



Windsor Sewerage Scheme

Development servicing
plan for sewerage
services

April 2011

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1. EXECUTIVE SUMMARY

This document relates to sewerage developer charges for development areas served by the Windsor Sewerage Scheme (WSS).

The 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 (DWLC) pursuant to section 306 (3) of the Water Management Act 2000.

The timing and expenditure for works serving the area covered by this document and the calculation of developer charges are provided in **Appendix 2**. The developer charge calculated is shown in **Table 1**.

Table 1 – Calculated Developer Charges

Name of Development Servicing Plan	Calculated Developer Charge (2011/2012 \$ per ET)	Adopted Developer Charge (2011/2012 \$ per ET)
Windsor Sewerage Scheme	\$7,797	Insert adopted value

The developer charges adopted in this Development Servicing Plan (DSP) are scheduled to commence following adoption. Developer charges relating to these DSPs will be reviewed after a period of 5 – 6 years. A shorter review period is permitted if a major change in circumstances occurs. In the period between reviews, developer charges will be adjusted annually on 1 July on the basis of the movements in the CPI.

The developer shall be responsible for the full cost of the design and construction of reticulation works within subdivisions. Any development approved outside the current service area boundaries shown in this report is also subject to this DSP.

2. INTRODUCTION

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

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

This document contains one DSP that covers sewerage developer charges for the areas served by the Windsor Sewerage Scheme (WSS).

This DSP has been prepared in accordance with the *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* (December 2002) issued by the Minister for Land and Water Conservation (now Minister for Energy and Utilities), pursuant to section 306 (3) of the *Water Management Act 2000*. This DSP is scheduled to commence following adoption.

This DSP supersedes any other requirements related to sewerage developer charges for the area 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.

3. ADMINISTRATION

Name of Development Servicing Plan	Windsor Sewerage Scheme
DSP Area	The areas covered by this DSP are shown in the plan provided in Appendix 1.
DSP Boundaries	<p>The basis for defining the DSP area boundaries is the sewerage catchments served by the existing assets of the McGraths Hill and South Windsor sewerage treatment plants and the future assets schedule for the next 10 years (also known as the capital works program).</p> <p>Any development approved outside the service area boundaries shown in this report is also subject to this DSP. Relevant development approvals are still shown in this report. Development approval will be subject to the relevant planning instruments including standard investigations pertaining to the feasibility of connection to sewerage services in accordance with Council's current policies for services provision.</p>
Payment of Developer Charges	The developer charges will be assessed by Council and will apply for the life of the development consent, the Developer Charge will be adjusted to reflect the current developer charge for the financial year in which it is paid.
Indexation of Developer Charges	The developer charges will be indexed to ensure they are not eroded by inflation. Charges will be indexed on the 1 st July each year in line with the Consumer Price Index (CPI, All Groups Sydney) as published by the Australian Bureau of Statistics.

4. THE DEVELOPER CHARGES PROCESS

4.1. 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 the following related function:

- They provide a source of funding for infrastructure required for new 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.

i.e. 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* (DLWC, December 2002).

NSW local water utilities (LWUs) which propose to levy developer charges for sewerage need to prepare development servicing plans (DSPs). The DSP details the calculation of the developer charges and is required to be fair and transparent.

LWUs need to calculate and report developer charges in accordance with section 306 (3) of the *Water Management Act 2000* and the guidelines.

Developer charges relating to a particular DSP should be reviewed by the LWU after a period of 10 years. If the review indicates that the developer charges in the DSP remain valid, the DSP will apply 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 a new DSP shall be prepared, exhibited and adopted as resolved by Hawkesbury City Council.

4.2. The Capital Charge

Capital Charge = NPV of the Capital Cost of the works x Return on Investment factor (ROI)

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 number of ETs to be serviced by those assets.

4.3. Return on Investment Factor Approach

The ROI approach involves calculating the capital cost of servicing a development area and multiplying it by a 'ROI factor' to determine the capital charge. The ROI factor equates the present value of annual developer charges revenue to the capital cost, assuming a specific discount rate. The capital cost per equivalent tenement (ET) is the value of the relevant assets serving a development area divided by the capacity of the assets (in ETs). This approach allows LWUs to calculate developer charges that will recover capital costs plus a rate of return on investment over the planning period.

The DEUS guidelines outline the method for calculating the ROI factor. This method assumes there is uniform take-up of lots in the development over time.

$ROI = PMT(r/100, t, 1) \times t / (1 + r/100)$ (Refer to *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater* (December 2002))

Where

r = discount rate (%)

t = take up period (years)

PMT() is a Microsoft Excel spreadsheet function which calculates the annual payment for a loan with constant payments and a constant interest rate.

4.4. The Reduction Amount

Hawkesbury City Council has adopted the NPV of Annual Charges method for calculation of the Reduction Amount. In the long term, developer charges could 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).

5. HAWKESBURY CITY COUNCIL SEWERAGE

5.1. Existing Sewerage Services

There are two interconnected sewerage reticulation systems within the Windsor Sewerage Scheme (WSS), they are the McGraths Hill and South Windsor Sewerage Treatment Plants.

The areas serviced by the McGraths Hill and South Windsor Sewerage Treatment Plants are McGraths Hill, Mulgrave, Pitt Town excluding the proposed Johnson Property Group Development area, Windsor, South Windsor, Clarendon, Bligh Park and Windsor Downs.

5.2. Growth Projections

Table 2 lists the existing and expected future populations to be provided with reticulated sewerage. Population projections are based on the predicted development within the area. These projections are from the present year to 2021.

Table 2 - Projected ET for the Windsor Sewerage Scheme

Service Area / Year	2011	2015	2020
Windsor Sewerage Scheme	7,714	8,264	8,814

5.3. Land Use Information

This DSP should be read in conjunction with Council's LEP and other planning instruments.

5.4. Design Parameters

Investigation and design of sewerage system components is based on the following design manuals:

- Manual of Practice: Sewer Design (1984)
- Manual of Practice: Sewage Pumping Station Design (1986)
- Water Service Association of Australia (WSAA) Sewerage Code of Australia (WSA02-2002)
- Water Service Association of Australia (WSAA) Sewerage Pumping Code of Australia (WSA04-2001)

5.5. System Capacity

Hawkesbury City Council plans to augment its sewage treatment, collection and transfer systems to cater for future growth. System capacity is based on the historical demand analysis, modeling and future development predicted. An average EP/ET ratio of 3.5 : 1 was adopted.

5.6. Capital Works

Capital Works estimated at a NPV of \$7.54 M (2011/12 \$) (Refer to Appendix 2) will be required over the next 10 years to provide sewerage services to the city, comprising new works and increase in existing capacity for an additional 1,100 ET to be served as a result of predicted future development.

This future development is based on projected development uptake under Amendment 130 of the Local Environmental Plan (LEP) within the areas of Windsor and South Windsor (refer to attached plans) which is now incorporated into Amendment 108 of the LEP. The estimated yield of additional equivalent tenements from Amendment 130 in South Windsor is 1,312 ET's. It is assumed that an 80% uptake of the developable area will occur over the next ten years, resulting in 1050 ET. There are approximately 50 additional lots within the Windsor Sewerage Scheme where a Developer Contribution may be collected. These are vacant, or occupied properties and not connected to the sewer system making a total of 1,100 ET estimated for projected development growth

5.7. Timing of Works and Expenditure

The timing and expenditure for sewerage works are shown in the capital works program, located in Appendix 2.

6. CALCULATION OF DEVELOPER CHARGES (Residential)

6.1 Capital Charge

The capital charge calculated for the sewerage service areas is based on the capital costs required to augment existing, and provide future assets to service future developments within the WSS. The capital charge is calculated below;

$$\text{Capital Charge (CC)} = \frac{\text{NPV Capital Cost}}{\text{ET}} \times \text{ROI} = \frac{\$7,539,978}{1,100} \times 1.33 = \frac{\$10,028,171}{1,100} = \$9,116 \text{ per ET}$$

6.2 Reduction Amount

Hawkesbury City Council has used the NPV of Annual Charges method to calculate the Reduction Amount (Refer Developer Charges Guidelines).

Hawkesbury City Council has determined that new development will also contribute to the cost of projects which have environmental or public health outcomes that benefit the community as a whole. The reduction amount has been calculated on this basis.

The reduction amount for Hawkesbury City Council developer charges for sewerage was calculated as \$1,319 per ET (2011/12 \$). For calculation please refer to **Appendix 3**.

The reduction amount = \$1,319 per ET (2011/12 \$).

6.3 Developer Charges

The calculated developer charges for the DSP areas are shown in Table 3. These developer charges reflect the cost of assets for serving new development.

Table 3 – Calculated Developer Charges (2011/12 \$)

Name of Development Servicing Plan	Capital Charge (\$ per ET)	Reduction Amount (\$ per ET)	Calculated Developer Charge (\$ per ET)
Windsor Sewerage Scheme	\$9,116	\$1,319	\$7,797

The charge across the whole service area was calculated as **\$7,797** per ET (2011/12 \$).

6.4 Reviewing/Updating of Calculated Developer Charges

As required by the Developer Charges Guidelines (section 2.5), the developer charges relating to this DSP should be reviewed every 5 to 6 years. If the review indicates that the developer charges remain valid, the DSP will apply for a further 5 years after the Council releases a public notice to this effect. However, if it is considered that a new DSP is warranted, or a major change occurs, a new DSP shall be prepared, exhibited and adopted as resolved by Hawkesbury City Council.

In the period between any review, developer charges will be adjusted on 1 July each year on the basis of movements in the CPI for Sydney, in the preceding 12 months to December, excluding the impact of GST. The first adjustment will take effect from 1 July 2012.

6.5 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.

6.6 Adopted Developer Charges

As shown in Table 4, Council intends to levy developer charges equivalent to the calculated developer charge for commencement following adoption of the Plan. The calculated charge is the maximum amount which may be levied by Council. Council is required to disclose the cross subsidy by existing customers. No cross-subsidy will apply to existing customers as the full calculated charge is to be levied.

Table 4 – Adopted Developer Charges

Name of Development Servicing Plan	Calculated Developer Charge (2011/12 \$ per ET)	Adopted Developer Charge (2011/12 \$ per ET)
Windsor Sewerage Scheme	\$7,797	TBA

7. DEVELOPER CHARGE FOR COMMERCIAL (Non – Residential) DEVELOPMENTS

Industrial land is much more difficult to assess as there is generally little idea as to how it will be developed. It therefore makes sense to collect a Developer Contribution Charge on a square metre basis of the actual development including the footprint of any structures and curtilage. All hard surfaces concentrate and increase stormwater runoff and this can affect the sewer system through increased infiltration into the system.

Catchment E, which is the industrial estate in South Windsor bounded by Mileham Street, Argyle Street, Fairey Road and Ham Street, can be assessed. The net area of the Catchment is 59.4913ha (i.e. gross area minus roads and the residential section bounded by Mileham and Drummond Streets.)

This assessment is based on measured flows. Data collection at the inlets to Pump Station E occurred in March to June 2007.

The basic formulas are as follows:

$$V_{dt} = ADWF_{M-F} * 86,400_s$$

Where;

V_{dt} = Volume per day total

$ADWF_{M-F}$ = Average Dry Weather flow in litres per second (Monday to Friday)

$86,400_s$ = Seconds in a day

Exclusion of the Residential Portion

$$V_{dr} = L/S/T * 86,400_s * T$$

Where;

V_{dr} = Volume Per day residential

$L/S/T$ = Litres per second per Tenement (measured flow) = 0.0048

$86,400_s$ = Seconds Per day

T = number of Tenements

$$V_{di} = V_{dt} - V_{dr}$$

Where;

V_{di} = Volume Per day (industrial Component)

Calculate Litres per hectare Per day

$$L/ha/d = \frac{V_{di}}{a}$$

Where;

$L/ha/d$ = Litres/ hectare/ day

a = area in hectares (ha)

Calculate Equivalent Tenements per hectare

$$ET/ha = \frac{L/ha/day}{L/S/ET * 86,400_s}$$

Where;

ET = Equivalent Tenements

$L/S/ET = 0.0124$ (flow rate for industrial component)

Calculate Industrial Development Contribution

$$DC_{i/m^2} = \frac{DC_T * ET/ha}{10,000}$$

Where;

DC_{i/m^2} = Developer Contribution industrial per square meter

DC_T = Developer Contribution per Tenement

Table 5 - Road Pavement Area within Catchment E

Location not included	Calculation	Area (m ²)
Reserve		29,615 m ²
Drummond Street		5,600 m ²
Argyle Street	450m x 20m	9,000 m ²
Fairey Road	480m x 20m	9,000 m ²
Ham Street	1070m x 10m	18,700 m ²
Mileham Street	530m x 10	3,500 m ²
Walker Street	745m x 20m	14,900 m ²
Anderson Place	130m x 20m	2,600 m ²
Dowling Place	153m x 20m	3,060 m ²
Blackman Crescent	480m x 20m	9,600 m ²
White Place	110m x 20m	2,200 m ²
Residential area	272m x 114m	31,008m ²
		138,783 m ²
	Total Area in ha =	(13.8783 ha)

Catchment E Total area 73.3696
 Roads & Residential area 13.8783
 59.4913 Net ha

Net Industrial area (ha) catchment "E" – 59.4913 ha

Total Catchment E - Monday to Friday Average Dry Weather Flow (ADWF) = 8.119 l/s or 8.119 l/s * 86400 s = 701,482 l/d

Residential Portion of flow

0.0048 l/s/t * 86,400 * 50 ET = 20,736 l/d Residential

Total net industrial volume

701,482 l/d Total Catchment E volume discharged
20,736 l/d Total Residential portion within Catchment E volume discharged
680, 746 l/d Total Net industrial volume discharged (l/d)

Total net industrial volume per area

680,746 l/d = 11,442.78 l/ha/day
 59, 4913 ha

Equivalent Tenements per hectare

$$\frac{11,442.78 \text{ l/ha/day}}{0.0124 \text{ l/s/ET} * 86,400_s} = \frac{11,442.78 \text{ l/ha/day}}{1,071.36 \text{ l/ET/day}} = 10.68 \text{ ET/ha}$$

Thus the Developer Charge for Commercial (Non – Residential) Properties:

\$7,797 (Proposed Developer Charge for Residential Properties) * 10.68 ET/ha = \$83,272 per ha which equates to \$8.32 per m²

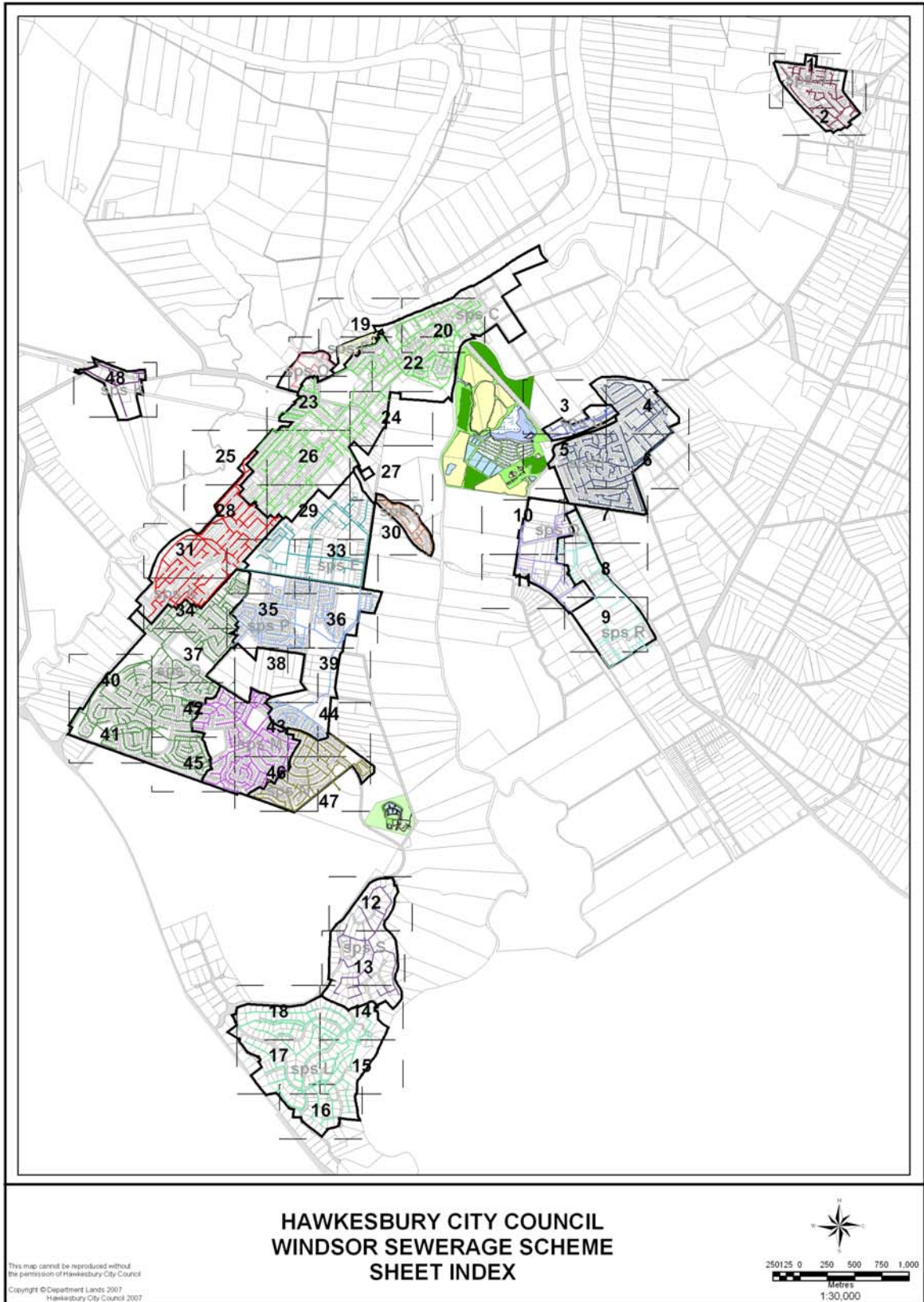
Table 6 Developer Charge for Commercial (Non – Residential) Properties

Name of Development Servicing Plan	Proposed Developer Charge per ET	Equivalent Tenements per hectare	Developer Charge per ha	Developer Charge per m ²
Windsor Sewerage Scheme	\$7,797	10.68	\$83,272	\$8.32

APPENDIX 1

MAP SHOWING WINDSOR SEWERAGE SCHEME AREA

MAP SHOWING WINDSOR SEWERAGE SCHEME AREA



APPENDIX 2
WINDSOR SEWERAGE SCHEME
10 YEAR CAPITAL WORKS PROGRAM

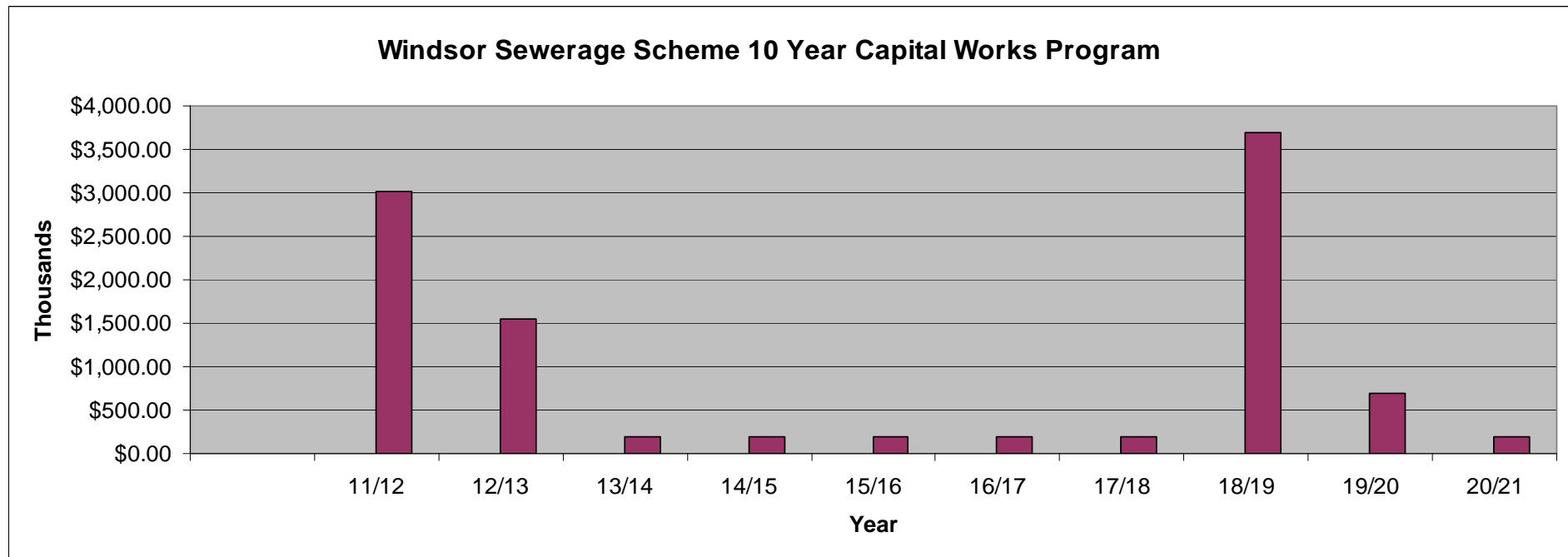
Windsor Sewerage Scheme – Sewerage Infrastructure and Associated Costs	
Item	Estimated Costs (GST Excl.)
Purchase of plant and Equipment – 14.25% of \$586,300.00	\$83,548.00
South Windsor STP – Permanent onsite dewatering system 14.25% of \$2,900,000	\$413,250.00
Pump Station V and Rising Main V and associated works	\$3,750,000.00
South Windsor STP upgrade – Stage 3 phase 2 – to provide capacity for 40,000 EP	\$4,000,000.00
South Windsor STP – Wet weather balance pond pipework – 14.25% of \$65,000.00	\$9,263.00
Fair value of South Windsor STP 10/11 \$13,541,600.00 – 14.25% of \$13,541,600.00	\$1,929,678.00
Total	\$10,185,696.00

Notes:

NPV of Capital Cost over the 10 years - \$7,539,978 (refer to following page for details)

The 1,100 proposed tenements to contribute to the South Windsor STP equates to 14.25% of the current capacity of the facility.

10 Year S64 Works Program										
Year	11/12	12/13	13/14	14/15	15/16	16/17	17/18	18/19	19/20	20/21
Capital Cost	\$3,023,830.80	\$1,551,318.30	\$201,318.30	\$201,318.30	\$201,318.30	\$201,318.30	\$201,318.30	\$3,701,318.30	\$701,318.30	\$201,318.30
No. of Years	1	2	3	4	5	6	7	8	9	10
NPV Capital Cost =	\$7,539,978.67									



APPENDIX 3
WINDSOR SEWERAGE SCHEME
REDUCTION AMOUNT
AND
DEVELOPER CONTRIBUTIONS CHARGE PER ET

Developer Charges Calculations

Capital charge = NPV Capital cost x Return on Investment factor

Return on Investment factor = $PMT (r/100,t,1) \times t / (1+r/100)$

Return on investment factor (ROI) = 1.330631

t = 10 years

r = 7%

ET = 1100

Capital Charge = \$7,539,978.67 x 1.33 = \$10,028,171.63

Capital Charge per ET = \$10,028,171.63 / 1,100 = \$9,116.52

Thus the Developer contribution per ET = Capital Charge per ET – Reduction amount per ET

= \$9,116.52 - \$1,319.69 = \$7,796.83

Reduction Amount Calculation										
Year	Year 1 2011/12	Year 2 2012/13	Year 3 2013/14	Year 4 2014/15	Year 5 2015/16	Year 6 2016/17	Year 7 2017/18	Year 8 2018/19	Year 9 2019/2020	Year 10 2020/2021
Incremental demand	110	110	110	110	110	110	110	110	110	110
Cum. Total demand	7824	7934	8044	8154	8264	8374	8484	8594	8704	8814
Total income	\$5,105,305.00	\$5,462,525.00	\$5,844,748.00	\$6,136,904.00	\$6,443,669.00	\$6,765,766.00	\$7,103,968.00	\$7,459,074.00	\$7,831,936.00	\$8,223,438.00
Total Cost	\$3,565,598.69	\$3,665,275.96	\$3,774,616.06	\$3,887,271.12	\$4,003,275.48	\$4,122,858.12	\$4,245,766.08	\$4,380,769.95	\$4,503,094.26	\$4,637,562.93
Income per ET	\$652.52	\$688.50	\$726.60	\$752.62	\$779.73	\$807.95	\$837.34	\$867.94	\$899.81	\$933.00
Cost per ET	\$455.73	\$461.97	\$469.25	\$476.73	\$484.42	\$492.34	\$500.44	\$509.75	\$517.36	\$526.16
Income	\$71,777.04	\$75,734.53	\$79,925.69	\$82,788.75	\$85,770.04	\$88,874.40	\$92,107.08	\$95,473.37	\$98,978.97	\$102,629.70
Cost	\$50,129.84	\$50,816.78	\$51,617.08	\$52,440.50	\$53,286.58	\$54,157.44	\$55,048.83	\$56,072.22	\$56,909.51	\$57,877.46
Surplus per ET	\$196.79	\$226.52	\$257.35	\$275.89	\$259.30	\$315.61	\$336.89	\$358.19	\$382.45	\$406.84
Cum. Surplus for incremental demand	\$21,647.20	\$46,564.95	\$74,873.56	\$105,221.81	\$137,705.27	\$172,422.23	\$209,480.49	\$248,881.63	\$290,951.09	\$335,703.33
NPV Cum. Surplus for incremental demand	20231.02823	40671.62715	61119.13031	80273.21589	98181.95285	114892.2143	130453.9181	144851.3751	158258.1164	170654.5521
NPV ET	102.8037383	96.07826011	89.79276646	83.91847333	78.42847974	73.29764462	68.50247161	64.0210015	59.83271168	55.91842213
NPV operating profit/ loss per ET	1319.693359									
Discount rate	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Year	1	2	3	4	5	6	7	8	9	10