REDEVELOPMENT

DEVELOPMENT SERVICING PLAN

WATER AND SEWER

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APPENDICES

1 EXECUTIVE SUMMARY

1.1 The Purpose of this DSP

The purpose of this Development Servicing Plan is to determine what contribution should be made for water supply and sewerage infrastructure servicing proposed development within the Gosford City Council, outside the areas contained within the specific Development Servicing Plans. It is known as the Redevelopment Development Servicing Plan.

This plan has been prepared in accordance with the requirements of the Water Management Act 2000 using the methodology contained within the Independent Pricing and Regulatory Tribunal Determination (IPART) Water – Determination No.1 May 2013.

A Developer Charge is levied by Gosford City Council upon developers to recover part of the costs incurred in providing water and water related services to developments which increase the demand on infrastructure.

The developer charge and the assumptions used to calculate each charge are documented in a Development Servicing Plan (DSP). The calculation of developer charges and the preparation of DSPs is regulated by the Independent Pricing and Regulatory Tribunal.

What is a Developer Charge

The Water Management Act 2000 provides authority for Gosford City Council to levy charges on development that will make use of the services provided by the Council. These charges are titled Developer Charges and are the means by which Gosford City Council recovers part of the cost of providing water and water related infrastructure.

The Role of IPART

The Independent Pricing and Regulatory Tribunal of NSW (IPART) is an independent authority, established by the NSW Government, which regulates the pricing of declared government monopoly services. These monopoly services include those provided by Gosford City Council and as such, IPART regulates the developer charges levied by Gosford City Council.

IPART's regulation of developer charges is detailed in Determination No. 1 in which the methodology to be adopted by Gosford City Council when calculating developer charges is specified. Gosford City Council has complied with this Determination in the calculation of the developer charge contained within this Development Servicing Plan.

What is a Development Servicing Plan (DSP)

A Development Servicing Plan (DSP) has been prepared for each defined DSP area. As well as including the developer charge calculations for that area, each DSP contains information regarding the extent of the geographical area covered by the system, estimates of future capital expenditure and operating costs, demographic assumptions and land use planning information within the system.

The Developer Charges Process

As a condition of development consent, the consent authority, will issue a notice requiring that satisfactory arrangements be made with Gosford City Council for the provision of services to the new development. To identify the appropriate arrangements, the developer will submit an application to Gosford City Council for a Section 307 Compliance Certificate.

Upon receiving the application, Gosford City Council's Water and Sewer Development staff shall assess the impact of the proposed development on its system and issue a Section 306 Requirements Letter. This Requirements Letter outlines the charges and/or works that the developer must pay and/or construct before Gosford City Council will issue a Section 307 Compliance Certificate. A developer will be informed in the Requirements Letter of what developer charges are applicable to an individual development.

1.2 History of DSP's

The Sydney Regional Outline Plan released in 1968 identified potential residential areas on the Central Coast. In 1977 the Gosford/Wyong Structure Plan proposed major urbanisation within Gosford.

This plan replaces any requirements related to Water and Sewerage Development Contributions that exist within this area previously prepared by Council and supersedes the previous Redevelopment DSP, for the area covered by this DSP.

1.3 Schedule of Developer Charges

Criteria used by Gosford City Council for the assessment of Equivalent Tenements (ET's), is shown on Table 5 of the Appendices. One ET is based on a single residential zoned allotment which may be vacant or contain a single residential dwelling. Each Unit is equal to ⅔ ET. Commercial and Industrial Developments are assessed using Table 5.

A credit is applied for developments on land which has contributed toward water and sewer and is currently serviced.

The Schedule of Developer Charges for Gosford City is detailed in Table 4.

The schedule of developer charges for this DSP for the period from 1 July 2014 to 30 June 2015 is provided below:

Schedule of Developer Charges for the Redevelopment DSP

Development Category	Developer Charge
Residential	
Single Lot / ET	$ 3,258 / ET (per lot)
Residential Unit / Dual Occupancy	$ 2,183 per unit /dual occupancy
Commercial	
Large shop	40 ET per built up hectare
Other	Assess as required
Industrial	
Dry storage warehouse	14 ET per built up hectare
Other	Assess as required
Special Uses	Assess as required

Comparison of the Developer Charges for this DSP

Below is a comparison between the new developer charge for this DSP and the 2013/14 developer charge calculated under the previous IPART Determination.

Previous Charge	$3,587 /ET	effective to 30/6/14
New Charge	as per table 3	effective from adoption of DSP

All developer charges are adjusted on 1st July each year, with the adjustment being based upon the 12 month Sydney CPI movement to the previous March. The first adjustment will occur on 1 July 2015.

Dispute Resolution

A developer who is dissatisfied with how Council has calculated a developer charge has a right to have the dispute arbitrated under the Independent Pricing & Regulatory Tribunal Act. The first step of this arbitration process is to contact Gosford City Council.

Disclaimer

This plan has been prepared on the basis of information available at the time of investigation. Variations to regulations, standards, guidelines and the scope, density, timing and type of development, may result in a change to future servicing strategies and related charges.

1.4 Abbreviations used in this Development Servicing Plan

"AHD" means Australian Height Datum

"CPI" means Consumer Price Index

"DA" means Development Application

"DIPNR" means the Department of Infrastructure Planning and Natural Resources

"DO" means Dual Occupancy

"DSP" means Development Servicing Plan

"DWF" means Dry Weather Flow

"DUAP" means Department of Urban Affairs & Planning

"EPA" means Environmental Protection Authority

"ET" means Equivalent Tenement

"EP" means Equivalent Population

"RFB" means Residential Flat Building

"GCC" means Gosford City Council

"IPART" means Independent Pricing and Regulatory Tribunal

"LEP" means Local Environment Plan

"LGA" means Local Government Area

"MEERA" means Modern Engineering Equivalent Replacement Asset

"NHMRC" means National Health & Medical Research Council

"NPV" means Net Present Value

"PWWF" means Peak Wet Weather Flow

"WSAA" means Water Services Association of Australia

2 EXTENT OF THE DSP

2.1 Size

This DSP covers all lands shown on the attached 'Plan of DSP'.

2.2 Basis for Defining the DSP Boundaries

The DSP boundary is based on the water or sewer system servicing a certain area.

Water Headworks

Gosford City and Wyong Shire have a joint water supply. The necessary headworks to provide town water supply to both Council areas is jointly owned and managed by both the Councils. Therefore a uniform water headworks charge is applicable to both Gosford City and Wyong Shire areas. This charge is detailed in Appendix A – Water Supply Headworks Capital Cost for DSP's – April 2014.

External Water

External water refers to all the Gosford City Council water system excluding headworks and mains within the specific development areas. The external water component of the contribution is applicable across the entire city as it is part of one system.

External Sewer

External sewer refers to all the Gosford Regional Sewer System excluding mains, pumping stations and rising mains within the specific development areas.

The city is served by two sewage treatment works located at Kincumber and Woy Woy with one ocean outfall at First Point. The sewage is transported to the plants via approximately 1300 km of mains and 187 pump stations.

The contribution towards external sewer was calculated in the four main areas of the system. The four contributions were averaged and applied across the entire city for simplicity.

Internal Water and Sewer

Internal water and sewer refers to mains, pumping stations, rising mains etc. that are required within the specific development areas only. These mains are shown on the plans within the specific DSP for each development area.

2.3 Relationship of Gosford City Council DSPs

GCC has a number of DSPs which cover the city boundaries. The contribution for a specific area includes components from the Redevelopment DSP and the Water Headworks DSP which are the same across the city. Depending upon the location of the development, an additional component could be included for works specifically required to service these areas (eg. parts of Redevelopment). In these cases all the relevant contributions are presented in the DSP for that specific area.

Reference to Other DSPs

A reference to the charge specific to other DSPs within Gosford City can be seen in Table 4 – Developer Charges in comparison in the Appendices.

3 DEMOGRAPHIC AND PLANNING INFORMATION

3.1 Population

The general demographic assumptions for the population growth have been based on the Central Coast Regional Strategy and the Gosford Water & Sewer Master Plans and relate to Equivalent Person or Population (EP). One ET is based on the occupancy rate of 2.5 persons per ET.

The current resident population of this DSP is estimated at 166,870. The estimated population growth within this DSP area over the next thirty (30) years is 12837 EP.

3.2 Equivalent Tenements & Projected Population

The Equivalent Tenements (ET's) are shown in the 'Table 1 - Assumptions of the Appendices. The projected population over the planning horizon of this DSP, ie 30 years, is shown below: -

YEAR	POPULATION	Additional EP	Additional ET
2014	166,870		
2024	171,282	4,412	1,765
2034	176,807	5,525	2,210
2043	179,707	2,900	1,160

3.3 Projected ET's

The projected equivalent tenements (lot production) over the planning horizon of this DSP is shown in 'Table 1 – Assumptions' in the Appendices.

4 TIMING OF WORKS

4.1 Completed Capital Works

The timing of the completed capital works to service the area are detailed in 'Table 2'of the Appendices.

4.2 Proposed Capital Works

The timing of the proposed capital works to service the area and expenditures related to anticipated development are detailed in 'Table 2' of the Appendices.

5 STANDARDS OF SERVICE AND DESIGN PARAMETERS

5.1 Standards of Service

Water:

- Treated water to NHMRC quality guidelines.
- Provide a minimum of 12 metres water pressure at the property boundary.
- Dirty water complaints less than 2 per property per annum.
- Maximum of 6 hours un-programmed water supply interruptions.
- Maximum of 12 hours, during low demand, programmed water supply interruptions.

Sewer:

- Produce sewage effluent which meets Environmental Protection Authority (EPA) discharge licence requirements under DWF conditions (50/50) quality 100% of the time.
- Maximum 8 hours to remove choke and restore service.
- 33% of manholes inspected per annum.
- 95% of sewerage pump station breakdowns responded to in less than 2 hours.
- Maximum of two (2) pump station overflows per annum.
- Maximum of 30 total number of discharges due to pump station failure.

5.2 Design Parameters

Water:

The design parameters relating to water supply headworks are detailed in Appendix A.

All service reservoirs, trunk mains and reticulation systems are based on industry standards such as Public Works Department Manual and Water Service Association Australian Codes with adjustments for actual demands experienced in the area.

Sewer:

The design parameters relating to sewerage are based on Equivalent Tenements (ET's). One ET is equivalent to a typical residential lot connected to the sewerage reticulation system. Other developments producing a greater load on the sewerage system are assessed on the basis of equivalent tenements.

All sewerage pump stations, rising mains and gravity reticulation mains are designed in accordance with industry standards such as Public Works Department Manual of Practice and Water Service Association Australian Codes with some amendments to provide further environmental protection.

6 DEVELOPER CHARGE

Contribution rates have been assessed on the basis of one ET. The calculated developer charge per ET for water and sewer is detailed on Table 3 – Calculation of Developer Charge.

6.1 Calculation of Developer Charge

This DSP contains a net present value (NPV) calculation of the cost of total service capacity in the area less the expected net operating profits (or losses) from providing services to that area. The resultant net cost is then expressed per equivalent tenement (ET). A development is charged a multiple of this per ET charge according to the number of lots in the development.

The components of the NPV calculation are:

K a capital charge for the NPV of existing and future assets serving the area
$R(_i)$ revenue expected to be received by servicing customers in the area in each year (i)
$C(_i)$ operating, maintenance and administration costs expected to be spent in servicing customers in the area in each year (i)
r the cost of capital or discount rate for deriving the net present value of future revenues and costs
n the forecast horizon for the assessment of future revenues and costs.

The developer charge (DC) is calculated as:

$$DC = K - NPV_r (R_i - C_i) \text{ for } i = \text{years } 1, ...n; n\#30$$

To calculate the charge Council uses the projection of:

- the efficient cost of existing and proposed assets servicing the development
- the amount and timing of any investment in new infrastructure required to be built or advanced in timing because of the development
- the take-up rate of lots in the development and the take-up of asset capacity by those lots
- future annual revenues and costs per equivalent tenement (ET)

6.2 Future Periodic Revenues

The future periodic revenues expected to be received from new customers in the DSP area each year, is shown in 'Table 3 – Calculation of Developer Charge'.

6.3 Periodic Charges

The periodic charges used to calculate the revenues to be received from new customers in the DSP area is shown in 'Table 1 – Assumptions'.

The Operating Expenses per ET, have been calculated using the total expected Operations and Maintenance costs divided by the expected ET's at the end of each financial year. There have been no real reductions in expenditure realised in the calculation for future years.

All revenue calculations have been based on the average residential periodic charges and the usage provided by IPART. The periodic and usage charges adopted for the life of the current IPART determination are what Council expects the actual charge to be acting in accordance with the determination.

The Net Revenue per ET is the revenue less the operating costs.

All recurrent expenditures and revenues have been input as nominal dollars.

6.4 Average water Usage

The average water usage per residential customer is 163 kilolitres per annum. A figure of 163 kilolitres per annum has been utilised for the calculation of the revenue received in accordance with the IPART Determination.

6.5 Operating, Maintenance and Administration Costs

The future expected annual operating and maintenance costs of providing services to new customers in the DSP area is as follows:

<u>Water Supply</u>

- Water Supply Capital Costs include Headworks, and the cost of Works servicing the area.
- Headworks are detailed in Appendix A - Water Supply Headworks Capital Cost for Development Servicing Plans dated April 2014.
- The external existing and future water supply works is detailed in Table 2 – GCCCODSP.
- Works servicing the area are shown on Plan 1. Capital Charge per ET is shown in Table 2.
- Water Supply Operating Costs (Expenditure), and estimated Net Revenue is detailed in Table 1 - Assumptions and reflect the IPART medium term price determination.

Sewerage

- Sewerage Capital Costs are the costs of the works servicing the area. The Capital Charge per ET is shown in Table 2 .
- The external existing sewer works are detailed in Table 2 – GCCCODSP.
- Sewerage Operating Costs (Expenditure), and estimated Net Revenue are detailed in Table 1 - Assumptions and reflect the IPART medium term price determination.

The administration costs of providing the services to the DSP are shown below. Annual adjustment to these costs will be made in accordance with IPART's Price Determination No. 2, 2013.

TYPE OF DEVELOPMENT	ADMINISTRATION FEE
Dual Occupancies, Residential Flat Buildings	$171.88
Commercial Buildings, Factories and Torrens Subdivisions of Dual Occupancies	$210.48
Boundary Realignments and Subdivisions without mains extensions	$383.87
Subdivisions and Developments involving mains extensions	$416.54
Developments without requirements	$110.15

6.6 Indexation Principles and Parameters

The indexation principles and parameters used for the calculation of revenues to be received from new customers in the DSP include:-

a A zero per cent (0%) real Discount Rate for Pre 1996 Assets (ri)
b A five per cent (5%) real Discount Rate for Post 1996 Assets (r_2)
c A five per cent (5%) real Discount Rate for the expected net revenues and costs (r_3)
d A forecast horizon for expected net revenues and costs of 30 years.

6.7 Method of Reviewing Contributions

Where there have been significant changes to the estimates upon which a DSP has been prepared, a review of the Plan will be carried out. Following this review a new DSP will be exhibited and adopted providing for the necessary changes.

The value of contributions payable under this DSP will be adjusted based on:

a) Review the Development Servicing Plans and Developer Charges once, and no more than once, in each five year period from July 1, 2014; and

b) Review the Developer Charges when and to the extent required by a determination of the Tribunal.

If there is no review of Developer Charges under paragraph 6.7(a) and 6.7(b) during any given year, the Developer Charges then prevailing must multiplied on 1 July in each of such years by the number derived from the application of the following formula:

$$QCPI^{-GST}\ \text{year} = \frac{CPI^{-GST}_{\text{June year}-1} + CPI^{-GST}_{\text{Sep. year}-1} + CPI^{-GST}_{\text{Dec. year}-1} + CPI^{-GST}_{\text{March year}}}{CPI^{-GST}_{\text{June year}-2} + CPI^{-GST}_{\text{Sep. year}-2} + CPI^{-GST}_{\text{Dec. year}-2} + CPI^{-GST}_{\text{March year 1}}}$$

Where -

'$QCPI^{-GST}$ year' means the number derived from the application of the formula.

'CPI^{-GST}' is as defined and the corresponding subtext (for example June year – 1) means the quarter indicated (in the example, the June quarter) and for the year corresponding to the year in which the calculation is made less the number of years indicated by the number in the subtext, if any. For example, if the calculation was to be made in the year 2001, year – 1 would be the year 2000.

7 DESCRIPTION OR REFERENCE TO BACKGROUND DOCUMENTATION

7.1 Date of Commissioning

The date of the commissioning of Pre 1996 Assets and Post 1996 Assets is detailed in 'Table 2 of the Appendices.

7.2 Size/Length of Asset

The size and length of Post 1996 Assets is shown on the 'Plan of the DSP'.

7.3 Cost of the Asset

The actual efficient cost of the Pre 1996 Assets and cost 1996 Assets is shown in 'Table 2.

7.4 Unit Cost & Valuation of the Asset

The unit cost and the MEERA valuation of the Asset are based on current contract rates for the various classes of assets.

The water and sewer costs were estimated using competitive contract prices obtained by the Department of Commerce from the Ministry of Energy and Utilities NSW Reference Rates Manual – Valuation of Water Supply, Sewerage and Storm Water Assets.

These estimates are made up of the Reference Rates, i.e. a contract rate, plus allowance for SID (Survey Investigation design and project management). As well as contingencies applied for unforseen construction problems, such as unexpected rock, groundwater, other services, industrial action, adverse weather, etc.

7.5 Total Asset Capacity

The total asset capacity in ET's is shown in 'Table 2'. The details of the ET's serviced by an asset where such asset services more than one DSP is not applicable.

8 EXTENT OF SERVICES

Details of the water and sewer works to service this area are shown on Plan 1.

The anticipated development period can be seen from 'Table 1 – Assumptions'.

The staging of these services over the anticipated development period can be seen in 'Table 2'. Developers shall be responsible for the full cost of design and construction of water and sewer reticulation, within private subdivisions.

TABLE 1 - ASSUMPTIONS

DEVELOPMENT PROFILE

YEAR	NO OF ET'S TO BE SERVICED			REVENUE PER ET		EXPENDITURE PER ET		NET REVENUE	
		PER YEAR	TOTAL	WATER	SEWER	WATER	SEWER	WATER	SEWER
2014	1	100	100	513	612	333	353	180	259
2015	2	100	200	545	633	333	353	212	280
2016	3	100	300	576	655	333	353	243	302
2017	4	115	415	576	655	333	353	243	302
2018	5	150	565	576	655	333	353	243	302
2019	6	150	715	576	655	333	353	243	302
2020	7	180	895	576	655	333	353	243	302
2021	8	200	1095	576	655	333	353	243	302
2022	9	220	1315	576	655	333	353	243	302
2023	10	250	1565	576	655	333	353	243	302
2024	11	200	1765	576	655	333	353	243	302
2025	12	200	1965	576	655	333	353	243	302
2026	13	250	2215	576	655	333	353	243	302
2027	14	250	2465	576	655	333	353	243	302
2028	15	250	2715	576	655	333	353	243	302
2029	16	250	2965	576	655	333	353	243	302
2030	17	250	3215	576	655	333	353	243	302
2031	18	200	3415	576	655	333	353	243	302
2032	19	200	3615	576	655	333	353	243	302
2033	20	180	3795	576	655	333	353	243	302
2034	21	180	3975	576	655	333	353	243	302
2035	22	180	4155	576	655	333	353	243	302
2036	23	150	4305	576	655	333	353	243	302
2037	24	150	4455	576	655	333	353	243	302
2038	25	100	4555	576	655	333	353	243	302
2039	26	100	4655	576	655	333	353	243	302
2040	27	180	4835	576	655	333	353	243	302
2041	28	100	4935	576	655	333	353	243	302
2042	29	100	5035	576	655	333	353	243	302
2043	30	100	5135	576	655	333	353	243	302

ASSESSMENT PRODUCTION PROFILE-1996/97 SUBMISSION THEN REDUCED GROWTH

BASED ON HEADWORKS CALCULATION WITH DUAP ADJUSTED DATA

DISCOUNT RATES :									
EXISTING ASSETS			0			**DEVELOPMENT :**		REDEVELOPMENT	
FUTURE ASSETS			0.05						
OM&A and REV			0.05			**DATE :**		April 2014	

FILE : P:AM&P \New Development\DSPs 306 307\DSP 2014 Review\ RedevelopDSPcalcs.XLS

TABLE 2 - GCC CODSP

May-14

						1.15	1.079					
SEWER EXTERNAL COSTS						Indexed from '06 to '12	Indexed from 2012 to 2015					
PRE 1996 ASSETS												
Discount Rate												
0%												
DESCRIPTION	**YEAR**	**Effective**	**YEAR CAP**	**Take up**	**YEARS TO**	**`2012 Value**	**2014/15 Value**	**ANNUAL**	**TOTAL**	**ET**	**$ PER ET**	**ET BASIS**
	BUILT	**Year Built**	**REACHED**	**Period-Eff**	**CAPACITY**	$		**CHARGE**	**CHARGE**			34129EP/2.5=13650
Coast to Kincumber	1980	1996	1998	2	18	$16,820,982	$18,149,565	$9,074,783	$18,149,565	13650	$1,330	HYD CAP 640
												(HYDRAULIC CAPACITY)
Kincumber-st 1 KPS	1980	1996	2005	9	25	$16,269,475	$17,554,498	$1,950,500	$17,554,498			
Kincumber-st 2 KPS	1984	1996	2009	13	25	$2,011,348	$2,170,211	$166,939	$2,170,211	53790	$367	
Gosford	1984	1996	2006	10	22	$57,117,312	$61,628,648	$6,162,865	$61,628,648			
West Gosford	1987	1996	2011	15	24	$2,358,699	$2,544,997	$169,666	$2,544,997			
Narara/Lisarow	1987	1996	1996	1	9	$5,074,927	$5,475,763	$5,475,763	$5,475,763			
Kariong carrier	1989	1996	2006	10	17	$3,521,760	$3,799,922	$379,992	$3,799,922	38500	$1,908	
Erina West GM	1988	1996	2013	17	25	$8,452,224	$9,119,812	$536,460	$9,119,812	38500	$237	HYD CAP 2500 ERINA SIPHON
												COST ASSET REG DIM PLUS
												ESTIMATED COST
Kincumber Tunnel	1988	1996	2006	10	18	$17,725,571	$19,125,602	$1,912,560	$19,125,602	38500	$497	
Kincumber GM	1988	1996	2006	10	18	$1,275,033	$1,375,739	$137,574	$1,375,739	38500	$36	
KTW-ST1	1982	1996	2007	11	25	$84,753,444	$91,447,582	$8,313,417	$91,447,582			
KTW-ST2	1990	1996	2015	19	25	$31,693,463	$34,196,729	$1,799,828	$34,196,729	72000	$1,745	180000EP/2.5
WOY WOY												
Woy Woy	1983	1996	2006	10	23	$16,419,854	$17,716,754	$1,771,675	$17,716,754	20000	$886	HYD CAP 1300
WWTW-ST1	1982	1996	2007	11	25	$48,256,916	$52,068,425	$4,733,493	$52,068,425			
WWTW-ST2	1989	1996	2014	18	25	$12,974,164	$13,998,911	$777,717	$13,998,911	20000	$3,303	50000EP/2.5
Outfall	1980	1996	2005	9	25	$39,225,979	$42,324,191	$4,702,688	$42,324,191	92000	$460	HYD CAP 3500
ER1 PS	1986	1996	2000	4	14	$804,135	$867,649	$216,912	$867,649	38500	$193	108L/S
ER2 PS	1986	1996	2000	4	14	$935,600	$1,009,497	$252,374	$1,009,497	38500	$224	220L/S
ERINA GRAVITY MAIN	1986	1996	2000	4	14	$766,863	$827,433	$206,858	$827,433	38500	$184	ER1+ER2+500
SEWER EXTERNAL COSTS									***			
POST 1996 ASSETS									**TOTAL**			
Discount Rate									**CHARGE**			
1.05												$22.5m represents 75% full estimated
ASSET												cost of $30m (total System Capacity
TERRIGAL-KINC TRANS	2015	2015	2035	20	20	$22,500,000	$24,277,133	$1,213,857	$23,121,079	13650	$1,694	13,650 ET- 2006 to 2051 forecast)
TERRIGAL MAJOR	2004	2004	2028	24	24	$862,500	$930,623	$38,776	$886,308	13650	$65	2004 Capacity
SPS G6	2012	2012	2042	30	30	$600,000	$647,390	$21,580	$616,562	38500	$16	
KINC TW	2013	2013	2020	7	7	$4,000,000	$4,315,935	$616,562	$4,110,414	72000	$57	$4m represents 10% full estimated
												cost of $40m
W W RETIC	2008	2008	2015	7	7	$184,000	$198,533	$28,362	$189,079	20000	$9	
BENSVILLE B1 SPS UPGRADE	2014	2014	2015	1	1	$103,500	$111,675	$111,675	$106,357	2500	$43	
KARIONG L9 GILFORD ST	2012	2012	2013	1	1	$59,961	$64,697	$64,697	$61,616			
KARIONG L10 BORE MILYERRA	2013	2013	2014	1	1	$96,600	$104,230	$104,230	$99,266	38500	$4	
WYOMING CHAMB SPS	2014	2014	2015	1	1	$170,269	$183,717	$183,717	$174,969	38500	$5	
ERINA P1/L2 JAMES SEA DR	2012	2012	2014	2	2	$65,800	$70,997	$35,499	$67,616			
ERINA P1/L7 KOOLANG RD	2013	2013	2014	1	1	$9,960	$10,747	$10,747	$10,235			
ERINA P1/L13 & 14 BEMBOOKER	2012	2012	2014	2	2	$18,445	$19,902	$9,951	$18,954	38500	$3	
LISAROW L4 PACIFIC HWY	2012	2012	2013	1	1	$54,780	$59,107	$59,107	$56,292	38500	$1	
NARARA L12,L22,L36	2012	2012	2015	3	3	$44,146	$47,633	$15,878	$45,365			
NARARA L24,L25,L26,L37,L38	2013	2013	2015	2	2	$131,250	$141,617	$70,808	$134,873			
NARARA L11,PS4	2014	2014	2015	1	1	$384,200	$414,546	$414,546	$394,805	38500	$15	
WYOMING L1 KALLAWARRA	2013	2013	2015	2	2	$13,760	$14,847	$7,423	$14,140	38500	$0	
ERINA P1/L10 BEMBOOKER		2013	2015	2	2	$36,720	$39,620	$50,595	$96,372	38500	$3	
		SEWER TOTAL						**Erina**	$3,947			
								Coast	$5,760			
								Gosford	$5,111			
								Woy Woy	$4,659			
								CITY AVERAGE			**$4,869**	Average of Coast, Erina, Woy Woy
												& Gosford
EXISTING WATER EXTERNAL COSTS												
PRE 1996 ASSETS												
WOY WOY K2 to WW	1988	1996	2013	17	25	$3,087,410	$3,331,265	$157,924	$2,684,704			
ERINA GREEN PT	1978	1996	2003	7	25	$406,470	$438,574	$50,493	$353,452			
TRADEWINDS	1977	1996	2002	6	25	$1,627,347	$1,755,880	$235,847	$1,415,084			
WAMBERAL-FORR	1977	1996	2002	6	25	$2,033,816	$2,194,455	$294,756	$1,768,536			
TERRIGAL BOOSTER	1979	1996	2004	8	25	$528,264	$569,988	$57,420	$459,360			
KINCUMBER 300	1975	1996	2000	4	25	$108,588	$117,164	$23,606	$94,424			
KINC-BENSVILLE	1979	1996	2004	8	25	$1,507,020	$1,626,050	$163,807	$1,310,452			
BENSV-EMPIRE BAY	1979	1996	2004	8	25	$651,526	$702,985	$70,818	$566,544			
BENSV-EMP BAY	1980	1996	2005	9	25	$733,700	$791,650	$70,889	$638,000			
RIP BRIDGE	1986	1996	2011	15	25	$135,001	$145,664	$7,826	$117,392			
450 TO RIP	1986	1996	2011	15	25	$1,100,550	$1,187,475	$63,800	$957,000			
200 TASCOTT	1995	1996	2020	24	25	$410,872	$443,324	$14,887	$357,280			
PT K2-WOYWOY	1988	1996	2013	17	25	$2,283,274	$2,463,616	$116,792	$1,985,456			
NIAGRA PK TM	1980	1996	2005	9	25	$889,244	$959,480	$85,917	$773,256			
AVOCA-McMASTERS	1979	1996	2004	8	25	$2,632,516	$2,840,441	$286,143	$2,289,144			
KINCUMBER 300	1985	1996	2010	14	25	$895,114	$965,813	$55,597	$778,360			
BENSVILLE-KILCARE	1982	1996	2007	11	25	$821,744	$886,648	$64,960	$714,560			
									$17,263,004	75310	$229	
		WATER								**TOTAL**	**$229**	
FUTURE WATER EXTERNAL COSTS												
Discount Rate	1.05											
		YEAR	**YEAR CAP**	**Take up**	**YEAR**	**`2012 Value**	**CURRENT**	**ANNUAL**	**TOTAL**			
ASSET		**TO BUILD**	**REACHED**	**Period-Eff**	**TO CAP**		**ESTIMATE**	**CHARGE**	**CHARGE**			
ERINA P1/L4 KOOLANG		2015	2016	1	1	$27,200	$29,348	$55,760	$53,105			
LISAROW L2 NEWLING		2014	2016	2	2	$129,000	$139,189	$177,745	$338,562			
LISAROW L4 NEWLING		2015	2016	2	2	$90,180	$97,303	$124,256	$236,679			
LISAROW L6 CHAMBERLAIN		2014	2016	1	1	$50,100	$54,057	$102,705	$97,814			
NARARA L7 & 8 HANLAN		2014	2016	3	3	$84,320	$90,980	$100,162	$286,178			
NARARA L9 MANNS		2015	2016	1	1	$28,560	$30,816	$58,548	$55,760			
NARARA L11 DEAN		2015	2016	1	1	$32,640	$35,218	$66,912	$63,726			
SPRINGFIELD L9 BARRALONG		2015	2016	1	1	$26,611	$28,713	$54,553	$51,955			
									$1,183,778	75310		
										TOTAL	**$16**	
*** Total Charge = PMT(annual charge)*t/1(+r/100)												
Ref DLWC Guidelines												
Uniform uptake of major assets assumed												
DSP's agglomerated with Redevelopment												
FILE :	P:AM&P \New Development\DSPs 306 307\DSP 2014 Review\GCC CODSP.XLS											

TABLE 3 - CALCULATION OF DEVELOPER CHARGE

						NPV Assets		
NPV of Net Operating Income								
						Future assets		
	YEAR	**TOTAL ET'S**	**'NET REVENUE**					
		SERVICED	WATER	SEWER		YEAR	WATER	SEWER
			$	$				
	1	100	18026	25928		1	0	0
	2	200	42300	55910		2	0	0
	3	300	72786	90555		3	0	0
	4	415	100687	125268		4	0	0
	5	565	137080	170545		5		
	6	715	173473	215823		6		
	7	895	217145	270156		7		
	8	1095	265669	330526		8		
	9	1315	319045	396933		9		
	10	1565	379700	472395		10		
	11	1765	428224	532765		11		
	12	1965	476748	593135		12		
	13	2215	537403	668598		13		
	14	2465	598058	744060		14		
	15	2715	658713	819523		15		
	16	2965	719368	894985		16		
	17	3215	780023	970448		17		
	18	3415	828547	1030818		18		
	19	3615	877071	1091188		19		
	20	3795	920743	1145521		20		
	21	3975	964415	1199854				
	22	4155	1008086	1254187				
	23	4305	1044479	1299464				
	24	4455	1080872	1344742				
	25	4555	1105134	1374927				
	26	4655	1129396	1405112				
	27	4835	1173068	1459445				
	28	4935	1197330	1489630				
	29	5035	1221592	1519815				
	30	5135	1245854	1550000				
NET REVENUE								
NPV NET REVENUE WATER		7553649						
NPV NET REVENUE SEWER		9404009						
NPV LOT RELEASE		2616			Discounted as per IPART Clarifying Note July 1997			
NET REVENUE PER ET WATER		2887						
NET REVENUE PER ET SEWER		3594						
ASSETS								
NPV FUTURE ASSETS INTERNAL								
	WATER	0						
	SEWER	0						
WATER								
NPV EXISTING INTERNAL		0			As per capital charge			
NPV HEADWORKS (Joint)		4625			As per HEADWORKS file 2014			
NPV EXISTING EXTERNAL		229			As per GCCCODSP.XLS 2014 revision			
NPV FUTURE EXTERNAL		16			As per GCCCODSP.XLS 2014 revision			
SEWER								
NPV EXISTING INTERNAL		0			As per capital charge			
NPV EXISTING EXTERNAL		4869			As per GCCCODSP.XLS 2014 revision			
CHARGE								
DEVELOPER CHARGE PER ET WATER DISC			**1983**					
DEVELOPER CHARGE PER ET SEWER DISC			**1275**					
		TOTAL	**3258**					
FILE :	P:AM&P \New Development\DSPs 306 307\DSP 2014 Review\ RedevelopDSPcalcs.XLS							

TABLE 4 - DEVELOPER CHARGES COMPARISON

GCC DSP CHARGES PER ET

DSP AREA	EXISTING 2013/2014 CHARGE			PROPOSED 2014/2015 CHARGE		
	Water	**Sewer**	**Total**	**Water**	**Sewer**	**Total**
REDEVELOPMENT	1161	2426	**3587**	1983	1275	**3258**
* ERINA						
* ERINA TOWNSHIP						
GOSFORD CITY	1887	4438	**6325**	3064	3413	**6477**
* KARIONG						
* KINCUMBER						
* LISAROW						
* NARARA						
* NIAGARA PARK						
* SPRINGFIELD						
* WYOMING						

* DSP's agglomerated with Redevelopment DSP

DATE: MAY 2014

FILE: P:AM&P \New Development\DSPs 306 307\DSP 2014 Review\ 2014 DSP Compare Table 4.XLS

TABLE 5

CRITERIA FOR ASSESSMENT OF EQUIVALENT TENEMENTS - JULY 2013

CLASSIFICATION	REMARKS	ET PER UNIT	UNIT ADOPTED
RESIDENTIAL			
SUBDIVSION	Dwelling, rural	1	Per Lot
UNITS	RFB, Dual Occ,	0.67	Per unit
	Secondary dwelling		
AGED HOUSING #		0.3	Per bed
CARAVAN PARK		0.75	Per site (tent/van)
COMMUNITY BUILDING	Amenities building, etc.	1	
HOSPITAL		1	Per bed
HOSTEL/Boarding House		0.15	Per bed
NURSING HOME		0.4	Per Bed
COMMERCIAL		40	Per Ha.
BUS DEPOT	1 et for office/amenities only	1.5	With workshop
CAR WASH	Based on water consumption	1	Max 25 litre
FAST FOOD	No amenities	0.02/m2	As per comm.
	With amenities	0.04/m2	As per comm.
HOTEL/MOTEL	Or 1 ET per 3 beds or 3 units	0.3	Per bedroom
LAUNDROMAT		0.6	Per Machine
LICENSED CLUBS		0.04	Per occupant
MARINA		0.75	Per berth
RESTAURANT		0.008/m2	Per seating area
PROF CONSULTING	Medical Centre	0.4	Per practice room
PUBLIC ENTERTAINMENT	Incl. bowling alleys, cinemas, gyms,	0.5	Per W.C. or Urinal
	skating rinks, squash courts, etc.		
SHOP/OFFICES		0.005/m2	
SHOP CENTRE		0.001/m2	Per built up area
SPORTS AMENITIES		0.5	Per W.C. or urinal
SPORTS FACILITY		1	Per 100 visitors
SWIMMING POOLS		20	Per olympic sized pool (2515m3)
TAVERN	Or as per club	160	Per built up hectare
TAXI BASE	At existing Service Station	1	
INDUSTRIAL			
FACTORY UNIT	Unknown Use	5.0	Per NDE
SERVICE STATION	With car repair	3.0	
SHOW ROOM		14	Per built up hectare
STABLES		140	Per built up hectare
WAREHOUSE	Dry Storage	14	Per built up hectare
	or individually assessed		
OTHER			
CHURCH / CHAPEL	0.6/building	1	Per 80 seats
EMERGENCY SERVICES	fire stations, etc.	0.5	Per W.C. or Urinal
SCHOOL	No headworks	0.04	Per pupil-staff
VET	Or as comm.(40et/ha)	0.5	Per consul.

The number of equivalent tenements assessed for aged accommodation development shall be no greater than that assessed on the basis of two (2) equivalent tenements per three (3) units.

Where the above criteria are not considered appropriate, then the number of ET shall be based on Sydney Water Practice or PWD standards

FILE : P:AM&P\New Development\DSP's 306 307\DSP 2014 Review\EQUITENETable5.XLS

N
W
E
S

Gosford City
DSP

Legend

- Existing Water Mains
- Proposed Water Main
- City Centre Boundary
- DSP Boundary

May 2014

0 1,250 2,500 5,000 7,500 10,000
Meters

REDEVELOPMENT DSP - WATER

N
W
E
S

Kincumber Treatment Works

Gosford City DSP

Woy Woy Treatment Works

Legend

City Centre Boundary

DSP Boundary

May 2014

0 1,250 2,500 5,000 7,500 10,000 Meters

REDEVELOPMENT DSP - SEWER

Gosford City Council

&

Wyong Shire Council

Water Supply
Headworks Capital Cost
for
Development Servicing Plans No.GW3

April 2014

TABLE OF CONTENTS

Water Supply Headworks Capital Cost
for
Development Servicing Plans No.GW3

Development Servicing Plan Joint Headworks

WATER SUPPLY

HEADWORKS CAPITAL COST FOR DSP'S

1.0 INTRODUCTION

The purpose of this Development Servicing Plan (DSP) is to determine the capital costs applicable to the Gosford – Wyong Joint Water Supply headworks infrastructure serving proposed developments within the Gosford and Wyong Council Areas serviced by the Gosford – Wyong Joint Water Supply System.

The capital cost of headworks determined by this DSP will be included as a capital cost in all applicable Gosford City and Wyong Shire DSP's.

The Development Servicing Plan for Joint Headworks Water Supply was last prepared in November 2011. The Independent Pricing and Regulatory Tribunal (IPART) has in May 2013 reviewed calculation parameters for developer charges for both Councils which necessitated preparing this revised development servicing plan.

This plan has been prepared in accordance with the requirements of the Water Management Act 2000, using the methodology and parameters determined by the Independent Pricing and Regulatory Tribunal's Determination 1, 2013 for Gosford City Council and Wyong Shire Council Developer Charges.

2.0 AREA OF THE PLAN

All lands contained within the Gosford City and Wyong Shire Local Government areas serviced by Joint Water Supply headworks may be subject to this DSP. Local Area DSP's where applicable will refer to this DSP for headworks capital costs.

Headworks assets are detailed in Annexure A.
Only infrastructure assets created after 1970 have been included in the assessment of capital cost.

3.0 POPULATION AND EQUIVALENT TENEMENT PREDICTIONS

Table 1 below summarises serviced population predictions for the Gosford and Wyong local government areas and the number of equivalent tenements. Further prediction details are provided in Annexure A.

Year	POPULATION				Equivalent Tenements		
	Wyong	Gosford	Total	Serviced	Residential	Other	Total
2001	135,498	160,760	296,258	285,889	119,120	29,780	148,900
2006	142,686	162,058	304,744	294,078	122,533	30,633	153,166
2011	153,991	166,870	320,861	309,631	129,013	32,253	161,266
2016	160,088	173,765	333,853	322,168	134,237	33,559	167,796
2021	172,191	178,862	351,053	338,766	141,153	35,288	176,441
2026	188,084	183,598	371,682	358,673	149,447	37,362	186,809
2031	203,448	188,164	391,612	377,906	157,461	39,365	196,826
2036	217,183	192,122	409,305	394,979	164,575	41,144	205,719
2041	230,918	195,081	425,999	411,089	171,287	42,822	214,109
2046	244,653	198,142	442,795	427,297	178,040	44,510	222,550
2051	258,388	201,203	459,591	443,505	184,794	46,199	230,993

4.0 REFERENCE TO OTHER DEVELOPMENT SERVICING PLANS

The capital cost of headworks determined by this DSP will be included as a capital cost in all applicable Gosford City and Wyong Shire DSP's.

5.0 ESTIMATES OF CAPITAL AND OPERATION COSTS

The capital costs are taken as Gross Replacement Costs of each of the Joint Headworks Assets are as per : 2010-11 Fair Value Asset Revaluation Joint Water Assets - report from Gosford City Council - Fair Value Estimates Report (JWS) – FINAL and Gosford-Wyong JWS Fair Value Estimates - Dams & Weirs Assets Costs are determined by using Modern Engineering Equivalent Replacement Asset (MEERA) approach. These costs are further indexed as advised by Asset Planning Section as per Technical Memorandum issued by SKM in its Councils Sewerage Planning Study. The annual value charges in tables in Annexure A are calculated using 0% discount rate for pre-1996 assets and 5.0% discount rate for post-1996 assets as per Gosford City Council and Wyong Shire Council Review of Calculation for parameters for developer charges Water –Final Report May 2013 Developer Charges from May 2013 of IPART.

Operating costs are not relevant to this DSP and are detailed in each Local Area DSP.

6.0 STANDARDS OF SERVICE AND DESIGN PARAMETERS

6.1 Standards of Service

i. meet NHMRC / Australian Drinking Water Guidelines 2011, 100% of the time
ii. satisfy peak day demand
iii. provide adequate drought security

6.2 System Capacity

The capacity of headworks assets have been assessed using design parameters reflecting a decreasing equivalent tenement demand as water saving programs take effect.

Equivalent Tenement design parameters used are:-

i. Peak Day Demand 1.49 KL/ET in 2011 reducing to 1.35 KL/ ET in 2051 (refer section 3 Annexure A)
ii. Annual Dry Year Demand 221 KL/ET in 2011 reducing to 202 KL/ET in 2051 (refer section 3 Annexure A)

7.0 ASSOCIATED REPORTS AND DATA

The following Reports provide the basis upon which the need and capacity of capital works have been assessed*:*

i. PWD Report on Investigations for Water Supply to the Gosford – Wyong Region, January 1975.

ii. PWD Report on Investigations for Water Supply to the Gosford – Wyong Region, July 1985.

iii. WaterPlan 2050 with supporting documents

iv. Forecast.id Report on Wyong Shire Council Population and Household Forecasts July 2012.

v. Forecast.id Report on Gosford City Council Population and Household Forecasts February 2010.

vi. DPWS Report on Mardi Dam Condition Assessment of Intake Tower and Outlet Pipe August 2000.

8.0 METHOD OF REVIEWING/UPDATING CONTRIBUTIONS

The capital costs identified in this DSP are incorporated in DSP's developed by Gosford City and Wyong Shire Councils. The value of contributions payable under the Contribution Plan will be held constant in real terms for the life of the Plan by the adjustments specified within Local Area DSP's.

9.0 CAPITAL COSTS

Headworks capital costs have been assessed on the basis of one equivalent tenement (ET) as detailed in Annexure A and summarised in the table below:-

Asset Type	Capital Cost/ET [$]
Yield Assets	2,856.5
Treatment & Transfer Assets	1,768.9
Total	**4,625.4**

ANNEXURE A

HEADWORKS CAPITAL

COSTS

1. Introduction

Last Development Servicing Plan was updated in 2011 incorporated following factors that impact upon this revision of the plan. These include:-

- Improved Headworks Modelling incorporating the last drought has provided a better understanding of the behaviour of the water supply system;
- Major augmentation of water transfer Mardi suite of Works including; Mardi High Lift Pumping Station, Mardi High Voltage Power Supply, Mardi Dam Transfer System and others ancillary works
- Major augmentation of the system by linking Mangrove Creek Dam with Mardi Dam for Storage Transfer
- Water Sharing Plan for the Central Coast unregulated Water Sources 2009 that limit access to stream flows currently utilised by the existing scheme have been gazetted. The WSP has been incorporated into the design and operation of the system and has the effect of requiring more infrastructures to accommodate the environmental flow requirements than if the previous access arrangements were in place.
- Continuation of Implementation of water saving policies such as BASIX, installation of water tanks and other water saving devices and improved appliance efficiencies will progressively reduce the per capita water consumption over time.

This update which will be applicable from July 2014 was necessitated by review of calculation parameters for developer charges as per Gosford City Council and Wyong Shire Council Review of Calculation for parameters for developer charges Water –Final Report May 2013 Developer Charges from May 2013 of IPART.

2. Projected Population and Equivalent Tenements

In July 2012Wyong Shire Council has updated population forecasts as per latest 2011 Census figures. Gosford City Council's figures are same as used in 2011Development Servicing Plan. In addition for Gosford the forecast population includes The Landing and Mount Penang developments (not included in Forecast.id figures). The forecast figures used are the same as being used in Gosford Master Planning project. A serviced population of 443, 505 in 2051 is predicted using these models. This compares to a serviced population forecast of 430,586 detailed in the 2011 DSP.

These forecasts are used for the calculation of equivalent tenements used for joint water supply headworks planning as detailed below in Table 1 below.

Table 1 Population Forecasts

Year	POPULATION (as per Councils' Forecasts)				ET's		
	Wyong (a)	Gosford (b)	Total c=a+b	Serviced Population d=0.965c	Residential e=d/2.4	Non-Residential f=e/4	Total ET g=e+f
2001	135,498	160,760	296,258	285,889	119,120	29,780	148,900
2006	142,686	162,058	304,744	294,078	122,533	30,633	153,166
2011	153,991	166,870	320,861	309,631	129,013	32,253	161,266
2016	160,088	173,765	333,853	322,168	134,237	33,559	167,796
2021	172,191	178,862	351,053	338,766	141,153	35,288	176,441
2026	188,084	183,598	371,682	358,673	149,447	37,362	186,809
2031	203,448	188,164	391,612	377,906	157,461	39,365	196,826
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2041	230,918	195,081	425,999	411,089	171,287	42,822	214,109
2046	244,653	198,142	442,795	427,297	178,040	44,510	222,550
2051	258,388	201,203	459,591	443,505	184,794	46,199	230,993

3. Projected Demand & Projected Peak Day Demand

Projected system demand taking into account population growth and the progressive reduction in equivalent tenement demand is detailed in tables 2 and 3 below.

Table 2

Year	Total Equivalent Tenements	Annual Demand per ET KL	Peak Day Demand per ET KL
2011	161,266	221	1.49
2016	167,796	217	1.45
2021	176,441	213	1.42
2026	186,809	209	1.40
2031	196,826	206	1.38
2036	205,719	204	1.37
2041	214,109	204	1.36
2046	222,550	203	1.35
2051	230,993	202	1.35

Table 3

Year	Annual Dry Year Demands ML	Peak Day Demands ML
2011	35,715	240
2016	36,433	243
2021	37,587	250
2026	39,057	261
2031	40,464	271
2036	42,046	282
2041	43,581	292
2046	45,125	301
2051	46,669	311

To achieve these goals both Gosford and Wyong Councils have implemented comprehensive demand management programs including;-

i. leakage and wastage minimisation;
ii. public awareness through publicity and education;
iii. BASIX implementation

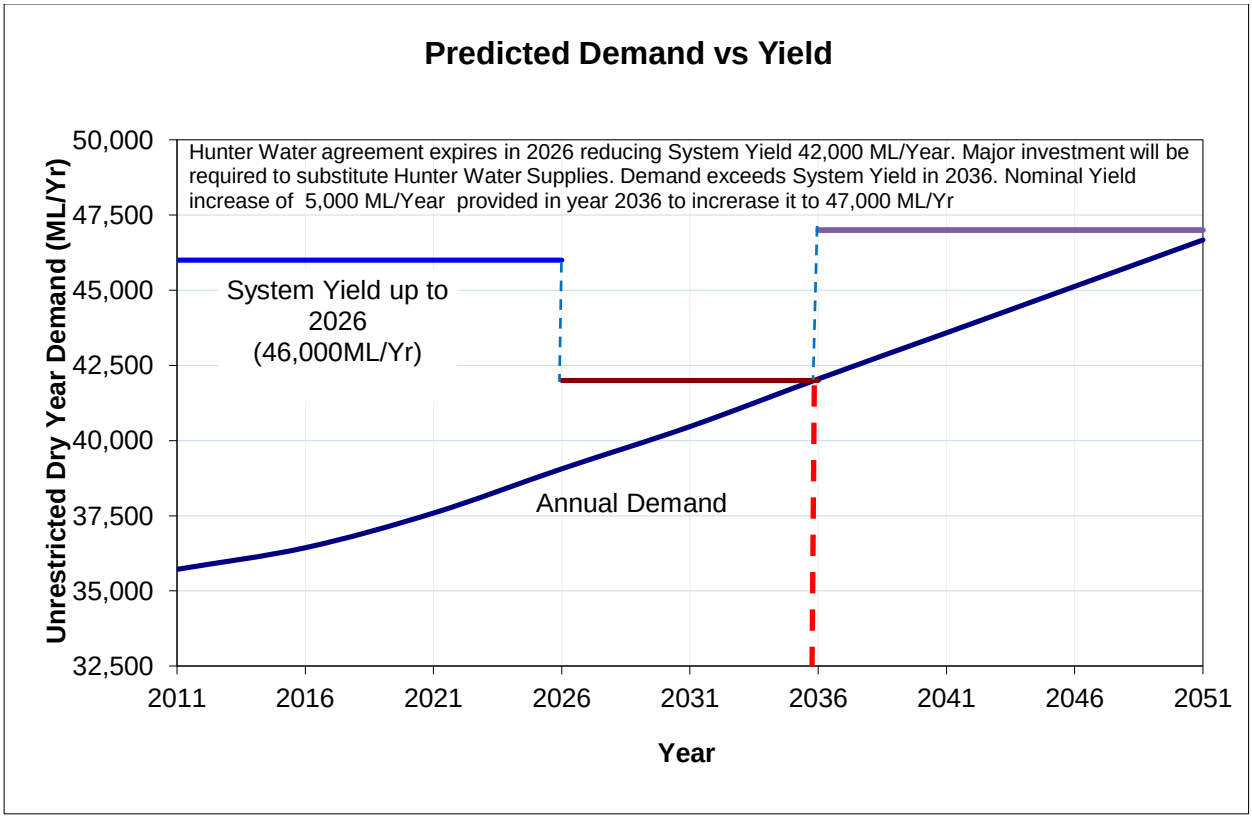
4. System Capacity

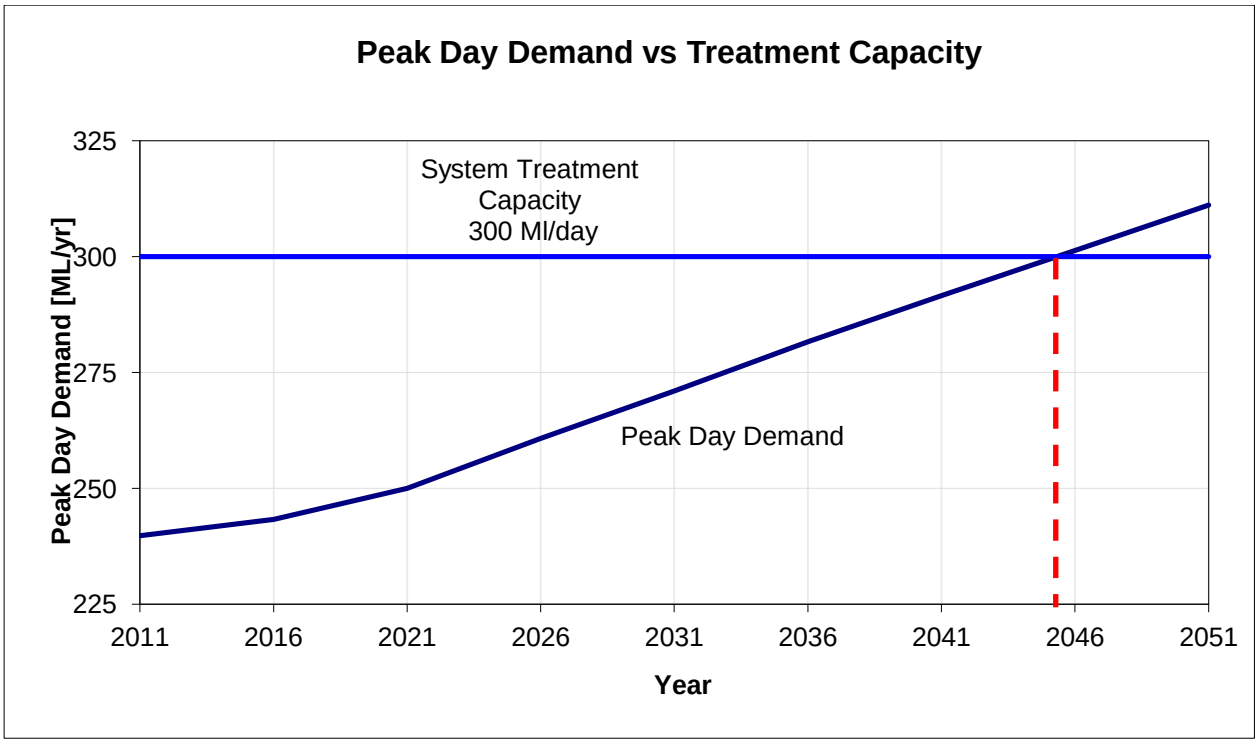
The System Yield of 39800 ML/Yr was adopted for the last DSP in 2006. Since then a major system augmentation has been done as per WaterPlan 2050.The Mardi to Mangrove Creek Dam Pipeline Link and Mardi Suite of Works including Mardi High Lift Pumping Station, Mardi Dam Transfer System, Mardi Dam Intake Tower and High Voltage Power Supply Ring Main has recently been completed . Water Sharing Plan for the Central Coast Unregulated Water Sources 2009 for Wyong River, Mooney Mooney Creek and Mangrove Creek has also been gazetted.

The analysis of the impact the system augmentation, water sharing plans together with refined hydrologic data has determined a yield of 46,000 ML/Yr for the system up to 2026. The system yield drops to 42,000 ML/Yr after the expiry of the agreement with the Hunter Water in 2026. Major infrastructure investment will be required after 2026 to substitute the lost yield. At present no solution has been developed though a range of potential solutions have been identified such as Hunter Water agreement renewal works, environmental flow substitution, indirect potable reuse or desalination. The predicted demand exceeds the system yield in 2036. A provision of Nominal Yield increase of 5,000 ML/Yr is proposed in future infrastructure works, enhancing the System Yield to 47,000ML/Yr.

Total water treatment and distribution capacity provided for in the DSP is 300 ML/day which is sufficient to meet the peak day demand up to 2045.

The following graphs provide details of annual demand versus yield over time and peak day demand versus treatment capacity over time.





5. Calculated Charge per Equivalent Tenement

Development servicing capital costs pertaining to the headworks water supply system are summarised in Table 4 below. Details associated with the calculation of this cost are contained in Table 5.

Table 4

Asset Type	Capital Cost/ET [$]
Yield Assets	2,856.5
Treatment & Transfer Assets	1,768.9
Total	**4,625.4**

Table 5

Calculation of Capital Cost of Headworks System (as at June 30,2014)

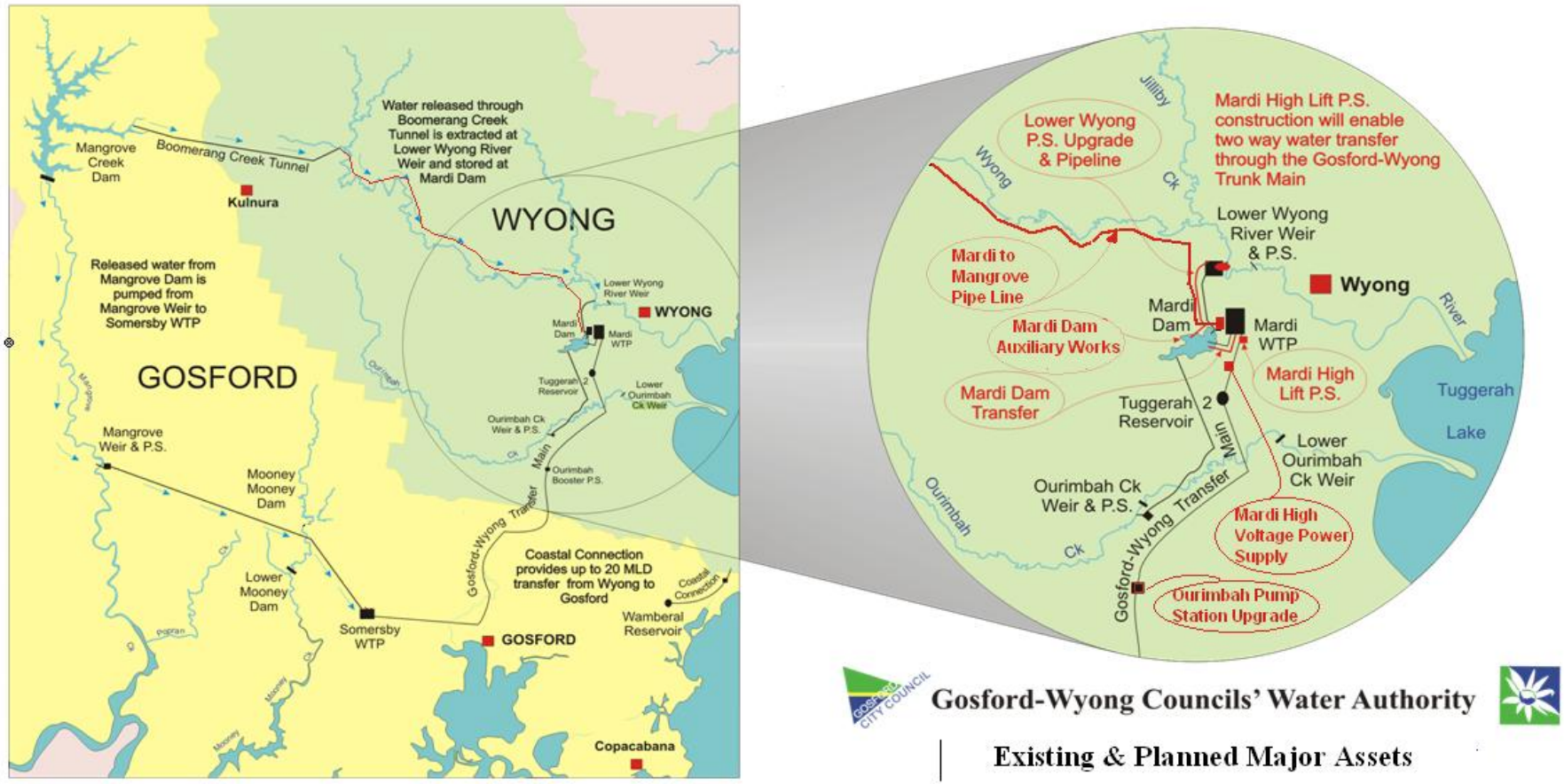
BASE YEAR OF CALCULATION **2014**

PRE-1996 ASSETS ***Discount Rate*** ***0%***

Asset	Year Constructed/ Upgraded	Capacity Consumed	Cost ($)	Period to capacity	Capacity (ET)	Annual Charge ($)	Charge per lot ($/ET)	Period Until Construction	PV charge per lot ($/ET)
Raw Water Yield									
Mangrove Dam	1982	2043	$145,678,968	61	217,485	$2,388,180	670		670
Boomerang Creek Tunnel	1989	2043	$105,960,489	54	217,485	$1,962,231	487		487
Lower Wyong River Weir -Structure Upgrade	1990	2043	$77,325	53	217,485	$1,459	0		0
Ourimbah Creek Upper Weir	1979	2043	$1,271,038	64	217,485	$19,860	6		6
Ourimbah Creek Pumping Station (WPS11)	1979	2043	$4,285,481	64	217,485	$66,961	20		20
Ourimbah Creek to Mardi Dam RM	1979	2043	$8,789,022	64	217,485	$137,328	40		40
Ourimbah Creek transfer (Tunnel)	1979	2043	$821,501	64	217,485	$12,836	4		4
Mangrove Creek Weir	1975	2043	$3,785,573	68	217,485	$55,670	17		17
Mangrove Creek Weir Electrical Upgrade	2004	2043	$35,333	39	217,485	$906	0		0
Mangrove Creek Pumping Station	1975	2043	$18,579,394	68	217,485	$273,226	85		85
Mangrove Creek PS to Somersby Balance Tanks TM	1975	2043	$54,955,422	68	217,485	$808,168	253		253
Sub-Total							**1,583**		**1,583**
Treatment and Transfer									
Balance Tanks to Somersby WTP TM Upgrade	1975	2043	$2,673,281	68	217,485	$39,313	12		12
Somersby WTP Stage I: 73 ML/d	1971	2043	$26,811,281	72	217,485	$372,379	123		123
Somersby WTP Stage II: 67 ML/d	1986	2043	$24,699,841	57	217,485	$433,331	114		114
Somersby WTP to K2 TM- Upgrade	1978	2043	$12,900,923	65	217,485	$198,476	59		59
K2 to North Gosford TM- Upgrade	1979	2043	$11,247,954	64	217,485	$175,749	52		52
Mardi Dam to Mardi WTP	1982	2043	$2,384,663	61	217,485	$39,093	11		11
Mardi WTP Stage I: 80 ML/d	1982	2043	$31,042,880	61	217,485	$508,900	143		143
Mardi WTP Stage II: 80 ML/d	1994	2043	$6,208,519	49	217,485	$126,704	29		29
Mardi WTP to Tuggerah 2 TM	1986	2043	$6,586,367	57	217,485	$115,550	30		30
Gosford -Wyong (Tuggerah 2) TM	1986	2043	$58,366,782	57	217,485	$1,023,979	268		268
Coastal Connection	1977	2043	$8,128,756	66	217,485	$123,163	37		37
Kariong Reservoir No 1(K1)	1973	2043	$5,068,864	70	217,485	$72,412	23		23
Kariong Reservoir No 2 (K2)	1986	2043	$19,792,378	57	217,485	$347,235	91		91
Somersby Balance Tank 2	1971	2043	$1,838,539	72	217,485	$25,535	8		8
Tuggerah 2 Reservoir	1986	2043	$15,055,300	57	217,485	$264,128	69		69
Forresters Beach Pumping Station	1987	2043	$1,524,744	56	217,485	$27,228	7		7
Ourimbah Pumping Station (WPS17)	1987	2043	$5,946,889	56	217,485	$106,194	27		27
Sub-Total							**1,105**		**1,105**
Total Pre-1996 Headworks Assets							**2,688**		**2,688**

POST-1996 ASSETS ***Discount Rate*** **5%**

Asset	Year Constructed/ Upgraded	Capacity Consumed	Cost ($)	Period to capacity	Capacity (ET)	Annual Charge ($)	Charge per lot ($/ET)	Period Until Construction	PV charge per lot ($/ET)
Raw Water Yield									
Mangrove Dam SCADA /Telemetry Upgrade	2010	2043	$368,883	33	217,485	$23,051	3.50		3
Mooney Dam Upgrades- instrumentation, Destratification and other minor works	2004	2043	$255,983	39	217,485	$15,043	2.70		3
Boomerang Creek Tunnel Upgrade	2004	2043	$255,983	39	217,485	$15,043	2.70		3
Lower Wyong pumping Station (WPS1) Electrical Control Upgrade	2004	2043	$186,439	39	217,485	$10,956	1.96		2
Lower Wyong PS to Mardi Dam RM -Upgrade pipeline DN1000	2006	2043	$7,090,854	37	217,485	$424,315	72.19		72
Ourimbah Creek Upper Weir-Upgrade - Fishway	2007	2043	$596,236	36	217,485	$36,033	5.96		6
Ourimbah Creek Pumping Station (WPS11) Electrical Control Upgrade	2004	2043	$137,087	39	217,485	$8,056	1.44		1
Mangrove Creek Pumping Station -Electrical Control Upgrade	2004	2043	$155,366	39	217,485	$9,130	1.64		2
Mooney Mooney Pumping Station- Electrical Control Upgrade	2004	2043	$146,227	39	217,485	$8,593	1.54		2
Mangrove Creek PS to Somersby Balance Tanks TM- Upgrade	2007	2043	$555,105	36	217,485	$33,547	5.55		6
Hunter Water Connection	2007	2043	$25,159,781	36	217,485	$1,520,518	251.69		252
Groundwater Extraction	2006	2043	$32,287,500	37	217,485	$1,932,077	328.70		329
Mardi To Mangrove Link Pipeline	2011	2043	$38,960,250	32	217,485	$2,465,421	362.75		363
Mangrove Creek Dam Spillway upgrade	2018	2043	$6,150,000	25	217,485	$436,358	50.16	4	41
Future Yield Augmentation	2036	2043	$100,000,000	7	217,485	$17,281,982	556.24	22	190
Sub-Total							**1,649**		**1,274**
Treatment and Transfer									
Somersby WTP Stage I-Electrical Control Upgrade	2004	2043	$745,081	39	217,485	$43,784	8		8
Somersby WTP StageII-Elecrtical Control Upgrade	2004	2043	$1,663,999	39	217,485	$97,784	18		18
Somersby WTP- Civil/ Mech Structure Upgrade	2008	2043	$905,407	35	217,485	$55,295	9		9
Mardi WTP-Electrical Control Upgrade 1	2004	2043	$1,388,016	39	217,485	$81,566	15		15
Mardi WTP-Electrical Control Upgrade 2	2004	2043	$351,903	39	217,485	$20,679	4		4
Mardi WTP- Civil/ Mech/Elec Upgrade	2008	2043	$1,151,067	35	217,485	$70,298	11		11
Kariong Reservoir No 1(K1) Electrical Power Upgrade	2004	2043	$58,755	39	217,485	$3,453	1		1
Kariong Reservoir No 2(K2) Electrical Power Upgrade	2004	2043	$85,461	39	217,485	$5,022	1		1
Somersby Balance Tank 1 Electrical Control Upgrade	2004	2043	$37,389	39	217,485	$2,197	0		0
Somersby Balance Tank 2 Electrical Control Upgrade	2004	2043	$87,241	39	217,485	$5,127	1		1
Tuggerah 2 Reservoir Electrical Power Upgrade	2004	2043	$124,630	39	217,485	$7,324	1		1
Forresters Beach Pumping Station Electrical Power Upgrade	2004	2043	$76,291	39	217,485	$4,483	1		1
Ourimbah Pumping Station (WPS17) Electrical Power Upgrade	2004	2043	$154,399	39	217,485	$9,073	2		2
Ourimbah Pumping Station (WPS17) Proposed Future Upgrade	2014	2043	$2,182,386	29	217,485	$107,092	14		14
Mardi High Lift Pumping Station	2010	2043	$16,965,195	33	217,485	$1,060,156	161		161
Mardi High Voltage Power Supply	2010	2043	$4,872,709	33	217,485	$304,496	46		46
Mardi Dam Transfer System	2010	2043	$32,580,553	33	217,485	$2,035,960	309		309
Mardi Dam Raising	2010	2043	$5,537,389	33	217,485	$346,032	53		53
Mardi Improvement Works	2014	2043	$1,224,943	29	217,485	$80,902	11		11
Sub Total Treatment and Transfer							**664**		**664**
Total Post-1996 Headworks Assets							**2,313**		**1,938**
Total Headworks Assets							**5,000**		**4,625**



Gosford-Wyong Councils' Water Authority

Existing & Planned Major Assets