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The Structural Design of Road Structures

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DN Design

Technical

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This document has been authorised by the Director of Professional Services, Transport Infrastructure Ireland. For any further guidance on the TII Publications system, please contact the following:

Contact: Standards and Research Section, Transport Infrastructure Ireland
Postal Address: Parkgate Business Centre, Parkgate Street, Dublin 8, D08 DK10
Telephone: +353 1 646 3600
Email: infoPUBS@tii.ie

TII Publications

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1. Introduction

1.1 General

This Standard gives guidance, advice, and the requirements of the Road Authority on the use of Eurocodes for the design of structures constructed as part of National Road Projects and aspects of execution relevant to the design.

1.2 Scope

The requirements set out in this document shall be adopted for the design of road structures in concrete, steel, composite concrete and steel, masonry, timber and aluminium.

1.3 Implementation

This Standard shall be used forthwith on all projects for the design of National Roads.

These requirements shall be complied with, or a prior agreement to a Departure from Standard shall be obtained from TII.

1.4 Definitions

Particular terms used in this Standard are defined as follows:

Application Rules	As defined in I.S. EN 1990.
Category	As defined in DN-STR-03001.
Departure from Standard	Criterion which departs from, or is an aspect not covered by the Standards contained in the Technical Acceptance Schedule, TII standard or project specific requirements.
EN	EN documents may be Eurocodes or EuroNorms. Only ENs with the series designation “199X” are Eurocodes. Other ENs are EuroNorms.
Eurocodes	As defined in I.S. EN 1990.
European Standards	European Standards are standards issued by one of the three European standardisation bodies (CEN, CENELEC, or ETSI). They can be identified by the designation ‘EN’.
Execution	As defined in I.S. EN 1990.
National Annex	As defined in I.S. EN 1990.
Nationally Determined Parameter	As defined in I.S. EN 1990.
Principles	As defined in I.S. EN 1990.
Published Documents	For the purpose of this Standard, Published Documents are produced by BSI and contain non-contradictory complementary information (NCCI) to assist in the application of Eurocode Principles.
Road Authority	As defined in DN-STR-03001.
Structure Category	As defined in DN-STR-03001.

Technical Acceptance Report	As defined in DN-STR-03001.
Technical Acceptance Schedule	As defined in DN-STR-03001.
Third Party	Any person, organisation or other legal identity that is not employed directly or indirectly by the Road Authority.
Structures	As defined in DN-STR-03001.

1.5 Abbreviations

BSI	British Standards Institution
CEN	Comité Européen de Normalisation (European Committee for Standardization)
LM	Load Model
NA	National Annex
NDP	Nationally Determined Parameter
PD	Published Document
SV	Special Vehicle
TII	Transport Infrastructure Ireland
TAR	Technical Acceptance Report
TAS	Technical Acceptance Schedule

2. Eurocodes Design Requirements

The relevant Eurocodes for the design of structures constructed as part of National Road Projects are listed in Appendix A.

For the purpose of this Standard, the clause numbers of Published Documents listed in Appendix B, for aspects not covered by and/or outside the scope of Eurocodes, shall be considered for the design of road structures.

Eurocodes shall be used in conjunction with any relevant European Standards for the design of proprietary structures, temporary structures and temporary works, unless otherwise agreed with TII.

Eurocodes shall not be used in combination with other National Standards (Non-Eurocodes), unless otherwise agreed with TII.

2.1 New-Design Requirements

Eurocodes shall be used for the design of new structures associated with National Road Projects, unless otherwise agreed with TII.

2.2 Modification-Design Requirements

Eurocodes shall be used as the basis for the design of modification works as follows, unless otherwise agreed with the Bridge Management Section of TII:

a) Strengthening- or upgrading-works design.

b) Structural-element replacement design.

c) Component-replacement design in conjunction with the relevant European Standard for the component.

d) Other modification design.

Where the strengthening or modification of the existing structure involves deriving the structural resistance, serviceability performance or durability of a section that comprises both new and existing materials acting together, the Designer shall make a statement in the TAR to justify the use of Eurocodes in this situation, considering the properties of the existing materials and workmanship compared to those required by the relevant European Standards upon which the relevant Eurocodes depend. This approach requires specific agreement with the Bridge Management Section of TII.

Where modification works fall outside the scope of the relevant Eurocodes, the Designer shall make a statement in the TAR to justify the use of Eurocodes.

Where it is not possible to demonstrate the adequacy of a structural element using Eurocodes, assessment standards may be used, subject to the agreement of the Bridge Management Section of TII.

Assessment standards shall not be used to design the modification or strengthening of any element.

2.3 Assessment Requirements

Eurocodes shall not be used for the structural assessment of existing road structures unless otherwise agreed with TII.

3. General Design Requirements

Appendix A includes a list of standards relevant for the design of road structures. This list can be used as a guidance to create the Technical Acceptance Schedule defined in DN-STR-03001.

The TII Publications classified as DN-STR shall be used for the design of road structures, except those Publications mentioned in Appendix C.

Where clauses within the TII Publications conflict with the Eurocodes or European Standards, these clauses shall not be used and should be reported to TII.

The Application Rules given in the Eurocodes may not fully cover the design of special types of structures, such as moveable bridges or bridges carrying both road and rail or light-rail traffic. For such structures additional design rules including values of partial factors, combination factors and values and configurations of actions shall be determined for the individual project, in accordance with the relevant Principles given in I.S. EN 1990.

Eurocodes may be applied to the design of structures where materials used and/or the actions applied are outside the scope of Eurocodes subject to agreement with TII.

Where supplementary guidance or advice that is non contradictory and complementary to Eurocodes from recognised sources and publications from professional institutions (including relevant BSI Standards and Published Documents) is used, this shall be proposed in the TAR for the individual project for agreement with TII.

Where Eurocodes are used, information listed in Appendix D relating to the individual project, options and choice of method adopted shall be recorded for Category 1, 2 and 3 structures. This information shall be provided by the Designer to the Checker and/or Contractor as indicated in Appendix D.

4. Reporting Requirements

For PD clauses not stated in Appendix B, if the Designer adopts a design that is contrary to the recommendation given in the PD clauses, this information shall be recorded on a TAR addendum and be subject to agreement with TII.

For Category 2 and 3 structures, the use of the following clauses shall be proposed in the TAR or TAR addendum:

1. PD 6687-1 clause 4.21.4.
2. PD 6687-2 clauses 8.2.2, 8.2.3 (use of guidance provided in CIRIA C660), 9.1 and 10.1.

Note that CIRIA C766 may be used instead of CIRIA C660 to calculate crack widths due to early age restraint of imposed deformation, since CIRIA C660 has been replaced by CIRIA C766, but PD 6687-2 has not been updated yet to reflect this change.

5. Departures

Applications for departure from this Standard, which implements the use of Eurocodes and Irish National annexes (NA), shall not be permitted except as follows:

1. There is adverse safety implication in the application of Eurocode and/or their NA in the design (in this case TII, should be notified without delay).
2. Error in the Eurocode and/or their NA has been identified and it is being considered by TII or CEN for an amendment or corrigendum.
3. Aspects not covered by Eurocode and/or their NA.
4. Application to use Eurocodes for the assessment of an existing structure.

6. European Standardisation System

The European standardisation system related to construction is a set of consistent standards to be used with the Eurocodes for the complete design and construction of road structures.

The system comprises the Eurocodes along with material and product standards, as well as execution and testing standards.

6.1 Execution Standards

Where Eurocodes are used for the design of road structures, their execution shall be in accordance with the relevant EN execution standards and parts of the Specification for Works.

For concrete and for steelwork, the Execution Class should be in accordance with CC-SPW-1700 and CC-SPW-1800, respectively.

For steelwork, the quantified service category should be in accordance with PD 6705-2.

The Consequence Classes given in this document should be used.

6.2 Material and Product Standards

Where Eurocodes are used for the design of road structures, the materials and products shall be in accordance with the relevant EN material and product standards, and the European Technical Approvals where applicable.

6.3 Testing Standards

Where Eurocodes are used for the design of road structures, the EN testing standards shall be used for the determination of material and product properties.

7. Specific Design Requirements

7.1 Design Working Life [I.S. EN 1990]

The required design working life shall be defined for the individual structure in accordance with the requirements for the technical approval of road structures and design working-life category classifications given in Table 7.1.

Table 7.1 Design Working Life

Working-life category 1 (Temporary structures, typically 10 years design working life)	
Temporary structures (1)	
Working-life category 2 (Replaceable structural parts, typically 50 years design working life)	
Bridge bearings Waterproofing systems Expansion joints	Safety barriers Parapets
Working-life category 3 (Short-term structures, typically 50 years design working life)	
Environmental noise barriers (2) Bridge gantries, access systems Columns for Traffic signs/signals M & E installations	CCTV masts High-mast lighting Lighting columns
Working-life category 4 (Building structures and other structures, typically 50-120 years design working life)	
Signs and signal gantries (3)	
Working-life category 5 (Bridges and civil-engineering structures, typically ≥120 years design working life)	
Bridges Retaining walls	Tunnels Buried structures
1) Structures or parts of structures that can be dismantled with a view to being re-used shall not be considered as temporary. *2) Environmental noise barriers are to be designed to achieve a design life of 30 years.* *3) Sign and signal gantries are to be designed to achieve a design life of 60 years.*	

Unless specified in other TII Standards or project specific requirements, the design working life of a road structure should be determined considering:

- functional requirement
- safety
- consequence
- traffic disruption
- durability
- sustainability
- financial
- deconstruction and re-use

Alternative values of design working life may be determined with the agreement of TII.

7.2 Categories and Reliability [I.S. EN 1990]

With reference to the requirements for the Reliability Classes in the Irish NA to I.S. EN 1990, the corresponding Design Supervision Levels and Inspection Levels for road structures shall be as given in Table 7.2 based on the corresponding structure category. This information should be recorded in the TAR**.**

Table 7.2 Categories and Reliability Classes

				Comments
DN-STR-03001 Structure Category	0	1 and 2	3	For the whole structure
Consequence class [I.S. EN 1990 Table B1] i. for the whole structure ii. for structural elements / components and details	CC1 Project specific	CC2 Project specific	CC3 Project specific	Structure elements can be designated a higher or lower consequence class than for the whole structure. Where a higher consequence class is designated, the designer shall propose it in the TAR or TAR addendum
Reliability class [I.S. EN 1990 Table B2]	RC1	RC2	RC3	For the whole structure
Design supervision level [I.S. EN1990 Table B4]	DSL1	DSL2	DSL3	For the whole structure
Inspection Level during execution [I.S. EN 1990 Table B5]	IL1 or IL2	IL2	IL2 or IL3	For the whole structure or parts of structure
Inspection level during execution for individual projects	Project specific	Project specific	Project specific	To be recorded in the contract documents

As reliability differentiation is achieved by varying the design-supervision and execution-inspection levels, K_{FI} shall be taken as 1.0. Table B3 of I.S. EN 1990 shall not be used for achieving reliability differentiation.

Inspection levels should be linked to the quality management class given in the relevant execution standards and implemented through appropriate quality management measures. Note that an IL3 is a third-party inspection, which is an inspection performed by an organisation different from that which has executed the works. This differs from Third Party as defined in section 1.4 of this document.

Higher or lower classes and/or levels than those given in Table 7.2 may be used subject to agreement with TII.

7.3 Accidental Actions [I.S. EN 1991-1-7]

PD 6688-1-7 is not applicable in Ireland. DN-STR-03013 “Use of I.S. EN 1991-1-7 for the Design of the Accidental Actions” is adopted.

7.4 Traffic Loads on Bridges [I.S. EN 1991-2]

Traffic Loads on Road Structures

Road structures that carry traffic loads shall be designed for I.S. EN 1991-2 load models (LM) LM1, LM2 and, if appropriate for pedestrians, LM4.

Road structures that carry traffic shall also be designed for all the special-vehicle (SV) models given in LM3 as defined in the IS NA to I.S. EN 1991-2.

The SV models to be used in the design shall be agreed with TII for the individual structure. Recommendations are given in Table 7.3.

Table 7.3 SV model to be used in the design

Class or road carried by road structure	SV models
National and Regional Roads (or road extensions thereof)	SV196
Other Roads as agreed by TII	SV100

Pedestrian Loads on Road Structures

Figure NA.9 in the NA to I.S. EN 1991-2 shall not to be used. Figure 7.1 below should be used instead. This may be done without a departure from standard.

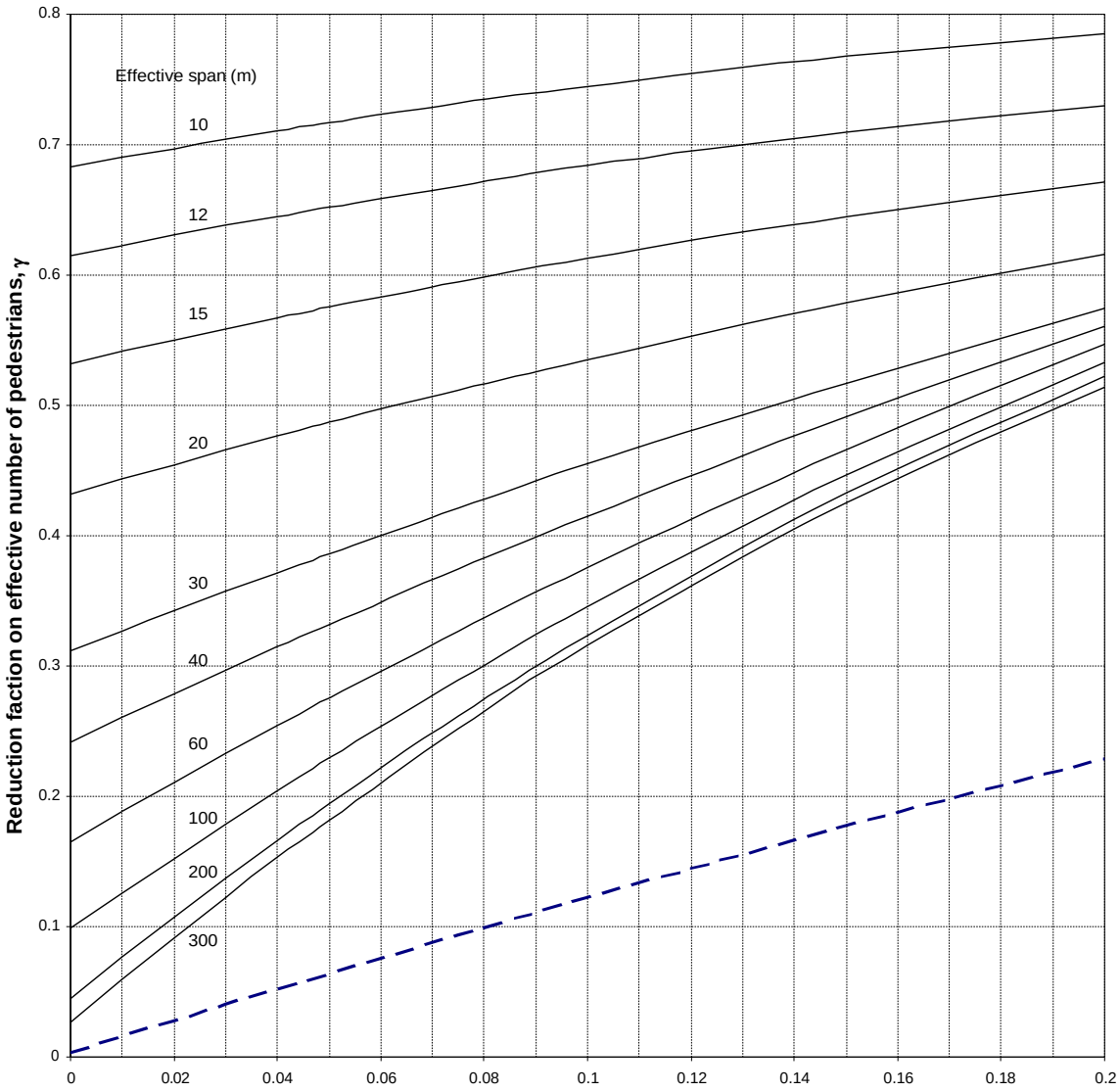

Figure 7.1 New Figure NA.9 reduction factor γ, to allow for the unsynchronized combination of pedestrian actions within groups and crowds

Structural damping - logarithmic decrement, δ

Bridges which are Subject to an Agreement with a Third Party

Accommodation bridges should be designed for I.S. EN 1991-2 load models LM1, LM2, LM4 and, if appropriate and agreed with TII, for LM3.

Where the provision of a structure is the subject of an agreement with a Third Party, then the Third Party shall be notified by the Road Authority of the traffic loading the structure will be able to carry. This shall be done before any agreement is concluded between the Road Authority and the Third Party.

7.5 Concrete Cover [I.S. EN 1992-1-1]

With reference to the NA to I.S. EN 1992-1-1 cl. 4.4.1.2 (5), the minimum cover value ($c_{min,dur}$) for reinforcement and prestressing tendons in normal weight concrete taking account of the exposure classes shall be as given in the $c_{min,dur}$ cover table within DN-STR-03012. This information shall be recorded in the TAR.

7.6 Reinforcement Type [I.S. EN 1992-1-1]

Types of reinforcement other than those covered in I.S. EN 1992-1-1 shall only be used with approval from TII. Refer to clause 4.5 from PD 6687-1.

7.7 Bridge-Deck Continuity [I.S. EN 15050]

The guidance given within Annex D (informative) of I.S. EN 15050 is not applicable to bridge structures constructed as part of national-road projects. Bridge-deck continuity at supports for decks constructed using precast-concrete elements shall follow the requirements of DN-STR-03012.

7.8 Reinforced-Soil Structures [I.S. EN 1997]

I.S. EN 1997 does not currently cover the design and execution of reinforced-soil structures (including soil-nailing structures). This should be carried out to BS 8006-1, BS 8006-2, I.S. EN 14475 and I.S. EN 14490.

7.9 Design for Seismic Resistance [I.S. EN 1998]

The provisions of I.S. EN 1998 need not apply unless otherwise specified by TII. Any specific seismic requirements should be considered for the individual structure where appropriate (see PD 6698 for further information).

8. References

8.1 TII Publications (Standards):

TII Publications per https://www.tiipublications.ie

DN-STR-03001 – Technical Acceptance of Road Structures on Motorways and Other National Roads

DN-STR-03012 – Design for Durability

DN-STR-03013 – Use of I.S. EN 1991-1-7 for the Design of the Accidental Actions

CC-SPW-1700 – Specification for Road Works - Series 1700 - Structural Concrete

8.2 I.S. EN Standards

I.S. EN 1990 – Eurocode 0: Basis of structural design

NA to I.S. EN 1990 – Irish National Annex to Eurocode 0: Basis of structural design

I.S. EN 1991-1-1 – Eurocode 1 - Actions on Structures - Part 1-1: General actions- Densities, self-weight, imposed loads for buildings

I.S. EN 1991-1-3 – Eurocode 1: Actions on structures. General actions - Snow loads

I.S. EN 1991-1-5 – Eurocode 1: Actions on structures. Part 1-5: General actions – Thermal actions

NA to I.S. EN 1991-1-7 – Irish National Annex to Eurocode 1 - Actions on structures - Part 1-7 General actions - Accidental actions

I.S. EN 1991-2 – Eurocode 1. Actions on structures. Traffic loads on bridges

NA to I.S. EN 1991-2 – Irish National Annex to Eurocode 1. Actions on structures. Traffic loads on bridges

I.S. EN 1992-1-1 – Eurocode 2: Design of concrete structures. General rules and rules for buildings

NA to I.S. EN 1992-1-1 – Irish National Annex to Eurocode 2: Design of concrete structures. General rules and rules for buildings

I.S. EN 1993-1-1 – Eurocode 3. Design of steel structures. General rules and rules for buildings

I.S. EN 1993-1-5 – Eurocode 3: Design of steel structures - Part 1-5: Plated structural elements

I.S. EN 1993-1-8 – Eurocode 3 Design of steel structures. Design of Joints

I.S. EN 1993-1-9 – Eurocode 3. Design of steel structures. Fatigue

I.S. EN 1993-1-10 – Eurocode 3: Design of steel structures - Part 1-10: Material toughness and through-thickness properties

I.S. EN 1993-1-11 – Eurocode 3: Design of steel structures - Part 1-11: Design of structures with tension components

I.S. EN 1993-2 – Eurocode 3. Design of steel structures Part 2: Steel bridges

I.S. EN 1998 – Eurocode 8: Design of structures for earthquake resistance

I.S. EN 1998-2 – Eurocode 8. Design of structures for earthquake resistance - Part 2: Bridges

I.S. EN 14475 – Execution of special geotechnical works - Reinforced fill

I.S. EN 14490 – Execution of special geotechnical works - Soil nailing

8.3 BSI Published Documents

PD 6687-1 Background paper to the UK National Annexes to BS EN 1992-1 and BS EN 1992-3

PD 6687-2 Recommendations for the design of structures to BS EN 1992-2

PD 6698 Recommendations for the design of structures for earthquake resistance to BS EN 1998

PD 6705-2 Recommendations on the execution of steel bridges to BS EN 1090-2

8.4 Other References

CIRIA C766 – Control of cracking caused by restrained deformation in concrete

BS 8006-1 – Code of practice for strengthened/reinforced soils and other fills

BS 8006-2 – Code of practice for strengthened/reinforced soils. Soil nail design

SETRA, Cable Stays – Recommendations of French Interministerial Commission on Prestressing (2002), France

Thomas Telford Ltd. *Denton S & Gulvanessian H*, 'Bridge Design to Eurocodes – Understanding Key Concepts of EN 1990'

Appendix A:

Standards Relevant for the Design of Road Structures

The standards listed in this appendix are typically required for the design of road structures. The list may be used as the basis for the Technical Acceptance Schedule (TAS).

Where a listed standard is not applicable, then this may be identified by applying a strikethrough annotation.

Additional standards needed for a particular design should be added to the section at the bottom of the TAS.

The Designer is responsible for ensuring that the standards and references given in the schedule are correct and up to date (All documents below are taken to include revisions current as of 01 August 2022).

EUROCODES AND ASSOCIATED IRISH NATIONAL ANNEXES			
Eurocode part	**Title**	**Amendments / Corrigenda**	***Notes***
Eurocode 0	**Basis of structural design**		
I.S. EN 1990**:**2002 +A1:2005	Eurocode 0: Basis of structural design	+A1:2005 Corrigenda 2008 and 2010	See DN-STR-03020 section 7
NA to I.S. EN 1990:2002 +A1:2005	Irish National Annex to Eurocode 0 Basis of structural design		See DN-STR-03020 section 7
Eurocode 1	**Actions on structures**		
I.S. EN 1991-1-1:2002	Eurocode 1: Actions on structures. General Actions. Densities, self-weight, imposed load for buildings	Corrigendum 2009	
NA to I.S. EN 1991-1-1:2002	Irish National Annex to Eurocode 1: Actions on structures. General Actions. Densities, self-weight, imposed load for buildings	Corrigendum 2013	
I.S. EN 1991-1-2:2002	Eurocode 1: Actions on structures. General actions. Actions on structures exposed to fire	Corrigenda 2009, 2012 and 2013	
NA:2007 to I.S. EN 1991-1-2:2002	Irish National Annex to Eurocode 1: Actions on structures. General actions. Actions on structures exposed to fire		
I.S. EN 1991-1-3:2003	Eurocode 1: Actions on structures. General Actions. Snow loads	Corrigenda 2004 and 2009	
NA +A2:2020 to I.S. EN 1991-1-3:2003	Irish National Annex to Eurocode 1: Actions on structures. General Actions. Snow loads	+A2:2020	
I.S. EN 1991-1-4:2005 +A1:2010	Eurocode 1: Actions on structures. General Actions. Wind actions	+A1:2010 Corrigenda 2009 and 2010	
NA to I.S. EN 1991-1-4:2005 +A1:2010	Irish National Annex to Eurocode 1: Actions on structures. General Actions. Wind actions		
I.S. EN 1991-1-5:2003	Eurocode 1: Actions on structures. General Actions. Thermal actions	Corrigendum 2009	
NA to I.S. EN 1991-1-5:2003	Irish National Annex to Eurocode 1: Actions on structures. General Actions. Thermal actions		
I.S. EN 1991-1-6:2005	Eurocode 1: Actions on structures. General Actions. Actions during execution	Corrigenda 2008, 2012 and 2013	

EUROCODES AND ASSOCIATED IRISH NATIONAL ANNEXES			
Eurocode part	**Title**	**Amendments / Corrigenda**	***Notes***
NA to I.S. EN 1991-1-6:2005	Irish National Annex to Eurocode 1: Actions on structures. General Actions. Actions during execution	Corrigendum 2013	
I.S. EN 1991-1-7:2006 +A1:2014	Eurocode 1: Actions on structures. General Actions. Accidental actions	+A1: 2014 Corrigendum 2010	
NA+A1:2010 to I.S. EN 1991-1-7:2006 +A1:2014	Irish National Annex to Eurocode 1: Actions on structures. Part 1-7: Accidental actions	+A1:2010 Corrigenda 2011 and 2015	See DN-STR-03020
I.S. EN 1991-2:2003	Eurocode 1: Actions on structures. Traffic loads on bridges	Corrigendum 2010	See DN-STR-03020 section 7
NA to I.S. EN 1991-2:2003	Irish National Annex to Eurocode 1: Actions on structures. Traffic loads on bridges	Corrigendum 2011	See DN-STR-03020 section 7
Eurocode 2	**Design of concrete structures**		
I.S. EN 1992-1-1:2004 +A1:2014	Eurocode 2: Design of concrete structures– Part 1-1: General rules and rules for buildings	Corrigenda 2008, 2010	
NA to I.S. EN 1992-1-1:2004 +A1:2014	Irish National Annex to Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings	Corrigendum 2020	
I.S. EN 1992-1-2:2004 +A1:2019	Eurocode 2: Design of concrete structures – Part 1-2: General rules – Structural fire design	+A1:2019 Corrigendum 2008	
NA to I.S. EN 1992-1-2:2005 +A1:2019	Irish National Annex to Eurocode 2: Design of concrete structures – Part 1-2: General rules – Structural fire design	Corrigendum 2008	
I.S. EN 1992-2:2005	Eurocode 2: Design of concrete structures – Part 2: Concrete bridges – Design and detailing rules	Corrigendum July 2008	
NA to I.S. EN 1992-2:2005	Irish National Annex to Eurocode 2: Design of concrete structure – Part 2: Concrete bridges – Design and detailing rules	-	
I.S. EN 1992-3:2006	Eurocode 2: Design of concrete structures – Part 3: Liquid retaining and containment structures	-	
NA to I.S. EN 1992-3:2006	Irish National Annex to Eurocode 2: Design of concrete structures – Part 3: Liquid retaining and containment structures	-	
I.S. EN 1992-4:2018	Eurocode 2: Design of concrete structures – Part 4: Design of fastenings for use in concrete		
NA to I.S. EN 1992-4:2018	Irish National Annex to Eurocode 2: Design of concrete structures – Part 4: Design of fastenings for use in concrete		
Eurocode 3	**Design of steel structures**		
I.S. EN 1993-1-1:2005 +A1:2014	Eurocode 3: Design of steel structures – Part 1-1 General rules and rules for buildings	Corrigenda 2006 and 2009	

EUROCODES AND ASSOCIATED IRISH NATIONAL ANNEXES			
Eurocode part	**Title**	**Amendments / Corrigenda**	***Notes***
NA +A1:2015 to I.S. EN 1993-1-1:2005 +A1:2014	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-1 General rules and rules for buildings	-+A1:2015	
I.S. EN 1993-1-2:2005	Eurocode 3: Design of steel structures – Part 1-2 General rules – Structural fire design	Corrigenda 2005 and 2009	
NA to I.S. EN 1993-1-2:2005	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-2 General rules – Structural fire design		
I.S. EN 1993-1-3:2006	Eurocode 3: Design of steel structures – Part 1-3 General rules – Supplementary rules for cold-formed members and sheeting	Corrigendum 2009	
NA to I.S. EN 1993-1-3:2006	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-3 Supplementary rules for cold-formed members and sheeting	-	
I.S. EN 1993-1-4:2006 +A2:2020	Eurocode 3: Design of steel structures – Part 1-4 General rules – Supplementary rules for stainless steels	+A1:2015 +A2:2020	
NA+A1:2019 to I.S. EN 1993-1-4:2006 +A1:2015	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-4 Supplementary rules for stainless steels	+A1:2019	
I.S. EN 1993-1-5:2006 +A2:2019	Eurocode 3: Design of steel structures – Part 1-5 Plated structural elements	Corrigendum 2009 +A1:2017 +A2:2019	
NA to I.S. EN 1993-1-5:2006	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-5 Plated structural elements	Corrigendum 2017	
I.S. EN 1993-1-6:2007 +A1:2017	Eurocode 3: Design of steel structures – Part 1-6 Strength and stability of shell structures	+A1:2017	
NA+A2:2020 to I.S. EN 1993-1-6:2007 +A1:2017	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-6 Strength and stability of shell structures	+A2:2020	
I.S. EN 1993-1-7:2007	Eurocode 3: Design of steel structures – Part 1-7 Plated structures subject to out of plane loading	Corrigendum 2009	
I.S. EN 1993-1-8:2005	Eurocode 3: Design of steel structures – Part 1-8 Design of joints	Corrigenda 2005 and 2009	
NA to I.S. EN 1993-1-8:2005	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-8 Design of joints	-	
I.S. EN 1993-1-9:2005	Eurocode 3: Design of steel structures – Part 1-9 Fatigue	Corrigenda 2005 and 2009	
NA to I.S. EN 1993-1-9:2005	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-9 Fatigue	-	

EUROCODES AND ASSOCIATED IRISH NATIONAL ANNEXES			
Eurocode part	**Title**	**Amendments / Corrigenda**	***Notes***
I.S. EN 1993-1-10:2005	Eurocode 3: Design of steel structures – Part 1-10 Material toughness and through-thickness properties	Corrigenda December 2005 and March 2009	
NA to I.S. EN 1993-1-10:2005	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-10 Material toughness and through thickness properties	-	
I.S. EN 1993-1-11:2006	Eurocode 3: Design of steel structures – Part 1-11 Design of structures with tension components	Corrigendum 2009	
NA to I.S. EN 1993-1-11:2006	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-11 Design of structures with tension components	-	
I.S. EN 1993-1-12:2007	Eurocode 3: Design of steel structures – Part 1-12 Additional rules for the extension of EN 1993 up to steel grades S 700	Corrigendum 2009	
NA to I.S. EN 1993-1-12:2007	Irish National Annex to Eurocode 3: Design of steel structures – Part 1-12 Additional rules for the extension of EN 1993 up to steel grades S 700	-	
I.S. EN 1993-2:2006	Eurocode 3: Design of steel structures – Part 2 Steel bridges	Corrigendum 2009	
NA to I.S. EN 1993-2:2006	Irish National Annex to Eurocode 3: Design of steel structures – Part 2 Steel bridges		
I.S. EN 1993-5:2007	Eurocode 3: Design of steel structures – Part 5 Piling	Corrigendum 2009	
NA to I.S. EN 1993-5:2007	Irish National Annex to Eurocode 3: Design of steel structures – Part 5 Piling		
Eurocode 4	**Design of composite steel and concrete structures**		
I.S. EN 1994-1-1:2004	Eurocode 4: Design of composite steel and concrete structures – Part 1-1 General rules and rules for buildings	Corrigendum 2009	
NA to I.S. EN 1994-1-1:2004	Irish National Annex to Eurocode 4: Design of composite steel and concrete structures – Part 1-1 General rules and rules for buildings		
I.S. EN 1994-1-2:2005 +A1:2014	Eurocode 4: Design of composite steel and concrete structures – Part 1-2 Structural fire design	+A1:2014 Corrigendum 2008	
NA to I.S. EN 1994-1-2:2005	Irish National Annex to Eurocode 4: Design of composite steel and concrete structures – Part 1-2 Structural fire design		
I.S. EN 1994-2:2005	Eurocode 4: Design of composite steel and concrete structures – Part 2 General rules and rules for bridges	Corrigendum 2008	
NA to I.S. EN 1994-2:2005	Irish National Annex to Eurocode 4: Design of composite steel and concrete structures – Part 2 General rules and rules for bridges		

EUROCODES AND ASSOCIATED IRISH NATIONAL ANNEXES			
Eurocode part	**Title**	**Amendments / Corrigenda**	***Notes***
Eurocode 5	**Design of timber structures**		
I.S. EN 1995-1-1:2004 +A2:2014	Eurocode 5: Design of timber structures – Part 1-1 General – common rules and rules for buildings	+A2:2014 Corrigendum 2006	
NA+A1:2013 to I.S. EN 1995-1-1:2004	Irish National Annex to Eurocode 5: Design of timber structures – Part 1-1 General – common rules and rules for buildings	+A1:2013	
I.S. EN 1995-1-2:2004	Eurocode 5: Design of timber structures – Part 1-2 Structural fire design	Corrigenda 2006 and 2009	
NA to I.S. EN 1995-1-2:2005	Irish National Annex to Eurocode 5: Design of timber structures – Part 1-2 Structural fire design		
I.S. EN 1995-2:2004	Eurocode 5: Design of timber structures – Part 2 Bridges	-	
NA to I.S. EN 1995-2:2004	Irish National Annex to Eurocode 5: Design of timber structures – Part 2 Bridges	-	
Eurocode 6	**Design of masonry structures**		
I.S. EN 1996-1-1:2005 +A1:2012	Eurocode 6: Design of masonry structures – Part 1-1 General rules for reinforced and unreinforced masonry structures	+A1:2012 Corrigendum 2009	
NA+A1:2014 to I.S. EN 1996-1-1:2005	Irish National Annex to Eurocode 6: Design of masonry structures – Part 1-1 General rules for reinforced and unreinforced masonry structures	+A1:2014	
I.S. EN 1996-1-2:2005	Eurocode 6: Design of masonry structures – Part 1-2 Structural fire design	Corrigendum 2010	
NA to I.S. EN 1996-1-2:2005	Irish National Annex to Eurocode 6: Design of masonry structures – Part 1-2 Structural fire design		
I.S. EN 1996-2:2006	Eurocode 6: Design of masonry structures – Part 2 Design considerations, selection of materials and execution of masonry	Corrigendum 2009	
NA to I.S. EN 1996-2:2006	Irish National Annex to Eurocode 6: Design of masonry structures – Part 2 Design considerations, selection of materials and execution of masonry		
I.S. EN 1996-3:2006	Eurocode 6: Design of masonry structures – Part 3 Simplified calculation methods for unreinforced masonry structures	Corrigendum 2009	
NA to I.S. EN 1996-3:2006	Irish National Annex to Eurocode 6: Design of masonry structures – Part 3 Simplified calculation methods for unreinforced masonry structures		

EUROCODES AND ASSOCIATED IRISH NATIONAL ANNEXES			
Eurocode part	**Title**	**Amendments / Corrigenda**	***Notes***
Eurocode 7	**Geotechnical design**		
I.S. EN 1997-1:2004 +A1:2013	Eurocode 7: Geotechnical design – Part 1 General rules	+A1:2013 Corrigendum 2009	
NA to I.S. EN 1997-1:2004 +A1:2013	Irish National Annex to Eurocode 7: Geotechnical design – Part 1 General rules		
I.S. EN 1997-2:2007	Eurocode 7: Geotechnical design – Part 2 Ground investigation and testing	Corrigendum 2010	
NA to I.S. EN 1997-2:2007	Irish National Annex to Eurocode 7: Geotechnical design – Part 2 Ground investigation and testing	-	
Eurocode 8	**Design of structures for earthquake resistance**		
I.S. EN 1998-1:2004 +A1:2013	Eurocode 8: Design of structures for earthquake resistance – Part 1 General rules, seismic actions and rules for buildings	+A1:2013 Corrigendum 2009	
I.S. EN 1998-2:2005 +A2:2011	Eurocode 8: Design of structures for earthquake resistance – Part 2 Bridges	Corrigendum 2010	
I.S. EN 1998-5:2004	Eurocode 8: Design of structures for earthquake resistance – Part 5 Foundations, retaining structures and geotechnical aspects	-	
Eurocode 9	**Design of aluminium structures**		
I.S. EN 1999-1-1:2007 +A2:2013	Eurocode 9: Design of aluminium structures– Part 1-1 General structural rules	+A2:2013	
NA to I.S. EN 1999-1-1:2007	Irish National Annex to Eurocode 9: Design of aluminium structures – Part 1-1 General structural rules		
I.S. EN 1999-1-2:2007	Eurocode 9: Design of aluminium structures – Part 1-2 Structural fire design		
NA to I.S. EN 1999-1-2:2007	Irish National Annex to Eurocode 9: Design of aluminium structures – Part 1-2 Structural fire design	Corrigendum 2009	
I.S. EN 1999-1-3:2007 +A1:2011	Eurocode 9: Design of aluminium structures – Part 1-3 Structures susceptible to fatigue	+A1:2011	
NA to I.S. EN 1999-1-3:2007	Irish National Annex to Eurocode 9: Design of aluminium structures – Part 1-3 Structures susceptible to fatigue		
I.S. EN 1999-1-4:2007 +A1:2011	Eurocode 9: Design of aluminium structures – Part 1-4 Cold formed structural sheeting	+A1:2011 Corrigendum 2009	
NA to I.S. EN 1999-1-4:2007	Irish National Annex to Eurocode 9: Design of aluminium structures – Part 1-4 Cold formed structural sheeting	-	

BSI PUBLISHED DOCUMENTS ***For guidance only, unless clauses are otherwise specified in DN-STR-03020 Appendix B.***		
Published Document reference	**Title**	**Notes**
PD 6687-1:2020	Background paper to the UK National Annexes to BS EN 1992-1 and BS EN 1992-3	Supersedes PD 6687-1:2010 See DN-STR-03020 section 3, section 4, and Appendix B
PD 6687-2:2008	Recommendations for the design of structures to BS EN 1992-2:2005	See DN-STR-03020 section 4 and Appendix B
PD 6688-1-1:2011	Recommendations for the design of structures to BS EN 1991-1-1	See DN-STR-03020 Appendix B
PD 6688-1-2:2007	Background paper to the UK National Annex to BS EN 1991-1-2	See DN-STR-03020 Appendix B
PD 6688-1-4:2015	Background paper to the UK National Annex to BS EN 1991-1-4	See DN-STR-03020 Appendix B
PD 6688-2:2011	Recommendations for the design of structures to BS EN 1991-2	See DN-STR-03020 Appendix B
PD 6694-1:2011 +A1:2020	Recommendations for the design of structures subject to traffic loading to BS EN 1997-1	Incorporating Corrigendum 2022 See DN-STR-03020 Appendix B
PD 6695-1-9:2008	Recommendations for the design of structures to BS EN 1993-1-9	See DN-STR-03020 Appendix B
PD 6695-1-10:2009	Recommendations for the design of structures to BS EN 1993-1-10	See DN-STR-03020 Appendix B
PD 6695-2:2008 +A1:2012	Recommendation for the design of bridges to BS EN 1993	Incorporating Corrigendum No.1 See DN-STR-03020 Appendix B
PD 6696-2:2007 +A1:2012	Background paper to BS EN 1994-2 and the UK National Annex to BS EN 1994-2	See DN-STR-03020 Appendix B
PD 6698:2009	Recommendations for the design of structures for earthquake resistance to BS EN 1998	See DN-STR-03020 section 7
PD 6702-1:2009 +A1:2019	Structural use of aluminium. Recommendations for the design of aluminium structures to BS EN 1999	Amended 31 May 2019
PD 6703:2009	Structural bearings – Guidance on the use of structural bearings	
PD 6705-2:2020	Structural use of steel and aluminium. Execution of steel bridges conforming to BS EN 1090-2. Guide	Replaces PD 6705-2:2010 +A1:2013
PD 6705-3:2009	Recommendations on the execution of aluminium structures to BS EN 1090-3	

PRODUCT STANDARDS REFERENCED IN IRISH STANDARDS OR EUROCODES		
Product Standard reference	**Title**	**Notes**
I.S. EN 1090-1:2009 +A1:2011	Execution of steel structures and aluminium structures - Part 1: Requirements for conformity assessment of structural components	
I.S. EN 1090-2:2018	Execution of steel structures and aluminium structures. Technical requirements for the execution of steel structures	Supersedes I.S. EN 1090-2:2008 +A1:2011
I.S. EN 1090-3:2019	Execution of steel structures and aluminium structures – Part 3: Technical requirements for aluminium structures	Supersedes I.S. EN 1090-3:2008
I.S. EN 13670:2009 +LC:2019	Execution of concrete structures	
NA to I.S. EN 13670:2009	Irish National Annex to I.S. EN 13670	
I.S. EN 206:2013 +A2:2021	Concrete – Specification, performance, production and conformity	Supersedes I.S. EN 206:2013+A1:2016
NA to I.S. EN 206:2013 +A2:2021		
I.S. EN 1317-1:2010	Road Restraint Systems – Part 1 – Terminology and general criteria for test methods	
I.S. EN 1317-2:2010	Road Restraint Systems – Part 2 – Performance classes, impact test acceptance criteria and test methods for safety barriers.	
I.S. EN 1317-3:2010	Road Restraint Systems – Part 3 – Performance classes, impact test acceptance criteria and test methods for crash cushions.	
DD ENV 1317-4:2002	Road Restraint Systems – Part 4 – Performance classes, impact test acceptance criteria and test methods for terminals and transitions of safety barriers.	*Draft EN 1317-4 for public comment published in June 2012*
I.S. EN 1317-5:2007 +A2:2012	Road Restraint Systems – Part 5 - Product requirements and evaluation of conformity for vehicle restraint systems	Incorporating corrigendum August 2012 *Draft prEN 1317-5 for public comment published in December 2013*
PD CEN/TR 16949:2016	Road Restraint System – Pedestrian restraint system - Pedestrian parapets	*Bsi Published Document / CEN Technical Report published in July 2016*
Draft prEN 1317-7	Road restraint systems - Part 7: Performance classes, impact test acceptance criteria and test methods for terminals of safety barriers	*Draft prEN 1317-7 for public comment published in June 2012* *(This document should not be used. All terminals should continue to be in accordance with ENV 1317-4.)*
PD CEN/TR 17081:2018	Design of fastenings for use in concrete – Plastic design of fastenings with headed and post-installed fasteners	
I.S. EN 1337-1:2000	Structural bearings – Part 1: General Design Rules	

PRODUCT STANDARDS REFERENCED IN IRISH STANDARDS OR EUROCODES		
Product Standard reference	**Title**	**Notes**
I.S. EN 1337-2:2004	Structural bearings – Part 2: Sliding elements	
I.S. EN 1337-3:2005	Structural bearings – Part 3: Elastomeric bearings	
I.S. EN 1337-4:2004	Structural bearings – Part 4: Roller bearings	
I.S. EN 1337-5:2005	Structural bearings – Part 5: Pot bearings	
I.S. EN 1337-6:2004	Structural bearings – Part 6: Rocker bearings	
I.S. EN 1337-7:2004	Structural bearings – Part 7: Spherical and cylindrical PTFE bearings	
I.S. EN 1337-8:2007	Structural bearings – Part 8: Guide bearings and restraint bearings	
I.S. EN 1337-9:1998	Structural bearings – Part 9: Protection	
I.S. EN 1337-10:2003	Structural bearings – Part 10: Inspection and maintenance	
I.S. EN 1337-11:1998	Structural bearings – Part 11: Transport, Storage and Installation.	
I.S. EN 10025-1:2004	Hot rolled products of structural steels Part 1: General technical delivery conditions.	
I.S. EN 10025-2:2019	Hot rolled products of structural steels Part 2: Technical delivery conditions for non-alloy structural steels.	Supersedes I.S. EN 10025-1:2004
I.S. EN 10025-3:2019	Hot rolled products of structural steels Part 3: Technical delivery conditions for normalized/normalized rolled weldable fine grain structural steels.	Supersedes I.S. EN 10025-3:2004
I.S. EN 10025-4:2019	Hot rolled products of structural steels Part 4: Technical delivery conditions for thermomechanical rolled weldable fine grain structural steels.	Supersedes I.S. EN 10025-4:2004
I.S. EN 10025-5:2019	Hot rolled products of structural steels – Part 5: Technical delivery conditions for structural steels with improved atmospheric corrosion resistance	Supersedes I.S. EN 10025-5:2004
I.S. EN 10025-6:2019	Hot rolled products of structural steels – Part 6: Technical delivery conditions for flat products of high yield strength structural steels in the quenched and tempered condition.	Supersedes I.S. EN 10025-6:2004 +A1:2009
I.S. EN 10080:2005	Steel for the reinforcement of concrete – Weldable reinforcing steel - General	
I.S. EN 10210-1:2006	Hot finished structural hollow sections of non-alloy and fine grain steels – Part 1: Technical delivery conditions	
I.S. EN 10210-2:2019	Hot finished structural hollow sections – Part 2: Tolerances, dimensions and sectional properties	Supersedes I.S. EN 10210-2:2006
I.S. EN 10248-1:1996	Hot rolled sheet piling of non alloy steels. Technical delivery conditions	
I.S. EN 10248-2:1996	Hot rolled sheet piling of non alloy steels. Tolerances on shape and dimensions	
I.S. EN 12063:1999	Execution of special geotechnical work. Sheet pile walls.	
I.S. EN 14388:2015	Road traffic noise reducing devices	Unlike the 2005 version, this one is not harmonised

PRODUCT STANDARDS REFERENCED IN IRISH STANDARDS OR EUROCODES		
Product Standard reference	**Title**	**Notes**
I.S. EN 13369:2013	Common rules for precast concrete products	
I.S. EN 14844:2006 +A1:2008	Precast concrete products - Box culverts	
I.S. EN 15050:2007 +A1:2012	Precast concrete products – Bridge elements	See DN-STR-03020 section 7
I.S. EN 15258:2008	Precast concrete products - Retaining wall elements	

BRITISH STANDARDS		
British Standard reference	**Title**	**Notes**
BS 4449:2005 +A3:2016	Steel for the reinforcement of concrete	No longer covers plain round bar. (See BS 4482 up to 12 mm dia; see BS EN 10025-1 for larger sizes and dowels; see BS EN 13877-3 for dowel bars in concrete pavements)
BS 4483:2005	Steel fabric for the reinforcement of concrete. Specification	
BS 5896:2012	Specification for high tensile steel wire and strand for the prestressing of concrete	
BS 7818:1995	Specification for pedestrian restraint systems in metal	Incorporating Corrigendum No.1 May 2004 and Corrigendum No.2 September 2006 Currently the requirements of BS 7818:1995 are to be used instead of PD CEN/TR 16949:2016
BS 8002:2015	Code of practice for earth retaining structures	
BS 8004:2015 +A1 2020	Code of practice for foundations	Amendment +A1:2020
BS 8006-1:2010 +A1:2016	Code of practice for strengthened/reinforced soils and other fills	
BS 8006-2:2011 +A1:2017	Code of practice for strengthened/reinforced soils. Soil nail design	Amendment +A1:2017
BS 8666:2020	Scheduling, dimensioning, bending and cutting of steel reinforcement for concrete	Supersedes BS 8666:2005

TII PUBLICATIONS (DN)		
Reference	**Title**	**Note**
DN-STR	**Structures Design**	
DN-STR-03001	Technical Acceptance of Road Structures on Motorways and Other National Roads	Published in Apr 2019. Supersedes BD 7
DN-STR-03002	Weathering Steel for Highway Structures	Published in Dec 2002. Supersedes BD 12
DN-STR-03003	Design of Corrugated Steel Buried Structures with Spans Greater Than 0.9 Metres and up to 8 Metres	Published in Dec 2002. Supersedes BD 20. See DN-STR-03020 Appendix C
DN-STR-03004	Bridge Bearings. Use of BS 5400: Part 9: 1983	Published in Feb 2023. Supersedes BD 29
DN-STR-03005	Design Criteria for Footbridges	Published in Jul 2004. Supersedes BD 33. See DN-STR-03020 Appendix C
DN-STR-03006	Expansion Joints for Use in Highway Bridge Decks	Published in Feb 2023. Supersedes NRA BD 35
DN-STR-03007	Quality Assurance Scheme for Paints and Similar Protective Coatings	Published in Jun 2014. Supersedes BD 47
DN-STR-03009	Waterproofing and Surfacing of Concrete Bridge Decks	Published in Apr 2019. Supersedes NRA BD 51
DN-STR-03010	Portal and Cantilever Sign/Signal Gantries	Published in Feb 2017. Supersedes NRA BD 57
DN-STR-03012	Design for Durability	Published in Oct 2016. Supersedes NRA BD 60
DN-STR-03013	Use of I.S. EN 1991-1-7 for the Design of the Accidental Actions	Published in Apr 2017. Supersedes BD 67
DN-STR-03014	Enclosure of Bridges	Published in Dec 2000. Supersedes BD 78. See DN-STR-03020 Appendix C
DN-STR-03015	Design of Road Tunnels	Published in Dec 2000. Supersedes BD 82
DN-STR-03016	Design of Buried Rigid Pipes	Published in Dec 2000. Supersedes BD 84
DN-STR-03017	Strengthening of Concrete Bridge Supports Using Fibre Reinforced Polymers	Published in Dec 2002. Supersedes NRA BD 94. See DN-STR-03020 Appendix C
DN-STR-03018	Design of Support Structures for Roadside Furniture	Published in Dec 2014. Supersedes NRA BD 95
DN-STR-03019	Treatment of Existing Structures on Highway Widening Schemes	Published in Apr 2019. Supersedes BD 7
DN-STR-03020	The Structural Design of Road Structures	Published in Feb 2023. Supersedes GE-POL-01008
DN-REQ-03034	The Design of Road Restraint Systems (Vehicle and Pedestrian) for Roads and Bridges	Published in May 2019. Supersedes NRA TD 19 and BD 52
DN-GEO-03036	Cross Sections and Headroom	Published May 2019. Supersedes NRA TD 27
CC-SPW *	**Specification for Works**	
CC-GSW *	**Guidance on Specification for Works**	

** The relevant Standards must be listed individually in the "Additional Standards" table below.*

Miscellaneous		
Standard reference	**Title**	**Notes**
CIRIA C543	Bridge Detailing Guide	
CIRIA C686	Safe Access for Maintenance and Repair	
CIRIA C760	Guidance on embedded retaining wall design	
CIRIA C764	Hidden defects in bridges -guidance for detection and management	
CIRIA C766	Control of cracking caused by restrained deformation in concrete	Supersedes C660

Additional Standards **Additional standards needed for a particular design should be listed here.**		
Reference	**Title**	**Notes**

Appendix B:

Clauses of Published Documents that shall be Considered for the Design of Road Structures

These clauses are applicable for the design of concrete, steel, and composite-steel-and-concrete road structures.

Note: Where a clause in a PD references to “BS”, substitute it by “IS”.

Table B.1 PD clauses that shall be considered for the design of road structures

Published Document	PD clause number that shall be considered	Referenced Eurocode and clause
PD 6688-1-1:2011 Background paper to the UK National Annexto BS EN 1991-1-1	None.	
PD 6688-1-2:2007 Background paper to the UK National Annex to BS EN 1991-1-2	None.	
PD 6688-1-4:2015 Background paper to the UK National Annex to BS EN 1991-1-4	Annex A excluding clauses A.1.5.2 and A.1.5.3.	BS EN 1991-1-4 Annex E
PD 6688-1-7:2009 Recommendations for the design of structures to BS EN 1991-1-7	PD 6688-1-7 is not applicable in Ireland. DN-STR-03013 should be used instead.	
PD 6688-2:2011 Recommendations for the design of structures to BS EN 1991-2	cl. 3.13.1 (the last sentence of the fourth paragraph and the fifth paragraph)	BS EN 1991-2 cl. 4.7.3.3 (1)
	cl. 3.13.2 (the last sentence of the fifth paragraph and the sixth paragraph)	BS EN 1991-2 cl. 4.7.3.3 (2)
	cl. 3.20 (the last two paragraphs)	BS EN 1991-2 cl. 5.7 (3)
PD 6687-1:2010 Background paper to the UK National Annexes to BS EN 1992-1 and BS EN 1992-3	None.	

Published Document	PD clause number that shall be considered	Referenced Eurocode and clause
PD 6687-2:2008 Recommendations for the design of structures to BS EN 1992-2:2005	cl. 3.2	BS EN 1992-1-1 cl. 2.4.2.4 (3) and Annex A
	cl. 6.4	BS EN 1992-1-1 cl. 5.5
	cl. 6.6 (fourth and fifth paragraphs)	BS EN 1992-1-1 cl. 5.6.3
	cl. 7.2.4.4	BS EN 1992-1-1 cl. 6.2.3 (107)
	cl. 7.2.4.5	BS EN 1992-1-1 cl. 6.2.3 (109)
	cl. 7.2.5 (first paragraph)	BS EN 1992-1-1 cl. 6.2.4
	cl. 7.2.6	BS EN 1992-1-1 cl. 6.2.5
	cl. 9.2	BS EN 1992-1-1 cl. 8.10.1.3
	cl. 9.4	BS EN 1992-1-1 cl. 8.10.5
	cl. 10.2	BS EN 1992-1-1 cls. 9.2.1.2 (3) and 9.5.3 (6)
	cl. 10.5	Voided slabs
	cl. 12	Additional rules for external prestressing Note A1

Published Document	PD clause number that shall be considered	Referenced Eurocode and clause
PD 6695-1-9:2008 Recommendations for the design of structures to BS EN 1993-1-9	cl. 2.3	BS EN 1993-1-9 cl. 1.1 (2)
	cl. 2.4 (third paragraph)	BS EN 1993-1-9 cl. 1.1 (2)
	cl. 3	BS EN 1993-1-9 cl. 2 (2)
	cl. 5.3 Note A2	BS EN 1993-1-9 cl. 3 (1)
	cl. 6.2	BS EN 1993-1-9 cls. 5 & 6
	cl. 6.3.1	BS EN 1993-1-9 cls. 5 & 6
	cl. 6.3.2	BS EN 1993-1-9 cls. 5 & 6
	cl. 6.3.3.1 Note A3	BS EN 1993-1-9 cls. 5 & 6
	cl. 6.3.3.2	BS EN 1993-1-9 cls. 5 & 6
	cl. 6.3.3.3	BS EN 1993-1-9 cls. 5 & 6
	cl. 6.3.4	BS EN 1993-1-9 cls. 5 & 6
	cl. 8.2.1	BS EN 1993-1-9 Annex A
	cl. 8.2.2	BS EN 1993-1-9 Annex A
	cl. 8.2.3	BS EN 1993-1-9 cl. A.1, A.2, A.3 & A.4
PD 6695-1-10:2009 Recommendations for the design of structures to BS EN 1993-1-10	cl.3.2	BS EN 1993-1-10 cl.3

Published Document	PD clause number that shall be considered	Referenced Eurocode and clause
PD 6695-2:2008 Recommendation for the design of bridges to BS EN 1993	cl. 4.2	BS EN 1993-2 cl. 5.1.2
	cl. 4.3	BS EN 1993-1-8 cls. 2.7 & 5 BS EN 1993-2 Annex D
	cl. 4.4	BS EN 1993-1-8 cl. 3.4.1 & BS EN 1993-2 cl. 5.2
	cl. 4.5	BS EN 1993-1-8 cl. 5 & BS EN 1993-2cls. 5.3 & 6.3.4.2
	cl. 5	BS EN 1993-2 cls. 6.3.2.2, 6.3.2.3 & 6.3.4
	cl. 6.2	BS EN 1993-2 cls. 6.3.2.2, 6.3.2.3 & 6.3.4
	cl. 6.3	BS EN 1993-2 cls. 6.3.4.2 & Annex D
	cl. 7.2	BS EN 1993-2 cls. 6.3.2.2, 6.3.2.3 & 6.3.4
	cl. 8.2	BS EN 1993-2 cls. 6.3.2.2, 6.3.2.3 & 6.3.4
PD 6695-2:2008 Recommendation for the design of bridges to BS EN 1993	cl. 8.3	Note A4
	cl. 8.4	BS EN 1993-2 cls. 6.3.4 & Annex D
	cl. 8.5	Note A4
	cl. 9	BS EN 1993-2 cl. 6.3.4.2
	cl. 10 Note A5	BS EN 1993-2 cl. 5.3.3 & BS EN 1993-1-8 cl. 5
	cl. 11	BS EN 1993-2 cl. 6.3.4.2
	cl. 12	BS EN 1993-1-5 cls. 4.1, 4.6 & 10
	cl. 13.3.1 Note A6	BS EN 1993-1-5 cl. 8
	cl. 13.3.2 Note A6	BS EN 1993-1-5 cl. 7.2
	cl. 13.3.4 Note A6	BS EN 1993-1-1 cl. 6.3.1.2 & BS EN 1993-1-5 cl. 4.5.3(5)
	cl. 14	BS EN 1993-1-5 cls. 2.3 & 9.2.4
	cl. 15 paragraphs 2,3 and 4	BS EN 1993-1-5 cl. 9
	cl. 16.1 paragraph 2	BS EN 1993-1-5 cl. 9
	cl. 16.2 paragraph 2	BS EN 1993-1-5 cl. 9

Published Document	PD clause number that shall be considered	Referenced Eurocode and clause
PD 6695-2:2008 Recommendation for the design of bridges to BS EN 1993	cl. 16.3 Note A7	BS EN 1993-1-5 cl. 9
	cl. 16.4	BS EN 1993-1-5 cl. 9
	cl. 17.2	BS EN 1993-1-8:2005 cls. 2.7 & 3.12
	cl. 17.3.1	BS EN 1993-1-1 cl. 5.3.3
	cl. 17.3.2	BS EN 1993-1-1 cl. 6.2.4
	cl. 17.4.2	BS EN 1993-1-1 cl. 6.2.3
	cl. 17.5.2	BS EN 1993-1-8 cl. 3.12 & BS EN 1993-1-1 cl. 6.24
	cl. 17.5.4	BS EN 1993-1-8 cl. 3.4
	cl. 18	Note A4
	cl. 19.2.1	BS EN 1993-1-8 cl. 3
	cl. 20.2	BS EN 1993-1-8 cl. 4
	cl. 20.3	BS EN 1993-1-8 cl. 4
	cl. 20.3.1.1	BS EN 1993-1-8 cl. 4

Published Document	PD clause number that shall be considered	Referenced Eurocode and clause
PD 6695-2:2008 Recommendation for the design of bridges to BS EN 1993	cl. 21.1 paragraphs 2 and 3	BS EN 1993-1-5 cl. 9
	cl. 21.2	BS EN 1993-1-5 cl. 9
	cl. 22.2	BS EN 1993-1-5 cl. 9
	cl. 23.2 Note A8	BS EN 1993-2 cls. 6.2.7 & 6.2.8, & BS EN1993-1-5 Annex C
	cl. 23.3 Note A8	BS EN 1993-2 cls. 6.2.7 & 6.2.8, & BS EN1993-1-5 Annex C
	cl. 23.4 Note A8	BS EN 1993-2 cls. 6.2.7 & 6.2.8, & BS EN1993-1-5 Annex C
	cl. 23.5 Note A8	BS EN 1993-2 cls. 6.2.7 & 6.2.8, & BS EN1993-1-5 Annex C
	cl. 24 Notes A8 and A9	BS EN 1993-2 cl. 5.2; & BS EN 1993-1-5 cls. 2, 3, 4, 5, 6, 7, 8, 9, 10 & Annex C
	cl. 25 Note A8	BS EN 1993-2 cls. 6.2.7 & 6.2.8, & BS EN1993-1-5 Annex C
	cl. 26	BS EN 1993-2 cl. 7.4
PD 6696-2:2007 Background paper to BS EN 1994-2 and the UK National Annex to BS EN 1994-2	All clauses where appropriate.	
PD 6694-1:2011 Recommendations for the design of structures subject to traffic loading to BS EN 1997-1:2004	All clauses where appropriate.	
PD 6698:2009 Recommendations for the Design of Structures for Earthquake Resistance to BS EN 1998	None.	

Note A1. Traffic restrictions may not be appropriate for highly utilised structures with high delay costs.

Note A2. Either the 'safe life' method (PD 6695-1-9 clause 5.2) or 'damage tolerant' method (PD 6695-1-9 [Ref 20.I] clause 5.3) should be used.

Note A3. The gross geometrical stress concentrating effects listed are not exhaustive and designers should consider other cases as appropriate.

Note A4. The clauses are not covered by Eurocodes.

Note A5. Should be used if second order analysis is not undertaken.

Note A6. If computer analysis is used designers should take these stresses into account.

Note A7. Other load effects including, but not limited to differential settlement, soil pressures and wind may need to be considered.

Note A8. The specific requirements for the design of plated diaphragms, cross frames, and for the design for torsion and distortion, are not given in Eurocodes. However, the reference clauses should provide the necessary guidance.

Note A9. Should be used where simple calculation methods without use of computer software are to be used.

Appendix C:

Status of TII Publications

The following standards have some conflict clauses with the Eurocodes which shall not be used until they are updated to be Eurocode compliant.

- DN-STR-03003 - Design of Corrugated Steel Buried Structures with Spans Greater Than 0.9 Metres and up to 8 Metres
- DN-STR-03005 - Design Criteria for Footbridges
- DN-STR-03014 - Enclosure of Bridges
- DN-STR-03017 - Strengthening of concrete bridge supports for vehicle impact using fibre reinforced polymers

Appendix D:

Project Specific Information to be Recorded in the Technical Acceptance Report and other Documentation

D1 Notes on the Specific Information to be Recorded

The information is categorised as "Core" or "Special". "Core" indicates that information should be recorded in all cases. "Special" indicates that information is only to be recorded in special cases where it is applicable to the project.

The location for the information to be recorded may be the relevant part of the TAR, or if the information does not require technical approval, then it may be recorded in the Detailed Design Documentation.

The Detailed Design Documentation may need to be passed to the checker or the contractor but is not submitted to the TII.

Specific cases for which information or assumptions should be communicated to the contractor are highlighted in the "Category" column with a reference to note [1].

It is the responsibility of the compiler of the TAR and the Detailed Design Documentation to ensure that the Standards, references, and clauses listed are relevant and up to date.

Where the information to be recorded in the TAR is not available at the time of its submission, this should be noted. The information should be added to the TAR or TAR addendum when available.

Additional Notes referenced in tables below:

1. The Designer should ensure that information or assumptions that affect the execution are communicated to the Contractor, for example, by including relevant information on the drawings.
2. The Detailed Design Documentation should be used to record decisions that affect the design of the permanent works. For the technical approval of temporary works, it is typically appropriate to record this information in the TAR instead of the Detailed Design Documentation.

D2 Tables to Record Specific Information

The following tables set out the information that should be recorded for each project.

Table D.1 I.S. EN 1990:2002+A1:2005 Eurocode – Basis of structural design

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
2.1 (4)P NOTE 1		Special project-specific accidental design events to be considered or special robustness requirements.	Special	In most cases the provisions of I.S. EN 1991-1-7 and its NA should be used. Further guidance is given in DN-STR-03013. Special requirements should be recorded in the TAR.	TAR 6.1.5. Methodology for demonstrating robustness may be given in the Detailed Design Documentation.
2.3 (1) Table 2.1	NA.2.1.1 NOTE, and Table NA.2.1	Design working life as determined for the individual project.	Core	Design working life should be as detailed in Table 7.1 of this document.	TAR 3.1
3.4 (1)P NOTE 2		Special project-specific serviceability requirements.	Special	Information only to be recorded in special cases where the serviceability requirements as set out in the relevant Eurocodes need to be supplemented.	TAR 6.6
4.1.2 (8)		Design value of project-specific accidental actions.	Special	In most cases the provisions of I.S. EN 1991-1-7 and its NA should be used. Further guidance is given in DN-STR-03013.	TAR 6.1.5
4.1.2 (9)		Design value of seismic actions.	Special	Seismic actions should not be required in Ireland except for unusual cases, e.g., large span bridges. See section 7.5 of this document. Where necessary, the approach should be based on I.S. EN 1998 and the design value should be recorded in the TAR. Guidance is provided in PD 6698.	TAR 6.1.7. Further details may be recorded in the Detailed Design Documentation.
A2.1 (1) NOTE 4		Alternative combination rules if clauses A2.2.2 to A2.2.5 are changed.	Special	Clauses A2.2.2 to A2.2.5 should be used, except in rare cases where it may be necessary to use a Departure to specify alternative requirements.	TAR 7.1

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
A2.2.1 (2) NOTE 1	NA.2.3.2	Combinations involving actions that are outside the scope of EN 1991.	Special		TAR 6.1.7 or 6.3
A2.2.1 (10) NOTE		Special requirements for snow load and wind actions to be combined with other construction loads during transient design situations.	Special[1]		TAR 6.1.6
A2.2.1 (13) NOTE		Limits on total settlement and differential settlement.	Core	(a) Limiting values of total settlement and differential settlement should be recorded in the TAR. (b) The design value of serviceability criteria for foundation movement shall be selected during the design of the bridge. NOTE: Serviceability criteria for foundation movement can include settlement, relative (or differential) settlement, rotation, tilt, relative deflection, angular distortion, deflection ratio, horizontal displacement, and vibration amplitude. See EN 1997-1. (c) Effects of foundation movements shall be considered. NOTE Settlements vary monotonically (in the same direction) with time and are relevant from the time they give rise to effects in the structure (i.e., after the structure, or a part of it, becomes statically indeterminate). In addition, in the case of a concrete structure or a structure with concrete elements, there may be an interaction between the development of settlements and the creep of concrete members. (d) Where the structure is very sensitive to foundation movements, uncertainty in the assessment of these movements should be considered.	TAR 8.5

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
				(e) Uneven settlements should be represented by a set of values corresponding to differences (compared to a reference level) of settlements between individual foundations or parts of foundations, $d_{set,i}$ (i is the number of the individual foundation or part of foundation). (f) The differences of settlements of individual foundations or parts of foundations, $d_{set,i}$, should be considered as best-estimate predicted values in accordance with EN 1997 (all parts) with due regard for the construction process of the structure. NOTE Methods for the assessment of settlements are given in EN 1997 (all parts). (g) In the absence of control measures, the permanent action representing settlements should be determined as follows: — the best-estimate predicted values $d_{set,i}$ are assigned to all individual foundations or parts of foundations; — two individual foundations or parts of an individual foundation, selected in order to obtain the most unfavourable effect, are subject to a settlement $d_{set,i} \pm \Delta d_{set,i}$, where $\Delta d_{set,i}$ takes account of uncertainties attached to the assessment of settlements.	
A2.2.1 (15) NOTE 1		Special requirements for the combination of actions for determining the magnitude of settlements.	Core	The combination of actions to be used for settlement calculations should be stated in the TAR. For most road structures the settlements may be modelled using the quasi-permanent combination of actions. However, in some cases it may be necessary to consider the effect of occasional heavy loads.	TAR 8.5[1] Further details mayalso be recorded in the Detailed Design Documentation.

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
A2.2.2 (3) NOTE		Special combination rules for special vehicles with normal traffic and other variable actions.	Special	Information to be recorded only where combination rules defined in NA to I.S. EN 1990. NA.2.3.3.2 are not used.	TAR 6.1.4
A2.2.2 (4) NOTE and A2.2.3 (3) NOTE	NA.2.3.3.3 and NA.2.3.4.2	Combination of snow loads, and group loads gr1a and gr1b.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.2
A2.2.2 (6) NOTEs and A.2.2.3 (2) NOTE	NA.2.3.3.4 and NA.2.3.4.1	Alternative simultaneity rule for wind and thermal actions, depending upon the local climatic conditions.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.2
A2.2.3 (4) NOTE	NA.2.3.4.3	Combinations of actions for footbridges on which pedestrian and cycle traffic is fully protected from all types of bad weather.	Special	It may be appropriate to specify higher values of γ for accompanying variable actions (up to 1.0) where crowds of pedestrians may shelter from bad weather in covered footbridges.	TAR 6.1.7or 6.3
A2.2.5 (2) NOTE 2		Additional combinations of actions for other accidental design situations.	Special	In most cases the provisions of I.S. EN 1991-1-7 and its NA should be used. Further guidance is given in DN-STR-03013.	TAR 6.1.5 or 6.3
A2.2.5 (4) NOTE		Additional requirements for ship impact.	Special	Some guidance on ship impact is provided in I.S. EN 1991-1-7 and its NA. Generally, the actions should be agreed on a project specific basis and recorded in the TAR.	TAR 6.1.5 or 6.3
A2.2.6 (1) NOTE 3	NA.2.3.6.3	Representative values of water forces (F_{wa}).	Special		TAR 6.1.6 or 6.1.7

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
A2.2.6 NOTE 5		Combinations of actions to be used for specific design situations.	Special	It is appropriate to use the quasi-permanent combination of actions for the calculation of bridge camber for aesthetics and drainage considerations. Otherwise, or for any other special design situations, the requirements should be recorded in the TAR.	TAR 6.1.7
A2.3.1 (1) and Table A2.4 (A), (B) and (C)	NA.2.3.7.1 and Tables NA.8, NA.9 and NA.10 NOTE 2*	Method for determining design actions dependent on the level of water.	Special	Where relevant, the approach to be used should be defined in the TAR. Where a partial factor approach is proposed, the values should be justified.	TAR 6.1.7
A2.3.1 (1) and Table A2.4 (A), (B) and (C)	NA.2.3.7.1 and Tables NA.8, NA.9 and NA.10 NOTE 4*	Partial factors for all other actions, not covered in NOTES 1* to 3*.	Special		TAR 6.1.7or 6.3
A2.3.1 (1) and Table A2.4 (A), (B) and (C)	NA.2.3.7.1 and Tables NA.8, NA.9 and NA.10 NOTE 7*	Partial factors for actions involving aerodynamic effects of wind on bridges.	Special	Aerodynamic effects on bridges are covered by PD 6688-1-4 Annex A. PD 6688-1-4 Annex A (excluding A.1.5.2 and A.1.5.3) is treated as a default means of compliance in Appendix B of this document.	Where special partial factors are to be used these should be defined in the TAR 6.3. It may be appropriate to record further details of the methodology in the Detailed Design Documentation.

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
A2.3.1 (1) and Table A2.4 (A)	NA.2.3.7.1 and Table NA.8 NOTE 9	Special partial factors for verifications sensitive to spatial variations in the magnitude of actions and the resistance of structural elements or the ground.	Special	For verifications that are sensitive to special variations in the magnitude of actions and the resistance of structural elements or the ground, the partial factors should be recorded in the TAR. Guidance is provided in *Denton & Gulvanessian*	TAR 6.1.1 or 6.1.6, or TAR 6.3 if the approach given in *Denton and Gulvanessian* is not used.
A2.3.1 (1) and Table A2.4 (B) and (C)	NA.2.3.7.1 and Tables NA.9 and NA.10 NOTEs 9	Approach for partial factors and model uncertainty factor, and values to be used.	Special	In most cases it should be appropriate to use the values of γ_G (or γ_Q) without subdivision into γ_g (or γ_q) and γ_{Sd}. Where it is proposed to subdivide γ_G and γ_Q the values of the factors should be stated in the TAR for Set B and Set C.	TAR 6.1.7
A.2.3.1 (7)	NA.2.3.7.3	General and local scour depths, special requirements for actions on bridge piers in a waterway.	Special	Record values in the TAR.	TAR 6.1.7or 6.3
A.2.3.1 (8)	NA.2.3.7.4 and Tables NA.8, NA.9 and NA.10	γ_p values for prestressing actions.	Special	In the case where γ_P values forprestressing actions are not provided in the relevant designEurocodes, these values should be determined for the individual project and recordedin the TAR.	TAR 6.3
A2.3.2 (1) and Table A2.5 - (***)	NA 2.3.8.1 and Table NA.11 – b)	Specification of particular seismic design situations.	Special	TAR 6.1.7 should record whether the seismic design situation is to be used and specify any seismic design situations, see also section 7.5 of this document.	TAR 6.1.7

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
A2.3.2 (2) NOTE		Special requirements to combine variable construction loads with accidental actions.	Special[1]	As an example, some construction loads may act simultaneously with the action corresponding to the accidental fall of a prefabricated unit. This may be particularly important for bridges built by the cantilever method.	Values to be recorded in TAR 6.1.6. Further details may be recorded in the Detailed Design Documentation[2] if appropriate.
A2.4.1 (2) NOTE	NA 2.3.9.2	Project-specific serviceabilityrequirements.	Special	Information only to be recordedwhere the serviceability requirements as set out in the relevant Eurocodes need to be supplemented.	TAR 7.1
A2.4.3.1 (1) NOTE		Project-specific design situations relating to the control of pedestrian traffic.	Special	Generally, the provisions of I.S. EN 1990, I.S. EN 1991-2 and their NAs should be used. Any special provisions should be recorded in TAR 6.1.4.	TAR 6.1.4
A2.4.3.1 (3) NOTE 1		Definition of traffic categories and the relevant design situations.	Special	Generally, the provisions of I.S. EN 1990, I.S. EN 1991-2, and their NAs should be used. Any special provisions should be recorded TAR 6.1.4.	TAR 6.1.4
Annex B	NA.3.1	Consequence class.	Core	See Table 7.2 of this document.	TAR 4.9
Annex C	NA.3.2	Use of probabilistic methods.	Special	In most cases it should not be necessary to use probabilistic methods. In special cases where probabilistic methods are proposed, the methodology should be fully defined in the TAR.	TAR 7.1

**For Table NA.9, increase in one the number of the note.*

Table D.2 I.S. EN 1991-1-1:2002 Eurocode 1: Actions on structures. General actions - Densities, self-weight, imposed loads for buildings

I.S. EN clause	National Annex clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
4.1 General (1) NOTE		Definition of selected values of densities when a range is given in the table in Annex A.	Core	Where a particular value of density is to be used for a project, this should be recorded. Where there is no specific requirement the range in Annex A of I.S. EN 1991-1-1 should be used.	TAR 6.1.1
4.1 General (2)		Characteristic densities for materials not covered in Annex A of I.S. EN 1991-1-1.	Special	Where non-standard materials are proposed the characteristic densities should be recorded in the TAR.	TAR 6.1.1
5.2.3 (1)	NA 2.2	Range of values to be assumed for the self-weight of fill and ballast.	Core	The upper and lower values for density should be recorded in the TAR considering changes in properties over time.	TAR 6.1.1

Table D.3 I.S. EN 1991-1-3:2003 Eurocode 1: Actions on structures. General actions - Snow loads

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
1.5		Use of tests and/or numerical methods to determine snow loads.	Special	Where it is proposed that the design snow loads should be based on tests or numerical methods, these should be agreed in a departure. In most cases where snow loading is required, the methods of I.S. EN 1991-1-3 should be appropriate.	TAR 6.1.2
4.1 (1) NOTE 1		Unusual local conditions influencing snow loads.	Special	If the characteristic snow load is to be altered to account for unusual local conditions, this should be agreed in a departure. In most cases where snow loading is required, the methods of I.S. EN 1991-1-3 should be appropriate.	TAR 6.1.2

Table D.4 I.S. EN 1991-1-5:2003 Eurocode 1: Actions on structures. General Actions - Thermal actions

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
6.1.1 (1) NOTE 2	NA.2.2.1 (2nd sentence)	Thermal actions for types of bridges not covered in I.S. EN 1991-1-5.	Special	For bridge types not covered by I.S. EN 1991-1-5, the uniform temperature component and temperature difference component should be recorded in the TAR.	TAR 6.1.2 or 6.3
6.1.2 (2)	NA.2.3	Selection of Approach for thermal actions.	Special	Generally, Approach 2 should be used to determine the actions. If Approach 1 is proposed, this should be agreed and recorded in the TAR.	TAR 6.1.2
6.1.4 (3)	NA.2.7	The initial temperature difference at the closure of cantilever construction.	Special[1]	The initial temperature difference at the closure of cantilever construction should be recorded if relevant to the project.	TAR 6.1.2 or Detailed Design Documentation[2]

Table D.5 I.S. EN 1991-1-6:2005 Eurocode 1: Actions on structures. General actions. Actions during execution

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
1.1 (1) NOTE 2		Rules concerning the safety of people in and around the construction site.	Core[1]	Safety risks during execution, maintenance operation and demolition should be recorded in the TAR.	TAR 4.2 and 4.3
1.1 (3)	NA.2.1	Design rules for auxiliary construction works.	Special[1]	Define design rules to be used in the Detailed Design Documentation.	Detailed Design Documentation[2]
2.2 (3) NOTE		Tolerances for position of "fixed" construction loads.	Special[1]		Detailed Design Documentation[2]
2.2 (4) NOTE 1	NA.2.2	Limits of movement for "free" construction loads.	Special[1]		Detailed Design Documentation[2]
3.1 (5) NOTE 1	NA.2.4	Return periods for the determination of the characteristic values of variable actions during execution.	Special[1]	Record the return periods in the TAR where the recommended values are not used.	TAR 6.1.6
3.1 (5) NOTE 2	NA.2.4	Minimum wind velocity during execution.	Special[1]	Record the minimum wind speed where the recommended minimum value is not used.	Detailed Design Documentation[2]
3.1 (7)	NA.2.5	Rules for combination of snow loads and wind actions with construction loads.	Special[1]	Any special combination rules should be recorded in the Detailed Design Documentation	Detailed Design Documentation[2]
3.1 (8) NOTE 1	NA.2.6	Imperfections in the geometry of the structure and of structural members.	Special[1]	Where the structure is sensitive to geometric imperfections during execution, the assumed values should be recorded in the Detailed Design Documentation. 3.1 (8) NOTES 1 and 2 provide further references.	Detailed Design Documentation[2]
3.1 (12) NOTE		Scour levels for construction works in flowing water.	Special[1]	For long construction phases it should be appropriate to consider the levels of scour that may develop around construction works. The approach should be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
3.3 (2)	NA.2.7	Criteria associated with serviceability limit states during execution.	Core[1]	The serviceability criteria to be used during execution should be defined in the TAR.	TAR 6.1.6
3.3 (5) NOTE		Combinations of actions for transient design situations during execution.	Special[1]	The combinations of actions for transient design situations during execution are usually the characteristic combination and the quasi-permanent combination. Where itis necessary to consider frequent values of particular actions during execution these should be agreed and recorded in the TAR.	TAR 6.1.6
3.3 (6)	NA.2.8	Serviceability requirements for auxiliary construction works.	Special[1]	The criteria should be defined in the Detailed Design Documentation.	Detailed Design Documentation[2]
4.1 (5) NOTE		Loads associated with friction.	Special[1]	Where it is necessary to consider loads arising from friction effects the assumed friction coefficients should be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]
4.4 (1) NOTE		Prestressing forces during execution.	Special[1]	Where there are specific requirements for the prestressing forces during execution these should be recorded in the TAR.	TAR 6.1.6
4.7 (1) NOTE		Dynamic response procedure for wind actions in the execution stages.	Special[1]	The criteria and procedures for considering the dynamic response associated with wind actions during the execution stages should be recorded in the Detailed Design Documentation or the TAR.	Detailed Design Documentation[2] or TAR 6.1.6
4.7 (3) NOTE		Maximum wind speed for lifting and moving operations or other construction phases that are of short duration.	Special[1]	Limiting wind speeds should be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]
4.9 (2) NOTE		Classification of actions caused by water as permanent or variable actions.	Special[1]	The approach for modelling water actions should be recorded in the Detailed Design Documentation	Detailed Design Documentation[2]

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
4.9 (4) NOTE 1		Hydrodynamic forces.	Special[1]	The approach of Expression (4.1) may be used to check the stability of bridge piers and cofferdams subject to hydrodynamic forces. Where a more refined approach is used this should be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]
4.9 (5) NOTE 1		Debris forces.	Special[1]	The approach of Expression (4.2) may be used to check the stability of bridge piers and cofferdams subject to debris forces. Where an adjusted method is proposed, this should be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]
4.9 (6) NOTE 2	NA.2.9	Loads and water levels associated with actions due to ice, including floating ice.	Special[1]	Record the levels in the Detailed Design Documentation	Detailed Design Documentation[2]
4.10 (1)P	NA.2.10	Representative values of the actions due to atmospheric icing.	Special[1]	Representative values should be defined in the Detailed Design Documentation.	Detailed Design Documentation[2]
4.11.1 General (1) NOTE 2		Load groups for construction loads.	Special[1]	The construction-load groupings considered for design should be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]
Table 4.1 NOTE 1,3,4	NA.2.11	Representation of construction loads.	Special[1]	Information to be recorded only where recommended values are not used.	Detailed Design Documentation[2]
4.12 (1)P NOTE 2	NA.2.13	Dynamic effects due to accidental actions.	Special[1]	Record where recommended values or approaches are not used.	Detailed Design Documentation[2]
4.12 (2)	NA.2.14	Dynamic effects due to falls of equipment.	Special[1]	Values to be recorded in the Detailed Design Documentation.	Detailed Design Documentation[2]

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
4.13 (2)	NA.2.16	Seismic actions.	Special	Where seismic actions are required, define the design values for ground acceleration and the importance factor (See I.S. EN 1998).	Detailed Design Documentation[2]
A1.3 (2)	NA.2.18	Characteristic values of equivalent horizontal forces.	Special[1]	Record where recommended values or approaches are not used.	Detailed Design Documentation[2]
A2.3 (1) NOTE 1	NA.2.19	Design values of vertical deflections for the incremental launching of bridges.	Special[1]	Record where recommended values or approaches are not used.	Detailed Design Documentation[2]
A2.4 (2)	NA.2.20	Reduction of the characteristic value of snow loads.	Special[1]	Record where recommended values or approaches are not used.	Detailed Design Documentation[2]
A2.5 (2)	NA.2.22	Design values of horizontal friction forces.	Special[1]	Record where recommended values or approaches are not used.	Detailed Design Documentation[2]
A2.5 (3) NOTE 1	NA.2.23	Friction coefficients μ_{min} and μ_{max}.	Special[1]	Record where recommended values or approaches are not used.	Detailed Design Documentation[2]
Annex B	NA.3	Actions on structures during alteration, reconstruction or demolition.	Special[1]	Information to be recorded only where Annex B is used.	TAR 6.1.6

Table D.6 I.S. EN 1991-1-7:2006+A1:2014 Eurocode 1: Actions on structures. General Actions - Accidental actions

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
2 (2)	NA.2.1	Classification of accidental actions	Special	Define the treatment of any accidental actions which are not free actions.	Detailed Design Documentation
3.4 (2) Note	NA.2.8	Design approach for accidental actions on structures with higher or lower consequence classes.	Special	The design approach for accidental actions on structures with higher (CC3) or lower (CC1) consequence classes should be defined in the TAR. The recommended accidental actions should be used. If the recommended accidental actions are not used, the approach should be defined in the TAR.	TAR 6.1.5
4.6.1 (3) Note 1	NA.2.33	Classification of ships to be considered for design of ship impact.	Special	The classification to be used should be recorded in the TAR.	TAR 6.1.5
4.6.2 (1) Note	NA.2.34	Dynamic forces due to impact from river and canal traffic.	Special	The values of dynamic forces to be considered should be recorded in the TAR.	TAR 6.1.5
4.6.2 (3) Note 1	NA.2.36	Position and area of impact force.	Special	The position and area of the impact should be recorded in the TAR.	TAR 6.1.5
4.6.2 (4) Note	NA.2.37	Impact forces on bridge decks from ships.	Special	The values of equivalent static forces to be considered should be recorded in the TAR.	TAR 6.1.5
4.6.3 (1) Note	NA.2.38	Dynamic impact forces from seagoing ships.	Special	The values of frontal and lateral dynamic impact forces to be considered should be recorded in the TAR.	TAR 6.1.5
4.6.3 (4)P Note	NA.2.40	Area and position of impact force for seagoing ships.	Special	The limits on area and position should be recorded if the recommended indicative values are not used.	TAR 6.1.5
4.6.3 (5) Note 1	NA.2.41	Forces on superstructure for seagoing ships.	Special	The force to be considered should be recorded in the TAR.	TAR 6.1.5

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
5.3 (1)P Note	NA.2.42	Internal explosions in road tunnels.	Special	The design requirements for explosions should be defined in the TAR.	TAR 6.1.5
B.5 (4) 2nd paragraph	NA3.2	Risk-acceptance levels for risk assessments.	Special	Information to be recorded only if recommended values or methods are not used.	TAR 6.1.5

Table D.7 I.S. EN 1991-2:2003 Eurocode 1: Actions on structures. Traffic loads on bridges

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
2.3 (1)	NA.2.3	Protection against collision from road and rail traffic.	Special	Where protection is provided, the requirements should be defined in the TAR. Refer to DN-REQ-03034.	TAR 6.1.5
3 (5)	NA.2.5	Bridges intended for both road and rail traffic.	Special	The requirements and load models should be defined in the TAR.	TAR 6.3
4.1 (2)	NA.2.7	Weight-restricted bridges	Special	For weight restricted bridges the load models to be used in design should be defined in the TAR.	TAR 6.1.3
4.2.1 (1)	NA.2.8	Complementary load models for traffic outside the scope of the load models in EN 1991-2.	Special	Where complementary load models are required, these should be defined in the TAR.	TAR 6.1.7 or 6.3
4.2.1 (1) NOTE 3		Dynamic amplification factor.	Special	Where it is necessary to use a higher dynamic amplification factor than those in the load models then this should be recorded in the TAR.	TAR 6.1.3
4.2.1 (2)	NA.2.9	Complementary load models for special vehicles.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.7 or 6.3
4.2.3 (4) NOTE		Divisions of the carriageway into notional lanes.	Special	Where the standard rules given in 4.2.3 (4) is to be adjusted, this should be recorded in the TAR.	TAR 6.1.3
4.3.4 (1)	NA.2.16 (2nd paragraph)	Definition of the particular model vehicles to be used.	Core	Advice is given in section 7.3 of this document.	TAR 6.1.4
4.3.5 (1) NOTE		Special rules for the application of LM4, crowd loading.	Special		TAR 6.1.4

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
4.6.1 (2) NOTE 1		Fatigue load models, horizontal forces.	Special	Where horizontal forces (e.g., centrifugal actions) need to be included for fatigue, this should be recorded in the TAR.	TAR 6.1.7
4.6.1 General (2) NOTE 4		Modification of Fatigue Load Models 1 and 2.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.7
4.6.2 (1) NOTE		Non-application of the UDL component of Fatigue Load Model 1.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.7
4.6.4 (3)	NA.2.25	Conditions of application for two Fatigue Load Model 3 vehicles in the same lane.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.7 or 6.3
4.6.1 (2) Note 2(e), 4.6.5 (1) Note 2	Table NA.5	Specific vehicle axle arrangements for Fatigue Load Model 4.	Special	Specific vehicle axle arrangements for FLM4 should be defined in the TAR.	TAR 6.1.7
4.7.3.4 (1)	NA.2.33	Nominal vehicle collision forces on structural members.	Special	Where required, nominal vehicle collision forces should be defined in the TAR. Information to be recorded only where vehicle collision forces in accordance with I.S. EN 1991-2 4.7.2.1 and NA.2.28 are not used.	TAR 6.1.5
4.7.3.4 (2) NOTE		Collision forces on intermediate members where damage would not cause collapse.	Special	Where smaller collision forces are proposed these should be agreed and recorded in the TAR. Information only to be recorded where standard values are not used.	TAR 6.1.5
4.8 (1) Note 2	NA.2.34	Actions on pedestrian parapets - class of pedestrian parapet.	Core	Parapet class to be determined and recorded in the TAR.	TAR 3.3.8

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
4.8 (2) NOTE		Actions on pedestrian parapets – criteria for parapets being protected from impact.	Special	Requirements for the protection of parapets from collision should be defined in the TAR.	TAR 3.3.8
5.1 (2) NOTE 2		Complementary load models for large footbridges.	Special	Where complementary load models are required, these should be defined in the TAR. Information to be recorded only where recommended values or methods are not used.	TAR 6.1.4
5.2.1 (1) NOTE 1		Define loads due to horses or cattle.	Special	Where complementary load models are required, these should be defined in the TAR.	TAR 6.1.7 or 6.3
5.6.1 (1) NOTE		Define other collision forces.	Special	Information to be recorded only where recommended values or methods are not used.	TAR 6.1.7 or 6.3
5.6.3 (2)	NA.2.45	Alternative load model characteristics for accidental vehicle.	Special	Where complementary load models are required, these should be defined in the TAR. Information to be recorded only where recommended values or methods are not used.	TAR 6.1.5
5.7 (3)	NA.2.46.1 (3rd paragraph)	Unusual dynamic pedestrian loads.	Special	Special requirements, e.g., to account for mass gatherings, deliberate pedestrian synchronisation or vandal loading should be defined in the TAR if required.	TAR 6.1.4
5.7 (3)	NA.2.46.2 (2)	Crowd loading densities.	Special	Crowd loading densities should be recorded in the TAR.	TAR 6.1.4
5.7 (3)	NA.2.46.2 (3)	Application of jogging cases for dynamic actions.	Special	Where jogging cases may be neglected, this should be stated in the TAR. Information to be recorded only where recommended values are not used.	TAR 6.1.4

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
5.7 (3)	NA.2.46.5 (3)	Alternative dynamic models.	Special	Information to be recorded only where recommended values are not used.	TAR 6.1.4
5.7 (3)	Tables NA.9 to NA.11	Vibration serviceability limits - factors k_1, k_2, and k_3.	Special	Record values of k_1, k_2 and k_3	TAR 7.1
5.7 (3)	NA.2.46.6 (1) & (2)	Vibration serviceability limits - exposure factor k_4.	Special	Record value of exposure factor k_4	TAR 7.1
5.7 (3)	NA.2.46.6 (2) 2nd paragraph	Vibration serviceability limits.	Special	Where the vibration serviceability limits are to be relaxed for the project, this should be recorded in the TAR, based on a suitable risk assessment.	TAR 7.1
5.9 (1) NOTE 2		Load model for abutments and walls adjacent to bridges.		Information to be recorded only where recommended values or methods are not used.	TAR 6.1.7

Table D.8 I.S. EN 1992-1-1:2004+A1:2014 Eurocode 2: Design of concrete structures – Part 1-1: General rules and rules for buildings & I.S. EN 1992-2:2005 Eurocode 2: Design of concrete structures – Part 2: Concrete bridges – Design and detailing rules

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
4.4.1.2 (7)	Table NA.1 4.4.1.2 (7)	Reduction in minimum cover for stainless steel or other special measures.	Special[1]	The value and justification for $\Delta c_{dur,st}$ to be recorded only where the recommended value is not used.	TAR 3.3.14
4.4.1.2 (8)	Table NA.1 4.4.1.2 (8)	Reduction in minimum cover for concrete with additional protection.	Special[1]	The value and justification for $\Delta c_{dur,add}$ to be recorded only where the recommended value is not used.	TAR 3.3.14
4.4.1.3 (3)		Reduction in Δc_{dev}	Special[1]	Record the value of Δc_{dev} where a value less than 10 mm is proposed, and provide justification.	TAR 3.3.14
5.6 (101) P		Use of plastic analysis.	Special	Plastic analysis should not be used for the design of concrete bridges. Where plastic analysis is proposed it should be agreed with the TII and recorded in the TAR. See also PD 6687-2 6.5.	TAR 7.1
5.7 (105)	Table NA.1 5.7 (105)	Method for non-linear analysis and safety format.	Special	The use of non-linear analysis should be recorded in the TAR. Details of the method of non-linear analysis and the safety format should be described in the Detailed Design Documentation. Guidance is provided in the National Annex.	TAR 7.1 and Detailed Design Documentation
5.8.5		Choice of method of analysis for second order effects with axial load.	Special	Where the design requires an analysis of second order effects with axial load, the designer should record the method of analysis used in the Detailed Design Documentation:(i) General method (5.8.6) (ii) Simplified method based on nominal stiffness (5.8.7) (iii) Simplified method based on nominal curvature (5.8.8)	Detailed Design Documentation
5.10.6 & Annex D		Approach for time dependent losses.	Special	If Annex D has been used in place of the simplified method in 5.10.6 this should be recorded in the Detailed Design Documentation.	Detailed Design Documentation

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
6		Method for verifying ULS resistance.	Special	ULS resistance should be verified using the standard member resistance rules in 6.1 to 6.3, or other methods including Annex LL or the strut and tie rules in 6.5. The methods used to verify ULS resistance should be recorded in the Detailed Design Documentation.	Detailed Design Documentation
6.1 (109)		Method of avoiding brittle failure of prestressing tendons.	Special	The method used ((a), (b), or (c) in 6.1 (109)) should be recorded in the Detailed Design Documentation.	Detailed Design Documentation
6.2.4 (105)		Longitudinal shear with transverse bending– check of concrete crushing.	Special	If it is necessary to use the method of Annex MM then this should be recorded in the Detailed Design Documentation.	Detailed Design Documentation
6.8.7		Concrete Fatigue verification method.	Core	The fatigue verification of concrete under compression may be achieved using either the simple method in 6.8.7 (2) or the method in 6.8.7 (1). The choice of method should be recorded in the Detailed Design Documentation	Detailed Design Documentation
9.8.3 (2)	Table NA.1 9.8.3 (2)	Minimum downward load for tie beams.	Special	The minimum downward load should be determined for the project and recorded in the TAR.	TAR 6.1.6
Annex KK	NA.3.10	Method for modelling structural effects of time-dependent behaviour of concrete.	Special	Annex KK contains alternative methods, in KK.3, KK.4, KK.5 and KK.6. The choice of method should be recorded in the Detailed Design Documentation.	Detailed Design Documentation

Table D.9 I.S. EN 1993-1-1:2005+A1:2014 Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
5.2.1 and 5.2.2		Method of analysis for second-order effects with axial load.	Special	Where the design requires an analysis of second-order effects with axial load, this should be recorded in the TAR. Details of the method of analysis, including how initial imperfections are considered should be recorded in the Detailed Design Documentation.	TAR 7.1 and Detailed Design Documentation

Table D.10 I.S. EN 1993-1-5:2006+A1:2017+A2:2019 – Design of steel structures – Part 1-5: Plated structural elements

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
2.4		Use of the reduced stress method.	Special	Where the Designer proposes the use of the reduced stress method, appropriate details should be recorded in the Detailed Design Documentation.	Detailed Design Documentation.
9.2.1 (8)		Torsional buckling of stiffeners with open cross-sections.	Special	Where the Designer proposes the use of advanced analysis methods, the approach should be recorded in the Detailed Design Documentation.	Detailed Design Documentation.
C.6 (2)		Non-linear analysis of plates – stress-strain curve.	Special	Where the use of non-linear analysis of plated elements is proposed, the stress-strain relationship used for the analysis should be clearly set out in the TAR.	TAR 7.1 and Detailed Design Documentation
C.8		Additional limit-state criteria for FE analysis.	Special	Where a project-specific limit-state criterion is required (e.g., attainment of yield criterion or limitation of the yielding zone), appropriate details should be recorded in the TAR.	TAR 7.1

Table D.11 I.S. EN 1993 -1-8:2005 –Design of steel structures – Part 1-8: Design of joints

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
				No specific requirements.	

Table D.12 I.S. EN 1993 -1-9:2005 – Design of steel structures – Part 1-9: Fatigue

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
3 (1)		The use of the damage tolerant approach to fatigue verification.	Special	The safe life approach to fatigue verification should be adopted. Where the use of the damage tolerant approach is proposed it should be recorded in the TAR and all necessary details, including relevant material partial factors should be recorded in the Detailed Design Documentation.	TAR 6.1.7 and Detailed Design Documentation
7.1 (5)	NA.2.10	The use of fatigue strength categories not covered by Tables 8.1 to 8.10 or Annex B.	Core	The form and detailing of the structure should be such that all structural details are within the scope of coverage of I.S. EN 1993-1-9.	-
A.3		Stress cycle counting procedure.	Special	The use of a cumulative damage approach for the assessment of specific, critical details should be agreed with TII and recorded in the TAR (or an TAR addendum). PD 6695-1-9 provides information on the reservoir method of stress cycle counting.	TAR 6.1.7 and Detailed Design Documentation

Table D.13 I.S. EN 1993-1-10:2005 – Design of steel structures – Part 1-10: Material toughness and through-thickness properties

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
2.2 (3)		Evaluation of fracture toughness using fracture mechanics.	Special	The form and detailing of the structure should be such that all structural details are within the scope of coverage of I.S. EN 1993-1-9. Where alternative methods are proposed it should be recorded in the TAR and full details of the approach to be adopted, including any testing that may be required, should be set out in the Detailed Design Documentation.	TAR 3.3.14 and Detailed Design Documentation

Table D.14 I.S. EN 1993-1-11:2006 – Design of steel structures – Part 1-11: Design of structures with tension component

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
2.2 (2) Note and 5.3 (2)		Interaction between gravity loads (G) and prestress (P).	Special	The method for considering the interaction between gravity loads and prestress actions and the relevant values of the partial factors to be used should be stated in the TAR.	TAR 7.1
2.3.6 (1)	NA.2.1	Replacement of tension components.	Special	During replacement of tension components, all elements of the structure should satisfy the relevant SLS and ULS requirements without any restrictions to traffic or other imposed loads. If restrictions to traffic and other imposed loads are considered, the restrictions measures should be agreed with TII and recorded in the TAR.	TAR 3.3.12
2.3.6 (2)	NA.2.2	Accidental loss of tension components.	Special	Unless specified otherwise for specific projects, structures should be designed to accommodate the loss of any one hanger, stay without any restrictions to traffic or other imposed loads. The structure should be designed to satisfy all ULS requirements in the accidental combination, including the dynamic effect of cable removal.	TAR 4.3
3.1 (1) Note 6	NA.2.4	Strength of steel wires.	Special	At present there is no limit to the maximum value for f_u. However, ongoing research might find that extra high-strength wire is more susceptible to premature failure. Wires of tensile strengths greater than the recommended maximum value should be agreed and specified in the TAR	TAR 3.3.14
4.4 (2) Note 1	NA.2.5	Cables with stainless-steel wires and terminations without additional corrosion protection.	Special	The corrosion resistance class for the stainless steel should be recorded in the TAR.	TAR 3.3.14

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
5.3 (2)	NA.2.8	Persistent design situation during service	Special	Combination of P and G into a single action (G + P) is not appropriate for cable-stayed bridges with stiff decks, externally post-tensioned bridges and guyed towers and masts, because normal site monitoring of deflections and adjustment of cables will be insufficient to guarantee that there is no significant unintended imbalance between G and P. These structures are therefore not within the scope of IS EN 1993-1-11 5.3. If the rules of IS EN 1993-1-11 are applied to such structure types, it is suggested that the actions P and G should have partial factors applied to them separately as required in 5.2 (3). In such cases, the values of G and P that are to be used should be given in the TAR.	TAR 6.4
A.4.5.1	NA.3.2	Waterproofing	Special	The tension components should be tested for watertightness in accordance with article 11.3 of *SETRA Cable Stays* unless an alternative test is specified in the Project Specification.	TAR 3.3.9

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
B (6) NOTE	NA.3.3	Transport, storage, handling	Special	Monitoring might be required to confirm that the design assumptions, such as final forces in tension components and vibration of tension components due to wind, rain, and traffic, have been met in the completed structure. The TAR should specify the required monitoring regime and its duration. Details of maintenance procedures should be provided which should include at least: • Procedures for minor and major maintenance operations expected during the design lifetime of the tension components. • The replacement procedure for a tension component in accordance with the design assumptions made in the TAR.	TAR 3.3.11

Table D.15 I.S. EN 1993-1-12:2007 – Design of steel structures – Part 1-12: Additional rules for the extension of EN 1993 up to steel grades S 700

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
2.8 (4.2(2) NOTE)	NA.2.5	Additional rules to EN 1993-1-8	Special	The required strength class of electrodes should be specified for the individual projects.	Detailed Design Documentation

Table D.16 I.S. EN 1993-2:2006 Eurocode 3 - Design of steel structures - Part 2: Steel bridges

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
2.1.3.4 (1)		Robustness and structural integrity.	Core	Components which need to be designed for accidental design situations should be identified in the TAR and the design approach to be adopted should be detailed in the Detailed Design Documentation.	TAR 6.1.5 and Detailed Design Documentation
3.4 (1)	NA.2.9	Cables and other tension elements	Special	Project Specification to specify the types of cable which are deemed to satisfy the requirements for durability	TAR 3.3.13
4 (4)	NA.2.14	Elements that cannot be inspected.	Core	Where the use of elements with surfaces that cannot be inspected is unavoidable, details of the measures to be taken to ensure their durability over their design life should be recorded in the TAR.	TAR 3.3.14
5.4.1 (1)	NA.2.16	Use of plastic analysis.	Special	Plastic analysis should not be used for the design of steel bridges. Where plastic analysis is proposed it should be agreed with the TII and recorded in the TAR.	TAR 7.1
6.3.2.3 (1)	NA.2.20	Derivation of the elastic critical buckling moment for lateral torsional buckling (M_{cr}).	Special	Where the Designer intends to use FE modelling to derive values of M_{cr} the Designer should record the method of analysis used in the TAR.	TAR 7.1
8.2.1.5 (1)		Use of plug welds.	Special1	The use of plug welds should be avoided. Where their use is proposed it should be agreed with the TII and recorded in the TAR.	TAR 3.3.14

Table D.17 I.S. EN 1993-5:2007 – Design of steel structures – Part 5: Steel piling

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
4.1 (6)		Design working life of steel pile elements.	Special	The design working life for steel piling elements should be recorded in the TAR and should be at least equal to that of the structure.	TAR 3.1
4.1 (8)		Corrosion protection system.	Special	Details of the corrosion protection systems for steel pile elements should be recorded in the TAR.	TAR 3.3.14
5.5.1 (4)		Driving imperfections for combined walls.	Special	The magnitude of imperfections resulting from execution considered during the design should be recorded in the TAR.	TAR 7.1

Table D.18 I.S. EN 1994-2:2007 – Design of composite steel and concrete structures – Part 2: General rules and rules for bridges

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded, if applicable to the project
5.4.2.8 (4)		Effect of tension stiffening.	Special	The design method to be adopted for composite elements subjected to tension effects should be set out in the Detailed Design Documentation.	Detailed Design Documentation
5.4.2.9(3)		Account of deformations in filler beam decks	Special	Record the chosen method	Detailed Design Documentation
6.2.2.3 (2)		Elastic bending strength for Class 4 sections	Special	Record if more accurate analysis is used	Detailed Design Documentation
6.3.4 (2)		Distribution of vertical shear	Special	Record if more accurate analysis is used	Detailed Design Documentation
6.7.1 (6)		Composite compression members with bending and axial force	Special	Record the chosen method	Detailed Design Documentation

Table D.19 NA:2015 to I.S. EN 1997-1:2004 National Annex to Eurocode 7: Geotechnical design – Part 1: General rules

I.S. EN clause	National Annex Clause	Description	Category	Comment or requirement	Where recorded if applicable to the project
2.4.7.3.4.1 (1)	NA.2	Design approach	Core	The design approach chosen should be recorded in the TAR.	TAR 7.1
Annex A	NB.2 and NB.3.1	Actions and partial factors on actions for which no values are set in I.S. EN 1990.	Special	Record in the TAR values of actions, partial factors and combination factors for actions for which no values are set in the NA.	TAR 6.1.7 or 6.3
Annex H	NA.3	Limiting values of structural deformation and foundation movement.	Core	Limiting values of structural deformations and foundation movements should be recorded in the TAR. See also I.S. EN 1990 A2.2.1 (13) and (15).	TAR 6.6

Bonneagar Iompair Éireann
Transport Infrastructure Ireland

Ionad Ghnó Gheata na Páirce,
Stráid Gheata na Páirce,
Baile Átha Cliath 8, D08 DK10, Éire

Parkgate Business Centre,
Parkgate Street,
Dublin 8, D08 DK10, Ireland

www.tii.ie

info@tii.ie

+353 (01) 646 3600

+353 (01) 646 3601