Griffith City Council Developer Servicing Plan

Stormwater Developer Servicing Plan - Collina

Adopted 27 July 2004

Final

Griffith City Council

Developer Servicing Plan -Collina

360029

Stormwater

27th July 2004

DSP Stormwater
Collina

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C	L.Edgar	G.Azar	G.Azar	G. Azar	10/08/04

Executive Summary

This Development Servicing Plan (DSP) covers stormwater developer charges in regard to the Collina development area served by Griffith City Council.

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

The area covered by this DSP, and the existing and proposed works serving the area are shown on the plans in Section 11.

The assessment values and the 50 year renewals program used was for the DSP area of Collina only.

The timing and expenditures for works serving the area covered by this DSP are shown in section 5.

Standards of service to be provided in the DSP area are summarised in section 6.

The stormwater developer charges for the area covered by this DSP have been calculated as follows:

	Developer Charge ($ per ET)
Collina	**$2,992**

Developer charges relating to this DSP will be reviewed after a period of 5 to 6 years.

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

Developers shall be responsible for the full cost of the design and construction of stormwater infrastructure works within subdivisions.

The background document for this DSP is the Griffith Long Term Capital Works Plan – Collina, Report on Stormwater, by GHD 2003.

Contents

1. 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 stormwater developer charges to be levied on development areas utilising stormwater infrastructure.

This DSP covers stormwater developer charges in regard to the Collina development areas served by Griffith City Council.

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

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

This is a *DRAFT DSP* that is being exhibited by Griffith City Council for review and public comment. After reviewing the comments, Council may revise the DSP before finalising it.

2. Administration

DSP Name	**Stormwater DSP No. 1 Collina**	
DSP Area	The area covered by this DSP is shown on Figure 2. The DSP area is bounded by Riffle Range Road to the north, Scenic Drive to the west, Sanders Street in the south and Citrus Road in the east.	
DSP Boundaries	The basis for defining the DSP area boundaries is as follows. Colllina is a separate small town and will have a new development area of approximately 2070 Lots.	
Payment of Developer Charges	In the case of a consent for *subdivision*:	Before the subdivision linen plan(s) (Subdivision Certificate) are released by the Council to the applicant.
	In the case of a consent for *development not involving subdivision but where a subsequent building Construction Certificate is required*:	a) Where an Occupation Certificate must be obtained for the building – prior to its issue; and b) Where an Occupation Certificate is not required – prior to occupation of the building
	In the case of a consent for *development involving both a subdivision and building works requiring a subsequent building Construction Certificate*:	a) Before the subdivision linen plan(s) (Subdivision Certificate) are released by Council to the applicant; or b) Where an Occupation Certificate must be obtained for the building; prior to its issue; or c) Where an Occupation Certificate is not required – prior to occupation of the building. Whichever occurs first.
	In the case of a consent for any other development	Prior to occupation/use of the development.

Timing of Assessment and Payment	Council will assess the developer charges payable for a development at the time of assessing the development application and issue a notice for payment with the development consent. However, the notice given with the development consent shall only be valid for a period of three(3) months. Developers may pay the charges at any time before the Certificate of Compliance is released. However, if the developer charges are not paid in full within the time limit, the developer charges will be determined by Griffith City Council at the time of considering the application for a Compliance Certificate, using the then current DSP.
Deferred/ periodic payments	Council may accept the deferred or periodic payment of a monetary contribution if the applicant, or any other person entitled to act upon the relevant consent, makes a written request and can satisfy the Council that: (a) compliance with the provisions of this DSP as to when contributions are payable, is unreasonable or unnecessary in the circumstances of the case; and (b) non-compliance with the payment provisions will not prejudice the timing or the manner of the provision of the public amenity or public service for which the contribution was required. Any deferral will generally be limited to a period of no more than 12 months. If Council accepts the deferred or periodic payment of a monetary contribution, the applicant will be required to provide a suitable bank guarantee and Deed of Agreement for the contribution or the outstanding balance. The Deed is to be prepared by one of Council's Solicitors at no cost to Council. Should contributions not paid by the due date, Council will call up the bank guarantee. The applicant will be required to pay: - 50% cash upfront; and - 50% 12 month bank guarantee. The amount of the bank guarantee is to be the amount of the contribution plus the commercial interest rate (as determined by Council) over the time of deferred payment. This amount represents the amount payable at the end of the deferred payment period.

Works-in-kind	Council may accept the construction of works listed in the Works Schedule to off-set a monetary contribution. Applicants are advised to provide Council with full details of the work proposed to be undertaken. Council will consider whether the proposal is acceptable in principle and will notify the applicant accordingly. Prior to proceeding with works-in-kind, Council will require an applicant to enter into a Deed of Agreement with Council for the proposed works. Legal costs associated with the preparation of the Deed are to be borne by the applicant.
Assessment	Assessment of Developer charges payable will be on the basis of Equivalent Tenements (ETs). This is the number of typical residential lots* that can be served by the stormwater system. * A typical residential lot is a single residential lot of 700 m^2 * A typical multi residential lot is 350 m^2 Developments will be assessed in terms of their ET loading on the stormwater system. Please refer to Appendix C 'Section 64 Developer Charges for Stormwater – Methodology and Example' for the method of assessing various types of developments.

3. Demographic and Land Use Planning Information

Growth Projections

Growth projections for assessments and Equivalent Tenements (ETs) are shown in the table below. These projections are from the present year to 2033, which is Council's current planning horizon.

Table 1 - Growth projections for the Area covered by DSP Collina

Year	Assessments	Cumulative Number of ETs
2001/02	0	0
2002/03	0	0
2003/04	0	0
2004/05	170	152
2005/06	340	304
2006/07	510	456
2007/08	680	608
2008/09	850	760
2009/10	1020	912
2010/11	1180	1055
2011/12	1205	1078
2012/13	1230	100
2013/14	1255	1122
2014/15	1280	1145
2015/16	1305	1167
2016/17	1330	1190
2017/18	1355	1212
2019/20	1380	1234
2020/21	1405	1257
2021/22	1430	1279
2022/23	1494	1336
2023/24	1558	1393
2024/25	1622	1451
2025/26	1686	1508
2026/27	1750	1565
2027/28	1814	1622

Year	Assessments	Cumulative Number of ETs
2028/29	1878	1680
2029/30	1942	1737
2030/31	2006	1794
2031/32	2070	1851
2032/33	2070	1851
2033/34	2070	1851

Land Use Information

This DSP should be read in conjunction with the Local Environmental Plan 2001 prepared for Griffith City Council.

4. Stormwater Infrastructure

The proposed stormwater infrastructure serving the Collina area covered by this DSP is shown on Figure 4.

Existing Infrastructure is not taken into account since its capacity is already taken up and thus it will not service the new development. Hence existing infrastructure is not included when calculating the capital cost and any future stormwater Infrastructure required will thus service growth works only.

Estimates of Capital Costs

The estimated capital cost of works serving the area covered by this DSP is shown in Appendix A.

Timing of Works and Expenditure

The timing and expenditure for works serving the area covered by this DSP are shown in Appendix A.

5. Standards of Service

System design and operation are based on providing the following standards of service.

Stormwater Capacity

The design and construction of the stormwater system is based on providing protection from flooding up to 1:100 year Average Recurrence Interval.

6. Design Parameters

Stormwater Capacity

Investigation and design of stormwater system components is based on the information supplied in schedules 1-9 in the Reference Document The following technical reports relate to the system components in this DSP:

- Griffith Main Drain J Flood Study
- Stormwater Drainage Brief - Griffith City Council

7. Calculated Developer Charges

The developer charges for the area covered by this DSP are as follows:

	Capital Charge ($ per ET)	Reduction Amount ($ per ET)	Calculated Developer Charge ($ per ET)
Collina	**$3,552**	**$560**	**$2,992**

These amounts have been calculated on the basis of the following capital charges and reduction amounts.

Capital Charge

The capital charges for the Collina area served by this DSP have been calculated by using the return on Investment Factor Approach.

Using the reference data, the period to full take-up of each asset is calculated, commencing in or after 1996.

Then the return on Investment Factor is calculated for post 1996 assets based on a discount rate of 7% pa real, together with a uniform annual take-up of lots over the take up period, commencing in the year of commissioning of the asset.

Thus the capital charge is obtained by multiplying the Capital Cost per ET by the ROI Factor.

Reduction Amount

Council has adopted the Direct NPV under 2000 Assessments method to calculate the Reduction Amount. Thus the reduction amount using the direct NPV method is the greater of;

PV(Renewals)/ET and

Capital charge - Present value of existing and future ETs / (Present value of existing and future ETs- available future capacity in ETs) * (Capital Charge – PV(renewals)/ET)

The reduction amounts have been calculated as shown in Appendix B.

Reviewing/Updating of Calculated Developer Charges

Developer charges relating to this DSP will be reviewed after a period of 5 to 6 years.

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.

Infrastructure Works

The developer shall be responsible for the full cost of the design and construction of stormwater works within subdivisions.

Cross Subsidy

Council plans to recover the full cost of the assets from development, therefore no cross-subsidy is provided by existing rate payers to new development.

8. Reference Documents

Background information and calculations relating to this DSP are contained in the following document:

Griffith Long Term Capital Works Plan – Collina, GHD 2003

This document contains detailed calculations for the capital charge and reduction amount, including asset commissioning dates, size/length of assets, MEERA valuation of assets, and financial modelling for calculation of reduction amounts. These documents can be reviewed in Council's offices by appointment. To review the documents, please contact Satwinder Sandhu, telephone 02 6962 8149.

9. Other DSPs and Related Plans

- Griffith Sewerage Development Servicing Plan (2003)
- Yenda Sewerage Development Servicing Plan (2003)
- Bilbul Sewerage Development Servicing Plan (2003)
- Griffith Water Supply Development Servicing Plan (2003)
- Yenda Water Supply Development Servicing Plan (2003)

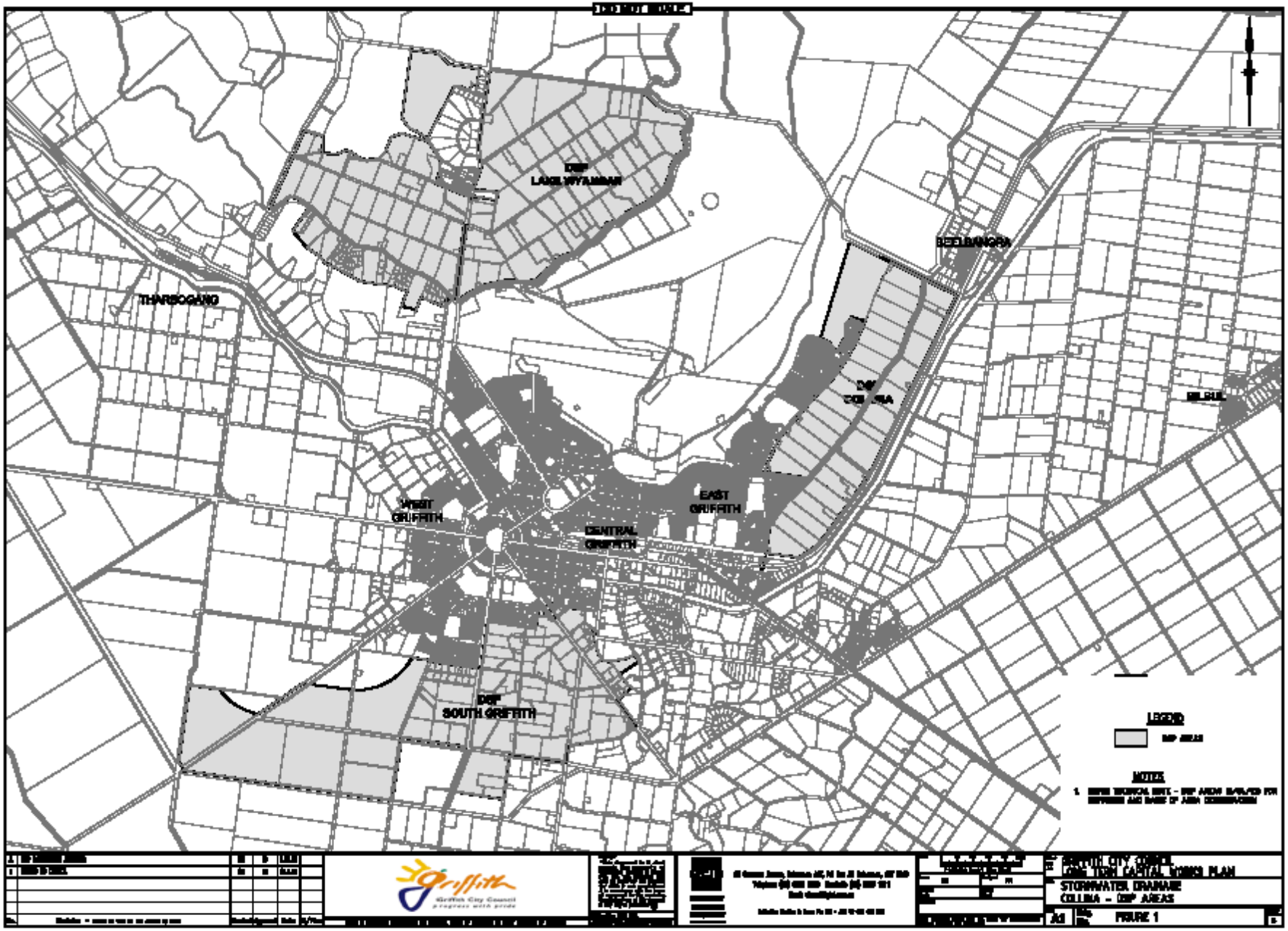
Further Stormwater DSPs for other parts of Grifith will be developed in the future.

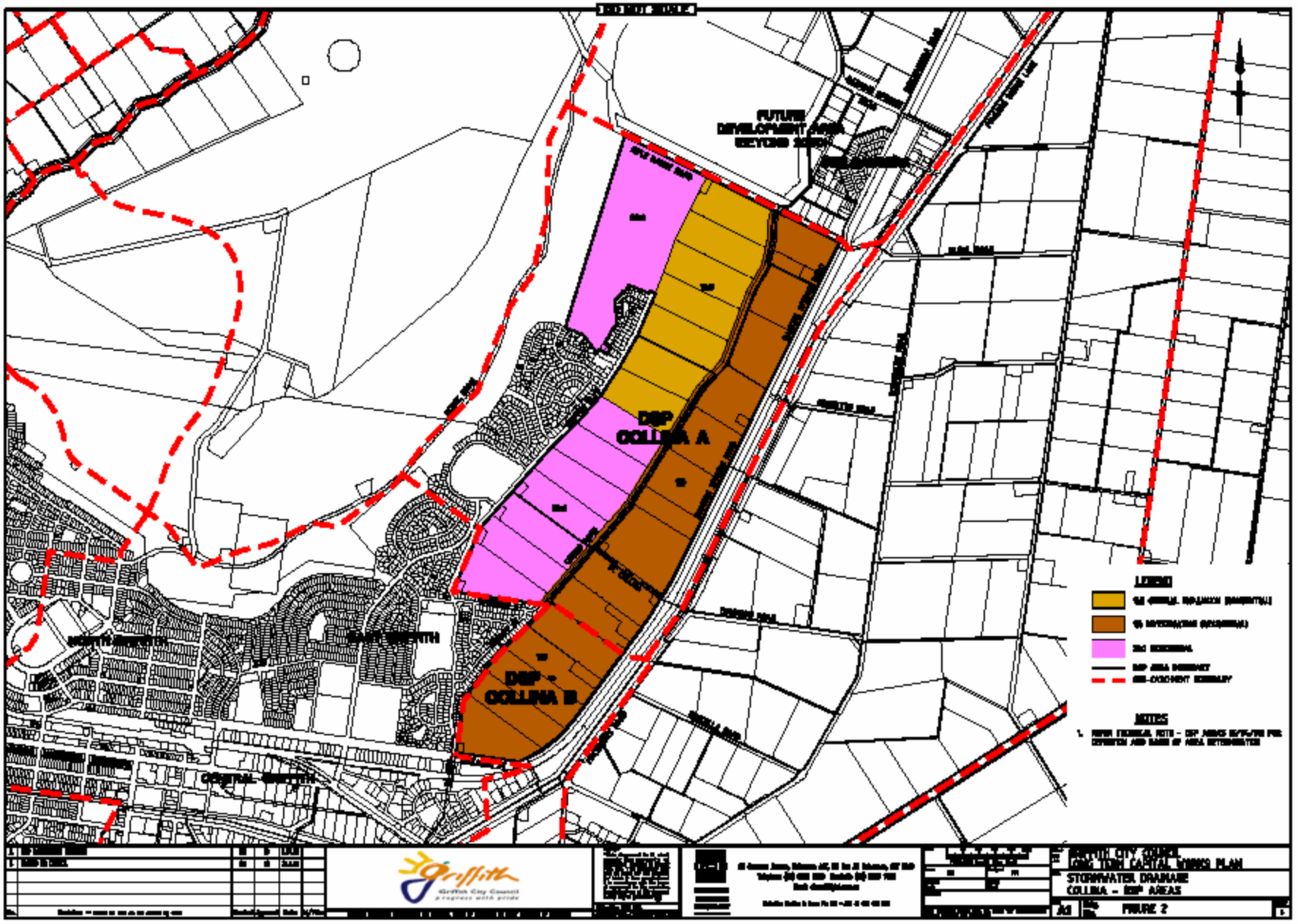
10. Glossary

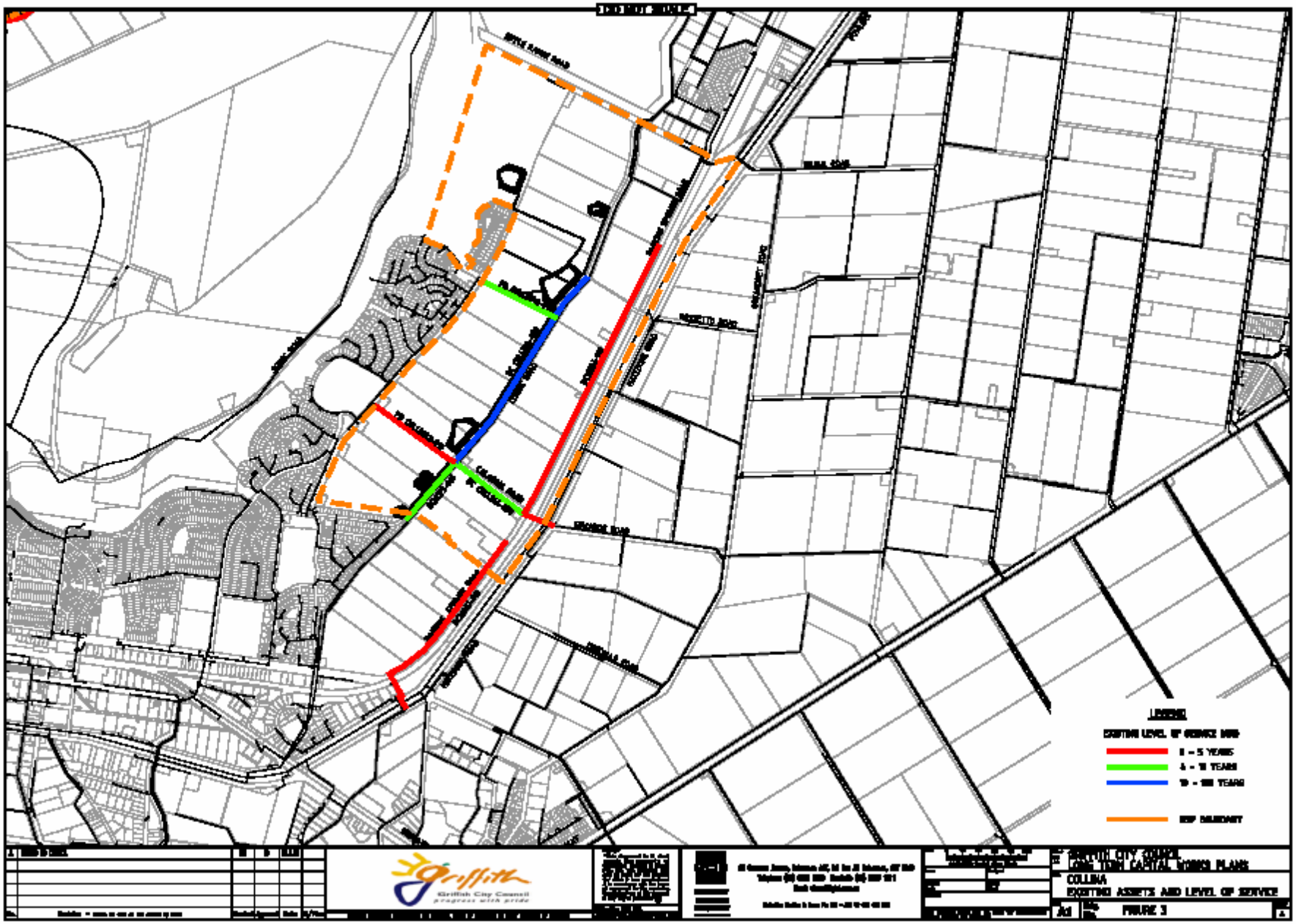
Capital Cost	The Present Value (MEERA basis) of assets used to service the development.
Capital Charge	Capital cost of assets per ET * Return on Investment (ROI) Factor.
CPI	Consumer Price Index
Developer Charge (DC)	A charge levied on developers to recover part of the capital cost incurred in providing infrastructure to new development.
Discount Rate	The rate used to calculate the present value of money arising in the future.
DSP	Development Servicing Plan
DCP	Development Control Plan
DLWC	Department of Land and Water Conservation
ET	Equivalent Tenement
IPART	Independent Pricing and Regulatory Tribunal
LEP	Local Environmental Plan
MEERA	Modern Equivalent Engineering Replacement Asset
NPV	Net Present Value
OMA	Operation, maintenance and administration (costs)
Post 1996 Asset	An Asset that was commissioned by a water utility on or after 1 January 1996 or that is yet to be commissioned.
Pre-1996 Asset	An Asset that was commissioned by a water utility before 1 January 1996.
PV	Present value. The value now of money, or ETs, in the future.
Real Terms	The value of a variable adjusted for inflation by a CPI adjustment.
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.
TRB	Typical residential bill

11. A List of Plans

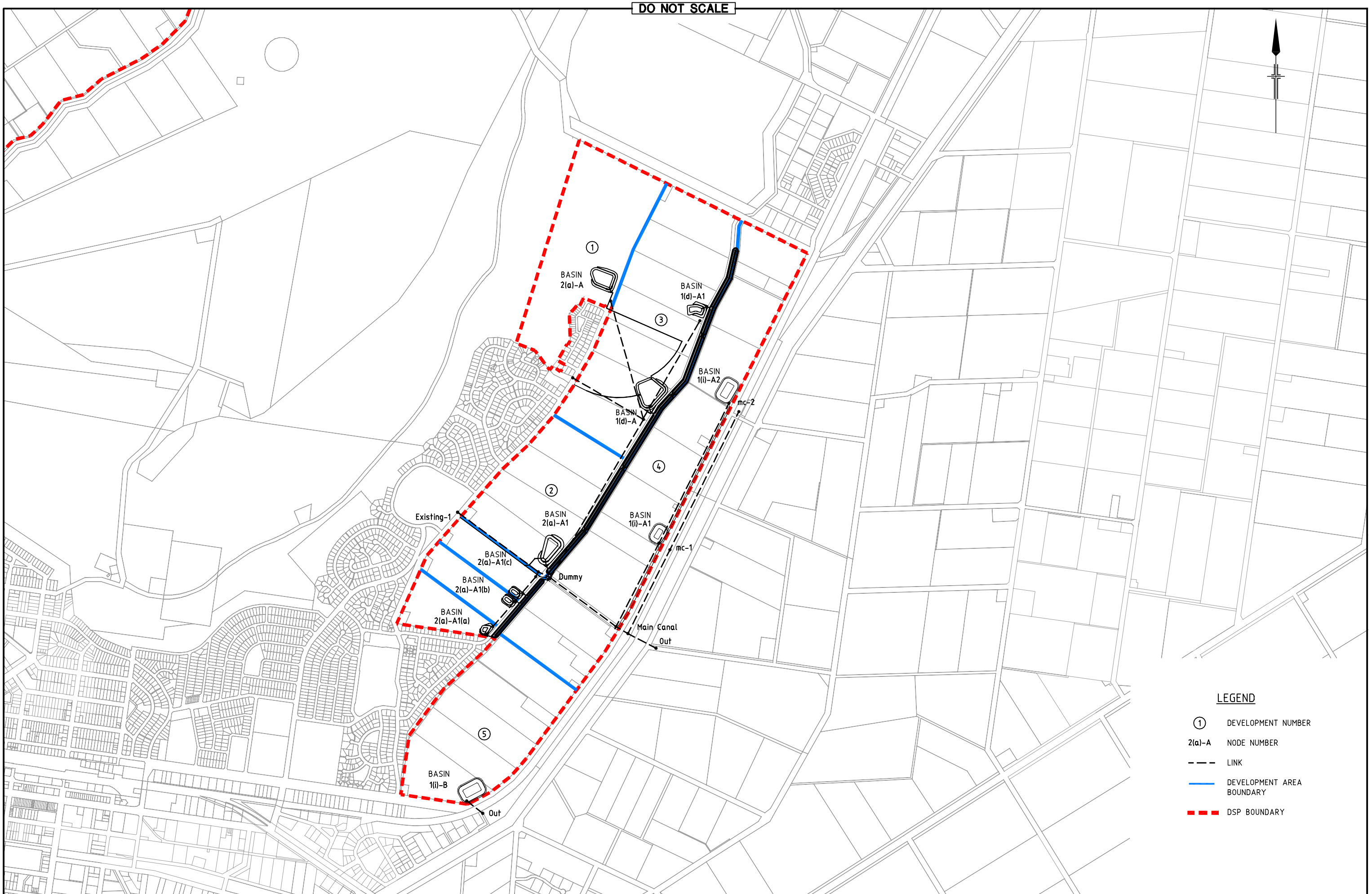
List of Plans


DSP
LAKE WYANGAN
BEELBANGERA
THURGOONA
DSP
COLLINA
WEST
GRIFFITH
CENTRAL
GRIFFITH
EAST
GRIFFITH
DSP
SOUTH GRIFFITH
LEGEND
NOTES
STORMWATER DRAINAGE
COLLINA – DSP AREAS
FIGURE 1


FUTURE
DEVELOPMENT AREA
BEYOND 2031
DSP
COLLINA A
DSP
COLLINA B
LEGEND
NOTES
STORMWATER DRAINAGE
COLLINA – DSP AREAS
FIGURE 2


LEGEND
1 - 5 YEARS
6 - 10 YEARS
11 - 100 YEARS
GRIFFITH CITY COUNCIL
LONG TERM CAPITAL WORKS PLANS
COLLINA
EXISTING ASSETS AND LEVEL OF SERVICE
FIGURE 3

DO NOT SCALE



No.	Revision – Revise on CAD do not amend by hand	Checked	Approved	Date	M/Film
A	ISSUED TO COUNCIL	PM	IB	20.5.03	

Griffith City Council progress with pride

NOTE: ✱ INDICATES SIGNATURES ON ORIGINAL ISSUE OF DRAWING OR LAST REVISION OF DRAWING

Drawing File No.
SW-COL-RAFTS.dwg

GHD
MANAGEMENT ENGINEERING ENVIRONMENT

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Gutteridge Haskins & Davey Pty Ltd – ABN 39 008 488 373

Scale 0 100 200 300 400 500m
1:10,000 for A1 Size Plot)

Drawn | Designed
Drafting Check | Design Check
Approved

This Drawing must not be used for Construction unless signed as Approved

Client and Job: GRIFFITH CITY COUNCIL
LONG TERM CAPITAL WORKS PLAN

Title: STORMWATER DRAINAGE
NEW INFRASTRUCTURE COLLINA - OPTION 4

Size: A1 | Drg. No.: FIGURE 4 | Rev: A

Appendix A

Capital Charges Calculations - Collina

Table A8: Capital Charge Calculation

Collina Stormwater System

							Summary													
		Pre 1996 discount rate	3%				**per ET**			**Totals**										
		Post 1996 discount rate	7%				**Capital charge**			$3,552										
		Asset	**Capital cost ($'000)[1]**	**Year dollars[2]**	**Capital Cost ($'000, 2003$)[3]**	**Year commiss-ioned**	**Effective year commiss-ioned**	**Present value 2003 ($'000)[4]**	**Year of full take-up**	**Years to full take-up**	**Discount Rate**	**ROI factor**	**Capital cost +ROI ($'000,2003)**	**Capacity (ETs)**	**Capital Charge ($/ET)**					
Diam	Length	**Stormwater System**																		
		Channels Existing																		
		DCCollina-020 - earth lined open channel	523	2001	550.77	1970	1995	Capacity is already taken up												
		DCCollina-050 - earth lined open channel	190	2001	200.28	1970	1995	Capacity is already taken up												
		DCMcP3-010 - earth lined open channel	238	2001	250.35	1970	1995	Capacity is already taken up												
		Total Channels			1001.41															
		Culverts Existing																		
		PD Collina 3 -Culvert from Clifton Boulevard to Citrus Road	434	2001	457.48	1978	1995	Capacity is already taken up												
		PD Collina 2 - Culvert from Clifton Boulevard to Citrus Road	350	2001	368.94	1978	1995	Capacity is already taken up												
		Structure under Calabria Road-1800 dia	33	2001	34.79	1970	1995	Capacity is already taken up												
		Rankin Springs Siphon culvert- 1800 dia	260	2001	274.07	1970	1995	Capacity is already taken up												
		Total Culverts			1135.28															
		Future Detention Basins																		
		Detention Basin 2(a)-A1(a)	43	2001	45.33	2004	2004	42.36	2007	4	7%	1.10	46.8							
300	25	Link P1 to South Channel	6	2003	6.00	2004	2004	5.61	2007	4	7%	1.10	6.2							
		Detention Basin 2(a)-A1(b)	43	2001	45.33	2004	2004	42.36	2007	4	7%	1.10	46.8							
300	25	Link P2 to South Channel	6	2003	6.00	2004	2004	5.61	2007	4	7%	1.10	6.2							
		Detention Basin 2(a)-A1©	43	2001	45.33	2004	2004	42.36	2007	4	7%	1.10	46.8							
300	25	Link P3 to South Channel	6	2003	6.00	2004	2004	5.61	2007	4	7%	1.10	6.2							
600	35	Link Channel (sth) to DC Collina	16	2001	16.87	2004	2004	15.76	2007	4	7%	1.10	17.4							
900	40	Link Channel North to DC Collina	30	2001	31.62	2004	2004	29.55	2007	4	7%	1.10	32.6							
1350	110	Relocate exisitng 1350 (farm 4)	74	2001	78.00	2004	2004	72.90	2007	4	7%	1.10	80.5							
		Construct Headwall & dissipator Basin2(a)-A1	18	2003	18.00	2004	2004	16.82	2007	4	7%	1.10	18.6							
		Detention Basin 2(a)-A	431	2001	454.32	2007	2007	346.60	2010	4	7%	1.10	382.5							
		Link 2(a)-A to 1(d)-A	373	2001	393.18	2007	2007	299.96	2010	4	7%	1.10	331.1							
		Channel to Detention Basin 1(d)-A1	334	2001	352.07	2015	2015	156.32	2018	4	7%	1.10	172.5							
		Detention Basin 1(d)-A1	141	2001	148.63	2015	2015	65.99	2018	4	7%	1.10	72.8							
600	25	Link P9 to north channel	11	2003	11.00	2015	2015	4.88	2018	4	7%	1.10	5.4							
		Realign Existing 1350 Pipe	248	2001	261.42	2010	2010	162.80	2010	1	7%	1.00	162.8							
		Detention Basin 1(d)-A	776	2001	817.99	2010	2010	509.40	2018	9	7%	1.29	657.6							
600	30	Link P8 to North Channel	14	2003	14.00	2007	2007	10.68	2018	12	7%	1.41	15.1							
		Detention Basin 2(a)-A1	551	2001	580.81	2006	2006	474.12	2018	13	7%	1.45	689.2							
600	30	Link P4 to North Channel	14	2003	14.00	2006	2006	11.43	2018	13	7%	1.45	16.6							
		Modify Calabria Rd Culvert	54	2001	56.92	2006	2006	46.47	2018	13	7%	1.45	67.5							
		Collina Channel- Stage 1	750	2003	750.00	2006	2006	612.22	2022	17	7%	1.63	996.3							
		Collina Channel- Stage 2	800	2003	800.00	2010	2010	498.20	2022	13	7%	1.45	724.2							
		Collina Channel- Stage 3	800	2003	800.00	2014	2014	380.07	2022	9	7%	1.29	490.7							
		Collina Channel- Stage 4	800	2003	800.00	2018	2018	289.96	2022	5	7%	1.14	330.5							
		Collina Channel- Stage 5	220	2003	220.00	2021	2021	65.09	2022	2	7%	1.03	67.3							
		Design Costs	120	2003	119.67	2003	2003	119.67	2003	1	7%	1.00	119.7							
		Land Aquisition	859	2001	905.48	2004	2003	846.24	2007	5	7%	1.14	964.4							
		Total Detention Basins	**7581**		**7797.98**			**5179.06**					**6574.2**	**1851**	**3551.7**					
		Notes																		
		1. Capital cost from Council's asset registers and MEERA cost for future																		
		2. Base year of capital cost varies depending on asset data																		
		3. Capital cost adjusted to 2003$ using CPI for Sydney (ABS)																		
		4. Capital cost of future works discounted to 2003$																		
		5. Capital Charge Spreadsheet updated by Griffith City Council																		

Appendix B

Calculation of Developer Charges

ENTER DATA INTO YELLOW CELLS ONLY

Appendix B - Calculation of Developer Charges using the Direct NPV Method

Griffith City Council - Stormwater

Base Data

Capital charge per ET	(2003/04$)	3,552
Year 1		2003/04
Debt at end of 2002/03 ($'000)		- include borrowings and overdraft
Cash and investments at end of 2002/03 ($'000)		- include all cash and investments, including sinking fund etc.
Net debt ($'000)		-
Discount rate for future works		7%

Assessments at year end

Year No.	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Year	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	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
Residential (including backlog works)	-	-	170	340	510	680	850	1,020	1,180	1,205	1,230	1,255	1,280	1,305	1,330	1,355	1,380	1,405	1,430	1,494	1,558	1,622	1,686
Non-residential	-	-	-	-	-	-		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

ET per Residential assessment: 1
ET per non-residential assessment: 0.00
Capacity for future customers (ET): -

Capital works

Base year: 2003/04

Year	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	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
Renewals (2003/04$'000)	-																	410				
Capital Works for Improved Standards (2003/04$'000)	-																					
Government Grant on Works for Improved standards (2003/04$'000)																						

Inflation from Base year to Year 1 (%): 0.03%
Inflation from 2003/04 to 2003/04 (%): 0.03%
Last year of the program: 2033/34

PV of ET

Total equivalent tenements (ET)	0	0	152	304	456	608	760	912	1,055	1,078	1,100	1,122	1,145	1,167	1,190	1,212	1,234	1,257	1,279	1,336	1,393	1,451	1,508
Growth (ET)		0	152	152	152	152	152	152	143	22	22	22	22	22	22	22	22	22	22	57	57.2416	57.2416	57.2416
PV of 50 years of growth (ET)		812																					
PV ETs		812																					

PV of renewal works

Year No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Renewals ($'000) in 2003/04$	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	410	0	0	0	0
PV Renewals at discount rate of 7% pa	451																					

PV Renewals per ET ($) 555

PV of Works for Improved Standards to existing population

Year No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
Works for Improved Standards ($'000) in 2003/04$ after Government grant	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
PV of works for Improved Standards at discount rate of 7% pa	0																					

PV Standards per ET ($) 0

The **Reduction Amount** is the greater of

(1)	PV Renewals per ET + PV Standards per ET	555
(2)	Capital Charge - {[N/(N-F)] * [Capital Charge - PV Renewals per ET - PV Standards per ET - Net Debt per ET]}	555

Where:

Capital Charge =	3,552
N - PV of present and future ETs =	812
F - Capacity for future customers =	0
Net debt per ET	0

Developer Charge Calculation

Reduction Amount is therefore $555 say **$560**

Developer Charge for 2003/04 in 2003/04$

	Capital Charge	$3,552
less	Reduction amount	$560
	Developer Charge	**$2,992**

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
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	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51	2051/52	2052/53
1,750	**1,814**	**1,878**	**1,942**	**2,006**	**2,070**	**2,070**	**2,070**	**2,070**																			
-	**-**	**-**	**-**	**-**	**-**	**-**																					

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	2039/40	2040/41	2041/42	2042/43	2043/44	2044/45	2045/46	2046/47	2047/48	2048/49	2049/50	2050/51	2051/52	2052/53
			535												**2,715**						**-**	**-**	**-**	**-**	**-**	**-**	

1,565	1,622	1,680	1,737	1,794	1,851	1,851	1,851	1,851	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
57.2416	57.2416	57.2416	57.2416	57.2416	57.2416	0	0	0	-1851.41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
0	0	0	535	0	0	0	0	0	0	0	0	0	0	0	2,716	0	0	0	0	0	0	0	0	0	0	0	0

23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Appendix C

Capital Works Program

Schedule 5
Capital Works Programme 2001/2002 ($'000)
Stormwater Business

All values in 2001/02 $'000
This capital works plan is provided as an example and to specify the format required.
The proportional percentage of a work in each type of works must be specified. The 3 types of work are:
1. *Improved LOS* (Level of Service); works to improve service for existing customers without capacity increase (also known as 'backlog works').
2. *Growth Works* ; works required to accommodate new growth (and would not occur if there was no growth).
3. *Asset Renewals* ; renewal or replacement of existing assets.

	Project	Type of works: Improved LOS	Growth Works	Asset Renewals	Priority	Project Total	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	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
	New Drainage Works in DSP Areas																																	
	Collina																																	
***	Land acquisition costs	0%	100%		1	**859**			215	215	215	215																							
	Detention Basin 2(a)-A1(a)	0%	100%		1	**43**				43																									
	Link 2(a)-A1(a) to A1(b)	0%	100%		1	**212**				212																									
	Detention Basin 2(a)-A1(b)	0%	100%		1	**43**				43																									
	Link 2(a)-A1(b) to A1(c)	0%	100%		1	**52**				52																									
	Detention Basin 2(a)-A1(c)	0%	100%		1	**43**				43																									
	Link 2(a)-A1(c) to Culvert	0%	100%		1	**121**				121																									
	Link channel to DC Collina					**9**				9																									
	Replace existing 1350 with 1500	0%	100%		1	**63**				63																									
	Detention Basin 2(a)-A	0%	100%		1	**431**							431																						
	Link 2(a)-A to 1(d)-A	0%	100%		1	**373**							373																						
	Channel to Detention Basin 1(d)-A1					**334**															334														
	Detention Basin 1(d)-A1	0%	100%		1	**141**															141														
	Link 1(d)-A1 to 1(d)-A	0%	100%		1	**628**															628														
	Realign existing 1350 pipe	0%	100%		1	**248**										248																			
	Detention Basin 1(d)-A	0%	100%		1	**776**										776																			
	Link 1(d)-A to 2(a)-A1	0%	100%		1	**966**							966																						
	Detention Basin 2(a)-A1	0%	100%		1	**296**						296																							
	Link 2(a)-A1 to Culvert	0%	100%		1	**22**						22																							
	Link channel to DC Collina					**17**						17																							
	Realign existing 1800 pipe	0%	100%		1	**54**						54																							
	Detention Basin 1(I)-A1	0%	100%		1	**102**																				102									
	Detention Basin 1(I)-A2	0%	100%		1	**238**																								238					
	Link 1(I)-A2 to A1	0%	100%		1	**442**																								442					
	Link 1(I)-A1 to 1(I)-A	0%	100%		1	**759**																				759									
	Link 2(a)-A to 1(I)-A	0%	100%		1	**476**																				476									
	Drainage Renewals			100%	1	**478**																				372							106		
			Total			**8,226**	**0**	**0**	**215**	**801**	**215**	**603**	**1770**	**0**	**0**	**1024**	**0**	**0**	**0**	**0**	**1103**	**0**	**0**	**0**	**0**	**1709**	**0**	**0**	**0**	**0**	**680**	**0**	**0**	**106**	**0**	**0**
		Improved LOS				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Input to Financial Model	Other New System Assets				**7,388**	0	0	215	792	215	586	1770	0	0	1024	0	0	0	0	769	0	0	0	0	1337	0	0	0	0	680	0	0	0	0	0
		Renewals				**478**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	372	0	0	0	0	0	0	0	106	0	0
				Total		**7,866**																														
		Possible Subsidy																																		
		50% of LOS				**0**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Developer Provided Assets (DPAs)	Total in all DSP areas				**0**																														
	Show breakdown of DPA expenditure per DSP area																																		
	Net Plant & Equipment expenditure					**0**																														
							2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	2008/09	2009/10	2010/11	2011/12	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

Appendix D

Section 64 Developer Charges for Stormwater-

Methodology and Example

Section 64 Developer Charges for Stormwater – Methodology and Example - 4 March 2003

1 Introduction

Councils in NSW may levy developer charges for stormwater services under either Section 94 of the Environmental Planning and Assessment Act, 1979, or Section 64 of the Local Government Act, 1993.

The guidelines[1] specify the framework and methodologies to be used for levying developer charges for water supply, sewerage and stormwater under Section 64.

This appendix has been prepared in response to requests from a number of councils for more specific information on applying the guidelines for stormwater.

2 Steps in the Calculation

2.1 The ET Concept

ET, or equivalent tenement, is the loading that the roof and property drainage from a single dwelling imposes on the stormwater system.

A typical single dwelling may be different for each council, but in most cases it would be a detached house on a 500 to 1,000 m^2 block of land.

The loading from the roof and property drainage from other development is defined in terms of ET as indicated in the example in section 3.

2.2 Define Service Areas

Service areas will typically be major drainage catchments. It is envisaged that contiguous areas with populations up to 50,000 will comprise a single service area. Larger towns may have 2 or 3 service areas, and a local government area with a number of distinct towns will have one service area for each town.

It is unlikely that any council will require more than 10 service areas.

2.3 Calculate the Capital Cost and Capital Charge for the Service Area

- Calculate the modern engineering equivalent replacement asset (MEERA) cost, and return on investment in accordance with section 3 in the guidelines.
- Note that both existing and future assets are included.

- Stormwater assets to be included in the capital cost:

[1] *Developer Charges Guidelines for Water Supply, Sewerage and Stormwater*, Department of Land and Water Conservation, NSW, December 2002.

- Pipes and pits in roads.
- Pipelines, channels, river improvements.
- Detention basins on public land.
- Water quality facilities, eg. gross pollutant traps (GPTs), stormwater treatment wetlands, stormwater re-use facilities.

- Stormwater assets not to be included in the capital cost:
  - Street gutters.
  - Property drains.

2.4 System Loading

An ET value for the design flow rate from roof and property drainage can be estimated for each land use using the Rational Method as indicated below. First the critical rainfall duration needs to be determined as the time of concentration using:

$t_c = 0.76A^{0.38}$ AR&R97 **Equation 1.4** Book IV, Section 1.4.1

where
A = catchment area (km^2)
t_c = time of concentration (h)

Then use the Intensity-Frequency-Duration (IFD) rainfall tables in Council's Development Control Plan (DCP) to obtain an intensity value for Council's design storm. Alternatively if no such data is available, the design rainfall intensity can be determined from the methods in Australian Rainfall and Runoff (AR&R97), Volume 1, Book II, Section 1.

Values of the 10 year Average Recurrence Interval (ARI) runoff coefficient (C_{10}) can be estimated from AR&R97, Book VIII Section 1.5.5, Fig 1.13 and associated equations. (For ARIs other than 10 years, use Table 1.6 to obtain values of FF_y).

ARI (years)	Frequency Factor, FF_y
1	0.8
2	0.85
5	0.95
10	1.0
20	1.05
50	1.15
100	1.2

AR&R97 **Table 1.6** Book VIII, Section 1.5.5

Then using Equation 1.13 from AR&R97 the runoff coefficients corresponding to each ARI can be calculated:

$C_y = FF_y . C_{10}$ AR&R97 **Equation 1.13** Book VIII, Section 1.5.5

Where
C_y=Runoff coefficient for ARI y years
FF_y=Frequency factor for ARI y years
C_{10}=Runoff coefficient for ARI 10 years

Thus an ET value based on the design flow rate from roof and property drainage can be estimated for each land use. First the site area is multiplied by the runoff coefficient for the required design storm to obtain an equivalent impervious area. Then by selecting a residential lot as the basis for an ET, one ET is equal to the flow rate obtained by multiplying the equivalent impervious area of the residential lot by the rainfall intensity of the design storm.

Therefore ET values can be calculated for each type of land use using the above ratio of equivalent impervious areas and converting this data to into an equivalent flow rate for the roof and property drainage from each site after development.

2.5 System Capacity

Identify a design horizon for which we can define assets (existing and future) to provide the service/ capacity required.

Thus the capital cost per ET can be calculated by the following equation:

$$\text{Capital Cost / ET} = \frac{\text{Cost of Assets}}{\text{No. of ETs}}$$

3 Example

A town with 1 service area.

- Existing assets = $10,000,000 (MEERA)
- It is envisaged that in 10 years' time the town will comprise the following development: 10 industrial lots (each 3,200m^2), 50 unit developments (each 1,600m^2), 5,000 residential lots (each 800m^2) and 400 dual occupancies (each 400m^2). This comprises the existing and future development.
- In order to provide appropriate stormwater services, Council needs to invest an additional $2,000,000 in stormwater infrastructure. This will provide sufficient capacity for the 10 year development, but not beyond.
- Assumed lot sizes
- Design Storm - 20 year ARI
- 20 year 1 hour ARI = 70 mm/hr = I

Size	Landuse	% Impervious	C_{10} (from Fig 1.13)	C_{20} = C_{10} x 1.05	C_{100} = C_{10} x 1.2
800 m^2	Residential	40%	0.78	0.82	0.94
3,200 m^2	Industrial	90%	0.88	0.92	1.06
1,600 m^2	Unit Development	80%	0.86	0.90	1.03
400 m^2	Dual Occupancy	70%	0.84	0.88	1.01

- Design flow rate: $Q = \frac{CIA}{3600}$

Based on AR&R97 **Equation 1.1** Book VIII, Section 1.2.2

Where

Q = Design flow rate (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/h) for storm with required ARI
A = Catchment area (m^2)

- Calculating design flow rate for 20 yr ARI:

Landuse	C*A		CA		• $Q = \frac{CIA}{3600}$	ET
Residential	0.82 x 800	=	656 m^2	=>	12.8 $^L/_S$	1.0 ET
Industrial	0.92 x 3,200	=	2,944 m^2	=>	57 $^L/_S$	4.5 ET
Unit Development	0.90 x 1,600	=	1,440 m^2	=>	28 $^L/_S$	2.2 ET
Dual Occupancy	0.88 x 400	=	352 m^2	=>	6.8 $^L/_S$	0.53 ET

I = 70 mm/h

Therefore 1 ET = 12.8 $^L/_S$.

Capacity of stormwater system:
= (10 x 4.5) + (50 x 2.2) + (5,000 x 1.0) + (400 x 0.53)
= 5,367 ETs

Capital Cost / ET = $12,000,000/5,367 = **$2,236**