Engineering Guidelines for Subdivisions and Development Standards

July 2009

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Part 1 General Requirements
Part 2 Guidelines for Design of Roads
Part 3 Guidelines for Design of Drainage
Part 4 Guidelines for Design of Water Reticulation
Part 5 Guidelines for Design of Sewerage Reticulation
Part 6 Guidelines for Landscaping, and Measures for Erosion, Sedimentation and Pollution Control
Part 7 Guidelines for Testing.

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AlburyCity

Part 1
General Requirements
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PART 1 – GENERAL REQUIREMENTS
TABLE OF CONTENTS

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1. INTRODUCTION

These general requirements for Subdivision and Development outline Council's procedures and practices for subdivision and development of land within the local government municipality.

This joint approach involving North East Regional Water Authority, Albury, Wodonga, Griffith and Wagga Wagga Councils recognises the differences between the unique requirements of each community whilst encouraging a consistent regional approach. Where Council's standards differ, the specific council standard is referenced.

Reviewing the existing guidelines of each Council has developed these updated engineering guidelines. It is intended that the guidelines be updated on a regular basis to reflect changing development requirements.

Council has determined that where a developer proposes, or is required to carry out civil engineering works in connection with a subdivision or development, the civil engineering works are upon completion of all works, and the issue of a Construction Certificate, to become the responsibility of Council.

These guidelines are to be read in conjunction with the planning instruments and development control plans applying to the site. Applicants are advised to **ensure that all conditions of the Development Consent are addressed within the detailed engineering plans** as a Construction Certificate cannot be issued until the Development Consent conditions have been met in full.

The Subdivision and Development Guidelines comprise the following:

Part 1 General Requirements
Part 2 Guidelines for Design of Roads
Part 3 Guidelines for Design of Drainage
Part 4 Guidelines for Design of Water Reticulation
Part 5 Guidelines for Design of Sewerage Reticulation
Part 6 Guidelines for Landscaping, and Measures for Erosion, Sedimentation and Pollution Control
Part 7 Guidelines for Testing.

2. GENERAL

National Standards for Subdivision and Land Development are rapidly changing in response to changing community expectations that have an increased emphasis on:

- Community facilities, public open space areas, landscaping and urban design outcomes that are associated with New Urbanism concepts;
- Water sensitive urban design, water conservation and water quality;
- Energy efficiency, sustainability; and
- Community safety and public open space areas.

- To assist in achieving these outcomes, approval will be merits based and consider the overall impact of the development on the community and not solely on compliance with minimum engineering standards.

To encourage the submission of innovative design solutions, staff are available for initial consultation to discuss and facilitate outcomes. In this context these guidelines may be subject to variation with approval from Council where outcomes are linked to environmental and community benefits. There are benefits in following traditional methods of design and standardisation, but users should question the standards and be ready to adopt new and improved procedures. Council strongly supports this approach, based on a hierarchical consideration of planning strategies as follows.

The Planning Systems as defined in:

- The Planning Scheme;
- Land-Use Strategies;
- Precinct Strategies;
- Overall Subdivision Master Plan; and
- Specific Subdivision Stage Plans.

An important part of the Engineering approval process will be the preparation of an overall Master Plan that provides for the integrated provision of urban landscaping, roads, drainage, water, sewer, gas, lighting, telecommunications and electrical services.

To facilitate the expeditious approval of engineering plans, construction and linen plan release for subdivisions and developments the following approach is encouraged:

- Prior to commencement of design meet with Council to discuss engineering development issues;
- Integrate subdivision work with infrastructure, urban design and community master planning. Submit a Master Plan of the overall subdivision development for inclusion in Councils mapping system;
- Demonstrate the application of Quality Assurance procedures when submitting designs and documents to Council for review with independent documented review by experienced staff prior to submission; and
- Council review will then focus on general compliance with strategy and these guidelines.

3. ENGINEERING DRAWINGS AND SPECIFICATIONS

3.1 DEFINITIONS, QUALIFICATIONS AND EXPERIENCE

The “Authority“ means the Council. Representation of the Authority will be by “a designated officer of Council” with delegated authority. The respective Consultant/Engineer or Surveyor engaged by the Developer shall sign all drawings.

All reference to an "Accredited Certifier" means Accredited Certifier as determined by the Environmental Planning and Assessment Amendment Act 1997.

All references to an Engineer shall be interpreted as a person acceptable for Corporate Membership of the Institute of Engineers Australia or a person with equivalent qualifications and or experience.

All references to a Registered Surveyor shall be interpreted as a person registered under the Surveyors Act, 1929 as amended.

Council requires that design plans be prepared to Council's standards by a person, either holding qualifications acceptable for Corporate Membership of the Institution of Engineers, Australia, accreditation by the Institution of Surveyors under the Survey Practice Accreditation Scheme for Subdivisional Civil Works 1996 (SPAS 1996), or approved by the Authority or Accredited Certifier and/or who has demonstrated experience in the preparation of plans and specifications for land development.

3.2 SUBMISSION OF ENGINEERING DRAWINGS

Initially submit one preliminary set of drawings, catchment plans, stormwater calculations specifications etc. for comment.

Engineering "A1" drawings are to be submitted in triplicate with a covering letter for signature. One set of approved plans will be returned to the applicant.

For uniformity of plan presentation, all plan sizes, lettering, line work and symbols are to conform to AS 1100 - Technical Drawing Standards.

All scales are to be shown in the form of a "bar" and a ratio scale.

All drawings shall include a list of the symbols used.

The following items shall be detailed in the drawings, and be on a separate sheet.

- A Cover Sheet with a Locality Plan and List of Drawings;
- Roads and Kerb and Channel;
- Stormwater;
- Water Supply;
- Sewerage;
- Landscaping Plan;
- Dust, Erosion and Sediment Control Plan;
- Telecom;
- Electricity, and
- Traffic Management Plan.

3.3 SUBMISSION OF CONSTRUCTION SPECIFICATION

The specification is the responsibility of the applicant, and is to include reference to requirements contained within Council's Engineering Guidelines, together with the appropriate standard specifications selected from other sources.

Specifications must be supplied with the drawings to allow site assessment of works.

3.4 APPROVAL OF ENGINEERING DRAWINGS AND SPECIFICATION

The Authority or Accredited Certifier will review the Civil Engineering Drawings and Construction Specification for compliance with these guidelines. It is the entire responsibility of the person(s) or company submitting the documents, to ensure that the designs and specification are technically correct and comply with the following:

- Council's Subdivision Guidelines;
- Relevant Australian Standards;
- Relevant Local, State and Federal Government Legislation; and
- Council's Development Consent for the Subdivision.

The Authority's approval is conditional on the above basis and does not relieve the developer from rectifying any errors or omissions, which become evident during construction. The approval is current for two years. If work has not substantially commenced inside the period of currency of the development consent, the Authority may require that revised Engineering Drawings and Construction Specification be submitted for approval with the new Development Application. The developer is required to comply with Council's current Engineering Guidelines.

3.5 COMMENCEMENT OF WORKS

Before the developer commences the civil engineering works, engineering plan(s) and specification of the proposals shall be submitted to and approved by the Authority or by the Accredited Certifier. Once a Construction Certificate is issued and before the site works are commenced Council must be notified at least two days prior to commencement (section 81a(2)(b) of the Act).

3.6 DEVELOPERS RESPONSIBILITY

When Consent of a subdivision or other development includes conditions of construction which are embodied in the approved plans and specification, the onus is primarily on the applicant to whom the approval is given to ensure that the work is completed in accordance with plans and specifications and is to the satisfaction of the Authority or Accredited Certifier. The linen plan of subdivision will generally not be released until all engineering works (including works as executed plans) are completed and all other conditions of the development consent are satisfied (section 109J(2) of the EP&A Act).

The contractor carrying out subdivisional works is responsible to the developer, not the Authority for constructing and maintaining the works to the approved standards to the satisfaction of the Authority or Accredited Certifier.

4. INSPECTION OF WORKS

4.1 INSPECTION AND UNINTERRUPTED ACCESS

The whole of the road, drainage, kerb and channel, water and sewerage construction works, which the developer is required to carry out in respect of a development will be inspected under the direction of the Authority; or an Accredited Certifier.

All works are to be carried out to the entire satisfaction of the Authority or Accredited Certifier. The Contractor/developer is to provide uninterrupted access for the examination of any facilities, works and materials as requested by the Authority, or the Accredited Certifier.

4.2 PUBLIC SAFETY

The developer will be held responsible for the safety of the public to the extent that the works being undertaken influence or impact on the safe and efficient passage of the public through and/or around the works. The developer shall not obstruct the free passage of the public unless public safety is at risk and no other means of ameliorating that risk is readily available. The developer shall provide all watchmen, lights, barriers, signs and fences necessary to prevent any accidents to the public or private damage or loss. The developer shall provide, erect and maintain all necessary temporary roads, bridges, footways, drains and supports and protection in order to ensure the above.

4.3 DAMAGE TO SERVICES

Enquire as to the location of all services with ‘Dial before you Dig’ and the relevant service authority. Where proposed works have the potential to conflict with services, physically locate the services on site and document on plans.

In the event of any of the abovementioned services being damaged or interrupted, the developer shall forthwith notify the responsible authority and take all necessary steps to provide for the safety of the public and to have the damage repaired as quickly as possible. The cost of all repairs is the responsibility of the developer.

4.4 TRAFFIC CONTROL

Signs, barricades, barriers, warning lights, etc. shall be placed where works are in progress and in accordance with AS 1742 - “Manual of Uniform Traffic Control Devices”.

Comply with RTA Traffic Control at Work Sites and Vic Roads Guidelines.

The developer should ensure safe, continuous movement of traffic with a minimum of disturbance, in public roads. Prepare and implement an approved traffic management plan. Traffic control devices are to comply with RTA of NSW requirements and Vic Roads Design Guidelines. Signs, barricades, barriers, warning lights, etc., should be in accordance with AS 1742 Part 3 - "Manual of Uniform Traffic Control Devices".

4.5 FIRE FIGHTING PROVISION

The developer shall provide and maintain adequate fire fighting equipment and take adequate fire protection measures during the works and shall take action to prevent damage to, or destruction by fire of bushland trees, shrubs or grasses.

4.6 WORK WITHIN RAILWAY PROPERTY

Before starting any work across a railway line or railway property, the developer shall obtain from the Divisional Engineer, State Rail Authority, and approval in writing to commence such work. The developer shall comply with all requirements of the Rail Authority and complete such work to the Rail Authorities satisfaction.

4.7 NOTIFICATION

Provide the name, address and telephone number of the contractor at least seven days prior to the proposed date of commencement of any construction;

The developer shall provide 24 hours prior notice in respect of the following:

- Completion of formwork/stringlines for kerb and gutter;
- Opening of trenches ready for pipe laying;
- Placing of pipes in trenches prior to backfilling;
- Placing and pouring of concrete;
- Testing of water and sewer mains;
- Completion of subgrade preparation before placing of pavement;
- Completion of each pavement layer ready for testing; and
- Sealing of roadworks.

The developer shall, if required by the Authority or Accredited Certifier, submit dockets from the supplier of ready-mixed concrete in order that the quality of the concrete supplied may be checked.

The developer shall, within seven days of the sealing of any pavement, supply to the Authority or Accredited Certifier all supply dockets and spraying records in respect of such work.

The Authority or Accredited Certifier shall inspect the works to ensure that the works are constructed in accordance with Council requirements and the approved plans.

The Authority or Accredited Certifier does not carry out the functions of "Superintendent" as defined in the General Conditions of Contract - AS 2124. The developer is required to appoint a Consultant to carry out this function.

5. FEES AND CONTRIBUTIONS

5.1 SUBDIVISION/DEVELOPMENT INSPECTION FEES

Fees for Council Examination of Engineering Drawings and Inspection of Subdivision works are as prescribed by Council from time to time. For those developers who elect to use Council for the examination of engineering drawings and/or inspection of subdivision works these fees are to be paid prior to the release of the "linen plans".

5.2 SERVICES/FACILITIES AND HEADWORKS CONTRIBUTIONS

The services provided by Council for which developer contributions may be currently obtained include:

- Roads & Traffic Management Facilities;
- Open Space and Recreational Facilities;
- Community Facilities;
- Commercial Centre Car Parks;
- Stormwater Drainage;
- Sewerage (Wodonga where contributions are payable to the Water Authority); and
- Water Supply (excluding Wagga Wagga and Wodonga where contributions are payable to the Water Authority).

In NSW these contributions are payable prior to the release of the "Linen Plans" and are based on the current Section 94 Contribution Plan under the Environmental Planning and Assessment Act 1979 and Section 64 of the Local Government Act 1993. Works associated with the Section 94 and Section 64 developer contribution plans are as described in detail in those documents.

5.3 TESTING OF WORKS

Testing for compliance of works with the Drawings and Specifications shall be undertaken by the Contractor as part of a Quality Assurance Program as approved by the Authority or Accredited Certifier. The Authority may prescribe additional tests to determine that acceptable standards of workmanship have been achieved in relation to its interests in the subdivision but otherwise the full cost of Quality Assurance testing will fall onto the Contractor and/or Developer. Where additional tests show that acceptable standards of workmanship are not being achieved all additional testing costs will be at the developers cost.

6. BONDS AND GUARANTEES FOR PERFORMANCE

The linen plan will not be signed and released by the Authority or Accredited Certifier until certification is provided that all engineering works have been completed.

A maintenance bond is required from the developer prior to the release of the linen plan to the value of 5% of the contract price of the subdivision or $200 whichever is greater. The developer is to submit a copy of the successful Tenderers' bid for the Construction of the Subdivision Works to allow this bond to be determined.

Bank guarantees must not have an expiry dates.

Bonds and Guarantees for performance are at the discretion of Council.

6.1 DEFERRED WORKS

Subject to mutual agreement between the Developer and Council, where Council determines that it is not practical to physically construct works and that the deferment of works will result in improved community outcomes through co-ordination with other works, Council may consider a payment equivalent to the full cost of construction of the works. Deferred works typically relate to minor road widening that includes kerb and gutter extensions, footpaths and driveways.

7. WORKS-AS-EXECUTED (W.A.E.) PLANS

Following the completion of engineering works in a subdivision or development, "Works-as-Executed" transparency plans are to be prepared by a registered surveyor professional engineer and forwarded to the Authority prior to the release of the final plan of subdivision.

The W.A.E. plans shall include the following:

- Notation that all works have been completed in accordance with the approved plans and specification (including approved variations and amendments);
- Any departure from the approved plans;
- Any additional work that has been undertaken;
- The location of conduits, subsoil lines, stub mains and interlot drainage lines, etc.;
- W.A.E. levels on pipeline long sections showing the constructed invert levels of each pipe at each pit and pipe dimensions;
- The location (including footprint) of any site fill, the natural surface levels, finished surface levels and compaction achieved;
- All other details which have a bearing on the extent of works and their acceptance by Council;
- W.A.E. locations of stop valves, hydrants, sewer manholes, sewer junctions, interlot drainage inlet points and stormwater drainage manholes;
- The Registered Surveyor or the Engineer must certify the W.A.E. plans. CCTV is to be used in accordance with current applicable standards to locate all sewer junctions, and confirm the integrity of the installation. A DVD format record is to be provided to Council as part of the conditions of compliance for the works;
- Locate and depth Council services using GPS equipment and submit to the Authority in electronic format appropriate for overlay on Council's mapping system;(tolerance to be +/- 10 mm); and

- The following certificate is to be appended to each page of the plans and signed by the supervising Surveyor or Engineer:

I hereby certify that engineering works shown on the plan are Works-As-Executed and have been constructed in accordance with the plans and specifications approved by the Authority/Accredited Certifier (strike out whichever is inapplicable).

Name: _____

Signature: _____

Capacity: _____

Date: _____

The Registered Surveyor responsible for the Linen Plan of survey covering the subdivision is to supply a signed certificate stating that all pipes and associated pits are located wholly within the respective easements. This certificate must be supplied prior to the release of the linen plan of subdivision.

A statement certifying that all works have been completed in accordance with the construction certificate must be produced with the W.A.E.'s rough example. "All works on these plans are now complete and all dimensions and fittings shown have been checked for accuracy". Signed and dated to be completed before Linen release.

- An electronic copy, of W.A.E. plans in the form of CD, DVD, email, etc is to be supplied by the developer in ACAD format (version 2000 or better) with AHD. Levels and MGA Co-ordinates.

8. CERTIFICATION OF COMPLETION OF WORKS

8.1 NOTIFICATION OF COMPLETION

When the Developer (or his Consultant) is of the opinion that Works of Subdivision have been completed, the Developer shall, in writing, request the Authority or Accredited Certifier to issue a Certificate of Completion of Works.

Within 14 days of the receipt of the request, the Authority or Accredited Certifier shall inspect the works and shall issue a Construction Certificate or shall give the Developer, in writing, the reasons for not issuing the above. The Developer or his Contractor shall be present for the inspection and assist the Authority or Accredited Certifier with the checking of levels and opening of manholes, etc as required.

8.2 MAINTENANCE OF WORKS

The Maintenance Period will be 12 months and will commence on the date of the issue of the Linen Release.

The Maintenance Bond will be to the value of 5% of the Contract price of the subdivision or $200 whichever is greater. To this end the Developer is to submit a copy of the successful Tenderers' bid for the construction of the subdivision works to allow the bond to be determined. This bond will be held by Council to cover any defects or omissions, which may arise or become apparent in the Maintenance Period.

At any time during the Maintenance Period, the Authority may direct the Developer to rectify any omission or defect in the work, which exists at Certified Completion or becomes apparent prior to the expiration of the Maintenance Period. If defects or omissions are not rectified to the satisfaction of the Authority, Council will be at liberty to rectify the same and apply the maintenance bond for payment of the cost thereof.

The nature of some defects, eg water main breaks, sewer main connections etc., may necessitate Council's immediate repair. The maintenance bond may be used for the costs unless the Developer elects to pay Council separately.

Council requires five working days notice to allow checking of W.A.E. from the time of submission to the time of release.

9. SURVEY AND SETTING OUT REQUIREMENTS

9.1 CENTRELINE MARKING

9.1.1 Urban

The Centreline of the proposed road shall be pegged at a maximum spacing of 20 metres. Recovery pegs shall be placed on both sides of the road (off-set approximately 15 metres) at each curve tangent point (T.P.) and at spacing's of no more than 150 metres on straights.

9.1.2 Rural/Rural Residential

The centreline pegging shall be as required for urban roads except that the spacing shall be 40 metres and the provisions of Vic Roads and RTA Standards shall apply in respect to the pegging of curve transitions. Comply with longitudinal and cross sectional intervals in Part 2 of the Guidelines For the Design of Roads.

9.2 DATUM AND CO-ORDINATES

The survey shall be undertaken on Australian Height Datum and MGA co-ordinates.

9.3 BENCH MARKS

Bench Marks shall be established within the works area at intervals not exceeding 100 metres and in accordance with sound surveying practice.

9.4 SURVEY CONTROL MARKS

All plans of survey are to show connection to at least two survey control permanent marks where such exist in the vicinity of the subdivision or where practicable. In the case where it is intended to open a new road at least two control marks per sheet of the subdivision plan are to be established in the road by the Surveyor and connected to the nearest allotment corner.

The survey control marks shall be in accordance with the "Survey Practice Regulations, 1990". Two copies of the locality sketch plans of the marks placed are to be forwarded to the Council with the final plan of subdivision.

9.5 LOT BOUNDARIES

Lot boundaries shall be established to the standard required by" Survey Practice Regulation, 1990", prior to the final inspection of works.

10. MISCELLANEOUS

10.1 PUBLIC LIABILITY INSURANCE

Contractors engaged on Development or Subdivision Works shall take out Public Liability Insurance to the value of **$20** million. The policy shall specifically indemnify Council from all claims arising from the execution of the works.

Council will check annually on each Contractor's public liability insurance.

10.2 COMPLIANCE WITH ACTS AND LEGISLATIVE REQUIREMENTS

It is the responsibility of the Developer or his Contractor to ensure that all works are undertaken in a safe and efficient manner. The Contractor shall ensure compliance with the Occupational Health and Safety Act and any other relevant Acts, Ordinances and Regulations in New South Wales.

10.3 LOCATION OF SERVICES

The location and offset of services shall be as per Council's Standard Drawing for service locations.

All services shall generally run parallel to the road centreline and shall cross the road centreline as close as possible to perpendicular to it unless otherwise approved by the Authority.

11. REFERENCES AND STANDARDS

The format of the guidelines has been simplified by making reference to both National and State Standards where applicable. Where these standards vary from the referenced standards the variations are highlighted and cross-referenced. The current version of the referenced standard will apply. These guidelines shall take preference over the referenced standards. In addition to the criteria outlined in this manual, any relevant acts, regulations and Australian Standards will apply.

Referenced standards include the following:

Part 2 Guidelines for Design of Roads

- The RTA Road Design Guidelines;
- The Vic Roads Design Guidelines;
- The Australian Model Code For Residential Development (1995);
- Building Regulations 2006 Part 4;
- Australian Road Research Board "Pavement Design for Light Traffic: a supplement to the Austroads Pavement Design Guide";
- Classified Road and Industrial road pavements are to be designed in accordance with "A Guide to the Structural Design of Road Pavements" - AUSTROADS;
- Guide to Residential Streets and Paths, Cement Concrete and Aggregates Australia;
- VicRoads Standard Specification for Roadworks and Bridgeworks Section 702;
- Guide to Geometric Design of Major Urban Roads AUSTROADS;
- Guide to the Geometric Design of Rural Roads – AUSTROADS;
- Guide to Traffic Engineering Part 14 – Bicycles – AUSTROADS;
- Australian Standard AS 1428 – "Design for Access and Mobility;
- Australian Rainfall and Runoff;
- "Manual of Uniform Traffic control Devices" Roads, Intersections, Traffic Control Devices, Cycle Ways, Vic Roads Road Design and Car Parks in accordance with AS 1742 Parts 1-13 and the guidelines;
- AS 1742 Manual of Uniform Traffic Control Devices;
- WSA;
- RTA Traffic Control at Work sites;
- AUSTROADS "Guide to Traffic Engineering Practice Part 11 – Parking";
- AS 2890; "Parking Facilities"
- AS 3798 "Guidelines on Earthworks for Commercial and Residential Development;
- Clear zone (refer to RTA Standard Drawings and Vic Roads Standard Drawings SD 19 and SD 20;
- RTA Standard Specifications for Roadworks and Bridgeworks; and
- Guide to Traffic Engineering Practice Part 5 Intersections at Grade, AUSTROADS.

Part 3 Guidelines for Design of Drainage

- Australian Rainfall and Runoff (AR&R); and
- Publications of the National Building Technology Centre for Roof Drainage.

Part 4 Guidelines for Design of Water Reticulation

- Water Services Association of Australia (WSAA) "Water Supply Code of Australia (WSA 03);
- AS 2280; Ductile Iron Pipes and Fittings;
- AS 1477; PVC Pipes and Fittings for Pressure Applications;
- AS 1432; Copper tubes for Plumbing, Gas Fitting and Drainage Applications;
- AS 2544; Grey Iron Pressure Fittings;
- AS 4799; Installation of Underground Utility Services and Pipelines with Railway Boundaries;
- BCA.

Part 5 Guidelines for Design of Sewerage Reticulation

- Water Services Association of Australia (WSAA) "Sewerage Code of Australia (WSA02);
- Section 88b of the Conveyancing Act 1919; and
- AS 1260 Non-Pressure PVC Pipes and Fittings.

Part 6 Landscaping and Measures for Erosion, Sedimentation and Pollution Control

- Section 13 of the Bush Fires Act;
- Section 41 of the Bush Fires Act;
- Native Vegetation Conservation Act;
- Tree Preservation policy;
- Rivers and Foreshores Improvement Act 1948; and
- Department of Environment and Climate Change.

Part 7 Guidelines for Testing

- AS 3798, Guidelines on Earthworks for Commercial and Residential Developments;
- VicRoads Standard Specification for Roadworks and Bridgeworks Section 304;
- RTA Specification for Densely Graded Base (DGB) 20;
- VicRoads Standard Specification for Roadworks and Bridgeworks Section 407;
- RTA Test Methods T601, T603, T605, T606 and T612;
- RTA DCM Materials Specification DCM 3151;
- Sewerage Code of Australia (WSA02) Part 3 Construction; Second Edition Version 2.3; and
- Water Supply Code of Australia (WSA03) Part 3 Construction; Second Edition Version 2.3.