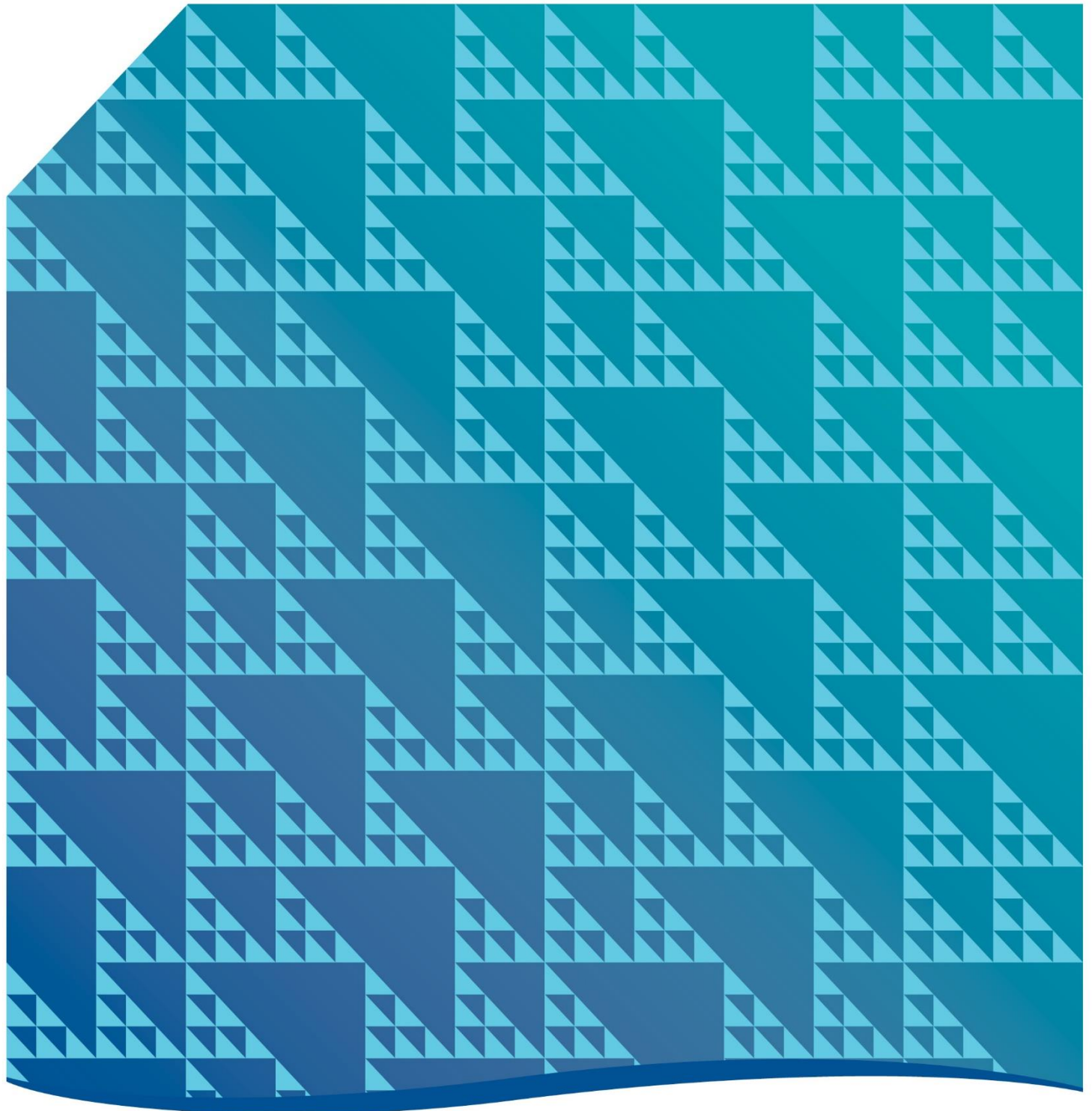


# DI – Road Design

Last updated:  
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## Revision History

Version No.	Date	Description of changes
1.1	17 Aug 2020	Template updated and old references to superseded documents/entities updated

## D1.1 Scope

This Specification sets out the requirements for the approach to road design for new roads and modification of existing roads. The Specification is part of the set of specifications comprising the Professional Services Specifications (PSS).

## D1.2 Objective

The objective of this Specification is to provide a guideline to the standard approach to road design required for the Department of State Growth (DSG).

## D1.3 References and Standards

Road Design shall be compatible to and incorporate the requirements of all other DSG Specifications as well as the following:

### *Austroads Guides*

- Guide to Road Design
- Guide to Traffic Management
- Guide to Road Safety
- Guide to Bridge Technology
- Guide to Pavement Technology.

### *Australian Government*

- Best Practice Cost Estimation Standard for Publicly Funded Road and Rail Construction'  
[www.infrastructure.gov.au](http://www.infrastructure.gov.au)

## D1.4 Project Management Plan

Road design elements shall be addressed in the Project Management Plan, including standards, risk management and quality assurance aspects.

## D1.5 Evidence of Compliance

The Consultant shall fully document all investigations, design assumptions, references, calculations, estimates, conclusions and authorisations and provide reports to DSG on these processes.

## DI.6 Materials and Products

*Technical Policy for the supply of products to State Road and Bridge design, construction and maintenance projects.*

*DSG only provides approval or endorsement of specific products within the parameters of the contractual framework i.e. suppliers need to satisfy themselves that their products are in accordance with DSG Standard Specifications.*

*Innovative or alternative products that do not meet DSG's current specifications may be approved by the Contract Superintendent in accordance with the Standard Specifications.*

*Proprietary products are not to be nominated in tender or contractual documents.*

All designs shall be in accordance with this policy.

## DI.7 Austroads Guide to Road Design

The general approach to road design for DSG shall conform to the guidelines set down in the following parts of *Austroads Guide to Road Design* as far as they relate to the two stage approach outlined in *Clause DI.8* below:

- Part 1: Introduction to Road Design
- Part 2: Design Considerations.

Where the guidelines of the above parts of the *Austroads Guide* conflict with specific provisions of the PSS, the specific provisions of the PSS shall prevail.

## DI.8 Process

### DI.8.1 General

Design shall be undertaken in two stages:

#### *Stage 1 Preliminary Design*

This stage shall develop options for meeting the project objectives, identify the constraints and risks for the options and recommend the option that best meets the requirements.

#### *Stage 2 Final Design*

This stage shall develop the accepted preliminary design to a set of Project Specifications for Tender Purposes including drawings, project specification, schedule of rates/bill of quantities and design report.

### DI.8.2 Preliminary Design

Preliminary design should:

- state the project objective
- define the standard to which the project is being designed
- define the design vehicle including any variation between various design elements

- identify any proposed departures from Austroads Guidelines, other parts of this Specification or Australian Standards and the reasons for each departure
- develop and evaluate options including concept drawings
- make a recommendation from the options and justify that recommendation
- identify the risk to DSG
- discuss the recommendation with the DSG Representative prior to development of preliminary drawings and estimate
- include preliminary design drawings that have sufficient information for the functionality of the design can be determined from the drawings.

A Preliminary Design Report shall be prepared to detail the process, assumptions, constraints, alternatives, evaluations, risks, cost estimates and preliminary design.

## DI.8.3 Final Design

### *DI.8.3.1 General*

The final design shall be rigorous and fully documented to a standard suitable for construction under Contract. Where it is considered necessary that a particular sequence or method of construction be implemented to ensure the final design can be achieved within the design constraints, this shall be specified and/or depicted on the drawings.

### *DI.8.3.2 Property Drawings*

Property Drawings shall show the property boundary adjustments that are required to provide sufficient land for the construction of the project.

### *DI.8.3.3 Design Drawings*

Design Drawings shall show and detail all works and set out controls required to complete the design and sufficient detail of existing infrastructure, levels and services as will be required to implement the design. This shall include (but not be limited to) the location of all existing drains and utility services (above and below ground) and any known hazardous materials.

Drawings shall comply with *PSS T13 CADD Manual*.

### *DI.8.3.4 Project Specifications for Tender Purposes*

Project Specifications for Tender Purposes shall be in accordance with the DSG Contract Manual. The standard Schedule of Rates or Bill of Quantities shall be used without alteration wherever possible. If the Consultant considers alternative payment items are required they shall be included in Part I in the Schedule of Rates or Part II of the Bill of Quantities as Project Specification Items. Payment clauses shall be provided for Project Specific Items.

Project Specifications shall provide all the necessary information for the setting out and construction of the works.

### DI.8.3.5 Cost Estimates

Cost estimates shall be undertaken in accordance with the *Australian Government's Best Practice Cost Estimation Standard for Publicly Funded Road and Rail Construction*; [www.infrastructure.gov.au](http://www.infrastructure.gov.au)

Cost estimates will include:

- A Project Preliminary Design Estimate
- A Project Final Design Estimate
- An Engineers Estimate that is the estimated cost of the successful tender.

DSG shall provide acquisition costs and in house billing estimates to the consultant.

The estimate shall be as priced on the Schedule of Rates or Bill of Quantities. The rates used in the estimate shall be based on the Client's cost estimation guidelines.

### DI.8.3.6 Constructability Review

As part of the internal Quality Assurance process the Consultant shall arrange for a constructability review(s) of the design. The final design shall be amended as required to ensure that it can be cost effectively and safely implemented.

### DI.8.3.7 Design Report

The Design Report shall include the items listed in *Clause DI.8.2 Preliminary Design*, outline the design process and provide all supplementary information to clearly explain why the major design decisions have been made. The Design Report is complimentary to the Project Specification for Tender Purposes.

### DI.8.3.8 Climate Change

In all road designs the Consultant must ensure that climate change considerations are taken into account in the planning, design, specification, construction, operation and on-going maintenance of all relevant roads and bridges projects. In doing so the Consultant must undertake a greenhouse gas assessment to demonstrate that net greenhouse gas emissions have been minimised.

## DI.9 Hold Points and Deliverables

Hold points for this Specification are in *Table DI.9.1 – Hold Points*.

### DI.9.1 Hold Points

<b>Description of Hold Points</b>	<b>Nominated Work not to proceed</b>	<b>Evidence of Compliance</b>
Acceptance of the Preliminary Design	Final Design	As per <i>Clause DI.8.2</i>
Acceptance of the Project Specification for Tender Purposes	Printing of the Project Specification for Tender Purposes	As per <i>Clause DI.8.3</i>

Deliverables for this Specification are in *Table DI.9.2 – Deliverables*.

*DI.9.2 Deliverables*

Name	Timing	No. of Copies in Format Shown		
		Hard Copies		Electronic Copies
		Bound	Unbound	
Preliminary Design Report	At conclusion of Preliminary Design	3	0	0
Property Drawings	Three weeks after notification of acceptance of Preliminary Design	0	1	1#
Project Specifications for Tender Purposes	Hold Point release copy 3 weeks prior to conclusion of Final Design	4	0	0
	At the conclusion of Final Design	As per the design brief	0	1
Engineer's Estimate	At the conclusion of Final Design	0	1	1
Design Report	With the Project Specifications for Tender Purposes	3	0	1





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