Pine Rivers Shire Council

Planning Scheme Policy

PSP23 Development Contributions for Trunk Infrastructure – Sewerage

Planning Scheme Policy for Pine Rivers Shire

PSP23 Development Contributions for Trunk Infrastructure – Sewerage

ADOPTION
Pine Rivers Shire Council adopted this planning scheme policy on 19 June 2006.

COMMENCEMENT
This planning scheme policy took effect from 15 December 2006.

Amendment 2/2008

ADOPTION OF AMENDMENT
Moreton Bay Regional Council adopted this amendment to the planning scheme policy on 19 August 2008.

COMMENCEMENT OF AMENDMENT
This minor amendment to the planning scheme policy took effect from 1 September 2008.

I, John Rauber, Chief Executive Officer, of the Moreton Bay Regional Council, hereby certify that this document is a true copy of the original.

John Rauber
Chief Executive Officer

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PSP 23 – DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE – SEWERAGE

Head of Power

This document is a Planning Scheme Policy for the purposes of the *Integrated Planning Act 1997* (the Act) and is made in compliance with the process prescribed in Schedule 3 of the Act.

Objective

The objective of this policy is to establish a mechanism for funding of Sewerage Trunk Infrastructure, (existing and proposed), commensurate with the adverse impacts of development on that infrastructure and which ensures a reasonable and equitable distribution of the costs of Sewerage Trunk Infrastructure works between Council and developers of land in Council's Local Government area.

Definitions / Application

Application

This policy applies to all applications for development which have been made assessable by Council's Planning Scheme and which will utilise any part of the Sewerage Trunk Infrastructure Network. For the purposes of this policy, the extent of the Sewerage Trunk Infrastructure Network within the Shire is shown in Schedule D.

The policy outlines the basis of Council's Infrastructure Contributions Regime for the Sewerage Trunk Infrastructure Network in Pine Rivers Shire. It is to be read in conjunction with Planning Scheme Policy PSP21 on Development Contributions for Trunk Infrastructure – Administration Policy.

Payment of the monetary contribution under this policy will in no way relieve the development proponent from any requirement under a condition of development approval to undertake non-trunk works or to connect the development to trunk infrastructure.

Nothing contained in this policy precludes Council and the development proponent from entering into an infrastructure agreement in regard to the matters dealt with by this policy.

Definitions

The definitions of applicable terms are contained in PSP21 Development Contributions for Trunk Infrastructure – Administration Policy and the 'study report' identified in Section 2 "Background Information". Where a term used in this policy is not defined in PSP21 or the 'study report', that term shall, unless the context indicates or requires otherwise, have the meaning assigned to it in Council's Planning Scheme or in the *Integrated Planning Act 1997*.

Policy Statement

1 Scope

This policy sets out the basis for the determination of Development Contributions for Sewerage Trunk Infrastructure, which Council will impose as conditions of development approval. The provisions of this policy shall apply to applications for development within the Shire which will utilise Sewerage Trunk Infrastructure either immediately or at some time in the future. This policy:

(1) is to be read in conjunction with Planning Scheme Policy PSP21 Development Contributions for Trunk Infrastructure – Administration;
(2) specifies the assumptions made in determining the rate of the contribution payable towards the cost of Sewerage Trunk Infrastructure within Council's Designated Infrastructure Service Area (DISA);
(3) lists the land use, density and demand assumptions made for predicting demand and planning the Sewerage Trunk Infrastructure Network;
(4) specifies the works, structures or equipment, which the Council determines to be Sewerage Trunk Infrastructure;
(5) establishes the estimated cost of construction and any required augmentation of the Sewerage Trunk Infrastructure Network in respect of which contributions are to be made; and
(6) lists the applicable Demand Factors and Schedules of Infrastructure Contribution Rates.

2 Background Information

The methodology used in establishing the amount of required Trunk Infrastructure Contributions under this policy is based on the report by John Wilson and Partners, "PINE WATER Priority Infrastructure Plan, Water Supply & Sewerage", September 2005 (the Study Report) which was formally adopted by Council on 26 September 2005. The Study Report comprises:-

(1) Part 1 - Executive Summary (September 2005);

(2) Part 2 - Main Report (September 2005);

(3) Part 3 - Detailed Maps (September 2005); and

(4) Part 4 - Calculations and Supporting Data (September 2005).

Pine Water, Update of Wastewater Network Master Plan, Final Report December 2006 (JWP).
MWH, PIP Population Update Report, August 2007.

3 Sewerage Methodology

3.1 Methodology

The methodology used for determining the rate of Infrastructure Contributions for Sewerage under this policy is based upon the approach set out in the Department of Local Government and Planning's IPA Guidelines 1/04 and 2/04 (dated 4th October 2004) on infrastructure charges and subsequent advice from that Department in relation to the *Integrated Planning and Other Legislation Amendment Act 2003* (IPOLA 2003) amendments to Chapter 5 of the *Integrated Planning Act 1997* (IPA).

In summary, Infrastructure contribution rates for the Sewerage Trunk Infrastructure Network have been derived in the following manner:-

(a) Determine the service catchments for Trunk Infrastructure Delivery;

(b) Estimate the amount of new development, or the planned / ultimate population and resulting demand on the network within each service catchment[1];

(c) Determine the Trunk Infrastructure likely to be needed to service the development or planned / ultimate population within the service catchment to deliver the Desired Standards of Service (DSS) outlined in Schedule E;

(d) Determine the current replacement costs for existing Trunk Infrastructure, and the future establishment costs for future Trunk Infrastructure in the service catchment expressed in base year dollars; and

(e) Derive the applicable Infrastructure Contribution Rates by dividing the total network costs by the total 'ultimate' demand on the network in the service catchment, thereby producing a rate per selected demand unit.

Trunk Infrastructure is utilised at two levels – local and regional (hence the system of Regional and Local Service catchments). Local Infrastructure generally services customers in a single sub-catchment or a single pressure zone while regional infrastructure services customers in more than one service area. Accordingly, a two tier system has been employed to equitably allocate the costs of infrastructure.

The charge rate, for each <u>particular service catchment</u>, is calculated using the formula:-

$$CR_{Catchment} = (AssetValues)/(Demand)$$

Where:-

$CR_{Catchment}$ = Charge Rate for an individual service catchment (expressed in $/EPS)

AssetValues = Value of Catchment's Assets ($)

= Σ(Current Replacement Cost of Existing assets at 30-6-2006 x proportion of the asset utilised by the service catchment) + Σ [(Cost of future assets expressed in 30-6-2006 dollars x proportion of the asset utilised by the service catchment)]

Demand = Total Demand of Catchment's Projected Population (expressed in EPs) to Ultimate Development

[1] Note: For this network 'ultimate' demand represents demand at the end of the period to full development of the Shire assuming densities consistent with the Planning Scheme and the Dakabin, Mango Hill and Griffin Local Area Plans.

3.2 Service Catchments

The Designated Infrastructure Service Area (DISA) has been divided into the following Sewerage Regional Service Catchments:-

(1) Murrumba Downs STP;

(2) Brendale STP;

(3) Dayboro STP; and

(4) Kedron Brook

The sewerage regional service catchments are further divided up into the local service catchments identified in Table 3.2A:-

Table 3.2A – Sewerage, Regional and Local Service Catchments

REGIONAL CATCHMENT	LOCAL SERVICE CATCHMENT	SHORT NAME
	BRENDALE A	*BRA*
	BRENDALE B	*BRB*
	CABBAGE TREE CREEK	*CTC*
	SAMFORD	*SAM*
	MURRUMBA DOWNS NTH A	*MNA*
	MURRUMBA DOWNS NTH B	*MNB*
	MURRUMBA DOWNS NTH C	*MNC*
	MURRUMBA DOWNS STH A	*MSA*
	MURRUMBA DOWNS STH B	*MSB*
	MURRUMBA DOWNS STH C	*MSC*
	SEW-01	S01
	SEW-02	S02
	SEW-03	S02
	SEW-04	S04
	SEW-05	S05
	SEW-06	S06
	SEW-07	S07
	NORTH LAKES	NL
DAYBORO STP	DAYBORO	*DAY*
KEDRON BROOK	KEDRON BROOK	*KBR*

The extent of each of the Service Catchments is shown graphically on the maps in Schedule C.

The Kedron Brook Sewerage Scheme services the Kedron Brook regional service catchment only. Wastewater from this catchment drains to sewerage infrastructure in the Brisbane City Council local authority area. No Brisbane City Council infrastructure has been included in the Infrastructure Charges calculations as the establishment cost of Brisbane City Council infrastructure is recovered through the tariff levied by Brisbane City Council for transport and treatment of wastewater from the Kedron Brook service catchment.

Pine Rivers Shire Council has a written agreement with Brisbane City Council for treatment of wastewater from the Kedron Brook catchment which is renewed every five years and which states the methodology for calculation of charges including recovery of establishment costs.

The North Lakes development at Mango Hill and the development of the former CSIRO land in the Samford Valley are subject to infrastructure agreements, and, as such, are specifically excluded from the scope of this policy.

While it is acknowledged that these catchments do impose a load on existing trunk infrastructure, and that load is likely to increase over time until the development in those areas is completed, appropriate mechanisms have been included in the contributions regime adopted under this policy to ensure that the costs associated with this load are not passed onto other development.

3.3 Sewerage Demand Assumptions

3.3.1 Approach to Demand and Load Modelling

The reports referred to in Section 2 of this policy documented assumed demand across the whole Shire, the most cost effective servicing strategy and Capital Works Programs aligning with assumed growth rates. These reports covered the proposed urban areas on both sides of the Bruce Highway.

In 2007, new Demand and Load Models for Sewerage were built, consistent with the Planning Assumptions documented in PSP21 Section 3. The resulting demand for 2026 was compared to the demand derived in the Water and Wastewater Master Plans from 2006 to the period to full development of the Shire assuming densities consistent with the Planning Scheme and the Dakabin, Mango Hill and Griffin Local Area Plans – this being termed 'ultimate' development. Council's consultants advised that the differences were minor and a re-running of the Hydraulics Models would not be warranted until new arrangements for planning and delivery of service provision for the Water and Sewerage Networks by the State Government. Council is therefore basing the Water and Sewerage Network information presented in this policy on the 2006 Wastewater Master Plan.

The determination of demand and load for residential zoned land was based on population numbers assumed for the land. Demand and load for non-residential zoned land was derived from land use zoning and an assumed number of Equivalent Persons (Sewerage) per hectare per zone as outlined in Table 3.3A. The rate of growth of non-residential demand was linked directly to the growth in employment on the cadastral base.

3.3.2 Sewerage Demand Assumptions

The Demand Projections, Capacity Planning and Infrastructure Charge Rates developed for the Sewerage Network are based on the Standard Demand Units of 'Equivalent Person (Sewerage)' (EPS).

The Average Dry Weather Flow for the sewerage network under this policy is 225 litres / EPS / Day. Note: One Water EPW equates to ~ 1.5 Sewerage EPSs.

In order to derive future demand, some density assumptions for various land uses for the Sewerage Trunk Infrastructure Network have been made. The assumptions are expressed as demand per hectare site area per Zone of the Planning Scheme. These assumptions have been applied across the Shire according to the zone of the land under the Planning Scheme to derive the projected network demand.

Table 3.3A – Sewerage Load Assumptions in Residential and Non-Residential Areas

Land Use Zone	EPS's/ha -2007 Demand Model
RESIDENTIAL A	Population Forecast as per Planning Assumptions
RESIDENTIAL B	Population Forecast as per Planning Assumptions
SPECIAL RESIDENTIAL	0
PARK RESIDENTIAL	0
RURAL RESIDENTIAL	0
CENTRAL BUSINESS	45
COMMERCIAL	45
LOCAL BUSINESS	45
NEIGHBOURHOOD FACILITY	45
URBAN VILLAGE	45
VILLAGE CENTRE	45
HOME INDUSTRY	15
SERVICE INDUSTRY	22.5
GENERAL INDUSTRY	45
EXTRACTIVE INDUSTRY	22.5
FUTURE URBAN	30
RURAL ZONE COAST AND RIVER LANDS	0
RURAL ZONE IN URBAN, MAJOR EMPLOYMENT CENTRE, CATCHMENT, RURAL LIVING, VILLAGE, MT SUMMIT AND FORESTS LOCATIONS	0
CONSERVATION ZONE	0
PARK AND OPEN SPACE ZONE	0
SPORTS AND RECREATION ZONE	15
SPECIAL FACILITIES ZONE	15
SPECIAL PURPOSES ZONE	15

3.3.3 Projected Sewerage Demand

Table 3.3B – 'Ultimate' EPSs in Sewerage Catchments

Sewerage Catchment	RES ULTIMATE	NONRES ULTIMATE	TOTAL ULTIMATE
Brendale A	20,771	1,617	22,387
Brendale B	2	11,901	11,903
Cabbage Tree Creek	10,446	2,073	12,520
Dayboro	1,266	380	1,646
Kedron Brook	11,137	610	11,747
Murrumba Downs Nth A	4,990	3,725	8,714
Murrumba Downs Nth B	28,874	2,407	31,281
Murrumba Downs Nth C	5,741	104	5,845
Murrumba Downs Sth A	9,570	3,559	13,129
Murrumba Downs Sth B	20,306	2,840	23,146
Murrumba Downs Sth C	18,896	7,929	26,825
North Lakes	16,386	10,344	26,730
SEW-01	11,777	198	11,974
SEW-02	12,415	225	12,639
SEW-03	8,597	1,239	9,836
SEW-04	3,988	0	3,988
SEW-05	1,816	3,124	4,940
SEW-06	2,858	762	3,620
SEW-07	1,214	1,026	2,241
Samford	818	249	1,067
TOTAL	**191,866**	**54,312**	**246,178**

4 Sewerage Plan for Trunk Infrastructure

4.1 Sewerage Trunk Infrastructure Network

The following Infrastructure items as shown on the maps contained in Schedule D, and divided into regional and local components, are deemed to be Trunk Infrastructure for the purpose of planning and funding of the Trunk Sewerage Network. Plans for the Recycled Water component were not sufficiently advanced at the time of preparation of this policy to be included.

(1) **Regional infrastructure** includes the following:-

(a) Sewerage treatment plants (STPs) to achieve desired effluent discharge standards and including mechanical, electrical and controls equipment; and

(b) Flow measurement and telemetry/SCADA systems to provide system monitoring and/or control.

(2) **Local infrastructure** components have been defined as:-

(a) Trunk collection infrastructure (generally 300 mm diameter sewers and larger) to transport the sewage to a treatment plant or pump station; and

(b) Pumping stations and associated pressure mains to transport sewage to a treatment plant or other pumping station.

Assets are also grouped into '**Active'** and '**Passive'** Assets:-

Active water and wastewater infrastructure assets consist mainly of above ground visible assets such as treatment plants, pumping stations, reservoirs and dams.

Passive water and wastewater infrastructure assets consist of underground assets such as trunk mains, reticulation mains, pipe fittings and property connections.

The various elements of this Trunk Infrastructure are shown on the maps in Schedule D.

4.2 Sewerage Trunk Infrastructure Valuations

Costing information for existing Passive Assets

Valuations of existing water and sewer mains and other passive assets contained in this policy are based on a report titled "Water and Sewerage Mains Unit Costs" dated March 2006 prepared by Consultant Cardno Limited. The unit rates provided therein only take into account pipe diameter and depth. Refinements such as type of soil, water table, acid sulphate soil, urban or rural etc are not considered but the rates do include 20% oncost for construction in sand in an urban residential area. Valuations of water mains include an allowance for connections, valves and hydrants. Valuations for this policy have been taken directly from the June 2006 asset valuations for Pine Water's assets. The valuations shown in Tables 4.2A and 4.2B are slightly higher than those calculated using the rates reported in Cardno's March 2006 report due to 3 months escalation from March to June 2006.

Costing information for existing Active Assets

Information on the current replacement value of existing active assets was derives 'in house' using the criteria contain within the definition of 'establishment cost of trunk infrastructure' in IPA.

Costing information for Future Assets

Costs for Future Assets have been taken from the estimates in the Capital Works Program valued for and current at, 30June 2007, and were then converted back to the 30 June 2006 base date of this policy using Rawlinson's Construction Index.

Table 4.2A – Sewerage Infrastructure Establishment Cost

	Network Value		
	Regional	**Local**	**Total**
Existing Assets	$60,090,861	$101,406,683	$161,497,544
Future Infrastructure	$137,191,375	$61,646,538	$198,837,913
TOTAL	**$197,282,236**	**$163,053,221**	**$360,335,457**

4.2.1 Existing Sewerage Asset Schedule

Table 4.2B - Summary of Existing Active Sewer Assets

Existing Sewer Active	Network Cost	ICS CONTRIBUTION ALLOCATION
Biosolids Facility	$569,996	REGIONAL
Brendale WPCW	$22,499,207	REGIONAL
Dayboro WWTP	$5,592,846	REGIONAL
Flumes	$663,462	REGIONAL
Murrumba Downs WWTP	$31,178,701	REGIONAL
PUMP STATIONS		
102	$894,629	LOCAL
103	$2,456,299	LOCAL
104	$997,856	LOCAL
105	$630,344	LOCAL
107	$243,869	LOCAL
108	$3,441,237	LOCAL
110	$468,193	LOCAL
111	$273,693	LOCAL
112	$598,908	LOCAL
113	$334,481	LOCAL
114	$486,622	LOCAL
115	$230,411	LOCAL
116		LOCAL
117	$620,154	LOCAL
118	$259,518	LOCAL
119	$542,422	LOCAL
122	$178,095	LOCAL
127	$277,248	LOCAL
129	$1,851,662	LOCAL
130	$1,833,787	LOCAL
131	$377,022	LOCAL
140	$266,019	LOCAL
141	$348,554	LOCAL
143	$958,450	LOCAL
144	$404,252	LOCAL
145	$519,257	LOCAL
147	$298,812	LOCAL
148	$202,423	LOCAL
149	$692,080	LOCAL
150	$180,936	LOCAL
151	$193,005	LOCAL
153	$2,289,648	LOCAL
154	$160,586	LOCAL
155	$979,647	LOCAL
162	$343,072	LOCAL
164	$341,744	LOCAL
165	$1,142,264	LOCAL
166	$571,922	LOCAL
167	$361,357	LOCAL
169	$207,835	LOCAL
180	$3,259,150	LOCAL
181	$923,626	LOCAL
191	$820,716	LOCAL
203	$2,779,923	LOCAL
204	$612,731	LOCAL
205	$710,870	LOCAL
206	$311,787	LOCAL
207	$423,648	LOCAL
211	$329,516	LOCAL
220	$351,660	LOCAL
230	$255,296	LOCAL
231	$358,318	LOCAL
232	$209,330	LOCAL
233	$468,434	LOCAL
234	$241,593	LOCAL
235	$518,062	LOCAL

Existing Sewer Active	Network Cost	ICS CONTRIBUTION ALLOCATION
241	$339,918	LOCAL
259	$526,270	LOCAL
260	$1,353,044	LOCAL
261	$1,745,034	LOCAL
270	$602,640	LOCAL
271	$94,781	LOCAL
302	$307,668	LOCAL
340	$721,778	LOCAL
341	$386,530	LOCAL
342	$172,712	LOCAL
343	$427,830	LOCAL
344	$255,954	LOCAL
345	$526,020	LOCAL
346	$156,978	LOCAL
402	$821,104	LOCAL
602	$493,882	LOCAL
603	$319,514	LOCAL
604	$212,474	LOCAL
STUDIES		
PRSC Scoping Study for Wastewater	$58,000	REGIONAL
PRSC Sewer Modelling Update	$41,835	REGIONAL
PRSC WWTP Planning	$43,500	REGIONAL
Pine Water PIP Planning	$72,775	REGIONAL
Murrumba Downs Odour Study	$22,000	REGIONAL
Brendale Odour Study	$12,000	REGIONAL
	$110,251,426	

4.2.2 Future Sewerage Trunk infrastructure

Table 4.2C - Future Asset Schedule to 2013

Project ID		TOTAL 2006 PRICES	TOTAL AFTER SUBSIDY	TOTAL 2007 PRICES	2006/07		2007/08		2008/09		2009/10		2010/11		2011/12		2012/13	
	BRENDALE WWTP AUGMENTATION																	
PIPWW70093	Brendale Planning Report Stage 3 Augmentation	**$83,301**	**$49,981**	$90,000					$90,000	PIP								
PIPWW70001	VEMP -Flow Balancing	**$805,247**	**$483,148**	$870,000			$70,000	PIP	$800,000	PIP								
PIPWW70002	Duplication of Existing Outfall	**$27,767**	**$16,660**	$30,000			$30,000	PIP										
	MURRUMBA DOWNS WWTP AUGMENTATION																	
PIPWW70003		**$114,383,038**	**$114,383,038**	$123,581,000		PIP	$100,000,000	PIP	$23,581,000	PIP								
		$36,378,719	**$21,827,231**	$39,304,066					$39,304,066	L								
	BIO-SOLIDS FACILITY																	
PIPWW70004	Decommission and rehabilitation of site	**$481,297**	**$481,297**	$520,000	$70,000	R	$150,000	R	$150,000	R	$150,000	R						
	PUMPING STATIONS																	
PIPWW70005	FPS-E, Construct (113 L/s; 8,709EP)	**$740,457**	**$740,457**	$800,000	$75,000	IAPW	$725,000	IAPW										
PIPWW70006	FPS-G, Construct (80 L/s; 6,121EP)	**$523,896**	**$523,896**	$566,024	$20,000	IAPW	$546,024	IAPW										
PIPWW70007	FPS-A, Construct (146 L/s;11,196 EP)	**$1,176,734**	**$1,176,734**	$1,271,359			$200,000	IAPW	$1,071,359	IAPW								
PIPWW70008	FPS-B, Construct (177 L/s; 13,573EP)	**$1,392,873**	**$1,392,873**	$1,504,879			$704,879	IAD	$800,000	IAD								
PIPWW70009	FPS-C, Construct (148 L/s; 11,339EP)	**$1,481,381**	**$1,481,381**	$1,600,504			$200,000	IAPW	$1,400,504	IAPW								
PIPWW70010	FPS-D, Construct (81 L/s; 6,191EP)	**$555,343**	**$555,343**	$600,000					$600,000	IAD								
PIPWW70011	FPS-F, Construct (17 L/s; 1,340 EP)	**$305,112**	**$305,112**	$329,647					$329,647	IAD								
PIPWW70012	FPS-H, Construct (31 L/s; 2,371EP)	**$331,918**	**$331,918**	$358,609					$358,609	IAD								
PIPWW70013	PS108A, construct (380 L/s; 31,261EP)	**$3,336,616**	**$3,336,616**	$3,604,926			$200,000	IAPW	$1,641,926	IAPW	$1,763,000	IAPW						
PIPWW70014	PS118, Upgrade pumps for diversion of flow to FPS-A	**$18,511**	**$18,511**	$20,000			$20,000	R										
PIPWW70015	PS181, Pump Upgrade to suite new rising main	**$509,064**	**$509,064**	$550,000					$550,000	IAPW								
PIPWW70016	PS117, Bypass and Decommission	**$23,139**	**$23,139**	$25,000					$25,000	IAPW								
PIPWW70017	PS113, Bypass and Decommission	**$23,139**	**$23,139**	$25,000					$25,000	IAPW								
PIPWW70018	PS191, Bypass and Decommission	**$16,660**	**$16,660**	$18,000			$18,000	IAD										
PIPWW70096	PS205 General Upgrade	**$475,924**	**$475,924**	$514,195			$514,195											
PIPWW70097	PS203 New Pump Station	**$1,405,017**	**$1,405,017**	$1,518,000			$1,218,000		$300,000									
PIPWW70098	PS231 Upgrade Pumps	**$18,511**	**$18,511**	$20,000					$20,000									
PIPWW70099	PS204 Upgrade Pumps	**$9,256**	**$9,256**	$10,000			$10,000											
PIPWW70100	PS230 Upgrade Pumps	**$44,427**	**$44,427**	$48,000			$48,000											
PIPWW70101	PS402 Upgrade Pumps	**$46,279**	**$46,279**	$50,000														
PIPWW70102	PS602 Upgrade Pumps	**$55,534**	**$55,534**	$60,000							$60,000							
PIPWW70103	PS155 Upgrade Pumps	**$1,851**	**$1,851**	$2,000			$2,000											
PIPWW70104	PS166 Upgrade Pumps	**$18,511**	**$18,511**	$20,000			$20,000											
PIPWW70105	PS110 Upgrade Pumps	**$32,395**	**$32,395**	$35,000			$35,000											
PIPWW70106	PS165 Upgrade Pumps	**$46,279**	**$46,279**	$50,000														
PIPWW70107	PS104 Upgrade Pumps	**$55,534**	**$55,534**	$60,000					$60,000									
PIPWW70108	PS167 Upgrade Pumps	**$46,279**	**$46,279**	$50,000					$50,000									
	EMERGENCY STORAGE																	
PIPWW70019	ES - A (630 KL)	**$1,375,848**	**$1,375,848**	$1,486,485							$486,485	IAPW	$1,000,000	IAPW				
PIPWW70020	ES - B (763 KL)	**$1,666,306**	**$1,666,306**	$1,800,300							$800,300	IAD	$1,000,000	IAD				
PIPWW70021	ES - C (638 KL)	**$1,393,319**	**$1,393,319**	$1,505,361							$1,000,000	IAPW	$505,361	IAPW				
PIPWW70022	ES - D (348 KL)	**$759,992**	**$759,992**	$821,106							$821,106	IAD						
PIPWW70023	ES - F (75 KL)	**$517,522**	**$517,522**	$559,138							$59,138	IAD	$150,000	IAD				
PIPWW70024	ES - H (133 KL)	**$306,029**	**$306,029**	$330,638							$330,638	IAD						
PIPWW70025	ES - E (490 KL)	**$977,547**	**$977,547**	$1,700,400					$556,155	IAPW	$500,000	IAPW						
PIPWW70026	ES - G (344 KL)	**$762,056**	**$762,056**	$1,561,576					$311,668	IAPW	$511,668	IAPW						
PIPWW70027	PS108A (640 KL)	**$1,513,480**	**$1,513,480**	$1,635,184							$1,635,184	PIP						
PIPWW70085	PS145 Emergency Storage	**$111,069**	**$111,069**	$120,000			$40,000	PIP	$80,000	PIP								
PIPWW70086	PS153 Emergency Storage	**$444,274**	**$444,274**	$480,000			$160,000	PIP	$320,000	PIP								
PIPWW70087	PS205 Emergency Storage	**$522,846**	**$522,846**	$564,890			$540,000	PIP	$24,890	PIP								
PIPWW70088	PS220 Emergency Storage	**$300,811**	**$300,811**	$325,000			$310,000	PIP	$15,000	PIP								
PIPWW70089	PS149 Emergency Storage	**$348,949**	**$348,949**	$377,009			$362,009	PIP	$15,000	PIP								
PIPWW70090	PS241 Emergency Storage	**$343,009**	**$343,009**	$370,592			$355,592	PIP	$15,000	PIP								
PIPWW70091	PS345 Emergency Storage	**$243,841**	**$243,841**	$263,449			$248,449	PIP	$15,000	PIP								
PIPWW70092	PS-181 Emergency Storage	**$661,784**	**$661,784**	$715,000							$715,000	PIP						
	GRAVITY SEWERS																	
PIPWW70028	EOH-AA (225 mm x 225 m)	**$80,987**	**$80,987**	$87,500					$87,500	IAD								
PIPWW70029	EOH-AB (225 mm x 384 m)	**$150,868**	**$150,868**	$163,000					$163,000	IAD								
PIPWW70030	EOH-BA1 (150 mm x 1358 m)	**$403,662**	**$403,662**	$436,122					$150,000	IAD	$286,122	IAD						
PIPWW70031	EOH-BA2 (300 mm x 927 m)	**$532,204**	**$532,204**	$575,000					$300,000	IAD	$275,000	IAD						

Project ID		TOTAL 2006 PRICES	TOTAL AFTER SUBSIDY	TOTAL 2007 PRICES	2006/07		2007/08		2008/09		2009/10		2010/11		2011/12		2012/13	
PIPWW70032	EOH-BB1 (225 mm x 518 m)	**$187,428**	**$187,428**	$202,500							$202,500	IAD						
PIPWW70033	EOH-BB2 (300 mm x 560 m)	**$262,531**	**$262,531**	$283,642					$283,642	IAD								
PIPWW70034	EOH-BC (225 mm x 130 m)	**$270,038**	**$270,038**	$291,753			$291,753	IAD										
PIPWW70035	EOH-CA1 (300 mm x 194 m)	**$88,973**	**$88,973**	$96,128					$96,128	IAD								
PIPWW70036	EOH-CA2 (375 mm x 1043)	**$498,253**	**$498,253**	$538,319			$200,000	IAD	$338,319	IAD								
PIPWW70037	EOH-CB2 (300 mm x 580 m)	**$310,992**	**$310,992**	$336,000			$16,000	IAPW	$320,000	IAPW								
PIPWW70038	EOH-CC (150 mm x 897 m)	**$266,631**	**$266,631**	$288,072					$288,072	IAD								
PIPWW70039	EOH-DB1 (225 mm x 657 m)	**$240,649**	**$240,649**	$260,000					$260,000	IAD								
PIPWW70040	EOH-DB2 (300 mm x 672 m)	**$304,514**	**$304,514**	$329,001					$329,001	IAD								
PIPWW70041	EOH-DA (225 mm x 1215 m)	**$551,939**	**$551,939**	$596,322					$596,322	IAD								
PIPWW70042	EOH-EB1 (225 mm x 1410 m)	**$494,812**	**$494,812**	$534,602			$534,602	IAD										
PIPWW70043	EOH-EB2 (300 mm x 543 m)	**$340,633**	**$340,633**	$368,025			$368,025	IAD										
PIPWW70044	EOH-HA (225 mm x 509 m)	**$199,923**	**$199,923**	$216,000					$216,000	IAD								
PIPWW70045	EOH-HB (225 mm x 558 m)	**$195,819**	**$195,819**	$211,566					$211,566	IAD								
PIPWW70046	WOH-AA1 (300 mm x 500 m)	**$315,089**	**$315,089**	$340,426					$340,426	IAD								
PIPWW70047	WOH-AA2 (300 mm x 600 m)	**$231,393**	**$231,393**	$250,000			$50,000		$200,000	IAD								
PIPWW70048	WOH-AA3 (300 mm x 131 m)	**$324,413**	**$324,413**	$350,500			$50,000		$300,500	IAD								
PIPWW70049	WOH-BA (300 mm x 1190 m)	**$767,684**	**$767,684**	$829,416	$100,000	IAPW	$729,416	IAPW										
PIPWW70050	WOH-EA (300 mm x 284 m)	**$120,324**	**$120,324**	$130,000	$15,000	IAPW	$115,000	IAPW										
PIPWW70051	WOH-GA (225 mm x 527 m)	**$309,736**	**$309,736**	$334,643			$334,643	IAD										
PIPWW70052	MDN-A1 (525 mm x 1372 m)	**$857,087**	**$857,087**	$926,009			$876,009	PIP	$50,000	PIP								
PIPWW70053	MDN-A2 (525 mm x 810 m)	**$1,050,598**	**$1,050,598**	$1,135,080											$135,080	PIP	$1,000,000	PIP
PIPWW70054	MDN-A3 (750 mm x 191 m)	**$351,717**	**$351,717**	$380,000	$30,000	PIP	$350,000	PIP										
PIPWW70055	MDN-B (375 mm x 1214 m)	**$703,434**	**$703,434**	$760,000														
PIPWW70056	MDN-C (750 mm x 596 m)	**$921,598**	**$921,598**	$995,707			$100,000	PIP	$895,707	PIP								
PIPWW70057	MDN-D (225 mm x 667 m)	**$234,071**	**$234,071**	$252,893			$252,893	IAD										
PIPWW70058	MDN-F (225 mm x 418 m)	**$178,210**	**$178,210**	$192,541	$20,000	R							$172,541	PIP				
PIPWW70059	MDN-H (225 mm x 423 m)	**$196,056**	**$196,056**	$211,822			$211,822	IAD										
PIPWW70060	MDN-K1 (375 mm x 1196 m)	**$689,374**	**$689,374**	$744,809			$744,809	IAD										
PIPWW70061	MDN-K2 (300 mm x 407 m)	**$184,963**	**$184,963**	$199,837			$199,837	IAD										
PIPWW70062	MDN-L (225 mm x 280 m)	**$107,090**	**$107,090**	$115,702			$15,702	R	$100,000	R								
PIPWW70063	MDN-M (225 mm x 321 m)	**$191,005**	**$191,005**	$206,364			$22,000	R					$184,364	PIP				
PIPWW70064	MDN-N (225mm x 221 m)	**$195,210**	**$195,210**	$210,908			$10,908	R	$200,000	R								
PIPWW70065	MDN-O (225mm x 140 m), Diversion of pump station to FPS-A	**$484,999**	**$484,999**	$524,000					$524,000	IAD								
PIPWW70078	NLK-EA (300mm x 900m)	**$499,809**	**$499,809**	$540,000													$540,000	PIP
PIPWW70079	NLK-EA (375mm x 1000m)	**$601,621**	**$601,621**	$650,000									$650,000	PIP				
PIPWW70080	NLK-EA (450mm x 1100m)	**$712,690**	**$712,690**	$770,000			$770,000	PIP										
PIPWW70081	NLK-EA (600mm x 500m) (Note 1450m built, 500m remaining)	**$462,786**	**$462,786**	$500,000	$500,000	PIP												
PIPWW70082	NLK-EB (300mm x 1000m)	**$555,343**	**$555,343**	$600,000					$600,000	PIP								
PIPWW70083	NLK-ED (300mm x 1200m)	**$666,411**	**$666,411**	$720,000									$720,000	PIP				
PIPWW70084	NLK-ED (450mm x 1150m)	**$745,085**	**$745,085**	$805,000							$805,000	PIP						
PIPWW70094	MDN-P (225mm x 55m)	**$27,767**	**$27,767**	$30,000			$30,000	PIP										
PIPWW70095	BRN-C (225mm x 529m)	**$273,044**	**$273,044**	$295,000					$15,000	PIP	$280,000	PIP						
	PRESSURE MAINS																	
PIPWW70066	RMN-108A (500mm x 2200m)	**$3,740,333**	**$3,740,333**	$4,041,107			$1,400,000	IAPW	$2,641,107	IAPW								
PIPWW70067	RMN-E (250mm x 929m)	**$916,627**	**$916,627**	$990,336	$90,000	IAPW	$900,336	IAPW										
PIPWW70068	RMN-G (225mm x 1515m)	**$916,827**	**$916,827**	$990,552	$90,000	IAPW	$900,552	IAPW										
PIPWW70069	RMN-A1 (375mm x 1150m) FPS-A to Goodrich Rd	**$504,436**	**$504,436**	$545,000	$20,000	IAPW			$525,000	IAPW								
PIPWW70070	RMN-A2 (375mm x 650m) McClintock Drv to Ogg Rd	**$296,234**	**$296,234**	$320,055	$20,000	IAPW	$300,055	IAPW										
PIPWW70071	RMN-B (375mm x 1574m)	**$909,313**	**$909,313**	$982,434			$382,434	IAD	$600,000	IAD								
PIPWW70072	RMN-C2A (300mm x 630m) Barry Road to FPS-C	**$129,580**	**$129,580**	$140,000			$15,000	IAPW	$125,000	IAPW								
PIPWW70073	RMN-C2B (300mm x 1600m) PS108 to Topaz Av	**$1,001,468**	**$1,001,468**	$1,082,000			$282,000	IAPW	$800,000	IAPW								
PIPWW70074	RMN-D (225mm x 450m)	**$125,134**	**$125,134**	$135,196					$135,196	IAD								
PIPWW70075	RMN-F (150mm x 770m)	**$97,743**	**$97,743**	$105,603					$105,603	IAD								
PIPWW70076	RMN-H (150mm x 1234m)	**$120,324**	**$120,324**	$130,000					$130,000	IAD								
PIPWW70077	RMN-181 (525mm x 7350m)	**$8,330,143**	**$8,330,143**	$9,000,000			$2,000,000	IAD	$7,000,000	IAD								

Note: The Expenditure in Years is shown in dollars valid 30 June 2007. The total was then discounted back to 30 June 2006 prior to the calculation of the charges to align study with 30 June 2006 base year.

Table 4.2D - Future Asset Schedule to 2020

Project ID		TOTAL 2006 PRICES	TOTAL AFTER SUBSIDY	TOTAL 2007 PRICES	2013/14		2014/15		2015/16		2016/17		2017/18		2018/19		2019/20	
	BRENDALE WWTP AUGMENTATION																	
PIPWW70093	Brendale Planning Report Stage 3 Augmentation	**$83,301**	**$49,981**	$90,000														
PIPWW70001	VEMP -Flow Balancing	**$805,247**	**$483,148**	$870,000														
PIPWW70002	Duplication of Existing Outfall	**$27,767**	**$16,660**	$30,000														
	MURRUMBA DOWNS WWTP AUGMENTATION																	
PIPWW70003		**$114,383,038**	**$114,383,038**	$123,581,000														
		$36,378,719	**$21,827,231**	$39,304,066														
	BIO-SOLIDS FACILITY																	
PIPWW70004	Decommission and rehabilitation of site	**$481,297**	**$481,297**	$520,000														
	PUMPING STATIONS																	
PIPWW70005	FPS-E, Construct (113 L/s; 8,709EP)	**$740,457**	**$740,457**	$800,000														
PIPWW70006	FPS-G, Construct (80 L/s; 6,121EP)	**$523,896**	**$523,896**	$566,024														
PIPWW70007	FPS-A, Construct (146 L/s;11,196 EP)	**$1,176,734**	**$1,176,734**	$1,271,359														
PIPWW70008	FPS-B, Construct (177 L/s; 13,573EP)	**$1,392,873**	**$1,392,873**	$1,504,879														
PIPWW70009	FPS-C, Construct (148 L/s; 11,339EP)	**$1,481,381**	**$1,481,381**	$1,600,504														
PIPWW70010	FPS-D, Construct (81 L/s; 6,191EP)	**$555,343**	**$555,343**	$600,000														
PIPWW70011	FPS-F, Construct (17 L/s; 1,340 EP)	**$305,112**	**$305,112**	$329,647														
PIPWW70012	FPS-H, Construct (31 L/s; 2,371EP)	**$331,918**	**$331,918**	$358,609														
PIPWW70013	PS108A, construct (380 L/s; 31,261EP)	**$3,336,616**	**$3,336,616**	$3,604,926														
PIPWW70014	PS118, Upgrade pumps for diversion of flow to FPS-A	**$18,511**	**$18,511**	$20,000														
PIPWW70015	PS181, Pump Upgrade to suite new rising main	**$509,064**	**$509,064**	$550,000														
PIPWW70016	PS117, Bypass and Decommission	**$23,139**	**$23,139**	$25,000														
PIPWW70017	PS113, Bypass and Decommission	**$23,139**	**$23,139**	$25,000														
PIPWW70018	PS191, Bypass and Decommission	**$16,660**	**$16,660**	$18,000														
PIPWW70096	PS205 General Upgrade	**$475,924**	**$475,924**	$514,195														
PIPWW70097	PS203 New Pump Station	**$1,405,017**	**$1,405,017**	$1,518,000														
PIPWW70098	PS231 Upgrade Pumps	**$18,511**	**$18,511**	$20,000														
PIPWW70099	PS204 Upgrade Pumps	**$9,256**	**$9,256**	$10,000														
PIPWW70100	PS230 Upgrade Pumps	**$44,427**	**$44,427**	$48,000														
PIPWW70101	PS402 Upgrade Pumps	**$46,279**	**$46,279**	$50,000									$50,000					
PIPWW70102	PS602 Upgrade Pumps	**$55,534**	**$55,534**	$60,000														
PIPWW70103	PS155 Upgrade Pumps	**$1,851**	**$1,851**	$2,000														
PIPWW70104	PS166 Upgrade Pumps	**$18,511**	**$18,511**	$20,000														
PIPWW70105	PS110 Upgrade Pumps	**$32,395**	**$32,395**	$35,000														
PIPWW70106	PS165 Upgrade Pumps	**$46,279**	**$46,279**	$50,000							$50,000							
PIPWW70107	PS104 Upgrade Pumps	**$55,534**	**$55,534**	$60,000														
PIPWW70108	PS167 Upgrade Pumps	**$46,279**	**$46,279**	$50,000														
	EMERGENCY STORAGE																	
PIPWW70019	ES - A (630 KL)	**$1,375,848**	**$1,375,848**	$1,486,485														
PIPWW70020	ES - B (763 KL)	**$1,666,306**	**$1,666,306**	$1,800,300														
PIPWW70021	ES - C (638 KL)	**$1,393,319**	**$1,393,319**	$1,505,361														
PIPWW70022	ES - D (348 KL)	**$759,992**	**$759,992**	$821,106														
PIPWW70023	ES - F (75 KL)	**$517,522**	**$517,522**	$559,138														
PIPWW70024	ES - H (133 KL)	**$306,029**	**$306,029**	$330,638														
PIPWW70025	ES - E (490 KL)	**$977,547**	**$977,547**	$1,700,400														
PIPWW70026	ES - G (344 KL)	**$762,056**	**$762,056**	$1,561,576														
PIPWW70027	PS108A (640 KL)	**$1,513,480**	**$1,513,480**	$1,635,184														
PIPWW70085	PS145 Emergency Storage	**$111,069**	**$111,069**	$120,000														
PIPWW70086	PS153 Emergency Storage	**$444,274**	**$444,274**	$480,000														
PIPWW70087	PS205 Emergency Storage	**$522,846**	**$522,846**	$564,890														
PIPWW70088	PS220 Emergency Storage	**$300,811**	**$300,811**	$325,000														
PIPWW70089	PS149 Emergency Storage	**$348,949**	**$348,949**	$377,009														
PIPWW70090	PS241 Emergency Storage	**$343,009**	**$343,009**	$370,592														
PIPWW70091	PS345 Emergency Storage	**$243,841**	**$243,841**	$263,449														
PIPWW70092	PS-181 Emergency Storage	**$661,784**	**$661,784**	$715,000														
	GRAVITY SEWERS																	
PIPWW70028	EOH-AA (225 mm x 225 m)	**$80,987**	**$80,987**	$87,500														
PIPWW70029	EOH-AB (225 mm x 384 m)	**$150,868**	**$150,868**	$163,000														
PIPWW70030	EOH-BA1 (150 mm x 1358 m)	**$403,662**	**$403,662**	$436,122														
PIPWW70031	EOH-BA2 (300 mm x 927 m)	**$532,204**	**$532,204**	$575,000														
PIPWW70032	EOH-BB1 (225 mm x 518 m)	**$187,428**	**$187,428**	$202,500														
PIPWW70033	EOH-BB2 (300 mm x 560 m)	**$262,531**	**$262,531**	$283,642														
PIPWW70034	EOH-BC (225 mm x 130 m)	**$270,038**	**$270,038**	$291,753														
PIPWW70035	EOH-CA1 (300 mm x 194 m)	**$88,973**	**$88,973**	$96,128														
PIPWW70036	EOH-CA2 (375 mm x 1043)	**$498,253**	**$498,253**	$538,319														
PIPWW70037	EOH-CB2 (300 mm x 580 m)	**$310,992**	**$310,992**	$336,000														

Project ID		TOTAL 2006 PRICES	TOTAL AFTER SUBSIDY	TOTAL 2007 PRICES	2013/14		2014/15		2015/16		2016/17		2017/18		2018/19		2019/20	
PIPWW70038	EOH-CC (150 mm x 897 m)	**$266,631**	**$266,631**	$288,072														
PIPWW70039	EOH-DB1 (225 mm x 657 m)	**$240,649**	**$240,649**	$260,000														
PIPWW70040	EOH-DB2 (300 mm x 672 m)	**$304,514**	**$304,514**	$329,001														
PIPWW70041	EOH-DA (225 mm x 1215 m)	**$551,939**	**$551,939**	$596,322														
PIPWW70042	EOH-EB1 (225 mm x 1410 m)	**$494,812**	**$494,812**	$534,602														
PIPWW70043	EOH-EB2 (300 mm x 543 m)	**$340,633**	**$340,633**	$368,025														
PIPWW70044	EOH-HA (225 mm x 509 m)	**$199,923**	**$199,923**	$216,000														
PIPWW70045	EOH-HB (225 mm x 558 m)	**$195,819**	**$195,819**	$211,566														
PIPWW70046	WOH-AA1 (300 mm x 500 m)	**$315,089**	**$315,089**	$340,426														
PIPWW70047	WOH-AA2 (300 mm x 600 m)	**$231,393**	**$231,393**	$250,000														
PIPWW70048	WOH-AA3 (300 mm x 131 m)	**$324,413**	**$324,413**	$350,500														
PIPWW70049	WOH-BA (300 mm x 1190 m)	**$767,684**	**$767,684**	$829,416														
PIPWW70050	WOH-EA (300 mm x 284 m)	**$120,324**	**$120,324**	$130,000														
PIPWW70051	WOH-GA (225 mm x 527 m)	**$309,736**	**$309,736**	$334,643														
PIPWW70052	MDN-A1 (525 mm x 1372 m)	**$857,087**	**$857,087**	$926,009														
PIPWW70053	MDN-A2 (525 mm x 810 m)	**$1,050,598**	**$1,050,598**	$1,135,080														
PIPWW70054	MDN-A3 (750 mm x 191 m)	**$351,717**	**$351,717**	$380,000														
PIPWW70055	MDN-B (375 mm x 1214 m)	**$703,434**	**$703,434**	$760,000											$60,000	PIP	$700,000	PIP
PIPWW70056	MDN-C (750 mm x 596 m)	**$921,598**	**$921,598**	$995,707														
PIPWW70057	MDN-D (225 mm x 667 m)	**$234,071**	**$234,071**	$252,893														
PIPWW70058	MDN-F (225 mm x 418 m)	**$178,210**	**$178,210**	$192,541														
PIPWW70059	MDN-H (225 mm x 423 m)	**$196,056**	**$196,056**	$211,822														
PIPWW70060	MDN-K1 (375 mm x 1196 m)	**$689,374**	**$689,374**	$744,809														
PIPWW70061	MDN-K2 (300 mm x 407 m)	**$184,963**	**$184,963**	$199,837														
PIPWW70062	MDN-L (225 mm x 280 m)	**$107,090**	**$107,090**	$115,702														
PIPWW70063	MDN-M (225 mm x 321 m)	**$191,005**	**$191,005**	$206,364														
PIPWW70064	MDN-N (225mm x 221 m)	**$195,210**	**$195,210**	$210,908														
PIPWW70065	MDN-O (225mm x 140 m), Diversion of pump station to FPS-A	**$484,999**	**$484,999**	$524,000														
PIPWW70078	NLK-EA (300mm x 900m)	**$499,809**	**$499,809**	$540,000														
PIPWW70079	NLK-EA (375mm x 1000m)	**$601,621**	**$601,621**	$650,000														
PIPWW70080	NLK-EA (450mm x 1100m)	**$712,690**	**$712,690**	$770,000														
PIPWW70081	NLK-EA (600mm x 500m) (Note 1450m built, 500m remaining)	**$462,786**	**$462,786**	$500,000														
PIPWW70082	NLK-EB (300mm x 1000m)	**$555,343**	**$555,343**	$600,000														
PIPWW70083	NLK-ED (300mm x 1200m)	**$666,411**	**$666,411**	$720,000														
PIPWW70084	NLK-ED (450mm x 1150m)	**$745,085**	**$745,085**	$805,000														
PIPWW70094	MDN-P (225mm x 55m)	**$27,767**	**$27,767**	$30,000														
PIPWW70095	BRN-C (225mm x 529m)	**$273,044**	**$273,044**	$295,000														
	PRESSURE MAINS																	
PIPWW70066	RMN-108A (500mm x 2200m)	**$3,740,333**	**$3,740,333**	$4,041,107														
PIPWW70067	RMN-E (250mm x 929m)	**$916,627**	**$916,627**	$990,336														
PIPWW70068	RMN-G (225mm x 1515m)	**$916,827**	**$916,827**	$990,552														
PIPWW70069	RMN-A1 (375mm x 1150m) FPS-A to Goodrich Rd	**$504,436**	**$504,436**	$545,000														
PIPWW70070	RMN-A2 (375mm x 650m) McClintock Drv to Ogg Rd	**$296,234**	**$296,234**	$320,055														
PIPWW70071	RMN-B (375mm x 1574m)	**$909,313**	**$909,313**	$982,434														
PIPWW70072	RMN-C2A (300mm x 630m) Barry Road to FPS-C	**$129,580**	**$129,580**	$140,000														
PIPWW70073	RMN-C2B (300mm x 1600m) PS108 to Topaz Av	**$1,001,468**	**$1,001,468**	$1,082,000														
PIPWW70074	RMN-D (225mm x 450m)	**$125,134**	**$125,134**	$135,196														
PIPWW70075	RMN-F (150mm x 770m)	**$97,743**	**$97,743**	$105,603														
PIPWW70076	RMN-H (150mm x 1234m)	**$120,324**	**$120,324**	$130,000														
PIPWW70077	RMN-181 (525mm x 7350m)	**$8,330,143**	**$8,330,143**	$9,000,000														

Note: The Expenditure in Years is shown in dollars valid 30 June 2007. The total was then discounted back to 30 June 2006 prior to the calculation of the charges to align study with 30 June 2006 base year.

Table 4.2E - Asset Costs allocated to Service Catchments

	NLK (North Lakes)	MNA (Murrumba Downs Nth A)	MNB (Murrumba Downs Nth B)	MNC (Murrumba Downs Nth C)	MSA (Murrumba Downs Sth A)	MSB (Murrumba Downs Sth B)	MSC (Murrumba Downs Sth C)	SEW-01 (New Area 1)	SEW-02 (New Area 2)	SEW-03 (New Area 3)	SEW-04 (New Area 4)	SEW-05 (New Area 5)	SEW-06 (New Area 6)	SEW-07 (New Area 7)
TOTAL COSTS:														
LOCAL SERVICE CATCHMENT-ACTIVE-EXISTING(June 2006)	$4,887,693	$119,820	$6,041,787	$2,662,908	$4,956,755	$2,662,908	$4,783,815	$0	$914,892	$0	$103,293	$127,959	$262,033	$252,089
LOCAL SERVICE CATCHMENT-PASSIVE-EXISTING(June 2006)	$4,890,792	$958,098	$8,899,632	$293,320	$4,811,032	$9,325,428	$9,660,438	$0	$510,238	$354,011	$62,543	$214,477	$0	$120,879
LOCAL SERVICE CATCHMENT-FUTURE (June 2006)	$12,725,440	$0	$7,400,476	$739,742	$0	$1,033,499	$985,406	$5,263,756	$6,726,800	$9,969,081	$1,080,651	$5,708,064	$5,552,789	$373,386
LOCAL SERVICE CATCHMENT-TOTAL (June 2006)	**$22,503,925**	**$1,077,918**	**$22,341,895**	**$3,695,970**	**$9,767,787**	**$13,021,835**	**$15,429,659**	**$5,263,756**	**$8,151,931**	**$10,323,092**	**$1,246,487**	**$6,050,499**	**$5,814,822**	**$746,353**
REGIONAL CATCHMENT-ACTIVE-EXISTING (June 2006)	$4,599,243	$1,499,371	$5,382,305	$1,005,777	$2,258,965	$3,982,548	$4,615,598	$2,060,336	$2,174,713	$1,692,371	$686,148	$849,994	$622,857	$385,566
REGIONAL CATCHMENT-PASSIVE-EXISTING (June 2006)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
REGIONAL CATCHMENT-FUTURE (June 2006)	$69,787	$1,768,622	$6,348,840	$1,186,391	$2,664,622	$4,697,720	$5,444,450	$31,152	$32,881	$25,588	$10,374	$12,852	$9,417	$5,830
REGIONAL CATCHMENT-TOTAL (June 2006)	**$4,669,030**	**$3,267,993**	**$11,731,145**	**$2,192,169**	**$4,923,587**	**$8,680,268**	**$10,060,048**	**$2,091,488**	**$2,207,594**	**$1,717,959**	**$696,522**	**$862,846**	**$632,274**	**$391,395**
TOTAL SERVICE CATCHMENT (June 2006)	**$27,172,955**	**$4,345,911**	**$34,073,041**	**$5,888,139**	**$14,691,374**	**$21,702,103**	**$25,489,707**	**$7,355,244**	**$10,359,525**	**$12,041,051**	**$1,943,009**	**$6,913,345**	**$6,447,096**	**$1,137,749**
ULTIMATE EP's	26,730	8,714	31,281	5,845	13,129	23,146	26,825	11,974	12,639	9,836	3,988	4,940	3,620	2,241
CHARGES														
LOCAL SERVICE CATCHMENT-ACTIVE-EXISTING(June 2006)	$183	$14	$193	$456	$378	$115	$178	$0	$72	$0	$26	$26	$72	$112
LOCAL SERVICE CATCHMENT-PASSIVE-EXISTING(June 2006)	$183	$110	$285	$50	$366	$403	$360	$0	$40	$36	$16	$43	$0	$54
LOCAL SERVICE CATCHMENT-FUTURE (June 2006)	$476	$0	$237	$127	$0	$45	$37	$440	$532	$1,014	$271	$1,155	$1,534	$167
LOCAL SERVICE CATCHMENT-TOTAL (June 2006)	**$842**	**$124**	**$714**	**$632**	**$744**	**$563**	**$575**	**$440**	**$645**	**$1,050**	**$313**	**$1,225**	**$1,606**	**$333**
REGIONAL CATCHMENT-ACTIVE-EXISTING (June 2006)	$172	$172	$172	$172	$172	$172	$172	$172	$172	$172	$172	$172	$172	$172
REGIONAL CATCHMENT-PASSIVE-EXISTING (June 2006)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
REGIONAL CATCHMENT-FUTURE (June 2006)	$3	$203	$203	$203	$203	$203	$203	$3	$3	$3	$3	$3	$3	$3
REGIONAL CATCHMENT-TOTAL (June 2006)	**$175**	**$375**	**$375**	**$375**	**$375**	**$375**	**$375**	**$175**	**$175**	**$175**	**$175**	**$175**	**$175**	**$175**
85,000EP CAPACITY INCREASE TO MURRUMBA DOWNS WWTP	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346	$1,346
TOTAL SERVICE CATCHMENT (June 2006)	**$2,362**	**$1,844**	**$2,435**	**$2,353**	**$2,465**	**$2,283**	**$2,296**	**$1,960**	**$2,165**	**$2,570**	**$1,833**	**$2,745**	**$3,127**	**$1,853**

Table 4.2F - Asset Costs allocated to Service Catchments

	BRA (Brendale A)	BRB (Brendale B)	CTC (Cabbage Tree Creek)	DAY (Dayboro)	KBR (Kedron Brook)	SAM (Samford)
TOTAL COSTS:						
LOCAL SERVICE CATCHMENT-ACTIVE-EXISTING(June 2006)	$4,810,152	$2,051,033	$5,182,993	$821,104	$2,955,470	$1,214,546
LOCAL SERVICE CATCHMENT-PASSIVE-EXISTING(June 2006)	$7,718,218	$1,500,988	$3,693,606	$932,417	$1,348,844	$1,300,472
LOCAL SERVICE CATCHMENT-FUTURE (June 2006)	$3,281,603	$335,982	$165,630	$46,279	$243,841	$14,113
LOCAL SERVICE CATCHMENT-TOTAL (June 2006)	**$15,809,973**	**$3,888,003**	**$9,042,229**	**$1,799,800**	**$4,548,155**	**$2,529,132**
REGIONAL CATCHMENT-ACTIVE-EXISTING (June 2006)	$10,602,843	$5,637,311	$5,925,078	$5,594,291	$10,312	$505,234
REGIONAL CATCHMENT-PASSIVE-EXISTING (June 2006)	$0	$0	$0	$0	$0	$0
REGIONAL CATCHMENT-FUTURE (June 2006)	$187,669	$99,780	$104,948	$0	$98,469	$8,943
REGIONAL CATCHMENT-TOTAL (June 2006)	**$10,790,512**	**$5,737,090**	**$6,030,027**	**$5,594,291**	**$108,781**	**$514,177**
TOTAL SERVICE CATCHMENT (June 2006)	**$26,600,485**	**$9,625,094**	**$15,072,256**	**$7,394,091**	**$4,656,936**	**$3,043,309**
ULTIMATE EP's	22,387	11,903	12,520	1,646	11,747	1,067
CHARGES						
LOCAL SERVICE CATCHMENT-ACTIVE-EXISTING(June 2006)	$215	$172	$414	$499	$252	$1,139
LOCAL SERVICE CATCHMENT-PASSIVE-EXISTING(June 2006)	$345	$126	$295	$566	$115	$1,219
LOCAL SERVICE CATCHMENT-FUTURE (June 2006)	$147	$28	$13	$28	$21	$13
LOCAL SERVICE CATCHMENT-TOTAL (June 2006)	**$706**	**$327**	**$722**	**$1,093**	**$387**	**$2,371**
REGIONAL CATCHMENT-ACTIVE-EXISTING (June 2006)	$474	$474	$473	$3,399	$1	$474
REGIONAL CATCHMENT-PASSIVE-EXISTING (June 2006)	$0	$0	$0	$0	$0	$0
REGIONAL CATCHMENT-FUTURE (June 2006)	$8	$8	$8	$0	$8	$8
REGIONAL CATCHMENT-TOTAL (June 2006)	**$482**	**$482**	**$482**	**$3,399**	**$9**	**$482**
85,000EP CAPACITY INCREASE TO MURRUMBA DOWNS WWTP	$0	$0	$0	$0	$0	$0
TOTAL SERVICE CATCHMENT (June 2006)	**$1,188**	**$809**	**$1,204**	**$4,492**	**$396**	**$2,853**

Schedule A: Demand Factors

Table A – Demand Factors for Sewerage Infrastructure Contributions

		DEMAND FACTOR	COMMENT
	DEMAND FACTORS FOR MCUS - *PineRiversPlan* Landuse		
1	Accommodation Units		Refer Motel
2	Adult Product Shop		Refer Shop
3	Agriculture		Assess Impact on Application
4	Airstrip		Assess Impact on Application
5	Animal Accommodation		Assess Impact on Application
6	Aquaculture		Assess Impact on Application
7	Associated Unit	2.07 EPS/du	
8	Bed and Breakfast Accommodation		Assess Impact on Application
9	Bulk Garden Supplies	15 EPS/ha	
10	Camping Grounds		Assess Impact on Application
11	Car Depot	0	Assess Impact on Application
12	Car Park	0	Assess Impact on Application
13	Caravan/Transportable Home Park	75 EP/ha	1.5 EPW
14	Caretaker's Residence	2.9 EPS/du	Refer Detached House
15	Cattery		Assess Impact on Application
16	Cemetery	3.5 EPS/ha	
17	Child Care Centre	0.15 EPS/licensed child & staff	1.5 EPW
18	Commercial Services		Assess Impact on Application
	Video Store		Assess Impact on Application
19	Community Facilities		Assess Impact on Application
20	Concrete Batching Plant		Assess Impact on Application
21	Contractor's Depot	7.5 EPS/ha	1.5 EPW
22	Crematorium		Assess Impact on Application
23	Dairy		Assess Impact on Application
24	Detached House	2.9 EPS/du	
25	Display Home	2.9 EPS/du	
26	Domestic Storage	3 EPS/Conn	
27	Duplex Dwelling	5.8 EPS / Duplex	
28	Educational Establishment	0.225 EPS/ student and staff at planned capacity	Includes Kindergarten, 1.5 EPW
29	Environmental Park	N/A	
30	Estate Sales Office		Refer Office
31	Extractive Industry		Assess Impact on Application
32	Farm Forestry		Assess Impact on Application
33	Fast Food Delivery Service		Assess Impact on Application
34	Food Outlet - Restaurant	0.06 EPS / m2GFA	1.5 EPW
	Drive Through	0.075 EPS / m2GFA	1.5 EPW
35	Funeral Parlour		Assess Impact on Application
36	General Industry		Assess Impact on Application
37	Hardware Shop	0.045 EPS / m2GFA	1.5 EPW
38	Hazardous and Offensive Industry		Assess Impact on Application
	Oil Depot & Refinery	7.5 EPS/ha	1.5 EPW
39	High Density Multiple Dwelling Units (0.8 floor area ratio)	2.07 EPS/du	
40	Home Business		Assess Impact on Application
41	Hospital	0.075 EPS / m2GFA	1.5 EPW
42	Hotel	0.06 EPS / m2GFA	1.5 EPW
43	Indoor Entertainment and Sport		Assess Impact on Application
	Squash Courts		Assess Impact on Application

		DEMAND FACTOR	COMMENT
	DEMAND FACTORS FOR MCUS - *PineRiversPlan* Landuse		
	Tennis Courts		Assess Impact on Application
	Gymnasiums & Other		Assess Impact on Application
44	Infill Housing	2.9 EPS/du	
45	Institution		Assess Impact on Application
46	Intensive Animal Husbandry		Assess Impact on Application
47	Kennels		Assess Impact on Application
48	Local Utilities	N/A	
49	Low Density Multiple Dwelling Units	2.9 EPS/du	
50	Major Telecommunication Facility		Assess Impact on Application
51	Market		Assess Impact on Application
52	Medium Density Multiple Dwelling Units (0.5 floor area ratio)	2.07 EPS/du	
53	Motel		Assess Impact on Application
54	Motor Sport		Assess Impact on Application
55	Night Club		Refer Restaurant
56	Non-Intensive Animal Husbandry		Assess Impact on Application
57	Office	0.0225 EPS / m2GFA	1.5 EPW
	Bank	0.0225 EPS / m2GFA	1.5 EPW
	Doctor / Dentist Surgery	0.035 EPS / m2GFA	1.5 EPW
	Medical Centre	0.0375 EPS / m2GFA	1.5 EPW
58	Outdoor Recreation		Assess Impact on Application
	Sports Club / Facilities	15 EPS/ha	1.5 EPW
	Sportsground and Racecourse	7.5 EPS/ha	1.5 EPW
	Tennis Courts		Assess Impact on Application
59	Outdoor Sales		Assess Impact on Application
	Car Yards / Motor Show Rooms		Assess Impact on Application
60	Park	N/A	
61	Passenger Terminal		Assess Impact on Application
62	Pensioner Units	1.65 EPS/du	
63	Place of Worship		Assess Impact on Application
64	Public Utilities		Assess Impact on Application
65	Radio Station		Refer Office
66	Recycling Depot	N/A	
67	Retail Nursery		Assess Impact on Application
68	Retirement Village		Assess Impact on Application
69	Road Purposes	N/A	
70	Rural Industry		Assess Impact on Application
71	Salvage Yard		Assess Impact on Application
72	Service Industry		Assess Impact on Application
73	Service Station	0.035 EPS / m2GFA	1.5 EPW
74	Shooting		Assess Impact on Application
75	Shop		
a	Standalone Retail Shop / Convenience Store	0.035 EPS / m2GFA	1.5 EPW
b	Local Shopping Centre (Convenience Shopping Centre)	0.035 EPS / m2GFA	1.5 EPW
c	Central Business Shopping Centre (incl Supermarket)	0.035 EPS / m2GFA	1.5 EPW
d	Major Shopping Centre	0.035 EPS / m2GFA	1.5 EPW
76	Showroom	0.015 EPS / m2GFA	1.5 EPW
	Fruit and Vegetable store >300m2	0.0375 EPS / m2GFA	1.5 EPW
77	Simulated Conflict		Assess Impact on Application
78	Special Use		Assess Impact on Application
79	Stock Sales Yard		Assess Impact on Application

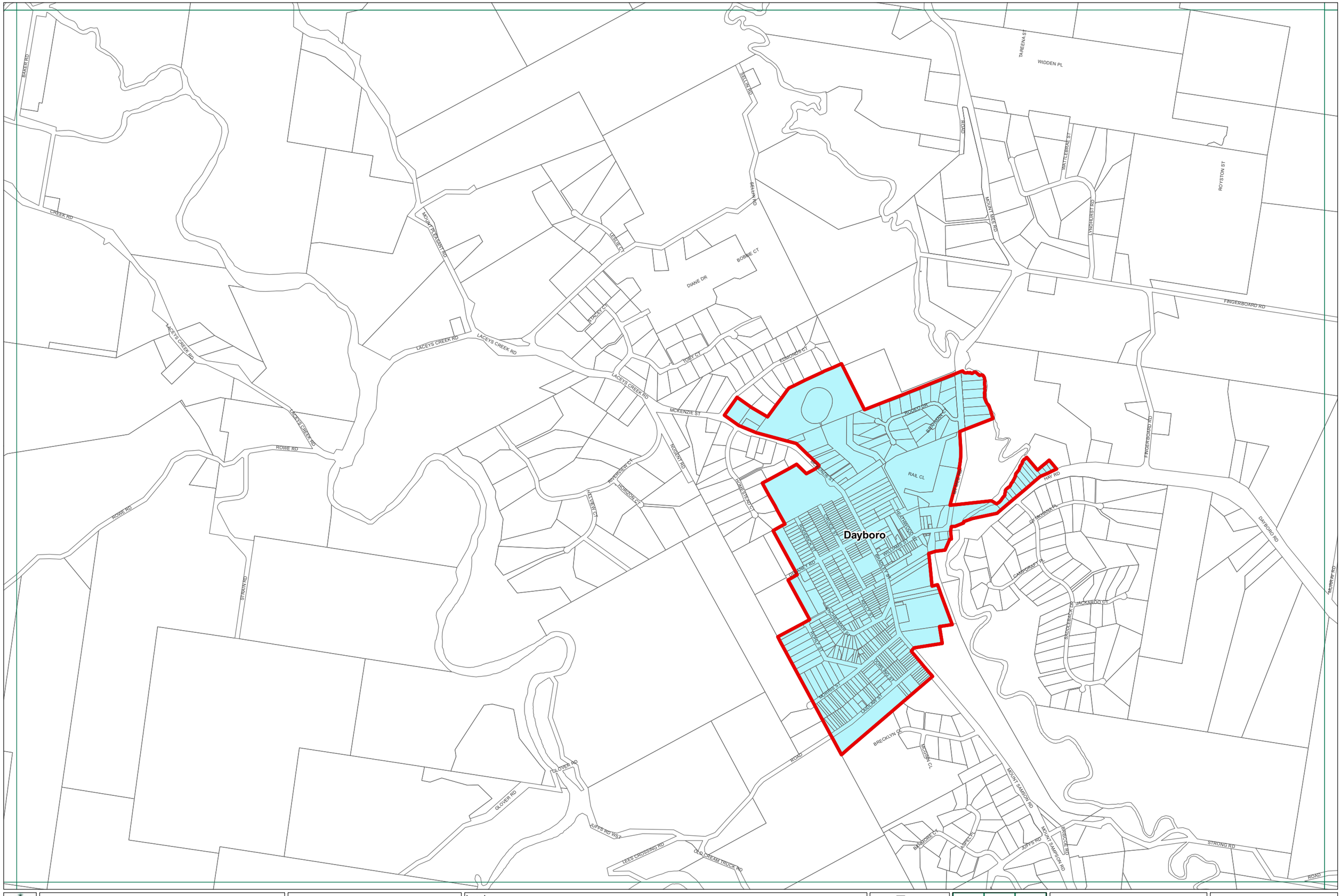
		DEMAND FACTOR	COMMENT
	DEMAND FACTORS FOR MCUS - *PineRiversPlan* Landuse		
80	Tourist Cabins		Refer Accommodation Units
81	Vehicle Sales	15 EPS/ha	1.5 EPW
82	Veterinary Clinic	0.0375 EPS / m2GFA	1.5 EPW
83	Veterinary Hospital	0.0375 EPS / m2GFA	
84	Warehouse	15 EPS/ha	1.5 EPW
	DEMAND FACTOR FOR RALS		
	Residential A & Future Urban		
	Lot Size >1200m2 - per lot - can accommodate Duplex	5.8 EPS/lot	15 du/ha developable area
	Lot Size < 1200m2 - to accommodate Associated Unit	4.97 EPS/lot	15 du/ha developable area
	Lot Size < 1200m2 - single dwelling	2.9 EPS/lot	15 du/ha developable area
	Residential B & Future Urban		
	Residential B <600m2	5.8 EPS/lot	35 du/ha developable area
	Residential B lots >600m2	152.25 EPS/ha developable area	35 du/ha developable area
	Special Residential Urban (1250m2)	4.97 EPS/lot	6 du/ha developable area
	Special Residential Non-Urban	4.97 EPS/lot	1.25 du/ha developable area
	Park Residential	N/A	N/A
	Rural Residential	N/A	N/A
	Future Urban		Refer Residential A & B
	Central Business	45 EPS/ha site area	Sewerage Planning Assumptions
	Commercial	45 EPS/ha site area	Sewerage Planning Assumptions
	Local Business	45 EPS/ha site area	Sewerage Planning Assumptions
	Neighbourhood Facilities	45 EPS/ha site area	Sewerage Planning Assumptions
	Urban Village	45 EPS/ha site area	Sewerage Planning Assumptions
	Village Centre	45 EPS/ha site area	Sewerage Planning Assumptions
	Home Industry	15 EPS/ha site area	Sewerage Planning Assumptions
	Service Industry	22.5 EPS/ha site area	Sewerage Planning Assumptions
	General Industry	22.5 EPS/ha site area	Sewerage Planning Assumptions
	Extractive Industry	45 EPS/ha site area	Sewerage Planning Assumptions
	Rural (Coast & Riverlands Locality)	30 EPS/ha site area	Sewerage Planning Assumptions
	Rural (Urban, Major Employment Centre, Catchment, Rural Living, Village, Mt Summit and Forest Localities)	N/A	N/A
	Conservation	N/A	N/A
	Park & Open Space	N/A	N/A
	Sports & Recreation	0 EPS/ha site area	Sewerage Planning Assumptions
	Special Purposes	15 EPS/ha site area	Sewerage Planning Assumptions

Schedule B: Infrastructure Contribution Rates

Table B – Sewerage Infrastructure Contribution Rates

REGIONAL CATCHMENT	LOCAL SERVICE CATCHMENT		LOCAL SERVICE CATCHMENT ($/EP)	REGIONAL CATCHMENT ($/EP)	TOTAL SERVICE CATCHMENT ($/EP)
DAYBORO STP	DAY (Dayboro)	DAY	**$1,093**	**$3,399**	**$4,492**
BRENDALE STP	BRA (Brendale A)	BRA	**$706**	**$482**	**$1,188**
	BRB (Brendale B)	BRB	**$327**	**$482**	**$809**
	CTC (Cabbage Tree Creek)	CTC	**$722**	**$482**	**$1,204**
	SAM (Samford)	SAM	**$2,371**	**$482**	**$2,853**
KEDRON BROOK	KBR (Kedron Brook)	KBR	**$387**	**$9**	**$396**
MURRUMBA DOWNS STP	NLK (North Lakes)	NLK	**$841**	**$1,521**	**$2,362**
	MNA (Murrumba Downs Nth A)	MNA	**$124**	**$1,721**	**$1,845**
	MNB (Murrumba Downs Nth B)	MNB	**$714**	**$1,721**	**$2,435**
	MNC (Murrumba Downs Nth C)	MNC	**$632**	**$1,721**	**$2,353**
	MSA (Murrumba Downs Sth A)	MSA	**$744**	**$1,721**	**$2,465**
	MSB (Murrumba Downs Sth B)	MSB	**$563**	**$1,721**	**$2,284**
	MSC (Murrumba Downs Sth C)	MSC	**$575**	**$1,721**	**$2,296**
	SEW-01 (New Area 1)	SEW01	**$440**	**$1,521**	**$1,960**
	SEW-02 (New Area 2)	SEW02	**$645**	**$1,521**	**$2,166**
	SEW-03 (New Area 3)	SEW03	**$1,050**	**$1,521**	**$2,570**
	SEW-04 (New Area 4)	SEW04	**$313**	**$1,521**	**$1,833**
	SEW-05 (New Area 5)	SEW05	**$1,225**	**$1,521**	**$2,745**
	SEW-06 (New Area 6)	SEW06	**$1,606**	**$1,521**	**$3,127**
	SEW-07 (New Area 7)	SEW07	**$333**	**$1,521**	**$1,854**

Schedule C: Service Catchments



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Metres

While every care is taken to ensure the accuracy of this data, Pine Rivers Shire Council and the Department of Natural Resources and Mines make no representations about its accuracy, reliability, completeness, or suitability for any particular purpose and disclaims all responsibility and all liability (including without limitation, liability in negligence) for all expenses, losses, damages (including indirect or consequential damage) and costs which might be incurred as a result of the data being inaccurate or incomplete in any way and for any reason

Legend

REGIONAL CATCHMENTS
Brendale
Dayboro
Kedron Brook
Murrumba Downs
Murrumba NGC
North Lakes

PIP.LocalSewerageCatchments
Brendale A
Brendale B
Cabbage Tree Creek
Dayboro
Kedron Brook
Mango Hill
Murrumba Downs Nth A
Murrumba Downs Nth B
Murrumba Downs Nth C
Murrumba Downs Sth A
Murrumba Downs Sth B
Murrumba Downs Sth C
North Lakes
SEW-01
SEW-02
SEW-03
SEW-04
SEW-05
SEW-06
SEW-07
Samford

5.3	5.5	5.7
7.3	7.5	7.7
9.3	9.5	9.7

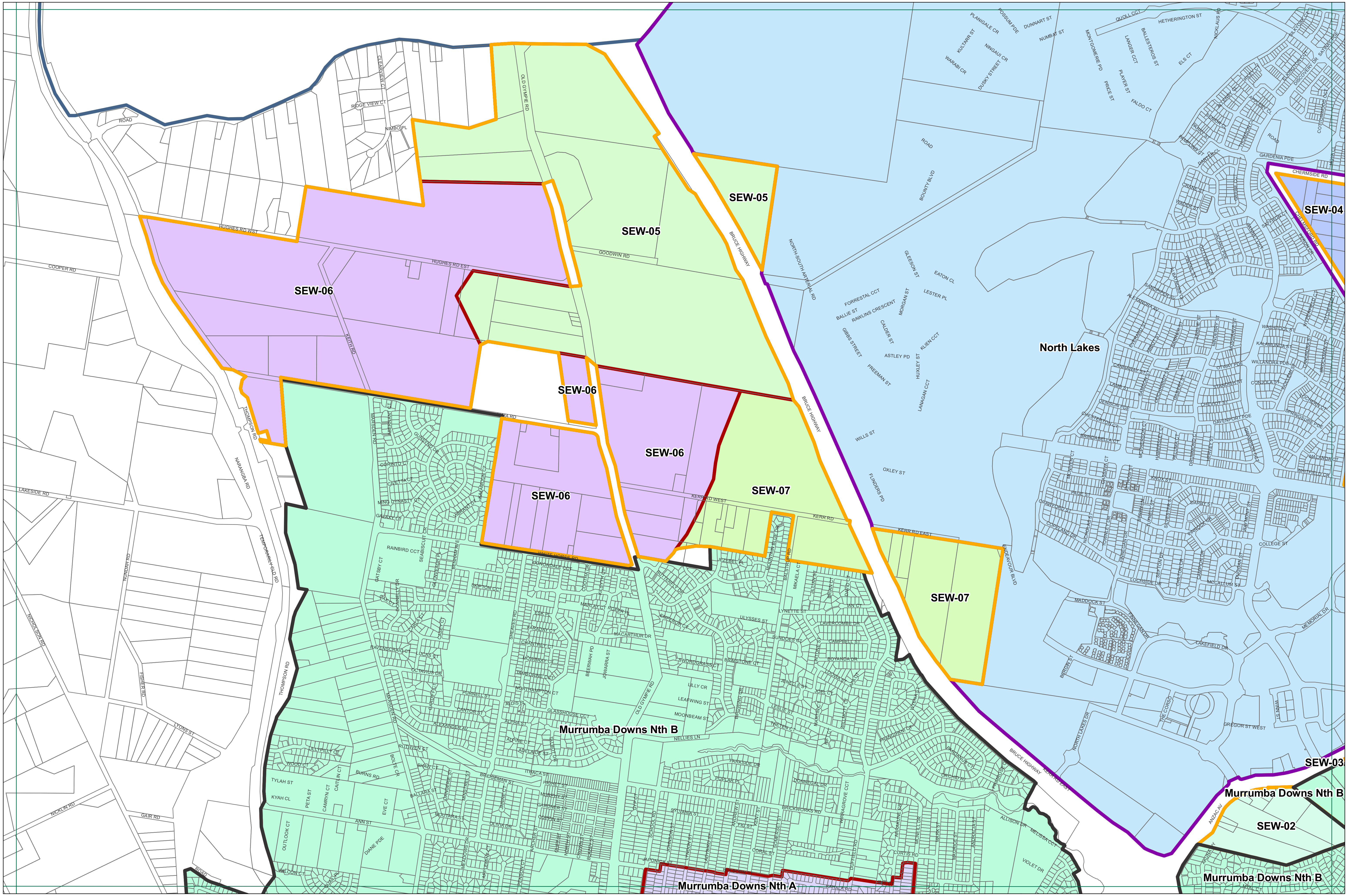
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 7.5



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Metres		

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Legend

REGIONAL CATCHMENTS	PIP.LocalSewerageCatchments				
Brendale	Brendale A	Kedron Brook	Murrumba Downs Sth A	SEW-02	SEW-07
Dayboro	Brendale B	Mango Hill	Murrumba Downs Sth B	SEW-03	Samford
Kedron Brook	Cabbage Tree Creek	Murrumba Downs Nth A	Murrumba Downs Sth C	SEW-04	
Murrumba Downs	Dayboro	Murrumba Downs Nth B	North Lakes	SEW-05	
Murrumba NGC		Murrumba Downs Nth C	SEW-01	SEW-06	
North Lakes					

7.9	7.11	7.13
9.9	9.11	9.13
11.9	11.11	11.13

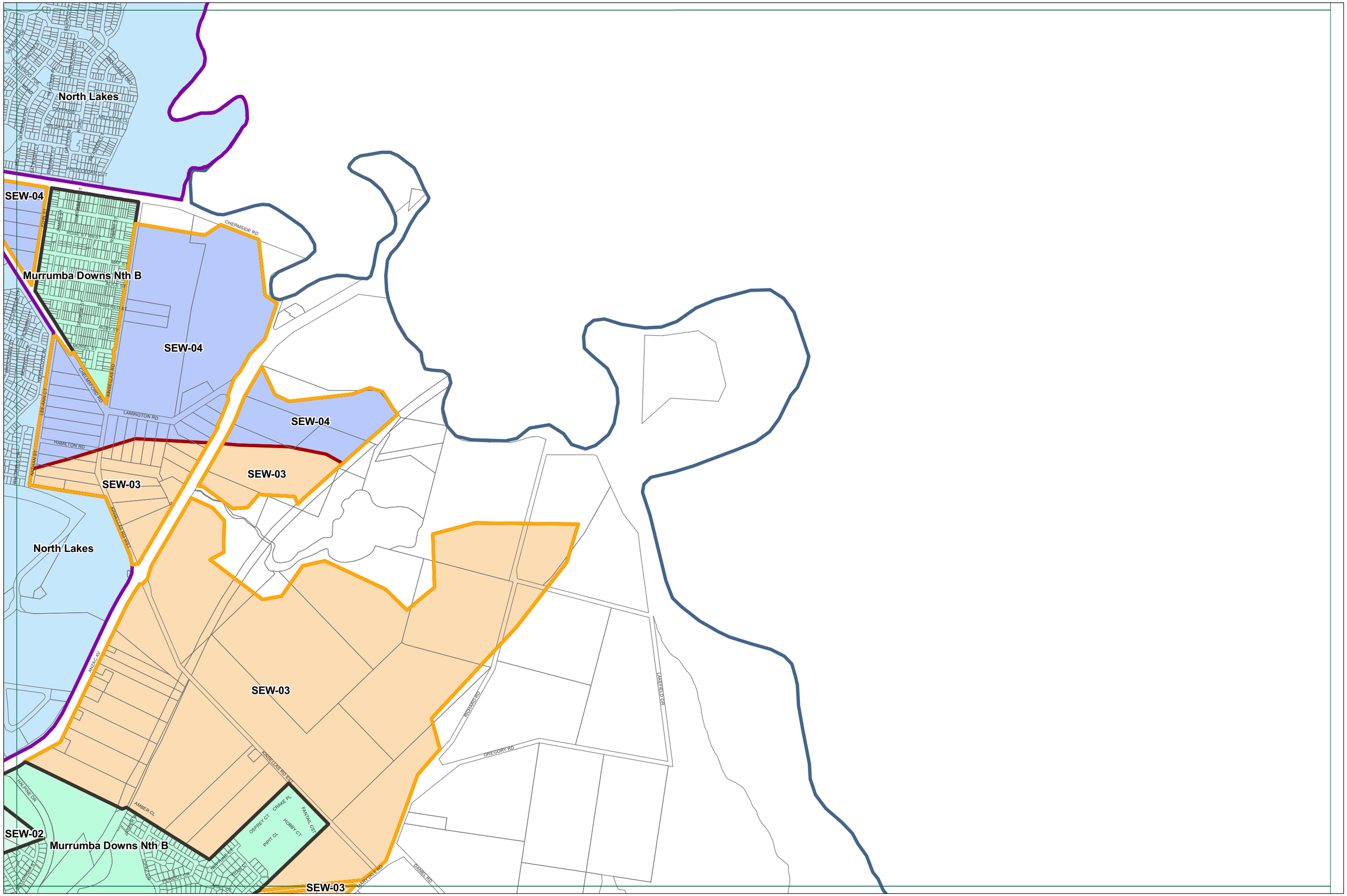
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 9.11



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Metres

Legend

REGIONAL CATCHMENTS: Brendale, Dayboro, Kedron Brook, Murrumba Downs, Murrumba NGC, North Lakes

PIP.LocalSewerageCatchments: Brendale A, Brendale B, Cabbage Tree Creek, Dayboro, Kedron Brook, Mango Hill, Murrumba Downs Nth A, Murrumba Downs Nth B, Murrumba Downs Nth C, Murrumba Downs Sth A, Murrumba Downs Sth B, Murrumba Downs Sth C, North Lakes, SEW-01, SEW-02, SEW-03, SEW-04, SEW-05, SEW-06, SEW-07, Samford

7.9	7.11	7.13
9.9	9.11	9.13
11.9	11.11	11.13

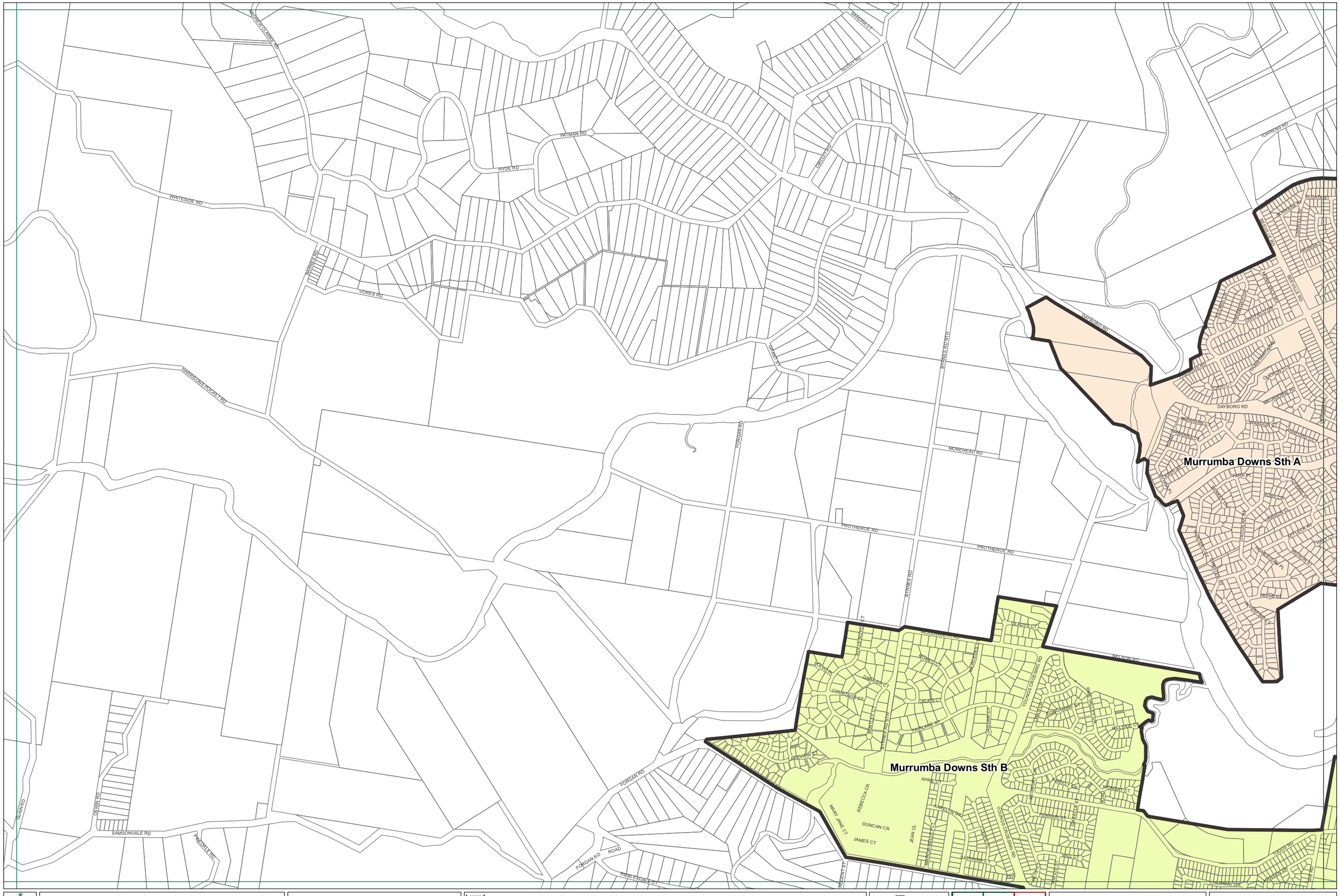
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 9.13



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Metres

Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

9.7	9.9	9.11
11.7	11.9	11.11
13.7	13.9	13.11

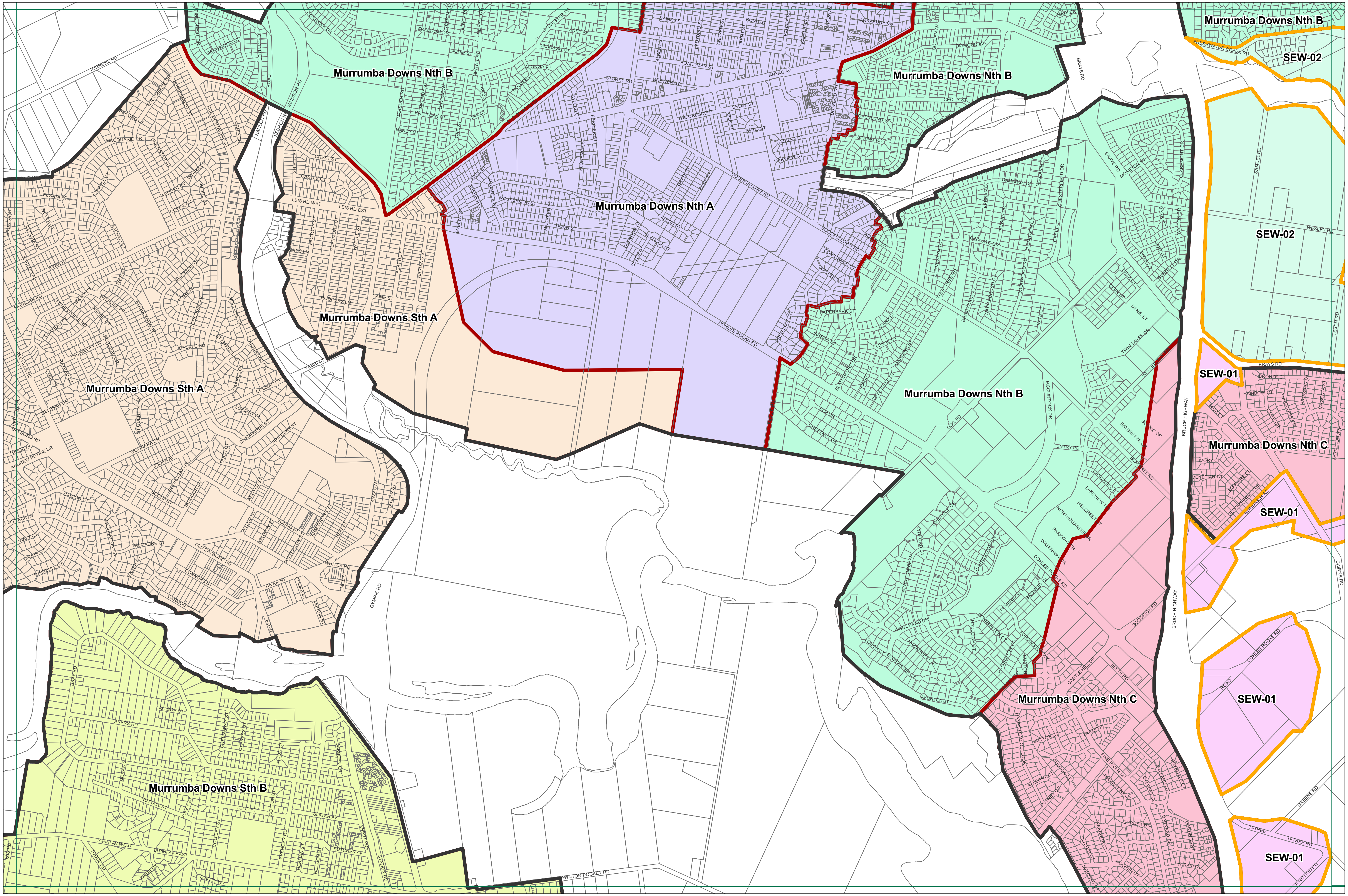
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 11.9



0 100 200 400 600 800

Metres

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Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

9.9	9.11	9.13
11.9	11.11	11.13
13.9	13.11	13.13

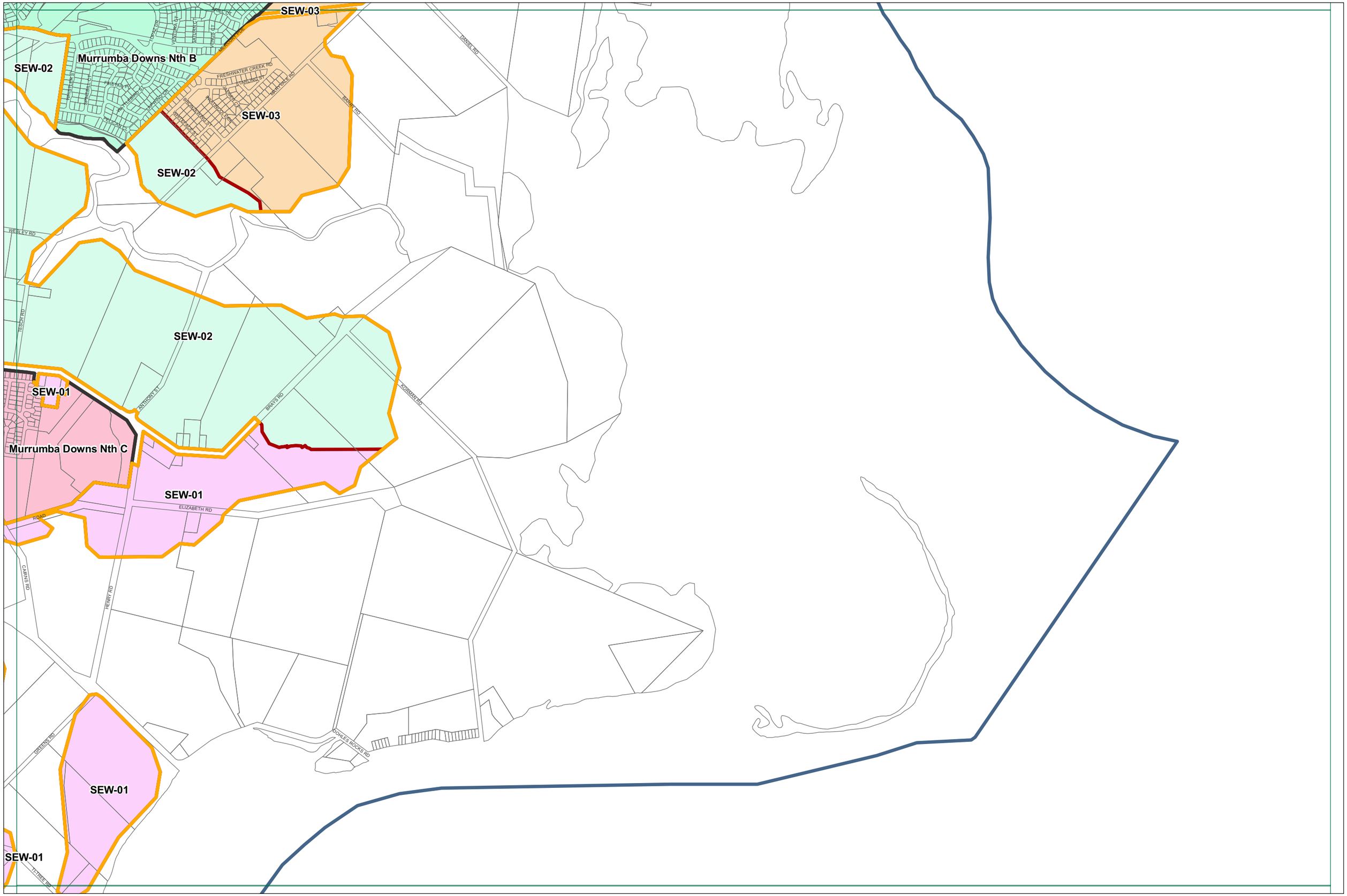
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 11.11



0 100 200 400 600 800

Metres

Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

11.11	11.13
13.11	13.13

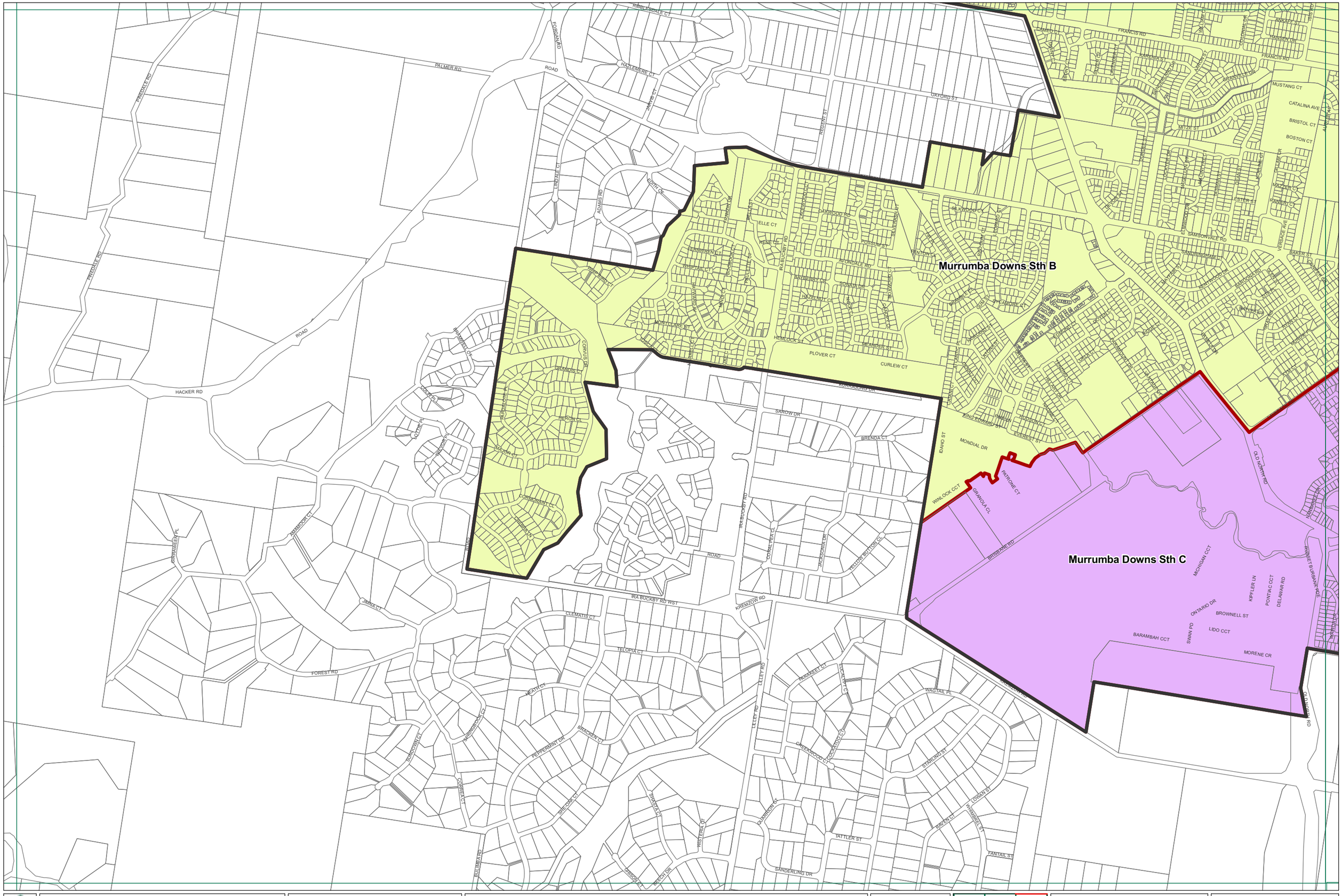
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 11.13



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Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

11.7	11.9	11.11
13.7	13.9	13.11
15.7	15.9	15.11

PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 13.9

Murrumba Downs Sth B

Murrumba Downs Sth C

Murrumba Downs Nth C

SEW-01

Brendale B

0 100 200 400 600 800

Metres

Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

11.9	11.11	11.13
13.9	13.11	13.13
15.9	15.11	

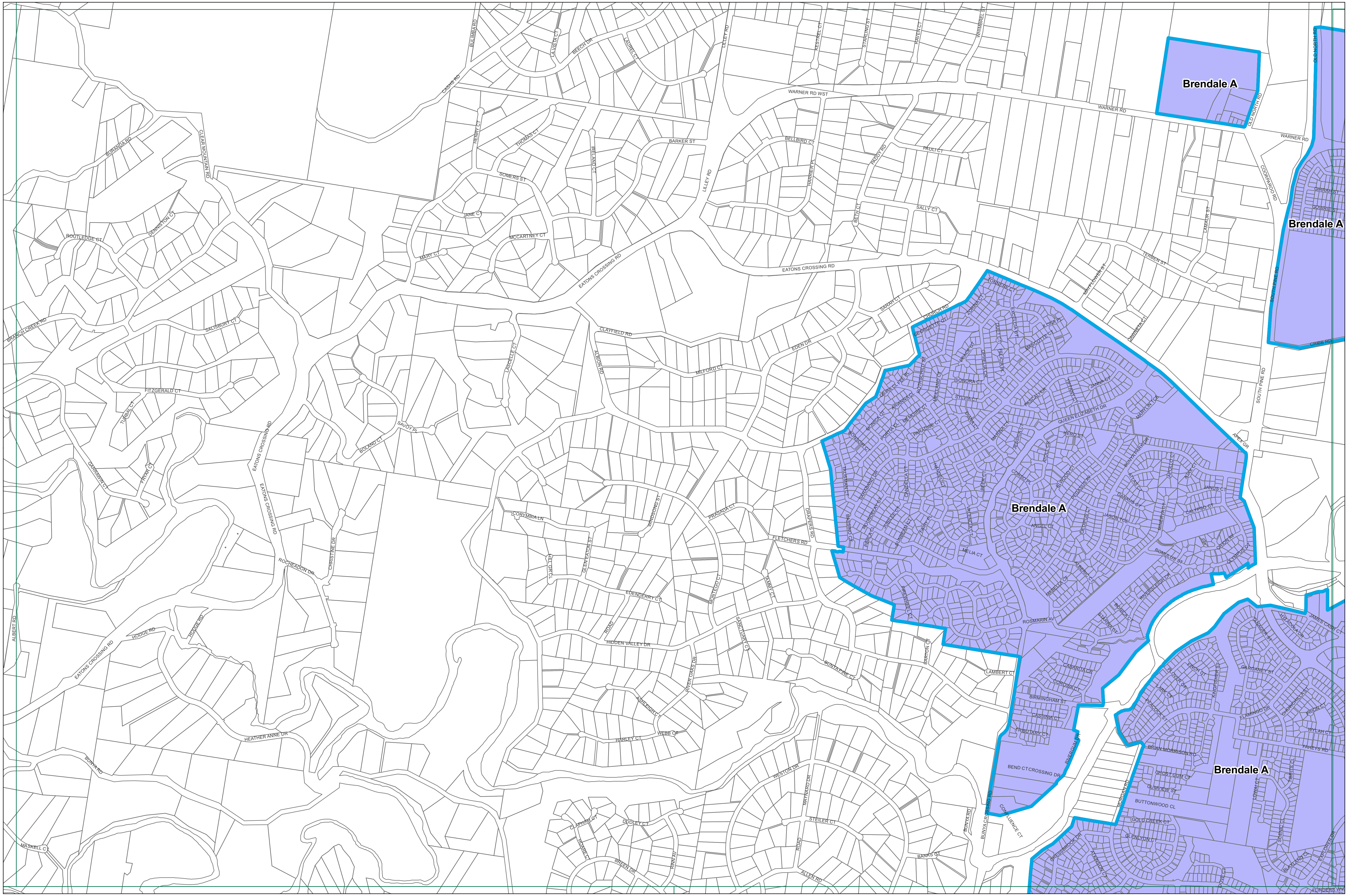
PLANNING SCHEME POLICY PSP23

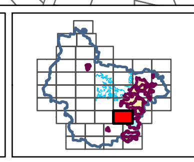
DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 13.11





0 100 200 400 600 800

Metres

N W E S

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Legend

REGIONAL CATCHMENTS	PIP.LocalSewerageCatchments				
Brendale	Brendale A	Kedron Brook	Murrumba Downs Sth A	SEW-02	SEW-07
Dayboro	Brendale B	Mango Hill	Murrumba Downs Sth B	SEW-03	Samford
Kedron Brook	Cabbage Tree Creek	Murrumba Downs Nth A	Murrumba Downs Sth C	SEW-04	
Murrumba Downs	Dayboro	Murrumba Downs Nth B	North Lakes	SEW-05	
Murrumba NGC		Murrumba Downs Nth C	SEW-01	SEW-06	
North Lakes					

13.7	13.9	13.11
15.7	15.9	15.11
17.6	17.8	17.10

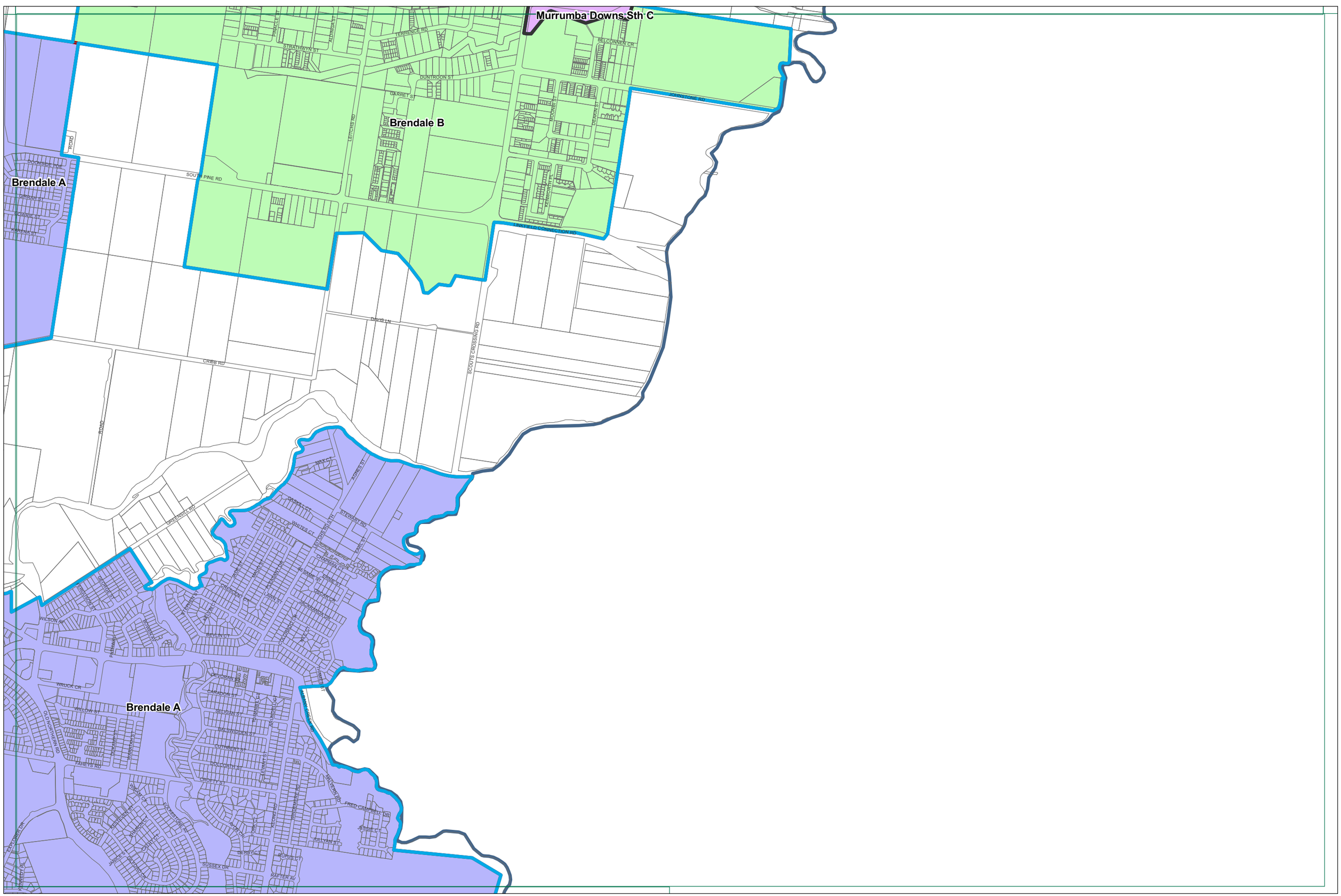
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 15.9



0 100 200 400 600 800

Metres

Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

13.9	13.11	13.13
15.9	15.11	

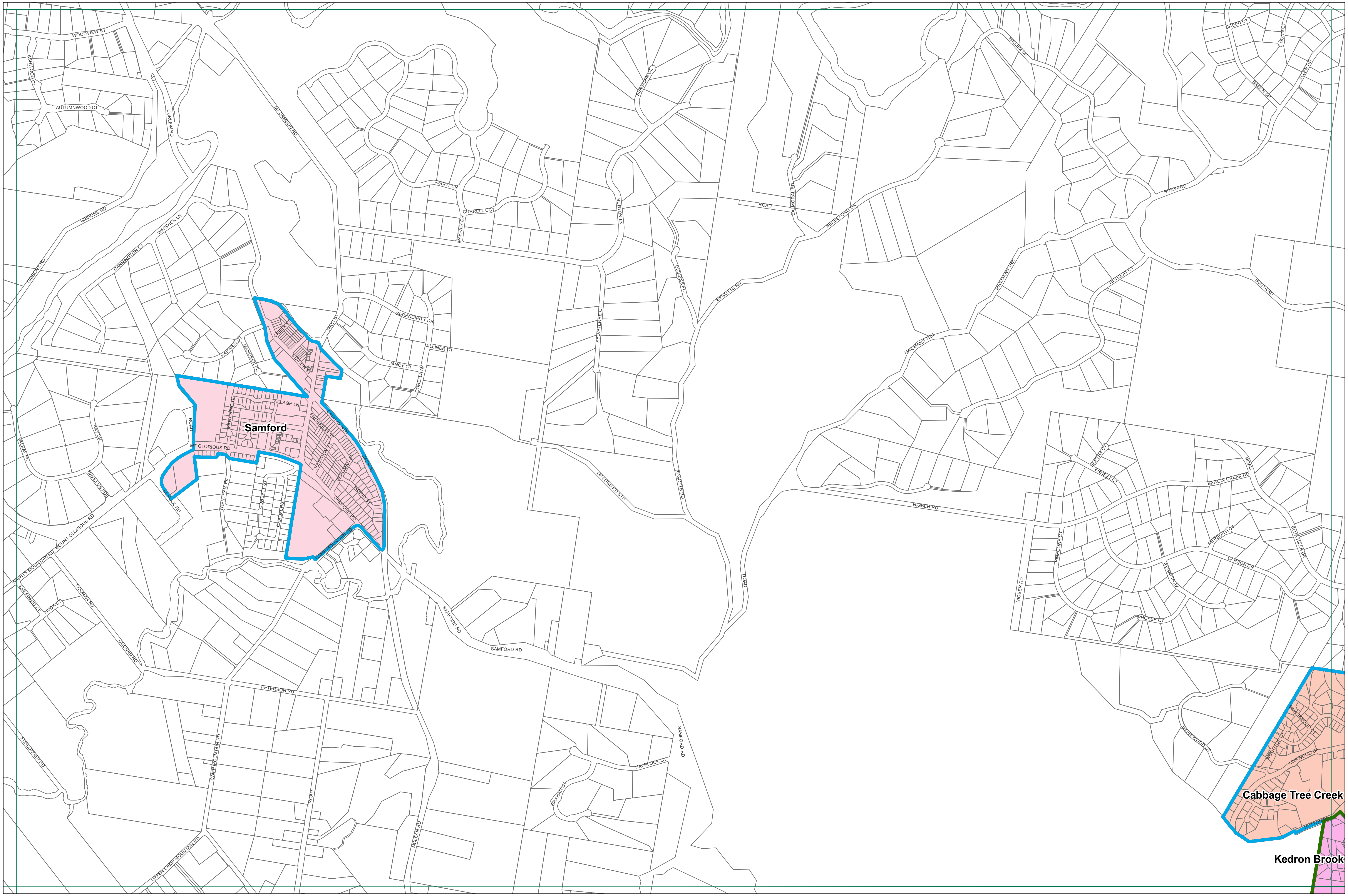
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 15.11



N
W E
S

0 100 200 400 600 800

Metres

Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford

15.5	15.7	15.9	15.11
17.6	17.8	17.10	
19.6	19.8	19.10	

PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 17.8

Brendale A

Cabbage Tree Creek

Kedron Brook

Kedron Brook

0 100 200 400 600 800

Metres

Legend

REGIONAL CATCHMENTS: Brendale; Dayboro; Kedron Brook; Murrumba Downs; Murrumba NGC; North Lakes

PIP.LocalSewerageCatchments: Brendale A; Brendale B; Cabbage Tree Creek; Dayboro; Kedron Brook; Mango Hill; Murrumba Downs Nth A; Murrumba Downs Nth B; Murrumba Downs Nth C; Murrumba Downs Sth A; Murrumba Downs Sth B; Murrumba Downs Sth C; North Lakes; SEW-01; SEW-02; SEW-03; SEW-04; SEW-05; SEW-06; SEW-07; Samford

15.7 | 15.9 | 15.11
17.8 | 17.10

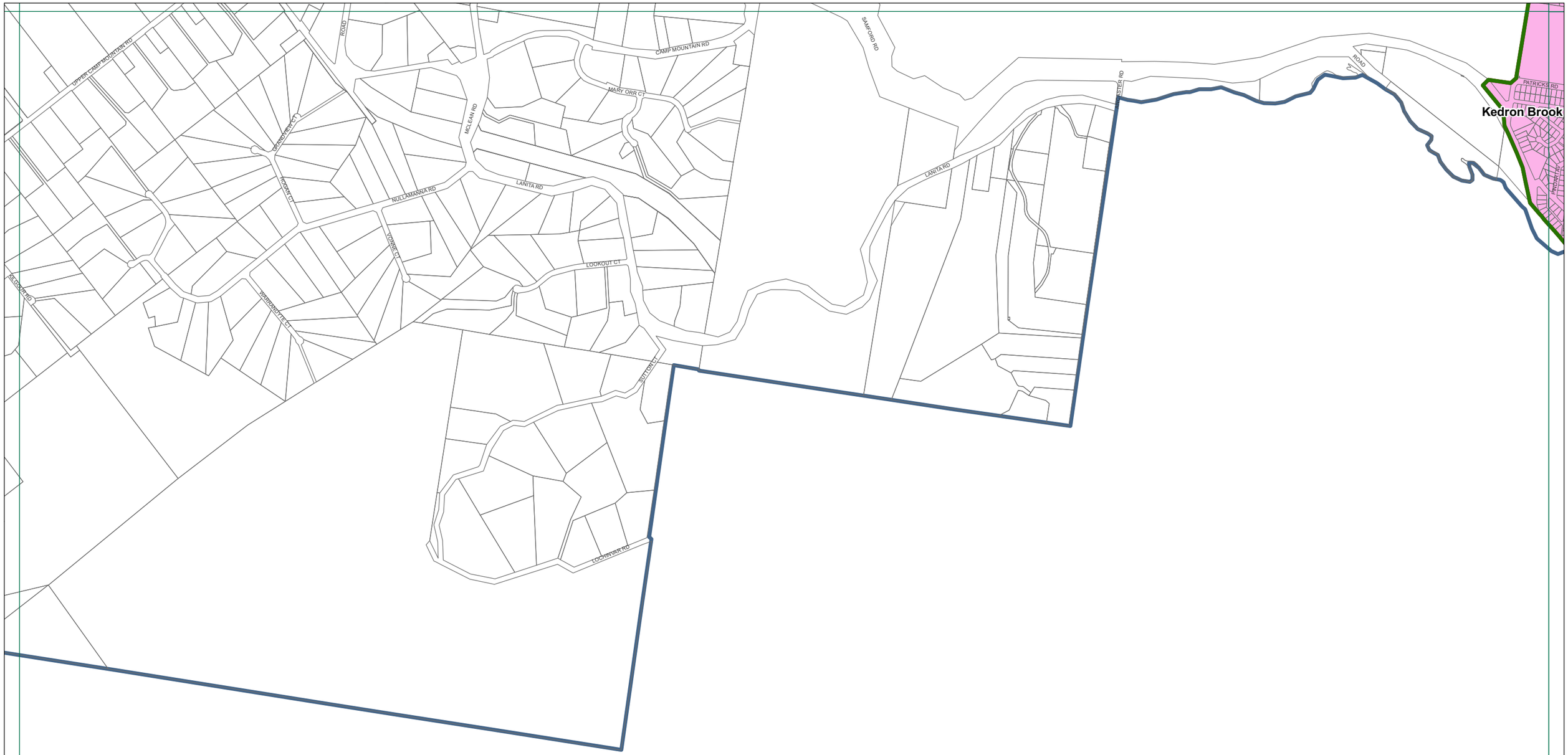
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 17.10



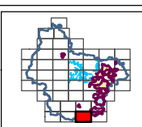
0 100 200 400 600 800

Metres

Legend

REGIONAL CATCHMENTS
- Brendale
- Dayboro
- Kedron Brook
- Murrumba Downs
- Murrumba NGC
- North Lakes

PIP.LocalSewerageCatchments
- Brendale A
- Brendale B
- Cabbage Tree Creek
- Dayboro
- Kedron Brook
- Mango Hill
- Murrumba Downs Nth A
- Murrumba Downs Nth B
- Murrumba Downs Nth C
- Murrumba Downs Sth A
- Murrumba Downs Sth B
- Murrumba Downs Sth C
- North Lakes
- SEW-01
- SEW-02
- SEW-03
- SEW-04
- SEW-05
- SEW-06
- SEW-07
- Samford



17.6	17.8
19.6	19.8

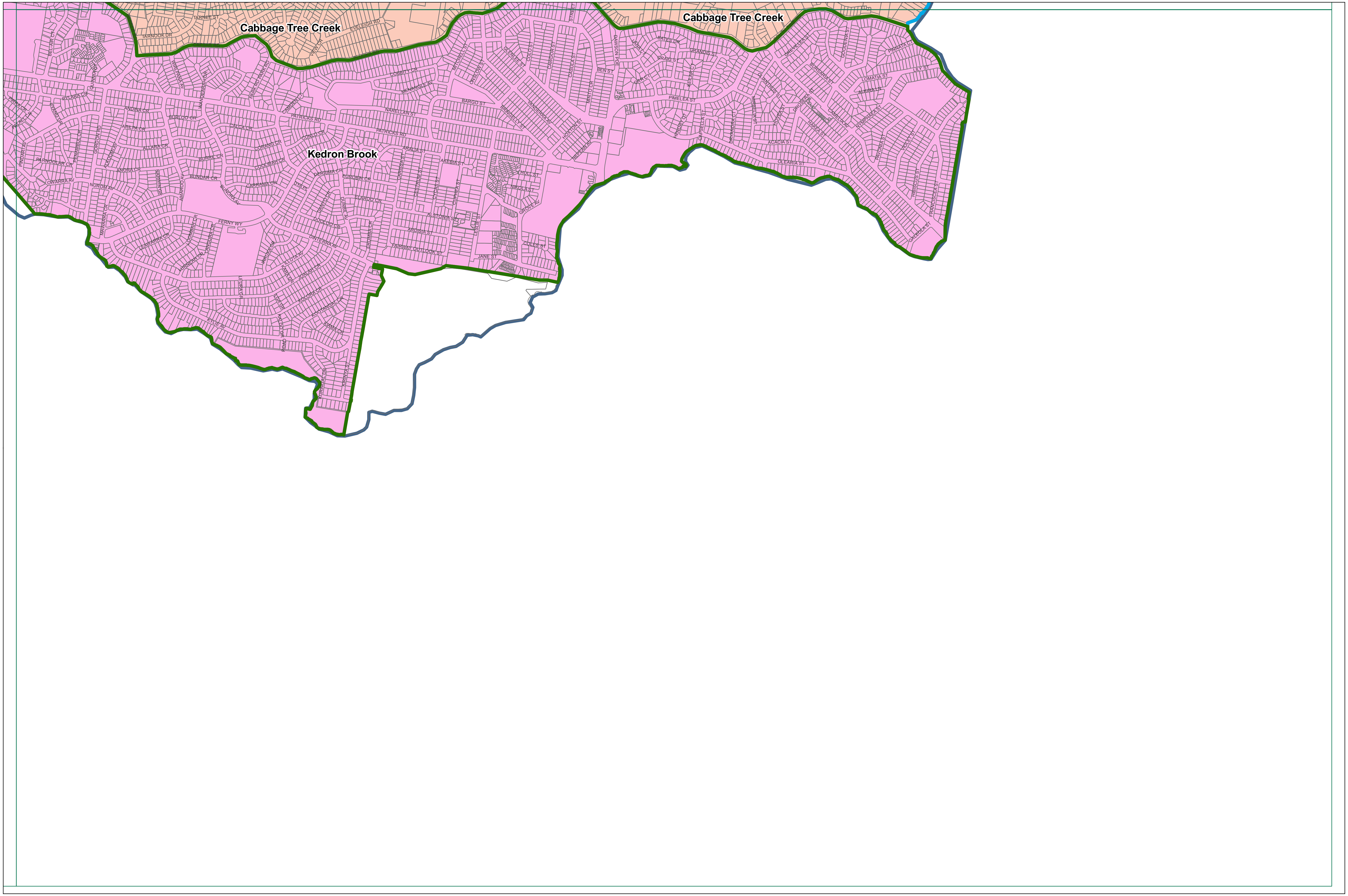
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 19.8



0 100 200 400 600 800

Metres

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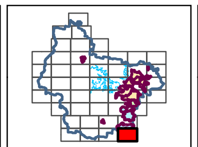
Legend

REGIONAL CATCHMENTS	PIP.LocalSewerageCatchments				
Brendale	Brendale A	Kedron Brook	Murrumba Downs Sth A	SEW-02	SEW-07
Dayboro	Brendale B	Mango Hill	Murrumba Downs Sth B	SEW-03	Samford
Kedron Brook	Cabbage Tree Creek	Murrumba Downs Nth A	Murrumba Downs Sth C	SEW-04	
Murrumba Downs	Dayboro	Murrumba Downs Nth B	North Lakes	SEW-05	
Murrumba NGC		Murrumba Downs Nth C	SEW-01	SEW-06	
North Lakes					



19.10

PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK SERVICE CATCHMENTS

Map Number 19.10

Schedule D: Network Assets

PINE RIVERS

N W E S

0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

5.3	5.5	5.7
7.3	7.5	7.7
9.3	9.5	9.7

PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 7.5

PINE RIVERS

N W E S

0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

7.3	7.5	7.7
9.3	9.5	9.7
11.3	11.5	11.7

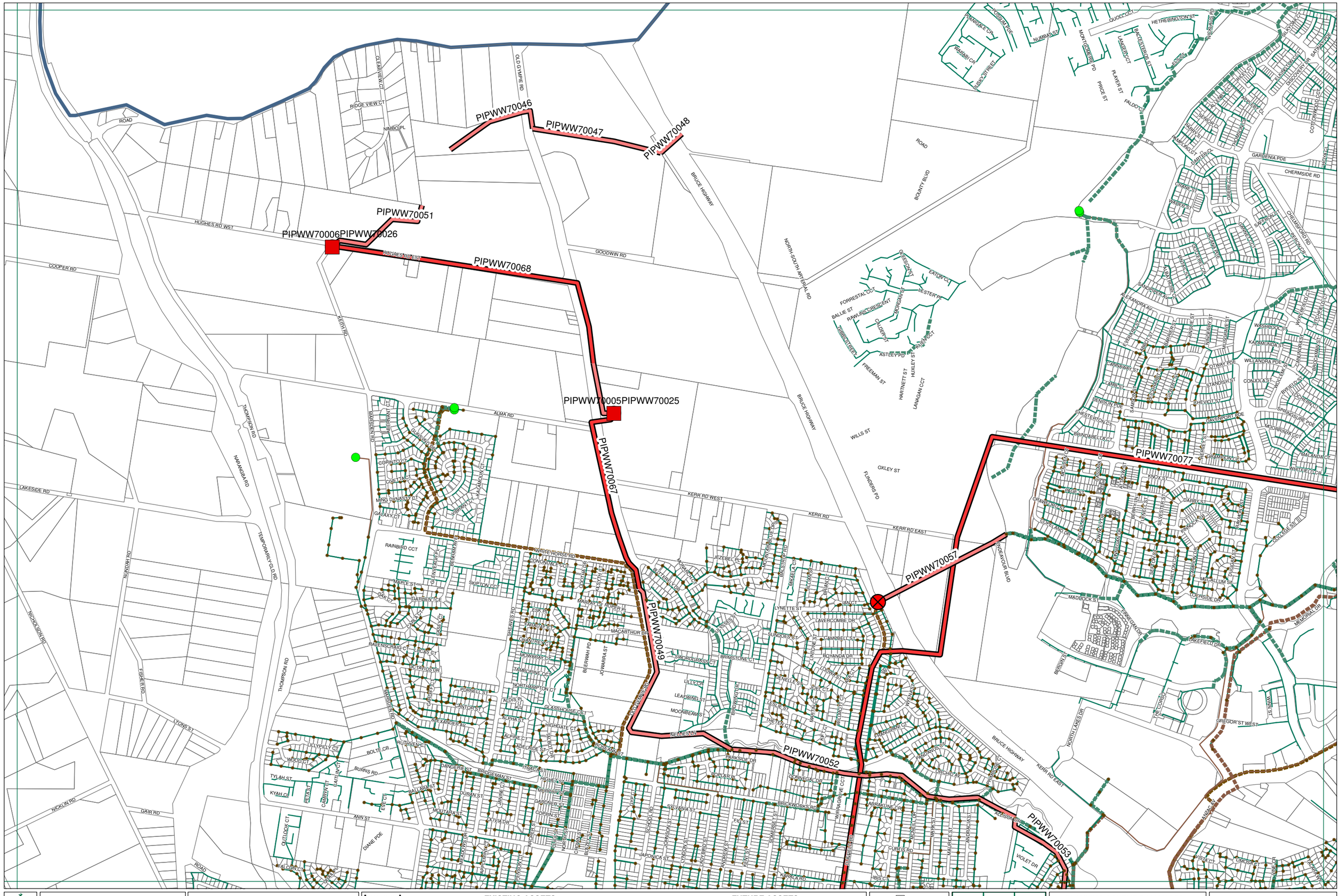
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 9.5



Legend

Shire Boundary
Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS
EXISTING MANHOLES
EXISTING MINOR SEWER TRUNK MAINS
SEWER RETICULATION - GRAVITY
SEWER RETICULATION - RISING
EXISTING SEWER TRUNK MAINS - GRAVITY
EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES
PUMPSTATION UPGRADE
PUMP STATIONS TO DECOMMISSION
FUTURE PUMP STATION
FUTURE STORAGE POINTS
FUTURE PUMPSTATION UPGRADE
FUTURE GRAVITY MAINS
FUTURE SEWER MAINS
FUTURE RISING MAINS

7.9	7.11	7.13
9.9	9.11	9.13
11.9	11.11	11.13

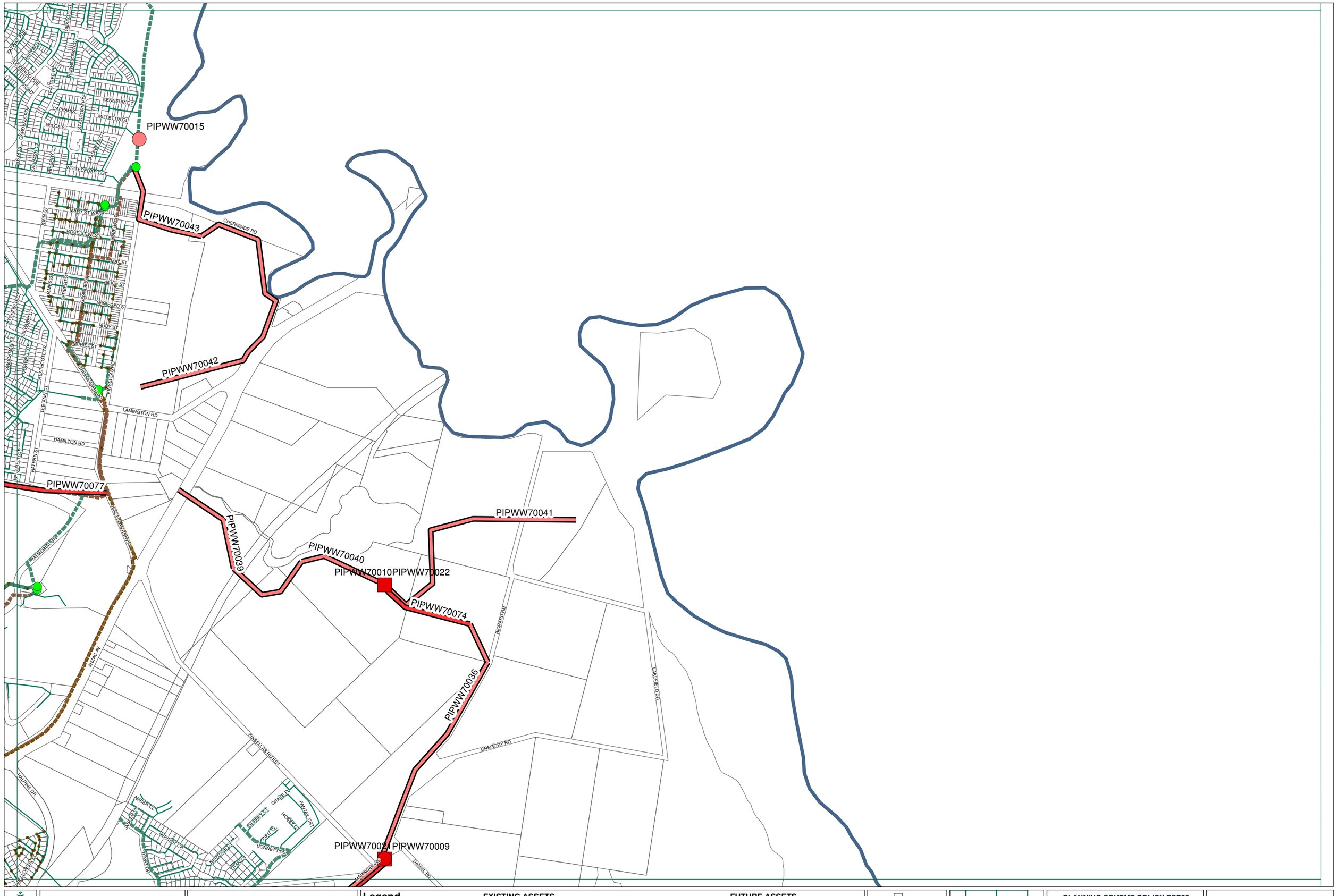
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 9.11



0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

7.9	7.11	7.13
9.9	9.11	9.13
11.9	11.11	11.13

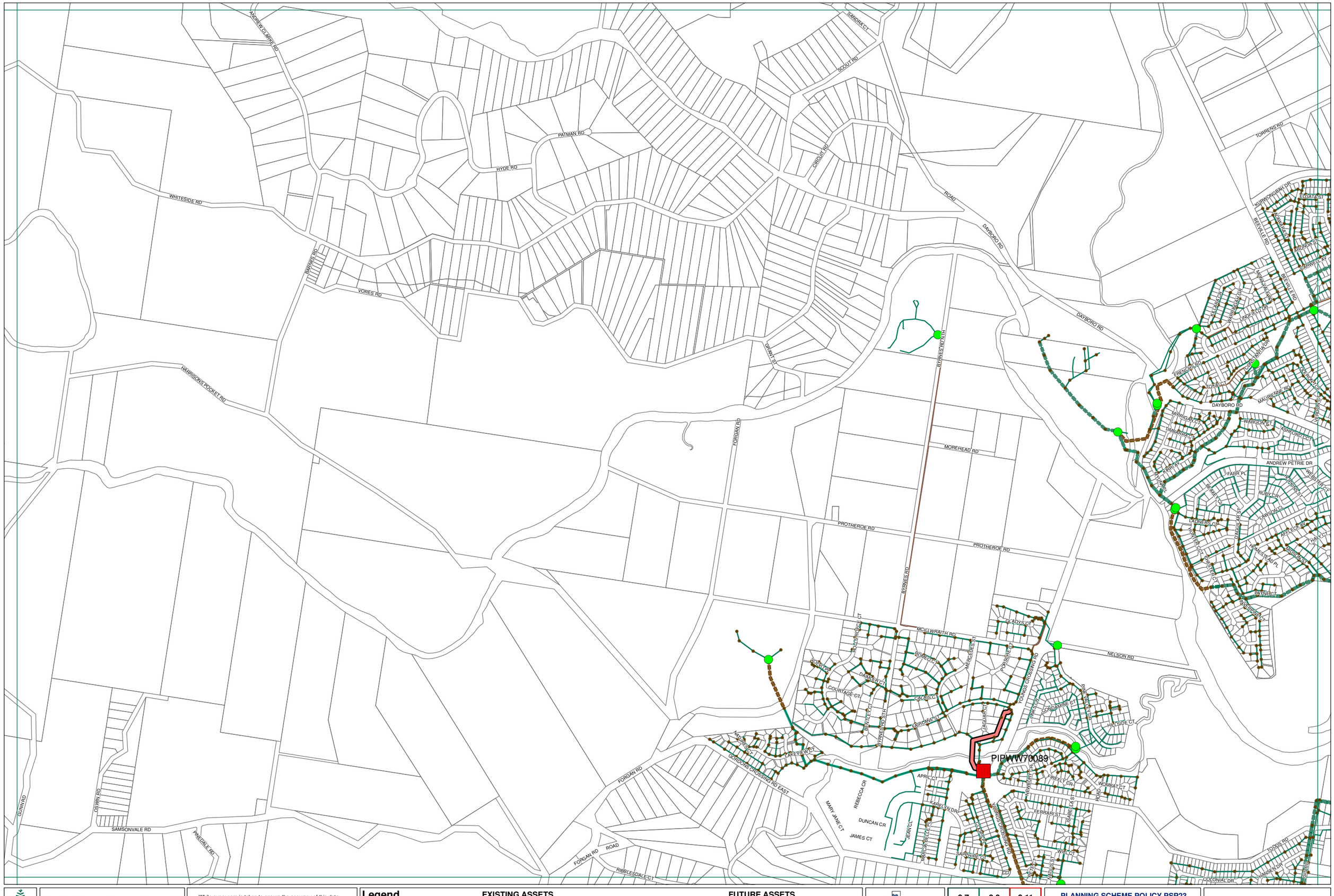
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 9.13



PINE RIVERS

N W E S

0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

9.7	9.9	9.11
11.7	11.9	11.11
13.7	13.9	13.11

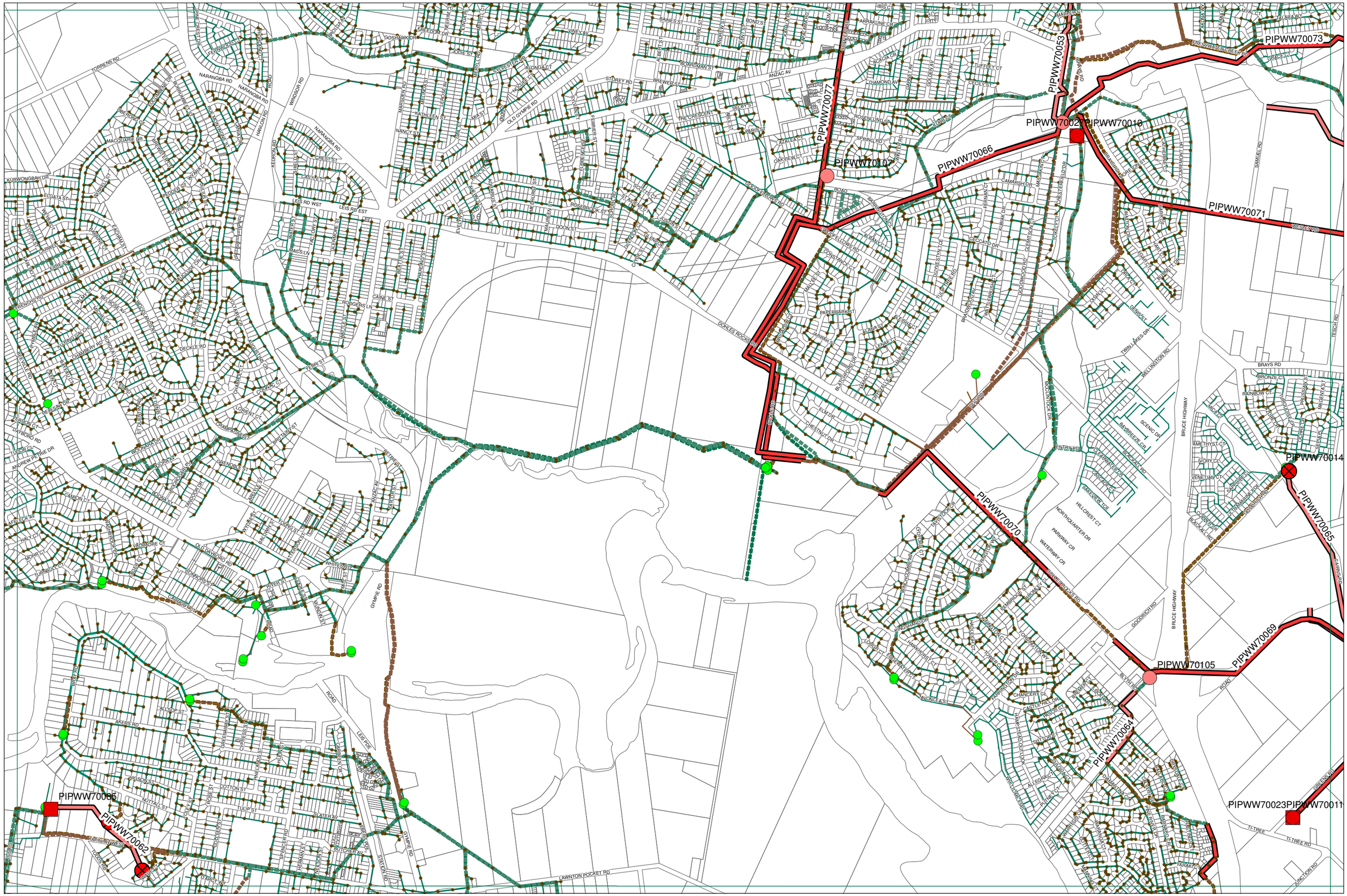
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 11.9



Legend

Shire Boundary
Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS
EXISTING MANHOLES
EXISTING MINOR SEWER TRUNK MAINS
SEWER RETICULATION - GRAVITY
SEWER RETICULATION - RISING
EXISTING SEWER TRUNK MAINS - GRAVITY
EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES
PUMPSTATION UPGRADE
PUMP STATIONS TO DECOMMISSION
FUTURE PUMP STATION
FUTURE STORAGE POINTS
FUTURE PUMPSTATION UPGRADE
FUTURE GRAVITY MAINS
FUTURE SEWER MAINS
FUTURE RISING MAINS

9.9	9.11	9.13
11.9	11.11	11.13
13.9	13.11	13.13

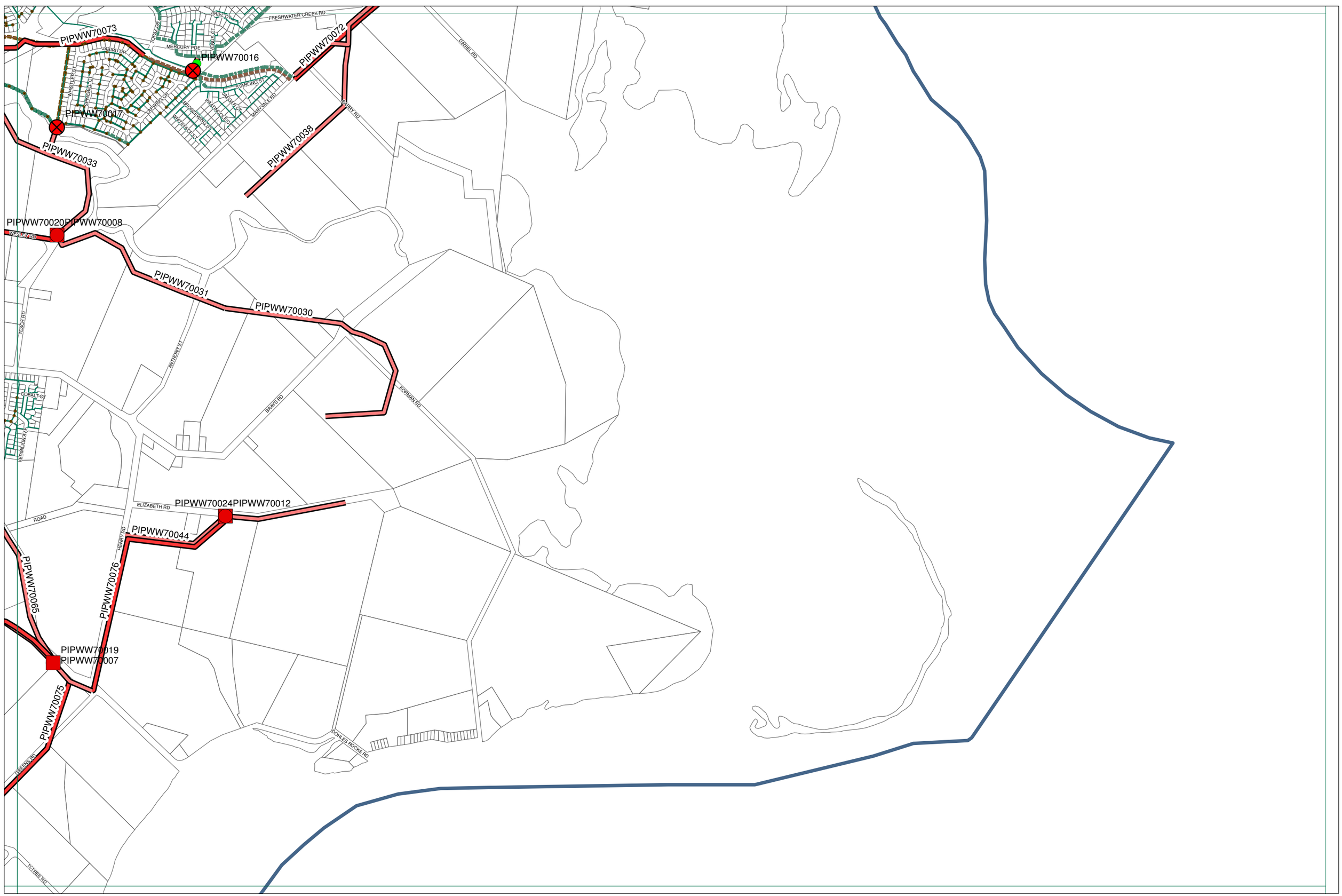
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 11.11



PINE RIVERS

0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

11.11	11.13
13.11	13.13

PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 11.13

Legend

Shire Boundary
Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS
EXISTING MANHOLES
EXISTING MINOR SEWER TRUNK MAINS
SEWER RETICULATION - GRAVITY
SEWER RETICULATION - RISING
EXISTING SEWER TRUNK MAINS - GRAVITY
EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES
PUMPSTATION UPGRADE
PUMP STATIONS TO DECOMMISSION
FUTURE PUMP STATION
FUTURE STORAGE POINTS
FUTURE PUMPSTATION UPGRADE
FUTURE GRAVITY MAINS
FUTURE SEWER MAINS
FUTURE RISING MAINS

11.7	11.9	11.11
13.7	13.9	13.11
15.7	15.9	15.11

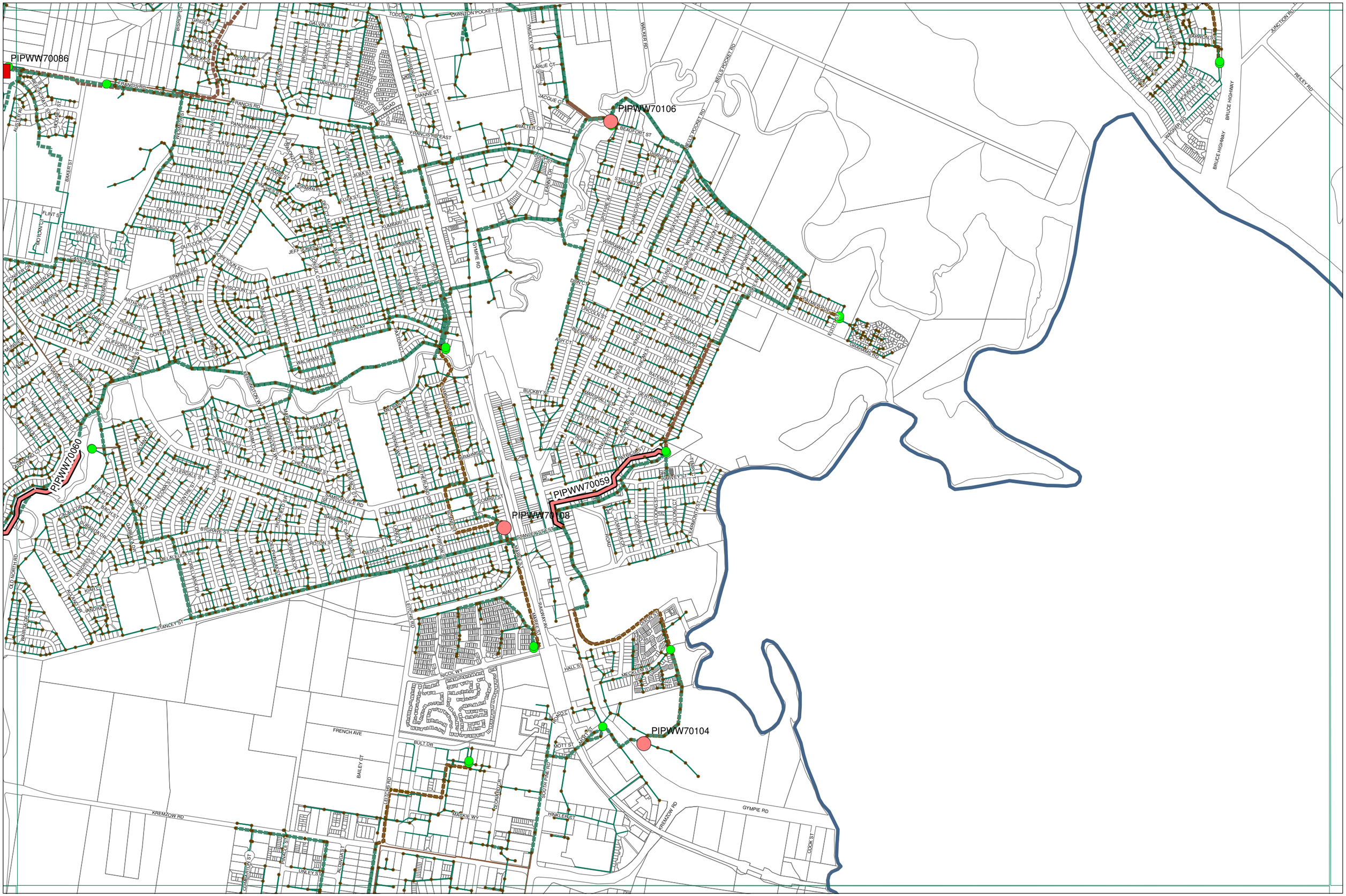
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 13.9



0 75 150 300 450 600
Metres

Legend

EXISTING ASSETS

- Shire Boundary
- Parcel Boundaries
- EXISTING PUMP STATIONS
- EXISTING MANHOLES
- EXISTING MINOR SEWER TRUNK MAINS
- SEWER RETICULATION - GRAVITY
- SEWER RETICULATION - RISING
- EXISTING SEWER TRUNK MAINS - GRAVITY
- EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

- FUTURE VALVES
- PUMPSTATION UPGRADE
- PUMP STATIONS TO DECOMMISSION
- FUTURE PUMP STATION
- FUTURE STORAGE POINTS
- FUTURE PUMPSTATION UPGRADE
- FUTURE GRAVITY MAINS
- FUTURE SEWER MAINS
- FUTURE RISING MAINS

11.9	11.11	11.13
13.9	13.11	13.13
15.9	15.11	

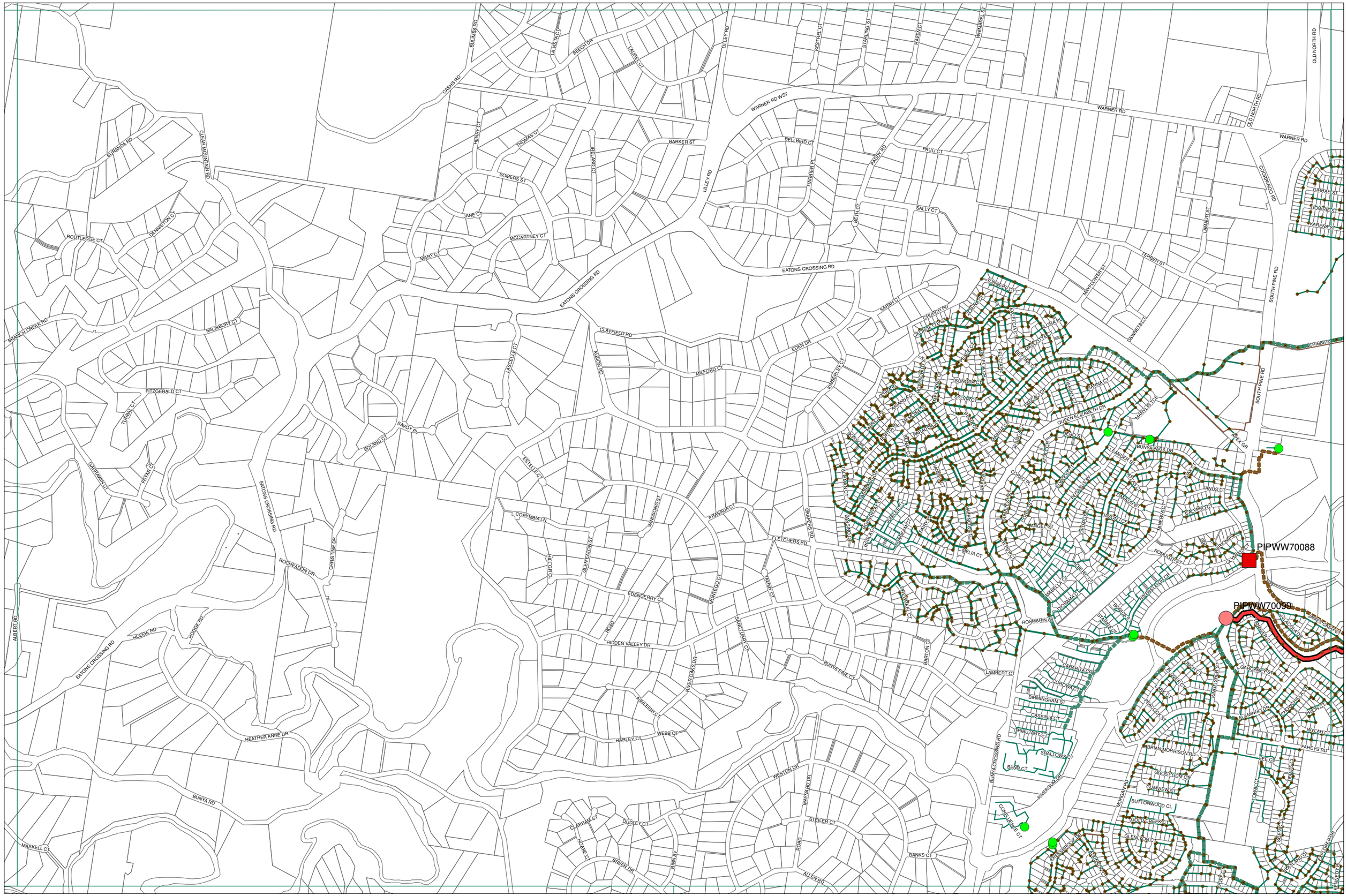
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 13.11



Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

13.7	13.9	13.11
15.7	15.9	15.11
17.6	17.8	17.10

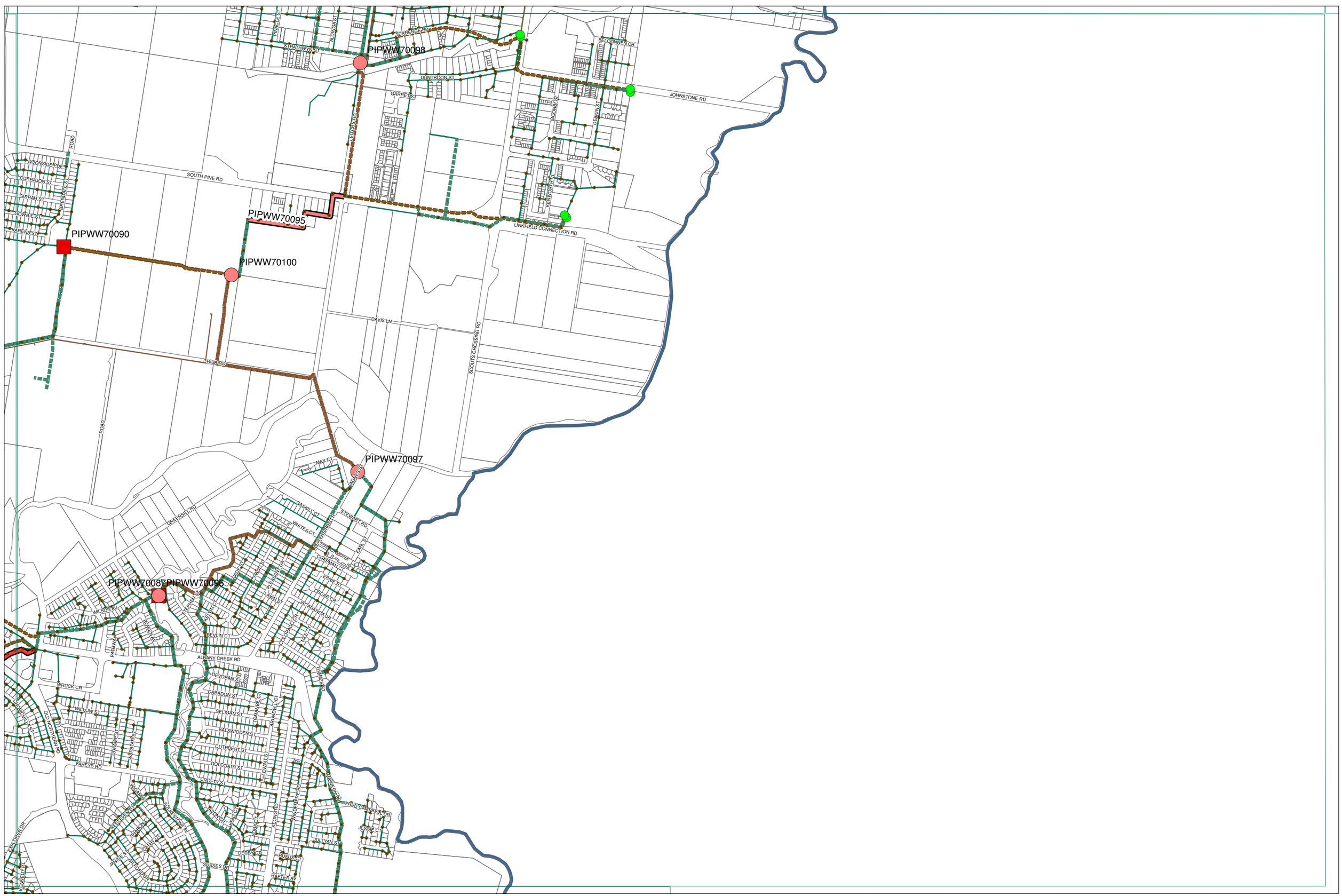
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 15.9



0 75 150 300 450 600

Metres

Legend

- Shire Boundary
- Parcel Boundaries

EXISTING ASSETS

- EXISTING PUMP STATIONS
- EXISTING MANHOLES
- EXISTING MINOR SEWER TRUNK MAINS
- SEWER RETICULATION - GRAVITY
- SEWER RETICULATION - RISING
- EXISTING SEWER TRUNK MAINS - GRAVITY
- EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

- FUTURE VALVES
- PUMPSTATION UPGRADE
- PUMP STATIONS TO DECOMMISSION
- FUTURE PUMP STATION
- FUTURE STORAGE POINTS
- FUTURE PUMPSTATION UPGRADE
- FUTURE GRAVITY MAINS
- FUTURE SEWER MAINS
- FUTURE RISING MAINS

13.9	13.11	13.13
15.9	15.11	

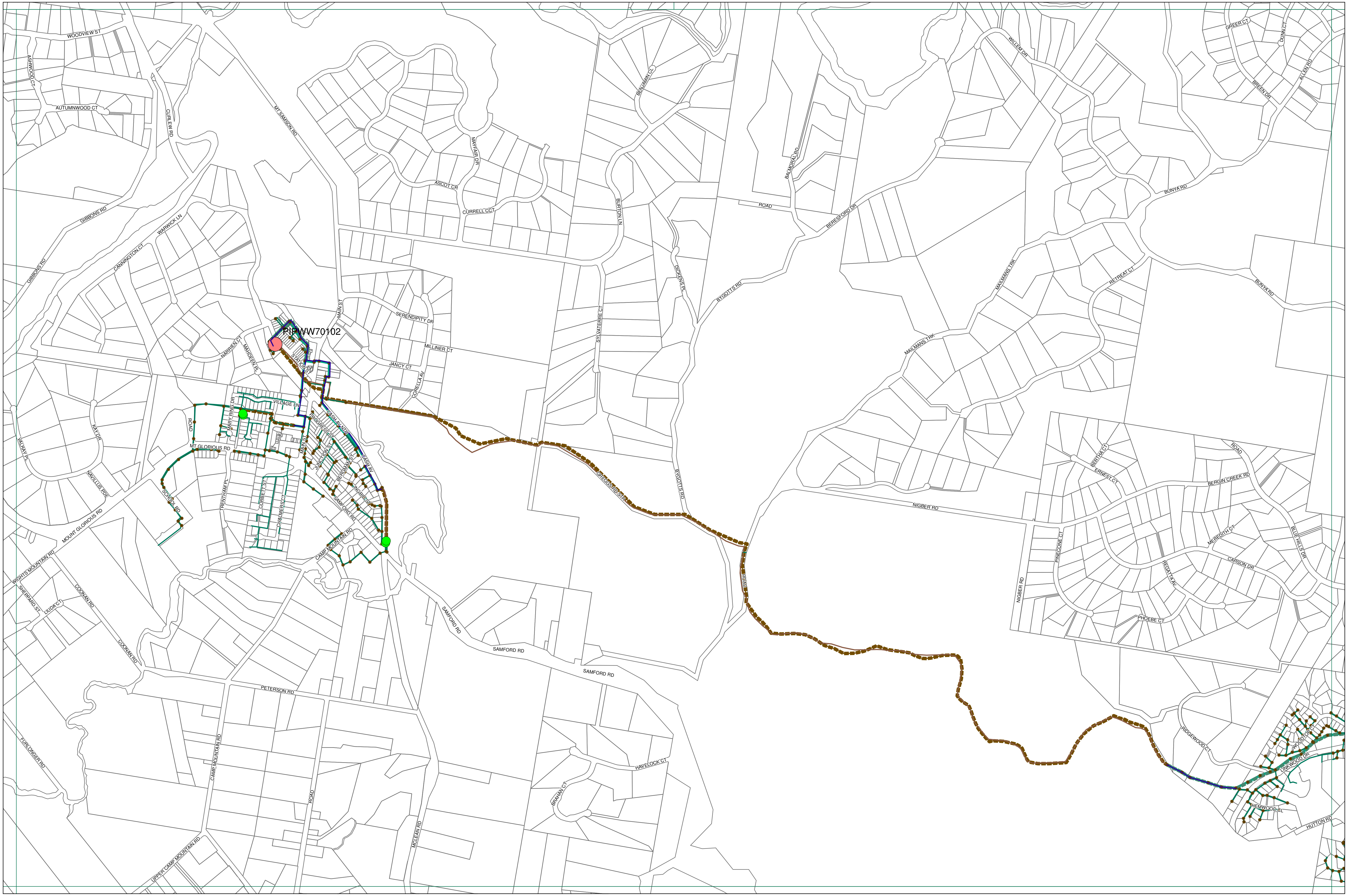
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 15.11



PINE RIVERS

0 75 150 300 450 600

Metres

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Legend

Shire Boundary
Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS
EXISTING MANHOLES
EXISTING MINOR SEWER TRUNK MAINS
SEWER RETICULATION - GRAVITY
SEWER RETICULATION - RISING
EXISTING SEWER TRUNK MAINS - GRAVITY
EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES
PUMPSTATION UPGRADE
PUMP STATIONS TO DECOMMISSION
FUTURE PUMP STATION
FUTURE STORAGE POINTS
FUTURE PUMPSTATION UPGRADE
FUTURE GRAVITY MAINS
FUTURE SEWER MAINS
FUTURE RISING MAINS

15.5	15.7	15.9	15.11
17.6	17.8	17.10	
19.6	19.8	19.10	

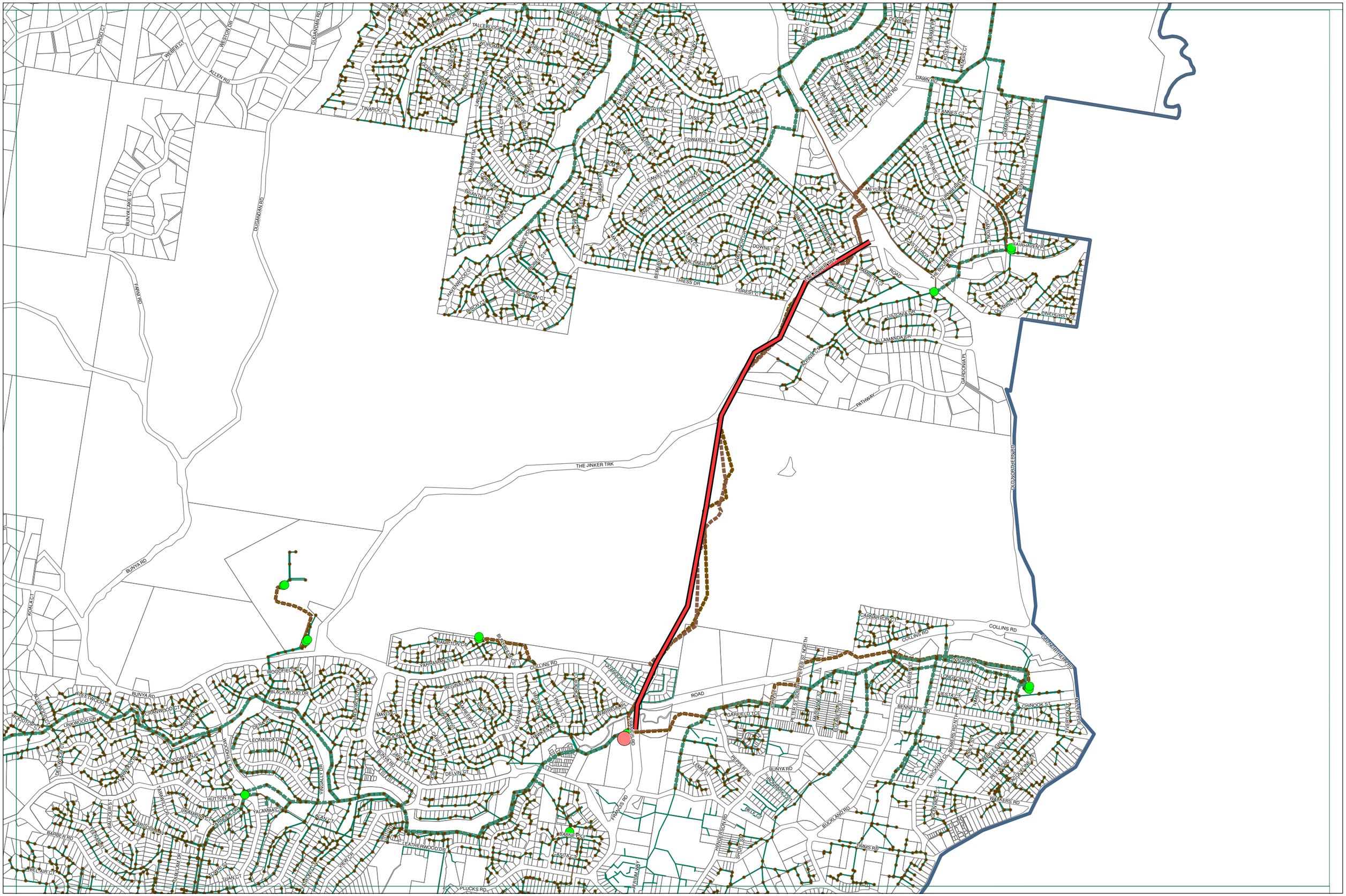
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 17.8



PINE RIVERS

N W E S

0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

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FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

15.7	15.9	15.11
17.8	17.10	

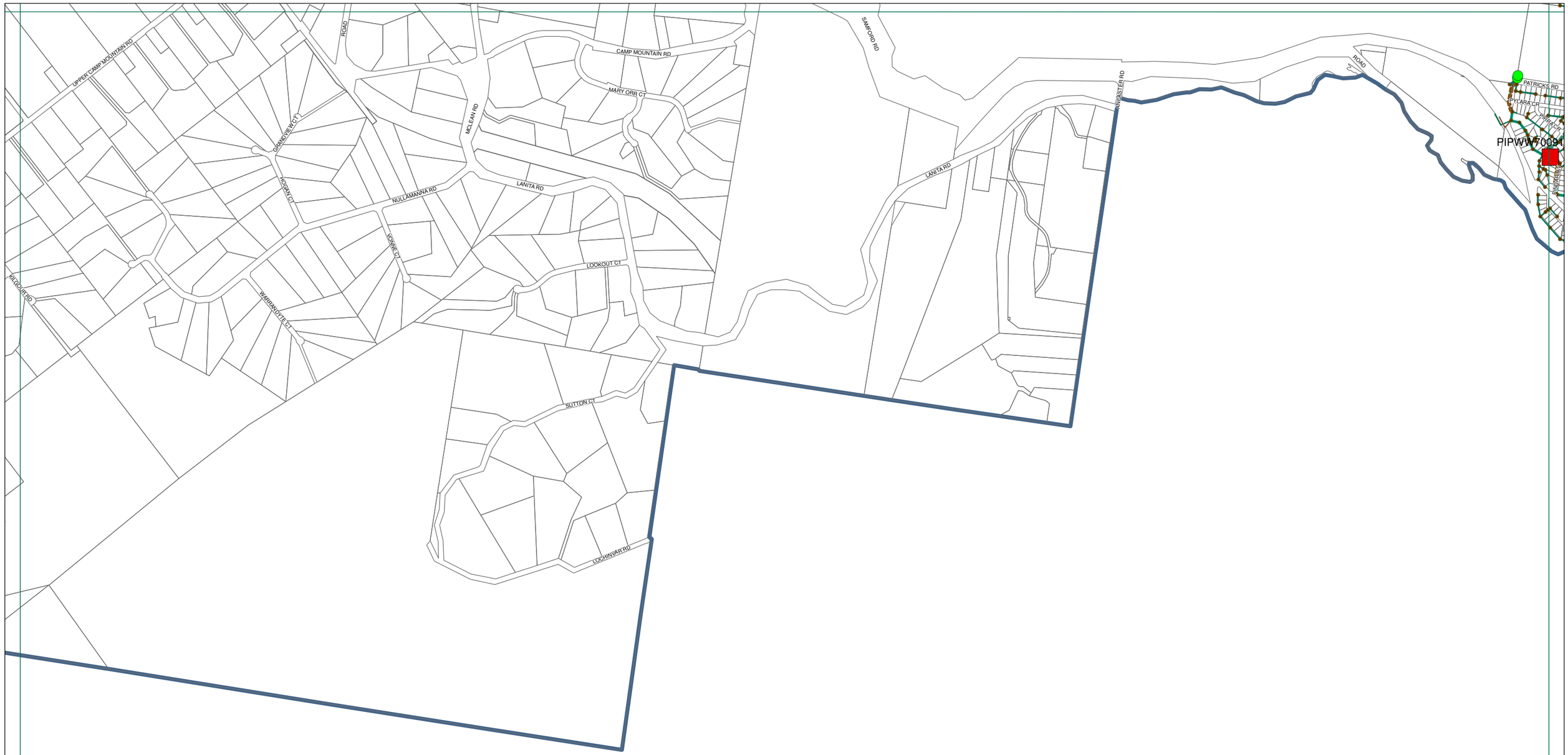
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 17.10



0 75 150 300 450 600

Metres

Legend

Shire Boundary

Parcel Boundaries

EXISTING ASSETS

EXISTING PUMP STATIONS

EXISTING MANHOLES

EXISTING MINOR SEWER TRUNK MAINS

SEWER RETICULATION - GRAVITY

SEWER RETICULATION - RISING

EXISTING SEWER TRUNK MAINS - GRAVITY

EXISTING SEWER TRUNK MAINS - RISING

FUTURE ASSETS

FUTURE VALVES

PUMPSTATION UPGRADE

PUMP STATIONS TO DECOMMISSION

FUTURE PUMP STATION

FUTURE STORAGE POINTS

FUTURE PUMPSTATION UPGRADE

FUTURE GRAVITY MAINS

FUTURE SEWER MAINS

FUTURE RISING MAINS

17.6	17.8
19.6	19.8

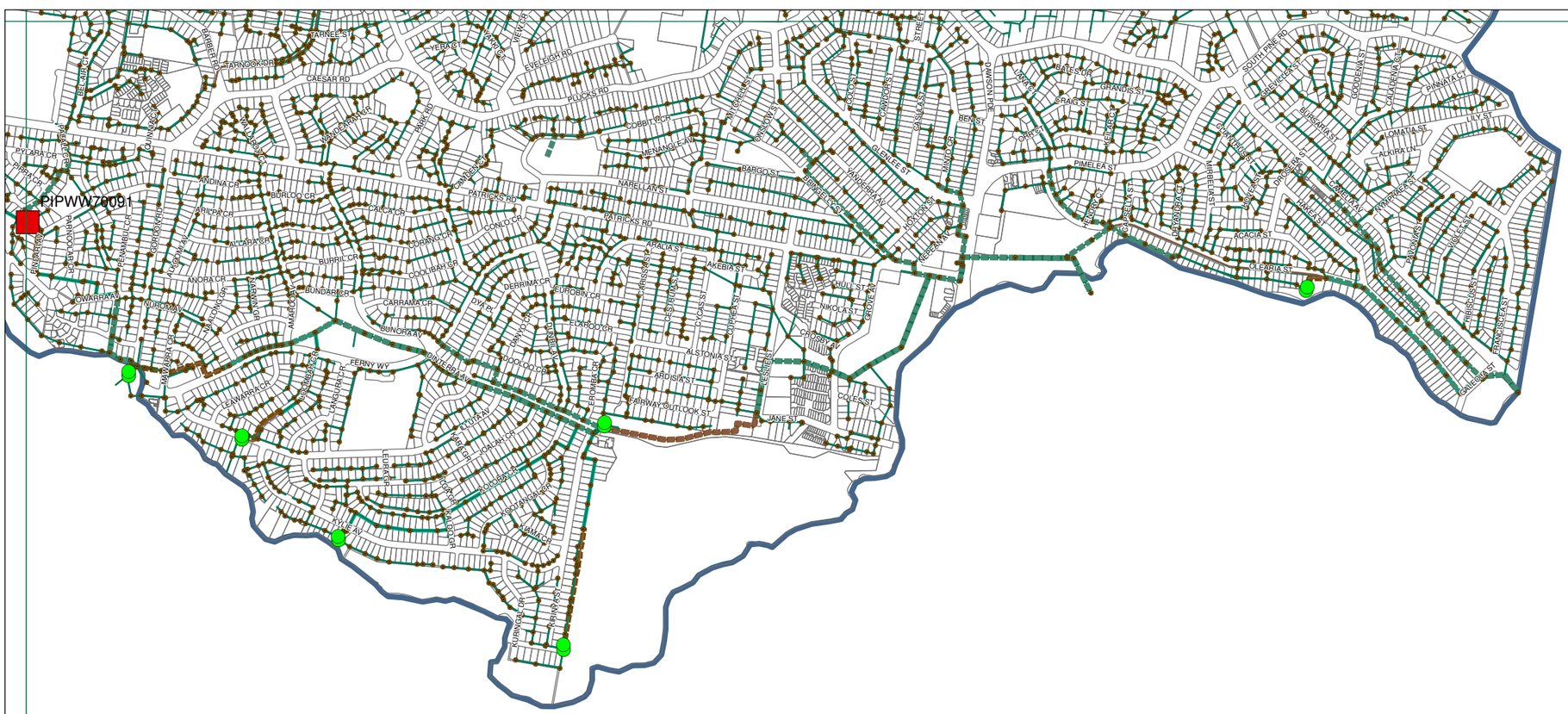
PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 19.8



0 75 150 300 450 600

Metres

Legend

- Shire Boundary
- Parcel Boundaries

EXISTING ASSETS

- EXISTING PUMP STATIONS
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- SEWER RETICULATION - RISING
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FUTURE ASSETS

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- FUTURE SEWER MAINS
- FUTURE RISING MAINS

19.10

PLANNING SCHEME POLICY PSP23

DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWERAGE

Effective from 1 September 2008

SEWERAGE NETWORK PLAN FOR TRUNK INFRASTRUCTURE

Map Number 19.10

Schedule E: Desired Standards of Service

Operational Objectives for Sewerage

Each of the 'Operational Objectives' for the provision of sewerage services in Pine Rivers Shire is examined in the context of corresponding user benefits and environmental effects. The primary objectives adopted for sewerage services in this policy are set out in Table E1.

Table E1 - Sewerage Operational Objectives

Objective	User Benefit	Environmental Effect
Corporate / Business Objective	• **Community and Customer Service** • **Quality and Safety**	• **Environmental Protection**
To satisfy the requirements of Council's Integrated Environmental Management System as issued by the Environmental Protection Agency from time to time.	• Optimised community amenity in terms of minimisation of the adverse impacts of odour, noise and adverse visual impact. • Remove the potential health impacts of uncontrolled wastes.	• Mitigation of adverse noise and odour impacts. • Protect the quality of natural waterways and groundwater. • Improved community health.
Designs will comply with State Government Guidelines, and Council's *Planning Scheme Policy PSP28 "Civil Infrastructure Design"*.	• System will be adequate in terms of: ○ day-to-day reliability; ○ long term continuity of service; ○ standard of effluent; ○ minimum life cycle cost (i.e., optimum maintenance, replacement and operation costs). • Cost effective service for community.	• Maintains the health of the community. • Protects the quality of natural waterways. • Chemicals are stored and handled in accordance with relevant legislation to ensure safety of workers, public safety and to protect the environment. • Minimisation of Greenhouse gas emissions. • Optimum use of resources.
System design will minimise energy consumption and use of chemicals.	• Reduced cost of energy and chemicals • Cost effective service for community	• Minimisation of Greenhouse gas emissions. • Minimisation of production of treatment process by-products that are contaminated with chemicals that are harmful to the environment.
System design will aim to minimise wet weather overflow events by reducing infiltration and inflow	• Reduced cost of energy for transport, treatment and disposal • Minimise overflow issues • Maximise life of system	• Protect quality of waterways by reduction of the risk of overflow to local waterways.
To maximise the use of biosolids, where there is a demonstrated benefit to the community and/or the environment	• To utilise biosolids as a resource.	• Reduction in release of nitrogen and phosphorous to the environment. • Containment of heavy metals.
Infrastructure will be designed, constructed and operated in accordance with Workplace Health and Safety Legislation.	• Minimisation of risk to workers and community (reduction in accidents and insurance premiums).	• Minimise risk of pollution events. • Safer work environment for staff and public.

Detailed Design Parameters for Sewerage

Following an examination of the QDNRM&E Guidelines and a survey of current practice of local governments in South East Queensland, Pine Rivers Shire Council has adopted the parameters summarised in for design and assessment of sewerage systems.

The summary outlined in Table E2 must be interpreted in conjunction with Pine River Shire Council's design and construction standards for sewerage set in *Planning Scheme Policy PSP28 "Civil Infrastructure Design"*.

Table E2 - Sewerage Design Parameters

Item	Description	Adopted Design Parameter
Occupancy Ratio		
1	Equivalent Person/Equivalent Tenement (EP/ET).	• 2003 – 3.0 EPS/ET • 2008 – 2.9 EPS/ET • 2013 and beyond – 2.8 EPS/ET
Sewage Loading		
3	Average Dry Weather Flow (ADWF).	225 L/EPS/d.
4	Peak Wet Weather Flow(PWWF).	5 x ADWF
5	Peak Dry Weather Flow (PDWF).	C_2 X ADWF where C_2 = Peaking factor shown on dgr no A3-99480 of the QDNRM&E Guidelines
Gravity Sewer Design		
6	Flow calculation method.	Manning's Equation
7	Manning's 'n'.	0.013
8	Minimum velocity at PWWF.	0.6 m/s
9	Minimum velocity at PDWF.	0.3 m/s
10	Depth of Flow at PWWF – Existing system.	Maximum hydraulic grade level = 1.0 m below MH cover level and no spillage through overflow structures.
11	Depth of Flow @ PWWF – Proposed sewers.	Water surface level must not exceed obvert level of pipe.
Pumping Station Design		
12	Pump Motor Drives.	• Fixed speed drives; or • Variable speed drives when approved by Pine Water's Manager Networks Operation.
13	Number of Pumps.	Two pumps; or A single pump if specifically approved by Pine Water's Manager Networks Operation
14	For Fixed Speed Pumps: Wet Well Operating Volume (kL).	$\frac{0.9xQ}{N}$ Where Q is the flow rate (L/s) of a single pump operating and N is the allowable number of pump starts (as per QDNRM&E Guidelines). The number of pump starts (N) should be not more than 10 for pumps less than 50 kW rating. For pumps greater than 50 kW rating, according to manufacturer's recommendations
15	For Variable Speed Pumps: Wet Well Operating Volume (kL).	$\frac{0.9xQ}{N}$ Where Q = discharge of a single pump (L/s) at 50 Hz N= maximum number of starts per hour recommended by the motor manufacturer.
16	Bottom Water Level (BWL).	a) For Fixed Speed Pumps- in accordance with standard drawing 8 50015 in *Planning Scheme Policy PSP28 "Civil Infrastructure Design".* b) For Variable Speed Pumps -minimum of 100 mm above top of motor casing.
17	Well Diameter	Minimum internal well diameter = 2000 mm Internal well diameter may be increased in increments of 500 mm depending upon considerations such as: c) Clearance around pumps and pipework; d) Depth of pump station; and e) Geotechnical conditions.
18	Top Water Level (TWL).	Must be set 300 mm below invert level of inlet sewer.
19	Operating Range (i.e., BWL to TWL).	Generally this range should be between 600 mm and 2800 mm subject to maximum and minimum depths shown on standard drawing 8 50015 in *Planning Scheme Policy PSP28 "Civil Infrastructure Design".*

20	Duty Point.	**Duty Point 1 - Single Pump Operation:**
		(C1 x ADWF) (L/s) v (Static head + Friction Head) (m)
		Duty Point 2 - Duty Pump Operating in Parallel With Standby Pump
		(5 x ADWF). (L/s) v (Static head + Friction Head) (m)
		
		where:
		• Static Head = (Highest Point in Rising Main –Water Level in Wet Well)
		• Friction Head is derived from the Hazen Williams formula and includes losses due to bends and fittings:
		  ○ Hazen Williams C = 100 (dia. ≤ 300)
		  ○ Hazen Williams C = 120 (dia > 300)
		
		C1 = Peaking Factor shown on dgr A3-99480 of the QDNRM&E guidelines

21	Pump Selection.	The pump capable of operating at both duty points described in item 20 and which operates within the range of the system resistance curves that are determined by Conditions 1, 2 and 3 detailed below: **Condition 1- Normal Operating Condition, Lower Limit System Resistance Curve:** Static Head corresponding to Top Water Level with rising main friction factors as follows: • C = 120 (dia. ≤ 300) • C = 140 (dia > 300) **Condition 2 – Normal Operating Condition, Upper Limit System Resistance Curve:** Static Head corresponding to Bottom Water Level with rising main friction factors as follows • C = 100 (dia. ≤ 300) • C = 120 (dia > 300) **Condition 3 – System Overflow, Low Limit System Resistance Curve:** At an overflow flow condition both pumps will operate in parallel. The pumps are to operate (as determined from the manufacturers design curves) for the static head corresponding to the system overflow level and with friction factors for the rising main as follows: • C = 120 (dia. ≤ 300) C = 140 (dia > 300)
22	Emergency Storage.	6 hours of ADWF (Emergency storage may include gravity sewers, manholes and pump station wet well volume above TWL)
23	Duty Pump Capacity.	Not less than C1 x ADWF (C1 is interpreted from drawing A3-99480 of the QDNRM&E Guidelines where the contributing population is the sum of the population contributing to all upstream pump stations plus the population of subject pump station's catchment).
24	Standby Pump Capacity.	Equivalent to capacity of the duty pump.
25	Total Pump Station Capacity.	Not less than 5 x ADWF
Rising Main Design		
26	Flow Equation.	Hazen Williams.
27	Minimum Diameter.	• 100 mm; or • other if specifically approved by Pine Water's Manager Electrical Mechanical Services.
28	Friction Factors.	See Item 21 above.
29	Minimum Velocity (on a Daily Basis).	0.75 m/s
30	Preferred Minimum Velocity.	1.5 m/s
31	Maximum Velocity.	2.5 m/s
32	Configuration.	Rising mains are sized to optimise the balance between reduction of detention times and life cycle cost. Factors to be considered should include but not be limited to: • Population growth; • Staging; • Operational features to provide for maintenance and replacement activities; • Minimisation of energy costs; Detention times (reduction of odours).
33	Interconnection of Rising Mains from Different Pump Stations.	Only with the approval of the General Manager of Pine Water and only where that interconnection has substantiated economic and operational benefits.

Review Triggers

This policy is reviewed internally for applicability, continuing effect and consistency with related documents and other legislative provisions when any of the following occurs:

(1) The related documents are amended;

(2) The related documents are replaced by new documents;

(3) Amendments which affect the allowable scope and effect of a policy of this nature are made to the head of power; and

(4) Other circumstances as determined from time to time by a resolution of Council.

Responsibility

This policy is to be:

(1) implemented by the Manager Development Services; and

(2) reviewed and amended in accordance with the "Review Triggers" by the Manager Strategic Direction in consultation with the Manager Development Services.

Version Control

CEO Approval Date

Related Links:

ENDNOTES

Amendment No – 2/2008	Date Adopted – 19 August 2008	Effective Date – 1 September 2008

Planning Scheme Policy Reference	Description of Amendment
PSP 23	▪ To reflect updated network planning ▪ Update infrastructure contribution rates ▪ Incorporate additional material, for example, desired standards of service ▪ Re-wording and restructuring of the document to improve readability ▪ Revised demand factors