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Transport Infrastructure Ireland

TII Publications



Notes for Guidance on the Specification for Road Works Series 02500 - Special Structures

CC-GSW-2500

July 2021

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**Updates to TII Publications resulting in changes to
Notes for Guidance on the Specification for Road Works Series 02500 - Special Structures
CC-GSW-2500**

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Amendment Details:

This document supersedes the June 2014 publication of CC-GSW-02500. The following principal amendments have been incorporated into this document:

- a) The document has been re-formatted in line with current TII drafting standards and references updated to new TII naming convention.
- b) The technical content in the Clauses of CC-SPW-02500 (2501, 2503, 2504) has not changed and hence no update to these clauses corresponding clauses.
- c) Paragraph 2.2.2– statement added explaining the practical implication of adopting the durability requirements of BS 8006-1:2010 for steel reinforcing straps.
- d) Paragraph 2.2.2 - requirements for stainless steel reinforcing straps migrated from CC-SPW-02500 and requirement for TII approval for their use added.
- e) Paragraph 2.3.1 – Recommendation added to install slip membranes beneath bank seats on reinforced earth abutments.

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1. Corrugated Steel Buried Structures

1.1 General

Any special drainage requirements associated with corrugated steel buried structures, such as the need for watertight jointing or lining of trenches with impervious membranes, should be shown on the drawings in the Contract or given in Appendix 25/1.

Other details should also be completed in Appendix 25/1 in order to enable the Contractor to produce a design.

1.2 Earthworks

Not used.

1.3 Steel Components

Not used.

1.4 Hot Dip Galvanizing of Steel Components

Not used.

1.5 Concrete Foundations of Arch Profile Structures

Not used.

1.6 Concrete Invert Pavings

Not used.

1.7 Proprietary Invert Pavings

Not used.

1.8 Proprietary Secondary Protective Coatings Applied Above Hot Dip Galvanised Coating

Not used.

1.9 Protective Coatings

Not used.

2. Reinforced Soil Structures

2.1 General

2.2 Design requirements should be included in Appendix 25/2 to enable the Contractor to produce a design.

2.3 Materials

2.3.1 Earthworks

Not used.

2.3.2 Reinforcing Elements for Reinforced Soil Structures

Stainless steel strip shall comply with

- i. IS EN 10029, IS EN 10048, IS EN 10051, IS EN ISO 9445 designation 1.4401 or 1.4436, except that the material shall be cold rolled to provide a 0.2% proof stress of not less than 400 N/mm² and the tensile strength shall be not less than 540 N/mm² ;
or
- ii. IS EN 10029, IS EN 10048, IS EN 10051, IS EN ISO 9445 designation 1.4401 CR temper rolled to a minimum 0.2% proof stress of 310 N/mm²

Notwithstanding the above, the specification of stainless steel reinforcement straps shall be subject to TII approval.

The specification and testing of Hot Dip galvanized elements shall comply with the recommendations of IS EN ISO 1461:2009. A mean coating thickness of 85µm is practically achieved by specifying a minimum local coating thickness of 70µm. A galvanised reinforcing element specified to have a local coating thickness of 70µm will not pass compliance testing if a coating thickness reading of less than 85µm is observed. This provides the designer with confidence that galvanising coating thickness is 85µm for the purpose of durability calculations.

2.3.3 Fasteners

Not used.

2.3.4 Prefabricated and Precast Facing and Capping Units

Not used.

2.4 Workmanship

2.4.1 General

The use of slip membranes beneath bankseats on reinforced earth abutments is considered good practice in accordance with the detailing of Ciria C543 and should be installed where practical.

Notwithstanding the above, any benefit derived from the use of slip membranes shall not be considered during design calculations.

2.4.2 Dimensional tolerances

Not used.

2.4.3 Damage and repairs

Not used.

3. Reinforced Clay Brickwork Retaining Walls of Pocket-type and Grouted Cavity Construction

3.1 Materials

Not used.

3.2 Storage of Materials

Not used.

3.3 Laying of Bricks

Not used.

3.4 Mixing of Mortar

Not used.

3.5 Concrete – General

Not used.

3.6 Cold Weather Working

Not used.

3.7 Hot Weather Working

Not used.

3.8 Protection of New Work

Not used.

3.9 Weatherproofing, Backfill and Drainage

Not used.

3.10 Trial Panels

Not used.

4. Access Underpasses

4.1 General

Not Used.

4.2 Road Restraint Systems

Not Used.

4.3 Drainage

Any special drainage requirements associated with access underpasses, such as the need for a pumped drainage system with sump, should be shown on the drawings in the Contract or given in Appendix 25/4.

Other details should also be completed in Appendix 25/4 in order to enable the Contractor to produce a design.

4.4 Earthworks

Not used.

4.5 Pavement

Not used.

4.6 Road Marking

Not used.

4.7 Structural Concrete

Not used.

4.8 Waterproofing

Not used.

5. Sample Appendices

5.1 Sample Appendix 25/1: Requirements for Corrugated Steel Buried Structures

Design Requirements [2501.2]

[Note to complier: This should include all relevant information required to enable the Contractor to complete a detailed design using any bolted or helically wound segmental structure system, having a current NSAI Agrément Certificate, or equivalent.]

Other Information.

[To be included as required]

Roughness coefficient.

Special needs for watertight jointing.

Special needs for lining of trenches with impervious linings.

Need for invert pavings.

Special requirements, if any, for the protection of exposed galvanised steel surfaces after erection.

[Acceptability limits for MCV, if required, for Class 6K and 6M fills should be stated in Appendix 6/1.]

5.2 Sample Appendix 25/2: Requirements for Reinforced Soil Structures

[Note to complier: Include here:]

Design requirements.

[Where the design retained height exceeds 1.5m, include the requirement for the design to comply with DN-STR-03001 and all other relevant requirements]

References to drawings showing locations and outlines.

Other information.

[Contract-specific earthworks requirements should be included in Appendix 6/1.]

5.3 Sample Appendix 25/3: Requirements for Reinforced Clay Brickwork Retaining Walls of Pocket-Type and Grouted Cavity Construction Structures

[Note to complier: Include here:]

1. Requirement for concrete if different from the requirements of sub-Clause 2503.
2. Requirements for wall ties [2503.6].

3. Requirements for damp proof courses [2503.6].
4. Rate of placing of concrete with respect to the rate of brickwork construction [2503.22].
5. Period to elapse after the completion of the wall before backfilling commences [2503.28].
6. Requirements for construction and dismantling of trial panels [2503.30].

5.4 Sample Appendix 25/4: Requirements for Access Underpasses

[Note to complier: Include here:]

Design requirements.


[This should include all relevant information required to enable a Contractor to complete a detailed design including all requirements as specified within DN-STR-03001, CC-SCD-02501, CC-SCD-02502 and CC-SCD-02503.]

References to drawings showing locations and outlines.

Other information.

[Contract-specific earthworks requirements should be included in Appendix 6/1.]



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