

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

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

September 2022

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Amendment Register

| Issue/ Rev no. | Reference section | Description of revision | Authorised by | Date |
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| 1 | - | Initial Release | Director (Road Design) Geospatial, Design and Capability (E&T) | Sep 2015 |
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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 respective activities.

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

- preliminary design, and
- detailed design.

These design stages often overlap and complement one another.

1.2 Preliminary design

The preliminary design 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 (preliminary design)
- 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
- determining ROW 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 are appropriate for their intended purpose
- ensure the constructability of the project is practical and efficient.

1.3 Detailed design

The detailed design step finalises the design by:

- completing details of all components (geometry, bridges, road furniture, and so on), including conducting road safety audit (detailed design)
- designing routine cross drainage together with associated environmental 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)
- establishment of the construction contract.

The detailed design step produces engineering drawings and an electronic model for construction purposes. It also delivers final project schedules and estimates and all other construction contract documentation relevant to the type of contract proposed.

1.4 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 – Transport and Main Roads 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 Volume 1 of the DDPS Manual.

Use of colour drawings is restricted as per requirements under Section 1.4.5 Volume 1 of the DDPSM. 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, scanning, and subsequent microfilming. However, the colours of all departmental standard line types and symbols, as per Transport and Main Roads Customisation (Volume 1 DDPSM), have been chosen so that they are reproducible when photocopied and retain their legibility when microfilmed.

1.4.1 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).

| 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 | 0.17 | 0.40 | 10A/6 |

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

1.4.2 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 ---“. Where practicable the join line shall be parallel to and near the right and/or left hand margin of the drawing. An overlap between drawings is permissible and desirable as long as a join line is shown.

1.5 Differing districts/regional areas

Slightly different drawing presentation and detailing may be required in different districts and regional areas, such as:

- urban road
- rural road.

Following are example drawings for each of these districts and regional areas.

