DEVELOPMENT CONSTRUCTION SPECIFICATION

C223

DRAINAGE STRUCTURES

Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
EXAMPLE 1	*Provision for acceptance of nonconformance with deduction in Payment*	*XYZ.00*	*AP*	*KP*	*2/6/97*
A	No amendments				11/12/2013

SPECIFICATION C223 : DRAINAGE STRUCTURES

GENERAL

C223.01 SCOPE

1. This Specification covers the construction of drainage structures and shall be read in conjunction with the Specification for STORMWATER DRAINAGE - GENERAL and other drainage Specifications as applicable: ***Associated Specifications***

C221	-	Pipe Drainage
C222	-	Precast Box Culverts
C224	-	Open Drains, including Kerb and Gutter

2. The work to be executed under this Specification consists of the construction of headwalls, wingwalls, pits, gully pits, inspection pits, junction boxes/pits, drop structures, inlet and outlet structures, energy dissipaters, batter drains and other supplementary structures as shown on the Drawings. ***Extent of Work***

C223.02 REFERENCE DOCUMENTS

1. Documents referenced in this specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated. ***Documents Standards Test Methods***

(a) Council Specifications

C213	-	Earthworks
C220	-	Stormwater Drainage - General
C221	-	Pipe Drainage
C222	-	Precast Box Culverts
C224	--	Open Drains, including Kerb and Gutter
C271		Minor Concrete Works

(b) Australian Standards

AS 3996	-	Access Covers and Grates

CONSTRUCTION

C223.03 GENERAL

1. Drainage structures shall be constructed in concrete and in accordance with the Specification for MINOR CONCRETE WORKS. ***Concrete Work***

2. All structures shall be constructed as soon as practicable. ***Time for Completion***

C223.04 ALIGNMENT

1. Unless otherwise shown on the Drawings, headwalls and pits shall be constructed parallel to the road centreline and wingwalls at 135^{o} to the headwall.

2. Energy dissipaters shall be constructed in accordance with the Drawings and with ***Energy***

centreline on the axis of the culvert. ***Dissipators***

C223.05 HEADWALLS AND WINGWALLS

1. The wingwalls shall be constructed to retain the batters effectively. Where the dimensioned drawings do not satisfy this requirement the Principal Certifying Authority shall be notified before the headwalls and wingwalls are constructed. The Principal Certifying Authority shall direct the Contractor as to the action to be taken. ***Batter Retention***

C223.06 PITS

1. All new pits, including gully grates and frames complying with AS 3996, shall be constructed to the details shown on the Drawings. Modification of existing pits is only to be carried out if such is shown on the Drawings. ***Modification***

2. Where pits and drop structures are deeper than 1.2m the Contractor shall install suitable non corroding step irons at a vertical spacing of 300mm in one wall of the pit, for the full depth of the pit. ***Step Irons***

C223.07 PRECAST UNITS

1. Where precast units are provided in the design they shall be handled and installed in accordance with the manufacturer's instructions. ***Manufacturer's Instructions***

2. If the Contractor proposes to use precast units, detailed drawings and complete details of installation procedures shall be submitted for the approval of the Principal Certifying Authority. ***Contractor's Responsibility***

3. Unless otherwise approved by the Principal Certifying Authority, precast units shall not be delivered to the site before satisfactory documentary evidence has been submitted to the Principal Certifying Authority that quality tests have been carried out. ***Delivery***

C223.08 JOINTING

1. Where drainage structures abut concrete paving, kerb and gutter or other concrete structures, a 10mm wide joint shall be provided between the structure and paving, or kerb and gutter or other concrete structures. The joint shall consist of preformed jointing material of bituminous fibreboard. ***Preformed Jointing Material***

C223.09 MASS CONCRETE BEDDING

1. Mass concrete bedding for reinforced concrete bases shall not be placed on earth or rock foundations until the foundations have been inspected and approved by the Principal Certifying Authority. Following such approval, the surface of the foundation shall be dampened and a layer of concrete not less than 50mm thick shall be placed over the excavated surface and shall be finished to a smooth even surface. ***Mass Concrete Base Foundation Inspection***

2. Unreinforced concrete bases may be cast on earth or rock foundations without the mass concrete bedding. ***Unreinforced Concrete Base***

C223.10 BACKFILL

1. Backfilling shall not commence until the compressive strength of concrete has reached at least 15MPa unless otherwise approved by the Principal Certifying Authority. ***Commence-ment***

2. Selected backfill shall be placed against the full height of the vertical faces of structures for a horizontal distance equal to one-third the height of the structure. ***Selected Backfill***

3. Selected backfill shall consist of a granular material in accordance with the requirements in the Specification for EARTHWORKS. ***Composition***

4. Special care shall be exercised to prevent wedge action against vertical surfaces during the backfilling. Where the sides of the excavation are steeper than 4 horizontally to 1 vertically they shall be cut in the form of successive horizontal terraces at least 600mm in width, as the backfill is placed. ***Horizontal Terraces***

5. Backfill on both sides of the structure shall be carried up to level alternately in layers so as to avoid wedge action or excessive horizontal forces. Backfilling and compaction shall commence at the wall. Compaction shall be in accordance with the Specification for STORMWATER DRAINAGE - GENERAL. ***Procedure***

SPECIFICATION C223 - DRAINAGE STRUCTURES