

Bristol City Council Structures Technical Approval Guidance

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1. Overview

1.1.1 This document has been prepared for the purpose of advising Developers, and consultants and contractors working on their behalf, on Bristol City Council's (BCC) process for the Technical Approval of structures. It should be read by all Developers. It is intended primarily for projects involving the design, assessment or alteration of bridges, buried structures, culverts, retaining walls and other highway structures.

NOTE Non-highway structures may be subject to Technical Approval at BCC's discretion.

NOTE Bristol City Council's Bridges and Highways Structures Team (hereafter "Bridges Team") is the Technical Approval Authority (TAA) who is responsible for granting Technical Approval.

NOTE The TAA's Consultant assists with reviewing Technical Approval submissions.

1.2 Technical Approval submissions shall provide enough information to allow BCC to understand the risks and impacts that any permanent or temporary structural works might place on Bristol City Council's highways network.

NOTE The highways network includes roads, bridges, walls and footpaths owned by Bristol City Council.

NOTE The Technical Approval process allows Bristol City Council to manage the risks and impacts to their network by reviewing the:

- 1) *processes that have been followed;*
- 2) *method of analysis;*
- 3) *materials and method (where appropriate) of construction;*
- 4) *calculations conducted (at a high level).*

NOTE Risks to and impacts on the network include:

- 1) *collapse of a structure onto the highway network;*
- 2) *collapse of a structure supporting the highway network;*

- 3) *reduced ability to maintain the network efficiently and safely;*
- 4) *excessive movement of the highway (may cause damage to the surfacing or buried services).*

NOTE *Bristol City Council wants confidence that all proposed structures associated with the public highway are structurally stable, safe, and durable. In addition, in the case of proposed structures for adoption, BCC is looking for confidence that they are designed for a suitable design life ensuring minimum and appropriate cyclical maintenance.*

NOTE *The requirement for Technical Approval, in this context, is completely different, separate and distinct from Planning Approval. The issue of Planning Approval does not therefore imply that Technical Approval has been granted.*

1.2.1 Where Developers wish to find out more about the Technical Approval process or gain early input into Bristol City Council's views on proposals it may be appropriate to organise a pre-submission meeting (see section 8).

1.3 The agreement of the Approval in Principle (AIP) document or acceptance of the certificates by the TAA shall not relieve the designer, assessor or checker of any of their responsibilities.

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

2. Process

2.1 Unless stated otherwise in this document, the Technical Approval process shall follow the requirements set out in CG 300 Technical Approval of Highway Structures, part of the Design Manual for Roads and Bridges (DMRB).

NOTE *CG 300 and the associated Technical Approval Schedule (TAS) are available at: <https://www.standardsforhighways.co.uk/dmr/b/search?q=CG%20300>*

NOTE *CG 300 sets out National Highways Technical Approval process. This is used as a baseline for Bristol City Council's Technical Approval process. Bristol City Council's process varies from National Highways in several respects (see section 4), notably with regards to structures of category 0 or less.*

2.2 The latest revision of CG 300 available at the time of submission shall be used.

2.3 Submissions shall be sent to Bridgeshighwaystructures.TA@bristol.gov.uk.

2.3.1 Submissions may be split over a few emails over a protracted period.

NOTE *For example, a Developer may submit the Approval in Principle (AIP) document initially, and once agreement with the general approach has been agreed submit the calculations, detailed drawings and Design and Check Certificate several weeks later.*

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

3. Scope

3.1 The scope requirements in CG 300 section 1 shall apply, reproduced below with minor amendments.

3.2 Subject to any exclusions expressly stated in this document or agreed with the TAA in writing, Technical Approval procedures shall be applied to all proposals, including third party proposals and private developments, that are:

- 1) within the highway boundary;

- 2) within 6m outside of the highway boundary;
- 3) outside the highway boundary, where the structures are to be adopted by Bristol City Council;
- 4) outside the highway boundary where works can affect the highway or highway structure;
- 5) outside the highway boundary where works can affect the safety of the highway user.

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

4. Differences from CG 300

Undersailing

4.1 Submissions shall not include structures which “undersail” the highway unless specific agreement has been received from Bristol City Council’s Bridges Team.

NOTE *Such agreement is rarely granted.*

4.1.1 Where agreement has been received from Bristol City Council’s Bridges Team, evidence of this agreement should be provided as part of the submission.

NOTE *Undersailing is not permitted by Bristol City Council for structures which will not be adopted by Bristol City Council.*

NOTE *A part of the structure which undersails the highway is one which sits directly beneath the highway. See **Figure 1** and **Figure 2**.*

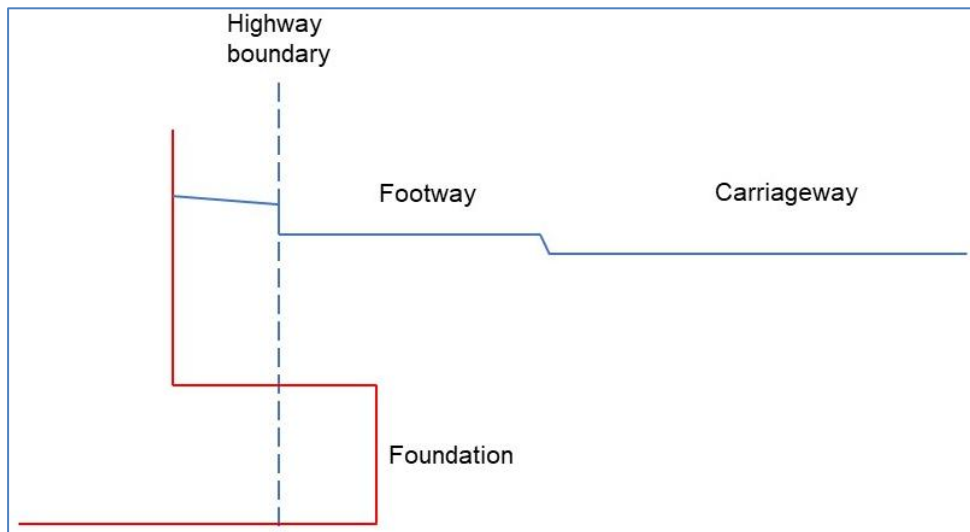


Figure 1 - Example of structure undersailing the highway

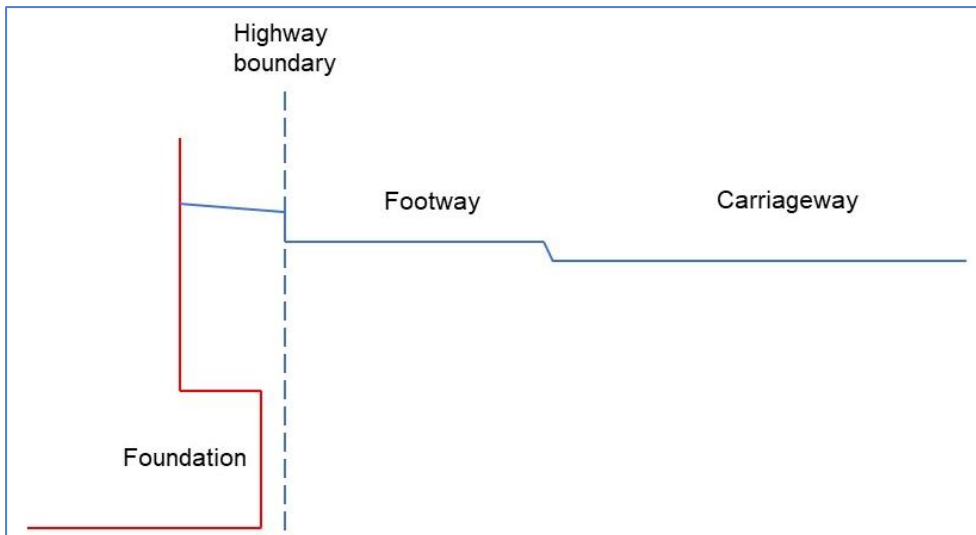


Figure 2 - Example of structure not undersailing the highway

Category 0 and <0 submission

4.2 Structures which fall into category 0 within CG 300, or fall outside of the scope of CG 300 because of their small size, shall be subject to a reduced level submission unless agreed otherwise with Bristol City Council.

NOTE See section 7 for details of reduced level submissions.

NOTE Examples of structures which fall outside the scope of CG 300 because of their small size include:

- 1) *bridges, buried structures, subways, underpasses, culverts and any other structure over the highway or supporting the highway with a clear span or internal diameter less than 0.9m;*
- 2) *earth retaining structures where the effective retained height, i.e. the level of fill at the back of the structure above ground level in front of the structure is less than 1.5m;*
- 3) *reinforced/strengthened soil/fill structure, with hard facings where the effective retained height is less than 1.5m;*
- 4) *high masts of less than 20m in height;*
- 5) *traffic sign/signal posts of less than 7m in height.*

4.2.1 Where a Developer feels that a reduced level submission is excessive for a structure, they should contact Bristol City Council.

NOTE The need for a reduced level submission is entirely at Bristol City Council's discretion. The appropriate contact is: Bridgeshighwaystructures.TA@bristol.gov.uk.

Calculations

4.3 All submissions shall include a detailed set of calculations covering each structure that is subject to Technical Approval.

NOTE There is no need to provide calculations for any structures (or parts of the structures) which do not interact directly with the structure (or part of the structure) which is subject to Technical Approval. For example, a house that is separate from a nearby retaining wall that supports the highway would not require calculations to be submitted.

NOTE Calculations are not checked by Bristol City Council. A high-level review is conducted to check that the calculations are in accordance with the codes and method of analysis

proposed. It is the Developer's responsibility to conduct the level of checking set out in CG 300. See clause 2.67 of CG 300.

Slope and rock stability proposals

4.4 Any proposals to provide stability to slopes or rock faces shall be subject to the Technical Approval process.

4.4.1 The category level for the submission should be agreed with Bristol City Council.

Temporary works/risks during construction

4.5 Type P proposals shall be the same as the category of an equivalent permanent structure.

NOTE For example, a temporary retaining wall with a height that matches a category 0 retaining wall would require a category 0 submission.

NOTE This is a different approach to that taken in CG 300 clause 4.9.

4.6 All permanent submissions shall either:
1) include details of how the risks to the public will be managed during the construction phase on the design drawings; or,
2) reference a separate temporary works submission which details how risks to the public will be managed during the construction phase.

4.6.1 Where a temporary structure will be used a separate temporary works submission should be provided.

NOTE Propping or sacrificial elements can count as temporary structures.

NOTE This would count as two separate submissions, one for the permanent works and one for the temporary works.

4.6.2 Where risks can be managed effectively without a temporary structure (for example through road or footway closures) the details of how the risks will be managed may be detailed in the permanent works submission design drawings.

Existing structures owned by Bristol City Council and structures to be adopted by Bristol City Council

4.7 Proposals which either involve structural changes to existing Bristol City Council structures or new structures which are to be adopted by Bristol City Council shall have a minimum category level of 1.

4.8 The Developer shall agree with Bristol City Council whether a proposed structure will be adopted by BCC.

NOTE Where a Developer is proposing a structure for adoption, the TAA should be contacted at: Bridgeshighwaystructures.TA@bristol.gov.uk.

NOTE BCC will usually adopt structures that are definitively constructed for the benefit of the highway rather than the benefit of other parties, for example a new bridge which will carry adopted highway or a new retaining wall which will enable the widening of the highway. Proposed structures that enable the development of land for other purposes, such as housing, would remain in private ownership.

4.9 The Technical Approval submission shall state whether new structures will be adopted by BCC.

NOTE For new structures with AIP documents, the proposed owner/adoption status should be stated in the AIP clause 3.1. For reduced level submissions without AIP documents, the

proposed owner/adoption status may be stated in one of the submission documents, such as the General Arrangement drawing notes.

Structure types

4.10 Gabion walls and timber crib walls shall not be permitted.

NOTE Experience shows that these structure types can have durability and maintenance issues which are considered unacceptable to Bristol City Council.

4.10.1 Reinforced earth systems that have BBA HAPAS certification for every element including the facing may be considered by BCC subject to a mandatory pre-submission meeting (see section 8).

NOTE Materials which rely upon vegetation cover to provide UV resistance in order to achieve the required design life are not permitted.

NOTE As part of the design it will be expected that the design includes measures to ensure that the grid cannot be damaged by excavation behind the facing/wall.

4.11 Plastic attenuation crates shall not be permitted under the public highway.

NOTE These are not suitable for highway loading and their design life is insufficient for a highway structure. If sited outside of the highway but inside of a zone of influence from highway loading, they would require additional lateral support (i.e. underground retaining structure) to be provided.

NOTE These will not be adopted by Bristol City Council.

4.12 Full Technical Approval shall be required for reinforced concrete attenuation tanks.

NOTE These are not generally permitted under the carriageway due to access for maintenance, but if suitably designed, they may be permitted within other parts of the highway e.g. verges and footways.

NOTE Minimum cover above the top of the roof slab shall be 1.2m.

NOTE Simple pipes may be considered for installation under the carriageway, but not systems requiring regular (e.g. annual) silt cleansing.

NOTE These will not be adopted by Bristol City Council.

Design working life

4.13 The design working life of structures and structural elements shall be based on the DMRB.

NOTE CD 350 includes a table listing the design working life for various highway structures.

4.14 Where a structure or structural element has more than one role (for example a wall which acts to support land above the highway and forms part of a building structure) it shall be designed for the largest of all relevant design working lives.

CE marked structures and standalone vehicle restraint system (VRS) structures

4.15 Full Technical Approval shall be required for proprietary manufactured structures that are “CE marked” and standalone VRS structures.

NOTE Standalone VRS structures are designed structures (e.g. reinforced concrete ground beams) that support a VRS and are not associated with a nearby bridge or other highway structure, otherwise they would be covered as part of the main structure’s Technical Approval submissions.

4.16 For structures that require an AIP document, the standard AIP headings from CG 300 Appendix A shall be used instead of the Outline AIP headings from CG 300 Appendix P.

NOTE "Not applicable" may be entered under the standard AIP headings that are not relevant to the structure.

NOTE Fees for these structures will be the same as the relevant category (see section 12).

4.17 VRS submissions shall be accompanied by a risk assessment in accordance with the document Provision of Road Restraint Systems on Local Authority Roads rather than CD 377 of the DMRB.

5. Approval in Principle documents

5.1 Developers shall submit an Approval in Principle document (AIP) for each category 1, 2 and 3 structure.

5.1.1 AIPs should be submitted before or early in the detailed design or assessment stage to agree the design or assessment approach and reduce the risk of abortive works.

NOTE Appendix A of CG 300 includes a model form of AIP for structures designed to Eurocodes, which should apply to all new build structures.

NOTE Appendix B of CG 300 includes a model form of AIP for the assessment of existing structures.

5.2 The AIP signature page shall include an extra section for the TAA's consultant to sign, recommending the AIP to the TAA for acceptance. This is a bespoke Bristol City Council requirement. Refer to the AIP template.

6. Design and Check Certificates

NOTE "Assessment" may be substituted for "Design" throughout this section e.g. Assessment and Check Certificates.

6.2 Design and Check Certification shall be submitted for all structures subject to Technical Approval. It shall be submitted upon completion of the detailed design and check, with the accompanying full set of drawings and calculations.

NOTE Appendix I of CG 300 includes a model form of certificate for permanent works submissions. Appendices K and L include model forms of certificate for temporary works submissions.

6.2.2 The model forms of certificates presented in the appendices to CG 300 should be adapted to suit the submission in accordance with the numbered footnotes.

NOTE Category 1 and below structures require a single Design and Check Certificate. Category 2 and 3 structures require two separate certificates: a Design Certificate and a Check Certificate.

6.3 The Design and Check Certificate(s) shall include an extra section for the TAA's consultant to sign, recommending the design to the TAA for acceptance. This is a bespoke Bristol City Council requirement. Refer to the certificate template.

7. Reduced level submission

7.1 The following information shall be supplied as part of a reduced level submission for category 0 and < category 0 structures:

- 1) location plan for proposed structure;
- 2) detailed general arrangement drawing including cross section of proposed structure;

NOTE *Cross sections should show the positions of footways and carriageways in relation to the structure, where applicable.*

- 3) a list of design codes used;
- 4) description of loading criteria;
- 5) a full set of calculations;
- 6) description of temporary works;
- 7) a Design and Check Certificate (see section 6) signed by a suitably qualified and competent design engineer.

NOTE *An optional reduced level submission template is available for use by the Developer.*

NOTE *An Approval in Principle document (AIP, see section 5) is not required for category 0 and < category 0 structures, but the Developer may choose to provide an AIP to improve the submission. For such cases, it is acceptable to submit the AIP simultaneous with the design and check submission (i.e. the full set of drawings, calculations and the Design and Check Certificate).*

7.1.2 Qualifications should be listed on the Design and Check Certificate.

NOTE *For reduced level submissions, the certificate is not required to be signed by a Chartered Engineer. Nevertheless, all signatories must be competent in that which they are approving.*

7.2 Drawings and bar bending schedules and other relevant documentation shall be checked independently by another engineer who may be from the design/assessment team.

8. Pre-submission meetings

8.1.1 Where appropriate, Developers should contact the TAA (Bridgeshighwaystructures.TA@bristol.gov.uk) to organise pre-submission meetings.

NOTE *Pre-submission meetings take the form of a short (normally 1 hour) remote meeting to discuss outline proposals and any queries the Developer might have with the Technical Approval process.*

NOTE *It is recommended that the Developer prepares a short presentation of the current state of the proposals for discussion during the meeting.*

9. Departures

9.1 Where a Developer wishes to depart from the standards set out in the Design Manual for Roads and Bridges or the Manual of Contract Documents for Highways Works, full details of the proposed departure, the reasons and the justification shall be recorded within the submission.

NOTE *Bristol City Council will judge the departure against the following criteria:*

- 1) *benefits to the public;*
- 2) *safety during construction;*
- 3) *sustainability;*
- 4) *maintainability.*

9.2 The information submitted as part of a departure shall be sufficient to allow Bristol City Council to judge whether, from a technical and a practical point of view, the proposal:

- 1) has improvements over any proposals that meet the design standards;
- 2) meets an acceptable level of performance when judged against the criteria listed above.

10. Construction phase

All structures (adoptable and non-adoptable)

- 10.1 Construction shall not commence until the TAA has signed the Design and Check Certificate(s).
- 10.2 Bristol City Council's Bridges Team shall be informed of planned construction dates prior to construction commencing.

Adoptable structures

- 10.3 For a structure that is to be adopted, the TAA will do its own inspections during construction for its own purposes. The TAA's inspection regime will depend on the type of structure. The Developer, or the contractor working on its behalf, shall submit its construction programme and Inspection and Test Plan (ITP) or similar before the construction phase starts so the TAA can plan inspections around it. The ITP shall then be updated and reissued to include hold points (waivable by TAA) for the TAA's inspections.
- 10.4 The TAA's inspections are independent of the contractor's Quality Assurance process, but any defects picked up by TAA shall input to the contractual process.
- 10.5 As construction nears substantial completion, Bristol City Council shall be contacted to arrange a pre-opening inspection.

Non-adoptable structures

- NOTE For a structure that is not to be adopted, the TAA may not do inspections during construction unless deemed necessary, but will rely on the provision of a construction compliance certificate from the Developer that says that the structure has been constructed in accordance with the approved design.*

11. Post-construction phase

All structures (adoptable and non-adoptable)

- 11.1 A construction compliance certificate shall be provided for each structure subject to Technical Approval.

- NOTE Appendix N of CG 300 includes a model form of certificate for construction compliance. Refer to the certificate template.*

- NOTE All signatories must be competent in that which they are approving.*

Adoptable structures

- 11.2 A Health and Safety File in accordance with CG 302 (As-built, operational and maintenance records for highway structures) shall be provided for all structures to be adopted by Bristol City Council.
- 11.3 The Developer shall notify BCC of the defects liability period and arrange a date for a defects liability inspection to take place towards the end of the period.

12. Fees and timescales

- 12.1 The fees chargeable for the different categories of submission shall be as listed in the table below:

Item	Fee	Comments
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Item	Fee	Comments
Pre-submission meeting	£250	Optional
Category 0 and < Category 0 structures	£1,129	Fee covers pre-construction submissions including AIP (where applicable) and Design and Check Certificate(s). Fee covers construction compliance certificate but not extra costs which may be incurred during review of hand over information.
Category 1 and 2 structures	£2,999	
Category 3 structures	£4,499	
Hourly rate (ad hoc)	£135	For construction phase inspections, H&S File reviews, etc.

NOTE *The fees listed above include for one round of comments by the TAA (or its Consultant) and one round of responses from the Developer for each document or drawing to be submitted.*

NOTE *Reviews will not commence until fees are paid in full.*

NOTE *Pre-submission meetings are assumed to last a maximum of 1 hour, beyond this, the fee stated above may be increased.*

12.2 Efforts shall be made to close out all comments within the second submission of information.

NOTE *Bristol City Council will charge additional fees, beyond those listed in the table above, where comments are not closed out within the second submission of information.*

12.3 Efforts shall be made to close out submissions within a timescale of six months.

NOTE *Where Developers take longer than six months to close out submissions, Bristol City Council reserves the right to charge additional fees and restart the submission process.*