Moreton Bay Regional Council – Redcliffe City

Planning Scheme Policy

PSP4 Part 8.4.6 Development Contributions for Trunk Infrastructure – Sewerage

Moreton Bay Regional Council - Redcliffe City

PSP4 Part 8.4.6 Development Contributions for Trunk Infrastructure – Sewerage

ADOPTION Moreton Bay Regional Council adopted this planning scheme policy on 8 September 2009.

COMMENCEMENT This planning scheme policy took effect from 29 October 2009.

I, Daryl Hitzman, A/Chief Executive Officer, of the Moreton Bay Regional Council, hereby certify that this document is a true copy of the original.

Daryl Hitzman A/Chief Executive Officer

TABLE OF CONTENTS

HEAD OF POWER	. 1
OBJECTIVE	. 1
DEFINITIONS / APPLICATION	. 1
POLICY STATEMENT	1
1 SCOPE	1
2 BACKGROUND INFORMATION	2
3 SEWERAGE METHODOLOGY	2
3.1 METHODOLOGY	2
3.2 TRUNK SEWERAGE SERVICE CATCHMENTS	3
3.3 SEWERAGE DEMAND ASSUMPTIONS	.3
4 SEWERAGE PLAN FOR TRUNK INFRASTRUCTURE	. 5
4.1 SEWERAGE TRUNK INFRASTRUCTURE NETWORK	5
4.2 Sewerage Tronk INFRASTRUCTURE VALUATIONS	
SCHEDULE B: INFRASTRUCTURE CONTRIBUTION BATES	10
SCHEDULE C. SERVICE CATCHMENTS AND NETWORK ASSETS	
SCHEDULE D' DESIBED STANDARDS OF SERVICE	11
	13
	14
RESPONSIBILITY	14
VERSION CONTROL	14

PSP4 Part 8.4.6 – 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 apportion the cost of Sewerage Trunk Infrastructure over all benefiting development (existing and future) commensurate with the demand or load that existing and future development will place on existing and planned future infrastructure, while ensuring a reasonable and equitable distribution of the costs of Sewerage Trunk Infrastructure works between Council and developers of land in the former Redcliffe City.

Definitions / Application

Application

This policy applies to all applications for development which have been made assessable against the *Redcliffe City 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 former Redcliffe City is shown in Schedule C.

The policy outlines the basis of Council's Infrastructure Contributions Regime for Sewerage Trunk Infrastructure in the former Redcliffe City. It is to be read in conjunction with Planning Scheme Policy PSP4 Part 8.4.1 Development Contributions for Trunk Infrastructure – Administration Policy.

Payment of any 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 PSP4 Part 8.4.1 Development Contributions for Trunk Infrastructure – Administration Policy. Where a term used in this policy is not defined in PSP4 Part 8.4.1, that term shall, unless the context indicates or requires otherwise, have the meaning assigned to it in the *Redcliffe City Planning Scheme* or in the *Integrated Planning Act 1997*.

Policy Statement

1 Scope

This policy sets out the basis for determining the amount 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 former Redcliffe City which, in the opinion of Council, may impact on its Sewerage Trunk Infrastructure either immediately or at some time in the future. This policy:

- is to be read in conjunction with Planning Scheme Policy PSP4 PART 8.4.1 Development Contributions for Trunk Infrastructure Administration Policy;
- specifies the assumptions made in determining the rate of the contribution payable towards the cost of Sewerage trunk infrastructure within Council's Local Government Area;
- specifies the works, structures or equipment, which the Council determines to be Sewerage Trunk Infrastructure;
- establishes the estimated construction costs of existing and future components of the sewerage trunk infrastructure network; and
- 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 methodology identified in the report prepared by MWH "Derivation of Water supply and Sewerage Infrastructure Charges" (the Study Report – May 2004).

The following additional reports identifying required Trunk Infrastructure for the former Redcliffe City were also used as a basis for this policy:

- (1) Desired Standards of Service and Design Criteria for Water and Sewerage Infrastructure, MWH Australia Pty. Ltd., July 2003;
- (2) Redcliffe ICS Study Sewerage Collection System Master Plan, MWH Australia Pty. Ltd., March 2004; and
- (3) Council's 15 year capital works program internal minute to Moreton Bay Regional Council Financial Department 23 December 2008.

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) and the Standard Infrastructure Charges Schedule Nov 2008.

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 over the planning horizon of this policy and resulting demand on the network within each service catchment;
- (c) determine the Trunk Infrastructure likely to be needed to service the development or planned / ultimate population within each service catchment to deliver the Desired Standard of Service (DSS) outlined in Schedule D of this policy;
- (d) determine the current replacement costs for existing Trunk Infrastructure, and the future establishment costs for anticipated future Trunk Infrastructure in net present values in each service catchment;
- (e) derive the applicable Infrastructure Contribution Rates by dividing the total network costs in net present values by the total discounted 'ultimate' demand on the network in each service catchment, thereby producing a rate per selected demand unit.

The contribution rate, for each particular service catchment, was determined by applying the formula:-

CR _{Catchment} = (Asset Values)/(Demand)

Where:-

CR _{Catchment}	=	Contribution Rate for an individual service catchment (expressed in \$/EPS)
Asset Values	=	Value of Catchment's Assets (\$)
	=	Σ (Current Replacement Cost of Existing assets at 01-01-2009 x proportion of the asset utilised by the service catchment) + Σ (net present value at 01-01-2009 of future assets x proportion of the asset utilised by the service catchment)
Demand	=	Σ (Existing Demand in the service catchment at 01-01-2009) + (Net Present Value at 01-01-2009 of the Future Demand to Ultimate Development) (expressed in EPS)

Sewerage 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 service catchment or sub-catchment while regional infrastructure services customers in more than one service catchment. For example, all sewerage in Redcliffe is treated at the Redcliffe Wastewater Treatment Plant, which is therefore considered regional infrastructure. Accordingly, a two tier system has been employed to equitably allocate the costs of infrastructure.

This methodology applies an equitable distribution of trunk infrastructure costs between Council (on behalf of the existing community), and entities proposing new development. Each development proponent will only be responsible for meeting the establishment costs of that proportion of the water supply trunk infrastructure network planned to be consumed by that entity's development proposal.

3.2 Trunk Sewerage Service Catchments

The former Redcliffe City has been divided into the sewerage service catchments shown in Table 3.2A.

Table 3.2A – Trunk Sewerage Service Catchments

Service Catchment				
SS01	Sub-system (SS01) – Covers the area serviced primarily by the rising main, RM0			
SS02	Sub-system (SS02) – Covers the area serviced primarily by the rising main, RM18			
SS03	Sub-system (SS03) – Covers the area serviced primarily by the rising main, RM12			
SS04	Sub-system (SS04) – Covers the area serviced primarily by rising mains RM16 and RM19			

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

3.3 Sewerage Demand Assumptions

Approach to Demand and Load Modelling

The reports referred to in Section 2 of this policy document the assumed demand across the City, the most cost effective servicing strategy and Council's Capital Works Programs aligning with assumed growth rates for all of the former Redcliffe City.

To aid in the preparation of this policy, new Demand and Load Models for Water Supply were built, based on the *Redcliffe City Planning Scheme*, to full development of the City, assuming densities consistent with the Planning Scheme – this being termed 'ultimate' development. The Hydraulic Models for Water Supply have been re-run to reflect the new Desired Standards of Service for water supply and the permanent water restrictions adopted in South-East Queensland and the updated Water Network information from this model run has been used as a basis given the obvious nexus between water supply and sewerage, Sewerage Demand. The Average Dry Weather Flow for the sewerage network under this policy is 185 litres / EPS / Day.

Sewerage Demand Assumptions

The Demand Projections, Capacity Planning and Infrastructure Contribution Rates developed for the Sewerage Network are expressed in the Standard Demand Units of 'Equivalent Person (Sewerage)' (EPS). The determination of demand and load for the Sewerage network was linked to the Water Supply network by utilising corresponding growth rates and a constant ratio between Water Supply (EPW) and Sewerage (EPS) Demand of 1.008738 (i.e., one EPW corresponds to 1.008738 times as many sewerage EPS's).

Planning Scheme Zone	Demand in EPS's
Low Density Residential Zone	
Lot Size ≤ 500m²	2.02 EPS/lot
Lot Size 501-1500 m²	2.62 EPS/lot
Lot Size >1500 m ²	30.26 EPS/Ha
Mixed Density Residential Zone	
Lot Size ≤ 500m ²	2.02 EPS/lot
Lot Size 501-700 m ²	2.62 EPS/lot
Lot Size > 700 m ²	60.52 EPS/Ha
Medium Density Residential Zone	
< 3 Storeys	
Lot Size ≤ 500m ²	2.02 EPS/lot
Lot Size 501-750 m ²	2.62 EPS/lot
Lot Size > 750 m ²	60.52 EPS/Ha
3 Storeys	121.05 EPS/Ha
6 Storeys	176.53 EPS/Ha
8 Storeys	221.92 EPS/Ha

Table 3.3A – Sewerage Demand Assumptions by Zone and Lot Type

PLANNING SCHEME POLICY PSP4 Part 8.4.6 -	- DEVELOPMENT CONTRIBUTIONS FOR TRUNK INFRASTRUCTURE - SEWEI	RAGE
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Planning Scheme Zone	Demand in EPS's
Retail Core Zone	
1-2 storeys	30.26 EPS/Ha
3 storeys	131.14 EPS/Ha
6 storeys	191.66 EPS/Ha
8 storeys	242.1 EPS/Ha
12 storeys	292.53 EPS/Ha
Frame Business Zone	
1-2 storeys	30.26 EPS/Ha
3 storeys	121.05 EPS/Ha
6 storeys	176.53 EPS/Ha
8 storeys	221.92 EPS/Ha
12 storeys	262.27 EPS/Ha
Industry Zone	30.26 EPS/Ha
Health Services Zone	30.26 EPS/Ha
Community Purpose Zone	30.26 EPS/Ha
Natural value Zone	
Open Space and Recreation Zone	5.04 EPS/Ha

Projected Sewerage Demand

Projected ultimate demand for the sewerage trunk network is shown in Table 3.3B. To satisfy the discounted cash flow methodology requirements of calculating the infrastructure contribution rates, existing demand is added to the value of future demand indexed for anticipated fluctuations in construction costs (generally increases) and discounted for cost of capital, resulting in NPV Demand.

Table 3.3B – Demand in EPSs by Sewerage Service Catchment

Service Catchment	Ultimate Demand in EPS's	Total Ultimate NPV Demand in EPS's
SS01	26,080	25,820
SS02	16,702	16,606
SS03	18,754	18,626
SS04	22,971	22,654
	84,507	83,706

4 Sewerage Plan for Trunk Infrastructure

4.1 Sewerage Trunk Infrastructure Network

The following Infrastructure items as shown on the maps contained in Schedule C of this policy are deemed to be Trunk Infrastructure for the purpose of planning and funding of the Trunk Sewerage Network:-

- (1) sewer pipes with a diameter of 225mm and above;
- (2) rising mains with a diameter of 150mm and above;
- (3) pumping stations that are connected direct to trunk sewers or rising mains; and
- (4) sewage treatment plants.

The land on which these components are situated is also essential component of the sewerage trunk infrastructure network. However, with the exception of the treatment plant and possibly some of the pumping stations, those assets are located on land which is road reserve, or public open space, or private land outside of Council's ownership. As such, the land content has been excluded from the calculation of infrastructure contribution rates for the trunk sewerage network.

Assets are also grouped into 'Active' and 'Passive' Assets.

Active sewerage infrastructure assets consist mainly of above ground visible assets such as treatment plants and pumping stations.

Passive sewerage infrastructure assets consist of underground assets such as mains, pipe fittings and property connections.

The various elements of this Trunk Infrastructure are shown on the maps in Schedule C and are tabulated in Section 4.2.

4.2 Sewerage Trunk Infrastructure Valuations

Existing Asset Valuations

Valuations of existing sewerage trunk infrastructure contained in this policy are based on the report titled "Derivation of Water Supply and Sewerage Infrastructure Charges" dated May 2004 prepared by MWH. For a full Schedule of existing Sewerage Trunk Infrastructure Assets refer Appendix C of that report. These valuations have been supplemented by details recorded in Council's asset data base to cover a component of the network with a creation date between January 2005 and December 2007.

The valuations shown in Table 4.2A are higher than those contained in the above report due to escalation being applied to bring the costs to 01 January 2009 values, based on Rawlinson's Construction Index for Brisbane.

Costing information for Planned Future Assets

Cost for Planned Future Assets have been taken from the estimates in Council's adopted Capital Works Program valued for, and current at, 01 January 2009, expressed in Net Present Values.

Table 4.2A – Sewerage Infrastructure Costs by Catchment inNPV as at 01 January 2009

SERVICE CATCHMENT	SS01	SS02	SS03	SS04	TOTAL
LOCAL SERVICE CATCHMENT-					
ACTIVE-EXISTING (Jan 2009)	\$3,724,442	\$5,303,485	\$11,293,181	\$7,665,785	\$27,986,893
LOCAL SERVICE CATCHMENT-					
PASSIVE-EXISTING (Jan 2009)	\$4,970,233	\$6,009,498	\$6,872,186	\$7,561,097	\$25,413,013
LOCAL SERVICE CATCHMENT-					
FUTURE (Jan 2009)	\$883,603	\$0	\$0	\$1,429,337	\$2,312,939
LOCAL SERVICE CATCHMENT-					
TOTAL (Jan 2009)	\$9,578,277	\$11,312,983	\$18,165,366	\$16,656,219	\$55,712,845
REGIONAL CATCHMENT-					
ACTIVE-EXISTING (Jan 2009)	\$6,696,776	\$4,306,890	\$4,830,942	\$5,875,767	\$21,710,374
REGIONAL CATCHMENT-					
FUTURE (Jan 2009)	\$831,743	\$534,918	\$600,005	\$729,773	\$2,696,438
REGIONAL CATCHMENT-TOTAL					
(Jan 2009)	\$7,528,518	\$4,841,808	\$5,430,947	\$6,605,539	\$24,406,813
TOTAL SERVICE CATCHMENT					
(Jan 2009)	\$17,106,796	\$16,154,791	\$23,596,314	\$23,261,758	\$80,119,658

Project ID	Project Name	Anticipated Timing of Works	Charging Level	NPV - 01 January 2009
PUMP STAT	TIONS			
PIPS00001	SPS 19X Hercules road (Renewal of existing pumps as interim solution)	2009	Local	\$218,812
PIPS00002	SPS 19X Hercules road (Design of upgrade to cater for Newport Development)	2009	Local	\$29,838
PIPS00003	SPS 19X Hercules road (Upgrading to cater for Newport Development)	2010	Local	\$989,227
PIPS00004	SPS 16X, Grice street Decommission	2009	Local	\$19,892
PIPS00005	Duplication of pumps(3x2.1 Kw,9Kw,2x4.5Kw)	2009	Regional	\$124,325
PIPS00006	SPS23 & 23A, McGahy St West Decommissioning	2009	Local	\$9,946
PIPS00009	SPS 5 - Humpybong Creek	2009	Local	\$19,892
PIPS00010	SPS 21 - Nathan Road	2009	Local	\$62,162
PIPS00011	SPS9 Whitecliffe Parade-Renewal of pumps, Converting PS to submersible type and add emergency storage	2011	Local	\$615,061
PIPS00012	SPS 2 X Landsborough Avenue	2009	Local	\$248,650
GRAVITY SEWERS / PRESSURE MAINS				
PIPS00013	Rising mains upgrades	2018	Regional	\$2,572,114
PIPS00014	Hercules road (Newport main 250mmx330m)	2009	Local	\$99,460
			TOTAL	\$5.009.379

Table 4.2B Future Asset Schedule

Schedule A: Demand Factors

Demand factors are calculated based on defined uses within the jurisdiction of each relevant planning scheme, and are therefore unique to each district within the Moreton Bay Regional Council shire area.

Table A - Demand Factors for Sewerage Infrastructure Contributions

	DEMAND FACTOR	COMMENT
DEMAND FACTORS FOR MCUs -		
by Land use		
Accommodation unit	1.61 EPS/du	Sewerage Planning Assumptions
Aerodrome		Assess Impact on Application
Business premises		Assess Impact on Application
Car park		Assess Impact on Application
Caravan Park (Summative		
Components)		
Tent site	1.4 FPS	Site
Caravan site	1.8 EPS	Site
Caretaker's residence	2.62 EPS/detached house	
Club	As Hotel	
Community well-being facilities		Assess Impact on Application
Community well-being		
infrastructure		Assess Impact on Application
Display home /Estate sales office		
Where the office will be removed upon	0 EPS	
completion of sales		
where the office is the temporary use of a dwelling house		As per the home type being used
Where the office will be retained for a use identified elsewhere in this table		As per the scheduled use
Duplex dwelling	2.62 EPS/dwelling unit	
Education centre		
Schools		
Non-boarding schools	0.21 EPS	Licensed enrolment
Boarding schools	0.21 FPS	Licensed enrolment of others
Other Education Establishments	0.26 EPS	Licensed enrolment
Employment related storage		Assess Impact on Application
Entertainment outdoor		
Swimming Pools	0.005 EPS	Pool volume in cubic metres
Changing Rooms, Showers and Toilets ¹ (see note 1)		
 Water Closet 	0.7 EPS	Pedestal
 Urinal (Stall) 	0.2 EPS	Stall
 Urinal (Trough) 	0.3 EPS	metre
Shower Bath	0.25 EPS	shower
Wash Basin	0.2 EPS	basin
table		As per item
Food service		
Cate / Coffee shop/ Cateteria/ Bistro	4 EPS	100 square metres of gross use area
Other Restaurants	5.25 EPS	100 square metres of gross use area
Take Away Food Outlet	4 EPS	100 square metres of gross use area
General industry		Assess Impact on Application
Government Infrastructure		Assess Impact on Application
Home based business		Assess Impact on Application
Hotel		
single room (without kitchen facilities)	0.9 EPS	room
double room (without kitchen facilities)	1.3 EPS	room
Suites or rooms with kitchen facilities		As Serviced Apartments
Shop		As nestaurant As Shon
Bar and Gaming Areas	5. EPS	100 square metres gross use area
Beer Garden	3.75 EPS	100 square metres gross use area

	DEMAND FACTOR	COMMENT
DEMAND FACTORS FOR MCUs -		
by Land use		
Function Rooms	2.5 EPS	100 square metres gross use area
Swimming Pools	0.005 EPS	Pool volume cubic metres
Any other item identified elsewhere in this table		As per item
House	2.62EPS/detached house EPS	As per Low Density Residential Zone, Mixed Density Residential Zone, Medium Density Residential Zone as applicable.
Indoor entertainment, sport or		
Cinema	0.05	seat
Licensed Clubs & Organisations	0.03	As Hotel
Swimming Pools	0.005	Pool volume in cubic metres
Gymnasiums and Fitness Centres (see note 1)		
 Water Closet 	0.7	Pedestal
 Urinal (Stall) 	0.2	Stall
 Urinal (Trough) 	0.3	metre
Shower/ Bath	0.25	Shower/ bath
Wash Basin	0.2	basin
Commercial Clubs & Organisations		AS HOIEI
Organisations with no daming or liquor licence		
 With facilities for the frequent provision of cooked food 	1	100 square metres gross floor area
Without facilities for the frequent required feed	0 5000	
Other Types	Assess Impact on Application	Individual Basis
Industry with substantial impacts	Assess impact of Application	Assess Impact on Application
Market		Assess Impact on Application
Multiple dwelling	1.61 EPS/du	Sewerage Planning Assumptions
Author calos promisos	1.01 El 3/00	Assocs Impact on Application
Double Sales premises		Assess impact of Application
Park Delativela accommodation	5.04 EPS/Ha	Sewerage Planning Assumptions
Relative's accommodation	1 EPS/bedroom	
Rural activities		Assess Impact on Application
Service station		
Pump Sets	0.25	pump As Service Industry
Shop		As Shop
Any other item identified elsewhere in this		As per item
Service trade		Assess Impact on Application
Shon		
Hairdressers beauty salons barbers		
(Summative Components)		
 General Retail Loading 	0.9	100 square metres gross use area
Installed Washbasins	0.2	basin
Other Shops	0.9	100 square metres gross use area
Showroom/super store		Assess Impact on Application
Special needs housing	1.61 EPS/du	Sewerage Planning Assumptions
Sport and recreation outdoor		Assess Impact on Application
Stable		Assess Impact on Application
Transport interchange		Assess Impact on Application
Utility installation		Assess Impact on Application
Warehouse	0.9	100 square metres of gross use area
DEMAND FACTOR FOR BALS- by		
Zone		
Low Density Residential Zone		
Lot Size ≤ 500m ²	2.02 EPS/lot	Sewerage Planning Assumptions
Lot Size 501-1500 m ²	2.62 EPS/lot	Sewerage Planning Assumptions
Lot Size >1500 m ²	30.26 EPS/Ha	Sewerage Planning Assumptions
Mixed Density Residential Zone		
Lot Size ≤ 500m ²	2.02 EPS/lot	Sewerage Planning Assumptions
Lot Size 501-700 m ²	2.62 EPS/lot	Sewerage Planning Assumptions
Lot Size > 700 m ²	60.52 EPS/Ha	Sewerage Planning Assumptions

DEMAND FACTOR FOR RALs- by		
Zone		
Medium Density Residential Zone		
< 3 Storeys		
Lot Size ≤ 500m²	2.02 EPS/lot	Sewerage Planning Assumptions
Lot Size 501-750 m²	2.62 EPS/lot	Sewerage Planning Assumptions
Lot Size >750 m ²	60.52 EPS/Ha	Sewerage Planning Assumptions
3 Storeys	121.05 EPS/Ha	Sewerage Planning Assumptions
6 Storeys	176.53 EPS/Ha	Sewerage Planning Assumptions
8 Storeys	221.92 EPS/Ha	Sewerage Planning Assumptions
Retail Core Zone		Sewerage Planning Assumptions
1-2 storeys	30.26 EPS/Ha	Sewerage Planning Assumptions
3 storeys	131.14 EPS/Ha	Sewerage Planning Assumptions
6 storeys	191.66 EPS/Ha	Sewerage Planning Assumptions
8 storeys	242.1 EPS/Ha	Sewerage Planning Assumptions
12 storeys	292.53 EPS/Ha	Sewerage Planning Assumptions
Frame Business Zone		Sewerage Planning Assumptions
1-2 storeys	30.26 EPS/Ha	Sewerage Planning Assumptions
3 storeys	121.05 EPS/Ha	Sewerage Planning Assumptions
6 storeys	176.53 EPS/Ha	Sewerage Planning Assumptions
8 storeys	221.92 EPS/Ha	Sewerage Planning Assumptions
12 storeys	262.27 EPS/Ha	Sewerage Planning Assumptions
Industry Zone	30.26 EPS/Ha	Sewerage Planning Assumptions
Health services Zone	30.26 EPS/Ha	Sewerage Planning Assumptions
Community Purpose Zone	30.26 EPS/Ha	Sewerage Planning Assumptions
Natural value Zone		Sewerage Planning Assumptions
Open Space and Recreation Zone	5.04 EPS/Ha	Sewerage Planning Assumptions

Schedule B: Infrastructure Contribution Rates

Table B shows the Infrastructure Contribution Rates for the network.

Table B – Trunk Sewerage - Infrastructure Contribution Rates (ICR's)

Service Catchment	Local ICR \$/EPS	Regional ICR \$/EPS	Total ICR \$/EPS
SS01	\$371	\$292	\$663
SS02	\$681	\$292	\$973
SS03	\$1,094	\$292	\$1,386
SS04	\$1,003	\$292	\$1,295

Schedule C: Service Catchments and Network Assets



RPIPS00011

RPIPS00012

RPIPS00009

MORETON BAY REGIONAL COUNCIL Redcliffe City

EFFECTIVE FROM 29 October 2009

Schedule D: Desired Standards of Service

The desired standards of service (DSS) for sewerage services in the former Redcliffe City were established in 2004. The 2004 DSS values have been reviewed and revised to suit the situation at 1 January 2009. The reviewed desired standards of service for sewerage are as summarized in Table D.

Table D: Summary of Sewerage Design Parameters

Design Concept	Parameter	Design Criteria
Sewage Loading	Average Dry Weather Flow (ADWF)	185 L/EPS/d
	Peak Wet Weather Flow (PWWF)	6 x ADWF or 1110 L/EPS/day
Gravity Sewer Design	Flow calculation approach	Manning's equation
	Manning's n	0.013
	Minimum velocity @ PWWF	0.6 m/s
	Minimum velocity @ PDWF	0.3 m/s
	Depth of flow @ PWWF – existing	At least 1.0 m below Manhole cover level
	system	and no spillage through overflow
		structures
	Depth of flow @ PWWF – new	Design for full pipe capacity
	sewers	
Pumping Station Design	Wet well storage volume	<u>0.9 x Q</u>
		N
	Emergency storage	4 hours of ADWF
	Single pump capacity	C1 x ADWF where >1000 EPS
		5 x ADWF where <1000 EPS
	Total PS capacity	5 x ADWF
Rising Main Design	Flow equation	Hazen Williams
	Friction factors	Ks = 0.3mm
	Minimum velocity (on a daily basis)	0.75 m/s
	Preferred minimum velocity (all	1.2 m/s
	pumps)	
	Maximum velocity	2.5 m/s

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 Senior Manager Development Services; and
- (2) reviewed and amended in accordance with the "Review Triggers" by the Senior Manager Strategic Direction and Sustainability in consultation with the Senior Manager Regional and Environmental Planning and Development Services.

VERSION CONTROL

CEO Approval Date

15/09/2009

Related Links: