Tenterfield Shire Council
Development Servicing Plan
Sewerage Services

May 2012

Adopted
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REV	DESCRIPTION	ORIG	REVIEW	DATE
0	SEWERAGE DSP – DRAFT FOR COUNCIL REVIEW	R CAMPBELL	M HOWLAND	9/5/12
1	SEWERAGE DSP – DRAFT FOR PUBLIC DISPLAY	R CAMPBELL	M HOWLAND	24/5/12

SUMMARY

This Development Servicing Plan (DSP) covers sewerage Developer Charges for the areas served by the Tenterfield Shire Council sewerage schemes.

Table 1 – Service Areas

Service Area	Areas Included
Tenterfield	The area serviced by the Tenterfield sewage treatment plant
Urbenville	The area serviced by the Urbenville sewage treatment plant

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

The timing and expenditure for works serving the area covered by this DSP and the calculation of developer charges is given in Appendix 1. Levels of service to be provided to the service areas are summarised in Section 4.6.

The developer charges for the sewerage DSP areas are shown in Table 2.

Table 2 – Developer Charges – Sewerage

DSP Area	Developer Charge (2012 $ per Equivalent Tenement)
Tenterfield	$6,500
Urbenville	$3,000

The developer shall also be liable for all additional works not specifically included in the capital works program, where required to serve the development. The developer shall be responsible for the full cost of the design and construction of sewerage reticulation works within subdivisions.

Developer charges relating to this DSP will be reviewed after a period of not more than 6 years.

In the period between any review, developer charges will be adjusted annually on 1 July on the basis of the movements in the CPI for Sydney, excluding the impact of GST.

Further details relating to the sewerage assets and to this DSP can be found in the Background Document in Appendix 1.

CONTENTS

1. INTRODUCTION 1
2. ADMINISTRATION 2
2.1 Payment of Developer Charges 2
2.1.1 Indexation 2
2.1.2 Tenement and Demand Projections 2
2.1.3 Timing 2
2.1.4 Waiver 3
2.2 Reticulation Works 3
2.3 DSP Review 3
3. THE DEVELOPER CHARGES PROCESS 4
3.1 Introduction 4
3.2 Capital Charge 4
3.3 Reduction Amount 5
4. TENTERFIELD SHIRE COUNCIL SEWERAGE SERVICES 6
4.1 Tenterfield Sewerage 7
4.2 Urbenville Sewerage 7
4.3 Growth Projections 8
4.4 System Capacity 9
4.5 Design Parameters 9
4.6 Standards of Service 9
4.7 Future Capital Works 10
5. CALCULATION OF DEVELOPER CHARGES 11
5.1 Capital Charge 11
5.2 Reduction Amount 11
5.3 Developer Charges 11
6. ABBREVIATIONS AND GLOSSARY 13
APPENDIX 1 - DSP BACKGROUND DOCUMENT

1. INTRODUCTION

Section 64 of the Local Government Act 1993 enables a local water utility to levy developer charges for water supply and sewerage management works. This power derives from a cross-reference in that Act to section 306 of the Water Management Act 2000.

A Development Servicing Plan (DSP) is a document which details the developer charges to be levied on development areas utilising a local water utility's infrastructure.

This DSP covers sewerage Developer Charges for the provision of sewerage to the areas served by the Tenterfield Shire Council sewerage schemes.

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

This DSP supersedes any other requirements related to sewerage developer charges for the areas covered by the DSP. This DSP takes precedence over any of Council's codes or policies where there are any inconsistencies relating to sewerage developer charges.

2. ADMINISTRATION

DSP Name	Tenterfield Sewerage
DSP Boundaries	The DSP area boundary is defined as the area served by the Tenterfield sewerage system. The sewerage scheme is discussed in Section 4.

DSP Name	Urbenville Sewerage
DSP Boundaries	The DSP area boundary is defined as the area served by the Urbenville sewerage system. The sewerage scheme is discussed in Section 4.

Developments may attract contributions where such development will utilise the Tenterfield Shire Council sewerage schemes.

Tenterfield Shire Council does not intend to provide sewerage services outside these DSP areas within the next 5 years. Any development outside these DSP areas that requires a sewerage service may require a special agreement with Council.

2.1 Payment of Developer Charges

2.1.1 Indexation

Charges will be indexed on the 1st July each year in line with the Consumer Price Index (CPI, All Groups Sydney) as published by the Australian Bureau of Statistics.

2.1.2 Tenement and Demand Projections

Most types of development will increase the demand on a sewerage system. The increase in demand is assessed in terms of equivalent tenements (ET). The calculation of equivalent tenements for each development will be made in accordance with the methods described in the NSW Water Directorate publication *Section 64 Determinations of Equivalent Tenements Guidelines (2005 and 2009 Addendum).*

2.1.3 Timing

On receipt of a Development Application or a Sewerage Service Application, Tenterfield Shire Council will advise the charges payable under this DSP.

Payment of developer charges must be made in the form of a cash payment to Tenterfield Shire Council.

The developer contribution will apply for 12 months from the date of the assessment notice. After this time, the rate may increase (through indexation or review of this DSP) from the time the condition appears on the notice of development consent until the payment is received.

2.1.4 Waiver

Tenterfield Shire Council may waive developer contributions where the proponent demonstrates to Council's satisfaction that it is a non-profit and charitable organisation, which by virtue of carrying out such development, is considered to be making a significant and positive contribution to the community and is unable to recover the charge from the end user.

2.2 Reticulation Works

The developer shall be responsible for the full cost of the design and construction of sewerage reticulation works within developments including subdivisions. The design and construction of the works shall be in accordance with Council's development specifications for sewerage services.

2.3 DSP Review

Developer charges relating to this DSP will be reviewed after a period of not more than 6 years.

3. THE DEVELOPER CHARGES PROCESS

3.1 Introduction

Developer charges are up-front charges levied to recover part of the infrastructure costs incurred in servicing new developments or additions/changes to existing developments. Developer charges serve two related functions:

- They provide a source of funding for infrastructure required for new urban development; and
- They provide signals regarding the cost of urban development and thus encourage less costly forms and areas of development.

The Developer Charges calculation is based on the net present value (NPV) approach adopted by the Independent Pricing and Regulatory Tribunal (IPART) for the metropolitan water utilities. The fundamental principle of the NPV approach is that the investment in assets for serving a development area is fully recovered from the development. The investment is recovered through up-front charges (i.e. developer charges) and the present value (PV) of that part of annual bills received from the development in excess of operation, maintenance and administration (OMA) costs.

Developer Charge = *Capital Charge (cost of providing the assets) –*

Reduction Amount (cost recovered through annual bills).

The Capital Charge and Reduction Amount are discussed further in the following sections. The developer charges process is described fully in the *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* (December 2002).

NSW non-metropolitan water supply authorities which propose to levy developer charges for water supply and/or sewerage need to prepare DSPs. The DSP details the calculation of the developer charges and is required to be fair and transparent.

Water supply authorities need to calculate and report developer charges in accordance with section 306 (3) of the Water Management Act 2000 and the Guidelines and to register their DSPs with the NSW Office of Water.

Developer charges relating to a particular DSP should be reviewed by the water authority after a period of 5 to 6 years. If the review indicates that the developer charges in the DSP remain valid, the DSP will apply for a further 5 to 6 years after the utility releases a public notice to this effect. However, if it is considered that a new DSP is warranted, then a new DSP shall be prepared, exhibited and registered.

3.2 Capital Charge

The capital cost includes the cost of providing, extending or augmenting assets required, or likely to be required, to provide services to a development area. The capital cost per equivalent tenement (ET) is the value of the relevant assets divided by the capacity of these assets (in ETs).

Typically, the capacity of an asset would not be fully utilised until sometime after construction of the asset. The Return on Investment (ROI), also known as a holding charge, is based on the cost of early investment and recovery of the cost over time. The ROI factor is dependent on the period for take-up of the asset capacity, and the rate of return required for the asset.

Capital Charge = *Capital Cost x Return on Investment (ROI) Factor*

The capital charge is calculated for each service area. Service areas are:

- An area served by a separate sewerage treatment plant;
- Separate small towns or villages; or
- A new development area of over 500 lots.

Where the capital charges for two or more service areas are within 30% of each other, they are agglomerated into a single DSP area.

3.3 Reduction Amount

Tenterfield Shire Council has adopted the "Under 2000 Assessments" method for calculation of the Reduction Amount. The Reduction Amount is calculated as 50% of the capital charge.

In the long term, developer charges should cover the capital charge for serving a development area less the net present value of net income from annual charges for the development area. The reduction amount represents the NPV of net income (income less recurrent expenditure) from the development.

4. TENTERFIELD SHIRE COUNCIL SEWERAGE SERVICES

Tenterfield Shire Council provides reticulated sewerage services to the main towns and adjacent areas of Tenterfield and Urbenville (Figure 1).

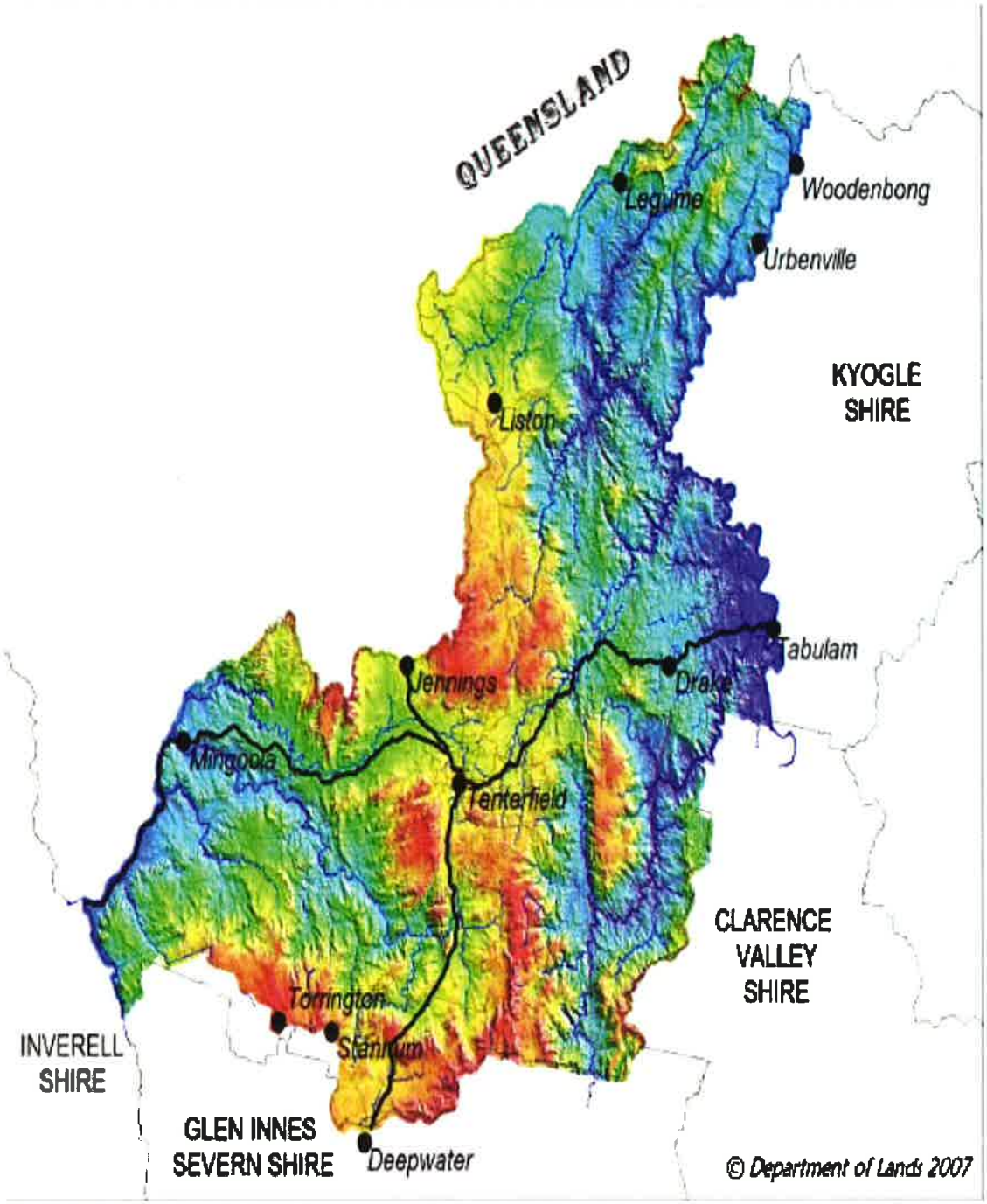

Figure 1 – Map of Tenterfield Shire

4.1 Tenterfield Sewerage

The Tenterfield sewerage system consists of a network of gravity pipes and two pumping stations. Tenterfield STP was upgraded in 2009 and is a 3,700 EP capacity Intermittent Decant Aerated Lagoon (IDAL) sewage treatment plant. The process includes fine mechanical screening with step screens, vortex grit removal, IDAL secondary treatment with diffused aeration, chemical phosphorus removal with alum and supplementary caustic dosing, chlorination with chlorine gas and dechlorination with sodium bisulphate and effluent storage. Approximately half the effluent is spray irrigated to land and the remainder discharges to Tenterfield Creek.

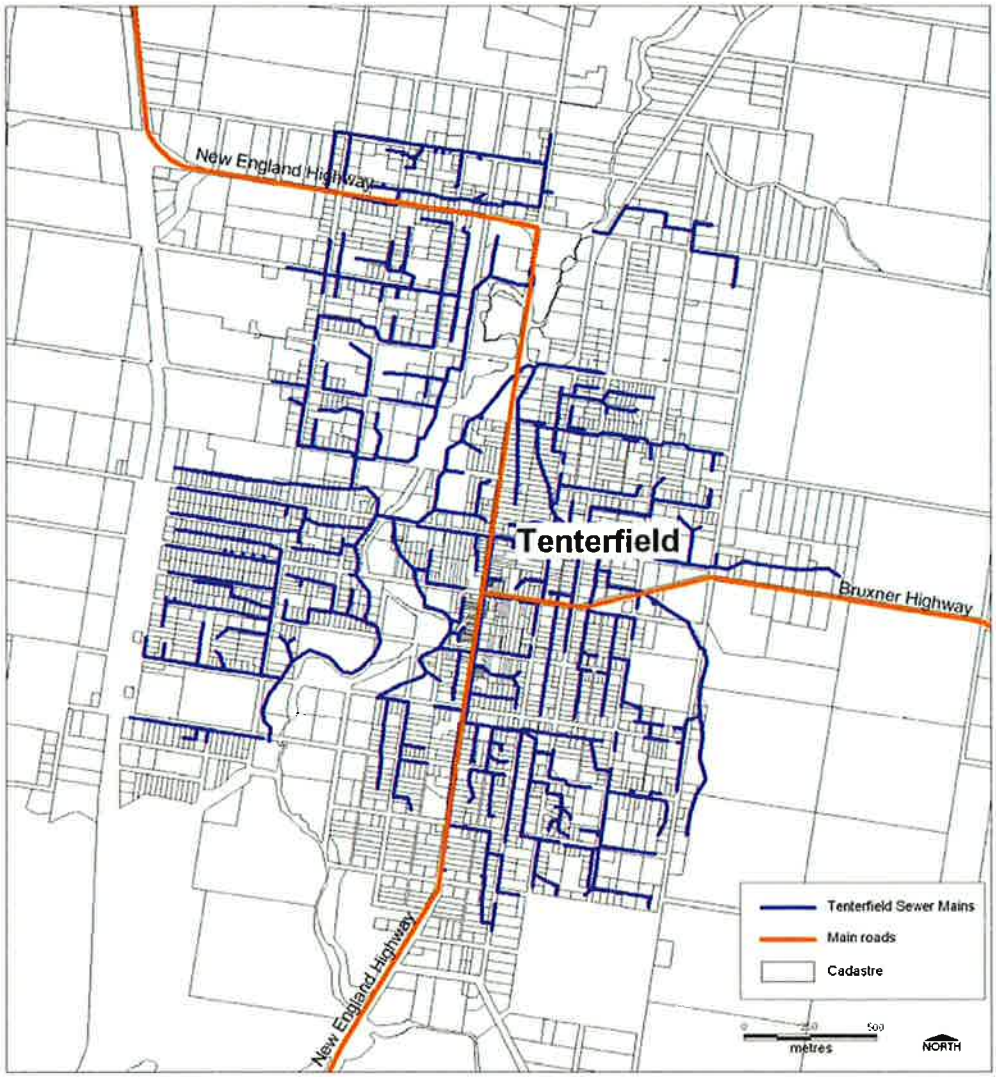

Figure 2 – Tenterfield Sewerage Scheme

4.2 Urbenville Sewerage

The Urbenville sewerage system consists of two pumping stations and approximately 7 kilometres of sewerage mains. The Urbenville STP consists of a 500 EP Pasveer Channel treatment plant, two settlement ponds and two sludge lagoons.

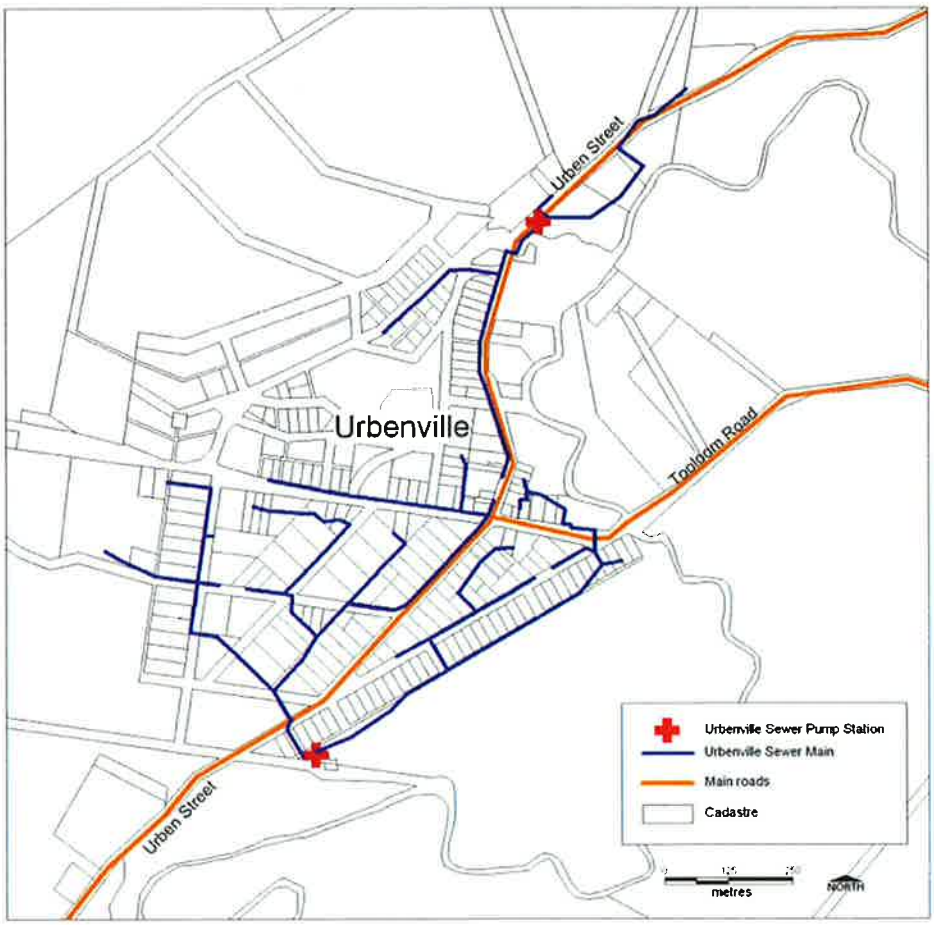

Figure 3 – Urbenville Sewerage Scheme

4.3 Growth Projections

Developer charges contribute to the provision of system capacity to meet the demands of future development. New development may be served by a combination of existing and/or new assets.

The average growth rate and projected number of sewerage tenements (equivalent tenements, ET) in each area is shown in Table 3.

Table 3 - Equivalent Tenement Projections – Sewerage

Service Area	30 year Average Growth (% p.a.)[1]	2012	2017	2022	2027	2032	2037	2042
Tenterfield	0.65%	1,963	2,053	2,147	2,246	2,349	2,349	2,349
Urbenville	0.65%	178	186	195	204	213	223	233
Shire	0.65%	2,141	2,240	2,342	2,450	2,562	2,562	2,562

1. The draft TSC IWCM Study (PB, 2011) predicts a 20 year growth rate of 0.9% p.a. for the shire

4.4 System Capacity

The system capacity is based on the following:

- Sewage treatment plant – design capacity of STP;
- Distribution system – projected number of tenements served at the end of the design horizon (30 years).

4.5 Design Parameters

Investigation and design of sewerage system components is based on the Manual of Practice: Sewer Design (1984), Manual of Practice: Sewage Pumping Station Design (1986), WSA Sewerage Code of Australia (WSA 02-2002), WSA Sewerage Pumping Code of Australia (WSA 04-2005), WSA Pressure Sewerage Code of Australia (WSA 07-2007, V1.1) and AUSPEC design specifications for sewerage.

4.6 Standards of Service

System design and operation are based on the following standards of service (from the TSC Sewerage Services Strategic Plan, 2002). The Levels of Service are the targets which BSC aims to meet and are not intended as a formal customer contract.

Table 4 – Levels of Service

DESCRIPTION	UNIT	LEVEL OF SERVICE	
		Tenterfield	Urbenville
Effluent reuse			
Amount to be re-used	% of effluent	75	0
Service interruptions			
No. of interruptions			
Planned	No./year	0	0
Unplanned	No./year	60	5
Max length of interruptions	hours	2	2
Other complaints	No./year	2	2
System failures			
System overflows	No./year	0	0
Response time			
Chokes (blockages)	Hours	1	1
Verbal complaints	Hours	1	1
Written complaints	Days	14	14

DESCRIPTION	UNIT	LEVEL OF SERVICE	
		Tenterfield	Urbenville
Effluent			
Maximum quantity	KL/day	650	
Quality			
Current (EPA licence)			
- BOD	mg/L	40	20
- Suspended solids/NFR	mg/L	45	30
- Grease and Oil	10	Not specified	10
- pH	-	6.5 – 8.5	not specified
Future	As determined by EPA (probably more stringent)		

4.7 Future Capital Works

Council plans to reduce infiltration and inflow and renew ageing sewerage assets. Capital works of $2.9 M (2012 $) will be required over the next 30 years to provide sewerage services (refer Appendix 1). Any capital works in addition to those identified in this plan will be funded by developers. The developer shall be responsible for the full cost of the design and construction of reticulation works within subdivisions.

5. CALCULATION OF DEVELOPER CHARGES

5.1 Capital Charge

The capital charge was calculated for each service area based on the existing and future assets providing the services to each of the towns as shown in Table 5. Calculations are given in Appendix 1.

Table 5 – Calculated Capital Charges (2012 $ per ET)

Service Area	Initial Capital Charge
Urbenville	$15,303
Tenterfield	$11,182

The capital charges were grouped into DSP areas of within 30% of the highest capital charge. The outcome is agglomeration of the DSP areas as shown in Table 6. The weighted average capital charge is determined from the proportion of growth in each DSP area. This is used to calculate the reduction amount for the whole shire.

Table 6 – Agglomeration of Service Areas (2012 $ per ET)

Service Area	Capital Charge	DSP Area 1 (% of highest)	Proportion of Growth	DSP Area Capital Charge	Weighted Average Capital Charge
Urbenville	$15,231	100%	91.6%	$14,959	$14,024
Tenterfield	$11,063	73%	8.4%		$934
Totals			100%		$14,883

5.2 Reduction Amount

The reduction amount for developer charges for sewerage was calculated as 50% of the calculated capital charge for each DSP area.

5.3 Developer Charges

The calculated developer charges for the DSP areas are shown in Table 7. These developer charges reflect the cost of assets for serving new development.

Table 7 – Calculated Developer Charges (2012 $ per ET)

DSP Area	Capital Charge	Reduction Amount	Calculated Developer Charge
Tenterfield and Urbenville	$14,959	$7,479	$7,479

Council will apply developer charges for sewerage that are lower than the calculated charges (Table 8).

Table 8 – Adopted Developer Charges

DSP Area	Developer Charge (2012 $ per Equivalent Tenement)
Tenterfield	$6,500
Urbenville	$3,000

The cross-subsidy payable by existing customers will be $12 per assessment per annum as shown in Table 9.

Table 9 – Cross-Subsidy Calculation

DSP area	Calculated Developer Charge (per ET)	Proportion of Growth	New Developer Charge (per ET)
Tenterfield	$7,479	91.6%	$6,500
Urbenville	$7,479	8.4%	$3,000
Weighted Average Charge	$7,479	100%	$6,208
Expected growth (ET p.a.)			14
Cross-subsidy (each year)			$17,359
Cross-subsidy (per residential assessment per year)			$12

Background information and calculations relating to this DSP are included in the Background Document attached in Appendix 1. This document contains detailed calculations for the capital charge and reduction amount, including asset commissioning dates, size/length of existing assets, valuation of assets and calculation of the reduction amount.

6. ABBREVIATIONS AND GLOSSARY

Capital Cost	The present value (MEERA basis) of assets used to service the development
Capital Charge	Capital cost of assets per ET x Return on Investment (ROI) Factor
CPI	Consumer Price Index
Developer Charge (DC)	A charge levied on developers to recover part of the capital cost incurred in providing infrastructure to ne development.
Discount Rate	The rate used to calculate the present value of money arising in the future.
DSP	Development Servicing Plan
DLWC	(former) Department of Land and Water Conservation
EP	Equivalent person
ET	Equivalent tenement
IPART	Independent Pricing and Regulatory Tribunal
kL	Kilolitres
L	Litres
LWU	Local water utility
MEERA	Modern Equivalent Engineering Replacement Asset
mg	milligrams
mL	millilitres
ML	Megalitres
NOW	NSW Office of Water
NPV	Net present value
PV	Present value.
Reduction Amount	The amount by which the capital charge is reduced to arrive at the developer charge. This amount reflects the present value of the capital contribution that will be paid by the occupier of a development as part of future annual charges.
ROI	Return on investment. Represents the income that is or could be generated by investing money.
Service Area	An area served by a separate sewage treatment plant.
STP	Sewage treatment plant
TSC	Tenterfield Shire Council

7. REFERENCES

DLWC (2002) *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater.*

NSW Water Directorate (2005) *Section 64 Determinations of Equivalent Tenements Guidelines.*

NSW Water Directorate (2009) *Section 64 Determinations of Equivalent Tenements Guidelines - Addendum.*

PB (2011) *Tenterfield Integrated Water Cycle Management Plan Draft Evaluation Report*

Tenterfield Shire Council (2005) *Strategic Business Plan for Sewerage Services*

Appendix 1 - DSP Background Document

30 Year Capital Works Program

ET projections

Capital Charge calculation

Tenterfield Shire Council
Capital Works Program **Sewerage**
Base Year (2012/13)
Year $2012

Asset/Project	Type of works			30 year total	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
	Improved LOS	New System Assets	Renewals		2012/13	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36	2036/37	2037/38	2038/39	2037/40	2038/39	2039/40
Tenterfield																																		
Manhole relining program			100%	750	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
Mains relining program			100%	1,500	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50
Pump station refurbishment			100%	600	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
Urbenville																																		
None																																		
Total				2,850	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95
Improved LOS																																		
Other New System Assets (growth works)																																		
Renewals				2,850	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95	95

Expected Grants	Subsidy %																																	
Total Grants																																		

Tenterfield Shire Council - Sewer ET Projections

Current connections provided by TSC *IWCM predicts 0.9% p.a. growth*

Connections	**(assume to be same as assessments)**	**Year**	**0**	**5**	**10**	**15**	**20**	**25**	**30**
Tenterfield	**20 yr Growth p.a.**	**30 yr growth**	**2012**	**2017**	**2022**	**2027**	**2032**	**2037**	**2042**
TOTAL ASSESSMENTS	0.9%	0.65%	1719	1798	1880	1966	2056	2056	2056
Assume residential (same proportion as WS)			1443	1509	1578	1650	1726	1726	1726
Assume non-residential (same proportion as WS)			276	289	302	316	331	331	331
TOTAL ET			1,911	1,999	2,090	2,186	2,286	2,286	2,286

Current connections provided by TSC

Tenterfield	**(assume to be same as assessments)**	**Year**	**0**	**5**	**10**	**15**	**20**	**25**	**30**
Urbenville	**20 yr Growth p.a.**	**30 yr growth**	**2012**	**2017**	**2022**	**2027**	**2032**	**2037**	**2042**
TOTAL ASSESSMENTS	0.9%	0.65%	150	157	164	172	179	179	179
Assume residential (same proportion as WS)			115	120	126	132	138	138	138
Assume non-residential (same proportion as WS)			35	36	38	40	42	42	42
TOTAL ET			173	181	190	198	208	208	208

Shire	0.9%	0.65%	2,084	2,180	2,280	2,385	2,494	2,494	2,494

Growth (30 years)	**ET**	**%**
Tenterfield	375	92%
Urbenville	34	8%
Shire	409	100%

Tenterfield Sewerage Scheme

Capital Charge Calculation

Pre 1996 discount rate	3%
Post 1996 discount rate	7%

Summary

per ET	Total
Capital charge	$15,303 2012$ per ET

Asset	Detail	Capital cost ($'000)[1]	Year dollars[2]	Capital Cost ($'000, 2012$)[3]	Year commiss-ioned	Effective year commiss-ioned	Present value (2012 $'000)[4]	Capacity (ETs)	Capital cost ($/ET)	Year of full take-up	Years to full take-up	Discount Rate	ROI factor	Capital Charge ($/ET)
Existing Treatment														
STW Preliminary		115	2011	118	1955	1996	118		70	2042	47	3%	1.82	128
STW Siteworks		461	2011	471	1955	1996	471		280	2042	47	3%	1.82	511
STW Sludge		118	2011	120	1976	1996	120		71	2042	47	3%	1.82	130
Tenterfield Treatment Plant 06/07 Additions		51	2011	52	2007	2007	52		31	2042	36	7%	2.58	79
Tenterfield - WW Treatment Plant Pre Construction 07/08		34	2011	35	2008	2008	35		21	2042	35	7%	2.53	53
Tenterfield WW Treatement Plant - Construction contract 07/08		482	2011	492	2008	2008	492		293	2042	35	7%	2.53	740
Tenterfield WW Treatment Plant - Construction Project Management 07/08		18	2011	19	2008	2008	19		11	2042	35	7%	2.53	28
Treatment Plant Augmentation 08/09		6247	2011	6,384	2009	2009	6,384		3,796	2042	34	7%	2.47	9,384
Tenterfield Sewerage Treatment Plant - Standby Generator Shed		26	2011	26	2010	2010	26		16	2042	33	7%	2.42	38
Tenterfield Sewerage Treatment Plant - Concrete Pavement Headworks		28	2011	29	2010	2010	29		17	2042	33	7%	2.42	41
Tenterfield Sewerage Treatment Plant - Treatment Plant Augmentation		747	2011	763	2010	2010	763		454	2042	33	7%	2.42	1,098
Tenterfield Sewerage Treatment Plant - Augmentation Borrowing Costs		51	2011	53	2010	2010	53		31	2042	33	7%	2.42	76
Tenterfield Sewerage - Stage 2 Reticulation - Employee Costs		22	2011	22	2011	2011	22		13	2042	32	7%	2.36	31
Tenterfield Sewerage - Stage 2 Reticulation - General Expenses		31	2011	32	2011	2011	32		19	2042	32	7%	2.36	44
Tenterfield Sewerage - Stage 2 Reticulation - Plant Hire Charges		2	2011	2	2011	2011	2		1	2042	32	7%	2.36	3
Tenterfield Sewerage - Stage 1 - Simpson Street Reticulation - Sewerage Network		44	2011	45	2011	2011	45		27	2042	32	7%	2.36	64
Tenterfield Sewerage - Pumping Well - Well Washers		1	2011	1	2011	2011	1		1	2042	32	7%	2.36	2
Tenterfield Sewerage - Dewatering Equipment		42	2011	43	2011	2011	43		25	2042	32	7%	2.36	60
Tenterfield Sewerage - Scada System Upgrade		9	2011	9	2011	2011	9		5	2042	32	7%	2.36	13
Tenterfield Sewerage - Fence Replacement		4	2011	4	2011	2011	4		2	2042	32	7%	2.36	5
Tenterfield Sewerage - Design & Construction - Contract		17	2011	17	2011	2011	17		10	2042	32	7%	2.36	24
Tenterfield Sewerage - Design & Construction - Project Management		2	2011	2	2011	2011	2		1	2042	32	7%	2.36	2
Tenterfield Sewerage - Design & Construction - Treatment Plant - Roadworks		20	2011	21	2011	2011	21		12	2042	32	7%	2.36	29
Future Treatment														
None														
Total Treatment		**8,570**					**8,759**	**1,682**	**5,208**					**12,582**
Existing Transfer System														
Tenterfield Sewer Main 06/07 additions		119	2011	122	2007	2007	122		53	2042	36	7%	2.58	138
Tenterfield Mains Augmentation - Riley Street 07/08		0	2011	0	2008	2008	0		0	2042	35	7%	2.53	0
Tenterfield Mains Augmentation Duffield - Bulwer Street 07/08		2	2011	2	2008	2008	2		1	2042	35	7%	2.53	2
Tenterfield Mains Replacement - Drummond Street 07/08		3	2011	3	2008	2008	3		1	2042	35	7%	2.53	3
Tenterfield Mains Replacement - Rouse Street 07/08		34	2011	34	2008	2008	34		15	2042	35	7%	2.53	38
Tenterfield Mains Stage 1 Simpson street 07/08		37	2011	38	2008	2008	38		17	2042	35	7%	2.53	42
Tenterfield Mains Replacement - Petre Street 08/09		24	2011	24	2009	2009	24		11	2042	34	7%	2.47	26
Tenterfield Mains Replacement - Pelham Street 08/09		24	2011	25	2009	2009	25		11	2042	34	7%	2.47	27
Tenterfield Mains Manhole Raising 08/09		3	2011	3	2009	2009	3		1	2042	34	7%	2.47	4
Tenterfield Mains Simpson street 08/09		15	2011	15	2009	2009	15		7	2042	34	7%	2.47	16
Tenterfield Mains Extention Duffield - Bulwer Street 08/09		0	2011	0	2009	2009	0		0	2042	34	7%	2.47	0
Tenterfield Sewerage - Mains Replacement		31	2011	32	2010	2010	32		14	2042	33	7%	2.42	33
Tenterfield Sewerage - Man Hole Raising		3	2011	3	2010	2010	3		1	2042	33	7%	2.42	3
Tenterfield Sewerage - Stage 2 Reticulation		100	2011	102	2010	2010	102		45	2042	33	7%	2.42	108
Tenterfield Sewerage - Simpson Street Reticulation		99	2011	101	2010	2010	101		44	2042	33	7%	2.42	107
Tenterfield Sewerage - Design for Staged Augmentation		12	2011	12	2010	2010	12		5	2042	33	7%	2.42	13
Tenterfield Sewerage - Mains Extension		40	2011	41	2010	2010	41		18	2042	33	7%	2.42	43
Tenterfield Sewerage - Riley Street Subdivision		138	2011	141	2010	2010	141		62	2042	33	7%	2.42	149
Tenterfield Sewerage - Drummond Street Mains Replacement		31	2011	32	2011	2011	32		14	2042	32	7%	2.36	33
Tenterfield Sewerage - Riley Street Subdivision		5	2011	5	2011	2011	5		2	2042	32	7%	2.36	5
Mains Extension - Aquilini		9	2011	9	2011	2011	9		4	2042	32	7%	2.36	9
Mains Extension - Hines		7	2011	7	2011	2011	7		3	2042	32	7%	2.36	7
SPS Petre St		130	2011	133	1976	1996	133		58	2042	47	3%	1.82	106
SPS Petre St		130	2011	133	1976	1996	133		58	2042	47	3%	1.82	106
SPS Drummond St		599	2011	612	1997	1997	612		268	2042	46	7%	3.15	843
SPS Drummond St		599	2011	612	1997	1997	612		268	2042	46	7%	3.15	843
Sewer Augmentation Standby Pump 08/09		12	2011	12	2009	2009	12		5	2042	34	7%	2.47	13
Tenterfield Sewerage Pumping Plant - Drummond Street Pump Station		5	2011	5	2010	2010	5		2	2042	33	7%	2.42	5
Future Transfer System														
none														
Total Transfer System		**2,207**					**2,256**	**2,286**	**987**					**2,721**
Existing Anclilliary														
Backup generator		208	2011	213	2000	2000	213		93	2042	43	7%	2.98	277
SPS Drummond St		27	2012	27	2000	2000	27		12	2042	43	7%	2.98	35
Treatment Plant Roadworks 08/09		20	2013	20	2009	2009	20		9	2042	34	7%	2.47	21
Tenterfield Sewerage Ancillary - Treatment Plant Fencing		19	2014	19	2010	2010	19		8	2042	33	7%	2.42	20
Future Ancilliary														
none														
Total Transfer System		**273**					**278**	**2,286**	**122**					**353**

Notes
1. Capital cost from Council's asset registers and MEERA cost for future works
2. Base year of capital cost varies depending on asset data
3. Capital cost adjusted to 2012$ using CPI for Sydney (ABS)
4. Capital cost of future works discounted to 2012$

Urbenville Sewerage Scheme
Capital Charge Calculation

		Summary	
Pre 1996 discount rate	3%	per ET	Total
Post 1996 discount rate	7%	Capital charge	$11,182

2012$ per ET

Asset	Detail	Capital cost ($'000)[1]	Year dollars[2]	Capital Cost ($'000, 2012$)[3]	Year commiss-ioned	Effective year commiss-ioned	Present value (2012 $'000)[4]	Capacity (ETs)	Capital cost ($/ET)	Year of full take-up	Years to full take-up	Discount Rate	ROI factor	Capital Charge ($/ET)
Existing Treatment														
STW Main		44	2011	45	1982	1996	45		199	2042	47	3%	1.82	364
STW Main		216	2012	216	1982	1996	216		951	2042	47	3%	1.82	1,734
STW Main		172	2013	172	1982	1996	172		756	2042	47	3%	1.82	1,378
STW Polishing		21	2014	21	1982	1996	21		91	2042	47	3%	1.82	165
STW Polishing		180	2015	180	1982	1996	180		791	2042	47	3%	1.82	1,443
STW Preliminary		66	2016	66	1982	1996	66		290	2042	47	3%	1.82	529
STW Siteworks		64	2017	64	1982	1996	64		280	2042	47	3%	1.82	511
STW Sludge		64	2018	64	1982	1996	64		280	2042	47	3%	1.82	511
Manproof Fencing - Tertiary Ponds 08/09		7	2019	7	2009	2009	7		30	2042	34	7%	2.47	75
Future Treatment														
None														
Total Treatment		**833**					**834**	**227**	**3,669**					**6,710**
Existing Transfer System														
Sewerage Pipe in : Treat. Works Eff Pond	61914	58	2015	58	1981	1996	58		280	2042	47	3%	1.82	511
Sewerage Pipe in : RM3 Outfall	61901	8	2136	8	1981	1996	8		40	2042	47	3%	1.82	73
Sewerage Pipe in : RM3 Outfall	61902	19	2137	19	1981	1996	19		90	2042	47	3%	1.82	164
Sewerage Pipe in : RM3 Outfall	61903	5	2138	5	1981	1996	5		25	2042	47	3%	1.82	46
Sewerage Pipe in : RM3 Outfall	66459	1	2139	1	1981	1996	1		4	2042	47	3%	1.82	7
SPS1 Urben St		92	2167	92	1982	1996	92		444	2042	47	3%	1.82	809
SPS1 Urben St		148	2168	148	1982	1996	148		712	2042	47	3%	1.82	1,299
SPS2 Woodenbong St	81152	77	2169	77	1982	1996	77		373	2042	47	3%	1.82	679
SPS2 Woodenbong St	81153	63	2170	63	2001	2001	63		303	2042	42	7%	2.92	883
Future Transfer System														
none														
Total Transfer System		**471**					**471**	**208**	**2,271**					**4,472**
Existing Ancilliary														
SPS1 Urben St		18	2011	19	1955	1996	19		90	2042	47	3%	1.82	163
STW Sludge		8	2012	8	1955	1996	8		40	2042	47	3%	1.82	73
Future Ancilliary														
none														
Total Transfer System		**26**					**27**	**208**	**130**					**236**

Notes
1. Capital cost from Council's asset registers and MEERA cost for future works
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4. Capital cost of future works discounted to 2012$