

## Reference documents

### 1. General design and drafting

- It is TfNSW policy to design at posted speed + 10km/h (i.e., if posted speed is 60km/h, design at 70km/h).
- For Road Design standards refer to Austroads Guides, Australian Standards, [TfNSW Specifications](#), [TfNSW Technical directions](#), [TfNSW supplements to Austroads](#), [TfNSW Supplements to Australian Standards](#), [TfNSW Standard Drawings](#).
- Example drawings sets for Civil drawings and Traffic control Signals refer to PDF in [Section 3 - Organization and Presentation Guidelines](#) which forms part of the [CADD Manual](#).
- Traffic control signal design standards refer to [Traffic Signal Design standards](#).
- Hydraulic drainage information in accordance with ARR 2019 for the 1% AEP and 10% AEP storms needs to be provided with the drainage information listed below.
- The minimum transverse concrete pipe size is 450mm diameter and pipe class 4. Based on Blocking potential, Construction and operational loadings.
- Lighting to be designed to [AS/NZS 1158](#) Series: lighting for roads and public spaces.
- All survey control marks, boundary marks, permanent marks and state survey marks are to be clearly shown on all plan sheets. Survey POSI plans are likely required to illustrate potential mark destruction or vulnerability. Plans need to be Co-ordinated and documented to Surveyor-General's Directions and will be reviewed by TfNSW Senior Surveyor. Refer **POSI Example - (info only).pdf**
- Safety in Design Risk Register to be provided with plans. See example – **HSiD Risk Register - Project Name.xls**
- A Road safety Audit to be provided in accordance with the requirements of Austroads Guide to Road Safety Part 6: Road Safety Audit at finalisation of Concept design. Further audits may be requested based on the level of risk of the project perceived by TfNSW or Council.
- Extent of new pavement construction and joint detail as per TfNSW pavement approval.
- The TfNSW Plan Registration DS Number is to be shown on all Detailed Design Plans (these details will be advised by TfNSW after Concept Design approval).
- The TfNSW logo is a registered trademark of TfNSW and should not be used and/or printed on Design Documents without TfNSW's express consent. No TfNSW signatures should be displayed in Design Drawing Plans, and these should not contain statements such as "Approved for Construction" and/or "Registration No. ###"
- Design Plans, Reports and all Documentation associated with the project should be submitted in PDF format.

## 2. Drafting detail design plan set

Based on TfNSW CADD Manual in PDF format. [Refer Appendix A examples](#) and [TCS examples](#).

### Concept plan requirements in BOLD.

- **Cover Location / Overview Plan**
- **Index and General Notes**
- **Road and Drainage Plans** -utilities, survey, boundaries, batters, drains, pits, structures, chainages, kerbs, paths etc.
- **Typical Cross Sections** -dimensions, gradings and slopes
- Pavement Details
- **Alignment Control Plan sheets** -Set-out Schedules, Survey marks, Coordinates e.g., GDA2020
- **Road Control Long Sections** -horizontal, vertical alignment, K values, superelevation
- Kerb Profiles and Set-out Schedules
- **Cross Sections** showing pavement and utilities
- **Drainage Catchment Plans** -pits, headwalls and Contours
- Drainage longitudinal sections, Hydrology data, flow, freeboard, hydraulic grade line, Schedules
- Drainage Structure Details
- **Pavement** and Subsurface Drainage plans -outlets, pit connections
- Signage Plans -pavement marking, delineation, existing Signs. Road Furniture, poles, barriers,
- Road Lighting and schedules
- **Intersection Sight line drawings including vegetation and Sight Envelope details**
- **Structure Details**
- **Property acquisition plans**
- Property adjustment works plans
- **Plan detailing pavement flow paths for aquaplaning check**
- **Plan showing vehicle turning paths** for design and checking vehicles in accordance with Austroads guides minimum recommended radius.
- **Safety barriers point of need diagrams hazards and design speed clear zones.**
- Survey mark POSI plans
- Erosion and Sedimentation Control Details
- Construction Staging plans
- **Traffic Control signal plans**
- Plan showing geotechnical investigation locations bore holes, inspection pits
- *3d design model and CADD dgn files may be requested.*

\* **All plans to include legend and notes.**

### 3. Design report (Major WADs)

A brief design report should form part of the design documentation to accompany design plans advising criteria used, assumptions and where [TfNSW Road Design](#) standards have not been met.

Report must address the following:

- Design criteria including design standards. e.g., design speed, design vehicles , geotechnical, pavement, drainage design etc
- Describe the design including the typical section(s)
- Document the design process and how options were investigated
- Discuss impacts and mitigations e.g., property, utilities, drainage, environment, community, hazards
- Document internal design reviews prior to submitting design to TfNSW
- Document where design criteria and design standards are not met. This is to include:
  - An approved concession under the [Standards Management Framework](#)
  - The standard not being met. This is to specify the design document and specific section and what is meant to be provided in order to meet the standard
  - Why the design standard is not being met by the design
  - The value met by the design
  - What is the risk as a result of the design in not meeting the standard? e.g., safety, durability, community
  - What mitigation is proposed to reduce the risk