Manual of Contract Documents for Highway Works

Geotechnics
Contract preparation

CP 605 Instructions for specifiers for CC 605 Corrugated Steel Buried Structures (formerly Series 2500 Cl.2501)

Version LIVE_2024-09-26

The 'SUMMARY' field is missing from the Document Information. Please populate this field before publication.

Feedback and Enquiries
Users of this document are encouraged to raise any enquiries and/or provide feedback on the content and usage of this document to the dedicated National Highways team. The online feedback form for all enquiries and feedback can be accessed at: www.standardsforhighways.co.uk/feedback.

This is a controlled document.

Contents

4. 2. Normative references

Latest release notes

Document Code	Version number	Date of publication of relevant change	Changes made to	Type of change
CP 605	LIVE_2024-09-26	Not available	Core document, England NAA, Northern Ireland NAA, Scotland NAA, Wales NAA	Change to policy, major revision, new document development
MCHW Series NG 2500, Clause NG 2501:Corrugated Steel Buried Structures has been re-written to make it compliant with the new National Highways drafting rules.				

Previous versions

Document Code	Version number	Date of publication of relevant change	Changes made to	Type of change

Foreword

This document provides specifier instructions for the production of the works specific requirements for CC 605 Corrugated Steel Buried Structures (formerly Series 2500 Cl.2501).

This document does not form part of the works specification.

The works specification is made up of both the Specification for Highway Works and the works specific requirements completed by the Specifier.

This document is applicable for contracts throughout the UK, complemented by the additional specification requirements and contractual changes of each Overseeing Organisation.

Users are responsible for applying all appropriate documents applicable to their contract.

Users are responsible for archiving contract documentation in accordance with the user's quality management system.

1. Corrugated steel buried structures

General requirements for corrugated steel buried structures

1.1 Straight section corrugated steel buried structures of clear span or internal diameter exceeding 0.9 m shall be in accordance with the requirements of this document.

1.2 The location and general arrangement of the corrugated steel buried structure shall be as stated in CC 605/WSR/001.

The location and general arrangement of the corrugated steel buried structure		
structure number	**drawing/model number**	**drawing/model title**
(a)	(b)	(c)

1. *Enter a unique reference.*
2. *Enter a unique reference.*

3. *Enter text, to identify the drawing/model title.*

Contractor-design of corrugated steel buried structures

1.3 The Contractor-design items shall be as stated in CC 605/WSR/001.

SI.1.3a The Contractor-design items shall be; [enter free text].

SI.1.3b The following site specific constraints apply; [enter free text].

1.4 The design of corrugated steel buried structures shall be in accordance with CD 375 [Ref 1.N].

1.5 The design of corrugated steel buried structures shall be in accordance with CC 605/WSR/001.

1.6 The requirements for "Technical approval of highway structures" in Section 18 of GC 101 [Ref 3.N] shall apply to the design of corrugated steel buried structures.

1.7 The requirements for "Contractor design" in Section 17 of GC 101 [Ref 3.N] shall apply to the design of corrugated steel buried structures.

1.8 The following Documentation shall be submitted for approval and be approved prior to the commencement of the works: 1. CG 300 [Ref 9.N] Approval in Principle, 3. CG 300 [Ref 9.N]Design and Check Certificate, 3. CD 622 [Ref 4.N] Geotechnical Design Report.

1.9 The requirements for "Documentation" in Section 2 of GC 101 [Ref 3.N] shall apply to the documentation for corrugated steel buried structures.

Product Acceptance Schemes for corrugated steel buried structures

1.10 The following corrugated steel buried structures items shall be compliant with a Product Acceptance Scheme: 1. Helically wound systems and components. 2. Bolted segmental systems and components. 3. Galvanised coatings. 4. Proprietary protective coatings. 5. Proprietary invert protection systems. 6. Water bars. 7. Joint sealant.

1.11 The following Documentation shall be submitted for helically wound systems and components, bolted segmental systems and components, galvanised coatings, proprietary protective coatings, proprietary invert protection systems, water bars and joint sealant prior to the commencement of the works: Product Acceptance Scheme certificate.

1.12 The requirements for "Documentation" in Section 2 of GC 101 [Ref 3.N] shall apply to the documentation for helically wound systems, bolted segmental systems, galvanised coatings, proprietary protective coatings, proprietary invert protection systems, water bars and joint sealant to be incorporated in the works.

Installation sequence requirements of corrugated steel buried structures

1.13 The installation sequence of corrugated steel buried structures shall be as stated in CC 605/WSR/001.

SI.1.13a The installation sequence shall be [enter free text].

SI.1.13b The requirements for installation of corrugated steel buried structures shall be [enter free text].

1.14 The maximum difference in fill level on opposite sides of the corrugated steel buried structure structure shall be no more than 250 mm at all times, unless otherwise stated in CC 605/WSR/001.

SI.1.14 The maximum difference in fill level on the opposite sides of the corrugated steel buried structure shall be [enter a number] .

Earthworks for corrugated steel buried structures

1.15 Earthworks for corrugated steel buried structures shall be in accordance with CC 601 [Ref 2.N]and the manufacturer's installation instructions.

1.16 The earthworks geometry for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

SI.1.16a The trench and partial trench geometry of corrugated steel buried structures shall be [select one from: Figure 9.2a, Figure 9.2b] from CD 375 [Ref 1.N].

SI.1.16b The minimum excavation width on each side of the structure shall be [enter a number] .

1.17 Compaction of backfill materials for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

Compaction of backfill materials for corrugated steel buried structures		
structure number	**drawing/model number**	**compaction for backfill materials**
(a)	(b)	(c)

1. *Enter a unique reference.*
2. *Enter a unique reference.*

3. *Enter a value, from options 85 % max dry density, 90 % max dry density, to identify the required compaction for backfill materials of corrugated steel buried structures.*

Steel components for corrugated steel buried structures

Product requirements for corrugated steel buried structures

1.18 The requirements for "Product acceptance schemes" in Section 12 of GC 101 [Ref 3.N] shall apply to 1. Helically wound systems and components for corrugated steel buried structures, 2. Bolted segmental systems and components for corrugated steel buried structures.

1.19 Seams for helically wound systems for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

Seams for helically wound systems for corrugated steel buried structures				
structure number	**drawing/model number**	**steel sheet nominal thickness**	**minimum tensile strength of seam**	**steel grade**
(a)	(b)	(c)	(d)	(e)

1. *Enter a unique reference.*
2. *Enter a unique reference.*

3. *Enter a number in units of , to identify the nominal thickness of the steel sheet.*

4. *Enter a number in units of , to correlate minimum tensile strength with the nominal thickness of the steel sheet.*

5. *Enter text, to identify the steel grade of the steel.*

1.20 Seams for bolted segmental systems for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

Seams for bolted segmental systems for corrugated steel buried structures					
structure number	**drawing/model number**	**steel sheet nominal thickness**	**number of bolts per corrugation**	**minimum tensile strength of seam**	**steel grade**
(a)	(b)	(c)	(d)	(e)	(f)

1. *Enter a unique reference.*
2. *Enter a unique reference.*

3. *Enter a number in units of , to identify the nominal thickness of the steel sheet.*

4. *Enter text, to identify the number of bolts per corrugation.*

5. *Enter a number in units of , to correlate the minimum seam tensile strength with the nominal steel sheet thickness and number of bolts.*

6. *Enter text, to identify steel grade of the steel.*

Documentation requirements for seams for helically wound and bolted segmental corrugated steel buried structures

1.21 The following Documentation shall be submitted for seams for helically wound and bolted segmental corrugated steel buried structures prior to the commencement of installation: evidence report that the seams provide the required minimum tensile strength of the seam.

1.22 The requirements for "Documentation" in Section 2 of GC 101 [Ref 3.N] shall apply to documentation for tensile strength of the seams for helically wound and bolted segmental corrugated steel buried structures.

Installation requirements for corrugated steel buried structures

1.23 The installation of helically wound systems and bolted segmental systems of corrugated steel buried structures shall be in accordance with the manufacturer's installation instructions and the Product Acceptance Scheme certificate.

1.24 Cutting, edges and holing shall be in accordance with Section 4 of CC 483 [Ref 8.N].

1.25 The nuts for bolted segmental structures shall be tightened in accordance with the manufacturer's installation instructions and the Product Acceptance Scheme certificate.

Installation verification requirement for tightening of nuts for bolted segmental corrugated steel buried structures

1.26 Verification shall be undertaken for tightening of all nuts for bolted segmental systems of corrugated steel buried structures by applying torque stated on the Product Acceptance Scheme certificate.

1.27 The frequency of verification for the tightening of the nuts of bolted segmental structures shall be per structure.

1.28 The requirements for "Verification" in Section 14 of GC 101 [Ref 3.N] shall apply to the verification of tightening of the nuts of bolted segmental structures.

Documentation requirements for installation of corrugated steel buried structures

1.29 The following Documentation shall be submitted for the installation of corrugated steel buried structures prior to the commencement of the works: 1. Manufacturer's installation instructions. 2. Product Acceptance Scheme certificate.

1.30 The requirements for "Documentation" in Section 2 of GC 101 [Ref 3.N] shall apply to the documentation for the installation of corrugated steel buried structures.

Coatings of steel components for corrugated steel buried structures

Product requirements for coatings of steel components of corrugated steel buried structures

1.31 Steel components of corrugated steel buried structures shall be galvanised in accordance with CC 486 [Ref 5.N] Hot dip galvanised coatings for protection of steelwork against corrosion, unless indicated otherwise in the Product Acceptance Scheme certificate.

1.32 The requirements for "Product acceptance schemes" in Section 12 of GC 101 [Ref 3.N] shall apply to galvanised coatings of steel components of corrugated steel buried structures for protection against corrosion.

1.33 Steel components of corrugated steel buried structures shall be galvanised after being fully fabricated to provide required protection against corrosion.

1.34 The requirements for "Product acceptance schemes" in Section 12 of GC 101 [Ref 3.N] shall apply to all proprietary protective coating systems.

1.35 Secondary protective coatings shall have a minimum service life of 6 years in aggressive ground conditions, unless otherwise stated in CC 605/WSR/001.

1.36 Requirements for protective coatings for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

Requirements for protective coatings for corrugated steel buried structures						
structure number	**drawing/model number**	**corrosion protection**	**zinc coating thickness**	**secondary protective coating**	**location of application of secondary coating**	**service life of secondary coating**
(a)	(b)	(c)	(d)	(e)	(f)	(g)

1. *Enter a unique reference.*
2. *Enter a unique reference.*
3. *Enter a number in units of , to identity required protection against corrosion.*
4. *Enter a number in units of , to identify zinc coating thickness around galvanised steel components to provide the required protection against corrosion.*
5. *Enter text, to identify the requirement for any secondary protective coating.*
6. *Enter a value, from options factory, site, to identify the location of application of the secondary protective coating.*
7. *Enter a number in units of , to identify the service life of the secondary protective coating.*

Installation requirements for coatings of steel components of corrugated steel buried structures

1.37 Components in which the galvanised coating has been damaged prior to erection shall be made good in accordance with CC 486 [Ref 5.N].

Installation verification for coatings of steel components of corrugated steel buried structures

1.38 Verification shall be undertaken for steel coatings by inspecting the condition of the galvanised coating prior to erection in accordance with CC 486 [Ref 5.N].

1.39 The frequency of verification of the galvanised coating prior to erection shall be in accordance with CC 486 [Ref 5.N].

1.40 The requirements for "Verification" in Section 14 of GC 101 [Ref 3.N] shall apply to the verification of the condition of the galvanised coating prior to erection.

Documentation requirement for coatings of steel components of corrugated steel buried structures

1.41 The following Documentation shall be submitted for protective coating of steel components prior to the commencement of installation of the steel components: evidence report that the coating of steel components meets the requirements of CC 486 [Ref 5.N].

Concrete foundations for arch-profile corrugated steel buried structures

Product requirements for concrete foundations of arch-profile corrugated steel buried structures

1.42 Concrete for the foundations of arch-profile corrugated steel buried structures shall be in accordance with CC 482 [Ref 7.N].

1.43 The concrete requirements for the foundations of arch-profile corrugated steel buried structures shall be as stated in CC 605/WSR/001.

SI.1.43 The concrete requirements for foundations of arch-profile corrugated steel buried structures shall be as follows [enter free text].

Product verification for concrete foundations for arch-profile corrugated steel buried structures

1.44 Verification shall be undertaken for concrete for foundations for arch-profile corrugated steel buried structures by inspection and testing in accordance with Section 2, 6 and 7 of CC 482 [Ref 7.N].

1.45 The frequency of verification for the concrete shall be in accordance with CC 482 [Ref 7.N].

1.46 The requirements for "Verification" in Section 14 of GC 101 [Ref 3.N] shall apply to the verification of the concrete foundations.

Installation requirements for concrete foundations for arch-profile corrugated steel buried structures

1.47 The installation of concrete foundations of arch-profile structures shall be as stated in CC 605/WSR/001.

SI.1.47 The installation requirements for the concrete foundation of arch structures shall be [enter free text].

Invert protection for corrugated steel buried structures

Product requirements for invert protection of corrugated steel buried structures

1.48 The requirements for invert protection for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

SI.1.48 The requirements for invert protection for corrugated steel buried structures shall be [enter free text].

1.49 Concrete for invert protection of corrugated steel buried structures shall be in accordance with CC 482 [Ref 7.N].

1.50 The concrete requirements for invert protection of corrugated steel buried structures shall be as stated in CC 605/WSR/001.

SI.1.50 The concrete requirements for invert protection shall be as follows [enter free text].

1.51 The requirements for "Product acceptance schemes" in Section 12 of GC 101 [Ref 3.N] shall apply to proprietary invert protection systems and components including water bars between adjacent invert protection panels.

Product verification for concrete for invert protection of corrugated steel buried structures

1.52 Verification shall be undertaken for the concrete for invert protection of corrugated steel buried structures by inspection and testing in accordance with Sections 2, 6 and 7 of CC 482 [Ref 7.N].

1.53 The frequency of verification of concrete shall be in accordance with CC 482 [Ref 7.N].

1.54 The requirements for "Verification" in Section 14 of GC 101 [Ref 3.N] shall apply to the verification of concrete.

Installation requirements for invert protection of corrugated steel buried structures

1.55 The installation of invert protection, including formwork, shall be as stated in CC 605/WSR/001.

SI.1.55 The installation requirements for the invert protection shall be [enter free text].

1.56 Cast-in-situ concrete invert protection shall be cast in lengths not exceeding 10 m.

1.57 The interface between the steel and the concrete invert protection shall be free from voids or discontinuities by ensuring there is no foreign matter or standing water during casting.

1.58 The joints between the invert and the structural steel plates shall be filled and waterproofed with a joint sealant in accordance with CC 482 [Ref 7.N].

1.59 The invert protection shall be shaped to prevent ponding of water against the structural plates.

1.60 Before commencing work, no secondary proprietary protective coating shall be removed from steel surfaces to be paved unless indicated otherwise in the Product Acceptance Scheme certificate.

1.61 A water bar shall be provided between adjacent concrete invert protection panels.

1.62 The joints between adjacent concrete invert protection panels shall be sealed with a joint sealant in accordance with Section 15 of CC 203 [Ref 6.N].

1.63 The joint sealant between invert protection panels shall be as stated in CC 605/WSR/001.

SI.1.63a The Type of the joint sealant shall be [enter free text].

SI.1.63b The acceptance criteria of the sealant shall be [enter free text].

Overlying concrete slab for corrugated steel buried structures

Product requirements for overlying concrete slab for corrugated steel buried structures

1.64 Concrete for the buried overlying concrete slab shall be in accordance with CC 482 [Ref 7.N].

1.65 The concrete requirements for the overlying concrete slab for corrugated steel buried structures shall be as stated in CC 605/WSR/001.

SI.1.65 The concrete requirements for the buried overlying concrete slab for corrugated steel buried structures shall be as follows [enter free text].

Product verification for overlying concrete slab for corrugated steel buried structures

1.66 Verification shall be undertaken for concrete for the overlying concrete slab for corrugated steel buried structures by inspection and testing in accordance with Sections 2, 6 and 7 CC 482 [Ref 7.N].

1.67 The frequency of verification of concrete shall be in accordance CC 482 [Ref 7.N].

1.68 The requirements for "Verification" in Section 14 of GC 101 [Ref 3.N] shall apply to the verification of concrete.

Installation requirements for overlying concrete slab for corrugated steel buried structures

1.69 The installation of the overlying concrete slab shall be as stated in CC 605/WSR/001.

SI.1.69 The installation requirements for the overlying concrete slab shall be [enter free text].

2. Normative references

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

Ref.	Document
Ref 1.N	National Highways. CD 375, 'Design of corrugated steel buried structures'
Ref 2.N	National Highways. CC 601, 'Earthworks'
Ref 3.N	National Highways. GC 101 'General requirements for the Specification for Highway Works'
Ref 4.N	National Highways. CD 622, 'Managing geotechnical risk'
Ref 5.N	National Highways. CC 486, 'Protection of steelwork against corrosion'
Ref 6.N	National Highways. CC 203, 'Rigid Pavement Construction'
Ref 7.N	National Highways. CC 482, 'Structural concrete'
Ref 8.N	National Highways. CC 483, 'Structural Steelwork'
Ref 9.N	National Highways. CG 300, 'Technical approval of highway structures'