Queensland Planning Guidelines for Water Supply and Sewerage

Requirement	Section
Insert definition of "Equivalent Population" as follows: "Sum of Equivalent Persons (EP) for a catchment or area under consideration".	Introduction 3.0 Glossary of Terms
Delete "Interim Resource Operations Licence (IROL)".	
Replace the term "lamphole" with "inspection opening (IO)" and retain the existing definition.	
Replace definition of Resource Operations Licence (ROL) with the following: "Licence to Take or Use Surface Water, Licence to Take Groundwater or Waste Discharge Licence as issued by NRETAS".	
Delete "Resources Operations Plan (ROP)".	
Insert "Sewerage Distribution – This is part of the sewerage system that transports sewage from sewerage reticulation system to Headworks Sewerage system. The distribution sewerage system generally comprises branch sewers and trunk sewers, maintenance holes, pump stations, rising mains, overflow structures and emergency relief structures. The distribution sewerage system components are generally sized at greater than or equivalent to 375mm in diameter."	
Insert "Sewerage Headworks – This is part of the sewerage system which accepts transported sewage from the distribution Sewerage system for treatment and disposal. Sewerage headworks generally comprise treatment plants, transfer mains to outfalls, outfall works including disposal and associated works."	
Insert "Sewerage Reticulation – This is part of the sewerage system which collects sewage from the customer and transports it to the sewerage distribution system. The sewerage reticulation system generally comprises of the reticulation sewers, main sewers, maintenance holes and property connection sewers. This may include associated infrastructure such as pump stations, rising mains, emergency relief structures and overflow storage devices. These sewers will generally be sized less than 375mm in diameter."	
Insert "Water Distribution – The part of the water supply system generally associated with the supply of water from the outlet of major reservoir storages to the Water Reticulation system. Water Distribution systems generally comprise of distribution pipes, elevated storages and pump stations. Pipework in Water Distribution system is generally greater than or equivalent to 375mm for major centres. Generally there are no service pipes from the distribution system."	
Insert "Water Headworks – This is part of the water supply system associated with the transfer and treatment of water from the source to and including the major storage reservoirs. Water Headworks generally comprises of the water source, treatment, transfer mains and major storage reservoirs prior to Water Distribution system. Generally there are no service pipes from this infrastructure."	

PowerWater

Requirement	Section
Replace "Water Resource Plan (WRP)" with "**Water Allocation Plan** - Water allocation plans can be declared for one or multiple water sources, surface or groundwater. They provide a blueprint for future sustainability by establishing a framework to share water between human and environmental needs. They are developed through detailed technical and scientific assessment as well as extensive community consultation to determine the right balance between competing requirements for water. Water Allocation plans are declared under the Northern Territory of Australia *Water Act 1992*. They detail the area and water resource to which the plan applies as well as the vision, objectives, strategies and performance indicators of the plan".	Introduction 3.0 Glossary of Terms (cont)
Insert "Water Reticulation – This is part of the water supply system generally associated with delivery of water from the Water Distribution system to the consumer. Water Reticulation systems generally comprise of reticulation mains and service pipes. This may include associated infrastructure such as pump stations and storages. Generally this infrastructure is sized less than 375mm."	
Delete "DPI&F" and insert "**DoR** - (Northern Territory) Department of Resources - Primary Industry, Fisheries and Resources" instead.	Introduction 4.0 Abbreviations
Delete "NR&M" and insert "**NRETAS** - (Northern Territory) Department of Natural Resources, Environment, The Arts and Sport" instead	
Delete "QWRS – Queensland water recycling strategy"	
Delete Table 5.1 and replace with Table 5.1 (NT) - Refer attachment.	Chapter 1 Table 5.1
In row titled "Service Provider Strategic Planning", delete reference to stormwater. In row titled "Service Provider Strategic Planning", insert a dot point: "• Safety Plans".	Chapter 3 Table 5.1
In row titled "State Water Planning", replace reference to "Water Resource Plan (WRP)" with "Water Allocation Plan". In row titled "State Water Planning", delete reference to "Resource Operations Plan (ROP)". In row titled "State Water Planning", delete reference to "Resource Operations Licence (ROL / IROL)".	
In row titled "Other Regulatory Inputs", delete all dot points.	
Delete sentence "There is a mandatory requirement for public consultation for Planning Schemes under the *Integrated Planning Act 1997*".	Chapter 4 Section 3.2
Delete reference to "other council departments" under "Stakeholders that **provide revenue** sources". Delete "provided by Council and other establishments" after "general public using public facilities" under "Stakeholders that **consume** products/services without direct payment".	Chapter 4 Section 4.1
In Table 5.2 and the comments attached to the row titled "Mean Day Maximum Month", delete the words "Parameter used in Queensland only to reflect the demand persistence in response to climatic conditions".	Chapter 5 Section 5.2.1

<table>
<tr><th>Requirement</th><th>Section</th></tr>
<tr><td>Delete all text from "A number of studies have been undertaken…" under Table 5.2, through to "The water loss components of NRW can be assumed to have a peaking factor of 1.0 unless the service provider has more accurate information" under Table 5.4.

Delete Tables 5.3 and 5.4.

After dot points that follow "Typically the process for determining existing demand parameters would be as follows:", insert:

"MDMM and PD should be averaged for three consecutive years where data is available. Indicative values are:

<table>
<tr><td></td><td>MDMM:AD</td><td>PD:AD</td></tr>
<tr><td>Darwin – 2006/07</td><td>1.34</td><td>1.44</td></tr>
<tr><td>Darwin – 2007/08</td><td>1.40</td><td>1.52</td></tr>
<tr><td>Darwin – 2008/09</td><td>1.34</td><td>1.41</td></tr>
<tr><td>Alice Springs – 2008/09</td><td>1.40</td><td>1.56</td></tr>
</table>
For Darwin, use PH:PD = 1.9, where both PH and PD are measured in L/s.

For all other centres, including Alice Springs, use PH:PD = 1.8, where both PH and PD are measured in L/s."</td><td>Chapter 5
Section 5.2.1
(cont)</td></tr>
<tr><td>Replace comments against "Peak Wet Weather Flow" with "For calculation of Peak Wet Weather Flow, refer to the WSAA Sewerage Code as amended for use on PWC systems. Nominally, PWWF = PDWF + GWI + IIF"</td><td>Chapter 5
Table 5.5</td></tr>
<tr><td>Alter Item 2 to read:

"2. The WSAA Sewerage Code as amended for use on PWC systems"

Delete the following:

3. The historical Queensland approach, where typically
PDWF = C_2 x ADWF

PWWF = (5 x ADWF) or (C_1 x ADWF)

$C_1 = 15 \times (EP)^{-0.1587}$ or $C_1 = 3.5$, whichever is greater

In the above formulae, EP is the total equivalent population in the catchment gravitating to a pump station.

Delete the sentence, "For smart sewers, IFF can be 50%...".

Delete the sentence, "Generally, ADWF will range between 150-275 L/EP/d…"</td><td>Chapter 5
Section 5.2.2</td></tr>
<tr><td>Delete Table A.

Refer to WSAA Water Supply Code and WSAA Sewerage Code as amended for use on PWC systems.</td><td>Chapter 5
Table A</td></tr>
</table>

<table>
<tr><th>Requirement</th><th>Section</th></tr>
<tr><td>Modelling of existing systems will be generally undertaken by PWC.

Developers are required to model internal water and sewerage systems.</td><td>Chapter 6
Section 4.0</td></tr>
<tr><td>In general, dynamic models will be used for assessment of development proposals.

Static models can be used by development consultants for initial design.

Dynamic modelling must be used for pressure sewer proposals.</td><td>Chapter 6
Section 5.1</td></tr>
<tr><td>Model demands and physical data must be provided in a GIS format compatible with PWC systems.

Any losses should be incorporated into the diurnal curves to be used for modelling.

It is preferable that consultants develop low day demand diurnal curves for modelling of low flow scenarios.

Remove reference to “Groundwater infiltration” and “Rainfall dependent infiltration/inflow…” under “Dynamic sewer models will incorporate:”.</td><td>Chapter 6
Section 5.3</td></tr>
<tr><td>Replace row titled “Reservoirs” with the following:

<table><tr><th></th><th>Water Supply</th><th>Sewerage</th></tr><tr><td>Reservoirs</td><td>▪ Location
▪ Volume, area
▪ Area, depth
▪ Operating levels (BWL, TWL, overflow)
▪ Any restrictions to the operating levels</td><td></td></tr></table>
Add a row to Table 5.1 as follows:

<table><tr><th></th><th>Water Supply</th><th>Sewerage</th></tr><tr><td>Catchment Regions</td><td>▪ Areas feeding to a node</td><td>▪ Areas feeding to an upstream maintenance hole</td></tr></table></td><td>Chapter 6
Section 5.4
Table 5.1</td></tr>
<tr><td>For small subdivisions (water and/or sewer) where the load will be less than 5% of the total load on the local zone or catchment, then the model should typically be run for the 2 year case.

For water and/or sewer, where developments will be staged or where large subdivisions with ultimate load greater than 2500EP are proposed or where the ultimate load of a subdivision will exceed 5% of the total load on the local zone, the model should be run for the following cases:

• 2 years
• ultimate development</td><td>Chapter 6
Section 5.6</td></tr>
</table>

<table>
<tr><th>Requirement</th><th>Section</th></tr>
<tr><td>Replace Table 5.2 with the following:

TABLE 5.2 – Modelling Scenarios – Water Supply
<table>
<tr><th>Scenario</th><th>Required Performance Criteria</th><th>Comment</th></tr>
<tr><td>1. Peak day including peak hour for year</td><td>All reservoirs to finish full at end of day</td><td>Check minimum residual pressures when elevated reservoir at bottom water level</td></tr>
<tr><td>2. Fireflow plus 2/3 of peak hour flow on peak day</td><td>10m residual minimum pressure at hydrant</td><td>Refer to PWC supplement to WSA 03 – Water Supply Code of Australia for minimum fire fighting requirements.</td></tr>
</table>
For minimum pressures at the property boundary, refer to PWC supplement to WSA 03 – Water Supply Code of Australia.

Maximum pressures should not exceed 60m.

Replace Table 5.3 with the following:

TABLE 5.3 – Modelling Scenarios – Sewerage
<table>
<tr><th>Scenario</th><th>Required Performance Criteria</th></tr>
<tr><td>1. PWWF</td><td>For new sewers, manholes not to surcharge – full pipe flow only.

For existing sewers, maximum HGL 1000mm below natural surface level</td></tr>
<tr><td>2. Low Flows</td><td>Self cleansing velocities to be achieved at Q'_m (ie. at 75% of PDWF – also called Q_{dmp}).

If diurnal curves are available, check that flow exceeds Q'_m (or Q_{dmp}) at least once in every twenty-four hour period.</td></tr>
</table>
</td><td>Chapter 6
Section 5.6
(cont)</td></tr>
<tr><td>Refer to PWC supplement to WSA 03 – Water Supply Code of Australia for minimum fire fighting requirements.</td><td>Chapter 6
Section 5.7</td></tr>
<tr><td>Non-drinking water supply shall not be used to meet fire fighting requirements.</td><td>Chapter 6
Section 5.7.11</td></tr>
<tr><td>Under Service Standards, delete "(Note Water Act 2000 compliance in relation to SAMP/CSS)".</td><td>Chapter 7
Table 5.2</td></tr>
<tr><td>Under Notes for Table 5.3, delete "under the Plumbing and Drainage Act 2002 and Environment Protection 1997" from "2. Greywater use must comply…".

Table provided for information/indicative purposes only.

Approvals are to be obtained from the Department of Health and Families (Environmental Health section) for all recycled water proposals.</td><td>Chapter 7
Table 5.3</td></tr>
<tr><td>Below Table 5.4, insert:

"<u>Notes for Table 5.4</u>
✓ Appropriate (note that while option may be appropriate, it may not be cost effective or approved by statutory or regulatory authorities)
X Unsuitable"</td><td>Chapter 7
Table 5.4</td></tr>
</table>

Requirement	Section
Under Rainwater tank (sole supply) and Rainwater tank (supplementary supply), substitute "PWC" in lieu of "Council" in Note 7 and add further note "For a registered Food Business, the premises must have a potable water supply that complies with the Australian Drinking Water Guidelines. Food Business owners will need to arrange routine certified water analysis of the water".	Chapter 7 Table 5.5
In the first sentence of the first paragraph, add "and Northern Territory" after "… drinking water quality in Queensland".	Chapter 7 Section 5.4.3
Delete Table 5.8 and replace with Table 5.8 (NT) - Refer attachment. At end of section, insert Table 5.16 (NT) – Refer attachment.	Chapter 7 Section 5.4.4
Under On-site Sewerage Management System (OSMS) – On-site Systems (households), substitute "Northern Territory Government Agencies and Local Government Councils" in lieu of "Council" in Note 4.	Chapter 7 Table 5.13
Delete Table 5.15 and replace with Table 5.15 (NT) - Refer attachment. Refer also to PWC Amendments to WSA 02 – Sewerage Code of Australia, WSA 04 - Sewerage Pumping Stations Code, WSA 06 - Vacuum Sewerage Code and WSA 07 - Pressure Sewerage Code.	Chapter 7 Table 5.15
Delete existing paragraph and insert: "More than 80% of the population of the Northern Territory resides within the major centres of Darwin, Katherine, Tennant Creek and Alice Springs. Many of the communities outside the major centres are remote and inaccessible by road for months at a time. Although several of these remote communities have populations over 1000 people, most have populations ranging between 50 and 500 persons. The provision of water and sewerage services to these minor communities requires the adoption of practical, appropriate solutions, which recognise the service delivery constraints of population, remoteness and harsh climate."	Chapter 8 Section 3.0

Chapter 1 - Table 5.1 - delete existing table and insert the following:

TABLE 5.1 (NT) – OVERVIEW OF REGULATORY FRAMEWORK

Act (includes subordinate legislation under the Act)	**Summary of Requirements**
Water Act 1997	Water allocation/access to water resources Construction permit for a dam Drilling licences Bore construction permit Water extraction licence Waste discharge licence
Water Supply and Sewerage Services Act	Declaration of water supply licence areas Declaration of sewerage services licence areas The powers and obligations for service providers in providing water and sewerage services: ▪ Service provider must be licensed ▪ Preparation of annual asset management plans ▪ Water quality obligations ▪ Requirement for a customer contract ▪ Requirement for a metering code ▪ Requirement for a trade waste code Power of entry provisions Limitation on obligation to provide services Minimum standards of service Power to carry out works on public land Pricing orders for water supply and sewerage services
Heritage Conservation Act	Heritage assessment criteria Interim conservation orders Conservation management plans Protection of archaeological places and objects
Lands Acquisition Act	Temporary entry onto land Acquisition of Native Title valid if procedures complied with Compulsory acquisition where right to negotiate applies
Local Government Act	Management of roads and road reserves
Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)	Commonwealth assessment and approval regime to be followed for any project or an activity that impacts on: ▪ World Heritage properties (eg Kakudu National Park, Uluru-Kata Tjuta National Park) ▪ A Ramsar wetland of national importance (ie. Cobourg Peninsula Aboriginal Land and Wildlife Sanctuary, Kakadu National Park Stage I (including wetlands components of Stage III)) ▪ Migratory species, threatened species or ecological communities listed under commonwealth legislation
Financial Management Act	Financial management policies and principles in relation to Northern Territory Government departments and statutory bodies
Fisheries Act	Pollution of a waterway or water body that detrimentally affects fish or aquatic life.

Act (includes subordinate legislation under the Act)	**Summary of Requirements**
Public Health Act	Provision of water or sewerage services including reuse Provision for mosquito and vermin control
Planning act	Work involving clearing of native vegetation
National Measurement Act 1960	Requirements in relation to water meters
Native Title Act 1993 (Commonwealth)	Access and impacts on land subject to Native Title
Trade Practices Act 1994 (Commonwealth)	Provision of water and sewerage services including effluent recycling – product "fit for purpose" and liability issues
Workplace Health & Safety Act 2007	Defines obligations to prevent a person's death, injury or illness being caused by a workplace, by workplace activities or by specified high risk plant
Utilities Commission Act	Regulation of prices for water supply and sewerage services Licensing functions Promote improvement in standards and conditions of service and supply
Northern Territory Aboriginal Sacred Sites Act	Protection of sacred sites including controls on entry to and work at these sites
Waste Management and Pollution Control Act	Protection of the environment through effective waste management and pollution prevention

Chapter 7 - Table 5.8 - delete existing table and insert the following:

TABLE 5.8 (NT) – SIZING OF WATER SUPPLY SYSTEM COMPONENTS

	Component	Sizing	Comment
HEADWORKS	Surface water source	Safe yield to be appropriate for population served within the planning horizon	▪ 99.9% yield reliability ▪ emergency supply – able to continuously supply a minimum of 180 litres/person/day for 24 months Note that time taken from concept to completion can exceed 15 years
	Groundwater source	Safe yield to be appropriate for population served within the planning horizon	▪ use yield estimates from NRETAS (where available) ▪ 99.9% yield reliability ▪ up to 6 bores – satisfy demand without largest bore being available - provide one spare unequipped bore with capacity ≥ largest equipped bore ▪ 7 to 12 bores – satisfy demand without two largest bores being available - provide one spare unequipped bore with capacity ≥ largest equipped bore ▪ > 12 bores – refer PWC Note that time taken from concept to completion can exceed 10 years
	Bore pumps	Long term safe yield of bore	pumping rates ≤ NRETAS recommended maximum pumping rate
	Raw water pumps	1.5 x ultimate MDMM	▪ Staged installation of pumps permitted ▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ In normal operation, pump station to run no more than 16 hours/day ▪ Where total number of pumps in pump station < 4, all pumps to be 100% duty ▪ Where total number of pumps in pump station ≤ 6, demand to be satisfied with two largest pumps unavailable ▪ > total of 6 pumps – refer PWC
	Raw water mains	1.5 x ultimate MDMM	Maximum velocity 1.4 m/s
	Treatment Plant	1.1 x ultimate PD flow	▪ Staged expansions by adding treatment modules may be considered. ▪ Assumes raw water and treated water storage available at treatment plant – otherwise use 1.5 x ultimate MDMM flow

TABLE 5.8 (NT) – SIZING OF WATER SUPPLY SYSTEM COMPONENTS (cont)

	Component	Sizing	Comment
HEADWORKS	Treated (transfer) water pumps feeding a ground level reservoir	1.5 x ultimate MDMM	▪ Staged installation of pumps permitted ▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ In normal operation, pump station to run no more than 16 hours/day ▪ Where total number of pumps in pump station < 4, all pumps to be 100% duty ▪ Where total number of pumps in pump station ≤ 6, demand to be satisfied with two largest pumps unavailable ▪ > total of 6 pumps – refer PWC
	Treated (transfer) water pumps feeding an elevated reservoir (in conjunction with ground level reservoir)	Greater of: ▪ $^{2}/_{3}$ ultimate PH plus fireflow; OR ▪ ultimate PH	▪ Staged installation of pumps permitted ▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ satisfy demand without largest pump being available
	Trunk mains feeding a ground level reservoir	▪ gravity - ultimate PD ▪ pumped – 1.5 x ultimate MMDM	▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ Maximum velocity 1.4 m/s
	Trunk mains feeding an elevated reservoir	Ultimate capacity of treated water pumps	▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ Minimum design life >25 years ▪ Maximum velocity 1.4 m/s
	Reservoirs (ground level)	Major centres ▪ 3(PD-MDMM) + Emergency Storage	▪ Major centres – calculate ultimate PD and MDMM for end of reservoir life – minimum design life >50 years ▪ Minimum emergency storage requirement is (14PD/24) ▪ Refer Table 5.16 (NT) for guidance to calculate emergency storage requirements
		Minor Centres ▪ 2 x ultimate PD	▪ Minor centres - calculate ultimate peak day volume for end of reservoir life – minimum design life >20 years

TABLE 5.8 (NT) – SIZING OF WATER SUPPLY SYSTEM COMPONENTS (cont)

	Component	Sizing	Comment
DISTRIBUTION / RETICULATION	Elevated reservoir (in conjunction with ground level reservoir)	Major centres ultimate PH	▪ Minimum design life >50 years
		Minor centres - greater volume calculated from: ▪ $^2/_3$ ultimate PH plus 4 hours of fireflow; OR ▪ ultimate PH (≤50km) ▪ 2 x ultimate PH (50km< X <125km) ▪ 3 x ultimate PH (<125km)	▪ Where a minor centre is within 50km of a major centre depot, use 1 x ultimate PH ▪ Where a minor centre is more than 50km but less than 125km from a major centre depot, use 2 x ultimate PH ▪ Where a minor centre is more than 125km from a major centre depot, use 3 x ultimate PH ▪ Minimum design life >20 years ▪ Design for contingency pumping directly into system from ground level storage using transfer pumps
	Single reservoir in zone (elevated tank or ground level tank on hill)	Major Centres ▪ 1 x ultimate P	▪ Major centres - calculate ultimate peak day volume for end of reservoir life ▪ Minimum design life >50 years
		Minor Centres ▪ 2 x ultimate PD	▪ Minor centres - calculate ultimate peak day volume for end of reservoir life ▪ Minimum design life >20 years ▪ Storage shall be provided by two or more hydraulically separate reservoirs
	Trunk reticulation mains (distribution mains)	Greater of: ▪ fireflow; OR ▪ ultimate PH	▪ Maximum velocity 1.4 m/s
	Reticulation mains	Greater of: ▪ fireflow; OR ▪ ultimate PH	▪ Maximum velocity 1.4 m/s
	Reticulation booster pump station	ultimate PH + fireflow	▪ Staged installation of pumps permitted ▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ Satisfy demand without largest pump being available ▪ Variable speed pump drives preferred
	Pumped system	Peak instantaneous flow + fireflow	▪ Only permitted with PWC written approval ▪ Only applicable for minor centres or small parts of a zone ▪ Variable speed pump drives to replace elevated storage ▪ Necessary to calculate instantaneous flow based on concurrent demand (this will exceed PH by a significant margin) ▪ Pipework, manifolds, valves and buildings to be designed for ultimate flow ▪ Staged installation of pumps permitted ▪ Satisfy demand without largest pump being available

TABLE 5.8 (NT) – SIZING OF WATER SUPPLY SYSTEM COMPONENTS (cont)

	Component	Sizing	Comment
DISTRIBUTION/RETICULATION	Standby pumps	Standby pump capacity ≥ capacity of largest pump	
	Constant flow system	-	Not Applicable
	Dual reticulation system (Non-Drinking Water Systems)	As for conventional system, but excluding fireflow	No fire supply to be provided from non-drinking water systems

Where the above table conflicts with WSA 03 – Water Supply Code of Australia and the PWC supplement to that Code, the Code and Supplement shall take precedence.

Chapter 7 - Table 5.16 (NT) - insert the following table at the end of Section 5.4.4:

Table 5.16 (NT) – Failure Duration Guidelines

		Type of Failure Event	Mains Break			Valve Failure			Pump Station		Comments
			<300mm	300-600mm	>600mm	<300mm	300-600mm	>600mm	Power Loss	Equipment	
A	**Time to Detect Failure**	SCADA	1	1	1	1	1	1	0.5	1	
		Report from Public	1	1	1	1	1	1	N/A	N/A	
		Routine inspection	8	8	8	8	8	8	8	8	
B	**Time to Mobilise**	<50km from Depot	1	1	1	1	1	1	N/A	N/A	
		<125km from Depot	4	4	4	4	4	4	N/A	N/A	
		>125km from Depot	8	8	8	8	8	8	N/A	N/A	
C	**Time to Repair**		4	10	22	3	6	12	14	22 48	parts in store order parts
D	**Time to Refill & Restore**		1	2	5						

Emergency storage required = (A + B + C + D)*PD/24

If (A + B + C + D) <14 hours, emergency storage required = 14*PD/24

Chapter 7 - Table 5.15 - Delete existing table and insert the table below.

Refer also to:

- PWC Amendments to WSA 02 – Sewerage Code of Australia
- PWC Amendments to WSA 04 - Sewerage Pumping Stations Code
- PWC Amendments to WSA 06 - Vacuum Sewerage Code
- PWC Amendments to WSA 07 - Pressure Sewerage Code

Table 5.15 (NT) – Sizing of Sewerage System Components

Component	Sizing
Wastewater Treatment	
Process	Waste stabilisation ponds with facultative primary ponds are strongly preferred in the Northern Territory – Refer PWC Waste Stabilisation Ponds Design Manual Alternative proposals must be supported by appropriate detailed documentation
Effluent Quality	BOD < 10mg/L, Suspended Solids < 15mg/L, Total N < 10mg/L, P < 1 mg/L. Lower levels of N and P may be required in sensitive areas
Capacity	Full treatment to 5 x ADWF
On-Site Sewerage Management System	
	Refer to: ▪ *Code of Practice for Small On-site Sewage and Sullage Treatment Systems and the Disposal or Reuse of Sewage Effluent*, Department of Health and Families ▪ AS/NZS 1546:1 – On-site Domestic Wastewater Treatment Units – Septic Tanks ▪ AS/NZS 1546:2 – On-site Domestic Wastewater Treatment Units – Waterless Composting Toilets ▪ AS/NZS 1546:3 – On-site Domestic Wastewater Treatment Units – Aerated Wastewater Treatment Systems ▪ AS/NZS 1547 – On-site Domestic Wastewater Management
Grey Water Re-Use	
	Refer to: ▪ *Permanent Grey-water Re-use in Single Domestic Premises*, Department of Health and Families
Effluent Re-Use	
	Refer to: ▪ *Guidelines for Management of Recycled Water Systems*, Department of Health and Families ▪ *Australian Guidelines on Water Recycling - Managing Health and Environmental Risks (Phase 1)*, Environment Protection and Heritage Council, National Resource Management Ministerial Council, and the National Health and Medical Research Council