Design Checklist for Water and Sewer for Building Developments

The proponent's hydraulic engineer/designer is required to complete this checklist and submit to Services Development, when submitting the water and sewer project drawings for building developments. *Note – The applicant should attach design calculations, reports, approvals, and any information additional to this checklist that will assist in the assessment of their application by Power and Water.

Northern Region

In person Ben Hammond Complex
Illiffe Street, Stuart Park
Mail PO Box 37471, Winnellie NT 0821
Fax 8924 5121
Email landdevelopmentnorth@powerwater.com.au

Southern Region

In person Sadadeen Valley
Berger Court, Alice Springs
Mail PO Box 1521, Alice Springs NT 0871
Fax 8951 7347
Email landdevelopmentsouth@powerwater.com.au

For more information contact Customer Service on **1800 245 092** or visit www.powerwater.com.au

Land Details / Location of Works

Lot No. : _____ Street Address: _____

Suburb: _____ Project: _____

_____ Stage: _____

Description of works, □ water □ sewer (i.e. 6 x 3 brm units and 30 seat restaurant): _____

_____

_____

Drawing No./s: _____

Comments: _____

_____

_____

_____

_____

Consulting Engineer / Designer

Name: _____ Company: _____

Postal Address: _____

Phone: _____ E-mail: _____

Signed (Checked):_____ Date: / /

General

□ Designs must conform to all requirements of the Power and Water Connection Code and associated documents.

□ For detail design and drawings, refer to NT WSAA Supplements of the Water Services Association of Australia (WSAA) Water Supply and Sewerage Codes available from the Power and Water website: http://www.powerwater.com.au/business/for_business_and_developers/water_services_connection_code/technical_requirements

□ Conducted a site inspection and surveyed the alignment.

□ Obtain Aboriginal Areas Protection Authority (AAPA) clearances (if applicable).

□ Assessment of subsoil condition and subsoil drainage.

□ Prepare project drawings and get approval from Power and Water and other authorities.

□ Prepare master services plan and master plan for the proposed development.

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- □ As constructed drawings are required before connection to Power and Water system and handover.
- □ Thrust boring or sleeving under road and railway may be required by Power and Water, road authority or council.
- □ Steel or concrete sleeves details should include OD, thickness, joint type, type 4 bedding for steel, or type 2 bedding for concrete, select backfill, etc. Use Tyton-Lok joint for DICL, collar joint for MSCL and electrofusion weld joint for PE pipes within sleeves.
- □ In conjunction with Services Development determine the fees/costs applicable (i.e. contribution, dis/connection, etc.), and inform the developer.
- □ Ensure approval is granted from Power and Water's Services Development, Power Networks, and Office of the General Counsel departments for any proposal concerning existing or proposed easements.
- □ Ensure design is approved by Power and Water prior to construction.

Water

- □ Obtain approval from Services Development for services concept plan and proposed connection point.
- □ Determine the ultimate demand (L/s) from the development, both domestic and fire fighting.
- □ Check whether the existing service meets the ultimate demand. Provide water meter sizing design flows as attachment.
- □ Ensure service size meets ultimate demand for zoning of lot.
- □ Ensure there is sufficient flow and pressure in the local water supply system to service the ultimate demand, including fire flows and worst case head loss. Consult with Services Development for system modelling results.
- □ Minimum series 1 PVC-M class 12 can be used for pipes ≤DN150 with working pressure below 350 kPa.
- □ Use minimum class 16 PVC pipes for all high pressure zones (working pressure above 350 kPa).
- □ Series 2 PVC-M class 16 pipe can be used for mains DN200≤DN300.
- □ DICL can be used for sizes ≥DN100. Buried DICL pipework and fittings must be wrapped in a protective polyethylene sleeving and noted on the drawing.
- □ DICL pipe shall not be cut to suit. All dimensions of DICL short pipes should be provided in the detail drawings.
- □ Water service connections ≥DN100 and water mains under roadways located in major centre CBD areas (Darwin, Alice Springs, Katherine Tennant Creek, Yulara) and high pressure zones (specific areas in Palmerston and other centres) are required to be constructed in restrained jointed DICL (Tyton-Lok or flanged jointed).
- □ Water services under roadways shall be either DICL flanged or Tyton-Lok jointed or MSCL collar jointed. PE class 16 pipes electrofusion weld jointed with RCP or MSCL sleeves can also be used for pipes DN225 and below. No polyethylene is to be used for any other piping or connections (unless specific approval granted for locations with corrosive water).
- □ Where the cover is insufficient but still greater than 300mm (with Power and Water approval only) use DICL pipes and flanged fittings. A concrete slab may be required as added protection.
- □ Ensure water services do not conflict with other services (i.e. electricity, sewer and driveway).
- □ No more than 25 property service connections may be isolated at any time by valve operation. (Include the number of units on allotments in this calculation, i.e. ten units on one allotment are counted as ten service connections).
- □ All water service connections to multi dwellings with greater than 20 apartments, commercial/industrial properties greater than 2,000m² in area, or commercial/industrial properties that include water critical businesses (see list), will require a stop valve either side of the service connection tapping to the existing water main.

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List of Critical Businesses as defined by AS/NZS 3500:2003

- Dentists, medical clinics, hospitals, nursing homes
- Shopping centres, hairdressers, photographic laboratories/processors, dry cleaners/commercial laundries
- Education facilities, child care centres
- Chemical plants or storage facilities, abattoirs
- Marinas/docks, caravan parks

- □ Provide a minimum of type 2 embedment for PVC pipe or type 4 embedment for steel pipe unless geotechnical investigations have been completed and the resultant report supports the use of lower quality embedment.
- □ Liaise with Services Development to select a service design (combination vs. dual fire/domestic). All fire services including internal lot hydrants, fire hose reels, fire booster arrangements or fire sprinklers are required to be connected after the meter assembly.
- □ A multi-metering manifold arrangement is to be used for multiple ground level units, townhouse style units, and industrial type units. It is limited to a maximum of 12 meters for residential and 6 meters for industrial, however this may be extended on a case by case basis.
- □ Complete backflow prevention assessment together with meter application.
- □ Ensure NT Fire and Rescue Services have approved the design (when fire-fighting provision applies).
- □ Power and Water provides a minimum of 15m pressure at the service. If a pump is required to meet the development's demands, include a break tank prior to the pump.
- □ Inline booster pumping >1 L/s will not be permitted without written approval from Power and Water.
- □ Provide water supply easements for property water services sized 100mm and over. Size of easement to be determined by Power and Water.

Sewer

- □ Ensure there is sufficient existing capacity in the local sewer network. Consult with Services Development for system modelling results.
- □ U-PVC class SN8 is to be used for pipes ≤DN300.
- □ Use heavy-duty rectangular lids (class D, shape R) in road reserves/parks/drains and light duty lids (class B) within yards.
- □ Boundary traps are to be used for house connections when the receiving sewer is ≥DN375. Gas trap MH (in-line permitted only when space is constrained) to be used if loads ≥80EP prior to connection to trunk sewer.
- □ Ensure gas trap maintenance hole (in-line permitted only when space is constrained) is provided prior to connection to trunk sewers (i.e. sewers ≥DN300). Boundary traps are to be used for house connections when the receiving sewer is ≥DN375.
- □ Ensure property connection meets ultimate demand and current standards for servicing the lots. Minimum 150mm for residential and commercial lots and a minimum 225mm for industrial and large flows. Loads ≥80EP shall discharge to a maintenance hole.
- □ Provide a copy of the lot control calculations. If accepted by Power and Water, show the limitations of lot control on sewerage reticulation plan.
- □ Determine what type of trade waste may be discharged (i.e. non-domestic or high volume).
- □ Determine what pre-treatment is required prior to connection to sewer.
- □ Obtain trade waste approved stamped drawings.
- □ Complete a Trade Waste Agreement and submit to Power and Water's Trade Waste Manager.
- □ Complete the 'Application of Connection of a Building to Sewer' and submit to Services Development.

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