of proposals

- 2.20 The proposals shall be placed in one of four categories: 0, 1, 2 or 3, according to the criteria described in Sections 3 to 6.
- 2.21 The category from clause 2.20 shall be proposed by the Designer or Assessor and details of the proposal submitted to the TAA for agreement.
- 2.21.1 The Designer or Assessor may undertake an initial screening process with the TAA to obtain an early agreement on the category.

NOTE The category boundaries are not rigid and the category of each proposal is decided on its merits, having regard to potential consequences of failure, design complexity and whole life costs.

- 2.22 AIP's shall be required for categories 1, 2 and 3.

NOTE AIP's are not required for category 0.

- 2.22.1 Where TA agrees that the AIP does not add value, it may be omitted for category 1 and 2.
- 2.23 Where a structure has been placed in category 0 or 1 and a proposal arises subsequently requiring a departure, the TAA shall be contacted to request a review of the category.
- 2.23.1 Typically a change to category 2 will be required, but if the TAA considers that the Departure has little or no structural implication, then a change of category may not be necessary.
- 2.24 Where the TAA has reviewed the category and agreed to retain category 0, a new certificate shall be submitted making reference to the approved departure from standard.
- 2.25 Where the TAA has reviewed the category and agreed to retain category 1, an amendment or addendum to the AIP shall be submitted.
- 2.26 The agreement of the TAA shall be required before any proposal that includes a departure can be incorporated in the design or assessment.

Proposals

Proposals for categories

- 2.27 Proposals for categories 1, 2 and 3 shall provide the following:
- 1) provide sufficient information and evidence to demonstrate compliance with the Overseeing Organisation's requirements and to justify their viability;
 - 2) identify, assess and take into account, through appropriate methods of risk management, potential risks and hazards during the whole life of the structure such as execution, operation, maintenance and demolition, with a view to eliminating or minimising these risks;
 - 3) list in the AIP only risks and hazards that would not be apparent to an experienced and competent contractor or are likely to require special attention to manage them effectively;
 - 4) provide evidence that appropriate consultation has taken place with all relevant stakeholders, and that full and proper consideration has been given to their respective interests;
 - 5) identify, assess and consider risks and hazards that can affect the structure as a result of other stakeholders' requirements (such as leakage of gas or water mains);
 - 6) identify, assess and take into account risks and hazards posed by the structure to other infrastructure belonging to a third party;
 - 7) include documentation relating to consultation and special requirements of those consulted within the AIP;
 - 8) describe the information that is available concerning existing records and assumptions made regarding the interpretation of available data that will be relevant to the design or assessment; and,
 - 9) list in the TAS all relevant documents that are being proposed for use in the design or assessment.
- 2.28 Documentation relating to consultation and special requirements of those consulted shall be included as part of the AIP submission.

Proposals for designs

- 2.29 In addition to proposals for categories, proposals for designs shall address the following:
- 1) sustainability;
 - 2) environment (both the natural and built environment) and the requirements of any cultural heritage, environmental management plans and walking, cycling and horse riding assessments;
 - 3) aesthetics;
 - 4) buildability;
 - 5) structure robustness;
 - 6) structure resilience;

- 7) water management (describe how water will be managed within the design of the structure. This includes internally (transport of water on and through the structure and sealing of elements to prevent water ingress) and externally (global management considering interface with other assets, such as watercourses, drainage, pavement, geotechnical features, etc.);
- 8) maintenance and operational commitments in terms of whole-life costs in design options and choices of materials;
- 9) provision of safe access for periodic inspection;
- 10) avoidance of a 'barrier to trade' and the requirements for using proprietary manufactured structures or products; and,
- 11) resilience and security.

2.30 Proposals for designs shall include for the likelihood of future heavier loads, all lane running and/or widening and describe how the structure may be upgraded.

2.30.1 In the case of road tunnels, proposals for designs should consider future development above or adjacent to the tunnel.

NOTE It is not intended that additional provision be included within the design unless agreed with the Overseeing Organisation.

2.31 For major structures and those sited in environmentally sensitive locations the TAA shall be consulted at an early stage to determine whether submission is required to relevant environmental or architectural bodies or a design panel.

NOTE 1 Major structures can include tunnel portals, tunnel service buildings and landscaping.

NOTE 2 Environmentally sensitive locations can include National Parks, areas of outstanding natural beauty, green-belts and urban areas.

2.32 Proposals for designs must comply with the relevant environmental and planning legislation during the development of the design.

NOTE Legislation includes, but is not limited to, environmental assessments, environmental statements and habitat surveys.

2.33 Affected stakeholders shall be consulted to ascertain environmental requirements during the development of the design and post construction.

NOTE For example translocation of endangered species, acceptable environmental mitigation and other measures where existing habitats are disrupted.

2.34 Where proposals are located close to or cross watercourses, the relevant national environmental body shall be consulted.

2.35 Proposals for designs shall state any assumptions that have been made with regard to construction processes or temporary works aspects that are significant factors in the design.

NOTE For example the design of an integral bridge could assume a phi value or stiffness for abutment backfill.

2.36 Where construction processes or temporary works during the course of construction have structural implications different from those assumed by the Designer, the TA shall be consulted and agreement obtained before the commencement of construction of that part of the works.

2.37 Proposals by the Designer for an independent checker shall be submitted to the TAA for consideration/agreement.

NOTE Agreement to checkers for category 3 structures depends on relevant experience and competence.

Proposals for assessments

2.38 In addition to proposals for designs, proposals for assessments shall describe proposed arrangements for access, traffic management and intrusive investigation where required.

Departures from standards

2.39 All applications for departures shall be subject to the approval procedures of the Overseeing Organisation.

NOTE Designers or assessors can seek to introduce innovative techniques, research findings or developments in the state of the art and best practice by the adoption of departures.

2.40 Applications for departures shall include reasons and justification, including benefits and dis-benefits to the Overseeing Organisation.

2.41 Applications for departures shall allow sufficient time for consideration by the Overseeing Organisation prior to inclusion in the AIP or an addendum to the AIP.

NOTE In some cases the checker's comments on the proposed departure can be required to assist the TAA in the deliberation.

2.42 Where UK national standards are used, the limitations for the use of departures shall be given in the Overseeing Organisation's requirements.

2.43 Where a structure is in the ownership of the Overseeing Organisation but accommodates other infrastructure that is the responsibility of another party, the party concerned shall be consulted by the Designer or Assessor.

NOTE Factors that affect the design, construction phasing, and obtaining any required agreements together with timescales need to be taken account of.

2.43.1 A record of consultation and any agreements in place or to be put in place with the party should be recorded in the AIP.

NOTE Areas of specific concern can include vehicle restraint systems especially in transition areas, drainage, slopes, maintenance, etc. It is recommended that where possible individual responsibilities are agreed and set out during design and operational phases of the work.

Submission for AIP

2.44 Submissions for AIP to the TAA shall be in accordance with the Overseeing Organisation's requirements.

NOTE Generally submissions comprise a completed AIP, a location plan, a general arrangement drawing, relevant parts of the geotechnical investigation report, documents relating to consultation and any other relevant information or reports.

2.44.1 A single AIP for the whole structure, should be submitted by the Principal Designer.

2.44.2 Where the designs of the superstructure, substructure and/or foundation are carried out by different teams, the designer of the superstructure and/or substructure should give the conditions and loads to be taken into account by the designer of the substructure and/or foundations respectively.

NOTE The Principal Designer is responsible for ensuring that any separately designed elements are compatible.

2.44.3 Relevant information and reports submitted to the TAA should be referenced in the AIP and written with regard to a clear proposal or objective.

2.45 Calculations and detailed drawings shall not form part of the submission.

NOTE Any submitted calculations and detailed drawings will not be reviewed by the TAA.

2.46 The AIP (or O/AIP) shall be based on the relevant sections of the model AIPs provided in Appendix A, Appendix B or Appendix O.

2.47 The AIP shall record all the agreed criteria on which the design or assessment is to be based.

2.48 Deviations from an agreed AIP to account for subsequent variations during design, assessment or execution shall render the AIP invalid.

- 2.49 Revisions to the AIP shall be agreed by the TAA.
- 2.50 Agreement shall be confirmed either in the form of an amended version of the agreed AIP or as a separate addendum to the agreed AIP.
- 2.51 Revised AIP submissions to the TAA for agreement shall:
- 1) clearly indicate deletions or additions that have been made to the agreed AIP;
 - 2) take account of any comments or conditions of approval imposed by the TAA on the original submission;
 - 3) be signed by the Designer/Assessor and Checker and forwarded with supporting information to the TAA; and,
 - 4) ensure addenda refers to the original AIP by the date of agreement by the TAA.

NOTE Retaining the same clause numbering as the original AIP, showing mark-ups, etc. help all reviewers to understand the changes and to minimise duplication of work.

2.51.1 TA should start at an early stage of development of proposals.

NOTE 1 This is particularly important for structures where early submission of AIP to the TAA allows timely consideration of other fundamental aspects, such as crossing requirements and carriageway alignment.

NOTE 2 The period over which TA extends can vary according to the size and complexity of the structure and number of departures. To avoid any unnecessary delay, AIP can be given in stages in the form of interim AIP as principles are evolved. However, the use of interim AIP does not prejudice the agreement of an AIP for the full structure.

Technical approval

- 2.52 Sufficient information shall be provided, by the Designer, to enable the TAA to carry out the following aspects, where applicable:
- 1) appraise the proposed design or assessment criteria, principles and methods;
 - 2) agree the required working life for the structure and its main components;
 - 3) agree the category of the proposals;
 - 4) ensure consideration has been given to any special studies concerning safety and risk assessment and management that have a bearing on the final design or assessment or the construction process;
 - 5) be satisfied that the following have been considered:
 - a) safety;
 - b) sustainability;
 - c) buildability;
 - d) traffic management;
 - e) environmental impact;
 - f) aesthetics;
 - g) structure robustness;
 - h) water management;
 - i) durability;
 - j) maintenance, access and inspection;
 - k) upgradeability;
 - l) whole life costs;
 - m) demolition; and,
 - n) compliance with the Overseeing Organisation's requirements;
 - 6) agree the list of documents included in the TAS and departures;
 - 7) appraise the geotechnical conditions and other relevant investigations;

- 8) appraise the adequacy of existing records and investigation data and the need for further investigations; or studies that have a significant bearing on the preliminary or final design, assessment, execution, operation, maintenance or demolition processes;
- 9) review the adequacy of consultation with other stakeholders and the incorporation of agreed requirements;
- 10) agree proposed category 3 Checker based on their relevant experience and competence;
- 11) resolve any point(s) of difference between the Designer or Assessor and the Checker;
- 12) confirm agreement of Designer and Checker by signature on AIP; and,
- 13) for tunnels, confirmation that the tunnel design authority output report has been signed off.

2.53 When satisfied with the proposals, the TAA shall confirm its agreement by signature of the AIP.

2.54 On completion of the detailed design, check or assessment, the TAA shall receive and consider the appropriate certificates for acceptance.

2.55 The agreement of the AIP or acceptance of the certificates by the TAA shall not relieve the Designer, Assessor nor Checker of any of their responsibilities.

NOTE *Responsibilities include the accuracy of information of all information submitted in TA submissions, the validity and arithmetical correctness of the calculations, methods and techniques and their translations into design details and drawings, specification clauses or assessed capacities.*

2.56 The AIP shall be valid for three years after the date of agreement by the TAA.

2.57 Where the construction has not yet commenced within this 3-year period, the AIP shall be re-submitted to the TAA.

2.58 Prior to re-submission of an AIP it shall be reviewed by the Designer.

2.59 Whether any updating or amendment to the design is required shall be determined by the review and the outcome recorded in an amendment or addendum to the AIP.

2.60 The agreement of the TAA to the re-submitted AIP shall be required before the execution can proceed.

2.61 The works examiner shall inform the TAA of any amendments to the design, during execution, which have structural implications.

2.61.1 The proposed works examiner should be notified to the TAA prior to construction (unless already defined in the contract).

2.62 Any amendments which have structural implications shall be included in an addendum to the AIP.

2.63 Certificates shall be revised to take account of the amendments.

2.63.1 Where the proposed erection procedure induces different stresses in the completed structure from those anticipated in the design, any changes to agreed details in the AIPs or certificates should be covered by an AIP addendum and/or additional certificates.

2.64 Any AIP addendum and/or additional certificates shall require acceptance by the TAA before erection commences.

Design and assessment procedure

2.65 The design/assessment shall comply with the AIP.

2.66 The applicability and accuracy of all computer programs used, and the validity of the programs for each application, shall be ensured by the Designer or Assessor.

Checking procedure

2.67 Assessments, designs, drawings, bar bending schedules and other relevant documentation, shall be checked as follows:

- 1) categories 0 and 1 are checked independently by another engineer who may be from the design/assessment team;
- 2) category 2 are checked by a check team, which may be from the same organisation but independent of the design/assessment team; and,
- 3) category 3 are checked by a check team from a separate organisation proposed by the Designer or Assessor and agreed by the TAA.

2.68 The Checker shall carry out the check, with due professional skill and care, in accordance with the agreed AIP.

2.69 The Checker shall carry out a comprehensive examination of all aspects of the design or assessment in accordance with the Overseeing Organisation's requirements.

NOTE *This can include any proposed departures and specification clauses that could affect structural integrity. (e.g. new materials)*

2.70 The check shall include that the calculations are translated accurately into design details and drawings, specification clauses or assessed capacities.

2.71 During the course of the check a report shall be submitted to the Designer or Assessor and TAA for any aspect of the agreed AIP, design or assessment where changes are considered necessary.

2.72 The agreement of the TAA to variations in the AIP shall be confirmed in accordance with clauses 2.47 to 2.51.

2.73 Any disagreement arising between Designer or Assessor and Checker that they cannot resolve shall be notified immediately to the TAA.

2.74 The Checker's analytical models and analytical work shall be independent of that of the Designer or Assessor and carried out without exchange of calculation sheets, or similar analytical work, between the Designer or Assessor and the Checker.

2.74.1 The Designer or Assessor and the Checker may consult with each other during the course of their work to ensure that the results they are obtaining are comparable.

NOTE *The method of analysis employed by the respective teams need not be the same.*

2.75 The Checker shall take responsibility for the applicability and accuracy of all computer programs used in the check and the validity of the programs for each application.

2.75.1 Both activities of design/assessment and check may proceed in parallel.

Certification

2.76 The certificates shall be signed to declare the satisfactory completion of the work involved and that the organisations concerned have exercised due professional skill and care.

NOTE *For some structures the TAA can call a pre-certification meeting with the Designer/Assessor and the Checker, to discuss their findings prior to accepting certificates.*

2.77 Where structures have an assessed capacity of less than current operational needs or there are aspects with the potential to lead to other safety or operational risks in the near future, the Assessor shall notify the TAA and agree any necessary actions before submitting the certificates.

NOTE *In agreement with the TAA this can be included within the assessment report and include recommendations for risk mitigation measures/options with, where possible, timescales.*

2.78 For all proposals, a single organisation shall assume responsibility for the whole of each activity; the design, assessment, check or construction compliance for the entire structure.

NOTE *Clause 2.78 does not preclude the design of elements of the structure being done by others. However, the responsibility for the overall structure remains with the Principal Designer. This ensures that elements are not designed in isolation and the interfaces between any element and the global performance is included in the design. In relation to the detailed design of elements designed by*

others, the Principal Designer could obtain assurance through certification received from another designer, rely on separate certification (accepted by the TAA) or by producing performance requirements where elements are supplied that meet those, (such as identifying loading, dimensional limits, and movement ranges).

- 2.79 Each certificate shall be endorsed, as required, by the Designer, Assessor, Checker, Contractor's representative and Works Examiner.
- 2.80 Each certificate shall be submitted where required for acceptance by the TAA.
- 2.81 Signatories shall be required from the team leader and another from the principal of the organisation concerned.
- 2.81.1 The team leader may be the Designer, Assessor or Checker.
- 2.82 All signatories to certificates shall:
- 1) be authorised to sign on behalf of their organisation;
 - 2) be competent in the field of work undertaken; and,
 - 3) have relevant experience and appropriate engineering qualifications.
- 2.83 Signatories' qualifications shall be clearly indicated on the certificate along with their name and position in their organisation.
- 2.84 Signatories for the construction compliance certificate shall comprise a representative of the Contractor and principals of both the Contractor and of the Works Examiner.
- 2.85 The signatory for the TAA shall be a person delegated to undertake this task on its behalf.
- 2.86 Where TAA agrees that the design of the superstructure, substructure and/or foundations of highway structures are carried out by different teams, the conditions and loads imposed by the superstructure and/or substructure for the design of the substructure and/or foundation respectively shall be given in the AIP and/or certificate as applicable.
- NOTE** *Clause 2.86 above does not negate the requirement for a single organisation to take overall responsibility for the design of the entire structure.*
- 2.87 Where a proprietary structure or product is supplied in accordance with an O/AIP, and the item has been CE marked in accordance with the CPR, the Designer shall confirm to the TAA in a certificate that they have inspected the declared performance under the CE mark and that declared performance of the item meets the requirements of the O/AIP (refer to Appendix P).
- 2.88 For category 1, 2 and 3 structures the design, assessment and check certificates shall refer to the relevant AIP and any addenda by their respective dates of agreement by the TAA, and any Departures.
- 2.89 Where additional and substitute specification clauses have been prepared by the Designer, they shall be endorsed by the Checker, if in agreement, and submitted as a Departure from standards for acceptance by the TAA.
- NOTE** *Many specifications require the designer to prepare a schedules of performance requirements or set out requirements within an appendix. A Departure is not required for these provided these are prepared in compliance with that specification.*
- 2.89.1 Additional and substitute specification clauses may be submitted either individually or collectively on a specification certificate.
- 2.90 Where additional and substitute specification clauses can affect structural integrity, for example clauses concerning new materials, they shall be checked in accordance with the AIP.
- 2.91 For category 0 structures, the design, assessment and check certificates shall refer to the relevant standards and departures and be submitted for acceptance by the TAA, unless otherwise stated in Sections 3 to 6.
- 2.92 A copy of the general arrangement drawing and any relevant supporting information shall accompany certificates for category 0 structures.

- 2.92.1 Where several similar category 0 or 1 structures occur in a project, with the agreement of the TAA a single certificate may be used to cover them.
- 2.93 Construction of the structure shall not proceed until the design or assessment certificates have been formally accepted by the TAA.
- 2.94 The construction compliance certificate shall be submitted to the TAA for acceptance by the Overseeing Organisation.
- 2.95 The public shall not be permitted to use a structure or have access to places where their safety would depend on the integrity of that structure until the TAA has accepted the Construction Compliance Certificate.
- 2.95.1 The TAA may agree an interim certificate to allow highways to be opened while the information for the final certificate is being prepared.
- NOTE 1 Typically as-built drawings, bar bending schedules and material schedules are completed after construction.*
- NOTE 2 The Interim Construction Compliance Certificate can be based on the model in Appendix N, but clearly marked as "Interim" and omitting any reference to "as-constructed drawings and bar bending schedules".*
- 2.96 Unless otherwise stated in Sections 3 to 6, the construction compliance certificate shall refer to, if available, the relevant AIP, design and check certificates, specification and as-constructed drawings.
- 2.97 The format of certificates shall be agreed with the Overseeing Organisation.
- NOTE 1 The wording on certificates can vary depending on the Overseeing Organisation's particular requirements/type of contract.*
- NOTE 2 Model certificates are provided in Appendices I to N.*
- 2.97.1 Where the completed certificate consists of more than one page, each page should be identifiable by the name of the project and by the name and reference number of the structure and the date of preparation.
- 2.98 The forms of certificate defined in the contract requirements shall be used.
- 2.99 All certification, after acceptance by the TAA, shall be uploaded onto the Overseeing Organisation's structures management system.

Records

- 2.100 Relevant data, information and documents, which have an effect on safety, access, structural or traffic management, such as assessed load carrying capacity of structure, shall be recorded as required by the Overseeing Organisation's management system for structures.
- 2.101 For categories 2 or 3 checks, when Eurocodes are used, the Designer's record for the choices and options adopted shall not be submitted to the TAA.
- 2.102 For categories 2 or 3 checks, when Eurocodes are used, the Designer record shall be recorded as required in the Overseeing Organisation's management system for structures.

3. Bridges and other highway structures

- 3.1 This section covers specific TA requirements for bridges and other highway structures and shall be read in conjunction with Sections 1 and 2.
- 3.2 The TA requirements shall be applied without limitation to:
- 1) design and execution of new structures;
 - 2) assessment and related construction work, whether refurbishment, maintenance or strengthening, that affects structural integrity;
 - 3) assessment relating to loading beyond that for which a structure has been designed or previously assessed; and,
 - 4) assessment relating to loading for which a structure has been designed or previously assessed but the condition of the critical structural elements has subsequently deteriorated to the extent that a reassessment is required.
- 3.3 In addition to 1.1, the procedures described in this Section shall be applied to the following highway structures:
- 1) bridge, buried structure, subway, underpass, culvert and any other structure over the highway or supporting the highway with a clear span or internal diameter greater than 0.9 m;
 - 2) overhead crossing carrying conveyor or utility service;
 - 3) movable inspection access gantry, gantry rail and gantry support system;
 - 4) earth retaining structure where the effective retained height, i.e. the level of fill at the back of the structure above ground level in front of the structure is greater than 1.5 m;
 - 5) reinforced/strengthened soil/fill structure, with hard facings where the effective retained height is greater than 1.5 m;
 - 6) reinforced/strengthened soil/fill which is an integral part of another highway structure;
 - 7) portal and cantilever sign and/or signal gantry;
 - 8) minor structures listed below:
 - a) cantilever mast for traffic signal and/or speed camera;
 - b) lighting column;
 - c) high mast of more than 20 m in height, i.e. the vertical distance from top of post to bottom of flange plate, for lighting;
 - d) mast for monitoring equipment. i.e. camera, radio and telecommunication transmission equipment;
 - e) catenary lighting support system;
 - f) noise barrier;
 - g) traffic sign/signal posts of more than 7 m in height, i.e. the vertical distance from top of post to bottom of flange plate or top of foundation, whichever is the lesser;
 - h) other 'mast type' structures identified by the TAA as requiring technical approval.
 - i) 'fence type' structures, including environmental barriers, visual screens and fencing, identified by the TAA as requiring technical approval
 - 9) proprietary manufactured structure or product;
 - 10) reinforced/strengthened soil/fill structure where hard facings are not provided and the face inclination exceeds 45 degrees, unless agreed with the Overseeing Organisation that structural TA in accordance with this document is not required;
 - 11) fitting of M&E apparatus and fixtures to existing structures, including tunnels, either permanent or temporary;
 - 12) design, selection and installation of cathodic protection systems for reinforced concrete structures; and,
 - 13) safety critical fixings (as defined in CD 372 [Ref 4.N])

Category

3.4 In addition to 2.20 to 2.26, the following criteria shall be considered when determining category.

3.4.1 The TAA may require a higher or lower category where deemed appropriate.

Category 0

3.5 Category 0 structures shall:

- 1) conform in all aspects of design, assessment and execution to DMRB and MCHW standards;
- 2) contain no departures; and,
- 3) be a structure covered by clause 3.6

3.6 Unless otherwise indicated by the TAA the following structures shall be category 0:

- 1) single-span structures with span of less than 5 m;
- 2) buried concrete boxes, buried rigid pipes and corrugated steel buried structures of less than 3 m clear span/diameter and having more than 1 m cover;
- 3) multi-cell buried structures, where the cumulative span is less than 5 m, and having more than 1 m cover;
- 4) earth retaining structures with an effective retained height of greater than 1.5 m but less than 2.5 m;
- 5) minor structures listed within clause 3.3 (8) and not situated at a very exposed site as defined in CD 354 [Ref 3.N];
- 6) high masts 25 m or less in height and not situated at a very exposed site as defined in CD 354 [Ref 3.N].
- 7) noise barriers less than 7 m high and without overhangs;
- 8) masonry arches with span of less than 6.5 m (for assessment only); and,
- 9) portal and cantilever sign and/or signal gantries compliant with a generic AIP.

Category 1

3.7 Category 1 structures shall:

- 1) conform in all aspects of design, assessment and execution to DMRB and MCHW standards;
- 2) contain no departures; and,
- 3) be a structure covered by clause 3.8.

3.8 Unless otherwise indicated by the TAA the following structures shall be category 1:

- 1) structures with a single simply supported or integral span of 5 m or greater but less than 20 m and having less than 25° skew;
- 2) buried concrete boxes, buried rigid pipes and corrugated steel buried structures with a clear span/diameter of 8 m or less;
- 3) earth retaining structures with an effective retained height of 2.5 m or greater but less than 7 m;
- 4) minor structures outside the limits of those listed within clause 3.3 item (8) or situated at a very exposed site as defined in CD 354 [Ref 3.N];
- 5) high masts greater than 25 m in height or situated at a very exposed site as defined in CD 354 [Ref 3.N];
- 6) noise barriers 7 m or more in height or with overhangs; and,
- 7) portal and cantilever sign and/or signal gantries with a span of less than 20 m.

Category 2

3.9 Structures not included within the parameters of categories 0, 1 or 3 shall be category 2.

Category 3

3.10 Complex structures which require sophisticated analysis or have any one of the following features shall be category 3:

- 1) high structural redundancy;
- 2) unconventional, novel or esoteric design aspects;
- 3) any span exceeding 50 m;
- 4) skew exceeding 45 degrees;
- 5) difficult foundation problems;
- 6) movable bridges;
- 7) movable inspection access gantries, gantry rail and gantry support systems;
- 8) bridges with suspension systems;
- 9) steel orthotropic decks;
- 10) post-tensioned concrete structures;
- 11) earth retaining structures with an effective retained height of 14 m or greater;
- 12) rock anchorages and anchorages forming part of a structure.
- 13) portal sign and/or signal gantries with a span greater than 50 m;
- 14) structures with hidden or difficult to inspect critical elements; or,
- 15) structures with cathodic protection systems installed in accordance with clause 6.5 of CD 370 [Ref 1.N].

Assessment and related construction work

3.11 The assessment of load carrying capacity of existing structures and related construction work, such as demolition, repair, renewal, refurbishment and strengthening work that affects structural integrity, shall be categorised on the same basis that the original structure would have warranted.

3.11.1 The TAA may require a higher or lower category where deemed appropriate.

Technical approval

3.12 Sufficient information to enable the TAA to consider the following aspects, where applicable, shall be provided by the Designer or Assessor in addition to clause 2.52:

- 1) cross-section and headroom clearances;
- 2) the loading and design or assessment criteria;
- 3) any provision to be made additional to items (1) and (2) for abnormally high and/or heavy loads;
- 4) the structural adequacy at all stages of construction work, such as repairs, strengthening, monitoring, partial renewals or demolitions;;
- 5) proposals for the independent checking of temporary works; and,
- 6) that proper consideration has been given to the adoption of proprietary manufactured structures or products with CE markings by the Overseeing Organisation (see Appendix P).

NOTE The list in clause 3.12 above is not necessarily exhaustive.

Certification

3.13 For category 0 minor structures as defined in 3.6(5) a certificate in the form given in Appendix J and an EC certificate or declaration of conformity shall be submitted to the TAA for retention.

Documentation

3.14 The AIP for highway structures within the scope of this section shall be based on the relevant model AIP forms given in Appendices A and B.

3.15 TASs shall be prepared in accordance with the notes given in Appendix H.

3.16 Certificates shall be based on the relevant model certificates given in Appendices I, J and N.

NOTE The form of certificates can vary depending on the Overseeing Organisation's particular requirements.

4. Temporary works

- 4.1 This section describes the TA requirements for temporary works including temporary structures and shall be read in conjunction with Sections 1 to 3.
- 4.2 All temporary works proposals shall be reviewed and allocated into one of the following categories:
- 1) type N proposals: temporary works having no potential for impact on client or third party assets or on any person other than those under the direct control of the Principal Contractor;
 - 2) type S (structure) proposals: erection proposals or temporary works which require both:
 - a) an independent check of the effects of temporary works on permanent works (refer to the AIP for permanent works), and,
 - b) where the works would not affect or potentially affect any highway or other way or area used by or accessible to the public; and,
 - 3) type P (public) proposals: erection proposals, temporary works including those over, under, alongside or otherwise affecting or potentially affecting any highway or other way or area used by, or accessible, to the public.
- 4.3 Where required a summary of the categorised list shall be provided to the TAA.
- 4.4 The TA requirements shall be applied to type S and type P proposals.
- 4.4.1 Where necessary and depending on the degree of risk, the TAA may change the proposal from type N to type S or from type S to type P.
- 4.4.2 Where the temporary works are permanently left in place (e.g. sheet piling), they may be considered instead, if appropriate, in the AIP of the permanent highway structure.

Scope

- 4.5 In addition to 1.1, the procedures described in this section shall be applied without limitation to the following temporary structures:
- 1) temporary works and falsework for major and complex structures;
 - 2) proposals where erection procedure, method of construction or the procedure for the demolition or removal of an existing structure is of critical importance;
 - 3) purpose built or prefabricated forms of temporary works that are alongside or temporarily support or span live carriageways or railway lines or other areas with public access, including facilities or construction procedures that maintain the structural integrity or safe operation of an existing structure; and,
 - 4) temporary works details, erection proposals or construction procedures involving work that affects or potentially affects the structural integrity or operating procedures of a structure during its reconstruction, demolition and removal, maintenance, monitoring, alteration or repair.

Category of temporary works

- 4.6 The category adopted shall reflect the adverse consequences of any potential failure and comply with clauses 2.20 to 2.26.
- 4.7 For type N proposals, the Contractor's own procedures shall determine the relevant category.
- 4.8 For type S proposals, the category shall be the same as the category of the permanent structure.
- 4.9 For type P proposals, the category shall be 2 or 3.
- 4.9.1 Where agreed with the TAA that the risk is relatively minor and the reasoning is recorded in the AIP (or certificate in the case of category 0), proposals may be lowered to category 1 or 0.

Design criteria relating to permanent works

- 4.10 Design criteria for temporary works shall include all relevant design data concerning the design and construction of the permanent works.

- 4.11 The design data shall include, where applicable:
- 1) protection and/or safe operation of the permanent work or live carriageway during the use of a temporary highway structure; and,
 - 2) temporary conditions of construction of new designs or the alteration of existing structures.

NOTE Relevant design data can include allowable deflections, settlements, rotations, loading, jacking forces, propping requirements, clearances, impact protection, erection or demolition procedures, traffic control, carriageway possessions, etc.

Proposals

- 4.12 The limits of application of a submission and related certification shall be clearly described and, where applicable, related to constraints of staged construction.
- 4.13 Proposals shall state the criteria that have been adopted to encompass the technical, operational and safety requirements of the authorities consulted.
- 4.14 Proposals shall demonstrate to the satisfaction of the TAA that safeguards and contingency measures have been introduced and will be maintained throughout the duration of the work.

Type N proposals

- 4.15 No certification shall be submitted to the Overseeing Organisation.

NOTE The Contractor is responsible for all aspects of this work.

Type S proposals

- 4.16 For type S temporary works proposals the classification shall be agreed with the TAA.
- 4.17 Check certificate shall be required to confirm checking is carried out.
- 4.18 Design certificate and AIP of temporary works shall not be required.
- NOTE They are not required as there is no risk to the public and the contractor is responsible for the safety and adequacy of erection or temporary works proposals.*
- 4.19 Prior to the commencement of the relevant parts of the works, check certificate(s) based on those given in Appendix K related to type S proposals shall be submitted to the TAA.
- 4.20 The check certificate shall be recorded and kept in the Overseeing Organisation's management system for the permanent structure.

NOTE The purpose of requiring a certified independent check is to ensure that not only are the erection proposals and/or temporary works details properly prepared but also that an independent engineer examines and certifies for their adequacy.

Type P proposals

- 4.21 Unless otherwise stated in 4.24 and 4.25 or agreed with the TAA as category 0, proposals for temporary works shall be described in an AIP in accordance with the requirements and form of submission described in Section 2.
- 4.22 Unless otherwise stated in 4.24 and 4.25, all design, checking and certification of temporary works for type P proposals shall comply with the TA procedures of Sections 1 and 2.
- 4.23 The type P certificate shall be accepted by the TAA before consent to proceed with the works can be given.
- 4.24 Special requirements given in the respective NAAs shall be complied with for third party proposals of temporary works or temporary structures that are not described in Sections 3 to 6.

- 4.25 Special requirements given in the respective NAAs shall be complied with where the Overseeing Organisation has no specific competence or expertise to enable it to review the safety aspects of the proposal.

Technical approval

- 4.26 Sufficient information to enable the TAA to consider the following aspects, where applicable and in addition to clause 2.52, shall be provided by the Designer:
- 1) structural adequacy and stability at all stages;
 - 2) precautions during erection/dismantling operations;
 - 3) protection of the temporary works (including protection against vehicle or other impact);
 - 4) general provisions in terms of permanent works execution;
 - 5) loading and design criteria, including factors of safety where limit states design codes for bridges are not used;
 - 6) effects on any existing structures or earthworks assessed by the permanent works designer during design;
 - 7) working spaces for installation and removal;
 - 8) clearances and access for construction plant and machinery; and,
 - 9) provision for periodic inspection and checking.

NOTE The list in clause 4.26 above is not necessarily exhaustive.

Documentation

- 4.27 The AIP for temporary works within the scope of this Section shall be based on the model forms given in Appendices A or B, as relevant.
- 4.28 TASs shall be prepared in accordance with the notes given in Appendix H.
- 4.29 The certificates shall be based on the model certificates given in Appendices K, L and N.

NOTE The form of certificates can vary depending on the Overseeing Organisation's particular requirements.

- 4.30 A certificate of construction compliance shall be provided for temporary bridges and any structures and installations identified by the TAA .

NOTE Generally a certificate of construction compliance is not required for temporary works.

Special requirements concerning third party proposals

- 4.31 For third party proposals of temporary works or temporary structures that are not described in Sections 3 to 6, or where the Overseeing Organisation does not have a specific knowledge or expertise, the OO shall not be able to give an opinion on whether they are safe or not.
- 4.32 The third party shall have the required experience and competence to carry out the proposed works and be responsible for them.
- 4.33 The steps set out in clauses 4.34 and 4.35 shall be taken to ensure that the proposal is safe and the works are safely carried out.
- 4.34 The third party shall seek an agreement for its proposal and draw up a legal agreement with the Overseeing Organisation.
- 4.35 The legal agreement shall contain, amongst other things, the following:
- 1) outline procedures in dealing with the proposal which can include:
 - a) certification to confirm that the principles of design and/or execution have been appropriately transformed into an appropriate design using due reasonable professional skill and care;

- b) required information to be submitted to the Overseeing Organisation. Where appropriate this could be a general arrangement drawing, reason for structure, type of highway, traffic speed, description of structure, span arrangements, headrooms, foundation types, arrangement for inspection and maintenance, highway and other live loadings, ground conditions, risks and hazards, period of service, etc.;
 - c) seeking and taking into consideration of Overseeing Organisation considered comments on the proposal. If the Overseeing Organisation consider there is any safety issue and that safety issue is not resolved to the satisfaction of the Overseeing Organisation, the works cannot be carried out; and,
 - d) administrative processes e.g. establish contact points; agree relevant periods of notices; third party to give notifications; Overseeing Organisation to give comments and requirements; Overseeing Organisation to grant agreement; third party to start work; Overseeing Organisation to serve notice to stop work etc;
- 2) for temporary works or temporary structures, the following are to be considered:
- a) the Overseeing Organisation is not required to approve or disapprove the temporary works or temporary structures or any of their isolated aspects;
 - b) a statement to confirm that the proposal is in compliance with normal industry standards and practices;
 - c) clearances e.g. headroom;
 - d) effect of temporary works or temporary structures on roads such as sight line or other highway structures (load on bridges);
 - e) where appropriate, requirement of geotechnical certification to CD 622 [Ref 10.N];
 - f) where there is little or no proven track record of the proposal or the proposal is an innovative solution, it is recommended that the proposal first be tried on a test site or a minor road; and,
 - g) certification to confirm that the proposal has been checked by an appropriately qualified and competent organisation which is independent from the third party. The relevant experience/competence of the Checker is to be agreed with the Overseeing Organisation before employing them;
- 3) for aspects other than temporary works or temporary structures, the following are to be considered:
- a) for road traffic operations and/or management such as signage, parking and access of support vehicles, coning, lighting etc that are described in sections 3 to 6 or where Overseeing Organisation have the necessary expertise, the normal Overseeing Organisation practices required for appropriate Overseeing Organisation technical approval processes or operational requirements are to be applied; and,
 - b) the relevant parts of the Design Manual for Roads and Bridges are to be applied and Departures sought where appropriate;
- 4) agreement on an amount of public liability insurance and provision of a copy of the insurance certificate to the Overseeing Organisation;
- 5) provide confirmation to the Overseeing Organisation that the third party has taken appropriate safety advice identifying what advice has been taken and from whom;
- 6) agree to making good of any damages due to the work by the third party and obtain a certificate from the Overseeing Organisation area maintaining agent that the condition of the road network is almost the same before and after the work by the third party; and,
- 7) confirmation that all costs associated with the proposal will be borne by the third party.

5. Road tunnel and service tunnel structures

5.1 Technical approval (TA) requirements in this section shall be followed for the following:

- 1) road tunnel structures;
- 2) service tunnels where the internal diameter is greater than 2 m; and,
- 3) major tunnelling or building operations within the zone of influence of an existing road tunnel.

5.2 This section shall be read in conjunction with Sections 1, 2 and 6, and in the case of cut-and-over construction and for tunnel portals and road decks, the relevant parts of Section 3.

5.3 The requirements of the Tunnel Design and Safety Consultation Group shall be complied with.

5.4 The TA requirements within this document shall not apply to service tunnels where the internal diameter is 2 m or less.

5.5 For service tunnels where the internal diameter is 2 m or less requirements of CD 622 [Ref 10.N] shall apply.

Scope

5.6 In addition to 1.1, the procedures described in this Section shall be applied to:

- 1) the design and execution of new road tunnels, tunnel services buildings and service tunnels;
- 2) the assessment of existing tunnels that are subject to the effects of new temporary or permanent construction above or adjacent to the tunnel structure; and,
- 3) the refurbishment and strengthening of existing road tunnels.

Category

5.7 In addition to clauses 2.20 to 2.26, proposals for the design or assessment of road tunnel structures and service tunnels shall be in category 3.

Technical Approval

5.8 Sufficient information to enable the TAA to consider the following aspects, where applicable and in addition to clause 2.52, shall be provided by the Designer:

- 1) structure and form:
 - a) methods of excavation and construction including proposed ground categorisation for tunnelling;
 - b) tunnel profile;
 - c) bore spacing;
 - d) portal design;
 - e) waterproofing;
 - f) maintenance access;
 - g) ventilation shafts;
 - h) proposed tunnel wall finish;
 - i) fire resistance;
 - j) stability of ground above portals;
 - k) primary support design;
 - l) groundwater control;
 - m) effect on overlying or adjacent structures or tunnels;
 - n) secondary lining and cladding;
 - o) ground movements;
 - p) loading history of the site and effect of proposed new loading sequences;
 - q) the adequacy of the assessment of the loading conditions involved;

- r) water management; and,
 - s) safety critical fixings.
- 2) alignment and clearances:
- a) site constraints;
 - b) highway and tunnel alignment;
 - c) stopping sight distances;
 - d) carriageway and verge widths;
 - e) duct provision for services;
 - f) horizontal and vertical clearances;
 - g) effect of super-elevation;
 - h) space requirements for equipment beyond the traffic space;
 - i) cross-connections between traffic bores and escape passages;
 - j) emergency point spacing;
 - k) tunnel signing;
 - l) parking for emergency vehicles;
 - m) area for casualty attendance; and,
 - n) emergency crossovers and portal space.
- 3) general:
- a) provision made for inspection and maintenance;
 - b) proposals for the checking of temporary works;
 - c) the safeguards adopted to ensure that construction effects are kept within tolerable limits;
 - d) an intervention facility being in place to regulate progress or halt work in the event of unforeseen situations which might adversely affect or compromise the structural integrity or operational regime of the tunnel; and,
 - e) the arrangements to sustain all necessary liaison between interested stakeholders.

NOTE *This list in clause 5.8 above is not necessarily exhaustive.*

Documentation

5.9 The AIP for road tunnel and service tunnel structures within the scope of this section shall be based on the model AIP form given in Appendix C.

5.10 TASs shall be prepared in accordance with the notes given in Appendix H.

5.11 Certificates shall be based on the relevant model certificates given in Appendices I and N.

NOTE *The form of certificates can vary depending on the Overseeing Organisation's particular requirements.*

6. Mechanical and electrical installations

6.1 This section describes specific TA requirements for mechanical and electrical (M&E) installations in highway structures and shall be read in conjunction with Sections 1, 2 and 3 or 5 as required.

Scope

6.2 In addition to 1.1, the procedures described in this Section shall be applied without limitation to the following:

- 1) movable bridges and bridge access gantries;
- 2) road tunnels and tunnel services buildings; and,
- 3) pumped drainage installations for underpasses.

Category

6.3 In addition to 2.20 and 2.26, proposals for work covered by this section shall be in category 3.

Proposals

6.4 In addition to clauses 2.27 to 2.29, proposals shall:

- 1) be presented in terms of preliminary and/or final design proposals as required with due consideration to whole life costs;
- 2) fully describe the provision to be made for component replacement;
- 3) fully describe the provision for keeping the facility operational in the event of component failure; and,
- 4) include a draft report on maintenance and operating procedures (safety consultation document) based on the relevant model document in Appendix F and G.

Technical Approval

6.5 Sufficient information to enable the TAA to consider the following aspects, where applicable and in addition to clause 2.52, shall be provided by the Designer:

- 1) the adequacy of the consultation and proposals forming the basis of the draft operating procedures (safety consultation document);
- 2) for movable bridges:
 - a) the provision of integrated methods of incorporating safety of road users and bridge operatives (e.g. road barriers and traffic lights, linked to the bridge moving mechanism, to safeguard bridge users);
 - b) the static and dynamic loading and design criteria under normal and adverse operating conditions including 'locked-in' stresses and over-turning;
 - c) that all loads for the M&E design are consistent with those for the design of the bridge structure;
 - d) the adequacy of system redundancy to guard against single component failure; and,
 - e) the provision for manual operation (e.g. in the event of power failure or equipment failure).

NOTE This list in clause 6.5 above is not necessarily exhaustive.

Mechanical and electrical Installation certification

6.6 The design and check certificates shall take account of 2.82 to 2.96 and be carried out in two stages.

6.7 Stage 1 certification shall:

- 1) confirm that the principles in the AIP are valid and that they have been translated into appropriate levels of equipping, design and specification;

- 2) confirm that sufficient information has been provided to enable the detailed design of the installation to be developed and completed in accordance with the Overseeing Organisation's requirements; and,
- 3) require that details of work tests for equipment/systems tested at the manufacturer's work site and commissioning trials have been specified for the purpose of performance verification and formal handover.

6.8 Stage 2 certification shall confirm that the following meet the Overseeing Organisation's requirements:

- 1) the completed design proposals;
- 2) the testing of components; and,
- 3) the commissioning of the complete installation.

6.9 The format and wording of stage 1 and stage 2 certificates shall be agreed with the TAA.

6.10 A copy of the relevant safety consultation document with original signatures shall accompany the design and check certificates.

Documentation

6.11 The AIPs for highway structures within the scope of this section shall be based on Appendices D and E.

6.12 The relevant safety consultation documents that shall be used are given in Appendices F and G.

6.13 TASs shall be prepared in accordance with the notes given in Appendix H.

6.14 The certificates shall be based on the relevant model certificates provided in Appendices I and N.

NOTE *The form of certificates can vary depending on the Overseeing Organisation's particular requirements.*

7. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

Ref 1.N	Highways England. CD 370, 'Cathodic protection for use in reinforced concrete structures.'
Ref 2.N	305/2011/EU, 'Construction Products Regulation'
Ref 3.N	Highways England. CD 354, 'Design of minor structures'
Ref 4.N	Highways England. CD 372, 'Design of post-installed anchors and reinforcing bar connections in concrete'
Ref 5.N	Highways England. GD 304, 'Designing health and safety into maintenance'
Ref 6.N	BSI. BS EN 1991-2, 'Eurocode 1. Actions on structures. Traffic loads on bridges'
Ref 7.N	BSI. BS EN 1990, 'Eurocode: Basis of structural design'
Ref 8.N	Highways England. GG 103, 'Introduction and general requirements for sustainable development and design'
Ref 9.N	Highways England. GG 101, 'Introduction to the Design Manual for Roads and Bridges'
Ref 10.N	Highways England. CD 622, 'Managing geotechnical risk'

8. Informative references

The following documents are informative references for this document and provide supporting information.

Ref 1.l	Highways England. CD 352, 'Design of road tunnels'
Ref 2.l	HMSO. Merrison Report, 'Inquiry into the Basis of Design and Method of Erection of Steel Box Girder Bridges'
Ref 3.l	Highways England. Standards for Highways (website), ' www.standardsforhighways.co.uk '

Appendix A. Model form of Approval in Principle for the design of bridges and other highway structures where UK National Standards (Eurocodes) are used

Project details:

Name of project

Name of bridge or structure

Structure reference no.

Summary: set out a brief summary of what this AIP covers, why it is necessary and anticipated construction dates.

1. HIGHWAY DETAILS

1.1 Type of highway

1.2 Design traffic speed ¹

1.3 Existing restrictions ²

2. SITE DETAILS

2.1 Obstacles crossed

3. PROPOSED STRUCTURE

3.1 Description of structure and design working life ³

3.2 Structural type

3.3 Foundation type

3.4 Span arrangements

3.5 Articulation arrangements⁴

3.6 Classes and levels⁵

1) consequence class;

2) reliability class;

3) inspection level.

3.7 Road restraint systems requirements

3.8 Proposals for water management⁶

3.9 Proposed arrangements for future maintenance and inspection

1) traffic management;

2) arrangements for future maintenance and inspection of structure. Access arrangements to structure.

3.10 Environment and sustainability⁷

3.11 Durability - materials and finishes ⁸

3.12 Risks and hazards considered for design, execution, maintenance and demolition. Consultation with and/or agreement from Overseeing Organisation ⁹

3.13 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.

3.14 Proposed arrangements for construction

- 1) construction of structure;
- 2) traffic management;
- 3) service diversions;
- 4) interface with existing structures.

3.15 Resilience and security.

4. DESIGN CRITERIA

4.1 Actions

- 1) permanent actions;
- 2) snow, wind and thermal actions;
- 3) actions relating to normal traffic under AW regulations and C&U regulations¹⁰;
- 4) actions relating to General Order traffic under STGO regulations ¹¹;
- 5) footway or footbridge variable actions;
- 6) actions relating to Special Order traffic, provision for exceptional abnormal indivisible; loads including location of vehicle track on deck cross-section ^{12, 13};
- 7) accidental actions;
- 8) actions during construction;
- 9) any special action not covered above ¹⁴.

4.2 Heavy or high load route requirements and arrangements being made to preserve the route, including any provision for future heavier loads or future widening

4.3 Proposed minimum headroom to be provided

4.4 Set out measures that will be incorporated into design to minimise maintenance.¹⁵

4.5 Authorities consulted and any special conditions required

4.6 Standards and documents listed in the technical approval schedule (TAS)

4.7 Proposed departures from standards listed in 4.6

4.8 Proposed departures from standards concerning methods for dealing with aspects not covered by standards listed in 4.6

4.9 Proposed safety critical fixings

5. STRUCTURAL ANALYSIS

5.1 Methods of analysis proposed for superstructure, substructure and foundations ¹⁶

5.2 Description and diagram of idealised structure to be used for analysis

5.3 Assumptions intended for calculation of structural element stiffness

5.4 Proposed range of soil parameters to be used in the design of earth retaining elements

6. GEOTECHNICAL CONDITIONS

6.1 Acceptance of recommendations of the ground investigation report (reference/dates) to be used in the design and reasons for any proposed changes

6.2 Summary of design for highway structure in the ground investigation report

6.3 Differential settlement to be allowed for in the design of the structure

6.4 If the ground investigation report is not yet available, state when the results are expected and list the sources of information used to justify the preliminary choice of foundations ¹⁷

7. CHECK

7.1 Proposed category and design supervision level

7.2 If category 3, name of proposed independent checker

7.3 Erection proposals or temporary works for which types S and P proposals will be required, listing structural parts of the permanent structure affected with reasons

8. DRAWINGS AND DOCUMENTS

8.1 List of drawings (including numbers) and documents accompanying the submission ¹⁸

9. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

We confirm that details of the temporary works design will be/have been¹⁹ passed to the permanent works designer for review.²⁰

Signed _____

Name _____ Design Team Leader

Engineering Qualifications _____ ²¹

Name of Organisation _____

Date _____

Signed _____

Name _____ Check Team Leader

Engineering Qualifications _____ ²¹

Name of Organisation _____

Date _____

10. THE ABOVE IS REJECTED/AGREED¹⁹ SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW²⁰

Signed _____

Name _____

Position held _____

Engineering Qualifications _____ ²¹

TAA _____

Date _____

Notes

- 1) For a bridge, give over and/or under.
- 2) Include weight, height, width and any environmental restrictions at or adjacent to the bridge.

- 3) The design working life of the structure including temporary structure, and replaceable structural parts are to be given. They are to be expressed as a number of years rather than a range of years. A design working life is to be based on the DMRB if stated, otherwise it may be based on the guidance given in the Overseeing Organisation's current requirements for the use of Eurocodes for the design of highway structures.
- 4) Bearings and joints are components that will require maintenance and are vulnerable to water ingress. Where it is proposed not to have a structure with integral construction provide justification for that.
- 5) State the classes and levels for the whole structure, as well as those for the individual structural elements if higher or lower. See the Overseeing Organisation's current requirements for the use of Eurocodes for the design of highway structures.
- 6) Describe how water will be managed within the design of the structure. This includes internally (transport of water through the structure and sealing of elements to prevent water ingress) and externally (global management considering interface with other assets, (watercourses, drainage, pavement, geotechnical features, etc.)
- 7) Designers to set out the measures they will put in place to ensure that the design will follow industry guidance and best practice on environmental and sustainability aspects in accordance with GG 103 [Ref 8.N].
- 8) For concrete structures, give applicable exposure classes for particular structural elements. For all material strengths given, list the relevant codes/standards.
- 9) Designers to confirm that they have reviewed the risks and hazards identified in the AIP and are satisfied. Also see clause 2.27.
- 10) e.g. Load Models 1 and 2, BS EN 1991-2 [Ref 6.N]
- 11) e.g. SV model vehicle in Load Model 3, BS EN 1991-2 [Ref 6.N]
- 12) e.g. SOV model vehicle in Load Model 3, BS EN 1991-2 [Ref 6.N] and/or individual vehicle which includes the following information as applicable:
 - a) gross weight of the vehicle in tonnes and vehicle type and number;
 - b) axle load and spacing (longitudinally and transversely);
 - c) air cushion in tonnes over area applied (in metres, longitudinally and transversely);
 - d) single or twin tyres and wheel contact areas.
- 13) The heavy or high load route requirements should be confirmed by the relevant administration e.g. Abnormal Indivisible Load team in Highways England.
- 14) e.g. seismic action, atmospheric icing, floating debris, etc.
- 15) Designs that have minimal maintenance provide significant benefits in reducing the safety risk to the workforce and reducing disruption to the network. Designs that include elements with relatively high maintenance interventions need to be justified through the maintenance and repair statement in accordance with GD 304 [Ref 5.N].
- 16) List the main structural elements for superstructure, substructure and foundation. If the designs of the superstructure, substructure and/or foundation are carried out by different teams, refer to clause 2.84.
- 17) When the ground investigation report becomes available, an addendum to the AIP, covering section 6, is to be submitted to the TAA. The addendum is to have its own sections 8, 9 and 10 to provide a list of drawings, documents and signatures.
- 18) Include, without limitation:
 - a) technical approval schedule (TAS);
 - b) general arrangement drawing;
 - c) relevant extracts from the ground investigation report;
 - d) departures;
 - e) relevant correspondence and documents from consultations.
- 19) Delete as appropriate.

- 20) This statement is applicable to temporary works design AIP only.
- 21) CEng MICE, CEng MIStructE or equivalent.
- 22) 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 is to be re-submitted to the TAA for review.

Appendix B. Model form of Approval in Principle for the design/assessment of bridges and other highway structures where UK National Standards (Non-Eurocodes) are used

Model form of Approval in Principle (AIP) for the design/assessment¹ of bridges and other highway structures where UK national standards (non-Eurocodes) are used.

Project details:

Name of project:

Name of bridge or structure:

Structure reference no.

Summary: set out a brief summary of what this AIP covers, why it is necessary and anticipated construction dates.

1. HIGHWAY DETAILS

1.1 Type of highway

1.2 Design traffic speed ²

1.3 Existing restrictions ³

2. SITE DETAILS

2.1 Obstacles crossed

3. PROPOSED STRUCTURE

3.1 Description of structure and design working life

3.2 Structural type

3.3 Foundation type

3.4 Span arrangements

3.5 Articulation arrangements

3.6 Road restraint systems requirements

3.7 Proposals for water management

3.8 Proposed arrangements for future maintenance and inspection/inspection for assessment:¹

1) traffic management

2) arrangements for future maintenance and inspection of structure. Access arrangements to structure

3) intrusive or further investigations proposed^A

3.9 Environment and sustainability

3.10 Durability - materials and finishes/materials strengths assumed and basis of assumptions^{1,4}

3.11 Risks and hazards considered for design, execution, maintenance and demolition. Consultation with and/or agreement from the Overseeing Organisation ⁵

3.12^D 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.

3.13^D Proposed arrangements for construction:

- 1) construction of structure
- 2) traffic management
- 3) service diversions
- 4) interface with existing structures

3.14 Resilience and security

3.15^A Year of construction.

3.16^A Reason for assessment.

3.17^A Part of structure to be assessed.

4. DESIGN/ASSESSMENT¹ CRITERIA

4.1 Actions:

- 1) permanent actions
- 2) snow, wind and thermal actions
- 3) actions relating to normal traffic under AW regulations and C&U regulations ⁶
- 4) actions relating to General Order traffic under STGO regulations ⁷
- 5) footway or footbridge variable actions
- 6) actions relating to Special Order traffic, provision for exceptional abnormal indivisible loads including location of vehicle track on deck cross-section ⁸
- 7) accidental actions
- 8) actions during construction
- 9) any special action not covered above ⁹

4.2 Heavy or high load route requirements and arrangements being made to preserve the route, including any provision for future heavier loads or future widening ¹⁰

4.3 Minimum headroom provided

4.4 Authorities consulted and any special conditions required

4.5 Standards and documents listed in the Technical Approval Schedule (TAS)

4.6 Proposed departures from standards listed in 4.5

4.7 Proposed departures from standards concerning methods for dealing with aspects not covered by standards in 4.5

4.8 Proposals for design/assessment¹ of safety critical fixings.

5. STRUCTURAL ANALYSIS

5.1 Methods of analysis proposed for superstructure, substructure and foundations ^{11, 12}

5.2 Description and diagram of idealised structure to be used for analysis

5.3 Assumptions intended for calculation of structural element stiffness

5.4 Proposed range of soil parameters to be used in the design/assessment of earth retaining elements ¹³

6. GEOTECHNICAL CONDITIONS

6.1 Acceptance of recommendations of the ground investigation report to be used in the design/assessment¹ and reasons for any proposed changes

6.2 Summary of design for highway structure in ground investigation report

6.3 Differential settlement to be allowed for in the design/assessment¹ of the structure

6.4^D If the ground investigation report is not yet available, state when the results are expected and list the sources of information used to justify the preliminary choice of foundations. ¹⁴

7. CHECK

7.1 Proposed category

7.2 If category 3, name of proposed independent Checker

7.3^D Erection proposals or temporary works for which types S and P proposals will be required, listing structural parts of the permanent structure affected with reasons

8. DRAWINGS AND DOCUMENTS

8.1 List of drawings (including numbers) and documents accompanying the submission ¹⁵

8.2^A List of construction and record drawings (including numbers) to be used in the assessment

8.3^A List of pile driving or other construction records ¹⁹

8.4^A List of previous inspection and assessment reports

9. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

We confirm that details of the temporary works design will be/have been¹ passed to the permanent works designer for review.¹⁶

Signed _____

Name _____ Design/Assessment¹ Team Leader

Engineering Qualifications _____ ¹⁷

Name of Organisation _____

Date _____

Signed _____

Name _____ Check Team Leader

Engineering Qualifications _____ ¹⁷

Name of Organisation _____

Date _____

10. THE ABOVE IS REJECTED/AGREED¹ SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW¹⁸

Signed _____

Name _____

Position held _____

Engineering Qualifications _____ ¹⁷

TAA _____

Date _____

Notes

- D. Indicates clauses to be used in design AIP only
- A. Indicates clauses to be used in assessment AIP only
- 1) Delete as appropriate.
 - 2) For a bridge, give over and/or under.
 - 3) Include weight, height, width and any environmental restrictions at or adjacent to the bridge.
 - 4) In cases of design, give applicable exposure classes for particular concrete structural elements. In cases of assessment, give material strengths from record drawings or intrusive investigation. For all material strengths given, list the relevant codes/standards.
 - 5) Designers to confirm that they have reviewed the risks and hazards identified in the AIP and are satisfied. Also see clause 2.27.
 - 6) e.g. HA Loading
 - 7) e.g. HB or SV Loading
 - 8) e.g. individual vehicle which includes the following information as applicable:
 - a) gross weight of the vehicle in tonnes and vehicle type and number;
 - b) axle load and spacing (longitudinally and transversely);
 - c) air cushion in tonnes over area applied (in metres, longitudinally and transversely);
 - d) single or twin tyres and wheel contact areas.
 - 9) e.g. seismic loading, atmospheric icing, floating debris etc
 - 10) If in doubt, the heavy or high load route requirements are to be confirmed by the relevant administration.
 - 11) List the main structural elements for superstructure, substructure and foundation. If the designs of the superstructure, substructure and/or foundation are carried out by different teams, refer to cl. 2.84.
 - 12) Factors of Safety are required where limit state design codes for bridges are not used. See 4.24(5).
 - 13) Where no such geotechnical information is available, suggested earth pressure coefficient values given in relevant DMRB parts should be used instead.
 - 14) When the results of the ground investigation become available, an addendum to the AIP, covering section 6, is to be submitted to the TAA. The addendum is to have its own sections 8, 9 and 10 to provide a list of drawings, documents and signatures.
 - 15) Include, without limitation:
 - a) technical approval schedule (TAS);
 - b) general arrangement drawing;
 - c) relevant extracts from the ground investigation report, inspection report, intrusive investigation report, previous assessment report (or reference for report);
 - d) departures;
 - e) relevant correspondence and documents from consultations.
 - 16) This statement is applicable to temporary works design AIP only.
 - 17) CEng MICE, CEng MStructE or equivalent.
 - 18) 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 is to be re-submitted to the TAA for review.
 - 19) Include details of previous structural maintenance and/or strengthening works.

Appendix C. Model form of Approval in Principle for the design/assessment of road tunnel structures and service tunnels

Model form of approval in principle for the design/ assessment¹ of road tunnel structures and service tunnels.

Project details:

Name of project

Name of road/service¹ tunnel

Road/Service¹ tunnel reference no.

1. HIGHWAY DETAILS

1.1 Type of highway

1.2 Design traffic speed

2. TUNNEL DETAILS

2.1 Basic layout ²

2.2 Restrictions to traffic

3. BRIEF DESCRIPTION OF TUNNEL, TRAFFIC AND TUNNEL GEOMETRY

3.1 Structural form of tunnel and design working life

3.2 Structural form of portal structures

3.3 Traffic and geometry:

- 1) horizontal and vertical alignment of tunnel and tunnel approaches ;
- 2) cross-section ³;
- 3) highway standards ⁴;
- 4) accommodation of M&E services in tunnel ⁵;
- 5) minimum headroom (traffic gauge), horizontal clearances;
- 6) structure gauge.

3.4 Classes and levels: ⁶

- 1) Consequence class;
- 2) Reliability class;
- 3) Inspection level.

3.5 Proposed arrangements for future inspection and maintenance

3.6 Provision to be made in the tunnel layout for emergency communication and escape facilities, fire points, fixed fire fighting systems, cross passages etc

3.7 Landscaping above tunnel and protection of tunnel roof

3.8 Sustainability issues considered. Materials and finishes for structural walls, ceiling and secondary cladding including fire protection

3.9 Estimate cost of proposed structure together with other structural forms considered and the reasons for their rejection - give comparative whole life costs (with date of estimate). Reference to be made to any options reports done.

3.10 Compliance with EU road tunnel Safety Directive requirements or alternatives with accompanying risk analysis

3.11 Risks and hazards considered for design, execution, maintenance and demolition. Consultation with and/or agreement from Overseeing Organisation ⁷

3.12 Resilience and security.

4. DESIGN/ASSESSMENT¹ CRITERIA

4.1 Actions

- 1) permanent actions;
- 2) actions relating to normal traffic under AW regulations and C&U regulations ⁸;
- 3) actions relating to General Order traffic under STGO regulations ⁹;
- 4) actions relating to Special Order traffic, provision for exceptional abnormal indivisible loads; including location of vehicle track on deck cross-section ¹⁰;
- 5) side verge actions;
- 6) accidental actions;
- 7) any special action not covered above.

4.2 Authorities consulted and any special conditions required

4.3 Is the tunnel on a heavy and/or high load route, and any provision for future heavier loads or future widening?

4.4 Any loading from planned development over or adjacent to tunnel

4.5 Technical Approval Schedule (TAS)

4.6 Proposed departures from standards given in 4.5

4.7 Proposed departures relating to methods for dealing with aspects not covered by standards in 4.5

4.8 Proposals for design/assessment of safety critical fixings

4.9 Equality impact assessments

5. DESCRIPTION AND DIAGRAM OF IDEALISED STRUCTURE TO BE USED FOR ANALYSIS. METHODS OF ANALYSIS AND DESIGN PROPOSED FOR TUNNEL SUPPORT SYSTEM(S) AND PORTAL STRUCTURES

5.1 Methods of analysis proposed

5.2 Assumptions intended for calculation of structural element stiffness

5.3 Proposed range of angle of shearing resistance (ϕ) representative of the soil type(s) concerned

5.4 Proposed fire design including protection of structure and cables

6. GEOTECHNICAL CONDITIONS

6.1 Acceptance of recommendations of the ground investigation report to be used in the design/assessment¹ and reasons for any proposed changes. (A copy of the ground investigation report is to be supplied to the TAA in advance of the AIP submission whenever possible)

6.2 Summary of design for highway structure in ground investigation report highway structure summary Information. Give details of any further ground investigation required to validate basis of design/assessment

6.3 Is there any evidence of past mining or is any current or future mineral extraction likely to affect the tunnel?

6.4 If the ground investigation report is not yet available, state when the results are expected and list the sources of information used to justify the preliminary choice of foundations.¹¹

7. WATER MANAGEMENT

7.1 Details of proposed drainage:

- 1) ground water seepage, run off through the portal;
- 2) accidental spillage, water carried in by vehicles;
- 3) fire main burst;
- 4) tunnel washing.

7.2 Details of proposed waterproofing

7.3 Articulation arrangement (immersed tube)

7.4 List special requirements of load drainage authority.

8. TUNNEL SUPPORT SYSTEM AND METHOD OF CONSTRUCTION

8.1 Give the basis of the design of the tunnel support system for temporary and permanent conditions and any proposals for ground treatment.

8.2 Show how the proposed method of construction, i.e. excavation and application of ground support, will ensure the continued safe use of the highway and prevent structural failure of the carriageway.

8.3 Give details of predicted tunnelling effects on adjoining structures and the carriageway; including maximum vertical settlement and trough width.

8.4 Indicate any proposals to use explosives. State any vibration limits adopted or imposed. Have specific site rules relating to charge weight, distance, peak particle velocity and frequency been determined ?

8.5 State method(s) to be adopted to monitor and control the effects of tunnel construction to ensure compliance with any criteria imposed to limit surface movements or vibrations

9. CHECK

9.1 Structure to be category 3 and design supervision level 3 ¹²

9.2 Name of proposed independent Checker

10. DRAWINGS AND DOCUMENTS

10.1 List of drawings (including numbers) and documents accompanying the submission ¹³

11. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed _____

Name _____ Design/Assessment¹ Team Leader

Engineering Qualifications _____ ¹⁴

Name of Organisation _____

Date _____

Signed _____

Name _____ Check Team Leader

Engineering Qualifications _____ ¹⁴

Name of Organisation _____

Date _____

12. THE ABOVE IS REJECTED/AGREED SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW¹

Signed _____

Name _____

Position held _____

Engineering Qualifications _____ ¹⁴

TAA _____

Date _____

Notes

- 1) Delete as appropriate.
- 2) Number of tubes, lanes, length between portals.
- 3) Include widths of lanes, verges, emergency stopping lanes, space outside traffic gauge provided for M&E equipment.
- 4) Include design flows and speeds and any proposed Departures.
- 5) A separate submission is required for M&E functions and tunnel services buildings.
- 6) State the classes and levels for the whole structure, as well as those for the individual structural elements if higher or lower. See the Overseeing Organisation's current requirements for the use of Eurocodes for the design of highway structures.
- 7) Designers to confirm that they have reviewed the risks and hazards identified in the AIP and are satisfied. Also, see clause 2.27.
- 8) e.g. Load Models 1 and 2 of BS EN 1991-2 [Ref 6.N]
- 9) e.g. SV model vehicle in Load Model 3 in BS EN 1991-2 [Ref 6.N].
- 10) e.g. SOV model vehicle in Load Model 3 in BS EN 1991-2 [Ref 6.N] and/or Individual vehicle which includes the following information as applicable:
 - a) gross weight of the vehicle in tonnes and vehicle type and number;
 - b) axle load and spacing (longitudinally and transversely);
 - c) air cushion in tonnes over area applied (in metres, longitudinally and transversely);
 - d) single or twin tyres and wheel contact areas.
- 11) When the ground investigation report becomes available, an addendum to the AIP, covering section 6, is to be submitted to the TAA. The addendum is to have its own sections 10, 11 and 12 to provide a list of drawings, documents and signatures.
- 12) Category 3 for road tunnel and service tunnel structures
- 13) Include, without limitation:
 - a) technical approval schedule (TAS);
 - b) general arrangement drawing;
 - c) relevant extracts from the ground investigation report;
 - d) departures;
 - e) relevant correspondence and documents from consultations;
 - f) Tunnel Design Authority output report.
- 14) CEng MICE, CEng MStructE or equivalent.

Appendix D. Model form of Approval in Principle for M&E installations in movable bridges and access gantries

Project details:

Name of project

Name of bridge or structure

Structure reference no.

Summary: set out a brief summary of what this AIP covers, why it is necessary and anticipated construction dates.

1. HIGHWAY DETAILS

1.1 Type of highway

1.2 Design traffic speed ¹

2. STRUCTURE DETAILS

2.1 Brief description of structure

2.2 Date of AIP for structure

3. GENERAL DESCRIPTION OF MECHANICAL AND ELECTRICAL INSTALLATION (M&E)

3.1 Proposed mode of operation of structure

3.2 Location of operating and control mechanism

3.3 Electrical power supply and distribution

3.4 Stand-by-power facilities (UPS etc.)

3.5 Design working life, whole life cost and sustainability considerations

3.6 Resilience and security.

4. OPERATIONAL DESIGN CRITERIA (as relevant)

4.1 Variable actions

4.2 Traffic actions

4.3 Snow actions

4.4 Wind actions

4.5 Thermal actions including temperature range

4.6 Any special actions not listed above (e.g. ship impact)

4.7 List of relevant safety consultation documents:

1) additional relevant standards and publications

4.8 Proposed departures relating to departures from standards given in CG 300 clauses 4.7 and 4.7.1

4.9 Proposed departures relating to methods of dealing with aspects not covered by standards in CG 300 clauses 4.7 and 4.7.1

4.10 Proposed safety critical fixings

5. BASIS OF OPERATION AND CONTROL

- 5.1 Normal operation conditions
- 5.2 Authorities consulted ²
- 5.3 State any special requirements imposed during liaison with such authorities.
- 5.4 Describe communications system involved.
- 5.5 Design requirements for emergency works testing and site operating conditions
- 5.6 Fail-safe operation safety systems, failure and mode effect (FME) analysis
- 5.7 Arrangements for commissioning and handover to maintaining authority including relevant documentation, operators' manuals

6. PLANT ROOM

- 6.1 General layout
- 6.2 Drainage and associated pumping requirements
- 6.3 Plant room environment; heating, lighting, humidity, ventilation.
- 6.4 Mechanical and electrical equipping
- 6.5 Security; intruder and fire alarm systems
- 6.6 Proposed fire fighting measures

7. DESCRIPTION OF INSPECTION AND MAINTENANCE ARRANGEMENTS

- 7.1 Proposals for inspection and maintenance of the movable bridge structure or gantry are given in the AIP for the structure
- 7.2 Proposals for inspection and maintenance of M&E installation
- 7.3 Proposed documentation ³
- 7.4 Proposals for plant monitoring, data collection and management

8. CHECK

- 8.1 M&E installation to be category 3 ⁴
- 8.2 Name of proposed independent checker

9. DRAWINGS AND DOCUMENTS

- 9.1 List of drawings and documents (including numbers) accompanying the submission ⁵
- 9.2 List of documents relating to inspection, maintenance and safe operation

10. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed _____
 Name _____ Design Team Leader
 Engineering Qualifications _____ ⁶
 Name of Organisation _____
 Date _____
 Signed _____

Name _____ Check Team Leader

Engineering Qualifications _____⁶

Name of Organisation _____

Date _____

11. THE ABOVE IS REJECTED/AGREED SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW⁷

Signed _____

Name _____

Position held _____

Engineering Qualifications _____⁶

TAA _____

Date _____

Notes

- 1) For a bridge, give over and/or under.
- 2) For example; traffic, Police, highway, maintenance, local, harbour, river, emergency services.
- 3) Maintenance manual and operator's manual including safe operating procedures.
- 4) Category 3 for all M&E Installations.
- 5) Include, without limitation:
 - a) AIP for structure;
 - b) general arrangement drawing;
 - c) departures;
 - d) relevant correspondence and documents from consultations;
 - e) relevant loading data from the structural design.
- 6) CEng from an appropriate Chartered Engineering Institution.
- 7) Delete as appropriate.

Appendix E. Model form of Approval in Principle for M&E installations in road tunnels and services buildings

Project details:

Name of project

Name of bridge or structure

Structure reference no.

Summary: set out a brief summary of what this AIP covers, why it is necessary and anticipated construction dates.

1. HIGHWAY DETAILS

1.1 Type of highway

1.2 Design traffic speed ¹

1.3 General description ²

1.4 Any restriction to traffic including maintenance

2. BRIEF DESCRIPTION OF STRUCTURE OPERATION AND MAINTENANCE FRAMEWORK

2.1 Type of structure

2.2 Accommodation of M&E services in the tunnel

2.3 Location of tunnel monitoring centre and maintenance building(s)

2.4 Proposed arrangements for inspection and maintenance

2.5 Location of tunnel services building

2.6 Design working life and estimated costs of M&E services including all running, maintenance and replacement costs and sustainability considerations

3. AUTHORITIES CONSULTED

3.1 List authorities consulted and any special requirements ³

4. LAYOUT AND BASIC DESIGN CRITERIA

4.1 Basic tunnel geometry ⁴

4.2 Environmental conditions within the tunnel plant rooms and buildings ⁵

4.3 Technical Approval Schedule (TAS)

4.4 Proposed departures relating to departure from standards given in 4.3

4.5 Proposed departures relating to methods for dealing with aspects not covered by standards in 4.3

4.6 Proposed safety critical fixings

4.7 Equality impact assessments

4.8 Resilience and security.

5. VENTILATION

5.1 General description including justification

5.2 Design criteria ⁶

5.3 Pollution and vehicle emissions ⁷

5.4 Fresh air requirements ⁸

5.5 Proposed ventilation system

5.6 Ventilation fans

5.7 Monitoring and control ⁹

6. LIGHTING

6.1 General description

6.2 Design criteria

6.3 Surface reflectivity ¹⁰

6.4 Special operating conditions

6.5 Monitoring and control

7. WATER MANAGEMENT

7.1 General description, design criteria

7.2 Effluent standards ¹¹

7.3 Amounts to be handled

7.4 Pumping equipment ¹²

7.5 Safety precautions ¹³

7.6 Siting of sumps

7.7 Sizing of sumps

8. FIRE SAFETY

8.1 Design criteria ¹⁴

8.2 Active protection ¹⁵

8.3 Passive protection ¹⁶

8.4 Services building and plant rooms ¹⁷

9. COMMUNICATIONS AND TRAFFIC CONTROL

9.1 General description, design criteria. Traffic management authority

9.2 Telephone system ¹⁸

9.3 Emergency liaison ¹⁹

9.4 Traffic signs ²⁰

9.5 Traffic monitoring ²¹

10. TUNNEL OPERATION AND PLANT CONTROL

10.1 Basis of tunnel operation. Operating and maintaining authority ²²

10.2 Plant monitoring and control

10.3 Data logging and transfer

10.4 Safety integrity level

10.5 Plant inspection and maintenance

11. ELECTRICAL POWER SUPPLY AND DISTRIBUTION

11.1 General description and design criteria including an analysis of power requirements, supply costs and tunnel operating conditions in relation to security of supply

11.2 Supply distribution ²³

11.3 Emergency arrangements ²⁴

11.4 Cabling ²⁵

12. TUNNEL SERVICES BUILDINGS AND PLANT ROOMS

12.1 General description ²⁶

12.2 Design criteria and layout ²⁷

12.3 Building security and protection ²⁸

13. CHECK

13.1 Give proposals for checking M&E installations including the design of tunnel services buildings.

13.2 Name of proposed Checker

14. DRAWINGS AND DOCUMENTS

14.1 List of drawings (including numbers) and documents accompanying the submission ²⁹

15. THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed _____

Name _____ Design Team Leader

Engineering Qualifications _____ ³⁰

Name of Organisation _____

Date _____

Signed _____

Name _____ Check Team Leader

Engineering Qualifications _____ ³⁰

Name of Organisation _____

Date _____

16. THE ABOVE IS REJECTED/AGREED SUBJECT TO THE AMENDMENTS AND CONDITIONS SHOWN BELOW³¹

Signed _____

Name _____

Position held _____

Engineering Qualifications _____ ³⁰

TAA _____

Date _____

Notes

- 1) Design speed and during maintenance.
- 2) Number of tubes, lanes, length between portals
- 3) For examples: traffic, Police, highway, maintenance, local, harbour, river, emergency services
- 4) Widths, heights, horizontal and vertical alignments
- 5) Ambient temperature variations, relative humidity, effects of tunnel washing, road salts etc.
- 6) Traffic composition and system, tunnel site aspects, environmental effects, air velocities, response to fire
- 7) Pollution thresholds and emission criteria
- 8) Basis of determination of fresh air requirements, provision for smoke control details of computer modelling
- 9) Management of carbon monoxide, visibility, wind speed and direction, tunnel air velocity
- 10) Road and wall surface maintenance factor
- 11) Including any limitations imposed by the drainage authority.
- 12) Ground water, precipitation, wall washing, fire fighting supplies
- 13) Ventilation, gas detectors, fire prevention and control including automatic systems
- 14) Fire scenarios and fire modelling, fire loading
- 15) Fire points and equipment communications, escape means, smoke control, fixed firefighting systems, operating procedures
- 16) Protection of structure, cabling, role of secondary cladding, cross connection doors
- 17) Fire detection and control including automatic systems
- 18) Emergency public, service, fire phones
- 19) Communication between Police, Fire and Rescue Service, Ambulance, maintaining authority including system of underground communication
- 20) Including advance warning and diversions, vehicle overheight detection
- 21) Automatic traffic surveillance, closed circuit television
- 22) Provision for various operating conditions and resources entailed
- 23) Details of high voltage distribution on the road tunnel side of electricity supply authority's boundary.
- 24) Uninterrupted power supply, justification for standby generator
- 25) Type, location and protection, including a drawing of all plant floors showing equipment layout
- 26) Plant room and access way loading indicating any loading restrictions in the provision made for transfer and temporary positioning of heavy plant during installation maintenance or replacement
- 27) Include fire alarm systems.
- 28) Include, without limitation:
 - a) technical approval schedule (TAS);
 - b) general arrangement drawing;
 - c) departures;
 - d) relevant correspondence and documents from consultations;
 - e) Tunnel Design Authority output report.
- 29) CEng from an appropriate chartered engineering institution

Appendix F. Operation, control and maintenance of movable bridges, and bridge access gantries - Safety Consultation Document

Model form of background discussion document for appending to AIP.

Project details:

Name of project

Name of bridge or structure

Structure reference no.

1. INTRODUCTION

1.1 Purpose of Movable Bridge/Bridge Access Gantry Design and Safety Consultation Group¹

1.2 Terms of reference

1.3 Systems overview (see appendices)

1.4 Safety considerations in the use of movable bridges/access gantries

1.5 Plant

1.6 Communications

1.7 Power supply:

1) emergency supply arrangements

1.8 Emergency breakdown arrangements

1.9 Organisational responsibilities, e.g. maintaining authority

2. MAINTAINING AUTHORITY

2.1 General

2.2 Lines of communication and cover

2.3 Documentation:

1) operator's manuals ;

2) maintenance & Inspection manuals;

3) permit to work;

4) condition monitoring .

2.4 Day-to-day operations

2.5 Planned maintenance activities

2.6 Emergencies

2.7 Plant failures

3. TRAINING

4. MAINTENANCE COSTS

4.1 General

5. PROCEDURAL TRIALS AND HANDOVER

5.1 Normal use

5.2 Emergency drill

6. The provisions and procedures described in this document, draft No (number) dated (date) were accepted by the working party on (date)

Signed _____ Project Manager of the Overseeing Organisation

Name _____

Engineering Qualifications _____²

Date _____

APPENDICES

A General layout

B General details of system

C Communications

- 1) general provision
- 2) location of contacts

Notes

- 1) The Movable Bridge/Bridge Access Gantry Design and Safety Consultation Group carries out similar functions to the Tunnel Design and Safety Consultation Group (TDSCG).
- 2) CEng from an appropriate Chartered Engineering Institution.

Appendix G. Tunnel, operation, control and maintenance - Safety Consultation Document

Model form of background discussion document for appending to AIP.

Project details:

Name of project

Name of bridge or structure

Structure reference no.

1. INTRODUCTION

1.1 Purpose of tunnel design and safety consultation group (TDSCG)

1.2 Terms of reference

1.3 Organisational responsibilities ¹

1.4 Overview (see appendices)

1.5 Safety considerations for road tunnels

1.6 Traffic management & signing

1.7 Tunnel plant:

- 1) ventilation;
- 2) lighting;
- 3) drainage;
- 4) role in emergencies.

1.8 Communications:

- 1) tunnel;
- 2) regional;
- 3) emergency.

1.9 Power supply:

- 1) normal distribution;
- 2) emergency arrangements.

1.10 Emergency equipment:

- 1) fire points;
- 2) telephones;
- 3) CCTV;
- 4) cross connections between tunnel bores.

1.11 Tunnel services building and plant room:

- 1) functions;
- 2) maintenance access;
- 3) security protection;
- 4) fire protection.

2. POLICE AND/OR HE TRAFFIC OFFICERS

- 2.1 Functions
- 2.2 Police HQ facilities
- 2.3 Traffic control
- 2.4 Emergency closures
- 2.5 Radio communication
- 2.6 Police computer terminal operations manual
- 2.7 Special requirements

3. FIRE AND RESCUE SERVICE

- 3.1 Fire fighting facilities - tunnel
- 3.2 Fire fighting facilities - services building
- 3.3 Accidental spillages
- 3.4 Radio communications

4. AMBULANCE SERVICE

- 4.1 General
- 4.2 Radio communications

5. ENVIRONMENT AGENCY

- 5.1 General
- 5.2 Specific requirements

6. MAINTAINING AUTHORITY

- 6.1 General
- 6.2 Lines of communication and emergency cover
- 6.3 Documentation:
 - 1) maintenance and Inspection manuals;
 - 2) permit to work;
 - 3) condition monitoring.
- 6.4 Use of tunnel data
- 6.5 Day-to-day operations
- 6.6 Planned maintenance activities
- 6.7 Emergencies
- 6.8 Plant failure recording
- 6.9 Tunnel maintenance equipment:
 - 1) wall washing requirements;
 - 2) maintenance access.

7. TRAINING

8. MAINTENANCE CONTRACTS

8.1 General

9. TUNNEL EMERGENCIES

9.1 General

9.2 Fire plan

9.3 Major incident response:

- 1) use of emergency cross passages (doors);
- 2) emergency drill exercise.

10. The provisions and procedures described in this document draft No. (number) dated (date), were accepted by the working party on date.

Signed _____ Project Manager of the Overseeing Organisation

Name _____

Engineering Qualifications _____²

Date _____

APPENDICES

A. Plan of route

B. Cross section of tunnel

C. plan of tunnel identifying:

- 1) EPD's Fire points by number;
- 2) bores;
- 3) cross passages;
- 4) fan positions, overrides and controls.

D. Communications:

- 1) general layout;
- 2) location of CCTV.

E. Tunnel drainage

F. Traffic management plan

Notes

- 1. Police, Fire and Rescue Service, ambulance service, Environment Agency, Maintaining Authority.
- 2. CEng from an appropriate Chartered Engineering Institution.

Appendix H. Notes for compiling Technical Approval Schedules

Only relevant standards are to be listed. The TAA is to be consulted to confirm whether any specific documents need to be added to the Technical Approval Schedule (TAS).

The Technical Approval Schedule (TAS) is to include the current, relevant publications of the following groups of standards and guidance documents:

- 1) British Standards;
- 2) Eurocodes and associated UK national annexes;
- 3) BSI published documents;
- 4) Execution Standards referenced in British Standards or Eurocodes;
- 5) Product Standards referenced in British Standards or Eurocodes;
- 6) The Manual of Contract Documents for Highway Works (MCHW);
- 7) The Design Manual for Roads and Bridges (DMRB);
- 8) Interim Advice Notes (IAN);
- 9) Specific documents required by the Overseeing Organisation.

The date of the publications (and any amendment) included in the TAS should be given, in the following forms:

- 1) the year of publication for British Standards, Eurocodes and associated UK national annexes, BSI Published Documents, Execution Standards and Product Standards;
- 2) the month and year of publication for MCHW documents;
- 3) the last two digits of the year of publication for DMRB documents

The latest information on DMRB standards documents can be obtained from the Standards for Highways (website) [Ref 3.1]

Insert other relevant supplementary references in the TAS. These can include statutory acts and regulations, Department for Transport or Highways England publications, industry approved codes of practice or guidance literature on best practice, technical papers/journals, and relevant information from recognised sources.

For new designs, the use of British Standards conflicting with Eurocodes will require approval from the TAA.

An example of a TAS can be obtained from the Standards for Highways (website) [Ref 3.1] and entering TAS in the DMRB search bar.

Appendix I. Model form of certificate for the design/assessment and/or check of highway structures, including road and service tunnels

Model form of certificate for the design/assessment¹ and/or check¹ of highway structures, including road and service tunnels.

Project details:

Name of project

Name of bridge or structure

Structure reference no.

Section 1

We certify that reasonable professional skill and care has been used in the preparation of the design/assessment¹ and/or check¹ of (name of structure) with a view to securing that: ²

- 1) It has been designed/assessed¹ and/or checked¹ in accordance with
 - a) the following standards; or ³
 - b) the Approval in Principle dated (date) including the following: ^{4, 5, 6}
- 2) It has been checked for compliance with:
 - a) the relevant standards in 1); or, ⁷
 - b) the assessed capacity of the structure, or elements of the structure, is as follows: ⁸

(iii) It has been accurately translated into construction drawings and bar bending schedules (all of which have been checked)⁹. The unique numbers of these drawings and schedules are:

Signed _____
 Name _____ Design/Assessment Team Leader
 Engineering Qualifications _____ ¹¹

Signed _____
 Name _____
 Position held _____ ¹²
 Name of Organisation _____
 Date _____

Signed _____ ⁷
 Name _____ Check Team Leader⁷
 Engineering Qualifications _____ ^{11, 7}

Signed _____
 Name _____
 Position held _____ ¹²

Name of Organisation _____

Date _____

Section 2

The departures and additional criteria given in paragraph 1 are agreed ¹³

The certificate is accepted by the TAA

Signed _____

Name _____

Position held _____

Engineering Qualifications _____ ¹⁴

TAA _____

Date _____

Notes

- 1) Delete as appropriate.
- 2) Where several similar category 0 or 1 structures occur in a project, they may be listed on one certificate.
- 3) Used for category 0 only. Insert relevant current standards including amendments to date. This certificate should be accompanied by a general arrangement drawing.
- 4) Not required for category 0. 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.
- 5) List any departures and additional methods, criteria or specification clauses.
- 6) For the certification of M&E functions for highway structures, include here the reference number and date of the relevant safety consultation document.
- 7) Delete for categories 2 and 3, which require a separate check certificate.
- 8) Used for assessments only. Assessed capacity is to be recorded in the Overseeing Organisation's management system for structures.
- 9) The statement "(all of which have been checked)" is not applicable to categories 2 and 3 design certificates.
- 10) Delete as appropriate or repeat two columns if they are signed by both design/assessment and check teams.
- 11) CEng MICE, CEng MIStructE or equivalent, but this qualification can be relaxed for Categories 0 and 1 with the agreement of TAA. For Category 3 designs or assessments, the TAA can request a CV for the Design Team Leader (or Assessment Team Leader) demonstrating experience relevant to the design (or assessment).
- 12) A principal of the organisation responsible for the design or assessment.
- 13) Delete as appropriate. Note: not permitted for categories 0 or 1 unless the TAA considers that the departure has little or no structural implication.
- 14) An engineer with appropriate qualification and experience for categories 0 and 1, and with CEng MICE, CEng MIStructE or equivalent for categories 2 and 3.

Appendix J. Model form of certificate for minor structures and telecom masts on motorways and trunk roads

Model form of certificate for minor structures and telecom masts on motorways and trunk roads

Project details:

Name of project _____

Column/mast¹ reference no. _____

Section 1

We certify that the lighting column system/CCTV masts/cantilever masts for traffic signs/signals, speed cameras, telecom masts and/or noise barriers¹ accurately shown on drawing(s) numbers (list drawing numbers) has/have¹ been designed/checked¹ for the following range of parameters² and fully complies with:

- 1) The Specification for Highway Works (edition, date),
- 2) CD 354 [Ref 3.N], or,
- 3) the following standards (for the design of telecom masts):

Signed _____

Name _____ Design/Check Team Leaders ³

Engineering Qualifications _____ ⁴

Signed _____

Name _____

Position held _____ ⁵

Name of Organisation _____ ⁶

Date _____

Section 2

This certificate is accepted by the TAA⁷

Signed _____

Name _____

Position held _____

Engineering Qualifications _____ ⁴

TAA _____

Date _____

Notes

- 1) Delete as appropriate.

- 2) For lighting column system, specify the range of combinations of column heights and lengths of brackets together with the weights and windage areas of the attachments such as lanterns, design wind speed and assumed ground conditions for which the column has been designed. For CCTV mast, cantilever mast and telecom mast, specify the design wind speed and assumed ground conditions for which the column has been designed. (Note: model data sheets are contained in Series NG1300 of MCHW).
- 3) Delete as appropriate or repeat if signed by both Designer and Checker.
- 4) Engineer with appropriate position, qualifications and experience for categories 0 and 1, and with CEng MICE, CEng MStructE or equivalent for categories 2 and 3.
- 5) A principal of the organisation responsible for the design or check.
- 6) Manufacturer or organisation responsible for the design or check.
- 7) For category 0 minor structures, section 2 is not required.

Appendix K. Model form of certificate for type 'S' temporary works

Model form of certificate for type 'S' temporary works¹

Project details:

Name of project

Name of structure

Structure reference no.

Section 1

We certify that reasonable professional skill and care has been used in the checking of the design for the temporary works comprising (description of temporary works)² listed in the attached schedule.

We also certify, but without undertaking any responsibility other than towards (name of organisation procuring the temporary works) that in our opinion the erection proposals and proposed temporary works details specified in the attached schedule for the execution of (project title) are satisfactory for the proper discharge of his responsibilities, for the safety of the said part of the works and for their safe execution in accordance with the drawings and specification and without detriment to the related permanent works^{3, 4}.

Signed _____

Name _____ Temporary Works Checker

Engineering Qualifications _____⁵

Name of Organisation _____

Date _____

Signed _____

Name _____

Position held _____

Name of Organisation procuring the temporary works _____

Date _____

Section 2

The permanent works Designer is satisfied that the temporary works have no detrimental effects on the permanent works⁶

Signed _____

Name _____ Permanent Works Designer

Engineering Qualifications _____⁵

Name of Organisation _____

Date _____

Notes

- 1) A copy of this certificate should be forwarded to the TAA for retention with the AIP, except for category 0, for the permanent structure to which it relates.
- 2) The description to be inserted is to define unambiguously the extent of the structure to which the check is to be applied. Where necessary the extent of the works is to be shown on the drawings and the relevant drawing numbers stated.
- 3) Delete 'and without detriment to the related permanent works' if the check is carried out by permanent works designer.
- 4) If there is a detrimental effect on the permanent works, an addendum to the permanent works AIP is to be submitted to the TAA for review.
- 5) Engineer with appropriate qualification and experience for categories 0 and 1, and with CEng MICE, CEng MIStructE or equivalent for categories 2 and 3.
- 6) This clause is not required if the check is carried out by permanent works designer.

Appendix L. Model form of certificate for type 'P' temporary works

Model form of certificate for type 'P' temporary works.

Project details:

Name of project

Name of structure

Structure reference no.

Section 1

We certify that reasonable professional skill and care has been used in the preparation of the design/ check¹ of the temporary works comprising (description of temporary works) with a view to securing that:

- 1) It has been designed/checked¹ in accordance with:
 - a) The Approval in Principle dated (date) including the following: ^{2 3}
 - b) The TAA directives for the items listed in 3.ii below.¹
- 2) The design proposals reflect the requirements of the relevant highway authorities for all affected highways.
- 3) The design of the temporary works has been accurately translated into temporary works drawings. The unique numbers of these drawings and schedules are:

Signed _____

Name _____ Design/Check¹ Team Leader

Engineering qualifications _____⁴

Signed _____

Name _____

Position held _____⁵

Name of organisation _____

Date _____

Section 2

This certificate is received ⁶

Signed _____

Name _____

Position held _____

Name of organisation _____

Date _____

Section 3

- 1) The departures and additional criteria given in paragraph 1 are agreed. ¹

2) It has been directed that the following items are to be dealt with as described. ^{1,7}

Section 4

1) The Permanent Works Designer is satisfied that the temporary works have no detrimental effects on the permanent works⁸

Signed _____

Name _____ Permanent Works Designer⁸

Engineering qualifications _____⁴

Name of organisation _____

Date _____

Section 5

We have considered and recommend the TAA to accept this certificate ⁹

Signed _____

Name _____

Position held _____

Name of organisation _____

Engineering qualifications _____⁴

Date _____

Section 6

The certificate is accepted by the TAA ¹⁰

Signed _____

Name _____

Position held _____

Engineering qualifications _____⁴

TAA _____

Date _____

Notes

- 1) Delete as appropriate.
- 2) Insert date of acceptance of the AIP by the TAA including the dates of any addenda.
- 3) List any departures and additional methods or criteria.
- 4) CEng MICE, CEng MStructE or equivalent.
- 5) A principal of the organisation responsible for the design/check.
- 6) This is to be completed by the organisation that procures the temporary works. This certificate is to be accepted by the TAA before consent to proceed can be given.

- 7) Describe the point at issue and the directed course of action.
- 8) Not applicable to design certificate. Not necessary for existing structures if agreed by the TAA.
- 9) This is to be completed by the employer's representative on site when applicable.
- 10) The TAA should inform of its acceptance of this certificate to the organisation that procures the temporary works so that work may then proceed.

Appendix M. Model form of certificate for specification variation

Project details:

Name of project

Name of structure

Structure reference no.

Summary: Set out a brief summary of what this certificate covers, why it is necessary and anticipated construction dates.

Section 1

We certify that reasonable professional skill and care has been used in the preparation/check¹ of the following additional and substitute clauses; list clause numbers² to the bridgework series clauses of the Specification for Highway Works for (name of project or structures).

The text of these clauses is appended to this certificate.

Signed _____

Name _____ Design¹ Team Leader

Engineering qualifications _____³

Signed _____

Name _____

Position held _____⁴

Name of organisation _____

Date _____

Signed _____

Name _____ Check¹ Team Leader

Engineering qualifications _____³

Signed _____

Name _____

Position held _____⁴

Name of organisation _____

Date _____

Section 2

The additional and substitute clauses listed in section 1 above and appended to this certificate are agreed as departures.

Section 3

The certificate is accepted by the TAA

Signed _____
Name _____
Position held _____
Engineering qualifications _____³
TAA _____
Date _____

Notes

- 1) Delete as appropriate.
- 2) Only clauses that affect structural integrity e.g. new materials are required to be checked. The category of check should be the same as in the AIP.
- 3) Engineer with appropriate qualification and experience for categories 0 and 1, and with CEng MICE, CEng MIStructE or equivalent for categories 2 and 3.
- 4) A Principal of the organisation responsible for the design or check.

Appendix N. Model form of certificate of construction compliance

Project details:

Name of project

Name of structure

Structure reference no.

Approval in Principle¹ dated (date) and addenda¹ (date):

Construction drawings (permanent and temporary works^{1,2}) and bar bending schedules listed within the design and check certificate/certificates¹ (date) ³:

As constructed drawings³ and bar bending schedules³, the unique numbers of these drawings and schedules are:

Schedule of drawings/bending schedules

Document Number	Title	Revision	Date

The Specification for Highway Works (date), including additional and substituted clauses recorded in certificates for specification variations^{1,3} (date):

Section 1

We certify that (name of structure) and its equipment⁴:

- 1) have been constructed, commissioned and tested¹ in accordance with:
 - a) the construction drawings and bar bending schedules listed within the above design and check certificate/certificates¹, with any modifications in accordance with the technical approval procedures given in CG300(/date), ¹except (list exception(s) and give appropriate information and reason for non-compliance ⁵).
 - b) the above Specification for Highway Works and specification variations, ¹except (list exception(s) and give appropriate information and reason for non-compliance ⁵).
- 2) The execution of the works has been accurately translated into 'As Constructed' drawings and bar bending schedules as listed above.¹⁰

Signed _____

Name _____ Contractor's Representative

Engineering qualifications _____ ⁶

Signed _____

Name _____

Position held _____ ⁷

Name of organisation _____

Date _____

Section 2

We certify reasonable professional skill and care has been used, relating to the execution of (name of structure), in the task described below (choose⁸ either 1), 2) or 3):

- 1) ¹Examining the execution and that it has been constructed, commissioned and tested in accordance with:
 - a) the above Approval in Principle, Design and Check Certificate/Certificates¹, with any modifications in accordance with the technical approval procedures given in CG300/(date),¹ except (list exception(s) and give appropriate information and reason for non-compliance⁵)
 - b) the construction drawings and bar bending schedules listed within the Design and Check Certificate/Certificates¹ (date)³, as modified by authorised variations accepted by the Overseeing Organisation,¹except (list exception(s) and give appropriate information and reason for non-compliance⁵).
- 2) ^{1,9}Hands off audit role assessment to ensure that the correct quality control procedures have been followed
- 3) ¹(state task/role required under the contract's work specification or if different, the actual task/role performed and give appropriate information and reason for non-compliance⁸)

Signed _____

Name _____

Work Examiner's Representative

Engineering qualifications _____⁶

Position held

Name of organisation

Date _____

3. This certificate is accepted by the TAA

Signed _____

Name _____

Position held

Engineering qualifications _____⁶

TAA _____

Date _____

Notes

- 1) Delete as appropriate.
- 2) Temporary works are required where they may have significant effect on the permanent works.
- 3) A full list to be given including any addenda.
- 4) Certification for mechanical and electrical installations are not required as they are covered in Section 6 of CG300. However all the maintenance and operation manuals, including guarantees, should be provided to the Overseeing Organisation.
- 5) Consider appropriate measure if required and advise the TAA if it needs to be recorded in the Overseeing Organisation's management system for structures.

- 6) Competent engineer with appropriate qualification and experience e.g. for Categories 0 and 1, and with CEng MICE, CEng MIStructE or equivalent for Categories 2 and 3. The acceptance of competency criteria may be varied subject to TAA agreement.
- 7) A principal of the Contractor or organisation responsible for the execution
- 8) Options 2 & 3 allow for certification by independent parties to provide assurance on work elements. However Option 1 is a requirement for all projects.
- 9) A hands off audit role provides additional assurance for complex projects or procedures. Where required, this will be in addition to the works examiner.
- 10) Where 'As Constructed' drawings and bar bending schedules have not been completed then this clause is to be omitted and the certificate marked as 'Interim' – reference Clause 2.95.1.

Appendix O. Structure options report

O.1 Introduction

The TAA is to be consulted prior to preparing the report to assist in determining the most appropriate options to be included in the report.

The format is provided in O.2 of a structure options reports for new works, maintenance, modification, refurbishment, strengthening and demolition where there are a number of realistic cost effective alternatives to be considered. This applies to permanent structures expected to be category 2 or 3 and to permanent structures expected to be category 0 or 1 with an estimated cost of more than £0.5million. The report should contain only necessary relevant information and state 'Not Applicable' in sections not relevant. Additional sections are to be added where necessary.

The structure options report should briefly summarise the development process for each of the structure proposals, identifying all significant influences on the form of structure proposed and reasons for rejecting other structural forms.

Where a proposal has previously been considered in procedures such as value management, it is important that this is referenced in section 1.1 of the options report. This is to ensure relevant continuity is maintained between these procedures and the conclusions of the options report. For consistency, an option brought forward from previous considerations is to be detailed as option 1 in the options report.

For maintenance work, where options during value management processes have been considered in sufficient detail to meet the above criteria then, with agreement of the TAA, separate options report may not be necessary.

O.2 Report structure and content

Project details:

Name of project

Name of structure

Structure reference no.¹

Report structure and content

Report section	Notes for guidance
1.1 Introduction	<p>Brief scheme overview. State if the structure has previously been considered in other procedures such as value management.</p> <p>For an existing structure give a description of the structure, current condition and state what certification exists with the current assessment rating.</p> <p>List the options considered at pre-options stage, state which options will be considered in detail within this report, which have been discounted and state the reasons.</p> <p>Append location plan and schedule of structures.</p>
1.2 Consultations and requirements	<p>List all parties consulted, e.g. project managers, maintaining agent, other authorities, specialist suppliers, Principal Designer, etc. State their requirements and what agreements have been made.</p> <p>Describe the current and proposed utilities.</p>

Report structure and content (continued)

1.3 Geology	Where relevant, summarise the geology of the site and any key risks
1.4 Loading	State high and heavy load route requirements. State any current restrictions and or constraints.
1.5 Environment	Summarise environmental requirements and any constraints.
1.6 Land and property	Summarise land and property requirements and any constraints.
2.1 Description of proposed structure options	State if option is brought forward from consideration in other procedures (as described in section 1.1). Attach an outline general arrangement drawing to illustrate each option. Include cross sections showing any construction constraints associated with carrying out the work.
2.2 Capital cost and whole life cost	List major assumptions in determining whole life costs. List separately any user delay costs during construction as well as during future maintenance.
2.3 Appearance	Describe the aesthetic form and the setting, and if consultation required with Design Panel. Describe proposed finishes (for preferred option only).
2.4 Sustainability and use of natural resources	Give anticipated requirements for use of natural resources and potential for use of recycled materials.
2.5 Durability/design life	State durability assumptions and design life. State how water will be managed, including surface/subsurface drainage and mitigation measures for controlling leakages from service ducts.
2.6 Health and safety, and potential risks and constraints to the project	List any unusual hazards and risks.
2.7 Proposed design method	Describe the proposed design method. e.g. linear elastic grillage.
2.8 Departures from standards	Include a brief summary of all departures from standard proposals necessary for each option, and indicate any yet to be agreed or likely to be critical to option.
2.9 Construction issues	Describe any construction constraints, including interfaces with existing highway or other infrastructure. State temporary traffic management measures agreed with the Overseeing Organisation project manager.

Report structure and content (continued)

2.10 Operation and maintenance	Describe any unusual methods and facilities required to carry out inspections and maintenance.
2.11 Preferred option	A brief conclusion identifying the preferred option and reason for selection.
2.12 Proposed category of check	State reason for proposed category of check when not in accordance with guidance in this document.
2.13 Role of the works examiner supervising the works	Role of the works examiner to be agreed by the Overseeing Organisation (i.e. options 1, 2, or 3 listed in section 2 of the construction compliance certificate in Appendix N).

THE ABOVE IS SUBMITTED FOR ACCEPTANCE

Signed _____

Name _____

Position held _____

Engineering qualifications _____²

Name of organisation _____

Date _____

PREFERRED OPTION AGREED

Signed _____

Name _____

Position held _____

Engineering qualifications _____²

TAA _____

Date _____

Notes

1. Ideally this should be a structure key from the Overseeing Organisation's asset management database if available.
2. CEng MICE, CEng MStructE or equivalent

Appendix P. Proprietary manufactured structures

1. Scope

The range of proprietary manufactured structures may include various types of culverts; small span underbridges (up to eight metres span) in precast concrete; various systems for earth retaining structures such as reinforced/anchored earth systems; crib and gabion walls, lighting columns, large sign supports (greater than 7 m high) and environmental barriers.

These structures may be supplied with their performance declared in accordance with the requirements of the CPR (under a CE mark) either through compliance with a European harmonised standard or a European Technical Approval (ETA) issued by the European Organisation for Technical Approvals (EOTA).

Requirements for avoiding "barriers to trade" when specifying proprietary manufactured structures and products and for application of the TA procedure to proprietary products that have their performance declared in accordance with the CPR are given in CG 300 clause 2.5.

2. Different forms of construction

Generally the form of structure appropriate for a particular application will fall into one of the following groups:

- 1) those where a uniquely designed structure is most suitable for the site conditions and end requirements. Such a design will be based substantially on non-proprietary materials such as reinforced concrete or structural steel, although some of the individual components may be proprietary products;
- 2) those where a proprietary manufactured structure is the most suitable, e.g. a corrugated steel buried structure, a precast concrete culvert selected from a manufacturer's range of products, or a proprietary reinforced earth wall system;
- 3) those where either form of construction would be more or less equally suitable.

To avoid the risk of discrimination, the Designer is to demonstrate to the TAA at the AIP stage that all three groups as described in 2, as above, have been considered. However, there is no obligation on the Designer to adopt a design in a particular form, if there are sound engineering or aesthetic reasons for believing it to be inappropriate, or another option has clearly identified advantages that justify limiting the choice. The reasons for the final selection should be clearly recorded on the AIP form agreed by the TAA.

Where the use of a proprietary manufactured structure is not considered appropriate for aesthetic or other reasons, the status and authority of the person(s) making that judgement should be clearly established and recorded on the AIP form. Where others, such as planning or water authorities, with a legitimate interest or statutory duty to consider the form of structure to be provided, will not permit a particular form, that authority should be asked to provide a written justification of its position and confirmation that it is aware of the legal implications.

In assessing the suitability of a particular form of construction, the Designer will consider whether maintenance costs can affect the choice. In order to ensure fair competition between different structures, the foreseeable special maintenance costs could need to be added to the contract construction costs. Where this is considered necessary, it should be made clear in the O/AIP (see clause 4).

3. Proprietary designs

Where the Designer decides that a proprietary manufactured structure is the most suitable, an outline AIP (O/AIP) should be provided for all the relevant design parameters and end use requirements for the structure. This should include appropriate statements regarding appearance, environment and maintenance considerations. A check list of requirements for the O/AIP is given in P.4. The O/AIP should be submitted to the TAA for agreement.

4. Outline AIP

The O/AIP for proprietary manufactured structures may be based on the relevant sections of the model AIP Appendix O and include any other additional requirements. A check list of requirements for the O/AIP is given as follows:

CHECK LIST OF ESSENTIAL REQUIREMENTS FOR AN OUTLINE AIP (O/AIP)

1. Location
2. Operational dimensions/levels
3. Requirements for traffic loads
4. Requirements for other actions
5. Relevant Overseeing Organisation standards, UK national standards (Eurocodes and non-Eurocodes), BSI Published Documents, Codes of Practice, etc.
6. General arrangement drawing including the designated outline

CHECK LIST OF OTHER REQUIREMENTS FOR AN OUTLINE AIP (O/AIP)

7. Ground investigation data
8. Appearance of structure
9. Environmental factors
10. Constraints/external control during execution
11. Operational or user requirements
12. Special maintenance
13. Any other essential requirements

5. Confirmation of compliance

Where a proprietary structure or product is supplied in accordance with an O/AIP and the item has been CE marked in accordance with the CPR the designer is to confirm to the TAA in a certificate that they have inspected the declared performance under the CE mark and that declared performance of the item meets the requirements of the O/AIP.

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Highway Structures & Bridges
General Information

CG 300

England National Application Annex to CG 300 300 Technical approval of highway structures

(formerly BD 2/12)

Version 0.1.0

Summary

This National Application Annex sets out the Highways England-specific requirements on technical approval (TA) of highway structures.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Highways England team. The email address for all enquiries and feedback is: Standards_Enquiries@highwaysengland.co.uk

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Latest release notes

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CG 300	0.1.0	April 2021	England NAA	Incremental change to requirements

Update to clause E/1.3

Previous versions

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CG 300	0	March 2020		

Foreword

Publishing information

This document is published by Highways England.

This document supersedes part of BD 2/12, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex gives the Highways England-specific requirements and advice for the application of technical approval (TA) procedures in England.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to this document.

Mutual Recognition

Where there is a requirement in this document for compliance with any part of a "British Standard" or other technical specification, that requirement may be met by compliance with the Mutual Recognition (See GG 101 [Ref 1.N]).

Abbreviations

Abbreviation	Meaning
DBFO	Design, build, finance, operate (contract scheme)
TA	Technical approval

E/1. Particular requirements for DBFO schemes (CG 300, whole document & 3.4-3.10)

Use of interim requirements for technical approval of highway structures in English DBFO schemes

E/1.1 When used on the A69 Carlisle to Newcastle DBFO Contract, this document shall be amended as follows:

Table E/1.1 A69 Carlisle to Newcastle DBFO Contract

Paragraph no.	Description
Whole document	Delete whole document except the paragraphs identified below.
3.4 to 3.10 Criteria for Categories 0, 1, 2 and 3.	These criteria replace the criteria in Paragraph 34 of Section A of Part 3 of Schedule 4.

E/1.2 When used on the A1(M) Alconbury to Peterborough DBFO Contract, the A417/A419 Swindon to Gloucester DBFO Contract, the M1A1 Link Road (Lofthouse to Bramham) DBFO Contract, the A50/A564 Stoke-Derby Link DBFO Contract, the A30/A35 Exeter to Bere Regis DBFO Contract, the M40 Junctions 1 to 15 DBFO Contract, the A19 Dishforth to Tyne Tunnel DBFO Contract, the A1 Darrington to Dishforth DBFO Contract and the A249 Stockbury (M2) to Sheerness DBFO Contract, this document shall be amended as described in Table E/1.2:

Table E/1.2 CG 300 amendments for specific DBFO contracts

Paragraph no.	Description
Whole document	Delete whole document except the paragraphs identified below.
3.4 to 3.10 Criteria for Categories 0, 1, 2 and 3.	These criteria replace the criteria in Paragraph 35 of Section A of Part 3 of Schedule 4.

E/1.3 When used on the M25 DBFO Contract, this document shall be amended as described in Table E/1.3:

Table E/1.3 Document amendments for M25 DBFO Contract

Paragraph no.	Description
Whole document	Delete whole document except the paragraphs identified below
3.4 to 3.10 Criteria for Categories 0, 1, 2 and 3.	These criteria replace the criteria in Paragraph 12.2 of Section A of Part 1 of Schedule 8

E/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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Design Manual for Roads and Bridges



Highway Structures & Bridges
General information

CG 300

Northern Ireland National Application Annex to CG 300 Technical approval of highway structures

(formerly BD 2/12)

Revision 0

Summary

This National Application Annex sets out the Department for Infrastructure, Northern Ireland-specific requirements on technical approval of highway structures.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated team in the Department for Infrastructure, Northern Ireland. The email address for all enquiries and feedback is: dcu@infrastructure-ni.gov.uk

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Release notes

Version	Date	Details of amendments
0	Mar 2020	Department for Infrastructure Northern Ireland National Application Annex to CG 300.

Foreword

Publishing information

This document is published by Highways England on behalf of the Department for Infrastructure Northern Ireland.

This document supersedes BD 2/12, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex gives the Department for Infrastructure, Northern Ireland-specific requirements and advice for the application of technical approval procedures on all roads in Northern Ireland.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to this document.

Mutual Recognition

Where there is a requirement in this document for compliance with any part of a "British Standard" or other technical specification, that requirement may be met by compliance with the Mutual Recognition clause in GG 101 [Ref 1.N].

Abbreviations

Abbreviation	Meaning
AiP	Approval in Principle
TAA	Technical approval authority

NI/1. General requirements and principles (CG 300, 2)

Overseeing Organisation requirements (CG 300, 2.2 & 2.3)

NI/1.1 The initial submission of Approval in Principle (AiP) and certificates shall be in hard copy and electronic format.

NI/1.1.1 Subsequent re-submissions of AiP and certificates may be in electronic format only, where agreed by the TAA.

NI/1.2 Original manuscript signatures shall be submitted on all documents.

Use of UK national Standards (CG 300, 2.14 & 2.15)

NI/1.3 Model forms specific to Department for Infrastructure, available on the Department for Infrastructure website, shall be used.

Options report (CG 300, 2.16)

NI/1.4 An options report shall not be required unless specifically requested by the TAA.

Submission for AiP (CG 300, 2.46)

NI/1.5 Model forms specific to Department for Infrastructure shall be used and are available on the Department for Infrastructure website.

Certification (CG 300, 2.94)

NI/1.6 Construction compliance certificate shall be submitted to the Department for Infrastructure Roads divisional office for acceptance.

NI/2. Bridges and other highway structures

NI/2.1 Where the document mentions Interim Advice Notes (IAN) confirmation shall be sought from the Overseeing Organisation as to the applicability of the information within that note to any particular proposal or if alternative documents are referenced.

Bridges and other highway structures (CG 300, 3.3 parts 4), 5) & 6))

NI/2.2 In addition to to the requirements of 3.3, the procedures described in Section 3 shall be applied to

- 1) earth retaining structures where the effective retained height, i.e. the level of the fill at the back of the structure above the finished ground level in front of the structure, is 1.0m or greater;
- 2) reinforced/strengthened soil/fill structure, with hard facings, where the effective retained height is 1.0m or greater;
- 3) reinforced/strengthened soil/fill structure where hard facings are not provided and the face inclination exceeds 70 degrees.

Certification (CG 300, 3.13)

NI/2.3 Model forms specific to the Department for Infrastructure shall be used and are available on the Department for Infrastructure website.

Documentation (CG 300, 3.14 & 3.16)

NI/2.4 Model forms specific to the Department for Infrastructure shall be used and are available on the Department for Infrastructure website.

NI/3. Temporary works (CG 300, 4.0)**Temporary works (CG 300, 4.2 & 4.4.1)**

NI/3.1 Type N temporary works proposals shall be dealt with under the Principal Contractors' own procedures and do not require involvement of the Overseeing Organisation, nor any submission to be made to the technical approval authority.

Type S proposals (CG 300, 4.19)

NI/3.2 Model forms specific to the Department for Infrastructure shall be used and are available on the Department for Infrastructure website.

NI/4. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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Highway Structures & Bridges
General information

CG 300

Scotland National Application Annex to CG 300 Technical approval of highway structures

(formerly BD 2/12)

Revision 0

Summary

This National Application Annex sets out Transport Scotland's specific requirements on the technical approvals of highway structures.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Transport Scotland team. The email address for all enquiries and feedback is: TSSStandardsBranch@transport.gov.scot

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Release notes

Version	Date	Details of amendments
0	Mar 2020	Transport Scotland National Application Annex to CG 300.

Foreword

Publishing information

This document is published by Highways England on behalf of Transport Scotland.

This document supersedes BD 2/12, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex gives the Transport Scotland-specific requirements for technical approval procedures of highway structures.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to this document.

Mutual Recognition

Where there is a requirement in this document for compliance with any part of a "British Standard" or other technical specification, that requirement may be met by compliance with the Mutual Recognition clause in GG 101 [Ref 1.N].

S/1. Bridges and other highway structures (CG 300, 1)

Scope

- S/1.1 Where the document mentions interim advice notes (IANs) confirmation shall be sought from the Overseeing Organisations as to the applicability of the information within that note to any particular proposal or if alternative documents are referenced.
- S/1.2 CG 300 clause 3.3 list item 1) shall not apply and be amended to the following:
- 1) highway structures with clear span or internal diameters of 2.0 m or greater;
 - 2) corrugated buried structures 0.9 m span or greater.

S/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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Highway Structures & Bridges
General Information

CG 300

Wales National Application Annex to CG 300 Technical approval of highway structures

(formerly BD 2/12)

Version 0.1.0

Summary

This National Application Annex gives the Welsh Government-specific requirements for the technical approval procedures of highway structures in Wales.

Feedback and Enquiries

Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated Welsh Government team. The email address for all enquiries and feedback is: Standards_Feedback_and_Enquiries@gov.wales

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Latest release notes

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CG 300	0.1.0	April 2021	Wales NAA	Incremental change to requirements

Revision 1 (DATE TBC) W/1 - alternative requirements to list in clauses 3.6 and 3.8 of core document. Revision 0 (March 2020) Welsh Government National Application Annex to CG 300.

Previous versions

Document code	Version number	Date of publication of relevant change	Changes made to	Type of change
CG 300	0	March 2020		

Foreword

Publishing information

This document is published by Highways England on behalf of the Welsh Government.

This document supersedes BD 2/12, which is withdrawn.

Contractual and legal considerations

This document forms part of the works specification. It does not purport to include all the necessary provisions of a contract. Users are responsible for applying all appropriate documents applicable to their contract.

Introduction

Background

This National Application Annex gives the Welsh Government-specific requirements for the technical approval procedures of highway structures in Wales.

Assumptions made in the preparation of this document

The assumptions made in GG 101 [Ref 1.N] apply to this document.

Mutual Recognition

Where there is a requirement in this document for compliance with any part of a "British Standard" or other technical specification, that requirement may be met by compliance with the Mutual Recognition clause in GG 101 [Ref 1.N].

W/1. Bridges and other highway structures (CG 300, 1)

Scope

- W/1.1 Where the document mentions interim advice notes (IANs), confirmation shall be sought from the Overseeing Organisation as to the applicability of the information within that note to any particular proposal, or if alternative documents are referenced.
- NOTE For example the TRMM (Trunk road maintenance manual) and asset management strategy & plan.*
- W/1.2 Clause 3.6 7) shall be amended to apply to noise barriers less than 3m high and without overhangs.
- W/1.3 Clause 3.8 6) shall be amended to apply to noise barriers 3m or more or with overhangs.

W/2. Normative references

The following documents, in whole or in part, are normative references for this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

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