



URBAN EDGES MANAGEMENT ZONE

MUNICIPAL
INFRASTRUCTURE
STANDARDS 15

Transport Canberra and
City Services

SEPTEMBER 2021



Supersedes: Municipal Infrastructure Standard 15 Edition 1 Revision 0

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Document Information

Next review date

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**AUS-SPEC Base
Document**

Revision Register

Revision Number	Clause Number	Description of Revision	Authorised By	Date
1/0				
1/1	N/A	Acknowledgement of Country added		
	1.1.2.1	Relocation of National Capital Plan from ACT Legislation		
	1.1.2.4	MIS 03 and MIS 25 added		
	1.1.4.1	AEP added		

ACKNOWLEDGEMENT OF COUNTRY

Transport Canberra and City Services (TCCS) acknowledge that Aboriginal people are the Traditional Owners of Australia. We acknowledge and pay respect to the Ngunnawal peoples as the custodians of the land and waters that we live and thrive on today here in the ACT.

TCCS acknowledges that Canberra's cultural and natural heritage was maintained by the Ngunnawal people for many generations before colonial settlement on Australian soil. Aboriginal people's management of the land preserved the natural balance of local plants and animals. This knowledge of the environment in which we live is critical to the protection and restoration of our land today.

It is our responsibility to preserve and encourage Ngunnawal, Aboriginal and Torres Strait Islander cultural integrity. When using this document, consider opportunities to incorporate Ngunnawal, Aboriginal and Torres Strait Islander culture.



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1 URBAN EDGE MANAGEMENT ZONE

1.1 General

1.1.1 Responsibilities

1.1.1.1 Objectives

General: Plan, design and document for an appropriate interface between the urban area and surrounding public and unleased land. The urban edge forms part of the urban development area and is the buffer strip of land between the edge road or private lease and rural or non-urban areas. This Design Standard applies to existing and future urban edges.

Exclusions: The urban edge does not include the road reserve or edge road which forms part of the municipal area, refer to *MIS 01 Street planning and design*. The urban edge generally does not include areas of reserved land such as Nature Reserves which have a separate Plan of Management.

Provide consideration for the following:

- > Sensitivity to existing landscape character and effective functional and visual transition between urban lands and broad scale open space at realistic capital cost.
- > Cost effective management practices can be applied.
- > Appropriate access for maintenance and bush fire hazard management strategies.
- > Conservation of natural values and protection of threatened species and communities.

1.1.1.2 Precedence

Where any document except legislation, the *Territory Plan* or a Plan of Management issued in conjunction with this Design Standard includes technical requirements that conflict with this Design Standard the requirements of this Design Standard take precedence.

1.1.2 Cross references

1.1.2.1 Commonwealth Legislation

The following Commonwealth Legislation is relevant to this Standard:

Environment Protection and Biodiversity Conservation Act

National Capital Plan

1.1.2.2 ACT Legislation

The following ACT Legislation is relevant to this Standard:

Emergencies Act

Environment Protection Act

Nature Conservation Act

Pest Plants and Animals Act

Public Roads Act

Public Unleased Land Act

Territory Plan and related Codes

Tree Protection Act

Water Resources Act

Work Health and Safety Act

1.1.2.3 ACT Government Strategic Documents

The following strategic documents prepared by various Directorates of the ACT Government are relevant to this Standard:

ACT Bushfire Management Standards

ACT Code of Forrest Practice

ACT Lowland Woodland Conservation Strategy (Action Plan No 27)

ACT Pest Animals Management Strategy 2012 – 2022

ACT Weed Strategy 2009-2019

AP2 - A new climate change strategy and action plan for the ACT

Nature Conservation Strategy 2013 – 2023

Strategic Bushfire Management Plan

Threatened Species Action Plans

1.1.2.4 Design Standards

This Design Standard references the following component standards:

MIS 01 Street planning and design

MIS 03 Pavement Design

MIS 05 Active travel facilities design

MIS 08 Stormwater

MIS 10 Fences, guardrails and barriers

MIS 12 Guide signs

MIS 25 Plant species for urban landscape projects

1.1.2.5 TCCS reference documents

The following TCCS reference documents are related to this standard:

Reference document 4 Protection of public landscape assets

Reference document 6 Design Acceptance submissions

Reference document 7 Operational acceptance submissions

Reference document 8 WAE quality records

Reference document 9 Final acceptance submissions

Reference document 10 Landscape consolidation

1.1.2.6 Further reading

Bicentennial National Trail – Memorandum of Understanding

Managing the Urban Edge – Discussion paper December 2013, ACT Conservation Council

1.1.3 Referenced documents

The following documents are incorporated into this Design Standard by reference:

1.1.3.1 Standards

AS/NZS 2890 Parking facilities

AS 2890.2 Part 02: Off-street commercial vehicle facilities

1.1.3.2 Other publications

Austroads

AGPT Austroads Guide to Pavement Technology

AGPT06 Part 6: Unsealed pavements

Proprietary products: To *TCCS Products previously considered for use list*

1.1.4 Interpretations

1.1.4.1 Abbreviations

General: For the purposes of this Design Standard the following abbreviations apply:

ACTEA: ACT Equestrian Association.

AEP: Annual exceedance probability

CMTEDD: Chief Ministers, Treasury and Economic Development Directorate, ACT Government and its successors.

ESA: ACT Emergency Services Agency, ACT Government and its successors.

EPA: Environment Protection Authority, ACT Government and its successors.

EPD: Environment and Planning Directorate, ACT Government and its successors.

IAPZ: Inner Asset Protection Zone.

LATM: Local Area Traffic Management.

NCC: National Construction Code

OAPZ: Outer Asset Protection Zone.

SBMP: Strategic Bushfire Management Plan

TCCS: Transport Canberra and City Services, ACT Government and its successors.

1.1.4.2 Definitions

General: For the purpose of this Design Standard, the definitions of terms used to define the components of the road reserve are in conformance with *AS 1348, Glossary of Austroads Terms* and *AGRD03*.

Other definitions that are relevant to this Design Standard are outlined below,

Articulated float: Fire fighting truck and trailer carrying a D6 size dozer, refer to *ESA*.

Asset Protection Zone: Includes inner and outer zones; an area in or beside urban development that is designed and managed to reduce the risk of adverse impacts from bushfires on assets (public or privately owned). Refer to the *SBMP*.

Block: A parcel of land, as defined in the *Territory Plan*.

Dormant trails: Tracks that are accessed irregularly for maintenance or fire fighting requirements.

Rigid float: Fire fighting tankers and large rural tankers with a rigid body, refer to *ESA*.

Urban edge: The edges to the city, but not a defined or fixed distance. Includes urban and non-urban areas and may contain Outer, Inner and House Asset Protection Zones.

Urban interface: Where urban land uses meets non-urban land uses, the line between the Outer and Inner Asset Protection Zones.

1.2 Pre-design planning

1.2.1 Consultation

1.2.1.1 TCCS and other Authorities

Requirements: Consult with TCCS and other relevant Authorities during the preparation of design. In addition to the requirements of this Design Standard, identify the specific design requirements of these authorities.

TCCS: Consult on access for authorised vehicles to undertake tasks such as fire management, grass mowing and slashing, cut-off drain management, flora and fauna management and law enforcement. Discuss the proposed layout and pavement surfacing.

EPD: Consult on protecting any significant features such as ecologically significant habitats, cultural and heritage sites and geological features when determining the urban edge. Consult also on equestrian trail requirements.

CMTEDD: Consult on any future proposed infrastructure or strategic planning studies for the site.

ESA: Comply with bushfire management and emergency access requirements.

Bushfire Prone Areas: Conform to the requirements of the *Planning for Bushfire Risk Mitigation General Code*.

Utilities: Consult on access for authorised vehicles to utility assets located within or adjacent to the urban edge.

Submission: Prepare a Tree Management Plan for TCCS approval prior to any works adjacent to existing trees.

1.2.1.2 Utilities services plans

Existing site conditions: Obtain plans from all relevant utilities and other organisations whose services, trees, important ecological habitats or other assets exist within the area of the proposed development. Plot this information on the relevant drawings including the plan and cross-sectional views. As a minimum, designs should refer to 'Dial-before-you-dig' information that is readily available in most areas.

Responsibility: Confirm service plans accuracy with onsite inspection and also potholing if deemed necessary. Protect existing assets to the satisfaction of asset owners.

Proposed new services: Detail any new services proposed or relocated as part of the proposed works.

1.2.1.3 Safety in Design

Requirement: Implement safety in design processes in accordance with the *Work Health and Safety Act*.

Bushfire risk assessment: Prepare in accordance with the *NCC* and the *Planning for Bushfire Risk Mitigation General Code*.

1.2.2 Planning

1.2.2.1 General

Layout: Establish an adequate buffer strip containing:

- > Layout for management fencing.
- > Fire break in accordance with ESA requirements.
- > Access tracks for land management and other maintenance authorities.
- > Controlling public and unauthorised vehicle access.
- > Provision for emergency access.
- > Fire fighting water supply and hydrants.
- > Catch and cut-off drains.
- > Electricity and other services.

Location of roads: Consider the following:

- > New roads shall follow existing topography as much as possible.
- > Locate roads on ridges where possible.
- > Avoid crossing drainage features.
- > Consider aesthetic, environmental, maintenance and operational impacts.

2 DESIGN

2.1 Design criteria

2.1.1 General

Maintenance and fire control: The general design requirements for an urban edge zone are to:

- > Provide direct vehicle access and gates from cul de sacs and loop roads to the urban edge zone.
- > Ensure access is possible through municipal streets, including where LATM features have been installed.
- > Provide co-located maintenance tracks and catch drain adjacent to property boundaries.
- > Provide easements for overland stormwater flow through open space, refer to *MIS 08 Stormwater*.
- > Provide secondary catch drains where required
- > Retain existing trees and other native vegetation, while enabling tree cover breaks to be established in areas with continuous canopy cover. Where possible, retain important habitat features such as hollow bearing trees, surface rocks or fallen logs.
- > Avoid creating gaps of greater than 100m between tree trunks to provide appropriate cover for native fauna.
- > Provide an easily maintained and mowable strip of land along the boundary of blocks.
- > Establish fencing along the open space boundary; refer to *MIS 10 Fences, guardrails and barriers*.
- > Avoid small, steep, difficult to maintain areas, particularly rocky outcrops.
- > Provide a buffer between development and environmentally sensitive areas in accordance with the requirements of EPD and the Development Application approval conditions.
- > Provide an offset between development and utilities which require a buffer in accordance with the requirements of the utility operator.
- > Consider the ongoing management of the area by providing access for scheduled bushfire fuel reduction and minimise opportunities for weeds to flourish.
- > Provide opportunities for native wildlife movement to and from urban areas where the site has been identified for this purpose on ACTmapi.

2.2 Fire access and maintenance tracks

2.2.1 General

Provide: All weather access tracks immediately adjacent to the back boundaries of the residential properties adjoining the urban edge zone. Consider the location of retaining walls.

Access and safety: To the *Crime Prevention through Environmental Design General Code*.

Design vehicle: To the *SBMP, Table 8*.

2.2.2 Width

Nominal width: 5m, conform to the *SBMP*.

Minimum pavement width: 3.5m, unless otherwise approved by TCCS.

Intermittent obstructions: The effective width shall not to be constrained by obstructions such as electricity poles.

Passing bays: In the case of a minimum width track, and where the terrain does not provide a natural shoulder to allow vehicles to pass, the design shall include pull over bays at a maximum spacing of 250m.

2.2.3 Crossfall

General: Design with the crossfall into the slope, include consideration for the following:

- > Control of surface runoff,
- > Reduction of environmental impact.
- > Prevent erosion and seepage across the track surface and reduce long term maintenance requirements.

Minimum slope: 4%, unless otherwise approved by TCCS and ESA.

Maximum slope: 6% unless otherwise approved by TCCS and ESA. In steep or difficult topography consult with TCCS and ESA for specific access requirements.

2.2.4 Horizontal alignment

Location: Where applicable, the track (toe of the batter) shall be aligned adjacent to the residential property boundaries while still retaining a reasonable horizontal alignment for the operation of large vehicles such as fire tankers and large machinery.

Rigid Float access: Avoid sharp turns and corners that would prevent or hinder the access of fire tankers or large maintenance machinery.

Dead ends: Provide turning heads that enable continuous forward turning movement for the design vehicle.

2.2.5 Longitudinal gradient

Minimum grade: 0.5% to allow for surface drainage.

Maximum gradient: 10% for the safe operation of emergency and other heavy vehicles.

Steep gradients: Consult with TCCS and ESA at the early planning stage where grades over 10% are proposed. Provide consideration for the type of vehicles, track surfacing and stormwater runoff control. Provide appropriate treatment for steep batters and where possible, minimise cut and fill requirements.

2.2.6 Drainage structures

Drainage structures: Provide culverts, table drains and spoon drains as required to ensure efficient sedimentation control and energy dissipation.

Rollover cross banks: Provide consolidated effective bank height > 30cm.

Spoon drains: Provide consolidated effective bank height > 15cm.

Culverts: Minimum DN375.

Maximum conveyance along road surface: Provide drainage, including windrows, in accordance with the **Maximum drainage structure spacing table**.

Table 15-1 Maximum drainage structure spacing table

Road longitudinal grade (%)	Maximum Distance (m)
1	250
2	200
3	150
4	125
5	100
6	90
7	80
8	70
9	65
10	60
11	55
12	50
13	45
>13	40
>15	25
>20	20

2.2.6.1 Crossing drainage features

Road crossings of drainage features: Provide bridges, culverts or causeways.

Design storm event: Design road crossing to contain 20% AEP, and withstand 10% AEP.

“Fish friendly” crossings: Do not increase existing mean flow velocity by more than 10%.

Sedimentation: Provide adequate road drainage on approach to crossings to minimise pollution within existing water course.

2.2.7 Access requirements

2.2.7.1 General

General: Provide access from the municipal road network, pedestrian ways or floodways.

Standard: To AS 2890.2.

Location: Consult with TCCS and ESA.

Access route: Demonstrate vehicle access routes for construction and maintenance vehicles as part of detailed design.

Associated drainage structures: Locate cut-off drains and secondary spillways with these access points to reduce flooding of leases should the cut-off drain becomes blocked. No structures should be allowed to impinge on the access.

Access point drainage: If part of a cut off drain secondary spillway discharges to the access point, the access track may require kerb and guttering to prevent the edge of the track being eroded or undermined.

Control of unauthorised access: Provide appropriate rural or ranger gates and fencing, refer *MIS 10 Fences, guardrails and barriers*. Where gates are installed, consider requirements for queuing, parking or turning around at the access point.

2.2.7.2 Access from the track to publicly managed land

General: Provide clear access from the management track to adjoining publicly managed land that is not impeded by drains, fences, rocks and other obstacles.

Take off points: Where the catch drains or cut batters restrict vehicle access provide access at strategic locations, typically at 300 to 500m intervals, consult with ESA. This may involve culverts, kerb transitions or the laying back of cut batters to form ramps with 20% maximum gradient.

2.2.7.3 Pavement surface

General: The selection of an appropriate track surface will be determined by a number of factors which include:

- > Soil type.
- > Visual impact.
- > Track gradient.
- > Stormwater flows.
- > Specific management requirements refer to TCCS.

Selection: Apply different surfaces along a length of track in response to changing site conditions, where required short sealed sections may be approved. In particular, provide a stabilised surface between the access point and gate. Consider the following:

- > Compacted crushed rock: The most commonly used pavement surface for maintenance trails. Apply erosion control measures on steep slopes and hard wearing surface.
- > Two coat seal: Best option from a long term maintenance point of view for slopes up to 10%. Not suitable on steeper grades as rutting can occur and also unsuitable as an equestrian trail.
- > Asphaltic Concrete: Best option for steep slopes to provide low maintenance and long term trafficable surface.
- > Permeable concrete grass paving: Useful as a functional yet visually unobtrusive surface on access points between residential blocks

- > Reinforced concrete: Use as a low maintenance solution for sections of track on steep grades or drainage spillway crossings. Concrete can be visually intrusive, although this can be partly overcome by the full depth suitably coloured oxide.
- > Dormant trails: Tracks that are unlikely to have regular access should be designed to have minimum maintenance requirements.

Sealed pavement design: To *MIS 03 Pavement Design*.

Unsealed pavement design: To *AGPT06*.

2.3 Maintenance requirements

2.3.1 Fencing

2.3.1.1 General

General: Provide fencing and gates to secure nature reserves and rural land from unauthorised access.

Design: Conform to *MIS 10 Fences, guardrails and barriers*.

2.3.1.2 Materials

Standard: To *MIS 10 Fences, guardrails and barriers*.

Drainage: If fencing is to cross cut-off drains, the part of the fence within the drain is to have hinged flap to allow water and debris to flow under the fence without blocking.

2.3.2 Slashed grass areas

2.3.2.1 General

General: The maintenance track generally defines the boundary between two different intensities of maintenance.

- > An outer zone immediately adjacent to the track is to be provided in a condition suitable for slashing.
- > An inner zone between the edge of the track and the property boundary constitutes a service corridor and is generally maintained to the standard of other urban open space.

2.3.2.2 Inner slashing strip

Desirable width: 5m.

Slope: 1:4 maximum, unless otherwise approved by TCCS.

Ground surface: Within this zone remove rocks, boulders, surface irregularities and other impediments to slashing.

Reinstatement: Plant disturbed areas with non-invasive grass species; refer to *MIS 25 Plant species for urban landscape projects*. Undertake a site specific risk assessment to assess reinstatement requirements.

Native grasses: Revegetation in areas of known conservation value or adjacent to conservation reserves should be undertaken with native species. Refer to *MIS 25 Plant species for urban landscape projects*.

2.3.2.3 Outer slashing strip

Desirable width: 8m minimum.

Slope: 1:4 maximum. Minimise the requirement for manual vegetation management. Consult with TCCS if areas are steeper than 1:4 or if large boulders or bedrock are exposed. In these circumstances the width of the zone may be reduced to 3 metres, with fire fuel reduction performed by hand held machinery such as mowers and brush cutters.

2.3.3 Fire management zone

General: To the *SBMP*. Where there is conflict between fire management and conservation priorities, requirements of the *Emergencies Act* shall take precedence for the prevention of damage to persons or property in the event of a fire.

2.3.4 Catch and cut off drains

2.3.4.1 General

Design: To *MIS 08 Stormwater*.

General: Integrate drains with the maintenance track. Locate the drain on the high side of the track to minimise water running onto the track and erosion of the track. Form by embankment building or by excavating into the hillside. Provide access to areas above the drain.

- > Control surface runoff; do not direct concentrated overland flows into adjacent blocks.
- > Avoid construction of a separate stormwater structure such as a levee bank or swale to reduce environmental impact subject to the stormwater management plan.
- > Prevent erosion and seepage across the track surface and reduce long term maintenance requirements.
- > Manage the quality of discharge water. Do not discharge stormwater into environmentally sensitive areas.

2.3.5 Wildlife management

2.3.5.1 General

Requirement: Where the urban edge is adjacent to areas of known conservation value or adjacent to conservation reserves ensure that the design of the urban edge enhances the opportunity for wildlife movement through the urban edge. Consider the following:

- > Design buffer areas to retain a high level of native species cover or reinstate non-invasive species with a high level of cover to reduce the opportunity for weeds to flourish.
- > Retain existing flora for landscape wherever possible and provide clumped shrub planting in close proximity to retained trees to provide appropriate habitats.
- > Utilise clumped shrub planting to ensure that the distance of bare ground between suburban trees and nearby bushland does not exceed 100m.
- > Manage aquatic and riparian ecosystems to enhance the ecosystem in terms of flows, water quality and aquatic connectivity.

2.3.6 Service easements

Location: Locate services such as electricity, stormwater, water, gas and telephone within a service easement between the track and the property boundaries.

3 DOCUMENTATION

Requirements: Comply with *Reference document 6 Design Acceptance submissions*.



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