Professional Services
Specifications (PSS)

# T12 – Landscaping

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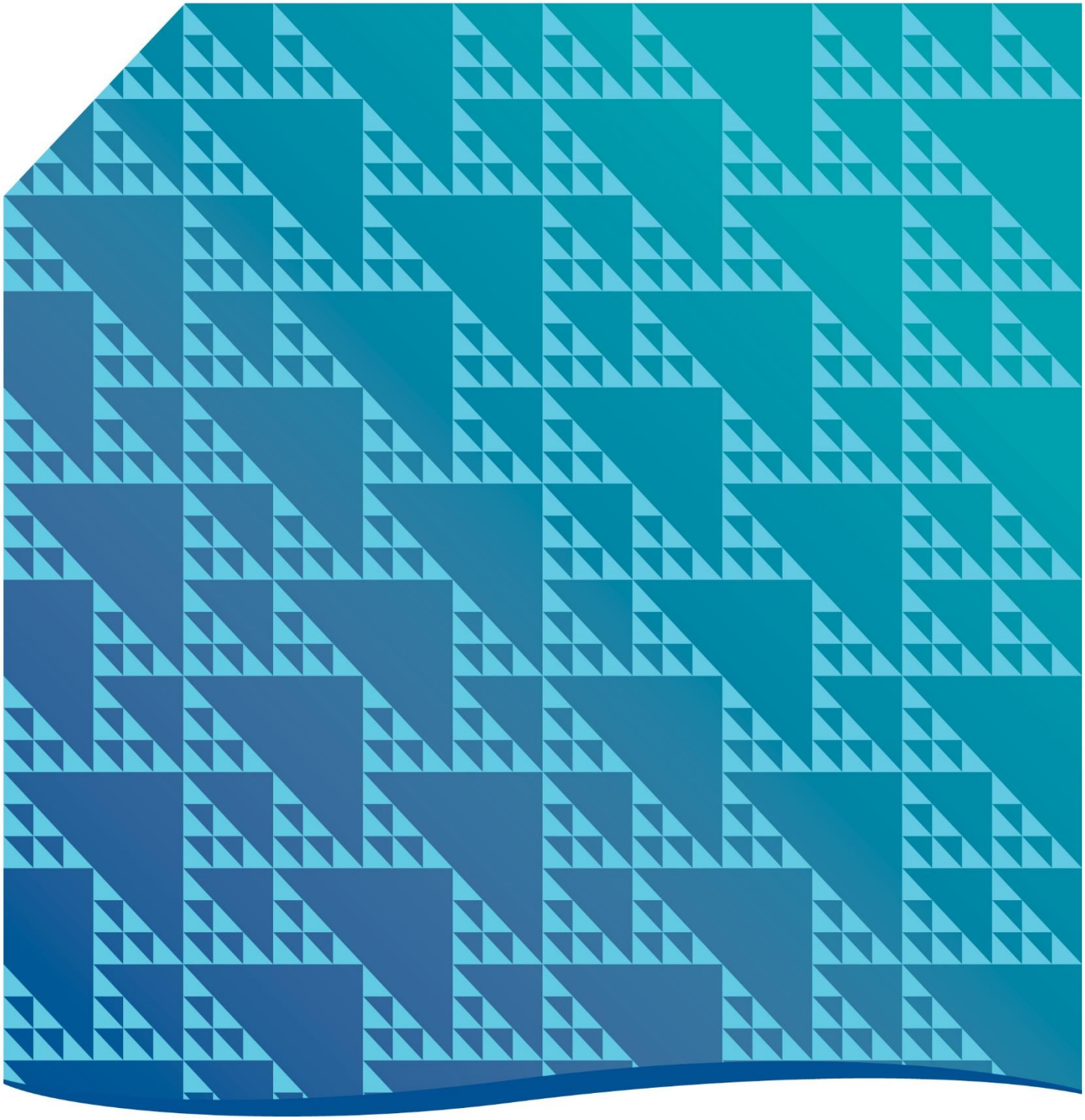

Department of State Growth

Tasmanian Government

# Contents



**Revision History**

| Version No. | Date | Description of changes |
|---|---|---|
| 2.0 | 17 August 2020 | Major revision and update<br>Template updated and old references to superseded documents/entities updated |

# T12.1 Scope

This specification sets out the minimum requirements for the design of landscaping works required as a part of all road construction projects managed by the Department of State Growth.

This specification is part of the set of specifications comprising the Professional Services Specifications (PSS).

Landscaping design includes (but is not limited to) any topsoiling, seeding and planting of areas either disturbed by or adjacent to a road project. Landscaping on road projects can be defined as either minimum standard landscaping or non-standard landscaping.

## T12.1.1 Minimum standard landscaping

Standard landscaping refers to the rehabilitation of all disturbed surfaces, including cut batters, fill embankments, redundant road and drains, with slopes of 3H:1V or less, where a high level of visual amenity is not a priority. Surface rehabilitation in standard landscaping will be achieved through surface top soiling and seeding and/or planting, but must conform to the requirements and performance targets of Standard Specifications 204 and 720 (refer Section T12.2.9 – Constructability).

## T12.1.2 Non-standard Landscaping

Non-standard landscaping refers to the rehabilitation of disturbed surfaces where;

a) visual amenity is a priority (see T12.1.2.1)
b) the slope of the disturbed surface is steeper than 3H:1V (see T12.1.2.2)
c) is a requirement of the project approvals process
d) where landslip and other geotechnical problems need to be considered
e) where indigenous plant species must be used for environmental approvals.

**Where there is a requirement or the likelihood of a requirement for non - standard landscaping this requirement must be clearly stated in the identification phase.**

### *T12.1.2.1. Visual Amenity Considerations*

If a project (or section of a project) falls within a part of the State Road Network with high visual amenity expectations it is likely that a project-specific landscaping design will be required.

Examples of locations with high visual amenity expectations include (but are not limited to):

- Urban areas
- Major commuting routes
- Entrances or approaches to towns/cities
- Sites which support existing significant vegetation or plantings (i.e. hedges, historic tree plantings etc.)
- Tourist stopping areas/lookouts
- Roundabouts or junctions that lead to important public places (i.e. Airports)
- Conservation areas and other areas where establishment native vegetation is desirable or prudent.

Project-specific landscaping designs with high visual amenity values should be developed by a landscape architect and/or environmental specialists and incorporated into the project design for these locations.

#### *T12.1.2.2. Batter Slope Considerations*

The steepness of earthwork slopes is a critical consideration in the design of the landscaping treatment as:

- The risk of erosion of the surface increases markedly as slope increases;
- Landscaping treatments that have a likelihood of success become increasingly expensive as the slope increases;
- Repair of defective surfaces is unacceptably expensive and difficult and;
- Slopes steeper than 3H:1V require specialised maintenance regimes as they cannot be maintained using standard methods such as mowing or slashing. Routine grass seeding is not suitable for use on steeper slopes.

Rehabilitation treatments for disturbed surfaces (particularly cut batters) with slopes steeper than 3H:1V shall be developed by a suitably qualified environmental practitioner in consultation with the project design engineer.

## T12.2 Design Considerations and Requirements

The following principles apply to the development of landscaping design.

### T12.2.1 Planning

It is critical to consider landscaping requirements in the project identification phases of planning and design of any road project, particularly with regard to the requirement for minimum standard or non-standard (or a combination of both) landscaping. A general understanding of the extent, if any, for non-standard landscaping should be achievable at a very early stage in planning, and used to determine the extent of field investigation and the expert input necessary to inform detailed design.

Once a general understanding of the landscaping / site rehabilitation objectives are understood, it is critical that these objectives are addressed in other investigations such as geotechnical, drainage and flora and fauna surveys.

### T12.2.2 Compatibility with Design and Construction Specifications

The landscaping design should, at a minimum, adhere to Austroads Guides to Road Design and adhere to, and be compatible with Department of State Growth Construction Specifications. As such, landscaping design shall be developed with reference to documents that include, but are not limited to:

- Austroads Guide to Road Design - Part 3: Geometric Design (specifically 3.5, 3.6, 3.7)
- Austroads Guide to Road Design - Part 6: Roadside Design, Safety and Barriers;
- Austroads Guide to Road Design– Part 6B: Roadside Environment
- Austroads Guide to Road Design– Part 2: Design Considerations;
- Standard Specification 176: Environmental Management (176 (B, D, I))
- Standard Specification 201: Site Clearing (201.07. 201.10, 201.11)
- Standard Specification 204: Earthworks (204.03(b, i, j), 204.04(a), 204.05, 204.06(a, b, c, i), 204.17),

- Standard Specification 720: Landscaping

*It should be noted that the depth and quality of top soil plays a critical role in the success of rehabilitation treatments. Construction specifications define the minimum required quantities however the landscaping design should aim to significantly exceed these values whenever possible (204.04, 204.17, and 720.04).*

### T12.2.3 Compliance with Legislative Requirements

The landscaping design shall comply with all legislative requirements, and may need to be amended upon receipt of planning approval conditions or conditions applied under other legislation. The legislation that may need to be addressed includes:

- *Environment Protection and Biodiversity Conservation Act 1999* (EPBC)
- *Nature Conservation Act 2002* (NCA)
- *Roads and Jetties Act 1935* (Section 10)
- *Historic Cultural Heritage Act 1995* (HCHA)
- *Aboriginal Heritage Act 1975*
- *Threatened Species Protection Act 1995* (TSPA)
- *Land Use Planning and Approvals Act 1993* (LUPAA)
- *National Parks and Wildlife Act 1970*
- *Weed Management Act 1999 (WMA)*

### T12.2.4 Erosion and Sediment Control during Construction & Long Term Site Rehabilitation and Stabilisation Objectives

The landscaping design shall be compatible with, and play a central role in the development of the erosion and sediment control plan, as required by Standard Specification 176 D, to be adopted in the construction phase. The landscaping design should be developed in parallel with the erosion and sediment control plan wherever possible.

The landscaping design shall be prepared with reference to documents that include, but are not limited to:

- Department of State Growth Site Stabilisation and Landscaping Guideline 2018, and
- IECA Best Practice Erosion and Sediment Control 2008.

### T12.2.5 Consultant Supplied Products

The Consultant shall provide copies of, or access to, relevant information. This information may include, but is not limited to:

- Prior, or related, environmental and heritage reports;
- Geotechnical reports;
- Drainage or Hydraulic reports;
- Soil testing reports, and
- Desktop assessment.

  The consultant shall provide a project specific weed report. This report may either be included in the environmental report or provided separately*;

**The project specific weed report shall provide recommendations for the most appropriate weed management strategy to ensure that construction specification requirements for weed control will be met (176-12, 720.11) ). Weeds to be managed shall include declared weeds, State, regional and/or local significant weeds, environmental and agricultural weeds and any other plant/s considered to be undesirable (refer to T12.2.7, T12.2.8 and T12.2.10). The plan shall specify pre-construction treatment where this is the appropriate method to minimise or eliminate the spread of weeds during construction. The plan shall also specify soil management and machinery hygiene requirements during construction.*

### T12.2.6 General Principles

Soil, water and vegetation must all be considered to achieve successful, self-sufficient landscaping that will provide effective erosion control during the construction phase and long term rehabilitation of the site for the life of the project. The landscape plan should aim to create long-term soil health, establish the most appropriate vegetation and achieving permanent soil stabilisation. In doing so, the following aspects shall be achieved:

- The landscaping design shall be designed in parallel with drainage design to:
  a) Integrate with natural drainages and topography;
  b) Aid in the reduction of overland water velocities, minimise flow concentration and aim to reduce reliance on engineered drainage structures; and
  c) Where applicable or prudent, provide aquatic habitat and habitat connectivity.
- The landscaping shall not impair existing or proposed drainage lines or otherwise interfere with the road pavement;
- Soil should be managed so that it provides optimal infiltration, has adequate organic matter, sufficient water holding capacity and favourable soil biology and microflora.
- The plant schedule should aim to achieve healthy plant communities with a diverse composition of species that have optimal root depth to maximise stabilisation of the site.
- Plant schedules should preferably use local provenance species that best meet the maintenance and safety objectives;
- The landscaping design should aim to enhance the stability of earthworks, and wherever possible reduce reliance on engineered landscaping;
- Minimise project life maintenance costs; and

### T12.2.7 Maintenance Requirements

The landscaping design shall minimise maintenance requirements during the establishment period and for the project life. Design, plant selection and establishment requirements shall ensure:

- Project life maintenance requirements are addressed, including provision of safe site access for maintenance and provision of a safe work place, with minimal or no requirement for traffic management;
- Minimal or no requirement to undertake maintenance activities in central medians or roundabouts;
- Planting methodology will maximise plant growth and will meet the plant growth and weed re-establishment targets of Standard Specification 720;
- Recommendations for project life maintenance regimes are provided;
- Maintenance regimes will require infrequent maintenance visitations, be simple and cheap,
- Plants will be robust, long lived and drought resistant once established, and

- Specified plant species will play a role in suppressing weeds and other undesirable plants over the project life. Emphasis will be placed on the suppression of non-frangible weedy species.

### T12.2.8 Design with Respect to Road User Safety

The landscaping design shall complement the engineering standards adopted during the design for safety and line of sight. The design, at a minimum, shall include the following:

- A $45^0$ landscape design envelope of the mature canopy height (Professional Services Specification T3 – Roads Design Standards). This shall be established whenever this treatment is ecologically viable and where it will not interfere with roadside infrastructure; and
- A clear zone shall be adopted. This zone shall contain only frangible vegetation with a maximum trunk diameter of less than 100mm. The width of this zone from the edge of the traffic lane shall be in accordance with the Professional Services Specification T3 – Roads Design Standards.
- Where environmental factors preclude either a clearance envelope (a) or a clear zone (b), the design shall include necessary safety infrastructure.

### T12.2.9 Constructability

The landscaping design shall consider and address the following aspects during construction:

- Most appropriate method of surface preparation, including batter shaping;
- Correct stripping, storage and reuse methodologies for top soil;
- Most advantageous use of site mulch;
- Timing of the application of surface treatments to minimise erosion of sub-soils;
- Maintenance regime to maximise plant establishment, and
- Replacement or successional planting that may be necessary to achieve the project life landscaping objective.

### T12.2.10 Environmental

The landscaping design shall:

- Meet the requirements of Standard Specifications 176, 201, 204 and 720 during construction;
- Sustainably stabilise and rehabilitate disturbed surfaces;
- Manage weed establishment as required under legislation (WMA);
- Protect and enhance elements of the existing environment containing native vegetation or natural ecological systems;
- Preserve rare and endangered species and threatened communities by accurately defining exclusion zones;
- Address offsetting requirements for impacted threatened species*, if required under TSPA or EPBC legislation**;
- Address offsetting requirements for impacts on planted or built historic heritage, if required under EPBC, HCHA or LUPAA**;
- Address any scenic management landscape or road corridor issues, if required under LUPAA.

- Understand the potential for community concern for the loss of prominent plantings not formally protected under legislation**. Effective identification and effective management of these stakeholder concerns can play a role in simplifying planning permit conditions;
- Where ever possible maintain wildlife connectivity;
- Not cause a nuisance to adjoining landholders;
- Control erosion of surfaces during construction and for the project life, and
- Eliminate sediment pollution of the surrounding areas, drainage lines and waterways during construction and for the project life.

**Note: The road corridor alone is a poor ecological unit. This is a consequence of a number of factors including altered light conditions, modified hydraulic conditions and its narrowness. Any offset planting within the road corridor alone is highly unlikely to be successful or sustainable. Wherever possible offset planting should occur in larger and more ecological stable communities on adjoining land.*

*** Any planting external to the declared road corridor must comply with Section 10 of the Roads and Jetties Act and any associated requirements necessary to gain landowner consent.*

## T12.3 Deliverables

The landscaping design shall, as a minimum, contain the following components:

- A written report developed in with respect to with the Department's Site Stabilisation and Landscaping Guideline 2018; and
- Drawings which clearly define landscaping treatments and requirements, and are referenced to the relevant Standard Specification sub-clauses. Where ever possible the drawings reference standard drawings of treatments, methodologies and relevant construction specification clauses as an appendix.
- All drawings to conform to Professional Services Specification T13 – CADD Manual.

## T12.4 Hold Point

The Contractor shall not commence work on site before the landscape report and drawings have been submitted to the Superintendent and the Superintendent has authorised release of the Hold Point.

## T12.5 Useful Resources

- NSW–RMS Landscape design guideline, Design guideline to improve the quality, safety and cost effectiveness of green infrastructure in road corridors 2018
- NSW-MRT Guideline-for-batter-surface-stabilisation-using-vegetation 2015
- Queensland Government Department of Main Roads – Road Landscape Manual 2013
- Queensland Government Department of Main Roads – standard drawings SD1045, SD1178, SD1647, SD1650, SD1651
- NSW Department of Environmental and Heritage – Erosion and Sediment Control on Unsealed Roads, A field guide for erosion and sediment control maintenance practices 2012.
- Forest Practices Authority - Guidelines for Cut Road Batters in Areas of High Erodibility Soils 2011

- Soil Health for Farming in Tasmania / Bill Cotching 2009
- Caltrans – Key Concepts of Sustainable Erosion Control – Technical Guide 2010 *(Note – a useful source of general design principles, however some of the technical aspects are not applicable to Australian conditions and should not be used)*
- VicRoads - Fauna sensitive road design guidelines 2012
- Water sensitive urban design: Engineering procedures for stormwater management in Tasmania 2012
- NSW-RMS Water sensitive urban design guideline, Applying water sensitive urban design principles to NSW transport projects 2017

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