

Supplementary Information to the WSAA Water Reticulation Code

This document
contains information
supplementary to the
WSAA Water Reticulation
Code of Australia –
Melbourne Retail Water
Agencies Edition –
Version 1-
WSA 03-2003-2.3

wannonWATER

WANNON WATER SUPPORTING DOCUMENTATION WATER RETICULATION CODE

INTRODUCTION

General

This supplementary documentation describes Wannon Water's specific requirements for Water works additional to those detailed in the WSAA Water Reticulation Code of Australia Melbourne Retail Water Agencies Edition –Version1 - WSA-03-2003-2.3.

The Supplementary section of the Water Reticulation Code contains –

- Table of Contents to the supplementary Documentation
- Description of Wannon Water requirements where required or different to the WSAA Code

Operation

The user can refer to the index of the supplementary documentation to establish further Wannon Water requirements to be met. The clause numbering of this supplementary document matches the WSAA Code.

Innovative Solutions

WSAA Water Reticulation Code of Australia and this supporting documentation essentially provides “deemed-to-comply” solutions for the creation of Water Agency Water assets. Alternative solutions, practices, equipment and methodologies will continue to evolve and offer opportunities to improve the creation of these assets. Wannon Water encourages employment of any innovation that offers enhanced productivity and serviceability, but Wannon Water input should be sought before any innovative system is installed.

Responsibilities

Designers and constructors are responsible for their respective aspects of the design and construction process. It is the designer/constructors responsibility to justify any variation from the requirements set out in the Water Reticulation Code of Australia (including the attached Wannon Water conditions) and/or the Wannon Water Construction Drawings plus any specific directions given by Wannon Water for the particular project. The designer/constructor is to obtain Wannon Water endorsement for any variation.

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2.3.3.1 *Minimum Pipe Class*..... 17

Note: The clause and section numbers match those that are used in the WSAA Water Reticulation Code MRWA Edition. Version1 (WSAA 03-2003-2.3).

2.0 DESIGN OF LOCALISED RETICULATION SYSTEMS

2.1.3 Water Reuse

Not approved by Wannon Water at this time.

2.3 SYSTEM CONFIGURATION

Water main dead ends are to be eliminated as much as possible. Designers should link water mains through reserves where possible.

2.6 PUMPING STATIONS

(e) In-line booster pumping is only permitted where directed by Wannon Water.

3.2 SIZING OF MAINS

3.2.3 Empirical sizing of reticulation mains

Refer Table 3.1

40mm and 50mm PE pipe is not to be used.

4.0 GENERAL DESIGN

4.1 GENERAL REQUIREMENTS

4.1.4. Environmental Considerations- General

(b) Waterways and floodways.

Note: water mains along roads where open drains exist shall be designed such that valves and fireplugs are not located within any part of the drain. Water main may be constructed in the shoulder of an open drain with Wannon Water's permission if no other feasible option exists.

4.3 STRUCTURAL DESIGN

4.3.1 Location of water mains

Item (a) –As specified by water agency – Wannon Water's standard offset is 2.6 m provided sufficient clearance can be achieved.

4.3.2 Water mains in road reserves

Water mains shall not be permitted within open rural drains.

4.3.3 Water mains in easements

Easements are to be in accordance with the Land Tenure Guidelines set out in servicing/easements and reserves/land tenure guidelines of Wannon Water's Land Development Manual.

4.3.12 Water mains in conjunction with landscaping and/or other development

Under "Structural Design" Concrete encasement of water mains – Not permitted.

4.4 SHARED TRENCHING

Figure 4.1

Horizontal clearance between water main and power supply to be a minimum of 600 mm or located on the opposite side of the road reserve as per a Council's standard drawing (preferable option).

Shared trenching cannot be adopted where proposed roads are constructed abutting adjacent land. The developer is to obtain permission of adjacent land owner for the construction of assets to ensure consistent design outcomes.

4.7 CONNECTION OF NEW WATER MAINS

All tee connections to existing water mains shall be Tapping Under Pressure (TUPs) unless agreed otherwise by Wannon Water. End of main connections require water main shutdown.

4.8.2 PERMANENT ENDS OF WATERMAINS

Dead ends are to be avoided wherever possible. Water mains are to extend to provide reticulation line wherever possible.

Where land is designated LDRZ, the water main may extend to the midway point of the last allotment. Land zoned rural (RLZ) requires the water main to be extended a minimum 6.0 m past the side boundary and clear of any proposed or existing driveway.

4.8.3 Temporary ends of watermains

For all residential, commercial and industrial development, the water mains are to extend across the entire frontage and the block prior to the installation of a temporary end.

The installation of a valve should be considered to eliminate the need to shut down water to existing properties.

4.8.4 Chlorination Assemblies

Not approved by Wannon Water.

4.9 PROPERTY SERVICES (TAPPINGS)

Single DN20 residential tapplings generally to the centre of the lots, refer to Wannon Water standard drawing W-363-C and metering manual for details. No sharing of water service allowed. Any variance subject to Wannon Water approval.

4.10.5.2 CLEARANCE REQUIREMENTS

Table 4.1 Clearances between water mains and underground services

Minimum clearance for electricity (for water mains <DN200) shall be 600 mm.

Vertical clearance to be maintained when future service or water mains are likely to be extended i.e. vacant residential land abuts new main.

4.10.7 Deviation of mains around structures (MRWA 4.3.13 Curved water mains)

Deflection of pipe joints are to be used to maintain a constant offset from building line for curved water main. The degree of deflection is to be in accordance with the pipe manufacturer's recommendations. Bends are not to be used for curved water mains as a constant offset cannot be achieved.

Where curved alignments are required greater than the pipe manufacturer's recommendations, Wannon Water may allow or impose the use of DICL – soc – soc adaptors with a cut-pipe schedule or PE mains to be constructed.

The design is to stipulate tangent points, radii and centre point coordinates.

5.4.2 PIPE COVER

Water reticulation mains should be designed to the minimum cover requirements set out as shown below.

Zone	Cover (mm)
Residential or Rural	
Footway	600
Carriageway (Crossing)	800
Carriageway (Longitudinal)	800
Commercial and Industrial	
Footway	800
Carriageway	800
Vicroads	1200

The minimum cover is to be measured from lip of kerb.

5.4.3 Trench Width

Wannon Water standard drawing W-351-C takes precedence over WSAA drawing WAT-1201-V.

5.4.4 Pipe Embedment

Wannon Water standard drawing W-351-C takes precedence over WSAA drawing WAT-1201-V.

5.4.5 Pipe Protection /Concrete encasement

Concrete encasement not permitted.

5.6 PIPE MATERIALS

The following pipeline materials are approved for use for Wannon Water. Minimum class as stated.

oPVC Class 16

uPVC Class 16

mPVC Class 16

DICL Class K9

MSCL

63 PE 100 Class 12.5

Bends and fittings to be ductile iron.

6.2.3 STOP VALVES FOR RETICULATION MAINS

Table 6.1 – Stop valve spacing criteria

Stop valve spacing for rural areas to be determined in conjunction with Wannon Water.

6.2.5.4 Arrangement 3

Figure 6.3 VALVE AND HYDRANT COMBINATIONS

section (b) is the preferred arrangement where a valve has a hydrant on each side.

6.8.2 HYDRANT SITING PRINCIPLES

Hydrants should also be sited in high points and low points to allow charging, the release of air and flushing of accumulated materials.

6.8.3 Hydrant types

(a) Spring Hydrants only, alternatives not permitted.

7.0 DESIGN REVIEW & DRAWINGS

7.2.4 CONTENT OF DRAWINGS:

- (u) Any other relative information
- Wannon Water logo
 - Wannon Water standard notes
 - Allotment and PS number
 - Location of other utilities' proposed and existing services (services schedule)
 - Location of any existing other services
 - Obstructions (re trees, structures etc).
 - Symbols showing location of valves fire plugs and reducers etc.
 - Pipe size and material
 - Easements
 - Storm water drain with details and clearances
 - North point
 - Scale
 - Drawing number
 - Drawing revisions
 - Consultant details and sign-off

Also, the following schedules are required.

One copy of each drawing is to be submitted along with road construction drawings for checking. Two copies required for approval.

7.2.3 Scales

The scales to be used are as follows:

- Plan 1:500

Location plans can be produced at reduced scales and for clarity detailed connection details can be "Not to Scale", but are to be labelled accordingly.

Wannon Water retains the original set of plans and provides the consultant with a copy. If an original set is required to be returned, an additional copy is to be submitted for approval.

7.2.5 DRAFTING STANDARDS

C. Fittings and Symbols

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FITTINGS AND SYMBOLS			
WATER		SEWER	
CHANGE OF PIPE SIZE		TYPE "A" JUMP UP	
MAINS NOT CONNECTED		TYPE "B" JUMP UP	
MAINS IN CONDUIT		TYPE "C" SLIDE LINE	
VALVE		OBLIQUE JUNCTION	
NON RETURN VALVE		TYPE "A" SPECIAL	
FIRE PLUG			
DEAD END CAP			

D. Other Underground Services

OTHER U/G SERVICES	
EXISTING WATER MAIN	
STORM WATER	
GAS	
TELSTRA	
POWERCOR	
SEWER	

G.

**ACCEPTED BY WANNON WATER
DEVELOPMENT SERVICES**

No works shall commence prior to plans being accepted and signed by Wannon Water.

I. SURVEY MARKS

SURVEY MARKS AND LOCATIONS		LEVELS
Datum AHD		
	TBM STAR PICKET – GROVE ROAD REAR OF LOT 2	18.356
	TBM STAR PICKET – GROVE ROAD OPPOSITE LOT 4	18.356
	PSM (parish name) No 31	19.574
	PSM (parish name) No 33	19.574

J. SERVICES LOCATION

SERVICES LOCATION SCHEDULE

Street Name	Telecom	Gas	Water	Power	Kerb	F/Optic
Street	1.65N	2.1N	2.7N	3.3S	4.5	
Road	1.65W	2.1W	2.7W	3.3E	4.25	

7.3 RECORDING OF WORK "AS CONSTRUCTED INFORMATION"

Refer to SURVEY section of Wannon Water's Land Development Manual (process document).

Supply of Information to Wannon Water

All as constructed records must be provided to Wannon Water within 5 working days prior to developer requesting a statement of compliance.

PART 2: PRODUCTS AND MATERIALS

See supplementary specification items 5.6 for approved pipeline materials.

PART 3: CONSTRUCTION

10.1 QUALITY ASSURANCE

In addition, refer to Wannan Water's Land Development Manual (policy document).

11.2 ORDER OF CONSTRUCTION, TESTING AND COMMISSIONING

To ensure and protect Wannan Water's HACCP accreditation, flushing, disinfection, chlorine residual testing and connection of new water mains are performed by Wannan Water staff at the developer's cost. Acceptance testing (i.e. pressure test) is performed by the developers consultant/contractor. Wannan Water will audit all acceptance testing.

11.11 CONNECTION TO AND WORK ON EXISTING ASBESTOS WATER MAINS

All connection to existing Wannan Water water mains including asbestos cement mains are performed by Wannan Water staff only.

14.2 BEDDING MATERIALS

Unless otherwise directed onsite, lay the pipes on 'A' grade sand bedding and surround with the following properties:

- Consist of hard durable inert grains of washed river, marine or dune sand or hard rock sand or a blend of these naturally occurring sand types;
- Sand grading shall comply with the following table (*Table 2*);
- The resistivity shall be greater than 1500 Ohm.cm² when tested in accordance with AS 1289.4.41;
- The pH shall be in range 5-9 when determined in accordance with AS 1289.4.3.1;
- The sand shall be free from noxious weeds as proclaimed by the relevant regulators; and
- The sand shall be free from dangerous chemicals as proclaimed by the relevant regulators.

Table 1 Sand Grading

Sieve Size mm	Mass of Sample Passing, Percent
6.7	100
4.75	95-100
2.36	85-95
1.18	65-80
0.6	50-70
0.3	30-50
0.15	5-12
0.075	3-8

The use of 5mm minus crushed rock may be used for pipe bedding as a substitute for 'A' grade sand bedding.

16.6 CONCRETE EMBEDMENT & ENCASEMENT

Concrete embedment and encasement of water main is not approved.

18 SWABBING

Swabbing points are required for mains >DN225.

19.5 WATER QUALITY TESTING

All water quality testing is performed by Wannon Water staff to HACCP procedures.

20 DISINFECTION

All disinfection of mains is to be performed by Wannon Water staff to HACCP procedures.

20.2 FLUSHING OF DISINFECTION WATER

Not permitted – work to be undertaken by Wannon Water staff.

22.1 CONNECTION TO EXISTING WATER MAINS - GENERAL

Wannon Water requires minimum 7 working days notice for connection(s) to live water mains. Only Wannon Water is to perform live connections, operate valves and shut down water supply.

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PART 4: STANDARD DRAWINGS

DRAWING NUMBER	COMMENTS
PIPELINE LAYOUT	
WAT-1102-V	FL TEE offtake – FL valve is preferred arrangement
WAT-1105	Under pressure connection only – connection detailed on design
WAT-1106-V	Not used by Wannan Water – refer std dwg W-363-C
WAT-1108-V	Used for 63 PE connection only – other connections refer std dwg W-363-C
WAT-1109	Not used by Wannan Water – refer std dwg W-363-C
WAT-1121-M	Not used by Wannan Water – refer std dwg W-363-C
WAT-1122-M	Use Wannan Water standard notes
EMBEDMENT / TRENCHFILL AND RESTRAINTS	
WAT-1200	Not used by Wannan Water – refer std dwg W-353-C
WAT-1201-V	Not used by Wannan Water – refer std dwg W-351-C
WAT-1202-V	Not used by Wannan Water – refer std dwg W-351-C
WAT-1203	Special Embedments
WAT-1205	Refer std dwg W-353-C. Concrete blocks not used by Wannan Water for mains to DN225
WAT-1206	Thrust Block Details
WAT-1207	To be used only with Wannan Water permission
WAT-1208	To be used only with Wannan Water permission
WAT-1209	To be used only with Wannan Water permission
WAT-1210	To be used only with Wannan Water permission
WAT-1211	Not used by Wannan Water – detail required on design
WAT-1212	Not used by Wannan Water – detail required on design
WAT-1213	Not used by Wannan Water – detail required on design
WAT-1214	Not used by Wannan Water – detail required on design
WAT-1256-M	Standard Trench Details – to be used only with Wannan Water permission
WAT-1257-M	Thrust Block Details – to be used only with Wannan Water permission
WAT-1258-M	Used only with Wannan Water permission
WAT-1259-M	Used only with Wannan Water permission
WAT-1260-M	Wannan Water std dwg W-351-C takes precedence
INSTALLATION PRACTICES/ STRUCTURES	
WAT-1300-V	Not used by Wannan Water – refer std dwgs WW-10-425 & WW-10-501 for hydrant marker posts
WAT-1301	Not used by Wannan Water – refer std dwgs WW-10-425 & WW-10-501 and W-354-C
WAT-1302	Not used by Wannan Water – refer std dwgs WW-10-425 & WW-10-501
WAT-1303	Not used by Wannan Water – refer std dwg W-354-C
WAT-1304	Not used by Wannan Water – refer std dwg W-354-C
WAT-1305-V	Not used by Wannan Water – refer std dwgs WW-10-425 & WW-10-501
WAT-1306	Not used by Wannan Water – refer std dwgs WW-10-425 & WW-10-501
WAT-1307	Used only with Wannan Water permission

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WAT-1308	Used only with Wannon Water permission
WAT-1309	Used only with Wannon Water permission
WAT-1310	Used only with Wannon Water permission
WAT-1311	Used only with Wannon Water permission
WAT-1312	Not used by Wannon Water – detail required on design
WAT-1313	Flanged Joints
WAT-1320-M	Not used by Wannon Water
WAT-1321-M	Not used by Wannon Water
FABRICATION DETAILS	
WAT-1400	
WAT-1401	
WAT-1402	
WAT-1403	Required detail on design
WAT-1404	
WAT-1405	
WAT-1406	
WAT-1407	
WAT-1408	
WAT-1409	Not used by Wannon Water
WAT-1410-M	Required detail on design
WAT-1411-M	Required detail on design

NOTE: 1999 Drawing WAT-212 – “Swabbing Point Typical Arrangement” has been deleted from the new series of drawings
* These Drawings are **NOT** used by MRWA

APPENDIX A

Shared Trenching

Shared trenching may possibly be allowed only with the approval of Wannon Water.

2.3 PIPE SELECTION

2.3.3.1 Minimum Pipe Class

PVC

PVC can be used as shown in the following table.

CLASS	TYPE	PRESSURE HEAD	LOCATION
16	Series 1 & 2	up to 160 m	Nature Strips Parking bays Road alignments/crossings
20	Series 1 & 2	up to 200 m	Nature Strips Parking bays Road Alignments/crossings

Class 16 and above PVC can be either Series 1 or 2.

Minimum Class 16 required for mPVC use.

PVC pipes are to be only used for subsurface pipeline systems.

For sizes greater than 225 mm, approval for use must be sought from Wannon Water.

Typically for pipe sizes 250 mm and above, ductile iron (DACL) or steel (MSCL) is to be used.

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DICL

A DICL pipeline system is suitable for most locations, with the exception of the following:

- Above ground applications unless flanged and corrosion protected
- Areas of unstable ground
- Near electrical transmission towers

Confirm with Powercor, but generally use of a "plastic" pipeline system is recommended to avoid electrolysis problems.

- In highly aggressive soils.

MSCL

Mild steel pipeline systems are acceptable in most locations. The system is available as rubber ring jointed or can be welded. Welded systems are most advantageous when used for difficult and above ground applications. Some of the uses for a welded system include the following:

- Above ground pipelines
- Bridge crossings
- Unstable ground
- In areas where tomming is not possible.

The manufactures specifications should be investigated to ascertain maximum allowable deflection of joints and spanning distances.

POLYETHYLENE

The use of 63 mm polyethylene pipe is approved for court bowls. Wannon Water may also require a 32 mm link main to maintain water quality.

All works utilising polyethylene is to be undertaken in accordance with the WSAA Polyethylene Code