

DEVELOPMENT
CONSTRUCTION
SPECIFICATION

C501

**BUSHFIRE PROTECTION
(Perimeter Tracks)**

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
<i>Original</i>	<i>Northern Rivers - Local Government Version</i>	<i>All</i>	<i>Original Edition</i>	<i>LCC</i>	<i>January 1999</i>
1	Major Revision as per Aus-Spec Bulletin Board Release 10	All	AMO	SPM	April 2003
2	Revisions as per Aus-Spec Bulletin Board releases 11 & 12	All	AMO	SPM	April 2003
3	Included Planning for Bushfire Protection 2006	501.3	A	MR	August 2013

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SPECIFICATION C501 BUSHFIRE PROTECTION (Perimeter Tracks)

GENERAL

C501.01 SCOPE

1. The work to be constructed under this Specification consists of perimeter tracks for fire protection. These tracks shall be constructed in accordance with the requirements as prescribed in the Soil Conservation Service Publication, Guidelines for the Planning, Construction and Maintenance of Tracks.

2. Perimeter tracks with the subdivision shall be connected by suitable intersections with existing access tracks.

Access Tracks

3. The track surface shall be constructed with outfall drainage and trafficable cross banks, so as to reduce erosion damage and maintenance needs. Establishing and maintaining vegetation on the tracks can further reduce erosion and may be deemed necessary in some areas.

Construction

4. This specification states the requirements for constructing and maintaining tracks to minimise soil erosion.

Principles

C501.02 OBJECTIVE

1. The aim of this specification is to prescribe requirements in order that bushfire protection provided by perimeter tracks is effective and is undertaken in a manner to minimise disturbance of the natural surroundings and the need for future maintenance.

C501.03 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

- C220 - Stormwater Drainage - General
- C221 - Pipe Drainage
- C223 - Drainage Structures
- C273 - Landscaping

(b) NSW Government Legislation

- Soil Conservation Act, 1938.

(c) NSW Government Department Publications.

- Department of Land and Water Conservation (formerly Conservation and Land Management) - Soil Conservation Service 1983.
- Guidelines for the Planning, Construction and Maintenance of Tracks.
Planning for Bushfire Protection 2006

C501.04 DEFINITIONS**Batter**

The face of an embankment or cutting, produced as a result of earthmoving operations involving cutting and filling.

Cross Bank

A hump of earth constructed across a track so that runoff is effectively diverted from it.

Cross banks are designed to handle larger flows than cross drains.

Cross Drains

Drains of various forms that baulk the flow of water down a track and divert it across the track's surface. The capacity of the drain is defined by its cross-section.

Cross drains are designed to handle smaller flows than cross banks but larger flows than can be controlled by crossfall drainage.

Crossfall Drainage

Drainage which occurs when the surface of a track has sufficient cross slope to cause water to flow across and off the surface, rather than along it. Where the water flows into the hillside, it is termed 'infall'. Where flow is away from the hillside, it is termed 'outfall'.

Culvert

A pipe or similar structure used to direct water under the track.

CONSTRUCTION**C501.05 CROSS BANKS**

1. Outlet points for cross banks, shall not be blocked by a stump or rock. Outlets shall be sited so that runoff will spill into undisturbed vegetation and cannot flow back onto the track.

***Cross Bank
Outer Point***

2. The roadline shall be ripped to a depth of 200 to 300 mm for a distance of one or two tractor lengths back from the chosen outlet point. The loose earth shall be pushed down the roadline into a bank, commencing at the uphill side of the road and working across the outlet side. A long, shallow excavation for the cross bank shall be provided (typically 6 metres).

Construction

3. Sufficient loose earth shall be used to give the required dimensions after shaping and compaction. Depending on the size of the machine being used, up to eight bladefulls of earth may be required. The crest width dimensions shall be long enough to ensure comfortable vehicle access over the cross bank. The channel depth dimensions shall prevent runoff from overtopping the bank.

***Shaping and
Compaction***

4. The entire length of the bank shall be track or wheel rolled to obtain maximum compaction and a smooth, even bank with batters no steeper in relation to the track surface than 1:5.

C501.06 EARTHWORKS

1. When constructing tracks, the soil and vegetation shall be disturbed as little as possible both on and adjacent to the track. The track shall be constructed to follow the contour of the land as much as possible to reduce the amount of cut and fill. For safety reasons, the maximum crossfall used shall generally not exceed 1:10. **Minimum Disturbance**
2. To minimise the area of disturbed soil exposed, batters to 1.5 m shall be cut vertically. Vertically cut batters may suffer from initial slumping but will generally stabilise with follow-up maintenance. Cut batters higher than 1.5 m may require special stabilisation measures including laying back, revegetation and drainage. **Cut Batters**
3. Fill batters on all soil classes shall be no steeper than 2:1 and flatter where possible to encourage natural revegetation and to effectively accept seed and fertiliser. Batters higher than 1.5 m on Class B, C and D soils may require special stabilisation works such as drop down drains, hay mulching, etc. **Fill Batters**
4. Vegetation debris shall not be incorporated in fill batters. **Debris**
5. "Borrow" areas shall not be located near drainage lines or streams because of the danger of sediment polluting the stream. When necessary, "borrow" areas shall be limited in size, worked in such a way to reduce the danger of sediment leaving the borrow pit and revegetated progressively as the pit is worked out. **Borrow Areas**
6. Wherever practicable, topsoil and litter (free of timber debris) shall be stockpiled in a recoverable position for respreading over disturbed areas. This material contains valuable seed and nutrients which will greatly assist revegetation. **Stockpile Topsoil**
7. Timber clearing shall be limited to 0.5m on either side of the track. Where extra clearing widths may be needed such as to allow the sun in to keep the trail dry, clear by felling rather than dozing to limit the amount of soil disturbance. **Timber Clearing**

C501.07 DRAINAGE

1. Drainage lines and streams shall be crossed with fords, culverts or bridges. Log dam crossings shall not be used as they obstruct flood flows and can create turbulent flow and erosion. **Crossings**
2. Fords are preferable to culverts or bridges as they cost less and often can be built with little disturbance to the stream bed and banks. Fords shall not be used where the stream has a deep cross-section requiring considerable excavation to provide approaches to the crossing. **Fords**
3. Culverts shall not be used where debris blockages are likely.
4. Where culverts and headwalls are used, they shall be constructed where shown on the Drawings or as directed by the Superintendent in accordance with the Specifications for STORMWATER DRAINAGE - GENERAL, PIPE DRAINAGE and DRAINAGE STRUCTURES. Culverts shall be constructed as close as possible to the natural alignment of the drainage line to avoid diverting the flow into the stream banks of creating scour of the drainage line. **Culverts**
5. Soil and vegetation disturbance shall be kept to a minimum. Disturbed areas shall be seeded in accordance with the Specification for LANDSCAPING to protect them from erosion. **Disturbance**
6. Timber, scrub, soil or debris shall not be dumped in drainage lines, but stacked well above flood levels. **No Dumping**

7. Where trees must be destroyed or injured in the bed or within 20m of the banks, of prescribed streams as defined in the Soil Conservation Act, 1938, an authority from the Catchment Areas Protection Board is required.

***Trees in
Prescribed
Streams***

C501.08 REVEGETATION

1. Revegetation shall be in accordance with requirements of the Specification for LANDSCAPING indicated on the development/subdivision plan.

***Amount of
Revegetation***

2. Where revegetation is required, it must be applied immediately following the disturbance while the soil is still loose, irrespective of the growing seasons.

***Immediate
Application***

3. A maintenance dressing of appropriate fertiliser and seed shall be applied.

SPECIAL REQUIREMENTS

C501.09 RESERVED

C501.10 RESERVED

