

SCHEDULE 4**CONSTRUCTION AND HANDBACK REQUIREMENTS****Part 3****Design and Certification Procedure****Section A: General****Interpretation**

1. This Design and Certification Procedure applies throughout the Contract Period to all Design Data prepared or adopted in connection with any of the following, which, for the purposes of this Part 3, shall be known as "**Proposals**":
 - 1.1 the Detailed Design of the Works, including further design work once a TAF has been subject to the Review Procedure;
 - 1.2 any proposed DBFO Co's Change or Department's Change;
 - 1.3 any proposed Improvement;
 - 1.4 any proposed Maintenance Works or Renewal Works;
 - 1.5 any assessment of a Structure; and
 - 1.6 any other works proposed by the DBFO Co (other than pursuant to a Subsequent Scheme or in the case of emergency measures) which may affect the structural integrity of Structures or pavements forming part of the Project Facilities.
2. In this Part 3 of Schedule 4:
 - 2.1 "**Audit Team**" means such person as may be appointed for the time being in accordance with paragraph 19 below to carry out a Road Safety Audit for the purposes of this Part 3.
 - 2.2 "**Category**" means the classification given to a Structure having regard to its structural complexity, which determines the form of independent check required.
 - 2.3 "**Checking Team**" means the group of engineers within the Designer actually undertaking a check of a Structure.
 - 2.4 "**Design Team**" means the group of engineers within the Designer actually undertaking the design or assessment of the Project Facilities or works in connection with the operation, maintenance or improvement of the Project Facilities.
 - 2.5 "**Earthworks**" has the meaning in British Standard 6100.

- 2.6 "M&E TAF" means a technical appraisal form relating to the mechanical and electrical functions of a Structure in such form as the Department's Nominee shall reasonably require.
- 2.7 "**Principal**" means a senior representative employed by the DBFO Co, Designer, Checker, Contractor, Landscape Architect, Landscape Manager, Ecologist or Archaeologist who has been nominated by the relevant organisation to the Department's Nominee as having authority to sign Certificates on behalf of his organisation.
- 2.8 "**SEAF**" means a Strengthened Earthworks appraisal form in the form shown in Annex 2(2) to this Part 3.
- 2.9 "**Strengthened Earthwork**" means soil or other material, either placed or in situ, the stability of which has been improved by tensile reinforcement acting through interface friction, bearing or other means (such as reinforced soil or soil nailing) or by external support such as gabions, where the slope of the face is less than 70 deg. to the horizontal or (for steeper slopes) where the retained height is less than 1.5 metres.
- 2.10 "**TAF**" means a technical appraisal form in the form shown in Annex 2(1) to this Part 3.
- 2.11 "**Technical Appraisal Authority**" means the relevant office nominated by the Department as being responsible for carrying out a review of any proposal in respect of a Structure under this Part 3 of Schedule 4.
- 2.12 "**Temporary Works**" has the meaning given in Clause 1.1 (Definitions).
- 2.13 A reference to Design Data or a Certificate to which there has been "**no objection**" under the Review Procedure is a reference to Design Data or a Certificate which has been subject to the Review Procedure and has been returned (or deemed returned) marked "**received**" or returned marked "**received with comments**", in the latter case the Design Data or Certificate having been amended to accord with such comments.
- 2.14 References to a "**Standard**" or an "**Advice Note**" are references to a Standard or an Advice Note forming part of the Construction Requirements.
- 2.15 A reference to a Design Certificate shall mean in the case of Design Data referred to at paragraph 12 below a Design Certificate (Geotechnical), in the case of Design Data relating to a Structure a Design Certificate (Structures) and in all other cases a Design Certificate (General), as relevant.
- 2.16 A reference to a Check Certificate shall include a reference, where relevant, to a Check Certificate (Structures/Strengthened Earthworks), a Temporary Works Check Certificate and an Assessment Check Certificate (Structures).
- 2.17 References to a Section or a paragraph are references respectively to a Section or a paragraph of this Part 3 of Schedule 4.

General

3. Subject to paragraphs 4 and 11, all Design Data required in connection with a Proposal shall be prepared or adopted by or under the supervision of the Designer. Prior to the submission of any Design Data in respect of any Proposal to the Department's Nominee in accordance with paragraph 5, the Designer shall:
 - 3.1 satisfy itself that the Design Data meets the Construction Requirements and (if appropriate) the Communications Requirements and otherwise complies with the requirements of this Agreement, and shall issue a Design Certificate in respect of the same; and
 - 3.2 in the case of a Structure (including, for the avoidance of doubt, the assessment of a Structure) or Strengthened Earthwork, submit the relevant Design Data to be checked in accordance with this Part 3.
4. Notwithstanding paragraph 3, Design Data for Temporary Works may be prepared by the Contractor. In respect of Temporary Works:
 - 4.1 either the Contractor or the Designer as appropriate shall satisfy itself that the Design Data for Temporary Works meets the Construction Requirements and (if appropriate) the Communications Requirements and otherwise complies with the requirements of this Agreement and, where required by paragraphs 5 and 6 below, shall issue a Design Certificate in respect of the same; and
 - 4.2 the Designer shall, when required by paragraphs 54 and 55, check such Design Data and issue a Temporary Works Check Certificate.
5. Subject to paragraph 6 below, all Design Data prepared or adopted in connection with a Proposal shall be submitted to the Department's Nominee in accordance with the Review Procedure. Without prejudice to paragraph 11, such Design Data shall be accompanied by:
 - 5.1 all relevant Design Certificates;
 - 5.2 where required by paragraph 3.2, paragraph 53 or paragraph 57, a Check Certificate; and
 - 5.3 where required by paragraph 27, a Traffic Management Certificate.

(The time periods set out in Annex 5 to this Part 3 shall apply in relation to a submission under the Review Procedure of Design Data in respect of Structures which constitute Local Facilities.)
6. The following are not required to be submitted to the Department's Nominee unless expressly called for by it:
 - 6.1 calculations;
 - 6.2 steel reinforcing bar schedules;
 - 6.3 Design Data in respect of Temporary Works, except as provided in paragraph 52; and
 - 6.4 Design Data prepared by or on behalf of the Secretary of State.

7. Without limitation to paragraph 3.13 of Part 3 of Schedule 7, if any Design Data submitted to the Department's Nominee does not accord with the Construction Requirements (including any relevant TAF, SEAF or, where applicable, M&E TAF) or the Communications Requirements, the Department's Nominee may so notify the DBFO Co and the DBFO Co shall either:
 - 7.1 cause to be made such alterations and additions as may be necessary such that the Design Data accords with the Construction Requirements or the Communications Requirements as the case may be; or
 - 7.2 propose an Alternative Proposal.
8. The Designer shall issue (if and when required in accordance with the relevant provisions of this Agreement):
 - 8.1 DBFO Co's Change Certificates in accordance with Clause 10.4 (DBFO Co's Changes);
 - 8.2 Department's Change Certificates in accordance with Part 2 of Schedule 12; and
 - 8.3 Alternative Proposal Certificates in accordance with Clause 13.6 (Maintenance and Other Works).
9. All parties signing Certificates shall clearly indicate their name and position held in their organisation. Save as provided in paragraph 11, all Certificates shall be signed by a Principal of the organisation concerned, who shall be a chartered engineer of an appropriate discipline in the case of Certificates in the form of Annexes 1(3) and 1(4) to this Part 3 shall be a chartered civil or structural engineer and in the case of Certificates in form of Annexes 1(21), 1(22) and 1(23) shall have the qualifications specified in paragraph 11.
10. All Certificates together with the supporting documentation shall be submitted to the Department's Nominee in duplicate with original signatures and in such form as to allow the Department's Nominee to perform its function in respect of such Certificate without delay. Where required by the provisions of this Part 3, the Department's Nominee shall complete the Certificate in accordance with the Review Procedure and return a copy to the Designer.

Archaeology, Landscaping and Ecology

11.
 - 11.1 All Archaeological Designs (as defined in Annex 13 to Part 2 of Schedule 4) shall be deemed to be Design Data (i) required in connection with a Proposal for the purposes of paragraph 3 and (ii) prepared or adopted in connection with a Proposal for the purposes of paragraph 5, and such Archaeological Designs shall be accompanied by an Archaeology Certificate 1 signed by the Archaeologist.
 - 11.2 The Design Data referred to in paragraph 11.1 shall be prepared by the Archaeologist.

- 11.3 The DBFO Co shall, at the times required pursuant to paragraph 3.5 of Annex 13 to Part 2 of Schedule 4, submit Archaeology Certificate 2 (signed by the Archaeologist) to the Department's Nominee.
- 11.4 Each of the following shall be deemed to be Design Data (i) required in connection with a Proposal for the purposes of paragraph 3 and (ii) prepared or adopted in connection with a Proposal for the purposes of paragraph 5:
 - 11.4.1 details of any Existing Vegetation (as defined in Annex 9 to Part 2 of Schedule 4);
 - 11.4.2 any Existing Vegetation Design (as defined in Annex 9 to Part 2 of Schedule 4);
 - 11.4.3 any Landscape Design (as defined in Annex 10 to Part 2 of Schedule 4);
 - 11.4.4 details of any Ecological Interests or Habitat Creation (both as defined in Annex 11 to Part 2 of Schedule 4); and
 - 11.4.5 any Ecological Design (as defined in Annex 11 to Part 2 of Schedule 4).
- 11.5 The Design Data referred to:
 - 11.5.1 in paragraphs 11.4.1, 11.4.2 and 11.4.3 shall be prepared by the Landscape Architect; and
 - 11.5.2 in paragraphs 11.4.4 and 11.4.5 shall be prepared by the Ecologist.
- 11.6 Each Existing Vegetation Design and Landscape Design shall be accompanied by a Landscaping Certificate 1 signed by the Landscape Architect and each Ecological Design shall be accompanied by an Ecology Certificate 1 signed by the Ecologist.
- 11.7 The DBFO Co shall, at the times required pursuant to paragraph 11 of Annex 9 to Part 2 of Schedule 4 and paragraph 1.16 of Annex 10 to Part 2 of Schedule 4, submit a Landscaping Certificate 2 (signed by the Landscape Architect) to the Department's Nominee.
- 11.8 The DBFO Co shall, at the times required pursuant to:
 - 11.8.1 paragraph 1.15.2 of Annex 11 to Part 2 of Schedule 4, submit an Ecology Certificate 2 (signed by the Ecologist) to the Department's Nominee; and
 - 11.8.2 paragraph 1.18 of Annex 11 to Part 2 of Schedule 4, submit an Ecology Certificate 3 (signed by the Ecologist) to the Department's Nominee.

Geotechnical Works

- 12. In respect of geotechnical elements of the Works or any other works the subject of a Proposal which in either such case are not associated with Structures (including without

limitation Strengthened Earthworks), the Designer shall issue and submit to the Department's Nominee in accordance with the Review Procedure a Design Certificate (Geotechnical) together with the submission of Design Data in accordance with paragraph 5 above.

13. Geotechnical Reports complying with the requirements of Standard HD 22/92 (DMRB, reference 4.1.2) as amended in Annex 2 to Part 2 of this Schedule 4 shall be prepared by the Designer. Such Reports, and all amendments to them, shall be submitted by the Designer to the Department's Nominee together with the Design Certificate for the relevant geotechnical elements of the Proposal (which in the case of geotechnical elements associated with Structures shall be the Design Certificate (Structures) and in all other cases (including without limitation Strengthened Earthworks) the Design Certificate (Geotechnical)).
14. A Geotechnical Feedback Report complying with the requirements of Standard HD 22/92 (DMRB, reference 4.1.2) shall be prepared and submitted by the Designer to the Department's Nominee as soon as possible (and in any event within 6 months) after the first application of traffic loading.

Testing and Examination

15. To the extent and in the manner provided by the Construction Requirements, the Communications Requirements and the Quality Documentation, all testing shall be carried out by the Testing Contractor and in the presence of the Designer or an independent specialist firm on behalf of the Designer, and the Department's Nominee shall be given timely notice of the date of such tests in order that it may attend. The Designer shall reject any materials or Plant which fail such tests, and Test Confirmation Certificates signed by the Designer shall be submitted to the Department's Nominee. The DBFO Co shall develop a test recording system which will permit ready retrieval of all test readings and shall provide test readings to the Department's Nominee on request. With respect to continuous testing operations (such as structural concrete strengths, PQ concrete strengths and bituminous material quality) the DBFO Co shall provide to the Department's Nominee at regular intervals (not to exceed weekly unless otherwise agreed) test summary sheets and statistical analyses indicating strength and quality trends.
16. The DBFO Co shall:
 - 16.1 procure that the Designer and the Department's Nominee shall be afforded full opportunity to examine any part of the Works or any other works the subject of a Proposal which is about to be covered up or put out of view and to examine foundations before any part of the Works or such other works is placed thereon; and
 - 16.2 uncover or procure the uncovering of any part of the Works or such other works or make or procure openings in or through the same as the Designer or the Department's Nominee may from time to time reasonably instruct and shall reinstate and make good such part.
17. The procedures for such examinations and uncovering shall be as set out in the Construction Requirements, the Communications Requirements and the Quality Documentation. The Designer shall reject any part of the Works or such other works that does not accord with the Construction Requirements or the Communications Requirements.

Road Safety Audits

18. All Design Data prepared or adopted in connection with a Proposal (and in respect of an audit pursuant to paragraph 20.3 the New Road, any Local Authority Road or other relevant works) shall be subject to Road Safety Audits in accordance with Standard HD 19/94 and Advice Note HA 42/94 (DMRB, references 5.2.2 and 5.2.3) save that the procedure shall be amended as provided in paragraphs 20 to 26 (both inclusive). Expressions used in Standard HD 19/94 and Advice Note HA 42/94 have the same meanings in this Part 3.
19. Prior to commencing any Road Safety Audit, the DBFO Co shall submit to the Department's Nominee under the Review Procedure a proposal as to the Audit Team. The Department's Nominee may object to such proposal only on the grounds that:
 - 19.1 the proposed Audit Team is not independent of the Designer;
 - 19.2 the proposed Audit Team is not appointed directly by the DBFO Co; or
 - 19.3 the proposed Audit Team does not have levels of road safety engineering work and accident investigation and prevention experience appropriate to the Road Safety Audit to be carried out.
20. There shall be three stages of Road Safety Audit, as follows:
 - 20.1 Stage 1 Audit

On completion of preliminary design, unless otherwise agreed by the Department's Nominee.
 - 20.2 Stage 2 Audit

On completion of detailed design and prior to commencement of construction of the relevant works.
 - 20.3 Stage 3 Audit

Immediately prior to the DBFO Co giving notice to the Department's Nominee pursuant to Clause 12.1.1 or Clause 12.3.1.1 or the relevant works otherwise being used as a highway.
21. Communication between the Audit Team and the Designer shall only be through the Department's Nominee.
22. At each of the relevant Road Safety Audit stages the DBFO Co shall submit all relevant Design Data to the Department's Nominee for consideration by the Audit Team.
23. The Audit Team shall audit the Design Data (and in respect of a Stage 3 Audit the New Road, Local Authority Road or other relevant works) and prepare reports for the Department's Nominee. The Department's Nominee will provide copies of all such reports to the DBFO Co.
24. Except where otherwise agreed by the Department's Nominee, the DBFO Co shall implement after each stage of Road Safety Audit all recommendations made by the Audit Team.

25. The Designer shall after implementation of all recommendations (other than those expressly agreed by the Department's Nominee) provide to the Department's Nominee a Road Safety Audit Certificate in relation to that stage signed by the Designer, the Contractor and the DBFO Co. The DBFO Co's Substantial Completion Certificate shall not be issued unless a Stage 3 Road Safety Audit Certificate in relation to the New Road has been submitted.

Traffic Management

27. Prior to commencement of construction of any part of the Works or any other works the subject of a Proposal, or to changing any existing traffic management arrangements in respect of such works, the DBFO Co shall submit a Traffic Management Certificate in respect of such works to the Department's Nominee in accordance with the Review Procedure. The Department's Nominee may raise comments in respect of any such Traffic Management Certificate only on the grounds set out in paragraph 3.13 of Part 3 of Schedule 7.
28. The Designer and Checker shall not issue any Design Certificate or Check Certificate unless:
- 28.1 there has been no objection to all relevant Traffic Management Certificates in accordance with the Review Procedure; and
 - 28.2 they have taken account of all relevant Traffic Management Certificates in the Design Data the subject of such Design Certificate or Check Certificate.

Communications

29. The DBFO Co's Systems (as defined in Schedule 17) shall not be electrically connected to the Department's Systems (as defined in Schedule 17) until a Communications Certificate has been submitted to the Department's Nominee under the Review Procedure and there has been no objection thereto. The Department's Nominee may raise comments in respect of a Communications Certificate only on the grounds set out in paragraph 3.13 of Part 3 of Schedule 7. A Communications Certificate shall be signed by the certifying contractor nominated by the Department's Nominee on application by the DBFO Co's Representative.

Construction

30. During the construction of any Works or any other works the subject of a Proposal, the Designer shall, in accordance with the procedures set out in any relevant Quality Documentation, examine the same and satisfy itself that such works and every part thereof have been designed, constructed, completed, commissioned, tested and maintained in all respects so as to accord with:
- 30.1 Design Data in respect of which Design Certificates and (where required by this Part 3) Check Certificates have been issued and to which there has been no objection in accordance with the Review Procedure; and
 - 30.2 the Construction Requirements and the Communications Requirements,
- and otherwise to comply in all respects with the requirements of this Agreement.

31. The DBFO Co shall, from time to time in accordance with the procedures set out in the relevant Quality Documentation, provide to the Department's Nominee Construction Certificates. All Construction Certificates shall be signed by the DBFO Co, the Designer and the Contractor.

Substantial Completion Certificate

32. The DBFO Co shall provide to the Department's Nominee a DBFO Co's Substantial Completion Certificate in respect of the New Road. Such DBFO Co's Substantial Completion Certificate shall only be issued after:
- 32.1 all Construction Certificates in respect of the New Road have been issued; and
- 32.2 a Stage 3 Road Safety Audit Certificate in respect of the New Road has been issued;
- and prior to an application under Clause 12.1.1 for the issue of the Permit to Use.
33. All DBFO Co's Substantial Completion Certificates shall be signed by the DBFO Co, the Designer and the Contractor.

Checking Requirements for Structures and Strengthened Earthworks

34. The Category of a Structure shall determine the degree of independence of checking of Design Data required for that Structure. Every Structure shall be placed in one of the Categories referred to in paragraph 35.
35. The Categories of Structure are as follows:

Category 0. Minor individual Structures provided they conform to one of the following:

- (i) a Structure with a single span of less than 10m and which is statically determinate;
- (ii) a buried Structure less than 3m clear span/diameter, or multicell buried Structure where the cumulative span is less than 5m and having more than 1m cover;
- (iii) a retaining wall with less than 3m retained height; or
- (iv) an environmental barrier not greater than 3m high.

Category I. Simple individual Structures provided they conform to one of the following:

- (i) an environmental barrier more than 3m high;
- (ii) a retaining wall with less than 7m retained height;
- (iii) a buried concrete box or corrugated steel buried Structure with less than 8m span; or
- (iv) a Structure with a simply supported single span of less than 20m and having less than 25 deg. skew.

Category II. All those Structures not within the parameters of Category 0, I or III.

Category III. Structures which require sophisticated analysis or contain high structural redundancy, unconventional design aspects, any span exceeding 50m or a skew exceeding 45 deg., or difficult foundation problems. This Category shall include bridges with suspension systems, steel bridges with orthotropic decks and all tunnels, movable bridges and bridge access gantries.

36. Where the Category of a Structure is not recorded in a TAF in the Construction Requirements, then (subject to paragraph 37 below) as soon as sufficient Design Data for that Structure has been prepared to allow the determination of a Category the DBFO Co shall submit its proposed Category (together with such Design Data as necessary to support that proposal) to the Department's Nominee in accordance with the Review Procedure. The Department's Nominee shall be entitled to raise objections to such proposed Category only on the ground that the proposal is not consistent with the definitions of Categories in paragraph 35.
37. The assessment of existing Structures and the renewal or strengthening work affecting structural integrity of existing Structures shall be categorised on the basis of the original Structure unless otherwise agreed by the Department's Nominee.
38. Design Data relating to each Structure or Strengthened Earthwork (including without limitation assessments, drawings and bar schedules) shall be checked as follows:
 - 38.1 Strengthened Earthworks and Category 0 and I Structures require an independent check by an engineer other than the engineer who designed the Strengthened Earthwork or Structure. The checking engineer may be from the original Design Team.
 - 38.2 Strengthened Earthworks and Category II Structures require a check by a Checking Team which may be from the Designer but shall be independent of the Design Team.
 - 38.3 Category III Structures require a check to be carried out by a Checker appointed in accordance with paragraph 39 below.

Checker

39. At the time it submits a TAF in respect of a Category III Structure, the DBFO Co shall submit to the Department's Nominee under the Review Procedure a proposal as to the organisation to serve as Checker in respect of that Structure and the proposed terms and conditions of its employment. The proposal shall be supported by a C.V. for each member of the checking team. The Department's Nominee may object to such proposed Checker only on the grounds that the organisation proposed as Checker:
 - 39.1 has a function in the Project other than as Checker or owns any shares in the DBFO Co (directly or indirectly) or would not be directly engaged by the DBFO Co; or
 - 39.2 does not have sufficient knowledge and experience relating to the type of Structure to be examined properly to perform the check,

and may object to such proposed terms and conditions of employment only on the ground that they are not in accordance with Good Industry Practice or the provisions of this Agreement.

Design Checking Procedure

40. The form and detail of the design check is for the Checking Team or Checker (as applicable) to decide. However, its analytical work shall be independent of that of the Design Team or Designer and carried out without reference to the calculations of the Design Team or Designer.
41. The Design Team, Designer, Checking Team and Checker shall each satisfy itself as to the applicability and accuracy of all computer programs used and shall ensure the validity of the program for each application. The Checking Team and Checker shall each also be responsible for its own interpretation of the ground information referred to in the TAF or SEAF.
42. Independence of the Design Team and Checking Team and of the Designer and the Checker shall be maintained. The method of analysis they employ need not be the same. They may consult each other to ensure that the results they are obtaining are directly comparable.

Technical Appraisal Submissions

43. Without limitation to paragraph 5 above, no Design Data relating to any Structure other than those in Category 0 and no Design Data relating to any Strengthened Earthwork shall be submitted to the Department's Nominee unless:
 - 43.1 a completed TAF (in the case of a Structure) or SEAF (in the case of a Strengthened Earthwork) has already been provided; or
 - 43.2 the submission includes a completed TAF or SEAF (as the case may be).
44. The Construction Requirements contain TAFs which, insofar as they have been completed at the date of execution of this Agreement, have been accepted by the Secretary of State.
45. If the DBFO Co makes a submission of Design Data relating to a Structure or a Strengthened Earthwork at a time when there is no completed TAF or SEAF (as the case may be) in respect of such Structure or Strengthened Earthwork included in the Construction Requirements or to which there has been no objection under the Review Procedure, then the time period for review under the Review Procedure of such submission of Design Data shall not begin to run until the date on which a completed TAF or SEAF (as the case may be) has been submitted in respect of such Structure or Strengthened Earthwork and there has been no objection to it under the Review Procedure.
46. Any submission of a TAF or SEAF shall be made to the Department's Nominee in accordance with the Review Procedure and shall include the information required by the Model Technical Appraisal Form set out in Annex 2(1) to this Part 3 (in respect of a TAF) or the Model Strengthened Earthworks Appraisal Form set out in Annex 2(2) to this Part 3 (in respect of a SEAF). The TAF or SEAF shall be signed on behalf of the Designer and the DBFO Co.
47. The time periods set out in Annex 3 or Annex 4 (as applicable) to this Part 3 shall apply in relation to a submission of a TAF or SEAF under the Review Procedure and take account

of the requirement for the relevant Technical Appraisal Authority to be involved in the review of the TAF or SEAF under the Review Procedure. The Department's Nominee may raise comments in respect of a TAF or SEAF submitted under the Review Procedure only on the grounds:

- 47.1 that the TAF or SEAF is incomplete;
 - 47.2 that the TAF is not in accordance with the corresponding TAF (if any) included in the Construction Requirements;
 - 47.3 that the proposals in the TAF or SEAF are otherwise not in accordance with the Construction Requirements or the Communications Requirements or the other provisions of this Agreement; or
 - 47.4 that the proposals in the TAF or SEAF are not in accordance with Good Industry Practice.
48. Acceptance of each TAF or SEAF shall be confirmed by countersignature of the TAF or SEAF on behalf of the Secretary of State.
49. Without limitation to paragraph 3 of Section B below, any variation which the Designer wishes to make to a TAF or SEAF which has been subject to the Review Procedure during design, assessment or construction shall be submitted in accordance with the Review Procedure as an addendum to the TAF or SEAF and there shall have been no objection under the Review Procedure before it is implemented.
50. In any case where a Structure (including without limitation a road tunnel, movable bridge or access gantry) involves mechanical or electrical functions, the DBFO Co shall, if requested by the Department's Nominee acting reasonably, submit to the Department's Nominee an M&E TAF in addition to the TAF in respect of such Structure. The provisions of paragraphs 43 to 49 above shall apply mutatis mutandis to such M&E TAF, as though references therein to a TAF were references to an M&E TAF and references to Design Data relating to a Structure were references to Design Data relating to the mechanical and electrical functions in respect of such Structure. The check of the Design Data in respect of mechanical and electrical functions shall be equivalent to the check required by paragraph 38.2.

Existing Structures

51. For the avoidance of doubt, the technical appraisal, checking and certification procedures in this Part 3 shall apply to:
- 51.1 any assessment of a Structure forming part of the Project Facilities; and
 - 51.2 any resulting proposals for design and construction of alteration and strengthening works in respect of any such Structure.
52. Without limitation to the generality of paragraph 51:
- 52.1 a TAF shall be submitted in accordance with paragraphs 43 to 50 in respect of each assessment referred to in paragraph 51.1 and proposal referred to in paragraph 51.2; and

- 52.2 the Designer shall submit each such assessment and the Design Data in respect of each such proposal to be checked in accordance with this Part 3.
53. Promptly following the assessment of any Structure, the Designer shall issue an Assessment Certificate (Structures) in respect of such Structure, which shall, in the case of a Category II or Category III Structure, be accompanied by an Assessment Check Certificate (Structures) issued by the Checking Team or Checker as appropriate.

Temporary Works

54. The provisions of paragraph 5 above shall apply to all Design Data prepared or adopted in connection with any Temporary Works over, supporting any Structure over, under, supporting, alongside or otherwise affecting or potentially affecting any highway or other way or area used by or accessible to the public.
55. In respect of any Temporary Works referred to in paragraph 54 which is a Structure (or involves the complete or partial demolition of an existing Structure), a TAF shall be submitted in accordance with paragraph 46, and the provisions of paragraphs 43 to 45 and 47 to 49 shall apply mutatis mutandis to any such TAF, provided that the reference in paragraph 47 above to the time periods set out in Annexes 3 and 4 to this Part 3 shall be deemed to be a reference to the time periods set out in the relevant part of Annex 6 to this Part 3.
56. Design Data relating to any Temporary Works referred to in paragraph 55 shall be checked as follows:
- 56.1 any such Design Data prepared by or on behalf of the Contractor require an independent check by the Designer; and
- 56.2 any such Design Data prepared by the Designer require an independent check by a Checking Team which may be from the Designer but shall be independent of the Design Team.

The provisions of paragraphs 34 to 39 shall not apply to any such Design Data.

57. In performing the check pursuant to paragraph 56 the Designer shall satisfy itself that:
- 57.1 the Design Data meet the Construction Requirements and otherwise comply with the requirements of this Agreement;
- 57.2 the Temporary Works (as a whole and the constituent parts) are satisfactory for the safe and proper discharge of the DBFO Co's relevant obligations; and
- 57.3 the Design Data reflect the requirements of the relevant authorities for all affected highways or other ways or areas used by or accessible to the public other than the Project Road,

and the Designer shall issue a Temporary Works Check Certificate.

58. If the DBFO Co proposes to vary or amend the Construction Requirements in respect of any Temporary Works, such proposal together with an explanation of the reason for the proposed change shall be submitted to the Department's Nominee in accordance with the Review Procedure. Such proposal shall be dealt with in accordance with the provisions of this Agreement applicable to a DBFO Co's Works Change or an Alternative Proposal, as

the case may be, provided that the Department's Nominee shall be entitled to raise comments in respect of any such proposal under the Review Procedure only on the ground that the conduct of any Temporary Works in accordance with the proposal may endanger public safety.

59. Where any Temporary Works may endanger public safety on any highway or other way or area used by or accessible to the public other than the Project Road, the DBFO Co shall consult the relevant authority and the Design Data shall reflect their reasonable requirements.

Section B: Alternative Proposals

1. An "**Alternative Proposal**" means one of the following:
 - 1.1 a Proposal in connection with a DBFO Co's Change; or
 - 1.2 a Proposal in connection with an Improvement, Maintenance Works, Renewal Works or otherwise (other than a DBFO Co's Change) which proposes a variation in the design, quality or quantity of any of the Project Facilities or any addition, omission, substitution, alteration in design or variation in the Construction Requirements or (if applicable) the Communications Requirements.
2. Subject to paragraphs 3 and 4 below, the DBFO Co shall submit any proposal for an Alternative Proposal to the Department's Nominee under the Review Procedure in accordance with the applicable provisions of this Agreement.
3. If the DBFO Co intends to make an Alternative Proposal in relation to a Structure or in relation to any Temporary Works referred to in paragraph 54 of Section A above, the Designer shall propose such Alternative Proposal in the relevant TAF, which shall be accompanied by an Alternative Proposal Report in accordance with paragraph 4 below. If the DBFO Co intends to make an Alternative Proposal in relation to a Strengthened Earthwork, the Designer shall propose such Alternative Proposal in the relevant SEAF, which shall be accompanied by an Alternative Proposal Report in accordance with paragraph 4 below. Notwithstanding any other provision of this Agreement, the time periods set out in Annex 4 or Annex 6 (as applicable) to this Part 3 shall apply in relation to any submission under the Review Procedure of such an Alternative Proposal.
4. Without limitation to the provisions of Part 3 of Schedule 7, the submission of an Alternative Proposal under the Review Procedure shall be in writing and contain all the relevant data and information, which shall be assembled in a written report (an "**Alternative Proposal Report**"). The nature and scope of the information required shall vary with the proposal under consideration but shall include relevant aspects of the following:
 - 4.1 detailed information (including plans) about the existing circumstances and the impact of the Alternative Proposal;
 - 4.2 detailed information (including plans) of possible options or schemes that would not require an Alternative Proposal;
 - 4.3 reasons for proposing the Alternative Proposal (for example, cost, environmental factors, value for money, economics);
 - 4.4 details of the Alternative Proposal together with the corresponding existing provisions in the Construction Requirements or (if applicable) Communications Requirements. Clause numbers in standards or specifications relevant to the submission shall be quoted in full, and all proposed changes to existing requirements highlighted;
 - 4.5 details of design methodology and specification of the composition, and performance criteria of component materials (including all relevant parameters,

- such as elastic modulus, creep and deformation characteristics and fatigue resistance);
- 4.6 specific features of the site or location of the Alternative Proposal that might have a bearing on its effectiveness, including the existence of relevant Relaxations (within the meaning of Standard TD9/93 (DMRB, reference 6.1.1));
 - 4.7 evidence of satisfactory long term performance and corresponding maintenance requirements of the resulting works based on use in circumstances and conditions (including climatic and loading conditions) typical of those for the Alternative Proposal; and
 - 4.8 evidence of deterioration characteristics or long term assessment criteria sufficient to establish the condition and Residual Life of Project Facilities constructed in accordance with the Alternative Proposal at handback.
5. No Alternative Proposal shall be incorporated into the design or construction of the relevant works until there has been no objection to such Alternative Proposal under the Review Procedure.
 6. Each Alternative Proposal to which there has been no objection under the Review Procedure shall be considered to be unique to the particular site and circumstances and shall not entitle the DBFO Co to adopt the Alternative Proposal in other sites or circumstances.
 7. Where an Alternative Proposal is necessary to enable the DBFO Co to achieve the road geometry standards in the Core Construction Requirements for Local Authority Off-Site Facilities, the Department's Agent shall not unreasonably object to the DBFO Co's Alternative Proposal.
 8. Where an Alternative Proposal is necessary to enable the DBFO Co to comply with paragraph 19 of Part 1 of Schedule 17, the Department's Agent shall not unreasonably object to the DBFO Co's Alternative Proposal.

**Annex 1 to
Part 3 of Schedule 4**

Index of Certificates

1. Design Certificate (General)
2. Design Certificate (Geotechnical)
3. Design Certificate (Structures)
4. Check Certificate (Structures/Strengthened Earthworks)
5. Temporary Works Check Certificate
6. Test Confirmation Certificate
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9. DBFO Co's Change Certificate
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**Annex 1(1) to
Part 3 of Schedule 4**

Certificate Ref No. []

DESIGN CERTIFICATE (GENERAL)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for certifying the design of the Works or any other works the subject of a Proposal in accordance with Clause 10.3, Clause 13.6 and Part 3 of Schedule 4.

1. We certify that we have used reasonable professional skill and care in preparing the Design Data for [.....] listed in the Schedule hereto and annexed which in our opinion:
 - i. comply with the *Core Construction Requirements* and the *Construction Requirements* and (if applicable) the *Core Communications Requirements* and the *Communications Requirements*, as amended by the following:

[List, if any, the changes made by the issue of Change Certificates and Alternative Proposal Certificates]; and
 - ii. comply with the design requirements of the Agreement.

SCHEDULE

[Include here drawing numbers and titles]

Signed:
 Designer/Contractor (Principal)+
 Name:
 Title:
 Date:

2. This Certificate is:

- i. received*
 - ii. received with comments as follows*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:
 Department's Nominee
 Name:
 Date:

Notes: For Earthworks use Certificate at Annex 1(2) and for Structures use Certificate at Annex 1(3).

+ The Contractor may sign only in respect of Temporary Works. Delete as appropriate.

**Annex 1(2) to
Part 3 of Schedule 4**

Certificate Ref. No []

DESIGN CERTIFICATE (GEOTECHNICAL)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for certifying the design of Earthworks in accordance with Clause 10.3, Clause 13.6 and Part 3 of Schedule 4.

1. We certify that the Design Data for Earthworks listed in the Schedule hereto and annexed incorporates the results of the ground investigations and their interpretation, that it has been prepared by us with reasonable professional skill and care, and that in our opinion:
 - i. it constitutes an adequate design for the Project and complies with the *Core Construction Requirements* and *the Construction Requirements* and (if applicable) *the Core Communications Requirements* and *the Communications Requirements*, as amended by the following:

[List, if any, the changes made by the issue of Change Certificates and Alternative Proposal Certificates];
 - ii. solutions to all the reasonably foreseeable geotechnical problems have been incorporated; and
 - iii. the said Design Data accurately represents the work intended.

SCHEDULE

[Include here drawing numbers and titles and Geotechnical Report]

Signed:
 Designer/Contractor (Principal) +
 Name:
 Title:
 Date:

2. **This certificate is:**

- i. received*
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- *delete as appropriate

Signed:

Department's Nominee

Name:

Date:

Notes: Geotechnical aspects of Structures are covered by the Technical Appraisal Form and Design Certificate (Structures) and not by this Certificate.

+ The Contractor may sign only in respect of Temporary Works. Delete as appropriate.

**Annex 1(3) to
Part 3 of Schedule 4**

Certificate Ref No. []

DESIGN CERTIFICATE (STRUCTURES)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of certificate to be used by the Designer for certifying the design of Structures incorporated in the Works, in accordance with Clause 10.3, Clause 13.6 and Part 3 of Schedule 4.

1. We certify that we have used reasonable professional skill and care in the preparation [+ and checking] of the Design Data for [.....] [Name and Category of the Structure and list of all elements of the Structure included in the Design Data] listed in the Schedule hereto and annexed and that in our opinion:
 - i. the said Design Data comply with the *Core Construction Requirements and the Construction Requirements*, including Technical Appraisal Form No. [.....] dated [.....], and (if applicable) the *Core Communications Requirements and the Communications Requirements*, as amended by the following:

[List, if any, the changes made by the issue of Change Certificates, Alternative Proposal Certificates, and Addenda to the foregoing Technical Appraisal Form];

and the said Design Data comply with the design requirements of the Agreement; and
 - ii. due account has been taken of the Geotechnical Report for the Structure [reference number] [and agreed amendments] [reference numbers]

SCHEDULE

[Include here drawing numbers and titles and bar schedule numbers]

Signed:
 Designer/Contractor (Principal)++
 Name:
 Title:
 Date:

2. This Certificate is:

- i. received*
 - ii. received with comments as follows*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:

Department's Nominee

Name:

Date:

Notes: + The words "and checking" in paragraph 1 are to be omitted for Temporary Works and Structures of Categories II and III and a Check Certificate is to be issued.

++ The Contractor may sign only in respect of Temporary Works. Delete as appropriate.

**Annex 1(4) to
Part 3 of Schedule 4**

Certificate Ref No. []

CHECK CERTIFICATE (STRUCTURES/STRENGTHENED EARTHWORKS)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Checker (or, in the case of Category II Structures, a Checking Team as required by paragraph 38.2 of Part 3 of Schedule 4).

1. We certify that we have used reasonable professional skill and care in checking the Design Data for [.....] [Name and Category of the Structure/Strengthened Earthwork] listed in the Schedule hereto and annexed and that in our opinion:
 - i. the said Design Data comply with the *Core Construction Requirements* and the *Construction Requirements* and (if applicable) the *Core Communications Requirements* and the *Communications Requirements*, as amended by:

[List, if any, the changes made by the issue of Change Certificates and Alternative Proposal Certificates]

and comply in all other respects with the *Agreement*; and
 - ii. due account has been taken of the Geotechnical Report for the Structure/Strengthened Earthwork [reference] [and agreed amendments] [reference numbers].

SCHEDULE

[Include here drawing numbers and titles and bar schedule numbers]

Signed:
 Designer/Checker (Principal)+
 Name:
 Title:
 Date:

2. This Certificate is:

- i. received*
 - ii. received with comments as follows*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:

Department's Nominee

Name:

Date:

Note: + Certificates for Structures of Category II or Strengthened Earthworks are to be signed by the leader of the Checking Team. Certificates for Structures of Category III are to be signed by the Checker. Delete as appropriate.

**Annex 1(5) to
Part 3 of Schedule 4**

Certificate Ref. No. []

TEMPORARY WORKS CHECK CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for the checking of the Design Data for Temporary Works as required by Part 3 of Schedule 4.

1. We certify that we have used reasonable professional skill and care in checking the Design Data for the Temporary Works comprising [.....] [description of Temporary Works] listed in the Schedule hereto and annexed, and that in our opinion:
 - i. the said Design Data comply with the *Core Construction Requirements and the Construction Requirements*, as amended by:

[List, if any, the changes made by the issue of Change Certificates and Alternative Proposal Certificates]

and comply with the design requirements of the Agreement;
 - ii. the Temporary Works are satisfactory for the safe and proper discharge of the DBFO Co's relevant obligations; and
 - iii. the said Design Data reflect the requirements of the relevant authorities for all affected highways or other ways or areas used by or accessible to the public other than the Project Road.

SCHEDULE

[Include here drawing numbers and titles]

Signed:
 Designer (Principal)
 Name:
 Title:
 Date:

2. This Certificate is:

- i. received*
 - ii. received with comments as follows*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:

Department's Nominee

Name:

Date:

Note: The description of the Temporary Works must define unambiguously the extent of the temporary work to which the check has been applied.

**Annex 1(6) to
Part 3 of Schedule 4**

Certificate Ref. No. []

TEST CONFIRMATION CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer in accordance with paragraph 15 of Part 3 of Schedule 4 for the results of tests carried out on materials or Plant.

1. We certify that the tests described in [.....] [**reference**] have been witnessed by the Designer or an independent specialist firm on behalf of the Designer and have successfully been performed in all respects in accordance with the Agreement.

Signed.....
Designer (Principal)
Name.....
Title.....
Date.....

2. Receipt of this Certificate is acknowledged.

Signed.....
Department's Nominee
Name.....
Date.....

**Annex 1(7) to
Part 3 of Schedule 4**

Certificate Ref. No. []

TRAFFIC MANAGEMENT CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the DBFO Co for certifying traffic management measures in accordance with paragraph 27 of Part 3 of Schedule 4.

1. We certify that the traffic management measures comprising [.....] [description of measures]:
- i. have been designed in accordance with the Agreement;
 - ii. incorporate appropriate arrangements for traffic safety and control;
 - iii. have been agreed with the [.....] highway authority and the [....] police;
 - iv. have been accurately translated into traffic management drawings, the unique numbers of which are [.....].

Signed:
DBFO Co's Representative
Name:
Date:

2. This Certificate is:

- i. received *
- ii. received with comments as follows:*
- iii. returned marked "comments" as follows*:
 * delete as appropriate.

Signed:
Department's Nominee
Name:
Date:

**Annex 1(8) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ROAD SAFETY AUDIT CERTIFICATE (STAGE 1)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for certifying that a Stage 1 Road Safety Audit has been carried out in accordance with Part 3 of Schedule 4.

1. We certify that the preliminary design of the scheme for [.....] has been the subject of a Stage 1 Road Safety Audit in accordance with Standard HD 19/94 and that, except as expressly agreed by the Department's Nominee, all recommendations have been incorporated in the preliminary design.
2. The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed:
Designer (Principal)
Name:
Title:
Date:

Signed:
Contractor (Principal)
Name:
Title:
Date:

Signed:
DBFO Co's Representative
Name:
Date:

3. Receipt of this Certificate is acknowledged.

Signed.....
Department's Nominee
Name.....
Date.....

**Annex 1(8) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ROAD SAFETY AUDIT CERTIFICATE (STAGE 2)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for certifying that a Stage 2 Road Safety Audit has been carried out in accordance with Part 3 of Schedule 4.

1. We certify that the Detailed Design of the scheme for [.....] has been the subject of a Stage 2 Road Safety Audit in accordance with Standard HD 19/94 and that, except as expressly agreed by the Department's Nominee, all recommendations have been incorporated in the Detailed Design.
2. The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed:
Designer (Principal)
Name:
Title:
Date:

Signed:
Contractor (Principal)
Name:
Title:
Date:

Signed:
DBFO Co's Representative
Name:
Date:

3. Receipt of this Certificate is acknowledged.

Signed.....
Department's Nominee
Name.....
Date.....

**Annex 1(8) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ROAD SAFETY AUDIT CERTIFICATE (STAGE 3)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for certifying that a Stage 3 Road Safety Audit has been carried out in accordance with Part 3 of Schedule 4.

1. We certify that the New Road as constructed, tested and commissioned has been the subject of a Stage 3 Road Safety Audit in accordance with Standard HD 19/94 and that, except as expressly agreed by the Department's Nominee, all recommendations have been implemented.
2. The Audit Team's report and statement certifying the audit has been carried out are attached.

Signed:
Designer (Principal)
Name:
Title:
Date:

Signed:
Contractor (Principal)
Name:
Title:
Date:

Signed:
DBFO Co's Representative
Name:
Date:

3. Receipt of this Certificate is acknowledged.

Signed.....
Department's Nominee
Name.....
Date.....

**Annex 1(9) to
Part 3 of Schedule 4**

Certificate Ref. No. []

DBFO CO'S CHANGE CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for recording a DBFO Co's Change in accordance with Clause 10.4.

1. The following changes are recorded as a DBFO Co's Change to which there has been no objection in accordance with the Review Procedure. The submission of the proposal for this DBFO Co's Change is dated [] [and was returned marked ["received"] ["received with comments"] on [date]] [and the submission was not returned within [28] [other applicable period] days of actual receipt by the Department's Nominee].

Signed:

Designer (Principal)

Name:

Title:

Date:

2. Receipt of this Certificate is acknowledged.

Signed:

Department's Nominee

Name:

Date:

**Annex 1(10) to
Part 3 of Schedule 4**

Certificate Ref. No. []

DEPARTMENT'S CHANGE CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for recording a Department's Change in accordance with Part 2 of Schedule 12.

1. The following Department's Change has been agreed or determined in accordance with Part 2 of Schedule 12: [.....].

Signed:
DBFO Co's Representative
Name:
Date:

Signed:
Designer (Principal)
Name:
Title:
Date:

2. Countersignature by Department's Nominee:

Signed:
Department's Nominee
Name:
Date:

**Annex 1(11) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ALTERNATIVE PROPOSAL CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for recording an Alternative Proposal in accordance with Clause 13.6.

1. The following changes are recorded as an Alternative Proposal to which there has been no objection in accordance with the Review Procedure. The submission of the proposal for this Alternative Proposal is dated [.....] [and was returned marked ["received"] ["received with comments"] on [date]] [and the submission was not returned within [28] [**other applicable period**] days of actual receipt by the Department's Nominee].

Signed:

Designer (Principal)

Name:

Title:

Date:

2. Receipt of this Certificate is acknowledged.

Signed:

Department's Nominee

Name:

Date:

**Annex 1(12) to
Part 3 of Schedule 4**

Certificate Ref. No. []

CONSTRUCTION CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer, Contractor and DBFO Co for certifying the construction of the Works or other works in accordance with paragraph 30 of Part 3 of Schedule 4.

Contractor's and DBFO Co's Statement

1. We certify that [.....] [**Name and element of construction**] has been designed, constructed, [substantially completed] [completed], commissioned and tested in all respects in accordance with the Agreement so as to accord with the relevant Design Data, Design Certificates and (where required by Part 3 of Schedule 4) Check Certificates in each case to which there has been no objection under the Review Procedure and so as to satisfy the *Core Construction Requirements*, the Construction Requirements, *the Core Communications Requirements* and the Communications Requirements [as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....]].

Signed.....
Contractor (Principal)
Name.....
Title.....
Date.....

Signed.....
DBFO Co's Representative
Name.....
Date.....

Designer's Statement

2. We certify that we have used reasonable professional skill and care in examining the [**Name and element of construction**] in accordance with our [Quality Plan] for Examination of the Works and that in our opinion the said element of the Works or other works has been designed, constructed, [substantially completed] [completed], commissioned and tested so as to accord with the relevant Design Data, Design Certificates and (where required by Part 3 of Schedule 4) Check Certificates in each case to which there has been no objection under the Review Procedure and so as to satisfy the *Core Construction Requirements*, the Construction Requirements [as amended by the DBFO Co's Changes, Department's Changes and Alternative Proposals listed at 1 above], *the Core Communications Requirements* and the Communications Requirements.

Signed.....
Designer (Principal)
Name.....
Title.....
Date.....

3. Receipt of this Certificate is acknowledged.

Signed.....
Department's Nominee
Name.....
Date.....

**Annex 1(13) to
Part 3 of Schedule 4**

Certificate Ref. No. []

DBFO CO'S SUBSTANTIAL COMPLETION CERTIFICATE

Agreement between Secretary of State for Wales and UK Highways A55 Limited dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the DBFO Co in accordance with Part 3 of Schedule 4 when the New Road has been substantially completed.

We certify that the New Road was substantially completed in accordance with the Agreement on [date] and is suitable and safe for use by members of the public.

Signed:
Designer (Principal)
Name:
Title:
Date:

Signed:
Contractor (Principal)
Name:
Title:
Date:

Signed:
DBFO Co's Representative
Name:
Date:

**Annex 1(14) to
Part 3 of Schedule 4**

Certificate Ref No. []

PERMIT TO USE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Permit.

Form of Permit to Use to be used by Department's Nominee in accordance with Clause 12.

1. Confirmation was given on [date] by the DBFO Co that the New Road has been completed to such extent that it is suitable and safe for use by members of the public without traffic management restrictions.
2. A Road Safety Audit Certificate (Stage 3) for the New Road was issued on [date].
3. A DBFO Co's Substantial Completion Certificate for the New Road was issued on [date].
4. This document shall serve as the Permit to Use for the New Road.

Signed.....
Department's Nominee
Name.....
Date.....

**Annex 1(15) to
Part 3 of Schedule 4**

Certificate Ref. No. []

COMPLETION CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Completion Certificate to be used by the Department's Nominee in accordance with Clause 12.

1. Confirmation was given on [date] by the DBFO Co that the whole of the Works in respect of the Scheme have been completed.
2. This document shall serve as the Completion Certificate.

Signed:
Department's Nominee
Name:
Date:

**Annex 1(16) to
Part 3 of Schedule 4**

Certificate Ref. No. []

TAKING OVER CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Department's Nominee for certifying taking over in accordance with Clause 12.

1. On [date] the DBFO Co confirmed completion of [**description of the Local Facilities**] within the meaning of Clause 12.3.1.
2. A Road Safety Audit Certificate (Stage 3) for the [**description of the Local Facilities**] was issued on [date].
3. This Certificate shall serve as the Taking Over Certificate for [**description of the Local Facilities**].

Signed
Department's Nominee.....
Name
Date

**Annex 1(17) to
Part 3 of Schedule 4**

Certificate Ref. No. []

HANDBACK CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be issued by the Department's Nominee in accordance with Clause 18.6.

1. The Expiry Date for the Agreement was [].
2. A joint inspection of the Project Facilities was carried out on [] as required by Clause 18.6.
3. This Certificate shall serve as the Handback Certificate as referred to in Clause 18.6.

Signed
Department's Nominee
Name
Date

Certificate Ref. No. []

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

1. This is the Commencement Certificate referred to in the Agreement, which I hereby issue.
2. The Commencement Date shall be [].

Signed:
Name:
for and on behalf of the Secretary of State for Wales
Position:
Date:

**Annex 1(19) to
Part 3 of Schedule 4**

Certificate Ref. No. []

COMMUNICATIONS CERTIFICATE

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be issued by the certification contractor nominated by the Department's Nominee on application by [DBFO Co] in accordance with paragraph 29 of the Design and Certification Procedure, before connection of the DBFO Co's Systems.

1. We certify that we have tested [witnessed the testing of] the DBFO Co's Systems and they are in accordance with the Agreement and have been found to be satisfactory, and there is no reason why the DBFO Co's Systems should not be connected to the Department's Systems.

Signed:
Nominated certification contractor (Principal)
Name:
Title:
Date:

2. This Certificate is:

- i. received*
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:
Department's Nominee
Name:
Date:

**Annex 1(20) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ASSESSMENT CERTIFICATE (STRUCTURES)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Designer for certifying the assessment of Structures, in accordance with paragraph 53 of Schedule 4, Part 3.

1. We certify that we have used reasonable professional skill and care in the assessment [+and checking] of [.....] **[Name and Category of the Structure and list of all elements of the Structure included in the assessment]** listed in the Schedule hereto and annexed and that in our opinion:
 - i the said assessment complies with the Core Construction Requirements, the Construction Requirements, the Core O&M Requirements and the O&M Requirements, including Technical Appraisal Form No [.....] dated [.....], as amended by the following:

[List, if any, the changes made by the issue of Change Certificates, Alternative Proposal Certificates, and addenda to the foregoing Technical Appraisal Form];

and the said assessment complies in all other respects with the Agreement; and
 - ii the assessed capacity of each element of the Structure is as follows:

SCHEDULE

[Include here drawing numbers and title used for the assessment.]

Signed:
 Designer (Principal)
 Name:
 Title:
 Date:

2. This Certificate is:

- i. received *
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:

Department's Nominee

Name:

Title:

Date:

Note: The words "and checking" in paragraph I are to be omitted for Structures of Categories and III and an Assessment Check Certificate (Structures) is to be issued.

**Annex 1(21) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ASSESSMENT CHECK CERTIFICATE (STRUCTURES)

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement have the same meanings in this Certificate.

Form of Certificate to be used by the Checker (or, in the case of Category II Structures, the Checking Team) for checking the assessment of Structures, in accordance with paragraph 53 of Schedule 4, Part 3.

1. We certify that we have used reasonable professional skill and care in checking the assessment of [.....] **[Name and Category of the Structure and list of all elements of the Structure included in the assessment]** listed in the Schedule hereto and annexed and that in our opinion:
 - i the said assessment complies with the Core Construction Requirements, the Construction Requirements, the Core O&M Requirements and the O&M Requirements, including Technical Appraisal Form No [.....] dated [.....], as amended by the following:

[List, if any, the changes made by the issue of Change Certificates, Alternative Proposal Certificates, and addenda to the foregoing Technical Appraisal Form];

and the said assessment complies in all other respects with the Agreement; and
 - ii the assessed capacity of each element of the Structure is as follows:

SCHEDULE

[Include here drawing numbers and title used for the assessment.]

Signed:
 Designer/Checker (Principal)+
 Name:
 Title:
 Date:

2. This Certificate is:

- i. received *
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- * delete as appropriate

Signed:

Department's Nominee

Name:

Title:

Date:

Note: + Certificates for Structures of Category II are to be signed by the leader of the Checking Team and Structures for Category III are to be signed by the Checker. Delete as appropriate.

**Annex 1(22A) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ARCHAEOLOGY CERTIFICATE 1

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annex 13 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Archaeologist for certifying the Archaeological Design in accordance with paragraph 11.1 of Part 3 of Schedule 4.

1. We certify that in our opinion the [.....] [**description of Archaeological Design**] set out in the Schedule hereto and annexed in respect of the [.....][**description of relevant area by reference to an appropriate drawing**] complies with the Core Construction Requirements and the Construction Requirements (including, without limitation, the provisions of Annex 13 to Part 2 of Schedule 4) [as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....]].

SCHEDULE

[Include here details of the relevant Archaeological Design]

Signed.....
Archaeologist (Principal)
Name.....
Title.....
Date.....

2. **This certificate is:**

- i. received*
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- *delete as appropriate

Signed:
Department's Nominee
Name:
Date:

**Annex 1(22B) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ARCHAEOLOGY CERTIFICATE 2

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annex 13 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Archaeologist for certifying that the Archaeological Fieldwork in respect of an Archaeological Site has been completed.

1. We certify that we have used reasonable professional skill and care in examining the Archaeological Fieldwork carried out within [.....] [**description of Archaeological Site by reference to an appropriate drawing**] and that in our opinion all the Archaeological Fieldwork in respect of such Archaeological Site (as listed in the Schedule hereto and annexed) has been completed in all respects in accordance with the Agreement, so as to accord with [.....] [**description of relevant Archaeological Design**] in respect of that Archaeological Site to which there has been no objection under the Review Procedure and so as to satisfy the Core Construction Requirements and the Construction Requirements (including, without limitation, the provisions of Annex 13 to Part 2 of Schedule 4) [as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....]].

SCHEDULE

[Include here details of the relevant Archaeological Fieldwork]

Signed.....
Archaeologist (Principal)
Name.....
Title.....
Date.....

2. Receipt of this Certificate is acknowledged.

Signed:
Department's Nominee
Name:
Date:

**Annex 1(23A) to
Part 3 of Schedule 4**

Certificate Ref. No. []

LANDSCAPING CERTIFICATE 1

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annexes 9 and 10 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Landscape Architect for certifying an Existing Vegetation Design or a Landscape Design in accordance with paragraph 11.6 of Part 3 of Schedule 4.

1. We certify that in our opinion the [.....] [**Existing Vegetation Design/Landscape Design***] set out in the Schedule hereto and annexed in respect of the [.....] [**description of relevant area by reference to an appropriate drawing**] complies with the Core Construction Requirements and the Construction Requirements (including, without limitation, the provisions of Annex [9][10]* to Part 2 of Schedule 4) [as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....]].

SCHEDULE

[Include here details of the Existing Vegetation Design or Landscape Design]

Signed.....
Landscape Architect (Principal)
Name.....
Title.....
Date.....

2. **This certificate is:**

- i. received*
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- *delete as appropriate

Signed:
Department's Nominee
Name:
Date:

**Annex 1(23B) to
Part 3 of Schedule 4**

Certificate Ref. No. []

LANDSCAPING CERTIFICATE 2

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annexes 9 and 10 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Landscape Architect for certifying that the relevant Works or Landscape Works required to be carried out pursuant to Annex 10 or 11 to Part 2 of Schedule 4 have been completed.

1. We certify that we have used reasonable professional skill and care in examining the Works carried out pursuant to Annex [9][10]* to Part 2 of Schedule 4 within [.....] [**description of relevant area by reference to an appropriate drawing**] and that in our opinion all such [Works] [Landscape Works]* have been completed in all respects in accordance with the Agreement, so as to accord with [.....] [**description of relevant Existing Vegetation Design/Landscape Design**] to which there has been no objection under the Review Procedure and so as to satisfy the Core Construction Requirements and the Construction Requirements (including, without limitation, the provisions of Annex [9][10]* to Part 2 of Schedule 4) as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....].

* delete as appropriate

Signed.....
Landscape Architect (Principal)
Name.....
Title.....
Date.....

2. Receipt of this Certificate is acknowledged.

Signed:
Department's Nominee
Name:
Date:

**Annex 1(24A) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ECOLOGY CERTIFICATE 1

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annex 11 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Ecologist for certifying an Ecology Design in accordance with paragraph 11.6 of Part 3 of Schedule 4.

1. We certify that in our opinion the Ecological Design set out in the Schedule hereto and annexed constitutes an adequate design for the [.....] [**description of relevant area by reference to an appropriate drawing**] and complies with the Core Construction Requirements and the Construction Requirements (including, without limitation, the provisions of Annex 11 to Part 2 of Schedule 4) [as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....]].

SCHEDULE

[Include here details of the relevant Ecological Design]

Signed.....
Ecologist (Principal)
Name.....
Title.....
Date.....

2. This certificate is:

- i. received*
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- *delete as appropriate

Signed:
Department's Nominee
Name:
Date:

**Annex 1(24B) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ECOLOGY CERTIFICATE 2

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annex 11 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Ecologist for certifying that no species or habitats protected by Law have been found within a particular part of the Site or Adjacent Areas in accordance with paragraph 1.15.2 of Annex 11 to Part 2 of Schedule 4.

1. We certify that we have used reasonable professional skill and care in surveying and inspecting the [.....] [**description of relevant area by reference to an appropriate drawing**] on [date] and that there were no species or habitats protected by Law within such area on that date.

Signed.....

Ecologist (Principal)

Name.....

Title.....

Date.....

2. Receipt of this Certificate is acknowledged.

Signed:

Department's Nominee

Name:

Date:

**Annex 1(24C) to
Part 3 of Schedule 4**

Certificate Ref. No. []

ECOLOGY CERTIFICATE 3

Agreement between Secretary of State for Wales and [DBFO Co] dated [] ("the Agreement") relating to the A55 Llandegai to Holyhead. Expressions used in the Agreement (including, without limitation, in Annex 11 to Part 2 of Schedule 4) have the same meanings in this Certificate.

Form of Certificate to be used by the Ecologist for certifying that the relevant Works required to be carried out pursuant to Annex 11 to Part 2 of Schedule 4 have been completed.

1. We certify that we have used reasonable professional skill and care in examining the Works carried out pursuant to Annex 11 within [.....] [**description of relevant area by reference to an appropriate drawing**] and that in our opinion all such Works have been completed in all respects in accordance with the Agreement, so as to accord with [.....] [**description of relevant Ecological Design**] to which there has been no objection under the Review Procedure and so as to satisfy the Core Construction Requirements and the Construction Requirements (including, without limitation, the provisions of Annex 11 to Part 2 of Schedule 4) [as amended by the following DBFO Co's Changes, Department's Changes and Alternative Proposals: [.....]].

Signed.....
Ecologist (Principal)
Name.....
Title.....
Date.....

2. Receipt of this Certificate is acknowledged.

Signed:
Department's Nominee
Name:
Date:

**Annex 2(1) to
Part 3 of Schedule 4**

Model Technical Appraisal Form ("TAF")

Ref. No.....

1. **NAME OF SCHEME**
- 1.1 Type of highway.
- 1.2 Permitted traffic speed (for a bridge give over and/or under).
2. **NAME OF STRUCTURE**
- 2.1 Obstacles crossed.
3. **PROPOSED STRUCTURE**
- 3.1 Description of Structure.
- 3.2 Structural type.) Include reasons
- 3.3 Foundation type.) for choice
- 3.4 Span arrangements.)
- 3.5 Articulation arrangements.
- 3.6 Parapet type.
- 3.7 Proposed arrangements for inspection and maintenance.
- 3.8 Materials and finishes.
4. **DESIGN/ASSESSMENT CRITERIA**
- 4.1 Live Loading, Headroom.
- 4.1.1 HA Loading.
- 4.1.2 HB Loadingunits.
- 4.1.3 Footway or footbridge live loading.
- 4.1.4 Provision for exceptional abnormal loads.
- 4.1.4.1 Gross weight tonnes on vehicle no.m.
- 4.1.4.2 Axle load and spacing.
- 4.1.4.3 Air cushion tonnes over m xm.
- 4.1.4.4 Location of vehicle track on deck cross-section.
- 4.1.5 Any special loading not covered above.
- 4.1.6 Departmental heavy or high load route requirements and arrangements being made to preserve the route.
- 4.1.7 Minimum headroom provided m.
- 4.1.8 Authorities consulted and any special conditions required.
- 4.2 List of relevant documents from the Appendix hereto.
- 4.3 Proposed Alternative Proposals.
5. **STRUCTURAL ANALYSIS**
- 5.1 Methods of analysis proposed for superstructure, substructure and foundations.
- 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 earth pressure coefficients (k_a , k_o , or k_p) to be used in design of earth retaining elements.

6. GROUND CONDITIONS

- 6.1 Acceptance of interpretative recommendations of the soils report to be used in the design and reasons for any proposed departures.
- 6.2 Describe foundations fully including the reasons for adoption of allowable and proposed bearing pressures/pile loads, strata in which foundations are located, provision for skin friction effects on piles and for lateral pressures due to compression of underlying strata, etc.
- 6.3 Differential settlement to be allowed for in design of structure.
- 6.4 Anticipated ground movements or settlement due to embankment loading, mineral extraction, flowing water, measures proposed to deal with these defects as far as they affect the structure.
- 6.5 Results of tests of ground water (eg pH value, chloride or sulphate content) and any counteracting measures proposed.

7. CHECKING

- 7.1 Proposed Category of structure.
- 7.2 If Category III, name of proposed Checker.
- 7.3 Temporary Works for which the DBFO Co will be required to arrange an independent check listing the parts of the structure affected.

8. DRAWINGS AND DOCUMENTS

- 8.1 List of drawings (including numbers) and documents accompanying the submission. To include (without limitation):
 - 8.1.1 a location plan;
 - 8.1.2 a preliminary general arrangement drawing; and
 - 8.1.3 relevant parts of the ground investigation report.

9. THE ABOVE DESIGN AND CONSTRUCTION PROPOSALS ARE SUBMITTED FOR REVIEW

Signed:
 Team Leader, Design Team/Contractor +
 Name:
 Engineering Qualifications:.....
 Date:

Signed:.....
 DBFO Co's Representative
 Name:.....
 Date:.....

Note: + The Contractor may sign only in respect of Temporary Works.

10. THE ABOVE TAF IS:

- i. received*
 - ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- *delete as appropriate.

Signed:.....

Name:

for and on behalf of the Secretary of State for Wales

Position:.....

Date:.....

**Appendix to Model Technical Appraisal Form
Design Documents Relating to Structures**

This list of documents is subject to amendment pursuant to Alternative Proposals and Department's Changes.

**Part 1
General**

1. British Standards

BS 153:	Part 3A, Specification for Steel Girder Bridges (see BE 1/77, DMRB ref 1.3)			
BS 5268:	Part 2, Structural Use of Timber			
BS 5304:		1988	-	Code of Practice for Safety of Machinery
BS 5400:	Steel concrete and composite bridges			
	Part 1:	-	1988	- General statement (see BD 15/92, DMRB ref 1.3.2)
	Part 2:	-	1978	- as implemented by BD 37/88, DMRB ref 1.3
	Part 3:	-	1982	- CP for design of steel bridges (see BD 13/90, DMRB ref 1.3)
	Part 4:	-	1990	- CP for design of concrete bridges (see BD 24/92, DMRB ref 1.3.1)
	Part 5:	-	1979	- CP for design of composite bridges (see BD 16/82, DMRB ref 1.3)
	Part 9:	-	1983	- Bridge bearings (see BD 20/92, DMRB ref 2.3.1)
	Part 10:	-	1980	- CP for fatigue (see BD 9/81, DMRB ref 1.3)
BS 5628:	Code of Practice for Use of Masonry			
	Part 1:	-	1992	- Structural Use of Unreinforced Masonry
	Part 2:	-	1995	- Structural Use of Reinforced and Pre-stressed Masonry (see BD41-DMRB 2.1)
BS 5930:		1981	-	CP for Site investigations

BS 6031:		1981	-	CP for Earthworks
BS 6651:		1992	-	CP for protection of structures against lightning
BS 8004:		1986	-	Foundations (see BD 32/88, DMRB ref 2.1)
BS4360:		1990		Specification for Weldable Structural Steel
BS 6779:	Part 1:	1992	-	Specification for vehicle containment parapets of metal construction (see BD 52/93, DMRB ref 2.3.3)
BS 7668:		1994	-	Specification for Weldable Structural Steel Hot Finished Structural Hollow Sections in Weather Resistant Steels
BS 8118:		1991	-	Structural use of aluminium
BS EN 40.1:	Part 1:	1992	-	Definitions and terms
BS 5649/EN40:	Part 2:	1978	-	Dimensions and tolerances
BS 5649:	Part 3:	1982	-	Specification for materials and welding requirements
BS 5649/EN40:	Part 4:	1982	-	Recommendations for surface protection of metal lighting columns
BS 5649/EN40:	Part 5:	1982	-	Specification for base compartments and cableways
BS 5649/EN40:	Part 6:	1982	-	Specification for design loads
BS 5649:	Part 7:	1985	-	Method for verification of structural design by calculation
BS 5649/EN40:	Part 8:	1982	-	Method for verification of structural design by testing
BS 5649/EN40:	Part 9:	1982	-	Specification of special requirements for reinforced and pre-stressed concrete lighting columns
BS EN 10025:		1993	-	Hot rolled products of non-alloy structural steels (2nd edition)
BS EN 10113:	Parts 1-3:	1993	-	Hot rolled products in weldable fine grain structural steel

BS EN 10155:	1993	-	Structural steel with improved atmospheric corrosion resistance. Technical delivery conditions	
BS 2771/BS 5304 - See Original				
BS EN 10210:	Part 1:	1994	-	Hot finished Structural Hollow Sections of Non-Alloy and Fine Grain Structural Steels. Technical Delivery Conditions

2. **British Standard Codes of Practice**

CP 114:	Part 2:	Reinforced concrete in buildings (see BE 1/73, DMRB ref 2.3)
CP 116:	Part 2:	The structural use of precast concrete (see BE 1/73, DMRB ref 2.3)
CP 2:		Earth retaining structures
CP 2004:		Foundations

3. **DOT Publications (HMSO)**

The Standards and Advice Notes listed in Annex 1 of the Construction Requirements to Part 2 of Schedule 4 and forming part of the DMRB, as modified and extended by the amendments in Annex 2 to Part 2 of Schedule 4.

Specification for Highway Works ("**SHW**"), published as Volume 1 of the MCHW, dated August 1993, as amended by Annex 5 to Part 2 of Schedule 4 of the Construction Requirements and extended by the Numbered Appendices to the SHW.

Notes for Guidance on the Specification for Highway Works, published as Volume 2 of the MCHW, dated August 1993.

Highway Construction Details ("**HCD**"), published as Volume 3 of the MCHW, dated August 1993.

Simplified tables of external loads on buried pipelines (1970).

4. **Miscellaneous**

Circular Roads No. 61/72 - Routes for heavy and high abnormal loads.

Health and Safety at Work etc Act 1974.

Part 2**Design Documents Relating to Tunnels**

NOTE: Documents may be relevant to more than one section.

1. Planning Design and Operation

Relevant Standards and Advice Notes from the list at Annex 5 of the Construction Requirements 1 to Part 2 of Schedule 4 as amended by Annex 2 to Part 2 of Schedule 4.

Design guidelines for planning, equipping and operating tunnels on motorways and other trunk roads (draft Advice Note DRB ref 2.2).

TRRL Contractor Report No. 41 - Planning and design considerations for road tunnels: The influence of operation and maintenance.

The Building Regulations.

TRRL Contractor Report No. 139 - Risk assessment of the transport of hazardous substances through road tunnels in the United Kingdom.

The Traffic Signs Regulations and General Directions 1994 (S.I. 1994 No. 1519)

TRRL Contractor Report 63 - A study of operating costs of road tunnels in the United Kingdom.

TRRL Contractor Report 252 - Study of costs of cut and cover tunnel construction.

2. Drainage

Highways Act 1980

Public Health Act 1961

Health and Safety at Work etc Act 1974

Factories Act 1961

Meteorological Office Records (Precipitation)

Wallingford Procedure Volume 4. Modified Rational Method.

Road Note 35

TRRL Report LR 277

TRRL Contractor Report CR2

Water Authorities Association Civil Engineering. Specification for Water Industry.

Hydraulics Research Station. Tables for the hydraulic design of pipes.

BS 437	-	Specification for cast iron spigot and sockets, drainpipes and fittings
BS 497	-	Specification for manhole covers road gulley gratings and frames for drainage purposes
BS 599	-	Method of testing pumps
BS 5316	-	Specification for acceptance tests for centrifugal mixed flow or axial pumps
BS 8005	-	Sewerage
BS 8301	-	Code of practice for building drainage

3. **Safety**

BS EN 2	-	Classification of fires
BS 336	-	Specification for fire hose couplings and ancillary equipment
BS 476	-	Fire tests on building materials and structures
BS 750	-	Specification for underground fire hydrants and surface box frames and covers
BS 3251	-	Specification for indicator plates for fire hydrants and emergency water supply
BS 4547		(See Original)
BS 5041	-	Fire hydrant system equipment
BS 5045	-	Transportable gas containers
BS 5274	-	Specification for fire hose reels (water) for fixed installations
BS 5306	-	Fire extinguishing installations and equipment on premises
BS 5345	-	Code of practice for selection, installation and maintenance of electrical apparatus for use in potentially explosive atmospheres
BS 5423	-	Specification for portable fire extinguishers
BS 5445	-	Components for automatic fire detection systems
BS 5499	-	Electrical apparatus for potentially explosive atmospheres
BS 5588	-	Fire precautions in the design and construction industry

BS 5839	-	Fire detection and alarm systems for buildings
BS 6164	-	Code of practice for safety in tunnelling in the construction industry
BS 6535	-	Fire extinguishing media
CP3	-	Precautions against fire

Control of Substances Hazardous to Health Regulations 1988.

4. **Electrical, Mechanical, Communication and Control Functions**

4.1 **Ventilation**

Reports of the PIARC (Permanent International Association of Road Congresses) Technical Committee on Road Tunnels. In particular 1975, 1979, 1983, 1987, 1991.

Proceedings of BHRA (British Hydromechanics Research Association) Symposiums. In particular 1973, 1976, 1979.

Occupational Exposure Limits 1987 Guidance Note EH40/88. Health and Safety Executive.

EEC Directive No. 82/884 Council Directive for limit value of lead in air.

4.2 **Lighting**

BS 4533 Luminaries.

BS 5489 Part 7 (1990) Code of Practice for the Lighting of Tunnels and Underpasses. Tunnels and Underpasses.

BS 5972 (1980) Specification for photoelectric control units for road lighting.

Road Surface and Lighting CIE/PIARC May 1983.

International Recommendations for Tunnel Lighting CIE 26.

Tunnel Entrance Lighting CIE 61.

Guide for the lighting of Road Tunnels and Underpasses - CIE 88-1990.

4.3 **General**

Regulations for electrical installations 15th Edition (including amendments) IEE.

DTp Specifications:

MCE	0100	2003	MCG	1022
	0108	2012-2015 (incl)		1055
	0153	2017	MCH	1301-1309 (incl)
	0156		MCH	1320
	1022			
	1178			
	1238			
	1328			

BS 727	-	Specification for radio interference measuring instruments
BS 800	-	Specification for radio interference limits
BS 873	-	Road traffic signs and internally illuminated bollards
BS 5394	-	Specification for limits and methods of measurement radio interference characteristics of fluorescent lamps and luminaries
BS 5486	-	Low voltage switchgear and control assemblies
BS 6105	-	Specification for corrosion resistant stainless steel fasteners
BS 6207	-	Specification for mineral insulated copper-sheathed cables with copper conductors
BS 6425	-	Method of tests for gases evolved during combustion of electric cables
BS 6500	-	Specification for insulated cords and cables
BS 6724	-	Specification for armoured cables for electricity supply having thermo setting insulations with low emission of smoke and corrosive gases when affected by fires
CP 1013	-	Earthing

**Annex 2(2) to
Part 3 of Schedule 4**

Model Strengthened Earthwork Appraisal Form ("SEAF")

Ref. No.....

(Notes appended to explain the anticipated content of sections)

1. SCHEME DETAILS

- 1.1 Name of Scheme
- 1.2 Type of Highway
- 1.3 Permitted Traffic Speed
- 1.4 Nature of scheme/scheme element
(e.g. new highway construction, highway widening, earthworks maintenance)

2. SOIL STRUCTURE TYPE, PURPOSE AND LOCATION

- 2.1 Generic Type of Strengthened Earthwork
(e.g. strengthened soil slope, gabion wall, strengthened soil wall, crib wall)
- 2.2 Purpose of Strengthened Earthwork
(i.e. to allow highway widening, for earthworks failure reinstatement, for new construction in area of restricted land take etc.)
- 2.3 Intended Location(s) for Use
(a schedule of proposed structure lengths and locations)

3. OUTLINE OF EXISTING GROUND AND GROUNDWATER CONDITIONS

(this section to refer to the relevant sections of the Geotechnical Report when available)

- 3.1 Ground Investigation Date
(list report references and comment on extent of data)
- 3.2 Existing Ground Conditions
(brief summary of natural soil sequence, presence of Made Ground etc.)
- 3.3 Existing Groundwater Conditions
(note on groundwater levels)
- 3.4 Soil and Groundwater Chemistry
(note on sulphate/pH conditions and/or ground contamination)
- 3.5 Existing Geotechnical Problems
(any factors of geotechnical significance related to the existing ground conditions, e.g. slope failures, solution features, mineworkings, slopes with marginal factors of safety, very soft/highly compressible soils etc.)

4. **PROPOSED STRENGTHENED EARTHWORK**

- 4.1 Description of Strengthened Earthwork
(range of and average height of proposed soil structure in its final form, i.e. slope face angle, facing/landscaping details)
- 4.2 Foundation Preparation, including any Measures to deal with Geotechnical Problems
(foundation proposals for the geotechnical structure, including any special measures or associated works to take account of any problems outlined in 3.5 above)
- 4.3 Materials to be Used in Construction
(outline description of geotextiles, soil nails, gabion baskets, imported fill materials etc., including Design Certificates where appropriate)
- 4.4 Drainage Measures
(particular drainage control measures to be incorporated)
- 4.5 Arrangements for Highway Furniture and Buried Services
(relevant details)
- 4.6 Inspection and Maintenance
(particular inspection and maintenance requirements over and above routine observations)
- 4.7 Interface with Other Structures
(brief details of interface construction measures with bridges, retaining walls, culverts, other Strengthened Earthwork etc.)

5. **DESIGN METHODS**

- 5.1 Internal Stability
(the referenced design method/approach for determining stability of the soil structure itself)
- 5.2 External/Global Stability
(the referenced design method/approach for determining stability of any associated overall slopes which include the soil structure)

6. **DESIGN/ASSESSMENT CRITERIA**

- 6.1 List of Relevant Documents
- 6.2 **Limit State Design Criteria**
(factors of safety on limit state stability conditions to be applied in the design, on both stability of the structure itself and on overall stability of associated slopes)
- 6.3 **Serviceability Design Criteria**
(any total/differential settlement or other movement criteria adopted by the Designer, including any imposed by the Construction Requirements)

- 6.4 Design Parameters for Soils and Materials
(schedule of relevant main design parameters for the soils and other materials to be used in construction)
- 6.5 Design Groundwater Conditions
(statement of worst case, or range piezometric conditions and/or r_u values to be used in design)
- 6.6 Live Loadings
(confirmation of worst case live loadings to be assumed in design)
- 6.7 Description/Diagram of Idealised Structure to be Used in Analysis
(a section of the soil structure drawn such as to illustrate the design method and associated main design assumptions)
- 6.8 Precautions Against Chemical Attack to Materials
(measures to accommodate ground conditions set out in 3.4)
- 6.9 Alternative Proposals
(departures from documents listed in 6.1)

7. CHECKING

(Designer to indicate the independent checking procedures to be employed)

8. DRAWINGS AND DOCUMENTS

- 8.1 List of drawings and documents accompanying submission

Appendix A Soils Information

(A list of the relevant trial hole logs and test results from the soils reports listed in paragraph 3.1 and from any additional site investigation, extract from Geotechnical Report)

Appendix B Relevant Correspondence and Documents from Consultation with Relevant Authorities

Appendix C Schedule of drawings and documents

9. THE ABOVE DESIGN AND CONSTRUCTION PROPOSALS ARE SUBMITTED FOR REVIEW

Signed:

Team Leader, Design Team

Name:

Engineering Qualifications:

Date:

10. THE ABOVE SEAF IS:

- i. received*

- ii. received with comments as follows:*
 - iii. returned marked "comments" as follows:*
- *delete as appropriate.

Signed:

Department's Nominee

Name:

Date:

**Annex 3 to
Part 3 of Schedule 4**

**Review Times for Technical Appraisal Forms
(No Alternative Proposals)**

STRUCTURE GROUP	FIRST SUBMISSION OF TECHNICAL APPRAISAL FORM				RE-SUBMISSION OF TECHNICAL APPRAISAL FORM			
	Cat 0	Cat 1	Cat 2	Cat 3	Cat 0	Cat 1	Cat 2	Cat 3
Structures other than Structures constituting Local Facilities	N/A	8.0	8.0	9.0	N/A	6.0	6.0	7.0
Structures constituting Local Facilities	N/A	10.0	10.0	11.0	N/A	7.0	7.0	8.0

Notes:

- (a) This Annex 3 applies only to those TAFs that do not include any Alternative Proposals.
- (b) The above times are in place of those given in paragraph 1.1 of Part 3 of Schedule 7.
- (c) Submission of Technical Appraisal Forms included in the Construction Requirements on the date of execution of this Agreement shall be treated as a resubmission for purposes of determining the review time only.
- (d) The review time commences when the Department's Nominee actually receives the completed TAF.
- (e) All review times are quoted in weeks.
- (f) Where the number of Technical Appraisal Forms submitted or resubmitted in any two week period exceeds 12, the review time for each of the forms submitted during that period shall be determined as follows:
(review time from the above Table) x $(\text{Number of Forms Submitted}/12)$.
- (g) To aid the review process it is suggested that the DBFO Co informally discusses proposed submissions with the Department's Nominee prior to making a formal submission.

**Annex 4 to
Part 3 of Schedule 4**

**Review Times for Technical Appraisal Forms
(Alternative Proposals Included)**

STRUCTURE GROUP	FIRST SUBMISSION OF TECHNICAL APPRAISAL FORM				RE-SUBMISSION OF TECHNICAL APPRAISAL FORM			
	Cat 0	Cat 1	Cat 2	Cat 3	Cat 0	Cat 1	Cat 2	Cat 3
Structures other than Structures constituting Local Facilities	N/A	9.0	9.0	11.0	N/A	6.0	6.0	8.0
Structures constituting Local Facilities	N/A	13.0	13.0	13.0	N/A	9.0	9.0	10.0

Notes:

- (a) This Annex 4 applies only to those TAFs that include an Alternative Proposal.
- (b) The above times are in place of those given in paragraph 1.1 of Part 3 of Schedule 7.
- (c) The review time commences when the Department's Nominee actually receives the completed TAF.
- (d) All review times are quoted in weeks.
- (e) Where the number of Technical Appraisal Forms submitted or resubmitted in any two week period exceeds 12, the review time for each of the forms submitted during that period shall be determined as follows: (review time from the above Table) $\times$ $\frac{\text{Number of Forms Submitted}}{12}$.
- (f) To aid the review process it is suggested that the DBFO Co informally discusses proposed submissions with the Department's Nominee prior to making a formal submission.

**Annex 5 to
Part 3 of Schedule 4**

**Review Times for Technical Appraisal Forms
(Temporary Works)**

No Alternative Proposals

STRUCTURE GROUP	FIRST SUBMISSION OF TECHNICAL APPRAISAL FORM	RE-SUBMISSION OF TECHNICAL APPRAISAL FORM
Structures other than Structures constituting Local Facilities	8.0	6.0

Alternative Proposals

STRUCTURE GROUP	FIRST SUBMISSION OF TECHNICAL APPRAISAL FORM	RE-SUBMISSION OF TECHNICAL APPRAISAL FORM
Structures other than Structures constituting Local Facilities	9.0	6.0

Notes:

- (a) This Annex 5 applies only to TAFs in respect of Temporary Works.
- (b) The above times are in place of those given in paragraph 1.1 of Part 3 of Schedule 7.
- (c) Submission of Technical Appraisal Forms included in the Construction Requirements on the date of execution of this Agreement shall be treated as a resubmission for purposes of determining the review time only.
- (d) The review time commences when the Department's Nominee actually receives the completed TAF.
- (e) All review times are quoted in weeks.
- (f) Where the number of Technical Appraisal Forms submitted or resubmitted in any two week period exceeds 12, the review time for each of the forms submitted during that period shall be determined as follows: (review time from the above Table) $\times \frac{\text{Number of Forms Submitted}}{12}$.
- (g) To aid the review process it is suggested that the DBFO Co informally discusses proposed submissions with the Department's Nominee prior to making a formal submission.

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