

0281 BUSHFIRE PERIMETER TRACKS

1 GENERAL

1.1 RESPONSIBILITIES

Objectives

Bushfire protection: Construct bushfire perimeter tracks as documented and make sure that the work is undertaken to minimise the disturbance of the natural surroundings and the need for future maintenance.

Performance

Requirements: ~~[complete/delete]~~

Design

Designer: ~~[complete/delete]~~

Authority requirements: ~~[complete/delete]~~

1.2 CROSS REFERENCES

General

- Requirement: Conform to the following:
- 0136 General requirements (Construction).
- 0152 Schedule of rates – supply projects.
- 0161 Quality (Construction).
- 0167 Integrated management.
- 0257 Landscape - roadways and street trees.
- 1351 Stormwater drainage (Construction).
- 1352 Pipe drainage.
- 1353 Precast box culverts.
- 1354 Drainage structures.

1.3 REFERENCED DOCUMENTS

Standards

General: The following document is incorporated into this worksection by reference: NSW Soil Conservation Act, 1938.

1.4 INTERPRETATION

Definitions

General: For the purposes of this worksection the definitions given below apply:

- Batter: The face of an embankment or cutting, produced as a result of earthmoving operations involving cutting and filling.
- Borrow area: An area or excavation from which soil, clay, sand, rock or gravel has been excavated for a specific purpose.
- Perimeter access tracks: Provide maintained access for fire fighting beyond private lots.
- 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 hinder 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.
- Erosion classes in relation to soil types:
 - . Class A: Low soil erodibility. Brown and red soils derived from finer sediments and metasediments.
 - . Class B: High soil erodibility. Red soils on fine granites, fine sandstones and basalt.
 - . Class C: Very high soil erodibility. Grey and yellow soils derived from granites, sediment and metasediment, especially coarse grained types.
 - . Class D: Extreme soil erodibility. Unconsolidated sediment. As a general rule, tracks should not be built on Class D soils.

2 PRE-CONSTRUCTION PLANNING

2.1 GENERAL

Quality

Requirements: Conform to *0161 Quality (Construction)* for quality control and testing, including maximum lot sizes and minimum test frequencies.

Connection to existing tracks

Connection: Connect perimeter tracks with the subdivision by suitable intersections with existing access tracks.

Reducing erosion and maintenance

Erosion: Construct the track surface with outfall drainage and trafficable cross banks, so as to reduce erosion damage and maintenance needs.

Maintenance: Further reduce the risk of erosion by establishing and maintaining vegetation on the tracks in designated areas. The vegetation on fire access tracks should be suitable low grasses and ground covers, less than 0.3 m high.

3 EXECUTION

3.1 EARTHWORKS

Minimum disturbance

General: Construct tracks with as little disturbance as possible to the soil and vegetation both on and adjacent to the track. Follow the contour of the land as much as possible to reduce the amount of cut and fill.

Safety: Provide maximum crossfall < 1:10 (horizontal:vertical).

Cut batters

General: Construct cut batters as follows:

- Vertically to 1.5 m: Minimise the area of disturbed soil exposed.
- Higher than 1.5 m: Provide special stabilisation measures including laying back, revegetation and drainage.
- Dispersive soils: If encountered give notice.

Fill batters

General: Construct fill batters as follows:

- As flat as possible to encourage natural revegetation and to effectively accept seed and fertiliser.
- On all soil classes not be steeper than 2:1 (horizontal:vertical).

Batters higher than 1.5 m on Class B, C and D soils: Provide special stabilisation works, such as drop down drains or hay mulching.

- Give notice if dispersive soils are encountered.

Fill batters: Do not use vegetation debris or erosive materials.

Borrow areas

Location: Do not locate borrow areas near drainage lines or streams in order to avoid sediment polluting the stream. Limit 'borrow' areas in size and work in such a way as to reduce the amount of sediment leaving the borrow pit, and revegetate progressively as the pit is worked out.

Stockpile topsoil

General: Stockpile wherever practicable, topsoil and litter (free of timber debris) in a recoverable location for respreading over disturbed areas.

Timber clearing

Clearing: Limit to 0.5 m on either side of the track, and include overhanging branches to 4 m clear height.

Method: Clear by felling rather than dozing to limit the amount of soil disturbance.

Waste: Dispose of all vegetation matter off site.

3.2 CROSS BANKS**Cross bank outlet points**

Blockage: Do not block the outlet points for cross banks with stumps or rocks.

Runoff: Site the outlets such that the runoff spills into undisturbed vegetation and cannot flow back onto the track.

Construction

Method: Rip the roadway area to a depth of 200 to 300 mm for a distance of one or two tractor lengths back from the chosen outlet point. Push the loose earth down the roadline into a bank, commencing at the uphill side of the road and working across the outlet side. Provide a long, shallow excavation for the cross bank.

Cross bank length: 6 m.

Shaping and compaction

Dimension: Use sufficient loose earth to give the required dimensions after shaping and compaction. Size the crest width to ensure comfortable vehicle access over the cross bank, and the channel depth to prevent runoff from overtopping the bank.

Compaction: Track or wheel roll the entire length of the bank to obtain maximum compaction and a smooth, even bank with batters no steeper than 1:5 (horizontal:vertical) in relation to the track surface.

3.3 DRAINAGE**Crossings**

General: Construct fords, culverts or bridges across drainage lines and streams, as documented.

Prohibition: Do not use log dam crossings as they obstruct flood flows and can create turbulent flow and erosion.

Fords

General: Construct fords as documented or as directed by the Superintendent.

Culverts

Construction: Construct culverts and headwalls as documented or as directed by the Superintendent in accordance with *1351 Stormwater drainage (Construction)*, *1352 Pipe drainage*, *1353 Precast box culverts* and *1354 Drainage structures*.

Alignment: Construct culverts as close as possible to the natural alignment of the drainage line to avoid diverting the flow into the stream banks or creating scour along the drainage line.

Prohibition: Do not use culverts where debris or blockages are likely.

Disturbance

General: Keep soil and vegetation disturbance to a minimum. Seed disturbed areas in accordance with *0257 Landscape – roadways and street trees* to protect them from erosion.

Dumping: Do not dump timber, scrub, soil or debris in drainage lines. Stack well above flood levels.

Trees in prescribed streams

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

3.4 REVEGETATION

Built up areas

General: Provide revegetation in accordance with requirements of *0257 Landscape – roadways and street trees* indicated on the development/subdivision plan.

Immediate application

Application: Apply revegetation immediately following the disturbance while the soil is still loose, irrespective of the growing season. Also apply a maintenance dressing of appropriate fertiliser and seed.

4 MEASUREMENT AND PAYMENT

4.1 MEASUREMENT

General

Payment to the schedule of rates: To *0152 Schedule of rates – Supply projects, 0281 – Bushfire protection* and **Pay item 0281.1**.

Lump sum prices: Not acceptable.

Unpriced items: For each unpriced item listed in the Schedule of Rates, make due allowance in the prices of other items.

Methodology

Methodology for measurement and payment:

- Culverts and headwalls: To *1351 Stormwater drainage (Construction), 1352 Pipe drainage, 1353 Precast box culverts* and *1354 Drainage structures*, as appropriate.
- Seeding and vegetation: To *0257 Landscape – roadways and street trees*.

4.2 PAY ITEMS

Pay items	Unit of measurement	Schedule rate scope
0281.1 Perimeter tracks	Linear metre measured along the centreline of track, as documented.	All activities required to construct the tracks including clearing, earthworks, batters, cross drains, banks and revegetation.