

**Drafting and Design Presentation Standards
Volume 2: Road Design Concept and Development Presentation**

**Part 2: Development Phase Drawings
(Preliminary and Detailed Design Phase Stages)**

March 2024

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Amendment Register

Issue / Rev no.	Reference section	Description of revision	Authorised by	Date
1	-	Initial Release	Director (Road Design) Geospatial, Design and Capability (E&T)	Sep 2015
2	2.13, 2.23, 3.24	Updates to Roadway Lighting, and Roadway Safety Barrier System sections	Director (Road Design) Hydraulics, Design and Spatial (E&T)	Sep 2022
3	All	General textual refinements, amendments and inclusion of registered drawing examples	Director (Road Design) Hydraulics, Design and Spatial (E&T)	March 2024

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1 Development phase drawings

1.1 General

The purpose of this section is to provide guidance to designers and drafters in the preparation of road infrastructure development phase drawings which are in accordance with the current Transport and Main Roads standards, styles and requirements.

Development phase drawing documentation provides the basic elements for tenderers and construction personnel to carry out their activities.

They are generally prepared for infrastructure projects in two separate design phase stages:

- preliminary design, and
- detailed design.

These design phase stages often overlap and complement one another.

1.2 Development phase drawings presentation

Transport and Main Roads development phase drawings shall be produced on the standard Road Design Detail A1 size title sheet. Refer to the *Drafting and Design Presentation Standards Manual* (DDPSM), Volume 1, Chapter 2, Appendix D – *TMR Drawing Sheets*, using the current Transport and Main Roads customisation package. All text and line work shall be legible when produced in A3 format and shall meet the requirements of DDPSM Volume 1.

Use of colour drawings is restricted as per requirements under DDPSM Volume 1, Section 1.4.5. Colour drawings should be produced for information purposes only and cannot form part of the drawings submitted to Plan Room for registration and archival (i.e., “Issue for Construction” and “As Constructed” drawings). Use of colour and “Gray Lines” on drawings is not acceptable due to loss of detail when copying, and scanning. However, the colours of all departmental standard line types and symbols, as per *Transport and Main Roads AutoCAD Customisation* and *Transport and Main Roads 12D Model Customisation*, have been chosen so that they are reproducible when photocopied and retain their legibility.

1.2.1 Reference points

The drawings shall show:

- the preceding RP and the following RP
- the distance to the start of the project from the preceding RP
- the distance from the start to the end of the project, and
- the distance from the end of the project to the following RP.

Refer to the example below.

Table 1.2.1 – Reference Points

Reference Points				
Preceding RP	Distance to start of job (km)	From start to end of job	From end to following RP	Following RP
10A/5	5.31	0.7	0.40	10A/6

The chainages are to be shown on the drawings in kilometres to two decimals from the start of the gazettal.

1.3 Adjoining plans

Each road development plan must bear a reference to the preceding and/or succeeding plan. This reference shall be given in the form “Joins Plan ---”. The join line shall be placed at the correct location on all adjoining plans and where practicable, the join line shall be parallel to and near the right and/or left-hand margin of the drawing. A partial overlap between drawings shall be provided, to ensure adjoining information is not omitted.

1.4 Preliminary design

The preliminary design phase stage develops the preferred option approved in the business case, keeping within the scope of the project. For road infrastructure projects, activities include:

- finalisation of geometric design solutions produced in the business case, for example horizontal and vertical alignments, cross sections, and major intersection layouts, including conducting road safety audit
- conducting design options analysis for major design solutions, for example a bridge vs a large culvert
- designing major components (for example, pavement details, bridges, retaining walls, storm water drainage systems)
- preparing electronic models
- preparing the preliminary project cost estimate, and
- determining property interest requirements (for example, resumption drawings, lease requirements, native title arrangements).

The preliminary design shall:

- ensure project environmental sustainability through appropriate environmental assessment (refer to the department’s *Environmental Processes Manual* for guidance)
- ensure the design is an economic solution
- ensure that functionality of design components is appropriate for its intended purpose, and
- ensure the constructability of the project is practicable and efficient.

1.5 Detailed design

The detailed design phase stage finalises the design by:

- completing details of all components (including geometry, bridges, road furniture, lighting, traffic signals, landscaping, noise and environmental and sedimentation control).

- conducting road safety audit
- designing routine cross drainage together with associated vegetation treatments
- designing other miscellaneous items (for example, gully pits, culvert outlet structures, retaining walls, and so on)
- project environmental certification (refer to the department's *Environmental Processes Manual* for guidance)
- documenting the design (scheme prototype), and
- establishment of the construction contract.

The detailed design phase stage produces Issued for Construction drawings and an electronic model for construction purposes. It also delivers final project Tender Schedules and estimates and all other construction contract documentation relevant to the type of contract proposed.

1.6 Differing departmental Districts / Regions drafting and design

Slightly different drawing presentation and detailing may be required by different departmental District and Region Offices and may include:

- urbanised road arrangements generally within cities, townships or major intersections / overpasses in rural areas, and
- rural roads between cities and townships.

Following are examples of registered drawings from various Districts and Regions showing the different drawing and detailing presentations requirements.

