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Ballina Shire Council

Draft Development Servicing Plan for Water Supply Infrastructure



Adopted: XX Xxxxx XXXX

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- using information reasonably available to the GHD employee(s) who prepared this Report; and*
- based on assumptions and judgments made by GHD.*

The Cost Estimate has been prepared for the purpose of Section 64 wastewater developer charges and must not be used for any other purpose.

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Where estimates of potential costs are provided with an indicated level of confidence, notwithstanding the conservatism of the level of confidence selected as the planning level, there remains a chance that the cost will be greater than the planning estimate, and any funding would not be adequate. The confidence level considered to be most appropriate for planning purposes will vary depending on the conservatism of the user and the nature of the project. The user should therefore select appropriate confidence levels to suit their particular risk profile.

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Executive Summary

This Development Servicing Plan (DSP) details drinking water developer charges relative to the development areas serviced by Ballina Shire Council (BSC).

This DSP has been prepared in accordance with the *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* (2002) issued by the Minister for Land and Water Conservation (now administered by the NSW Office of Water in the Department of Environment, Climate Change and Water (DECCW)), pursuant to section 306 (3) of the *Water Management Act 2000*.

The areas covered by this DSP are shown in Figure 1. The drinking water supply developer charges for the areas covered by this DSP have been calculated as detailed in Table 1. Background documents will be provided in electronic format upon request.

The total developer charge required in consequence of servicing a proposed development in the respective DSP areas will be assessed by multiplying the additional demand (ET) of the proposed development by the developer charge (\$/ET) in the table below. Loadings and credits will be assessed in accordance with the NSW Local Government Water Industry Directorate, *Section 64 Determinations of Equivalent Tenements Guidelines* (2005).

Ballina Shire Council anticipates that it will:

- ▶ Review this DSP once, and no more than once, in each five year period from the implementation of this plan, and
- ▶ Review Developer Charges when and to the extent required by the Department of Primary Industries, Office of Water (NOW).

In the period between any review, developer charges will be indexed annually (1st day of July) on the basis of movements on the CPI for Sydney, in the preceding 12 months to December, excluding the impact of GST. Current contribution rates are listed in Council's Annual Fees and Charges Document.

It should also be noted that these charges are exclusive of any developer charge that may be levied by Rous Water as a contribution towards bulk water infrastructure servicing the region. Current details of these charges may be obtained either from Rous Water, or from Council.

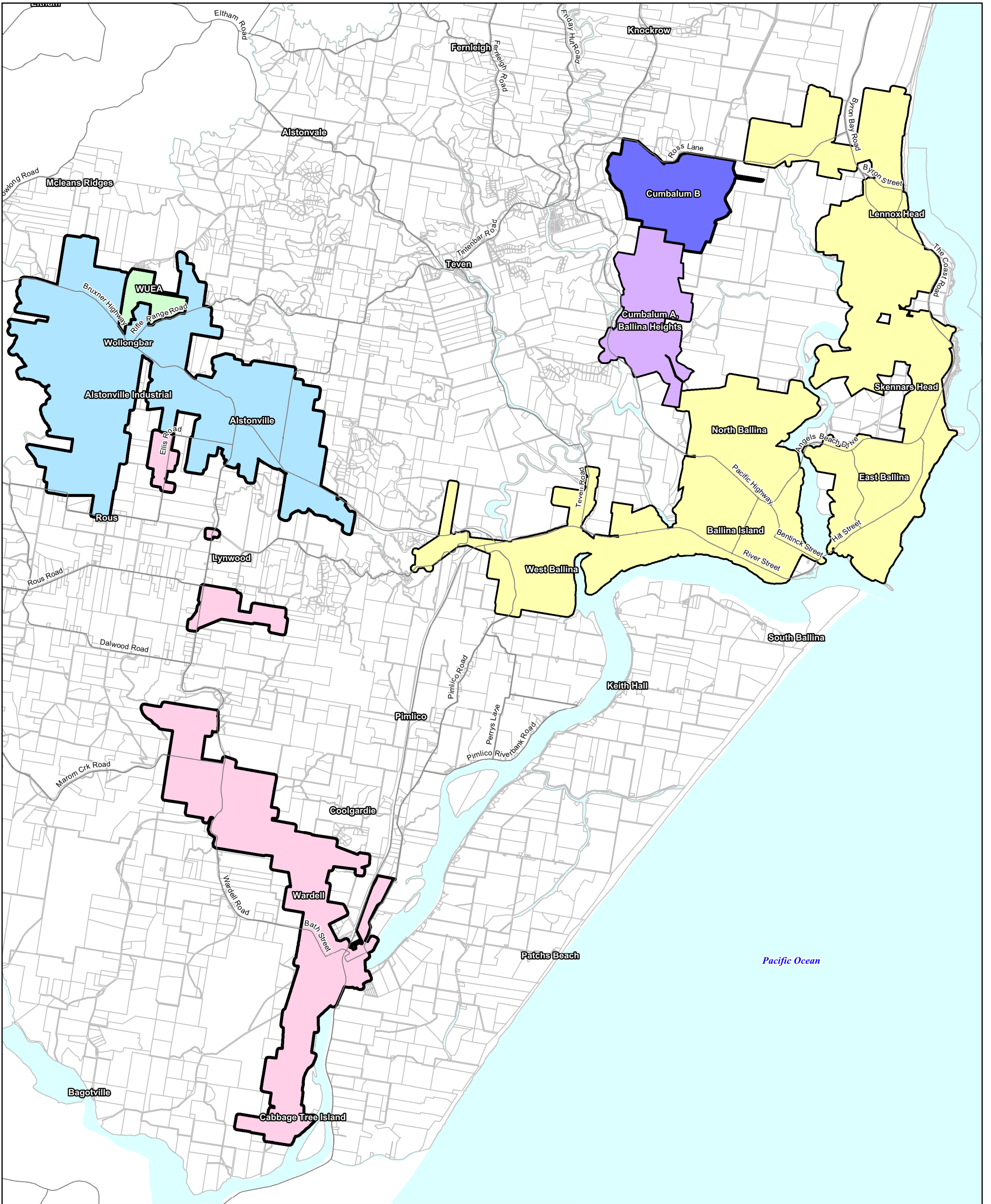
The Developer shall be responsible for the full cost of the design and construction of water supply reticulation works within subdivisions.

Relevant background documents are listed in Section 8 which identify the characteristics of the drinking water assets covered by this DSP. These documents are available on request from Council.

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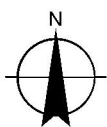
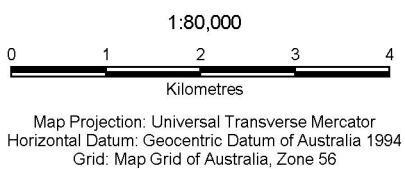
Table 1 Summary of Drinking Water Supply Developer Charges

Development Area	Developer Charge, less Reduction Amount (\$ per ET)	Developer Charge after agglomeration (\$ per ET)
<u>Development Area A</u> Wardell	11,102	11,102
<u>Development Area B</u> North Ballina Ballina Island East Ballina West Ballina Skennars Head Lennox Head Fig Tree Hill	2,885	2,882
<u>Development Area E</u> Alstonville Wollongbar Industrial Wollongbar	2,792	
<u>Development Area C</u> Wollongbar Urban Expansion Area (WUEA)	1,840	1,840
<u>Development Area F</u> Cumbalum Precinct A Ballina Heights	721	561
<u>Development Area G</u> Cumbalum Precinct B	463	



LEGEND

- Major Roads
- Cadastral Boundaries
- DSP Area A
- DSP Area B
- DSP Area C
- DSP Area E
- DSP Area F
- DSP Area G
- Oceans and Waterways



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Ballina Shire Council
Development Servicing Plan: Drinking Water Supply

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DSP Areas Overview

Figure 1

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1. Introduction

Section 64 of the *Local Government Act 1993* enables a local government council or water utility to levy developer charges for water supply, sewerage and stormwater. This derives from a cross-reference in that Act to section 306 of the *Water Management Act 2000*.

A Development Servicing Plan (DSP) is a document, which details the water supply developer charges to be levied on development areas requiring water supply infrastructure.

This report covers drinking water infrastructure for a number of development areas within the Ballina Shire.

This DSP has been prepared in accordance with the *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* (2002) issued by the Minister for Land and Water Conservation (now administered by the Department of Primary Industries Office of Water (NOW)), pursuant to section 306 (3) of the *Water Management Act 2000*. The guidelines require a review of DSPs to be conducted after a period of 5 to 6 years.

These DSPs supersede any other requirements related to water supply infrastructure developer charges for the area covered by these DSPs. These DSPs takes precedence over any of Council's codes or policies where there are any inconsistencies relating to water supply developer charges.

1.1 IPART Recommendations

IPART made a number of recommendations for amendments to the *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* (2002). Most of these recommendations have been adopted in this report with the following exceptions:

Background Documents in Electronic Format

The background documents to the report were not set up to be suitable for public exhibition. It was therefore determined that for this DSP this recommendation (1.c) would not be adopted.

Accredited Auditors

There are currently no accredited auditors and it is therefore not possible to adopt recommendation 3 at this time.

2. Administration

2.1 Name of Development Servicing Plan

This Development Servicing Plan (DSP) is known as *Ballina Shire Council Development Servicing Plan – Water Supply Infrastructure*.

2.2 Purpose of the Plan

The aim and objectives of this DSP are to:

- ▶ Ensure that adequate drinking water infrastructure is provided for as part of new development, and in specified areas, recycled water infrastructure
- ▶ Provide a comprehensive strategy for the assessment, collection, expenditure accounting and review of contributions on an equitable basis;
- ▶ Ensure that the existing community is not burdened by the provision of water supply infrastructure as a result of future development; and
- ▶ Enable Council to be both publicly and financially accountable in its assessment and administration of the Development Servicing Plan.

2.3 Land to Which This Plan Applies

This DSP applies to all land within the Ballina Shire Local Government Area that is within the existing and proposed service areas illustrated on Figure 1

2.4 Date of Commencement of Plan

Council adopted this DSP on <dd/mm>2014. The DSP came into effect on <dd/mm> 2014.

The charges in this Plan will apply to all Development Applications determined on or after the date the Plan came into effect.

The charges in this Plan will also apply to existing development approvals that have developer charges outstanding.

2.5 How Will the DSP be Applied?

In determining a Development Application, Council may impose a condition requiring payment of a monetary contribution in accordance with the provisions of this DSP.

The condition of development consent will outline the amount payable in monetary terms at the time the consent is issued. However, conditions of consent shall advise that the Developer Contributions will be at that rate which applies at the time of payment. Therefore the rate may increase from the time of issue of the development application through indexation or through the replacement or review of this DSP.

2.6 Reviewing/Updating of Calculated Developer Charges

Ballina Shire Council anticipates that the developer charges relating to this DSP will be reviewed once and no more than once, in each five year period from the implementation of this plan.

In the period between any review, developer charges will be adjusted on 1 July each year on the basis of movements in the CPI for Sydney, in the preceding 12 months to December, excluding the impact of GST.

Developer charges will be those charges determined by Council from time-to-time and will be published in Council's Annual Fees and Charges.

2.7 Works within a Development

The developer shall be responsible for the full cost of the design and construction of water supply reticulation works within subdivisions.

2.8 Developments Requiring Forward Funding

Council will generally not support development applications, which require the provision of water infrastructure prior to the timeframes outlined within the Works schedule.

Council may however consider a Development Application that requires the provision of infrastructure prior to the planning phase subject to the Developer agreeing to forward fund the infrastructure at the Developer's own expense.

Council may in these instances enter into a written agreement to reimburse the Developer as Council receives developer charges from other developments reliant on that infrastructure in the area.

2.9 Payment for Developer Charges

All developer charges will be paid at the rate applicable at the time of application for a Certificate of Compliance pursuant to Division 5 of Part 2 of Chapter 6 of the *Water Management Act 2000* is issued.

Generally payment of developer charges must be finalised at the following stages:

- ▶ Time of application for a Certificate of Compliance pursuant to Division 5 of Part 2 of Chapter 6 of the *Water Management Act 2000*.
- ▶ Development consents involving subdivisions – prior to release of linen plan;
- ▶ Development consents involving building work – prior to release of the construction certificate;
- ▶ Development consents where no construction certificate is required – at the time of issue of the notification of consent, or prior to the commencement of approved development as may be determined by Council. Examples may include Exempt or Complying Development under the State Environmental Planning Policy No. 60 – Exempt and Complying Development and approvals under Part 5 of the Environmental Planning and Assessment Act 1979.

2.10 Deferred Payment

In general, developer contributions need to be paid as above. However, Council may decide to accept deferred or periodic payment in accordance with Council's Policy No. D10 *Deferral of Developer Contributions*. This document is subject to amendment and, as such, the latest version should be referred to. This can be obtained from Council's website.

2.11 Refunds

Ballina Shire Council does not anticipate that developer charges will be refunded. In cases of extenuating circumstances, consideration will be given to a refund where developer charges have been paid in respect of a development consent that has lapsed and the funds have not been allocated/expended on the project identified in the DSP's work schedule.

Refunds will be a matter for Council to decide and it should be noted that any expended funds in the form of preliminary reports, investigations, land acquisitions etc. relating to the project could result in only part of the developer charges being refunded.

2.12 Works in Kind

"Works in kind" involves the construction or provision of infrastructure that has been identified in a works schedule contained in the DSP in lieu of full or part payment of a contribution relating to that section of the plan.

The decision to accept "works in kind" contributions will be at the discretion of Council. Factors that Council will take into consideration include:

- ▶ The extent to which the "works in kind" satisfies an item identified on the works program;
- ▶ Whether the payment of the contribution in accordance with the provisions of the DSP is unreasonable or unnecessary in the circumstances of the case;
- ▶ Whether the "works in kind" contribution will prejudice the timing or manner of the provision of the services for which the contribution is required; and
- ▶ The value of the "works in kind".

2.13 Developments outside the Development Servicing Areas

Development areas outside the DSP Area (refer to relevant drawing/s in Section 11) that are to be developed during the term of this policy and have no detailed DSP (and require water supply services), will be subjected to a separate DSP. The Developer shall be responsible for the preparation cost of this DSP.

2.14 Consultation and Dispute Resolution

A Developer who is dissatisfied with how a water supply utility has calculated a developer charge has a right of appeal pursuant to the DLWC *Guidelines for Calculating Developer Charges of Water Supply, Sewerage, and Stormwater* (2002).

1. A Developer who is dissatisfied with the way in which a water utility has calculated a developer charge may complain to the utility.
2. The General Manager of the utility is to review the complaint or cause it to be reviewed.
3. The Developer, if still dissatisfied, may request that an arbitrator review the matter by way of arbitration. The arbitrator is to be appointed by agreement between the Developer and the water utility.
4. The decision of the arbitrator is to be binding on both the Developer and the utility.

5. Costs of the arbitration are to be borne equally by the utility and the customer.
6. The Commercial Arbitration Act 1984 applies to any such arbitration.

It should be noted that not all aspects of the developer charge calculation are arbitral. That is, those matters of detail which are prescribed in DLWC's Guidelines are not subject to arbitration. For example, discount rates and the forecast horizon for expected net revenues and costs are parameters that are prescribed by DLWC.

3. Demographic and Land Use Planning Information

3.1 Growth Projections

Growth projections for population and number of ETs are shown in Table 2 below. These projections are for a 20-year planning horizon from the present year to 2030, which is Council's current planning horizon.

Table 2 Projected Equivalent Tenement Growth¹

Time Period	Projected Shire ET Growth	Total Serviced ETs	Total Shire Population
2010	-	20,633	42,546
2010 – 2015	3,739	24,372	45,356
2015 – 2020	2,721	27,093	48,116
2020 – 2025	2,426	29,519	50,786
2025 – 2030	2,171	31,690	53,276

Projected ET growth for the areas covered by individual DSPs are provided in Appendix A as part of the calculations of the capital charge.

3.2 Land Use Information

This DSP should be read in conjunction with Ballina Shire Council Urban Land Release Strategy (2000), the Ballina Shire Council Local Environmental Plan (1987) (BLEP) and the Draft Ballina Local Environmental Plan (2010).

3.3 Projected Equivalent Tenements

The basis of future development throughout the Ballina Shire has been adopted from information provided by the BSC Strategic and Community Services Group. This included the Ballina Shire Council Local Growth Management Strategy - Housing demand and supply analysis working documents. The information in these documents is derived from information supplied by the Australian Bureau of Statistics, incorporating the latest available population information.

The projected future development areas and dwelling increases across the Shire, based on:

- ▶ Areas assumed for future land release;
- ▶ Areas identified as part of the BSC Growth Management Strategy; and
- ▶ Potential for Infill Development.

Actual population growth will be subject to the rezoning process and Council Development Approval.

¹ Source: Ballina Shire Council Local Growth Management Strategy – Housing demand and supply analysis working documents.

3.3.1 Future Development Areas

A number of key development areas have been identified for future land supply in Ballina Shire, including the following:

- ▶ West Ballina Structure Plan which identifies approximately 40 ha of land, incorporating a range of industrial, residential and open space land uses.
- ▶ Zoned and Candidate Investigation Release Areas in West Ballina, including potential redevelopment of the Boat Harbour precinct;
- ▶ Zoned and Candidate Investigation Release Areas in North Ballina, including potential expansion of the Southern Cross Industrial Estate and further industrial expansion;
- ▶ Zoned and Candidate Investigation Release Areas in Cumbalum Ridge;
- ▶ Zoned Release Area in East Ballina, including Rainforest Ridge;
- ▶ Zoned and Candidate Investigation Release Areas in Lennox Head;
- ▶ Candidate Investigation Release Area in Skennars Head;
- ▶ Wollongbar Urban Expansion Area; and
- ▶ Zoned and Candidate Investigation Release Areas in Wardell.

3.3.2 Development Summary

Significant development has been identified across Lennox Head, with future projections representing a development yield of approximately 3000 ET. In addition, future development and infill growth has also been identified throughout the Ballina, Wardell and Wollongbar wastewater catchment service areas.

The location of the proposed development areas are shown on Figure 1.

4. Drinking Water Infrastructure

This plan levies developer charges towards the cost of providing water supply infrastructure to service new development. This infrastructure includes the value of both existing and future assets serving a new development area.

Works covered by this DSP include, but are not limited to:

- ▶ Distribution and Trunk Mains;
- ▶ Water Pumping Stations;
- ▶ Water Treatment Works;
- ▶ Water Reservoirs;

The existing and proposed trunk infrastructure serving the area covered by this DSP is shown in a spatial format in Section 11.

4.1 Estimates of Capital Cost

The estimated capital cost of works serving the area covered by this DSP are provided in Appendix C.

The capital costs for trunk mains were estimated using the *NSW Office of Water (formerly Ministry of Energy and Utilities), NSW Reference Rates Manual – Valuation of Water Supply, Sewerage and Stormwater Assets (2003 with 2010 update)* (the Manual). More information on these rates, including excluded items can be found in the Manual.

The pump station, treatment plant and reservoir costs were estimated using the GHD Cost Database as it was felt that these costs were more appropriate to valuing new works than those provided in the Manual. These rates include a 30% contingency.

All assets that will be greater than 30 years of age when the DSP comes into effect have been excluded from the DSP calculations. This is in accordance with IPART recommendations, as BSC were unable to provide documentation justifying that population growth was accounted for in the development of these assets.

4.2 Timing of Works

The estimated timing for works serving the area covered by this DSP are provided in Appendix C. Further information regarding how the timings were estimated for individual work items is provided in report Reference 4. Dates identified are approximate only and are contingent on development proceeding.

5. Standards of Service

System design and operation are based on providing the following standards of service.

5.1 Desired Standards of Service

Pressures:

Where significant capital investment is required to satisfy marginal pressure requirements for a small number of connections an absolute minimum of 12 m head for residential and non-residential customers will apply.

- ▶ For residential customers, a minimum residual pressure of 20 m (196 kPa) at the property boundary at Peak Instantaneous Demand (PID).
- ▶ For non-residential customers, a minimum residual pressure of 25m (245 kPa) at the property boundary under Peak Instantaneous Demand (PID).
- ▶ Minimum Residual Pressure (Recycled Water) 15 m head, while storages are 1/3 full.
- ▶ A maximum residual pressure of 80 m (785 kPa) head at the property boundary during MID (Reference 4).
- ▶ Residual pressure of 150 kPa at the node (hydrant) during fire flow conditions, service reservoirs 1/3 full or the level that meets dot point two above, whichever is higher (Reference 4). (Pumped systems are assumed off due to the risk of failure of electrical supply, demand management areas are assumed to have the valve set point at the lowest level capable of meeting the criteria).
- ▶ Positive head elsewhere in the network during fire flow conditions.
- ▶ For Ballina, minimum pressures are to be maintained for the possible situations where a trunk main break occurs, or pipe maintenance is required.

Supply Strategy:

- ▶ Service reservoir storage equal to one Peak Day Demand (PDD)
- ▶ Supply into service reservoirs (Trunk mains) capable of delivering PDD over 24 hours (for gravity mains) and PDD over 22 hours (for rising mains)
- ▶ Minimum Storage in a reservoir = 4 hours fire fighting requirements + 4/24 PDD or 1/3 full, whichever is greater
- ▶ Drinking water top up for recycled water available for Urban Dual Reticulation connections in the case of recycled water treatment or transport failure.

Water Quality:

- ▶ To comply with Council's Drinking Water Quality Policy, the Public Health Act (2010), the Australian Drinking Water Guidelines and the NSW Best Practice Management Guidelines.

Interruption of Service:

- ▶ Nil unplanned interruptions greater than 6 hours; and
- ▶ Nil programmed interruptions greater than 12 hours.

Water restrictions:

- ▶ Water restrictions applying for not greater than 10% of the time on average

6. Design Parameters

Investigation and design of drinking water supply system components is generally based on the Water Supply Investigation Manual (1986). This Manual was prepared by the former NSW Public Works Department. In order to determine the infrastructure requirements over the planning horizon, the trunk water supply network was modelled by Council using H2OMap Water software by Innovyz, to determine the performance of the existing and proposed systems under projected hydraulic loads.

The Ballina Shire Council – Report for Water Supply Infrastructure Planning Version 1– (BSC, 2011) relates to the system components in this DSP. The planning and design parameters adopted in this report are discussed in the following section.

6.1 Planning and Design Parameters

The major components of the water supply network were planned according to the following:

Rising and Gravitation Mains: Are sized to deliver Peak Day Demand (PDD) over 22 hours and 24 hours respectively, with the diameter of a rising main sized to give the least present worth of capital and pumping costs. Gravity mains are sized by consideration of available head and grade.

Reticulation: Reticulation is to give minimum pressures, as outlined above, with the active storage of the service reservoir(s) 2/3 depleted during periods of maximum demand.

Table 3 provides the Hazen-Williams 'C' friction factor values that were adopted.

Table 3 Adopted friction factors

Nominal Diameter	Hazen-Williams 'C' Value
150 mm or less	100
200 mm – 250 mm inclusive	110
300 mm or greater	120

7. Calculated Developer Charges

7.1 Background

Developer charges are comprised of the following components:

- ▶ Capital charge – the cost of providing the asset, and;
- ▶ Reduction amount – the cost recovered through annual charges.

The relationship between these components is as follows:

$$\text{Developer Charge} = \text{Capital Charge} - \text{Reduction Amount}$$

7.2 Service Areas

Developer charges were initially calculated for a number of different service areas within the Ballina Shire Local Government Area.

Service areas were determined by Council.

This resulted in the adoption of the service areas detailed in Table 4 below.

Table 4 Service Areas

Service Areas	Localities Included
Area A	Wardell
Area B	Lennox Head Skennars Head East Ballina Fig Tree Hill North Ballina West Ballina Ballina Island Pacific Pines Estate Henderson Land Central and South
Area C	Release area known as the Wollongbar Urban Expansion Area (WUEA)
Area E	Alstonville and Wollongbar
Area F	Existing and future development in Cumbalum Precinct A Existing and future development in Ballina Heights
Area G	Future development in Cumbalum Precinct B

7.3 Capital Charge

The capital charge of an asset is calculated using the following steps, as described in the Guidelines (DLWC, 2002):

- ▶ *Estimate the period to full take-up of asset capacity, commencing in or after 1996. If information is readily available, actual take-up rates to date should be used. If not, the water utility could use an average based on the take-up rate for similar release or development areas, or other (better) estimates that are available. An estimate of the take-up of existing unused capacity should also be made.*
- ▶ *Calculate the capital charge per ET necessary to equate the present value of the stream of charges which would be derived from annual (per ET) charges and the capital cost of the asset.*

There are two basic approaches to calculating the capital charge per ET, the return on investment (ROI) approach and the spreadsheet approach. The latter is more appropriate for development areas where infrastructure will be developed in stages, and therefore was adopted for this DSP.

The capital charge calculations are contained in Appendix C.

7.4 Reduction Amount

Council has adopted the Direct NPV method to calculate the Reduction Amount, as per the 2012 Draft Guidelines (DPI, 2012). Note that this is a different and simpler method of calculation from the NPV method proposed by the 2002 Guidelines. As per the 2012 Draft Guidelines:

This method involves calculation of the present value (PV) of the future net income, which is the difference between the revenue from annual bills, and annual OMA cost, projected for new development over the next 30 years. This is divided by the PV of the new ETs over 30 years to give the reduction amount.

The reduction amount calculations for water are contained in Appendix A. The Reduction Amount was calculated using the 2011/2012 OMA costs and annual billing data, as per the basis year for the rest of the calculations. Note that in calculating the average bill per ET, the rate of water consumption was lowered from 230 kL/ET/annum to 155 kL/ET/annum, based on the lower rate of potable water consumption expected to occur in the future due to increased coverage of dual reticulation.

The calculated reduction amount was \$385 per ET. Details of the reduction amount calculation are located in Appendix C.

7.5 Methodology for Determining Developer Charges to be Paid

Calculation of the developer charge payable on all developments is based on the following formula:

$$\text{Development Charge Payable} = \text{Developer Charge}^2 (\$/\text{ET}) \times \text{ETs}$$

When a development is assessed by Council, the only variable in this calculation is therefore the number of ETs in the proposed development. The following sections define how the number of ETs are defined for specific development types.

² Developer charge as defined by this document.

It should be noted that when a development is assessed, and the assessed ETs for the same falls below or is equal to the current entitlements, no developer charges will be levied, nor monies refunded on unused entitlements.

A developer charge will only be levied against a development where the ET evaluation is above the current entitlement.

7.5.1 Existing Unconnected Lots

In the case of an existing lot to be connected to Council's system and which has not previously paid developer charges, a contribution equivalent to the relevant developer charges will be applied.

7.5.2 Residential Development

Developer contributions for residential developments are based on industry guidelines that define the number of ETs for common development types. At the time of publishing this policy, the Water Directorate (May 2009 Addendum), *Section 64 Determinations of Equivalent Tenements Guidelines* are the current industry guidelines.

For advice on the current industry guidelines being used to calculate residential developer charges, please contact Ballina Shire Council's Water and Wastewater Section.

7.5.3 Non-Residential Developments including Commercial/Industrial Developments

Developer contributions for non-residential developments are based on industry guidelines that define the number of ETs for common development types, such as commercial and industrial uses.

At the time of publishing this policy, the Water Directorate *Section 64 Determinations of Equivalent Tenements Guidelines* are the current industry guidelines.

For advice on the current industry guidelines being used to calculate non-residential developer charges, please contact Ballina Shire Council's Water and Wastewater Section.

If the industry guidelines do not provide an appropriate match to the development being assessed, then the developer contribution will be determined via the use of one of the following methods:

1. Based on historical water consumption figures of similar developments (see Section 7.5.4); or
2. The number of water / wastewater fixture units (FU's – see Section 7.5.5); or
3. Information supplied by the Developer for water consumption (see Section 7.5.6).

7.5.4 Historical Water Consumption Method

This is applicable where historical water consumption information is available.

The ET loading will be determined by assessing the historical water consumption of similar developments (i.e.: 1 ET = 230 kL/annum of water consumption (Water Directorate, May 2009 Addendum)).

7.5.5 Fixture Unit (FU) Method

The fixture unit method will be used in cases where the above-mentioned methods are not appropriate.

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The fixture units are calculated using the table from Section 6.2 of Part 2.2 of the National Plumbing and Drainage Code – AS3500. This number is then converted to an equivalent tenement using the probable simultaneous flow rate for a standard house.

7.5.6 Information Supplied by the Developer

This will normally be applicable for developments that cannot be determined by historical water consumption (such as a heavy industrial development) or where the developer proposes to utilise water saving devices that will reduce the consumption of water compared with similar developments.

For the calculation of ET's based on this method, the developer will need to supply to Council a submission outlining the proposed flow rates (instantaneous, daily and average annual flow rates) together with relevant supporting documentation.

7.5.7 Developer Charges

The developer charges determined prior to any agglomeration or cross-subsidy are shown in Table 5. The charges calculated were updated to 2011/12 rates by applying the CPI rate from the cost basis year to 2011/12 for Sydney (as per updating method in the Guidelines).

Table 5 Capital Charge per Development Area prior to Reduction & Agglomeration

Development Area	Total Capital Charge per ET (\$)	Total ET Growth (ET)	Proportion of Growth (%)	Weighted Capital (\$)	Reduction amount (\$)	Developer charge (prior to agglomeration) (\$)
A	11,487	109	1.0%	113	385	11,102
B	3,270	5,319	48.1%	1,573	385	2,885
C	2,225	722	6.5%	145	385	1,840
E	1,106	1,782	16.1%	178	385	721
F	3,177	186	1.7%	54	385	2,792
G	849	2,939	26.6%	226	385	463

7.6 Cross-Subsidy

The Guidelines (DLWC, 2002) permit Local Government Authorities to cross-subsidise the calculated developer charge for an area, provided the extent of cross-subsidisation is fully disclosed. It is also noted that a developer charge cannot be cross-subsidised from one area to another. Instead, a developer charge for a particular area can be cross-subsidised via a corresponding change in the annual charge being paid through water rates.

Note that no cross-subsidy has been included in this report. Cross-subsidy calculations will be performed following discussions with Ballina Shire Council.

7.7 Agglomeration of Service Areas

Once the capital charges have been calculated for each service area, the Guidelines (DLWC, 2002) permit the agglomeration of charges that are within 30% of each other. Agglomeration is intended to minimise the number of different developer charges within the local government area. The agglomeration methodology outlined in the Guidelines (DLWC, 2002) was used to determine the adopted developer charge. The agglomerated charges are shown in Table 6.

For Wardell (DSP Area A), agglomeration is not permitted since it is outside 30% of the next highest calculated developer charge and therefore cannot be agglomerated with other DSP areas.

DRAFT

Table 6 Adopted Developer Charges after Agglomeration (2011/12 rates)

Area	Development Area	Total Capital Charge per ET (\$/ET)	Agglomeration inspection (70% of \$/ET)	Total ET Growth (ET)	Proportion of Growth	Weighted Capital Charge for Each Location (\$/ET)	Capital Charge for each DSP Area (\$/ET)	Reduction amount (\$/ET)	Calculated & Adopted Developer Charge (\$/ET)	Utility Wide Weighted Average Developer Charge per ET (\$/ET)
A	Wardell	11,487	8,041	109	1.0%	113				
Total for Area A					1.0%	113	11,487	385	11,102	
B	North/East/West Ballina, Ballina Island, Skennars Head, Lennox Head	3,270	2,289	5319	48.1%	1,573				
E	Alstonville, Wollongbar	3,177		186	1.7%	54				
Total for areas B, E					49.8%	1,627	3,267	385	2,882	
C	WUEA	2,225	1,557	722	6.5%	145				
Total for Area C					6.5%	145	2,225	385	1,840	
F	CURA A, Ballina Heights	1,106	774	1782	16.1%	178				
G	CURA B	849		2939	26.6%	226				
Total for areas F, G					42.7%	404	946	385	561	
Total for all areas					100%	2,289				1,904

8. Reference Documents

Background information and calculations relating to this DSP are contained in the following documents:

1. Department of Land and Water Conservation (2002), *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater*.
2. Department of Primary Industries (2012), *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater, 2012 – Consultation Draft*
3. New South Wales Government Office of Water, Ministry of Energy and Utilities (2003 with amendments in 2010), *NSW Reference Rates Manual – Valuation of Water Supply, Sewerage and Stormwater Assets*.
4. BSC (October 2011), *Ballina Shire Council – Water Supply Infrastructure Planning Report*.
5. Water Directorate (May 2009 Addendum), *Section 64 Determinations of Equivalent Tenements Guidelines*.

These documents contain more detailed reference information relevant to the derivation of the developer charges. These documents can be reviewed in Council's offices by appointment. To review the documents, please contact Council on (02) 6686 4444.

9. Other DSP's and Related Plans

Other DSP's and related plans include:

- ▶ GHD (2011), *Ballina Shire Council – Wastewater Infrastructure – Development Servicing Plan*
- ▶ Rous Water (2009), *Rous Water Development Servicing Plans – Regional Water Supply*.

Ballina Shire Council also levies developer contributions for various public amenities under Section 94 of the *Environmental Planning and Assessment Act, 1979*.

10. Glossary

Annual Demand	Total annual WATER loading
BSC	Ballina Shire Council
Capital Cost	The Present Value (MEERA basis) of assets used to service the development.
Capital Charge	Capital cost of assets per ET x Return on Investment (ROI) Factor.
CPI	Consumer Price Index
Developer Charge (DC)	A charge levied on Developers to recover part of the capital cost incurred in providing infrastructure to new development.
Discount Rate	The rate used to calculate the present value of money arising in the future.
DSP	Development Servicing Plan
DCP	Development Control Plan
DLWC	Department of Land and Water Conservation – now known as DIPNR
DMA	Demand Management Area. A reticulation area where flows are monitored with a flow meter
DIPNR	Department of Infrastructure, Planning and Natural Resources – formerly known as DLWC
EP	Equivalent Person
ET	Equivalent Tenement
IPART	Independent Pricing and Regulatory Tribunal
kL	1,000 litres
kL/d	Kilolitres per day
kL/a	Kilolitres per annum
LEP	Local Environmental Plan
MCV	Motorised Control Valve
MEERA	Modern Equivalent Engineering Replacement Asset
MID	Minimum Instantaneous Demand (Night Time Flow)
ML/d	Megalitres per day
NHMRC	National Health and Medical Research Council
NPV	Net Present Value
OMA	Operation, maintenance and administration (costs)
PDD	Peak Day Demand. Highest water consumption on one day in a year
PID	Peak Instantaneous Demand

Post 1996 Asset	An Asset that was commissioned by a water utility on or after 1 January 1996 or that is yet to be commissioned
Pre-1996 Asset	An Asset that was commissioned by a water utility before 1 January 1996
PRV	Pressure Relief Valve
PMZ	Pressure Management Zone. A reticulation area where the pressures are managed via a PRV
PV	Present value. The value now of money, or ETs, in the future.
Real Terms	The value of a variable adjusted for inflation by a CPI adjustment
Reduction Amount	The amount by which the capital charge is reduced to arrive at the developer charge. This amount reflects the present value of the capital contribution that will be paid by the occupier of a development as part of future annual charges
ROI	Return on investment. Represents the income that is, or could be, generated by investing money
PS	Pumping Station
WR	Water Service Reservoir
RWP	Recycled Water Treatment Plant
RWR	Recycled Water Reservoir
RWT	Recycled Water Tank
Service Area	An area served by a separate water supply system, an area served by a separate sewage treatment works, a separate small town or village, or a new development of over 500 lots.
SR	Service Reservoir
TRB	Typical residential bill
WTP	Water Treatment Plant

11. DSP Areas

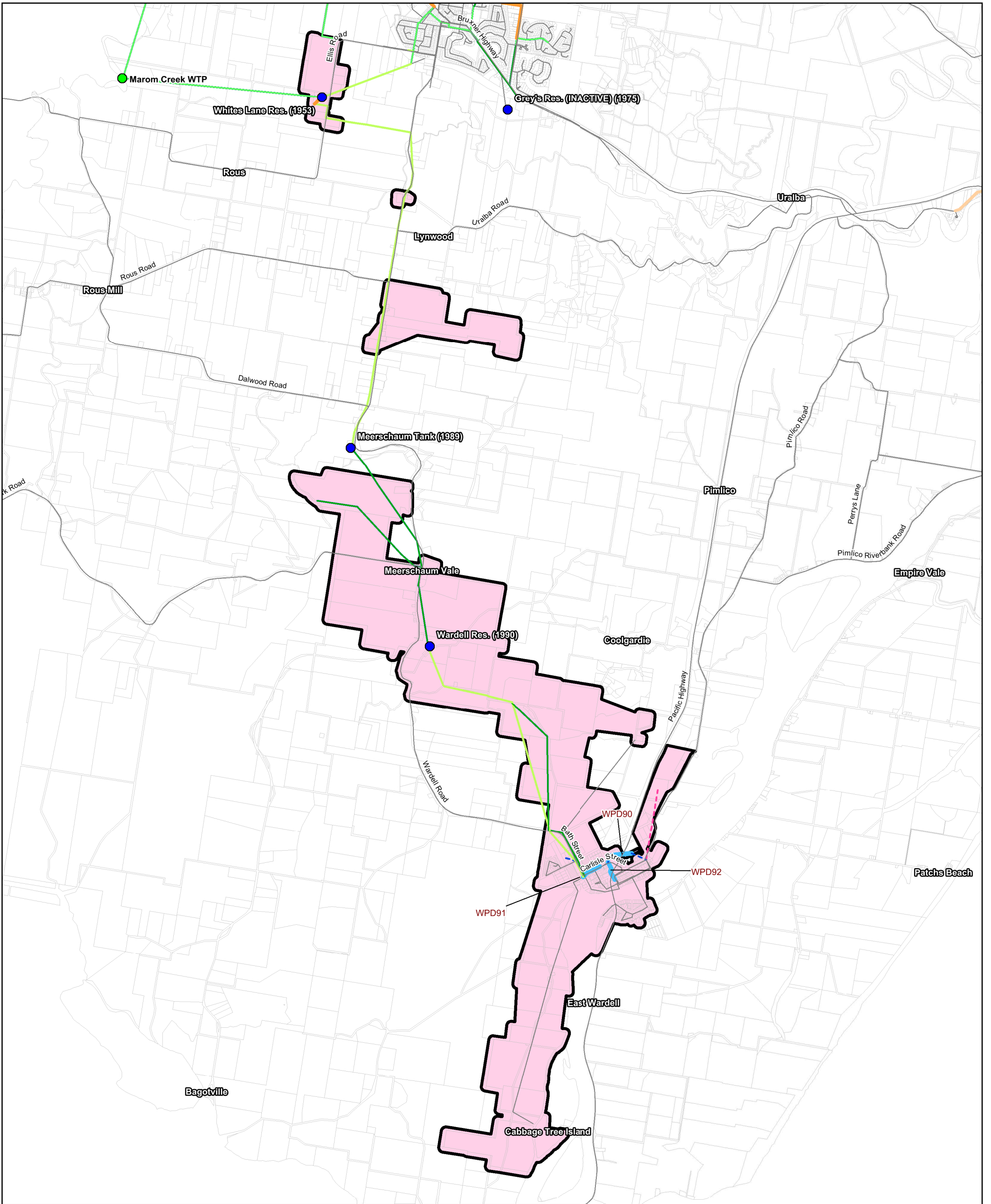
Table 7 provides an index to the figures defining the DSP areas provided in this section. Each figure (excluding Figure 1) indicates:

- ▶ The boundaries to the DSP area³;
- ▶ The extent of existing trunk infrastructure;
- ▶ The location of recycled water serviced areas

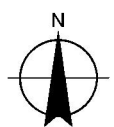
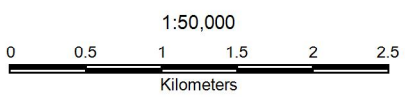
Table 7 Summary of DSP Area Maps for Drinking Water Infrastructure

Figure Number	Locality	DSP Area
2	Wardell	DSP Area A
3	Skennars Head, Lennox Head and Fig Tree Hill	DSP Area B (North)
4	Skennars Head, East Ballina, Ballina Island	DSP Area B (South)
5	North Ballina, Ballina Island, West Ballina	DSP Area B (West)
6	Wollongbar Urban Expansion Area	DSP Area C
7	Wollongbar and Alstonville	DSP Area E
8	Cumbalum A, Ballina Heights	DSP Area F
9	Cumbalum B	DSP Area G

³ The DSP boundaries indicated on all figures represent the extent of the proposed charge boundary. They do not necessarily reflect Council's approval of the extent of the serviceable area. Development within the DSP Areas is subject to Rezoning and Development Approval. For further details regarding development within the DSP Areas please contact Ballina Shire Council



LEGEND		Trunk Infrastructure		Developer Constructed Infrastructure		Future Infrastructure Funded by DSP		Reticulation		Pumps	
	DSP Area A		392 to 621		203 to 210		2,010		2015 - 2020		Existing Pumps
	Cadastral Boundaries		285 to 392		2,015		2,011		2020 - 2025		Future DSP Pumps
	Major Roads		253 to 285		2,030		2012 - 2015		Future		
			210 to 253		2,020						



CLIENTS | PEOPLE | PERFORMANCE



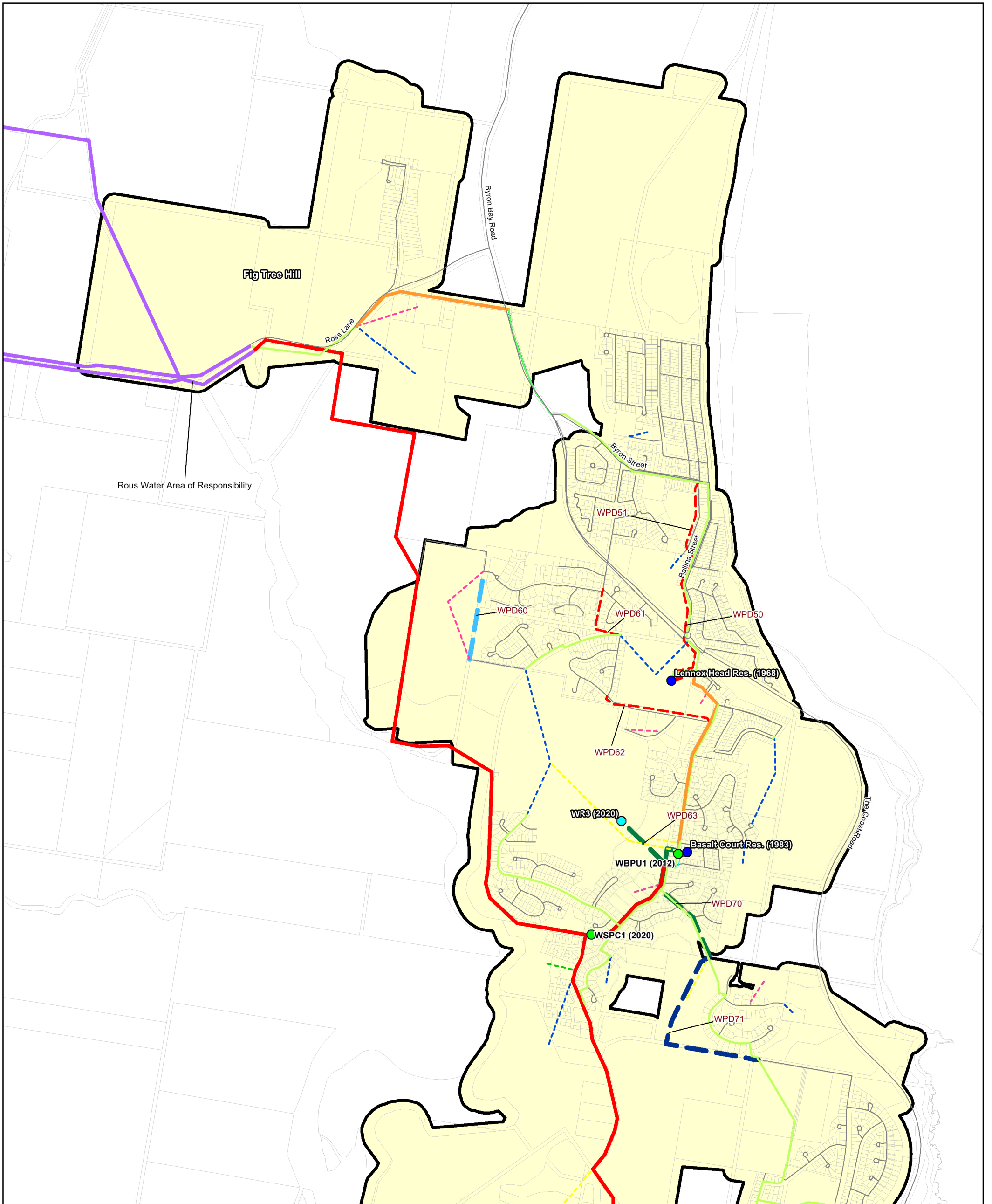
Ballina Shire Council
Development Servicing Plan: Drinking Water Supply

Job Number | 22-15470
Revision | 1
Date | 04 MAY 2012

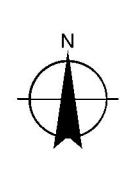
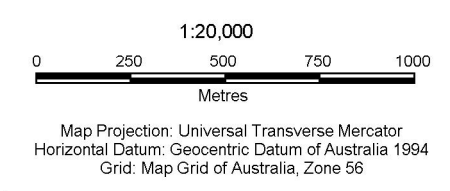
DSP Area A - Wardell

Figure 2

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LEGEND		Trunk Infrastructure		Developer Constructed Infrastructure		Future Infrastructure Funded by DSP		Reticulation		Pumps	
	DSP Area B		392 to 621		2,010		2,010		Existing		Existing Pumps
	Cadastral Boundaries		285 to 392		2,015		2,011		Future		Future DSP Pumps
	Rous Water Area of Responsibility		253 to 285		2,020		2012 - 2015				
			210 to 253		203 to 210		2015 - 2020				
					186 to 203		2,030		2020 - 2025		



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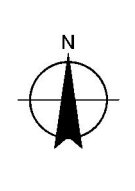
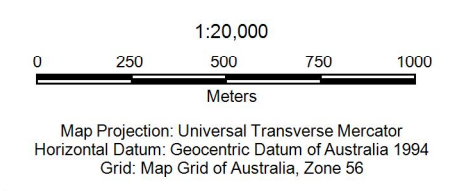
DSP Area B - North

Figure 3

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LEGEND		Trunk Infrastructure		Developer Constructed Infrastructure		Future Infrastructure Funded by DSP		Reticulation		Pumps	
	DSP Area B		392 to 621		203 to 210		2,010		2015 - 2020		Existing Pumps
	Cadastral Boundaries		285 to 392		186 to 203		2,011		2020 - 2025		Future DSP Pumps
			253 to 285		97 to 186		2,020		2012 - 2015		
			210 to 253								



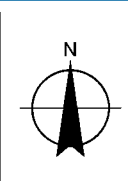
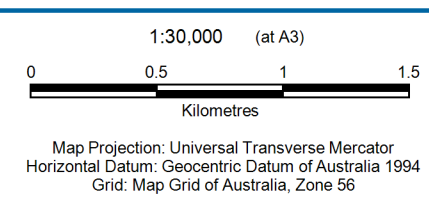
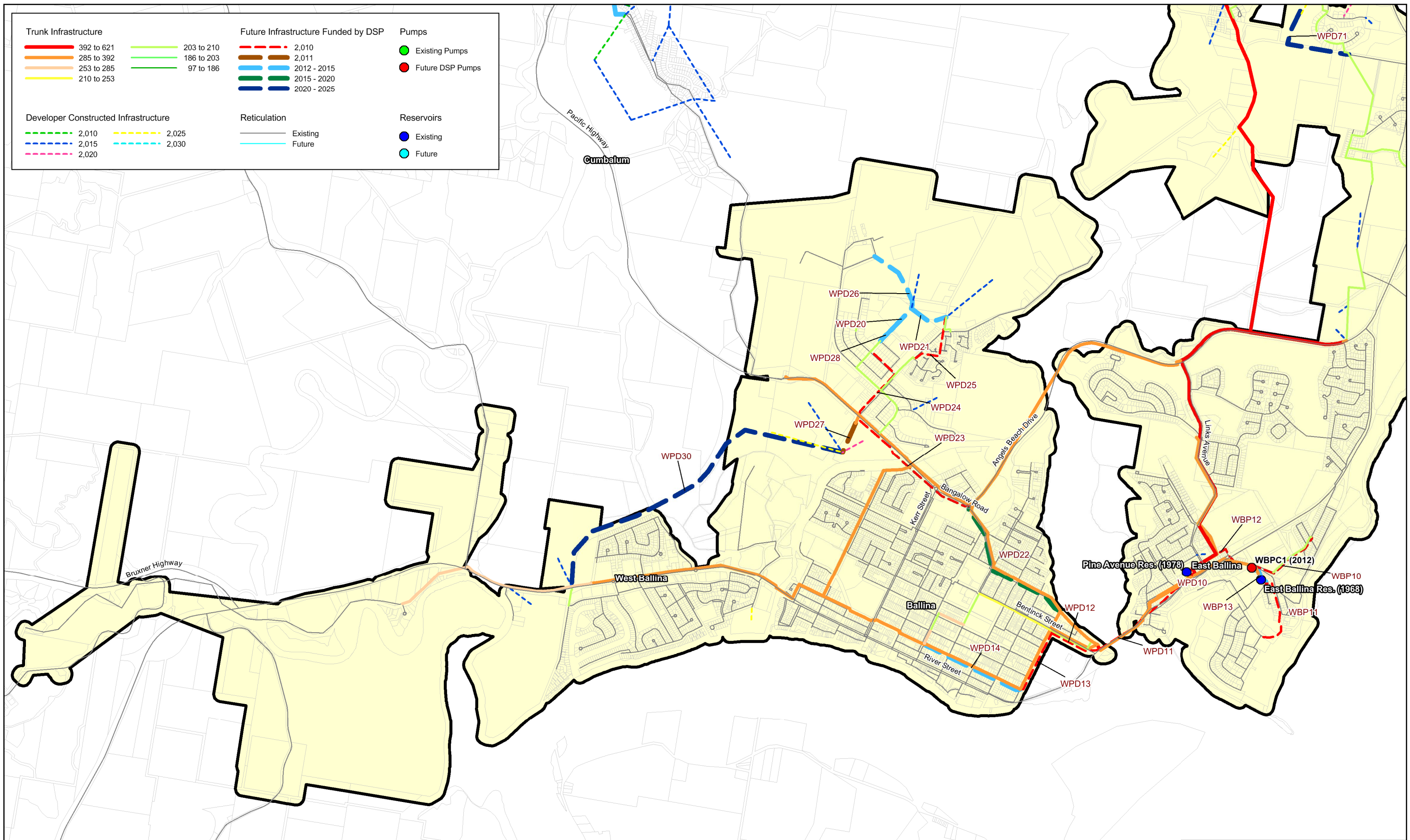
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DSP Area B - South

Figure 4

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LEGEND

- DSP Area B
- Cadastral Boundaries



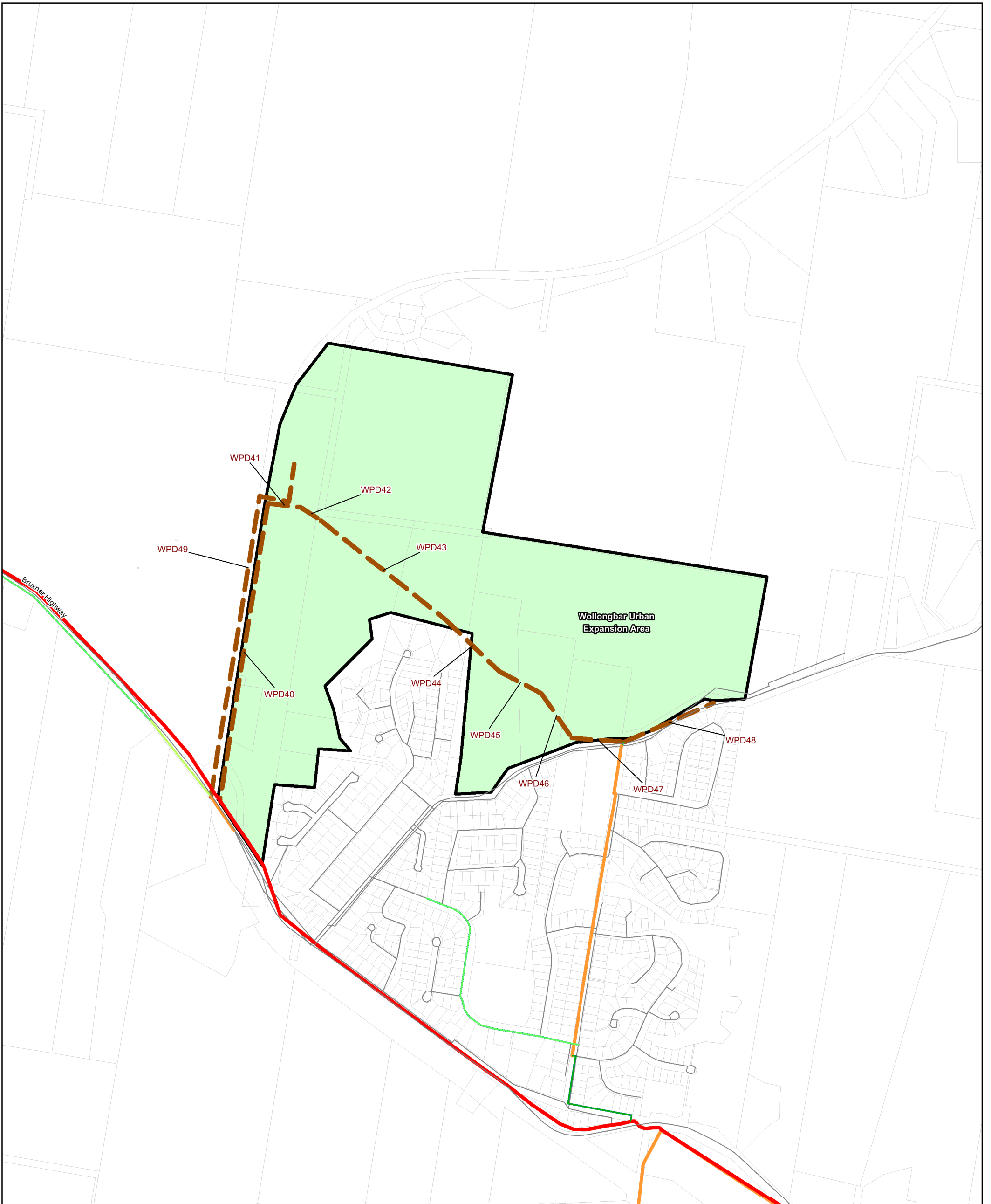
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DSP Area B - West

Figure 5

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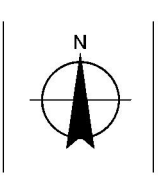


LEGEND		Trunk Infrastructure		Developer Constructed Infrastructure		Future Infrastructure Funded by DSP		Reticulation		Pumps	
	DSP Area		392 to 621		203 to 210		2,010		2015 - 2020		Existing Pumps
	Cadastral Boundaries		285 to 392		186 to 203		2,015		2020 - 2025		Future DSP Pumps
	Major Roads		253 to 285		97 to 186		2,020		2012 - 2015		
			210 to 253								

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Grid: Map Grid of Australia, Zone 56



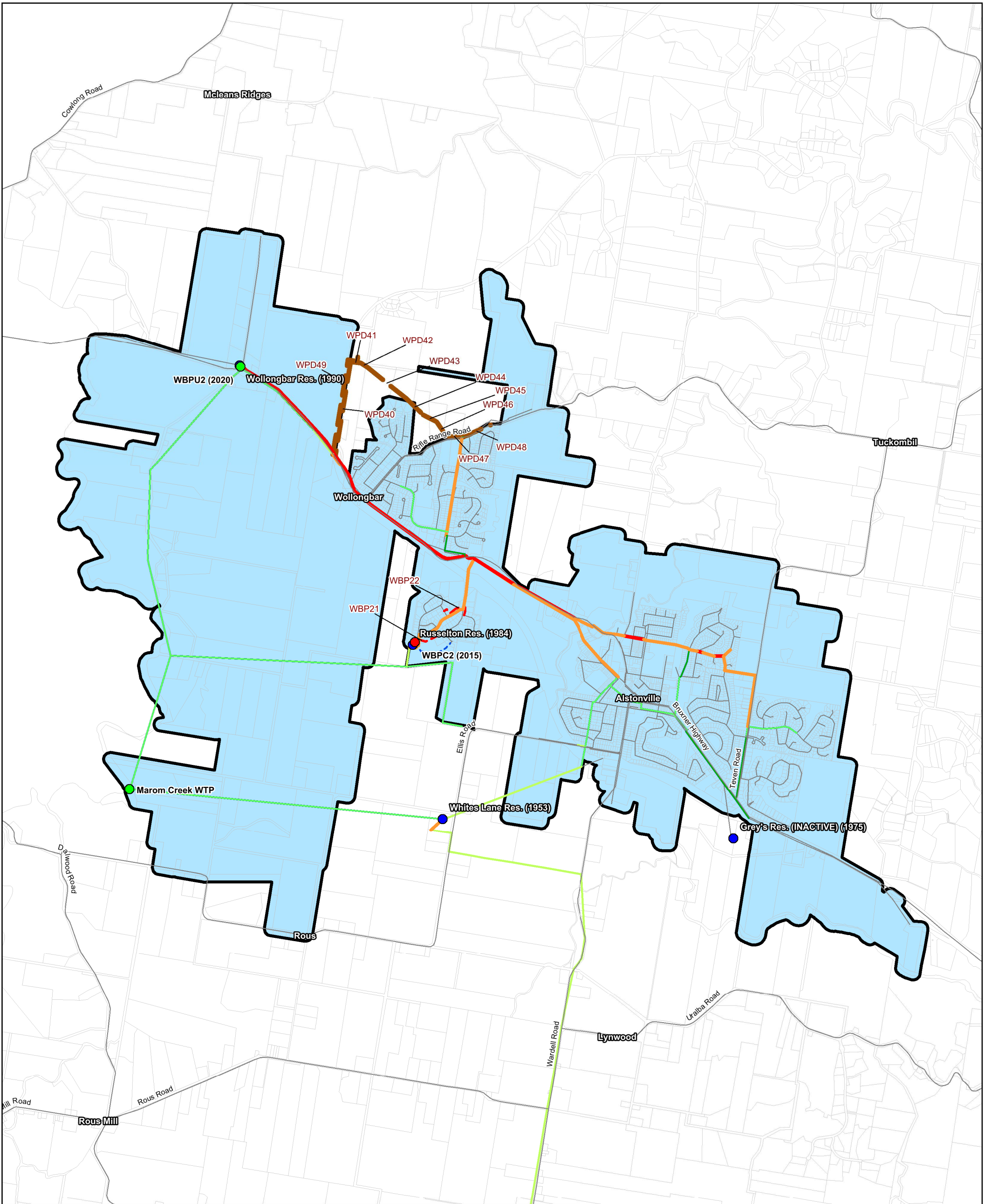
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DSP Area C
Wollongbar Urban Expansion Area

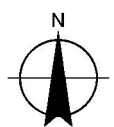
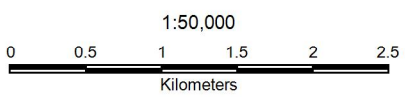
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LEGEND	
	DSP Area
	Cadastral Boundaries
	Major Roads
	Trunk Infrastructure 392 to 621
	Trunk Infrastructure 285 to 392
	Trunk Infrastructure 253 to 285
	Trunk Infrastructure 210 to 253
	Developer Constructed Infrastructure 203 to 210
	Developer Constructed Infrastructure 186 to 203
	Developer Constructed Infrastructure 97 to 186
	Developer Constructed Infrastructure 2,010
	Developer Constructed Infrastructure 2,015
	Developer Constructed Infrastructure 2,020
	Developer Constructed Infrastructure 2,025
	Developer Constructed Infrastructure 2,030
	Future Infrastructure Funded by DSP 2,010
	Future Infrastructure Funded by DSP 2,011
	Future Infrastructure Funded by DSP 2012 - 2015
	Future Infrastructure Funded by DSP 2015 - 2020
	Future Infrastructure Funded by DSP 2020 - 2025
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	Pumps Future DSP Pumps

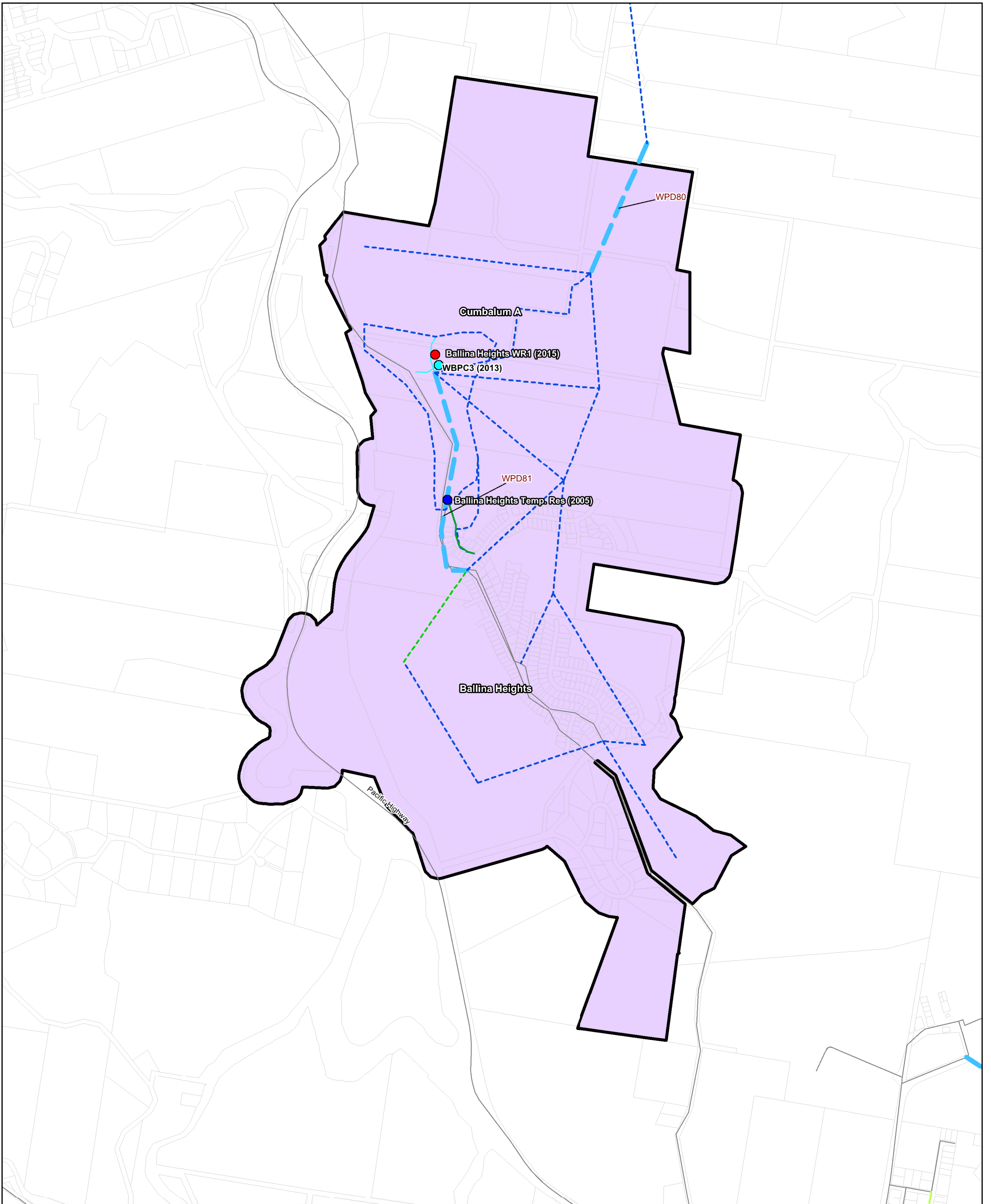


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Development Servicing Plan: Drinking Water Supply

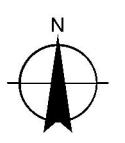
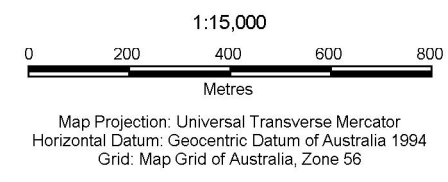
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DSP Area E
Alstonville Industrial, Alstonville, Wollongbar **Figure 7**

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LEGEND		Trunk Infrastructure		Developer Constructed Infrastructure		Future Infrastructure Funded by DSP		Reticulation		Pumps		Reservoirs	
	DSP Area		392 to 621		203 to 210		2,025		2,011		Existing		Existing
	Cadastral Boundaries		285 to 392		186 to 203		2,030		2012 - 2015		Future		Future DSP Pumps
	Major Roads		253 to 285		97 to 186		2,020		2015 - 2020		Future DSP Pumps		Future
			210 to 253						2020 - 2025				



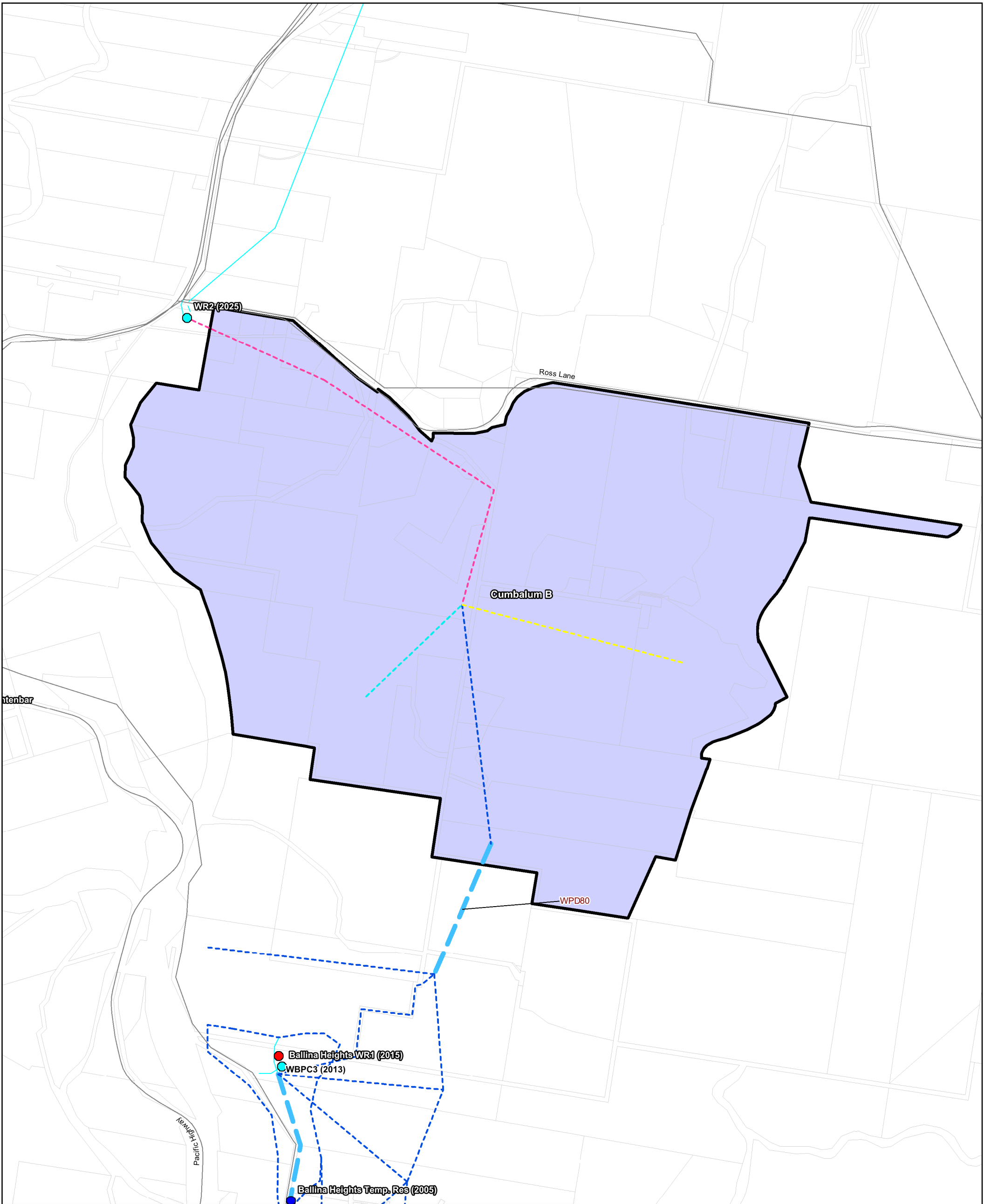
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DSP Area F Cumbalum A, Ballina Heights

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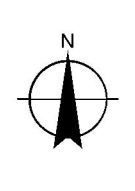
Figure 8

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LEGEND		Trunk Infrastructure		Developer Constructed Infrastructure		Future Infrastructure Funded by DSP		Reticulation		Pumps		Reservoirs	
	DSP Area		392 to 621		203 to 210		2,011		Existing		Existing Pumps		Existing
	Cadastral Boundaries		285 to 392		186 to 203		2,012 - 2015		Future		Future DSP Pumps		Future
	Major Roads		253 to 285		97 to 186		2015 - 2020						
			210 to 253				2020 - 2025						

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 Horizontal Datum: Geocentric Datum of Australia 1994
 Grid: Map Grid of Australia, Zone 56



Ballina Shire Council
 Development Servicing Plan: Drinking Water Supply

Job Number 22-15470
 Revision 1
 Date 11 MAY 2012

DSP Area G - Cumbalum B

Figure 9

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 Data source: BSC - DSP Areas, Cadastral Boundaries, Trunk Infrastructure, Developer Constructed Infrastructure, Future Infrastructure, Reticulation, Pumps, Reservoirs (2012). Navteq - Major Roads, Place Names (2011). Created by: CM
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Appendix A
ET and Assessment Projections

Summary sheets from spread sheet calculations

Table A1 ET projections for water supply used in calculation of the capital charge

DSP Area	2010 ET	2015 ET	2020 ET	2025 ET	2030 ET	Total ET Growth as a result of new development areas
A	517	558	581	603	626	109
B	13672	15523	16894	18132	18991	5319
C	13	195	377	557	735	722
E	5796	5842	5888	5935	5983	186
F	634	1785	2416	2416	2416	1782
G	0	469	938	1876	2939	2939
Total	20633	24372	27093	29519	31690	11057

Table A2 Assessment projections for water supply used in calculation of the capital charge

DSP Area	2010	2015	2020	2025	2030	Total increase in assessments as a result of new developments
A	508	548	570	593	615	107
B	14953	16977	18476	19830	20770	5817
C	14	216	417	617	815	800
E	6234	6284	6333	6384	6435	200
F	841	2366	3202	3202	3202	2361
G	0	498	996	1991	3120	3120
Total	22550	26889	29995	32617	34956	12406

Appendix B
Reference Rates

NSW Reference Rate Manual and GHD Internal Rates

**Ballina Shire Council
Inputs to Water Supply Cost Estimates**

Note: All costs are to supply and install and include an allowance for Survey, Investigation, Design and contingency.

NSW Reference Rates Manual		
Reference		
Samra, S, Essery, C, (New South Wales. Ministry of Energy and Utilities), 2003, New South Wales reference rates manual: for valuation of water supply, sewerage and stormwater assets. Ministry of Energy and Utilities, Sydney.		
	Interpolated from Reference Rates	
	Extrapolated from Reference Rates	
T3.1 Water Trunk Mains - uPVC		
Reference Rates (\$/m) as at June 2003		
Pipe (DN)	Contract Rate (\$/m)	Reference Rate (\$/m)
50	33	42
80	43	55
100	55	70
150	83	105
200	103	130
225	119	150
250	134	170
275	150	190
300	166	210
325	179	227
350	192	243
375	206	260
400	219	300
450	245	400
500	271	400
T3.2 Water Trunk Mains - DI CL		
Reference Rates (\$/m) as at June 2003		
Pipe (DN)	Contract Rate (\$/m)	Reference Rate (\$/m)
100	65	82
150	83	105
200	103	130
250	123	155
275	144	183
300	166	210
325	173	218
375	186	235
400	202	255
450	233	295
500	255	323
600	320	405
750	403	510
T3.3 Water Trunk Mains - Steel		
Reference Rates (\$/m) as at June 2003		
Pipe (DN)	Contract Rate (\$/m)	Reference Rate (\$/m)
300	170	215
375	206	260
450	245	310
525	285	360
600	362	470
750	518	655
900	717	917
1050	917	1160
1200	1154	1460
T3.5 Water Treatment Works		
Reference Rates (\$/m) as at June 2003		
Capacity (ML/day)	Contract Rate (\$)	Reference Rate (\$)
0.3	536667	708400
0.5	690000	910800
0.55	728333	961400
0.8	920000	1214400
1	1060000	1399200
2	1640000	2164800
5	3000000	3960000
7.5	3830000	5055600
10	4600000	6072000
15	5850000	7722000
20	7000000	9240000
30	8700000	11484000
40	10400000	13728000
50	12000000	15840000
60	14400000.00	19008000
70	16800000	22176000
80	18400000.00	24288000
100	23000000.00	30360000

NSW Reference Rates Manual

Reference Rates for Construction Difficulties

Page 27, Table 3.14, rates estimated for June 2003 as per Ref rates manual.

Construction Difficulty - Moderate Congestion

Reference Rates (\$/m) as at June 2003

Pipe (DN)	Contract Rate (\$/m)	Reference Rate (\$/m)
100	24	30
150	36	45
200	48	60
250	60	75
275	66	83
300	72	90
325	80	100
350	88	110
375	96	120
400	104	130
450	120	150
500	133	170
600	157	200
750	205	260
900	240	300

Construction Difficulty - High Congestion

Reference Rates (\$/m) as at June 2003

Pipe (DN)	Contract Rate (\$/m)	Reference Rate (\$/m)
100	48.0	60.0
150	72	90
200	96	120
250	120	150
275	133	165
300	145	180
325	161	200
350	177	220
375	193	240
400	209	260
450	240	300
500	265	335
600	313.0	395.0
750	410	520
900	480	600

Interpolated from Reference Rates

Extrapolated from Reference Rates

Ballina Shire Council
Inputs to Water Supply Cost Estimates

Note: All costs are to supply and install and include an allowance for Survey, Investigation, Design and contingency.

GHD Internal Cost Estimates

NSW Water Supply and Sewerage Cost Indicy uplift from 2003/2004 to 2010/2011:

1.4

NSW Water Supply and Sewerage Cost Indicy uplift from 2009/2010 to 2010/2011:

1.03

Extrapolated from GHD Reference Rates

Water Mains Unit Rates

Nominal Diameter	Total Cost (2011/12)
50	\$83.58
80	\$106.52
100	\$117.24
150	\$149.36
200	\$187.01
225	\$206.31
250	\$217.68
300	\$393.16
375	\$483.38
400	\$609.02
450	\$720.31
500	\$896.11
525	\$952.65
600	\$1,213.60
660	\$1,349.88
675	\$1,441.01
700	\$1,530.96
750	\$1,632.09
900	\$1,837.83
1000	\$2,132.60
1050	\$2,353.35
1085	\$2,471.28
1200	\$2,897.97
1650	\$4,653.37
1800	\$5,167.81
2400	\$7,530.74

Water Pump Stations

Pump Motor (kW)	Total (2011\$)
5	\$118,125.75
10	\$156,209
15	\$208,499.67
20	\$239,867
25	\$285,998.82
30	\$308,544
40	\$367,716
50	\$428,068
60	\$456,241.94
75	\$511,453
95	\$654,818.32
100	\$666,311
145	\$777,502.61
150	\$787,509
200	\$910,328
240	\$988,105.95
250	\$1,006,446
300	\$1,087,688
350	\$1,185,199
400	\$1,289,796
450	\$1,373,243
500	\$1,442,159
600	\$1,533,504
700	\$1,656,181
800	\$1,769,909
900	\$1,885,541
1000	\$1,989,009
1050	\$2,069,596
1100	\$2,145,933
1150	\$2,227,055
1200	\$2,325,895
1250	\$2,394,079
1300	\$2,463,662
1350	\$2,531,467
1400	\$2,591,857
1450	\$2,660,231
1500	\$2,726,747

Reservoirs

Volume (ML)	Cost (2008\$)	Total (2011\$)
0.2	\$157,379.17	\$169,480.15
0.24	\$183,233.70	\$197,322.65
0.3	\$224,280	\$241,525
0.35	\$228,664	\$246,246
0.4	\$262,747	\$282,950
0.45	\$318,970	\$343,496
0.5	\$361,101	\$388,866
1	\$472,405	\$508,729
1.6	\$535,611.80	\$576,795.33
2	\$759,071	\$817,436
2.5	\$957,687	\$1,031,324
3	\$1,519,805	\$1,636,664
3.5	\$1,756,865.05	\$1,891,951.50
4	\$1,876,367	\$2,020,642
5	\$2,274,272	\$2,449,142
8	\$3,196,585	\$3,442,372
10	\$3,541,512	\$3,813,821
15	\$4,505,410	\$4,851,834
18	\$5,332,897	\$5,742,947
20	\$5,520,326	\$5,944,787
30	\$6,826,569	\$7,351,468
35	\$7,746,964	\$8,342,633
40	\$8,353,750	\$8,996,075
50	\$9,587,682	\$10,324,885
55	\$10,623,784	\$11,440,653
60	\$11,306,909	\$12,176,304

Appendix C

Capital Charge Calculations

Agglomeration Summary, Asset Evaluations
and Reduction Amount

Agglomeration of Capital Charges

Area	Future Works				Existing Works				Total Capital cost per ET	Total ET Growth
	Pipelines	Reservoirs	Pumps	Treatment Plants	Pipelines	Reservoirs	Pumps	Treatment Plants		
A	167	-	-	841	5,254	2,141	1,377	1,707	\$11,487	109
B	318	17	38	-	1,613	1,270	15	-	\$3,270	5319
C	684	-	117	-	-	1,424	-	-	\$2,225	722
E	21	-	48	-	1,362	1,606	140	-	\$3,177	186
F	223	719	86	-	78	-	-	-	\$1,106	1782
G	-	849	-	-	-	-	-	-	\$849	2939

Agglomeration of Capital Charges

Reduction Amount: \$ 385

Area	Development Area	Total Capital Charge per ET (\$/ET)	Agglomeration inspection (70% of \$/ET)	Total ET Growth (ET)	Proportion of Growth	Weighted Capital Charge for Each Location (\$/ET)	With agglomeration			Utility Wide Weighted Average Developer Charge per ET (\$/ET)	
							Capital Charge for each DSP Area (\$/ET)	Reduction amount (\$/ET)	Calculated & Adopted Developer Charge (\$/ET)		
A	Wardell	11,487	8,041	109	1.0%	113					
Total for Area A							1.0%	113	11,487	385	11,102
B	North/East/West Ballina, Ballina Island, Skennars Head, Lennox Head	3,270	2,289	5319	48%	1,573					
E	Alstonville, Wollongbar	3,177		186	2%	54					
Total for areas B, E							50%	1,627	3,267	385	2,882
C	WUEA	2,225	1,557	722	7%	145					
Total for Area C							7%	145	2,225	385	1,840
F	CURA A, Ballina Heights	1,106	774	1782	16%	178					
G	CURA B	849		2939	27%	226					
Total for areas F, G							43%	404	946	385	561
Total for all areas							100%	2,289			1,904

Reduction Amount by NPV of annual bills method

7%

Constant projected annual charges and OMA costs

Annual Water Charges (A)	414 \$ per ET	= 2011/12 Minimum access charge + average consumption charge = \$8.15m (2011/12 OMA) / 21,332 (2011/12 ET projection)
Annual Water OMA Cost (B)	382 \$ per ET	
Future operating profits ('C)	32 \$ per ET	

Year	Total ETs	New ETs per year	PV (New ETs) (over 30 years @ 5%)	Cumulative New ETs	Net Operating Results for New ETs (\$'000)	PV (future operating profits) from new ETs over 30 years @ 5% (\$'000)	Reduction Amount (\$ per ET)
(1)	(2) = (1) _i - (1) _{i-1}	(3) = PV of (2)	(4)	(5) = (4) * ('C)	(6) = PV of (5)	(7) = (6) / (3)	
2010/11	20,633						
2011/12	21,332	699	6,732.28	699	22	2,593.16	385
2012/13	22,054	723		1,422	45		
2013/14	22,802	747		2,169	68		
2014/15	23,574	772		2,941	93		
2015/16	24,372	799		3,740	118		
2016/17	24,894	521		4,261	134		
2017/18	25,426	533		4,793	151		
2018/19	25,970	544		5,337	168		
2019/20	26,526	556		5,893	186		
2020/21	27,093	567		6,460	204		
2021/22	27,562	469		6,929	219		
2022/23	28,039	477		7,406	234		
2023/24	28,524	485		7,891	249		
2024/25	29,017	493		8,384	265		
2025/26	29,519	502		8,886	280		
2026/27	29,941	422		9,308	294		
2027/28	30,369	428		9,736	307		
2028/29	30,803	434		10,170	321		
2029/30	31,243	440		10,610	335		
2030/31	31,690	447		11,057	349		
2031/32				11,057	349		
2032/33				11,057	349		
2033/34				11,057	349		
2034/35				11,057	349		
2035/36				11,057	349		
2036/37				11,057	349		
2037/38				11,057	349		
2038/39				11,057	349		
2039/40				11,057	349		
2040/41				11,057	349		
2041/42				11,057	349		

Basis of Capacity and Growth

WTPs	Area	Capacity (ML, or ML/peak day)	Total possible ET served in the area?		kL/ET/ peak day
Wardell Service Reservoir (1.6 ML)	A	1.6	941		1.70
Meerschaum Balance Tank (0.24 ML)	A	0.24	141		1.70
Pine Avenue Service Reservoir (20.3 ML)	B	20.3	12,254		1.66
Basalt Court Service Reservoir (4.0 ML)	B	4	2,499		1.60
Pacific Pines Reservoir	B	1.2	706		1.70
East Ballina Reservoir	B	4	2,558		1.56
				Total of Wollongbar = 6500 ET (Split capacity as 25% to C, 75% to E)	
Wollongbar Service Reservoir (10.4 ML)	C	10.4	1,529		1.70
Wollongbar Service Reservoir (10.4 ML)	E	10.4	4,588	6500	1.70
Russelton_service_reservoir (4.0 ML)	E	4	2,353		1.70
Ballina Heights Service Reservoir	F	2.2	2,037		1.08
Ross Lane Service Reservoir	G	3.5	3,241		1.08

Assumes 7% Urban Dual Reticulation with reduced demand of 1.08 kL/ET/Peak day
 Assumes 16% Urban Dual Reticulation with reduced demand of 1.08 kL/ET/Peak day
 Assumes 22% Urban Dual Reticulation with reduced demand of 1.08 kL/ET/Peak day
 Assumes 100% Urban Dual Reticulation with reduced demand of 1.08 kL/ET/Peak day
 Assumes 100% Urban Dual Reticulation with reduced demand of 1.08 kL/ET/Peak day

Inc. Areas	Total System capacity		Year when capacity is taken up, or 2040 (default 30 years)	Population projection	2010 ET	2015 ET	2020 ET	2025 ET	2030 ET	Growth
	Area	As reservoirs:	Service Area							
Wardell	A	1,082	2040	A	517	558	581	603	626	109
Ballina Island, EB, WB, NB, Skenners Head, Lennox Head	B	18,017	2025	B	13672	15523	16894	18132	18991	5319
WUEA	C	1,529	2040	C	13	195	377	557	735	722
Alst. Industr, Alstonville, Wollongbar	E	6,941	2040	E	5796	5842	5888	5935	5983	186
Cura A, Ballina Heights	F	2,037	2020	F	634	1785	2416	2416	2416	1782
Cura B	G	3,241	2040	G	0	469	938	1876	2939	2939
	Sum	32,848		Total	20,633	24,372	27,093	29,519	31,690	11,057

Development Area	First asset commissioned in	Effective commissioning year
A	Pre 1996	1996
B	Pre 1996	1996
C	Pre 1996	1996
D	N/A	
E	Pre 1996	1996
F	2005	2005
G	2015	2015

Capital Charge: Treatment Plants - Future and Existing

Basis of "Existing" = commissioning year up to 2010/2011. "Future" = all later years. Existing and Future calculations follow the same methodology, and so moving assets between the Existing & Future tables will not alter the overall charge per area

Total Cost of Treatment plants per Development Area		
Development Area	Capital Charge per ET - Future	Capital Charge per ET - Existing
A	\$ 840.90	\$ 1,707.27
B	\$ -	\$ -
C	\$ -	\$ -
D	\$ -	\$ -
E	\$ -	\$ -
F	\$ -	\$ -
G	\$ -	\$ -

Label (ID)	Catchment	Drinking or Recycled Asset	Service Area	Service Area	Plant Type	Year Commissioned	Capacity (ML/d)	Total Cost (2011/12 \$, marked up from 2007/08 rates)	Effective Year of Commissioning	Discount Rate	PV (1995/96) of Capital Cost (2011/2012)	Year of Renewal	System Capacity (ETs)	Capital cost per ET (2011/2012\$)	Year of Full Take up	Take up Period	ROI Factor	Capital Charge (\$/ET)
Marom Creek WTP	Wardell	Drinking	Wardell, Alstonville, Wollongbar, A'ville Industrial Estate	A	Sand Filter	1980	0.5	\$ 1,025,113	1996	3%	1,025,113	2050	1082	947.12	2040	46	1.80	\$ 1,707.27
Marom Creek PAC Plant	Wardell	Drinking	Wardell, Alstonville, Wollongbar, A'ville Industrial Estate	A	PAC	2012	0.3	\$ 797,310	1996	7%	288,982	2082	1082	266.99	2040	46	3.15	\$ 840.90

Capital Charge: Pump Stations & Valves - Future and Existing

Basis of "Existing" = commissioning year up to 2010/2011. "Future" = all later years. Existing and Future calculations follow the same methodology, and so moving assets between the Existing & Future tables will not alter the overall charge per area

Total Cost of Pump Stations per Development Area		
Development Area	Capital Charge per ET - Future	Capital Charge per ET - Existing
A	\$ -	\$ 1,376.55
B	\$ 37.51	\$ 14.68
C	\$ 117.28	\$ -
D	\$ -	\$ -
E	\$ 47.71	\$ 140.22
F	\$ 86.28	\$ -
G	\$ -	\$ -

Existing																				
Description	Label (ID)	Drinking or Recycled Asset	Service Area	Service Area	Flow	Head	kW	Year Commissioned	kW	Total Cost (2011/12 \$, marked up from 2007/08 rates)	Effective Year of Commissioning	Discount rate	PV (1995/96) of Capital Cost (2011/2012)	System Capacity (ETs)	Capital cost per ET (2011/2012\$)	Year of Full Take up	Take up Period	ROI Factor	% Water/Wastewater	Capital Charge (\$2011/2012/ET)
Bassalt Court Booster Pump		Drinking	Lennox Head	B	15	40	9	1983	10	\$ 175,815	1996	3%	175,815	18017	9.76	2025	31	1.50	100%	\$ 14.68
Wollongbar Booster pump		Drinking	Wollongbar	E	46	25	18	1990	20	\$ 269,972	1996	3%	269,972	6941	38.89	2040	46	1.80	100%	\$ 70.11
Marom Creek Supply Pump		Drinking	Wardell, Alstonville, Wollongbar, A'ville	A	22	75	26	1980	25	\$ 321,894	1996	3%	321,894	1082	297.40	2040	46	1.80	100%	\$ 536.10
Lindendale Bore Lift Pump		Drinking	Wardell, Alstonville, Wollongbar, A'ville	E	16	88	22	1992	20	\$ 269,972	1996	3%	269,972	6941	38.89	2040	46	1.80	100%	\$ 70.11
Ellis Road Lift Pump		Drinking	Wardell, Alstonville, Wollongbar, A'ville	A	16	88	22	1992	20	\$ 269,972	1996	3%	269,972	1082	249.43	2040	46	1.80	100%	\$ 449.62
Ellis Road Booster Pump		Drinking	Wardell, Alstonville, Wollongbar, A'ville	A	11	88	15	1992	15	\$ 234,668	1996	3%	234,668	1082	216.81	2040	46	1.80	100%	\$ 390.83

Future																				
Description	Label (ID)	Drinking or Recycled Asset	Service Area	Service Area	Flow	Head	kW	Year Commissioned	kW	Total Cost (2011/12 \$, marked up from 2007/08 rates)	Effective Year of Commissioning	Discount rate		Capacity (ETs)	\$/ET	Year of Full Take up	Take up Period	ROI Factor	% Water/Wastewater	Capital Charge (\$/ET)
North Creek Road Supply Pump Station	WSPC1	Drinking	Lennox Head, Skenners Head	B	90	20	28	2015	30	\$ 347,269	1996	7%	102,744	18017	5.70	2025	31	2.31	100%	\$ 13.18
East Ballina Booster Pump	WBPC1	Drinking	East Ballina	B	50	35	28	2012	30	\$ 347,269	1996	7%	125,866	18017	6.99	2025	31	2.31	100%	\$ 16.15
Russelton Booster Pump	WBPC2	Drinking	A'ville Industrial Estate	E	11	22	4	2012	5	\$ 132,952	1996	7%	48,188	6941	6.94	2040	46	3.15	100%	\$ 21.86
Ballina Heights High Level Zone	WBPC3	Drinking	Ballina Heights	F	18	20	6	2012	5	\$ 173,430.00	2005	7%	108,003	2037	53.02	2020	17	1.63	100%	\$ 86.28
Upgrade of Bassalt Court Booster pumps	WBPU1	Drinking	Lennox Head	B	15	40	9	2012	10	\$ 175,815	1996	7%	63,723	18017	3.54	2025	31	2.31	100%	\$ 8.18
Upgrade of Wollongbar Booster pumps	WBPU2	Drinking	Wollongbar	E	46	25	18	2020	20	\$ 269,972	1996	7%	56,950	6941	8.20	2040	46	3.15	100%	\$ 25.84
Upgrade of Wollongbar Booster pumps	WBPU2	Drinking	WUEA	C	46	25	18	2020	20	\$ 269,972	1996	7%	56,950	1529	37.24	2040	46	3.15	100%	\$ 117.28
Lumley's Lane PMZ	PMZ1	Drinking	Wardell	A				2012		\$ 97,326.00	1996	7%	35,275	1082	32.59	2040	46	3.15	100%	\$ 102.65
Southern Cross Dr PMZ	PMZ2	Drinking	North Ballina	B				2013		\$ 97,326.00	1996	7%	32,968	18017	1.83	2025	31	2.31	100%	\$ 4.23
Fox St PMZ	PMZ3	Drinking	Ballina Island	B				2016		\$ 125,534.00	1996	7%	34,711	18017	1.93	2025	31	2.31	100%	\$ 4.45
Temple St PMZ	PMZ4	Drinking	Ballina Island	B				2014		\$ 143,179.00	1996	7%	45,327	18017	2.52	2025	31	2.31	100%	\$ 5.82
Owen St PMZ	PMZ5	Drinking	Ballina Island	B				2015		\$ 131,270.00	1996	7%	38,838	18017	2.16	2025	31	2.31	100%	\$ 4.98
Bassalt Court Reservoir DMA	DMA1	Drinking	Lennox Head	B				2012		\$ 60,000.00	1996	7%	21,747	18017	1.21	2025	31	2.31	100%	\$ 2.79
Silver Gull Dr DMA	DMA2	Drinking	East Ballina	B				2013		\$ 60,000.00	1996	7%	20,324	18017	1.13	2025	31	2.31	100%	\$ 2.61
Seaview St DMA	DMA3	Drinking	East Ballina	B				2014		\$ 60,000.00	1996	7%	18,994	18017	1.05	2025	31	2.31	100%	\$ 2.44

^ Italicised cells are not indexed, but provided from external quotations for the works

Capital Charge: Reservoirs - Future and Existing

Basis of "Existing" = commissioning year up to 2010/2011. "Future" = all later years. Existing and Future calculations follow the same methodology, and so moving assets between the Existing & Future tables will not alter the overall charge per area

Total Cost of Reservoirs per Development Area		
Service Area	Capital Charge per ET - Future	Capital Charge per ET - Existing
A	\$ -	\$ 2,140.87
B	\$ 17.44	\$ 1,270.36
C	\$ -	\$ 1,423.55
D	\$ -	\$ -
E	\$ -	\$ 1,605.73
F	\$ 718.71	\$ -
G	\$ 848.65	\$ -

Existing																		
Description	Label (ID)	Drinking or Recycled Asset	Service Area	Service Area	Capacity (ML)	Year Commissioned	Cost Indexing Capacity (ML)	Total Cost (2011/12 cost)	Effective Year of Commissioning	Discount Rate	PV (1995/96) of Capital Cost (2011/2012)	System Capacity (ETs)	Capital Cost per ET (\$2011/2012)	Year when capacity is taken up	Take up Period	ROI Factor	% Water/Waste water	Capital Charge (\$/ET)
Wollongbar Service Reservoir (10.4 ML) (Area E uses 75% of capacity and cost)		Drinking	Wollongbar, Alstonville	E	10.4	1990	10.0	\$ 3,623,426	1996	3%	3,623,426	6941	522	2040	46	1.80	100%	\$ 940.99
Wollongbar Service Reservoir (10.4 ML) (Area C Uses 25% of capacity and cost)		Drinking	Wollongbar Urban Expansion	C	10.4	1990	10.0	\$ 1,207,809	1996	3%	1,207,809	1529	790	2040	46	1.80	100%	\$ 1,423.55
Wardell Service Reservoir (1.6 ML)		Drinking	Wardell	A	1.6	1990	2.0	\$ 1,035,504	1996	3%	1,035,504	1082	957	2040	46	1.80	100%	\$ 1,724.57
Meerscham Balance Tank (0.24 ML)		Drinking	Wardell	A	0.2	1989	0.2	\$ 249,962	1996	3%	249,962	1082	231	2040	46	1.80	100%	\$ 416.30
Pine Avenue Service Reservoir (20.3 ML)		Drinking	Ballina Island, North Ballina, West Ballina, East Ballina	B	20.3	1978	20.0	\$ 7,530,679	1996	3%	7,530,679	18017	418	2025	31	1.50	100%	\$ 628.99
Basalt Court Service Reservoir (4.0 ML)		Drinking	Lennox Head, Skenners Head	B	4.0	1983	4.0	\$ 2,559,689	1996	3%	2,559,689	18017	142	2025	31	1.50	100%	\$ 213.79
East Ballina Reservoir (currently being recommissioned)		Drinking	East Ballina	B	4.0	1968	4.0	\$ 2,559,689	1996	3%	2,559,689	18017	142	2025	31	1.50	200%	\$ 427.59
Russelton_service_reservoir (4.0 ML)		Drinking	A'ville Industrial Estate	E	4.0	1984	4.0	\$ 2,559,689	1996	3%	2,559,689	6941	369	2040	46	1.80	100%	\$ 664.74

Future																		
Description	Label (ID)	Drinking or Recycled Asset	Service Area	Service Area	Capacity (ML)	Year Commissioned	Cost Indexing Capacity (ML)	Total Cost (2011/12 cost)	Effective Year of Commissioning			Capacity (ETs)	\$/ET	Year of Full Take up	Take up Period	ROI Factor	% Water/Waste water	Capital Charge (\$/ET)
Ross Lane Service Reservoir	WR2	Drinking	Cura B	G	3.5	2015	2.8	\$ 1,306,451	2015	7%	1,306,451	3241	403	2040	27	2.11	100%	\$ 848.65
Ballina Heights Service Reservoir *	WR1	Drinking	Cura A & Ballina Heights	F	2.2	2014	1.8	\$ 1,654,000	2005	7%	899,666	2037	442	2020	17	1.63	100%	\$ 718.71
Pacific Pines Reservoir	WR3	Drinking	Skennars Head	B	1.2	2020	1	\$ 644,442	1996	7%	135,943	18017	8	2025	31	2.31	100%	\$ 17.44

* Cost basis of Ballina Heights Service Reservoir from Ballina Heights Concept Design Report: \$1100000+ 0.41*\$1,350,000 (pro rata site works between recycled & drinking reservoir)=\$1,654,000

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Document Status

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		Name	Signature	Name	Signature	Date
Re-drafted	M Evans					