



NSW RURAL FIRE SERVICE



NSW RFS FIRE TRAIL STANDARDS

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STATEMENT

NSW RFS FIRE TRAIL STANDARD 2016 V1.0, PRINTED 2016, 2018
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INCLUDES CORRECTION TO LAT/LONG FORMAT FROM 'DDM' TO 'DD' FORMAT.

1. Introduction

1.1 Background

Bush fires have been a natural part of the landscape for many thousands of years. As communities have developed and properties and towns have been established, the risk of bush fires impacting on communities has increased. Throughout NSW there are approximately 1.3 million properties on bush fire prone land.

Firefighters rely on public roads, trails and other tracks on public and private land to access the landscape to prevent and contain bush fires. Fire trails exist for the purpose of providing access to respond to bush fires, and it is critical to identify and maintain an effective network of accessible trails.

Historically, decisions regarding the establishment and maintenance of fire trails have rested with land managers guided by a cooperative framework established by the NSW Bush Fire Coordinating Committee (BFCC). A need for a different approach was identified to achieve a more consistent and strategic outcome across both public and private lands.

The NSW Government is establishing a more integrated and strategic network of fire trails and access arrangements to improve accessibility for firefighters during bush fires and hazard reduction burns.

Amendments to the *Rural Fires Act 1997*, through the *Rural Fires Amendment (Fire Trails) Act 2016*, provide a legislative basis for the establishment and maintenance of the enhanced network of fire trails.

The *Rural Fires Amendment (Fire Trails) Act 2016* provides for the NSW RFS Commissioner to make *Fire Trail Standards* that (without limitation) may set out:

- classification, length, width, gradient, signage, construction standards and maintenance of fire trails, and
- the structure and form of Fire Access and Fire Trail (FAFT) plans and Treatment Registers prepared by local Bush Fire Management Committees (BFMC).

1.2 Purpose

This document constitutes the *Fire Trail Standards* made by the NSW RFS Commissioner pursuant to section 62K of the *Rural Fires Act 1997*.

These Standards establish the requirements to achieve an integrated and strategic fire access and fire trail network. The Standards set out design and construction requirements for identified fire trails in NSW, and prescribe the structure of the FAFT plan and associated Treatment Registers to be prepared by BFMCs.

The Standards are to be used by organisations across NSW responsible for undertaking fire access and fire trail planning, and land managers responsible for the design, construction and maintenance of fire trails.

A suite of documents developed by the NSW RFS Commissioner and the NSW BFCC provide supplementary guidance and direction to land managers to assist in the design, construction and maintenance of fire trails on their land, and BFMCs involved in fire trail planning and the preparation of FAFT plans. These include:

- FAFT workshop presentation
- FAFT Plan Instructions
- Maps
- List of current fire trails
- Treatment Register (populated with BFMC fire trails)
- Trail ranking and prioritisation tool.

1.3. Aim

The aim of the Standards is to facilitate the planning and implementation of an integrated and strategic network of fire trails.

1.4 Objectives

The objectives of the Standards are:

- To provide a process to identify an integrated and strategic network of fire trails for the protection of the community and its assets, including environmental and social values;
- To establish a network of strategic fire trails which meet minimum standards and allow standard off- road capable firefighting vehicles to safely and effectively traverse the landscape;
- To ensure fire trails enable a vehicle to be driven safely along the trail without damage to the vehicle due to overhanging vegetation, built structures, rough trail surface or other physical impediments;
- To ensure fire trails are of an expected standard that is known and understood by firefighters, can be readily identified including in limited visibility conditions, and are available when required; and,
- To provide a sustainable fire trail network that meets operational requirements, minimises adverse impacts on the environment, and delivers value for money.

1.5 Assumptions

The Standards have been prepared on the basis of the following assumptions:

- The fire trail network will be used by suitably trained and competent firefighters capable of operating in the expected physical environment.
- Firefighting vehicles will meet NSW RFS standard specifications and be driven by licensed and competent drivers in accordance with local procedures.

1.6 Limitations

The Standards have been prepared with regard to the following limitations:

- Fire trails provided for in the Standards are for the purposes of bush fire suppression and other fire management purposes. While it is recognised that fire trails may also be used for other purposes (including other land management and commercial purposes, forming a part of fire breaks, fire containment lines and the like), such uses do not fall within the scope of these Standards.
- While fire trails will be built to a consistent acceptable standard in consideration of operational needs, the safety of firefighters cannot be guaranteed given variability in topography, weather and fire conditions.
- The design and construction standards specified in the Standards cater for standard off-road capable firefighting vehicles currently used in NSW.
- The implementation of a new standard is often challenging and subject to available funding and priorities. The NSW RFS Commissioner and the BFCC acknowledge that a cooperative and incremental approach in implementing this Standard will be required over several years, and the effectiveness of the Standard will be continually monitored to ensure it meets the intent of the legislation.

1.7 Definitions

Expressions defined in 62J of the *Rural Fires Act 1997* apply to the Standards. Definitions are per the NSW RFS Dictionary and apply to the Standards except where otherwise defined in section 62J of the Act. Key terms relevant to the Standards are included below for reference:

Designated fire trail	A fire trail identified by the NSW RFS Commissioner that must be upgraded or established to meet the Standards.
Certified fire trail	A fire trail that has been certified as compliant with the <i>Fire Trail Standards</i> .
Registered fire trail	A fire trail, regardless of tenure, that has been certified to meet these Standards and is placed on the Public Register.
Strategic fire trail	A fire trail on any tenure identified by a BFMC during the FAFT planning process, or by the NSW RFS Commissioner, to be of significant value in the suppression or management of fire within the landscape. These trails are placed on the Treatment Register approved by the NSW RFS Commissioner and subsequently designated. These may include multi-purpose trails.
Tactical fire trail	A fire trail on any tenure identified by a BFMC during the FAFT planning process, or by the NSW RFS Commissioner, that should remain open to support the prevention and suppression of fire. These may include multi-purpose trails.
Private land	means that is not public land (section 62J).
Public land	means managed land, unoccupied Crown Land, or land owned or occupied by a public authority. A public authority responsible for any particular land is taken to be occupier of the land for this Part (section 62J).

1.8 What is a fire trail for the purpose of these Standards?

There are a range of access ways across the landscape available for use by firefighters. These include public roads, tracks and trails or other roads used for land management, asset management or recreational purposes.

The purpose of these Standards is to define a network of fire trails for vehicular use identified through the processes established by the Act and deemed necessary for the protection of the community and its assets. These vehicular trails will be identified at a local level by the BFMC and recorded in a FAFT plan and the Treatment Register, or by the NSW RFS Commissioner. The NSW RFS Commissioner may provide guidance relating to the factors to be considered in this process.

While the Standards are principally concerned with fire trails designated and registered under provisions of the Act, it is recognised that other fire trails and access ways will continue to exist and serve an important role in bush fire suppression and fire management. These other fire trails will also be informed by the Standards. All fire trails and access ways will be identified as part of the overall fire access network captured in the FAFT planning process.

1.9 Performance-based approach

The Standards adopt a performance-based approach which allows for flexibility and innovation in the design of fire trails having regard to site-specific opportunities and constraints.

The performance criteria must be satisfied for registered fire trails, and should be achieved for other fire trails. Performance criteria are set out for each requirement and the outcome that needs to be achieved. Meeting the performance criteria is essential to maintain the safety and operational performance of firefighting resources. Compliance with the performance criteria can be achieved in one of two ways:

2. **Acceptable solution** – Acceptable solutions have been specified for each performance criteria and are ‘deemed to satisfy’. Materials, components, design factors, and construction methods may be included which, if used, will result in compliance with the performance criteria. It is expected that designated and registered fire trails on the whole will fall into this category; or,
3. **Performance solution** – A performance solution may be proposed where constraints mean compliance with the acceptable solution is not practicable, and it is demonstrated that it otherwise achieves the performance criteria.

The process of demonstrating compliance, including where a performance solution is proposed, is outlined in Chapter 3.

1.10 Environmental approvals

Fire trail works are required to be undertaken in accordance with applicable environmental and other regulatory requirements. A range of environment approval mechanisms exist for fire trails, these include:

- Bush Fire Hazard Reduction Certificate issued in accordance with the Bush Fire Environmental Assessment Code;
- Review of Environmental Factors (REF) under Part 5 of the *Environmental Planning and Assessment Act 1979*;
- Assessment in accordance with the Infrastructure State Environmental Planning Policy (ISEPP); or
- Any other relevant environmental approval methods.

The following applies to the Bush Fire Environmental Assessment Code.

The Bush Fire Environmental Assessment Code 2017* (the “Code”) provides a streamlined environmental assessment process for mechanical and burning methods for undertaking bush fire hazard reduction work, including fire trails.

For the purposes of clause 3.8 of the Code, the Code applies to the following works, provided the works are to bring the fire trail into closer compliance with an acceptable solution set out in, or performance solution approved in accordance with, the design and construction requirements set out in Chapter 2 and the work is in accordance with the *NSW RFS Fire Trail Design, Construction and Maintenance Manual* issued by the NSW RFS Commissioner:

- a designated fire trail;
- a registered fire trail;
- a fire trail that constitutes part of the fire trail network within a FAFT plan approved for the area;
- a fire trail shown on the BFMC’s fire trail layer and categorised as ‘essential’ or ‘important’ as at 1 August 2017 where there is no FAFT plan approved for the area; or
- an existing fire trail identified as a treatment in an approved Bush Fire Risk Management Plan where there is no FAFT plan approved for the area.

For the purposes of clause 3.9 of the Code, the Code applies to works for a vehicular control line, where those works are in accordance with an acceptable solution set out in, or performance solution approved in accordance with, the design and construction requirements set out in Chapter 2 and *NSW RFS Fire Trail Design, Construction and Maintenance Manual* issued by the NSW RFS Commissioner.

*Note: Once approved and Gazetted.

2. Fire Trail Standards

2.1 Classification of fire trails

The Standards provide for the classification of fire trails based on the type of firefighting vehicle required to access an area. Three categories are provided:

- **Category 1:** A fire trail that can be safely traversed by a Category 1 firefighting vehicle.
- **Category 7:** A fire trail that can be safely traversed by a Category 7 firefighting vehicle.
- **Category 9:** A fire trail that can be safely traversed by a Category 9 firefighting vehicle.

Specific requirements have been developed for each category of fire trail. The specifications are based on the engineering details contained in Appendix A.

The category of each fire trail will be identified in the FAFT plan as set out in Chapter 4 and as identified by the NSW RFS Commissioner in the designation and registration of the fire trail.

2.2 Design requirements

Intent of requirements: to provide a functional, strategic network of fire trails which permits access for firefighting vehicles used in NSW in order to support fire management and bush firefighting.

2.2.1 Category 1 Fire Trails

The following performance criteria and acceptable solutions are considered industry best practice and apply to Category 1 Fire Trails:

Table 1: Category 1 Fire Trail requirements

REQUIREMENT	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
Width	The width of the trail provides for safe, reliable and unobstructed passage by a Category 1 firefighting vehicle within acceptable operational limits.	<ul style="list-style-type: none"> ➤ The trafficable surface has a width of 4 metres except for short constrictions to 3.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed. ➤ Curves have a minimum inner radius of 6 metres. The minimum distance between inner and outer curves is 6 metres.
Capacity	The construction and formation of the trail is trafficable under all weather conditions (other than due to flood, storm surge or snowfall) for a Category 1 firefighting vehicle.	<ul style="list-style-type: none"> ➤ Trail surfaces and crossing structures are capable of carrying vehicles with a gross vehicle mass of 15 tonnes and an axle load of 9 tonnes.

REQUIREMENT	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
Grade and crossfall	<p>The vertical profile of the trail provides for traction and safe working angle within the physical operational capability of a Category 1 firefighting vehicle.</p> <p><i>Note: This includes design that does not impede the undercarriage of a vehicle.</i></p>	<ul style="list-style-type: none"> ➤ The maximum grade of a trail is not more than 15 degrees. ➤ The crossfall of the trail surface is not more than 6 degrees. ➤ Drainage structures, feature crossings, or other significant changes in the grade of the trail shall be in accordance with the <i>NSW RFS Fire Trail Design, Construction and Maintenance Manual</i>.
Clearance	<p>A cleared corridor is provided around the trail which permits the unobstructed passage of a Category 1 firefighting vehicle and for a working corridor either side of the vehicle to enable firefighters to exit from, and access equipment in, the vehicle.</p>	<ul style="list-style-type: none"> ➤ A minimum vertical clearance of 4 metres is provided above the surface of the trafficable surface clear of obstructions.
Passing	<p>The trail provides for two Category 1 firefighting vehicles to pass at appropriate intervals so as to avoid unacceptable delays in operations.</p>	<ul style="list-style-type: none"> ➤ Capacity for passing is provided every 250 metres comprising: <ul style="list-style-type: none"> ➤ A widened trafficable surface of at least 6 metres for a length of at least 20 metres; or ➤ A 6 metre wide and 8 metre long area clear of the trafficable surface with a minimum inner curve radius of 6 metres and minimum outer radius of 12 metres; or ➤ A turnaround as provided for in this table.
Turnarounds	<p>The trail provides for a turning manoeuvre for a Category 1 firefighting vehicle to return in the direction from which it came at appropriate intervals and at the termination of a trail.</p>	<ul style="list-style-type: none"> ➤ A turning area is provided at the termination of a trail and every 500 metres and is achieved by: <ul style="list-style-type: none"> ➤ An area clear of the trafficable surface 6 metres wide and 8 metres deep, with a minimum inner curve radius of 6 metres and outer minimum radius of 12 metres; or ➤ A turning circle of minimum 22 metre diameter. ➤ A T-junction with each terminating end of the junction being at least 10 metres in length from the intersection of the roads and the inner radius of that intersection being at least 6 metres ➤ A fire trail or road intersection.
Drainage	<p>The fire trail is drained effectively to manage rainfall runoff to prevent damage to the trafficable surface.</p>	<ul style="list-style-type: none"> ➤ Drainage of the trail is designed and constructed in accordance with the <i>NSW RFS Fire Trail Design, Construction and Maintenance Manual</i>.

2.2.2 Category 7 Fire Trails

The following performance criteria and acceptable solutions are considered industry best practice and apply to Category 7 Fire Trails:

Table 2: Category 7 Fire Trail requirements

REQUIREMENT	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
Width	The width of the trail provides for safe, reliable and unobstructed passage by a Category 7 firefighting vehicle within acceptable operational limits.	<ul style="list-style-type: none"> ➤ The trafficable surface has a width of 3.5 metres except for short constrictions to 3 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed. ➤ Curves have a minimum inner radius of 5 metres. The minimum distance between inner and outer curves is 5 metres.
Capacity	The construction and formation of the trail is trafficable under all weather conditions (other than due to flood, storm surge or snowfall) for a Category 7 firefighting vehicle.	<ul style="list-style-type: none"> ➤ Trail surfaces and crossing structures are capable of carrying vehicles with a gross vehicle mass of 8 tonnes and an axle load of 6 tonnes.
Grade and crossfall	<p>The vertical profile of the trail provides for traction and safe working angle within the physical operational capability of a Category 7 firefighting vehicle.</p> <p><i>Note: This includes design that does not impede the undercarriage of a vehicle.</i></p>	<ul style="list-style-type: none"> ➤ The maximum grade of a trail is not more than 15 degrees. ➤ The crossfall of the carriageway is not more than 6 degrees. ➤ Drainage structures, feature crossings, or other significant changes in the grade of the trail shall be in accordance with the <i>NSW RFS Fire Trail Design, Construction and Maintenance Manual</i>.
Clearance	A cleared corridor is provided around the trail which permits the unobstructed passage of a Category 7 firefighting vehicle and for a working corridor either side of the vehicle to enable firefighters to exit from, and access equipment in, the vehicle.	<ul style="list-style-type: none"> ➤ A minimum vertical clearance of 3.5 metres is provided above the surface of the trafficable surface clear of obstructions.

REQUIREMENT	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
Passing	The trail provides for two Category 7 firefighting vehicles to pass at appropriate intervals so as to avoid unacceptable delays in operations.	<ul style="list-style-type: none"> ➤ Capacity for passing bays are provided every 250 metres comprising: <ul style="list-style-type: none"> ➤ A widened trafficable surface of at least 5.5 metres for a length of at least 15 metres; or, ➤ A 5.5 metre wide and 6 metre long area clear of the trafficable surface with a minimum inner curve radius of 5 metres and minimum outer radius of 10 metres.
Turnarounds	The trail provides for a turning manoeuvre for a Category 7 firefighting vehicle to return in the direction from which it came at appropriate intervals and at the termination of a trail.	<ul style="list-style-type: none"> ➤ A turning area is provided at the termination of a trail and every 500 metres and is achieved by: <ul style="list-style-type: none"> ➤ An area clear of the trafficable surface 5.5 metres wide and 6 metres deep, with a minimum inner curve radius of 5 metres and outer minimum radius of 10 metres; or ➤ Turning circle of minimum 17 metre diameter.
Drainage	The fire trail is drained effectively to manage rainfall runoff to prevent damage to the trafficable surface.	<ul style="list-style-type: none"> ➤ Drainage of the trail is designed and constructed in accordance with the <i>NSW RFS Fire Trail Design, Construction and Maintenance Manual</i>.

2.2.3 Category 9 Fire Trails

The following performance criteria and acceptable solutions requirements are considered industry best practice and apply to Category 9 Fire Trails:

Table 3: Category 9 Fire Trail requirements

REQUIREMENT	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
Width	The width of the trail provides for safe, reliable and unobstructed passage by a Category 9 firefighting vehicle within acceptable operational limits.	<ul style="list-style-type: none"> ➤ The trafficable surface has a width of 3 metres except for short constrictions to 2.5 metres for no more than 30 metres in length where an obstruction cannot be reasonably avoided or removed. ➤ Curves have a minimum inner radius of 5 metres. The minimum distance between inner and outer curves is 5 metres.
Capacity	The construction and formation of the trail is trafficable under all weather conditions (other than due to flood, storm surge or snowfall) for a Category 9 firefighting vehicle.	<ul style="list-style-type: none"> ➤ Trail surfaces and crossing structures are capable of carrying vehicles with a gross vehicle mass of 4 tonnes and an axle load of 2 tonnes.
Grade and crossfall	<p>The vertical profile of the trail provides for traction and safe working angle within the physical operational capability of a Category 9 firefighting vehicle.</p> <p><i>Note: This includes design that does not impede the undercarriage of a vehicle.</i></p>	<ul style="list-style-type: none"> ➤ The maximum grade of a trail is not more than 15 degrees. ➤ The crossfall of the trail surface is not more than 6 degrees. ➤ Drainage structures, feature crossings, or other significant changes in the grade of the trail shall be in accordance with the <i>NSW RFS Fire Trail Design, Construction and Maintenance Manual</i>.
Clearance	A cleared corridor is provided around the trail which permits the unobstructed passage of a Category 9 firefighting vehicle and for a working corridor either side of the vehicle to enable firefighters to exit from, and access equipment in, the vehicle.	<ul style="list-style-type: none"> ➤ A minimum vertical clearance of 3 metres is provided above the surface of the trafficable surface clear of obstructions.

REQUIREMENT	PERFORMANCE CRITERIA	ACCEPTABLE SOLUTIONS
Passing	The trail provides for two Category 9 firefighting vehicles to pass at appropriate intervals so as to avoid unacceptable delays in operations.	<ul style="list-style-type: none"> ➤ Capacity for passing bays are provided every 250 metres comprising: <ul style="list-style-type: none"> ➤ A widened trafficable surface of at least 5 metres for a length of at least 15 metres; or, ➤ A 5.5 metre wide and 6 metre long area clear of the trafficable surface with a minimum inner curve radius of 5 metres and minimum outer radius of 10 metres.
Turnarounds	The trail provides for a turning manoeuvre for a Category 9 firefighting vehicle to return in the direction from which it came at appropriate intervals and at the termination of a trail.	<ul style="list-style-type: none"> ➤ A turning area is provided at the termination of a trail and every 500 metres and is achieved by: <ul style="list-style-type: none"> ➤ An area clear of the trafficable surface 5.5 metres wide and 6 metres deep, with a minimum inner curve radius of 5 metres and outer minimum radius of 10 metres; or ➤ Turning circle of minimum 16 metre diameter.
Drainage	The fire trail is drained effectively to manage rainfall runoff to prevent damage to the trafficable surface.	<ul style="list-style-type: none"> ➤ Drainage of the trail is designed and constructed in accordance with the <i>NSW RFS Fire Trail Design, Construction and Maintenance Manual</i>.

2.3 Construction and maintenance requirements

Fire trails shall be constructed and maintained in accordance the *NSW RFS Fire Trail Design, Construction and Maintenance Manual* issued by the NSW RFS Commissioner.

2.4 Access requirements

Access to fire trails shall not be obstructed to ensure that the fire trail is available for use by firefighting services. Where access to a fire trail is controlled through the installation of a gate or other control mechanism, this shall not unreasonably restrict access to firefighters. Access by firefighters and their representatives shall only be undertaken for the purposes of firefighting and associated activities.

Inappropriate / unauthorised access is not permitted without the knowledge of the land manager.

Any gate or control mechanism installed across a trail shall be operable by a single person without assistance or machinery, and provide a clear area for the passing of a vehicle at least the width of the trafficable surface specified in the relevant acceptable solution specified in Table 1, 2 or 3. This area for passing should be provided within 100 metres of the gate.

Where any securing arrangement to a gate or other control mechanism requires the use of the key for access, the land manager must provide firefighters with access such that firefighting efforts are not hampered or delayed, to the satisfaction of the NSW RFS Commissioner.

The NSW RFS Commissioner will work with major government land managers to identify suitable and efficient access control arrangements to facilitate access to the fire trail network across tenures.

It is acknowledged that fire trails may need to be closed periodically for maintenance and repair purposes. Any periods of closure should be minimised as far as reasonably practicable and local response agencies should be made aware of the closure, intended duration of closure and reopening.

2.5 Signage requirements

Standardised signs should be installed and maintained throughout the fire trail network so that fire trails are easily identified when required for firefighting activities and fire management, including in times of limited visibility. Signs will be required for all fire trails on public land, while signs to be installed on private land will be subject to agreement with the relevant private landowner.

The NSW RFS Commissioner will supply and install standard fire trail signs or approved indicative signage where appropriate for all registered fire trails. Signage will be installed in the first instance on trails where no current signage exists. Where existing signage exists that is clear and performs the required function, it will not require replacement until the sign is no longer functional, at which time it will be replaced by NSW RFS with a sign that meets this Standard.

To maintain consistency and ensure accuracy, the NSW RFS Commissioner will gather signage requirement details from each land manager through the BFMC prior to ordering signage.

2.5.1 Standard fire trail signs

A fire trail should be clearly signposted with standard signs at each entry point to the fire trail.

Fire trail signs will be a metal blade, Class 1 reflective yellow with black lettering, and include:

- NSW RFS* Logo
- Fire trail name (including 'F/T' as an abbreviation for 'fire trail');
- Latitude and longitude reference of the location of the sign in Degrees Decimal Minutes (DD) format, and;
- The vehicle carrying capacity (1, 7 or 9) in red within red circle as displayed in Appendix B.

Lettering is to be 70mm in height, and a blade is to be no longer than 1200mm. Should a fire trail name not fit on a single blade of this length, the following options are to be considered:

1. compress lettering spacing and retain 70mm height
2. reduce lettering size and print on two lines

Where a sign is to be mounted on a centre pole, blade length may be increased to 1800mm. Signs should consider the use of an anti-graffiti coating.

An illustration of a typical standard sign for a registered fire trail is at Appendix B.

In areas where permanent signage is unsuitable such as areas of high theft or vandalism, the NSW RFS Commissioner may consider the use of temporary signage such a v-frame signage, or other design suitable for use during an incident.

**except where the sign is paid and provided by the land manager. In these circumstances, the land manager may use their logo in place of the NSW RFS.*

2.5.2 Indicative fire trail signs

In circumstances where the use of a standard fire trail sign is not considered suitable, such as on or near private property, the NSW RFS Commissioner may issue and install indicative fire trail signs.

These signs will be a metal blade, Class 1 reflective yellow, and include only the trail Vehicle Carrying Capacity (i.e. 1, 7 or 9) as shown in Appendix B. These signs should consider the use of an anti-graffiti coating.

An illustration of a typical indicative sign for a registered fire trail is at Appendix B.

2.5.3 Installation of fire trail signs on non-registered fire trails

Should a BFMC or land manager wish to install fire trail signs on non-registered fire trails, the sign should use the design in Appendix B with the following alterations:

- all lettering is to be black, including the vehicle carrying capacity
- there must be no circle around the vehicle carrying capacity.

2.5.4 No through trails

All trails with only one entry and exit point (dead ends or to hand tool lines only) must be marked as a “No Through Road”. These signs to be Class 1 reflective white with black lettering 70mm in height, and are to be a single blade positioned directly under the fire trail sign.

2.5.5 Bridges

Bridges should be marked and identify load rating. These signs to be Class 1 reflective white with black lettering as per RMS standards, and are to be a single sign positioned appropriately in relation to the bridge.

2.5.6 Standard symbology and other advisory signs

In some circumstances there may be a requirement or benefit in displaying additional information on sign posts. This may include a six (6) figure grid reference.

Standard symbology, in accordance with AFAC Standards, for features considered relevant (such as Water Points, Escape Routes and Helipads) by a BFMC may be included on a Class 1 reflective white single blade. The symbology would be consistent with the colour of the standardised AFAC symbol. An example is provided in Appendix B.

Should the fire trail have any known restrictions, a separate blade shall be provided to identify the restriction. These will be a metal blade, Class 1 reflective white with black lettering.

2.5.7 Fire trail name

Fire trails shall be appropriately named in order to minimise confusion. BFMCs and land managers are required to name the fire trail prior to registration. If already known, use accepted names when formally naming a fire trail. Fire trails should not be referred to as ‘unnamed’, ‘no name’, or ‘unknown’.

Nominated names should be easy to pronounce, write and spell. Avoid duplication or the use of common names in existence elsewhere within the BFMC’s local area.

2.5.8 Other signs

Other signs may be required from time to time by the NSW RFS Commissioner. These may include guide posts for culverts, or signage required to indicate the location of turn-around points or helipads.

The NSW RFS will work with the other agencies to determine additional public safety information signage to be provided as part of, or in conjunction with, fire trail signs as required.

3. Assessment and compliance

Assessments will need to be undertaken at a number of points in this process to determine whether a fire trail complies with the design and construction requirements of the Standard. Assessments shall be focussed on whether the trail complies with the design and construction standards set out in Chapter 2. Where an assessment is undertaken for the purposes of submission to the NSW RFS Commissioner, the assessment will be required to be in the form specified by the NSW RFS Commissioner.

3.1 Performance solutions

Where a performance solution is proposed, the onus is on the land manager to demonstrate compliance with relevant provisions of the Standards.

Performance solutions must be assessed according to one or more of the assessment methods:

- Evidence to support that the use of a material, form of construction, or design meets the performance criteria;
- Verification methods such as a test, inspection, calculation or other method that determines whether a performance solution complies with the relevant performance criteria;
- Comparison with the acceptable solutions using expert judgement.

Performance solutions should be developed in consultation with the relevant stakeholders such as the NSW RFS, engineers, private land owners, and the BFMC before being forwarded to the NSW RFS Commissioner for approval.

3.2 Annual assessment

A public land manager shall provide to the NSW RFS Commissioner annually a statement as to the condition of each designated and registered fire trail on its land, and whether or not each of those trails meet the Standards. The statement must be made in the form as specified by the NSW RFS Commissioner.

Where a fire trail is located on private land, assessment arrangements will be determined and set out in the agreement entered into between the NSW RFS Commissioner and the landowner.

The NSW RFS may undertake inspections of fire trails on both public and private land additional to the annual assessment requirement.

An annual assessment of all other fire trails in a FAFT plan should be undertaken by the responsible agency and provided to the BFMC.

4. Planning

4.1 Fire Access and Fire Trail plan requirements

In order to provide a consistent approach to fire trail planning across NSW, the Act requires BFMCs to prepare a draft FAFT plan for their area. This must be prepared in accordance with requirements set out in these Standards and reviewed and approved by the BFCC.

The FAFT plan will supplement existing fire planning activities undertaken at the local level, such as bush fire risk management planning, and identify the appropriate means of accessing land to prevent, fight, manage or contain bush fires. The process will consider a wide range of factors that will review the adequacy of the access system for firefighting to provide access for the protection of life and property in an area.

A FAFT plan shall:

- Be prepared in accordance with instructions and be in a form specified by the NSW RFS Commissioner;
- Include all trails that form the fire trail network as envisaged in the Standards, along with other access ways; and
- Be prepared with a planning horizon of 5 years.

A FAFT plan shall comprise:

- A map showing:
 - A base layer containing all existing vehicular tracks, trails and roads;
 - The identified fire trail network comprising:
 - All strategic fire trails;
 - All tactical fire trails; and
 - Other fire access ways, such as existing roads, tracks and trails that may be of use for fire management, but do not form part of the fire trail network.
- A schedule of the identified fire trails that constitute the fire trail network detailing:
 - Name
 - Identifier
 - Category (strategic or tactical)
 - Status (registered, designated etc.)
 - Vehicle Carrying Capacity (VCC)
 - Proposed fire trails
 - Current fire trail condition
 - Responsible agency; and
 - Other matters as determined by the NSW RFS Commissioner.

4.2 Fire trail treatment register

A treatment register form should be used to set out a schedule of works for the construction and maintenance of fire trails that constitute the fire trail network.

A treatment register shall be prepared and submitted to the NSW RFS Commissioner for approval:

- Concurrently with the submission of a draft FAFT plan; and
- By 31 May each year.

A treatment register shall:

- Be prepared in accordance with the BFMC instructions and be in a format specified by the NSW RFS Commissioner; and
- Detail planned fire trail works for the nominal five year planning horizon of the FAFT plan to improve the network over time.



5. Document review

The *Fire Trail Standards* may be reviewed and amended by the NSW RFS Commissioner as required. A review must be undertaken before 30 June 2019.

Appendix A

Firefighting vehicle specifications

Category 1 Firefighting vehicle specifications

Length	8200 mm
Width	2400 mm
Mirror length	450mm
Height	3700 mm (including 600 mm for aerials)
Ground clearance	310 mm
Approach angle	35°
Departure angle	25°
Wheelbase	4700 mm
Turning circle - wall to wall	22m diameter
Weight	14200kg
Maximum axle loading	9,000kg



Category 7 Firefighting vehicle specifications

Length	6200mm
Width	2040mm
Mirror length	450mm
Height	3050mm (including 600 mm for aerials)
Ground clearance	230mm
Approach angle	35°
Departure angle	30°
Wheelbase	3395mm
Turning circle - wall to wall	17m diameter
Weight	7500kg
Maximum axle loading	5600kg



Category 9 Firefighting vehicle specifications

Length	5300mm
Width	1750mm
Mirror length	450mm
Height	2600 mm (including 600 mm for aerials)
Ground clearance	220mm
Approach angle	35°
Departure angle	30°
Wheelbase	3180mm
Turning circle - wall to wall	16m diameter
Weight	3700 kg
Maximum axle loading	2000kg

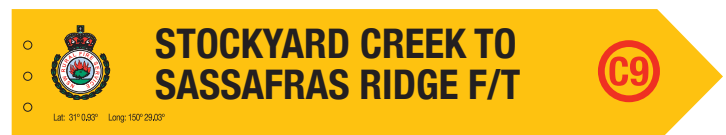


Appendix B

“Certified” Fire Trail Signage

PRIMARY FIRE TRAIL DIRECTIONAL SIGN SINGLE END-MOUNTED POST

- 200mm wide blade with Chevron
- Class 1 yellow reflective with black lettering
- Red circle and vehicle carrying capacity. Circle to be 125mm in diameter
- 70mm Lettering
- Where two lines are required, lettering height may be 60mm
- Max length 900mm
- Lat/ Long (DD format) lettering size to suit -single line
- Logo to be 115mm high



BI-DIRECTIONAL SIGN CENTRE-MOUNTED POST

- 200mm wide blade with chevron at each end
- Class 1 yellow reflective with black lettering
- Red circle and vehicle carrying capacity. Red circle to be 125mm in diameter at either end
- 70mm Lettering
- Where two lines are required, lettering height may be 60mm
- Max length 1200mm
- Lat/ Long (DD format) lettering size to suit -single line



INDICATIVE FIRE TRAIL SIGN FOR USE ON OR NEAR PRIVATE PROPERTY

- 200mm wide blade with chevron
- Class 1 yellow reflective with black lettering
- Red circle and vehicle carrying capacity. Red circle to be 125mm in diameter



“Advisory” Fire Trail Signage

AFAC SYMBOLOGY AND OTHER ADVISORY SIGNS

Attached under yellow blade

- 200mm wide blade with Chevron
- Attached under yellow blade
- 200mm blade with square end
- 70mm Lettering
- Reflective white background
- Black lettering
- AFAC symbology to be 125mm high
- Only AFAC Standard Bush Fire Symbology is to be used



AFAC BUSH FIRE SYMBOLOGY



Helipad



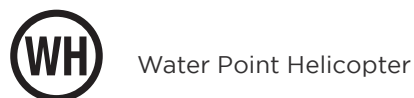
Refuge



Water Point



Staging Area



Water Point Helicopter



Escape Route

“Tactical” Fire Trail Signage

PRIMARY FIRE TRAIL DIRECTIONAL SIGN SINGLE END-MOUNTED POST

- 200mm wide blade with Chevron
- Class 1 yellow reflective with black lettering
- Cat number lettering to be 90mm
- 70mm Lettering
- Where two lines are required, lettering height may be 60mm
- Max length 900mm
- Lat/ Long (DD format) lettering size to suit on single line
- Logo to be 115mm high



BI-DIRECTIONAL SIGN CENTRE MOUNTED POST

- 200mm wide blade with chevron at each end
- Class 1 yellow reflective with black lettering
- Red circle and vehicle carrying capacity. Red circle to be 125mm in diameter at either end
- 70mm Lettering
- Where two lines are required, lettering height may be 60mm
- Max length 1200mm
- Lat/ Long (DD format) lettering size to suit on single line



NSW RURAL FIRE SERVICE

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