A high-speed photograph of a water droplet falling into a pool of water. The droplet is captured mid-fall, just above the surface, and is perfectly spherical. Below it, the water surface is disturbed, creating a series of concentric ripples that spread outwards. The water is a clear, vibrant blue, and the background is a solid, lighter blue. The lighting is soft, highlighting the transparency and refractive index of the water.

**North East Water**  
Engineering Guidelines for  
Subdivisions and  
Development Standards  
Part 1- General Requirements  
September 2009



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# 1. Introduction

These general requirements for Subdivision and Development outline the Corporation's procedures and practices for subdivision and development of land within the servicing area.

This joint approach involving North East Water, Albury, Wodonga, Griffith and Wagga Wagga Councils recognises the differences between the unique requirements of each community whilst encouraging a consistent regional approach.

These updated engineering guidelines have been developed by reviewing the existing guidelines of each Authority/Corporation. It is intended that the guidelines be updated on a regular basis to reflect changing development requirements.

The Corporation 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 statement of compliance, to become the responsibility of the Corporation.

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.**

The Subdivision and Development Guidelines comprise the following:

- Part 1- General Requirements**
- Part 2- Guidelines for Design of Roads (not used)
- Part 3- Guidelines for Design of Drainage (not used)
- 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 (not used)
- 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.

An important part of the Engineering approval process will be the preparation of an overall masterplan 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 plan release for subdivisions and developments the following approach is encouraged:

- ▶ For more complex developments prior to commencement of design meet with the Corporation to discuss engineering development issues;
- ▶ Integrate subdivision work with infrastructure, urban design and community master planning. Submit a masterplan of the overall subdivision development for inclusion in the Corporation's mapping system;
- ▶ Demonstrate the application of Quality Assurance procedures when submitting designs and documents to the Corporation for review with independent documented review by experienced staff prior to submission; and
- ▶ The Corporation review will then focus on general compliance with strategy and these guidelines.

### 3. Developer Agreement

The owner and the consultant must enter into an agreement with the Corporation for all subdivision, development and infrastructure works. This is a binding agreement in accordance with the provision of the current North East Water agreement.

## 4. Engineering Drawings and Specifications

### 4.1 Definitions, Qualifications and Experience

The “Authority“ means the Council or the Water Corporation. Representation of the Corporation will be by “a designated officer of Council or the Water Corporation “ 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.

The Corporation requires that design plans be prepared to the Corporation’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 Corporation or Accredited Certifier and/or who has demonstrated experience in the preparation of plans and specifications for land development.

### 4.2 Submission of Engineering Drawings

All plan preparation shall be in accordance with the plan preparation standards for design plans and works as executed plan submission. This is a joint initiative of North East Water, Barwon Water, City West Water, Wannon Water, and Goulburn Valley Water in Conjunction with Open Spatial Australia.

Initially submit two (2) preliminary sets of drawings, calculations, etc. or an electronic copy in PDF format for comment.

Engineering “A1” drawings are to be submitted in triplicate with a covering letter for signature or an electronic copy in Autocad drawing format to the Corporations requirements. One (1) set of approved plans will be returned to the applicant.

The following items shall be detailed on the drawings.

- ▶ 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; and
- ▶ Electricity.

### **4.3 Submission of Construction Specification**

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

Specifications are only to be supplied on a specific request from the Corporation.

### **4.4 Approval of Engineering Drawings and Specification**

The Corporation or Accredited Certifier will review the Civil Engineering Drawings and Construction Specification if requested 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:

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

Drawings that relate to water supply and sewerage must be based on an approved Council subdivision plans.

The Corporation'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 (2) years. If work has not substantially commenced inside the period of currency of the development consent, the Corporation 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 the Corporation's current Engineering Guidelines.

### **4.5 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 Corporation or by the Accredited Certifier.

### **4.6 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 Corporation or Accredited Certifier.

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

The works and the work site are the responsibility of the developer prior to the asset being formally handed over to the Corporation.

## 5. Auditing of Works

### 5.1 Auditing and uninterrupted access

The whole of the water and sewerage construction works, which the developer is required to carry out in respect of a development will be audited under the direction of the Corporation, or an Accredited Certifier.

All works are to be carried out to the entire satisfaction of the Corporation or Accredited Certifier. Provide uninterrupted access for the examination of any facilities, works and materials as requested by the Corporation, or the Accredited Certifier.

### 5.2 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.

### 5.3 Damage to services

Enquire as to the location of all services with “dial before you dig” and the relevant service Authority/Corporation. 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.

### 5.4 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”.



## 5.5 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.

## 5.6 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 Authority's entire satisfaction.

## 5.7 Notification

Provide the name, address and telephone number of the contractor at least seven (7) days prior to the proposed date of commencement of any construction.

The developer shall provide twenty four (24) hours prior notice in respect of the following:-

- ▶ Opening of trenches ready for pipe laying;
- ▶ Placing of pipes in trenches prior to backfilling;
- ▶ Placing and pouring of concrete; and
- ▶ Testing of water and sewer mains;

Auditing will be at the discretion of the Corporation.

The developer shall, if required by the Corporation 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 Corporation or Accredited Certifier shall audit the works to ensure that the works are constructed in accordance with the Corporation requirements and the approved plans.

The Corporation 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.

## 6. Fees and Contributions

### 6.1 Subdivision/Development Administration and Auditing Fees

Fees for the Corporation's administration and auditing of the subdivision works that includes Examination of Engineering Drawings and Auditing of Subdivision works are as prescribed by the Corporation from time to time. Payments of these fees are due at the completion of the subdivision before a statement of compliance is issued to council.

### 6.2 Services/Facilities and Headworks Contributions

The services provided by the Water Corporation for which developer contributions may be currently obtained include: -

- ▶ Sewerage;
- ▶ Water Supply; and
- ▶ Recycled Water.

Pay headworks charges for Water and Sewer as determined by the Corporation's policy for development charges. These charges are payable at a time determined by the corporation.

### 6.3 Testing of Works

Testing for compliance of works with the Drawings and Specifications shall be the responsibility of the consultant. The Corporation 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 Consultant 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.

## 7. Maintenance Deposits

An Auditing report will not be released by the Corporation or Accredited Certifier until certification is provided that all engineering works have been completed.

A maintenance deposit is required from the developer prior to the provision of a statement of compliance to the value of (5%) five percent of the contract price of the water and sewer component of the subdivision. The developer is to submit a copy of the successful tenderers bid for the Construction of the Water and Sewer components of the Subdivision Works to allow this deposit to be determined.

Maintenance deposits are not charged where the value of the work is less than \$10,000.

Bank guarantees must not have expiry dates.

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

## 8. Works-As-Executed (W.A.E.) Plans

All plan preparation and “works as executed” information shall be in accordance with the plan preparation standards for design plans and works as executed plan submission. This is a joint initiative of North East Water, Barwon Water, City West Water, Wannon Water, and Goulburn Valley Water in Conjunction with Open Spatial Australia P/L.

Following the completion of engineering works in a subdivision or development, “Works-As-Executed” plans are to be prepared by a registered surveyor/professional engineer and forwarded to the Corporation prior to the final release of the subdivision to the Corporations requirements.

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 and stub mains, etc.;
- ▶ All other details which have a bearing on the extent of works and their acceptance by the Corporation;
- ▶ W.A.E. locations of stop valves, hydrants, sewer manholes and water & sewer service connections;
- ▶ The Registered Surveyor or the Engineer must certify the W.A.E. plans;
- ▶ Locate and depth services using GPS equipment (or field notes or onsite survey subject to Corporation prior approval) and submit to the Corporation in electronic format; and
- ▶ The following certificate is to be appended to the transmittal advice for the submitted 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 Corporation*

Name: .....

Signature: .....

Capacity: .....

Date: .....

The Registered Surveyor responsible for the 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 Corporation consenting to the statement of compliance.

A statement certifying that all works have been completed in accordance with the approved plans must be produced with the WAE’s “ 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 certificate of compliance release.

## 9. Certification of Completion of Works

### 9.1 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 Corporation or Accredited Certifier to issue an Auditing report. Practical completion of the water and sewer component of the subdivision is not to be issued until after completion of the outstanding issues on the Auditing report.

Within fourteen (14) days of the receipt of the request, the Corporation or Accredited Certifier shall audit the water and sewer component of the works and shall issue a certificate of compliance or shall give the developer, in writing, the reasons for not issuing the above. The developer or his contractor shall be present for the Auditing and assist the Corporation or Accredited Certifier with the checking of levels and opening of manholes etc., as required.

### 9.2 Maintenance of Works

The Maintenance Period will be twenty four (24) months and will commence on the date that the Corporation consents to the practical completion of the water and sewer component of the works.

The Maintenance Bond will be to the value of five percent (5%) of the Contract price of the water and sewer components of the subdivision. To this end the developer or the consultant 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 the Corporation to cover any defects or omissions, which may arise or become apparent in the maintenance period.

At any time during the Maintenance Period, the Corporation 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 Corporation, the Corporation 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 the Corporation's immediate repair. The maintenance bond may be used for the costs unless the developer elects to pay the Corporation separately.

The owner is to indemnify the corporation against any claims or costs including all costs of rectification of faults arising from defects or failure of the water and sewer component of the works for a period of 24 months after the corporation accepts practical completion of the works.

The Consultant is to indemnify the Corporation against any claims or costs arising from design faults or inaccuracies from the works as executed plans supplied to the Corporation for a period of 5 years.

## 10. Survey and Setting Out Requirements

### 10.1 Consultant responsibility

The consultant is responsible for set out of works.

### 10.2 Datum and Co-ordinates

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

### 10.3 Bench Marks

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

### 10.4 Survey Control Marks

All plans of survey are to show connection to at least two (2) 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 (2) 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 Corporation with the final plan of subdivision when requested by the Corporation.

### 10.5 Lot Boundaries

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

## 11. Miscellaneous

### 11.1 Public Risk Insurance

The Developer is to ensure that Contractors engaged on the water and sewer component of the works maintain a Public Risk Insurance Policy for at least \$20 Million which indemnifies the Corporation from all claims arising from the execution of the works.

### 11.2 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 Victoria.

### 11.3 Marker Posts *(refer WAT-1300)*

Marker posts to be installed as required by the Corporation. Marker posts to be Triangle Type B plastic, white with coloured tops and marker plates in accordance with North East Water's standard drawing.

Kerb marker plates for stop valves may be used as an alternative to marker posts with approval by the Corporation.

#### **Colours (Tops)**

Potable Water – Blue (Bluebell)

Sewer Rising Mains – Black

Recycled Water – Lilac

Raw Water – Green

Trade Waste – Brown

Fire Hydrants – Homebush Red



## 12. 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**

Not used

### **Part 3- Guidelines for Design of Drainage**

Not used

### **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**

Not used

### **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.



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