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Technical Memo

To: Marco Bonotto, Economic Development Queensland

CC: Troy Thompson, PEET

From: Thomas Wager, Colliers Engineering and Design

Dan Collins, Colliers Engineering and Design

Project Name: Context Area 3, Flagstone City

Date: 31 July 2025

Our Reference: 20-0211-MEM-R01

1. Overview

The Flagstone City Context Area 3 is located within the Greater Flagstone Priority Development Area (PDA), which is administered by Economic Development Queensland (EDQ). The site is situated on the northwestern side of the Flagstone City development and is located on both sides of Flagstone Creek. The site is currently an undeveloped greenfield area and is part of a larger development plan that includes residential, commercial, and community land uses. *Figure 1-1* in the document provides an overview of the Flagstone City Area 3.

Following submission of the CA3 South Precinct Network Plan the ultimate alignment of the trunk gravity main through New Beith has been considered to be infeasible due to a combination of environmental constraints and development staging concerns. The option to install a trunk sewer pump station and direct flows around the environmentally constrained area enables more than 2,750 residential lots to be developed.

The sites impacted by these works include:

- CA3 North, 786 residential allotments,
- CA3 South, 1,628 residential allotments, commercial and retail GFA's totaling 6,803 EP
- CA3 West, 1,777 residential allotments.
- New Beith Road (S5), ~305 residential allotments;

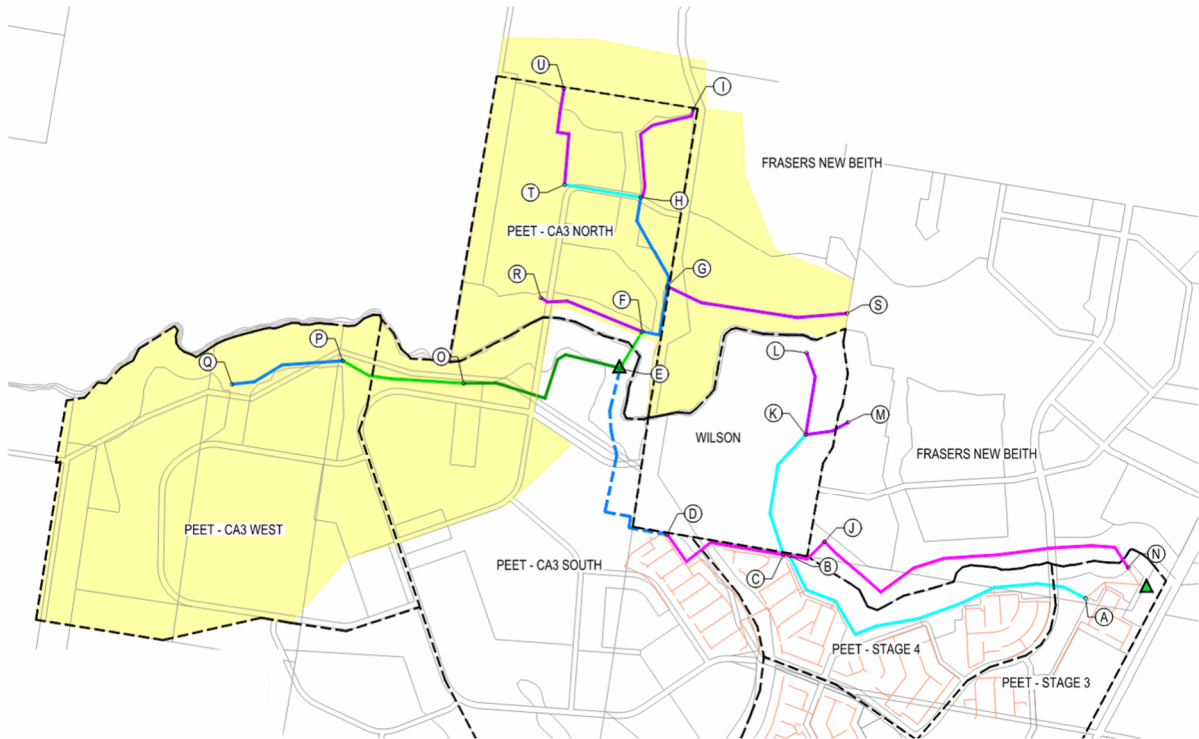


Figure 1-1: Locality Plan including development stages

2. Desired Standards of Service

The following is a summary of the Desired Standards of Service (DSS) adopted for the proposed development. The water supply and wastewater design criteria has been adopted in accordance with the design criteria outlined within Table 4-1 of the South East Queensland Water Supply and Sewerage Design & Construction Code (design criteria) (Feb; 2021). Key adopted demand and performance-based design criteria are summarised below.

Infrastructure has been sized to meet the below listed performance-based design criteria where possible. Some proposed assets are required to service significantly smaller flow rates in earlier years in comparison to flow rates under Ultimate development (> 50 years' time).

2.1. Demand Factors

Table 3.1 outlines the loading adopted per land use for wastewater based on the SEQ WS&S D&C Code – Design Criteria Appendix A2 – Logan City Council Table A3 – Logan Planning Scheme Development Density by locality.

Table 2-1: Adopted Demand Factors

Land Use	Wastewater Loading Per Unit (EP/unit)
Lot	2.8 EP/Lot

2.2. Wastewater Standards

Table 2-2: Design Parameters as per SEQ WS & S D&C Code and Logan Water Wastewater DSS Rev 1.0

Parameter	Value	Source
Gravity Sewer Network		
Average Dry Weather Flow (ADWF) – RIGGS	165 L/EP/Day	Wastewater DSS Final Table
d	$0.01 (\log A)^4 - 0.19 (\log A)^3 + 1.4 (\log A)^2 - 4.66 \log A + 7.57$	
Peak Dry Weather Flow (PDWF)	$d \times 0.00191 \times EP$	
Peak Wet Weather Flow (PWWF) – Residential	1000 L/EP/Day	
Peak Wet Weather Flow (PWWF) – Non-Residential	840 L/EP/Day	
Max Depth at PWWF	75%	Table 10 D8
Min Velocity (>DN300)	0.7 m/s	Table 10 D8
Max Velocity (All)	3 m/s	Table 10 D8
Min Shear (>DN300)	1.6 Pa	
Shear Stress	$\rho \times g \times \text{grade} (\%) \times \text{Hydraulic Radius}$	
Manning's	0.0128	Table 10 D8

3. Demand Assumptions

3.1. Network Demands

Development demands were adopted in accordance with the various inputs received, including the New Beith Road, New Beith Sewerage and Water Master Plan DEV2013/455/04, 110056-293-STRUCTURE Structure Plan, Flagstone City Context Area 3 North Precinct Network Plan (PNP), and Flagstone City Context Area 3 South Precinct Network Plan (PNP). The demands from these sources are summarized in the tables below.

TABLE 3-1: CONTEXT AREA 3 SEWER PUMP STATION CATCHMENT

Area	Land Use	Gross Area (ha)	No of Dwellings	EP per Dwelling	EP	EP +10%
CA 3 North	Residential	85.82	786	2.8	2,201	2,421
CA 3 North	Non-residential	2.13	N/A	N/A	43	47.3
CA3 South – Sub-catchment 1	Residential	23.7	493	2.8	1,380	1,518
CA3 South – Sub-catchment 1	Non-residential	4.9	N/A	N/A	617	678.7
CA3 West		100.8	1,180	2.8	3,304	3,634
FH14			197	2.8	551.6	607
FH15(80%)			614.4	2.8	1720.3	1892
FH16			354	2.8	991.2	1090
FH17(10%)			14.6	2.8	40.88	45
CA3 West	Non-residential	40			800	880
New Beith – Catchment S5			~305		856	941.6
New Beith – Precinct 21 and 50% 27			~239		669	735.9
Total EP			~3,004		9,870	10,857

- 2.8 EP per residential dwelling
- Parks / Open Spaces, District / Regional Sports = 20 EP per Hectare
- Local / District / Community Centres, School, Child Care, Medium Density Residential, Ambulance = 75 EP per Hectare

TABLE 3-2: RECEIVING NETWORK FLOWS

Area	Residential EP	Non-Res EP	EP	EP +10%
CA3 South – Sub-catchment 2	1,392	58	1,450	
CA3 South – Sub-catchment 3	106	5	111	
CA3 South Existing Connections 1, 2, 3	563		563	
New Beith – Precinct 22			653	
New Beith – EXT 4			308	
Total EP			3,085	3,394



Figure 3-1: External Sewer Catchment (Extract from New Beith Road, New Beith Sewerage and Water Master Plan DEV2013/455/04)

4. Calculation

Sewer network calculations were undertaken as per the SEQ Water Supply and Sewerage Design and Construction Code and input data. Design Parameters adopted are shown in Table 2-2 Design Parameters, with EP conversions applied as shown in Table 2-1.

Minimum design flows for respective sewer line segments have been calculated based on the minimum sewer grade as stipulated in the Code.

Table 4-1 provides a summary of calculation results; Figure 4-1 has been provided below to provide greater context of the mains being assessed within this memorandum.

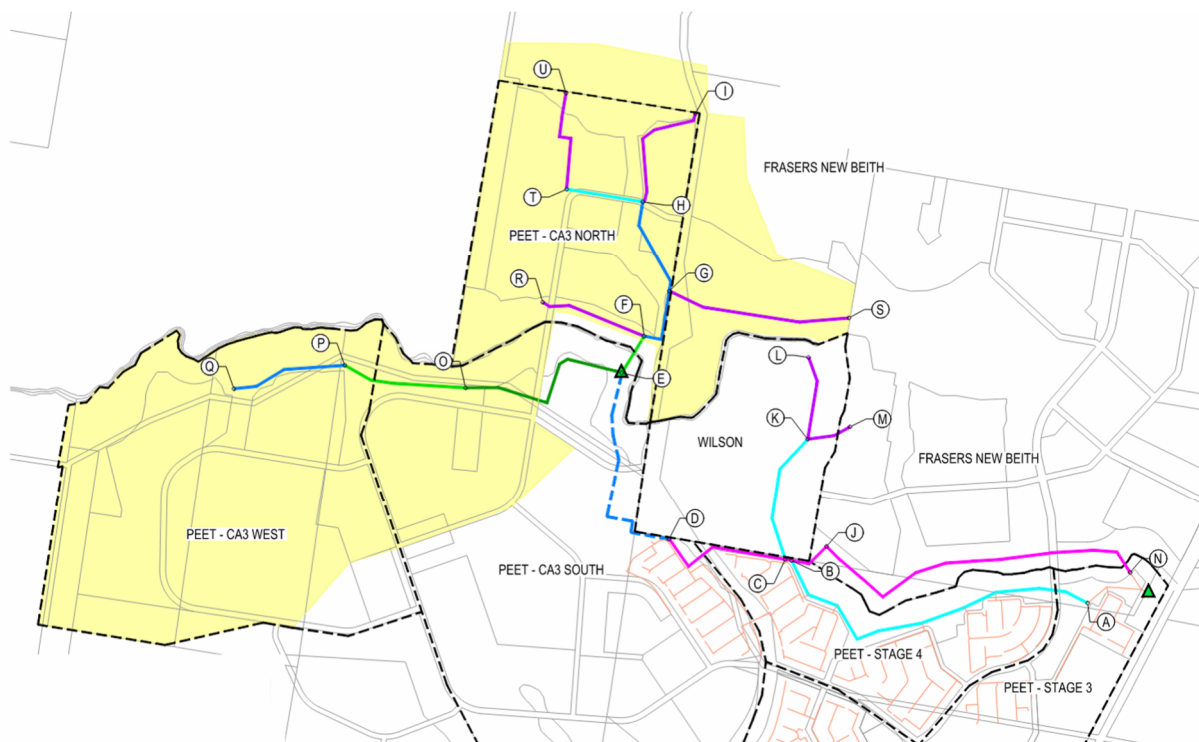


Figure 4-1: Sewer Lines Covered within Analysis

Table 4-1: Calculation Results (Flows)

Upstream Line	Node	Catchments	Local EPs	Line	Total EP	ADWF (L/s)	d	PDWF (L/s)	PWWF (L/s)	Pipe Dia (m)	Grade	Size adequate?	PDWF Velocity (m/s)	Self-cleansing?	Shear Stress (Pa)	Slime Stripped?
	P	CA3 West	4514	P-O	4514	8.62	2.3	20.25	52.25	0.375	0.0033	Yes	0.78	Yes	2.02	Yes
	O	CA3 South - Sub-	2197	O-E	6711	12.82	2.3	29.23	77.67	0.450	0.0025	Yes	0.70	Yes	1.89	Yes
	U	New Beith S5 West	282	U-T	282	0.59	7.8	4.21	4.21	0.150	0.0056	Yes	0.65	-	1.73	-
	T	CA3 North - 1.1	1075	T-H	1357	2.59	2.5	6.61	15.71	0.225	0.0033	Yes	0.54	-	1.40	-
	G	New Beith – Precinct 21 and 50% 27	736	S-G	736	1.41	3.2	4.46	8.52	0.150	0.0056	Yes	0.66	-	1.78	-
	R	CA3 North - 2.0	472	R-F	472	0.90	2.5	2.30	5.47	0.150	0.0056	Yes	0.55	-	1.35	-
	I	New Beith S5 East	659	I	659	1.26	3.6	4.53	7.63	0.150	0.0056	Yes	0.66	-	1.79	-
	H	CA3 North - 1.2	394	I-H	1053	2.01	2.5	5.13	12.19	0.225	0.0033	Yes	0.50	-	1.25	-
	T-H	G	CA3 North - 1.3	95	H-G	2506	4.79	2.5	12.20	29.01	0.300	0.0037	Yes	Yes	1.79	Yes
	S-G	F	CA3 North - 1.4	431	G-F	3673	7.02	2.5	17.88	42.52	0.300	0.0033	Yes	Yes	1.94	Yes
	R-F		CA3 North		F-E	4146	7.92	2.5	20.18	47.98	0.375	0.0056	Yes	Yes	2.99	Yes
F-E, O-E	E	SPS			10857	20.73	2.1	44.53	125.66	0.300						
	L	New Beith Precinct 22 and 24	718	L-K	718	1.37	2.5	3.50	8.31	0.150	0.0056	Yes	0.61	-	1.61	-
	M	New Beith Ext 4	339	K-B	1057	2.02	2.5	5.14	12.23	0.225	0.0033	Yes	0.50	-	1.25	-
		CA3 South	1717		1717	3.28	2.6	8.45	19.87	0.225	0.0033	Yes	0.58	-	1.54	-
	D	RM Discharge	10857	D-C	12574	24.01	2.3	54.70	145.53	0.525	0.0018	Yes	0.79	Yes	1.76	Yes
	C	Connection 1, 2, 3	619	D-C	13193	25.20	2.3	57.40	152.70	0.525	0.0018	Yes	0.80	Yes	1.80	Yes
K-B	C	New Beith Connection		C-B	14250	27.21	2.3	62.00	164.93	0.525	0.0025	Yes	0.93	Yes	2.46	Yes

5. DCOP Funding Position

The proposal to utilize an ultimate Sewer Pump Station rather than the current DCOP planning is anticipated to have a net positive impact on the financial position of the Greater Flagstone PDA. Detailed cost estimates and NPV's have been provided within the appendix below.

A cost estimate and Net Present Value assessment was completed for each of the options, the results are as follows. No staging has been allowed for with the ultimate capital expenditure in Year 1

Option	Cost Estimate (\$)	NPV (\$)	Ranking (1-2 best – worst)
Option 1 – SPS	\$26,003,269.63	\$29,606,416	1
Option 2 – Gravity	\$28,054,055.92	\$29,811,982	2

Based on the NPV prepared above, Option 1 is the most cost effective, with Option 2 the most expensive in both NPV and current estimates.

While it is not listed in the above costs it is expected that Option 2 will trigger EPBC approval offsets for the section running through Wilson's land. It is estimated that this would delay the works from proceeding from between 2-5 years and net a cost of approximately \$3.6M in offset costs (\$1M per Ha of clearing) for that section within the Wilson's land only which further impacts the viability of this option.

6. Conclusion

The Wastewater for the proposed development is recommended to be undertaken as a Sewer Pump Station to ensure that development of the ~3,004 residential allotments can be completed. The overall change in infrastructure costings it is anticipated to be generally cost neutral to the DCOP.

Based on the analysis provided in the memo, Options 1, a trunk sewer pump station servicing the development site and upstream sites, is the preferred choices for development. The option facilitates unlocking ~3,000 dwellings, with a positive NPV, in combination with minimal impact on protected vegetation, koala habitats, and fauna.

The risk associated with Option 2 are impacted by unknown time delays in the order of 2-5 years and additional costs for EPBC offsets and land owners consent impact the viability of this option being able to unlock land supply in this area.

7. Disclaimer

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Attachments

Attachment A	Logan Water Direction
Attachment B	Concept Sewerage Layout Plan
Attachment C	Net Present Value

Attachments

Attachment A [Concept Sewerage Layout Plan](#)

LEGEND

Investigation Area (Category 1)

Stage Boundary's

1.0m contour

Approximate Area of Proposed Sewer Pump Station Catchment

Possible Developable Area

Possible Environmental management and conservation zone (EMC)

Trunk Sewer DN150

Trunk Sewer DN225

Trunk Sewer DN300

Trunk Sewer DN375

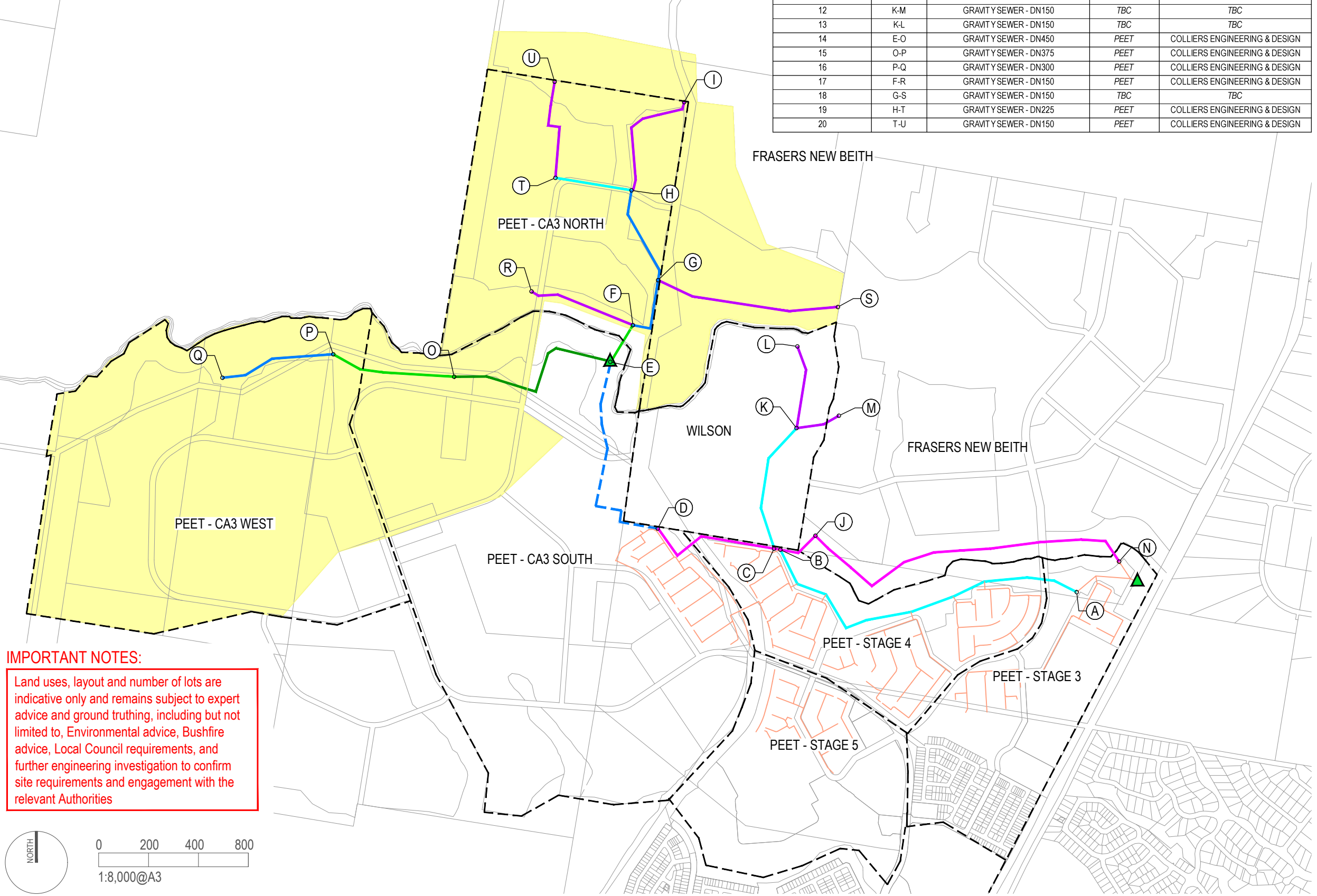
Trunk Sewer DN450

Trunk Sewer DN525

Trunk Rising Sewer DN300

Existing Sewer

Proposed SPS



IMPORTANT NOTES:

Land uses, layout and number of lots are indicative only and remains subject to expert advice and ground truthing, including but not limited to, Environmental advice, Bushfire advice, Local Council requirements, and further engineering investigation to confirm site requirements and engagement with the relevant Authorities

FLAGSTONE ITEM	EXTENTS	TYPE	PRINCIPAL	DESIGN CONSULTANT
1	A-B	GRAVITY SEWER - DN225	PEET	COLLIERS ENGINEERING & DESIGN
2	B-J-N	GRAVITY SEWER - DN525	PEET	COLLIERS ENGINEERING & DESIGN
3	B-C	GRAVITY SEWER - DN525	PEET	COLLIERS ENGINEERING & DESIGN
4	C-K	GRAVITY SEWER - DN225	PEET	COLLIERS ENGINEERING & DESIGN
5	C-D	GRAVITY SEWER - DN525	PEET	COLLIERS ENGINEERING & DESIGN
6	D-E	SEWER PRESSURE MAIN - DN300	PEET	COLLIERS ENGINEERING & DESIGN
7	E	SEWAGE PUMPING STATION	PEET	COLLIERS ENGINEERING & DESIGN
8	E-F	GRAVITY SEWER - DN375	PEET	COLLIERS ENGINEERING & DESIGN
9	F-G-H	GRAVITY SEWER - DN300	PEET	COLLIERS ENGINEERING & DESIGN
10	H-I	GRAVITY SEWER - DN150	PEET	COLLIERS ENGINEERING & DESIGN
11	C-K	GRAVITY SEWER - DN225	TBC	TBC
12	K-M	GRAVITY SEWER - DN150	TBC	TBC
13	K-L	GRAVITY SEWER - DN150	TBC	TBC
14	E-O	GRAVITY SEWER - DN450	PEET	COLLIERS ENGINEERING & DESIGN
15	O-P	GRAVITY SEWER - DN375	PEET	COLLIERS ENGINEERING & DESIGN
16	P-Q	GRAVITY SEWER - DN300	PEET	COLLIERS ENGINEERING & DESIGN
17	F-R	GRAVITY SEWER - DN150	PEET	COLLIERS ENGINEERING & DESIGN
18	G-S	GRAVITY SEWER - DN150	TBC	TBC
19	H-T	GRAVITY SEWER - DN225	PEET	COLLIERS ENGINEERING & DESIGN
20	T-U	GRAVITY SEWER - DN150	PEET	COLLIERS ENGINEERING & DESIGN

DRAFT FOR DISCUSSION
PURPOSES ONLY

CLIENT

PROJECT

SEWER NODAL PLAN

Context Area 3, Flagstone

AMENDMENTS:	DATE:
A Original	11.07.2025
B	
C	
D	
E	
F	
G	
H	
DESIGNED: TW	DATE: 11.07.2025
DRAWN: JR	DATE: 11.07.2025
SCALE: 1:8,000 @ A3	1 of 1

IMPORTANT NOTES:

This note is an integral part of this plan. This plan may not be reproduced without this note.

This plan was prepared for discussion purposes only and is conceptual only. This plan should not be used for any other purposes.

This plan remains subject to, but not limited to, authority approval, detail design and final survey.

The total number of lots shown on this plan is approximate only.

No relevance should be placed on the information on this plan for any financial dealings involving the land.

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Cadastral Boundaries:
DCDB © State of Queensland (Department of Natural Resources and Mines) 2024

GLOBAL CERTIFICATION PTY LTD



DRAWING NUMBER:	ISSUE:
20-0211-MP600	A

Attachment B Cost Estimates

PRELIMINARY ORDER OF DEVELOPMENT COSTS

PROJECT NO.: 20-0211
PROJECT NAME: Flagstone CA3
CLIENT: PEET
DATE: 24-07-2025

ITEM			SEWER & WATER	Professional Fees	Contingency	Total Cost	Option 1	Option 2
				15%	25%			
Option 1- Wastewater Pumpstations								
1	PS1 - Stage 1 (10,850 EP)	E	\$ 3,500,000	\$ 525,000	\$ 1,006,250	\$ 5,031,250	\$ 5,031,250	\$ -
Option 1- Trunk Wastewater Rising Main								
3	Sewer Pressure Main - DN300	E-D	\$ 649,271	\$ 97,391	\$ 186,665	\$ 933,327	\$ 933,327	\$ -
Option 1- Trunk Wastewater Gravity Main								
5	Gravity Sewer - DN525	D-C	\$ 1,661,900	\$ 249,285	\$ 477,796	\$ 2,388,981	\$ 2,388,981	\$ -
6	Gravity Sewer - DN525	C-B	\$ 2,237,650	\$ 335,648	\$ 643,324	\$ 3,216,622	\$ 3,216,622	\$ -
7	Gravity Sewer - DN525	B-J	\$ 823,524	\$ 123,529	\$ 236,763	\$ 1,183,815	\$ 1,183,815	\$ -
8	Gravity Sewer - DN525	J-N	\$ 7,028,595	\$ 1,054,289	\$ 2,020,721	\$ 10,103,605	\$ 10,103,605	\$ -
9	Gravity Sewer - DN375	F-E	\$ 404,959	\$ 60,744	\$ 116,426	\$ 582,128	\$ 582,128	\$ -
10	Gravity Sewer - DN450	E-O	\$ 810,952	\$ 121,643	\$ 233,149	\$ 1,165,743	\$ 1,165,743	\$ -
5	Gravity Sewer - DN375	P-O	\$ 454,156	\$ 68,123	\$ 130,570	\$ 652,849	\$ 652,849	\$ -
6	Gravity Sewer - DN300	Q-P	\$ 234,752	\$ 35,213	\$ 67,491	\$ 337,456	\$ 337,456	\$ -
8	Gravity Sewer - DN300	F-G	\$ 116,002	\$ 17,400	\$ 33,351	\$ 166,753	\$ 166,753	\$ -
7	Gravity Sewer - DN300	G-H	\$ 167,471	\$ 25,121	\$ 48,148	\$ 240,739	\$ 240,739	\$ -
Option 2 - Trunk Wastewater Gravity Main								
1	Gravity Sewer - DN525	J-F	\$ 9,201,981	\$ 1,380,297	\$ 2,645,570	\$ 13,227,848	\$ -	\$ 13,227,848
2	Gravity Sewer - DN450	F-E	\$ 450,074	\$ 67,511	\$ 129,396	\$ 646,981	\$ -	\$ 646,981
5	Gravity Sewer - DN300	D-C	\$ 953,431	\$ 143,015	\$ 274,111	\$ 1,370,557	\$ -	\$ 1,370,557
6	Gravity Sewer - DN300	C-B	\$ 98,452	\$ 14,768	\$ 28,305	\$ 141,524	\$ -	\$ 141,524
8	Gravity Sewer - DN525	J-N	\$ 7,028,595	\$ 1,054,289	\$ 2,020,721	\$ 10,103,605	\$ -	\$ 10,103,605
10	Gravity Sewer - DN450	E-O	\$ 810,952	\$ 121,643	\$ 233,149	\$ 1,165,743	\$ -	\$ 1,165,743
5	Gravity Sewer - DN375	P-O	\$ 454,156	\$ 68,123	\$ 130,570	\$ 652,849	\$ -	\$ 652,849
6	Gravity Sewer - DN300	Q-P	\$ 234,752	\$ 35,213	\$ 67,491	\$ 337,456	\$ -	\$ 337,456
8	Gravity Sewer - DN300	F-G	\$ 116,002	\$ 17,400	\$ 33,351	\$ 166,753	\$ -	\$ 166,753
7	Gravity Sewer - DN300	G-H	\$ 167,471	\$ 25,121	\$ 48,148	\$ 240,739	\$ -	\$ 240,739
			\$ 37,605,096	\$ 5,640,764	\$ 10,811,465	\$ 54,057,326	\$ 26,003,270	\$ 28,054,056
Lots								

Comments / Assumptions:
Majority of rates from a combination of old rates with escalation factors, recent rates and interpolating between such rates.
A 50% allowance has been made for fittings across the linear infrastructure.

Attachment C Net Present Value

Capital Works Planning

Net Present Value Model 20 years

For use on Water and Sewerage Infrastructure Projects

Last Update = May 2024

(future dollars thousand)

For assets where lifecycle cash flows are required

PROJECT TITLE	CA3 Sewer
PROJECT OPTION	Option 1 SPS Option
Completed by	Thomas Wager, Director - Water & Wastewater
Checked by	Dan Collins, Director - Civil

Financial Viability		NPV		(\$29,606,416)		Asset writeoffs		\$0		Net present value is exclusive of asset writeoffs																																			
Indicators		IRR		#N/A																																									
		Payback Period		Year-->		Payback period exceeds 5 years.																																							
Assumptions		Discount Rate		7.66%		From Unitywater financial analysis and for use in infrastructure business cases (nominal and pre-tax weighted average cost of capital)																																							
		Asset useful life (yrs)		50		Where multiple asset types are present this should be the cost weighted average for capital additions																																							
		Electricity cost (\$/kWh)		0.26187197		Based on Unitywater 2023 actual costs for SPS sites																																							
		Electricity cost conversion factor		102		From Australian Pump Technical Handbook																																							
		Gravity maintenance		0.50%		Annual maintenance cost of 0.5% of the capital cost of all gravity trunk sewers																																							
		Water and rising main maintenance		0.65%		Annual maintenance cost of 0.65% of the capital cost of all water mains and rising mains - SEQ Code Section 2.5 Lowest Lifecycle Costing																																							
		Reservoir maintenance		0.25%		Reservoir annual maintenance cost of 0.25% of the capital cost of all reservoirs																																							
		Pump Station maintenance		3%+ 35kW		Pump Station annual operation and maintenance cost (excluding energy costs) of 3.0% of the capital cost + 35 x total installed kW																																							
						E.g. For a \$1m pump station containing two 30kW pumps = \$30,000 + 35x60 = \$32,100 per annum excluding electricity cost																																							
Electricity cost and GHG		Total installed kW		58																																									
		Overall pump station efficiency (%)		71%																																									
		Single pump flow (L/s)		126																																									
		Single pump head (m)		32																																									
		Emission Factor (t CO2 -e / kWh)		0.00082		National Greenhouse and Energy Reporting System Measurement, Technical Guidelines 2013-14 (www.climatechange.gov.au)																																							
Annual electricity cost and GHG Emissions (t CO2 -e)		Year ending		Jun-25		Jun-26		Jun-27		Jun-28		Jun-29		Jun-30		Jun-31		Jun-32		Jun-33		Jun-34		Jun-35		Jun-36		Jun-37		Jun-38		Jun-39		Jun-40		Jun-41		Jun-42		Jun-43		Jun-44		Jun-45	
		Year number		0		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20	
		Forecast ADWF (L/s)		21		21		21		21		21		21		21		21		21		21		21		21		21		21		21		21		21		21		21					
		Pump run hours (per day)		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4		4					
		Electricity consumption (per year)		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954		79,954					
		GHG emissions per year (t CO2 -e)		66		66		66		66		66		66		66		66		66		66		66		66		66		66		66		66		66		66		66					
		Electricity cost per year (\$)		20,938		21,482		22,041		22,614		23,202		23,805		24,424		25,059		25,710		26,379		27,065		27,768		28,490		29,231		29,991		30,771		31,571		32,392		33,234		34,098		34,985	

INCREMENTAL CASHFLOWS ONLY (FUTURE \$)

ENSURE THE ASSET WRITE OFF COSTS ARE CAPTURED. THIS IS GENERALLY THE RESIDUAL VALUE WITHIN THE ASSET REGISTER

	Year ending Year number	Jun-25 0	Jun-26 1	Jun-27 2	Jun-28 3	Jun-29 4	Jun-30 5	Jun-31 6	Jun-32 7	Jun-33 8	Jun-34 9	Jun-35 10	Jun-36 11	Jun-37 12	Jun-38 13	Jun-39 14	Jun-40 15	Jun-41 16	Jun-42 17	Jun-43 18	Jun-44 19	Jun-45 20
Cash Inflow (apply escalation as required)																						
Operating revenue or benefit realisation	Operational																					
Non taxable or exempt income	Operational	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total Cash Inflow																						
less																						
Cash Outflow (apply flags and factors as required)																						
Cash Expenses																						
Recurrent Operational	Operational	20,938	288,008	296,084	304,401	312,967	321,790	330,879	340,242	349,888	359,827	370,070	380,625	391,503	402,717	414,276	426,193	438,480	451,151	464,217	477,694	491,596
Recurrent Operational (spare)	Operational																					
Capital Costs (subject to inflation)	Capital	26,003,270	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Capital Costs (spare)	Capital																					
Total Cash Expenses		26,024,208	288,008	296,084	304,401	312,967	321,790	330,879	340,242	349,888	359,827	370,070	380,625	391,503	402,717	414,276	426,193	438,480	451,151	464,217	477,694	491,596
Asset write off (carried up, do not escalate or discount)	Operational	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Cash Flow		(26,024,208)	(288,008)	(296,084)	(304,401)	(312,967)	(321,790)	(330,879)	(340,242)	(349,888)	(359,827)	(370,070)	(380,625)	(391,503)	(402,717)	(414,276)	(426,193)	(438,480)	(451,151)	(464,217)	(477,694)	(491,596)
Net Cash Flow (Operational)	Operational	(20,938)	(288,008)	(296,084)	(304,401)	(312,967)	(321,790)	(330,879)	(340,242)	(349,888)	(359,827)	(370,070)	(380,625)	(391,503)	(402,717)	(414,276)	(426,193)	(438,480)	(451,151)	(464,217)	(477,694)	(491,596)
Net Cash Flow (Capital)	Capital	(26,003,270)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Present Value of NCF		(26,024,208)	(267,511)	(255,440)	(243,926)	(232,942)	(222,463)	(212,467)	(202,931)	(193,832)	(185,152)	(176,870)	(168,968)	(161,429)	(154,235)	(147,370)	(140,819)	(134,569)	(128,603)	(122,911)	(117,478)	(112,292)
Cum. PV of NCF		(26,024,208)	(26,291,719)	(26,547,159)	(26,791,085)	(27,024,027)	(27,246,491)	(27,458,958)	(27,661,888)	(27,855,721)	(28,040,872)	(28,217,743)	(28,386,711)	(28,548,139)	(28,702,374)	(28,849,744)	(28,990,563)	(29,125,132)	(29,253,735)	(29,376,646)	(29,494,123)	(29,606,416)
Present Value of NCF (Operational)		(20,938)	(267,511)	(255,440)	(243,926)	(232,942)	(222,463)	(212,467)	(202,931)	(193,832)	(185,152)	(176,870)	(168,968)	(161,429)	(154,235)	(147,370)	(140,819)	(134,569)	(128,603)	(122,911)	(117,478)	(112,292)
Cum. PV of NCF (Operational)		(20,938)	(288,449)	(543,889)	(787,815)	(1,020,757)	(1,243,221)	(1,455,688)	(1,658,618)	(1,852,451)	(2,037,603)	(2,214,473)	(2,383,441)	(2,544,869)	(2,699,104)	(2,846,474)	(2,987,293)	(3,121,862)	(3,250,465)	(3,373,376)	(3,490,853)	(3,603,146)
Present Value of NCF (Capital)		(26,003,270)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cum. PV of NCF (Capital)		(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)	(26,003,270)

Instructions:

stom

Use the building blocks below to construct formulas above. Look at the formula in the line above for an example. You will need to delete this example line prior to entering a new business case.

Inputs

Inflow 1 - Operating revenue or benefit realisation

Inflow 2 - Non taxable or exempt income

Inflow 3 - Custom (provide details)

Capital outflow 1 - Gravity mains

Capital outflow 2 - Water and rising mains

Capital outflow 3 - Reservoirs

Capital outflow 4 - Pump stations and active assets

Capital outflow 6 - Systems (cost of)

Operational outflow 1 Gravity main maintenance

Operational outflow 3 - Water and rising main mai

Operational outflow 3 - Reservoir maintenance

Operational outflow 4 - Pump station and activ

[illegible]

For assets where lifecycle cash flows are required

WARNING: UPDATE REQUIRED. PLEASE CONTACT COMMERCIAL FOR UPDATE.



PROJECT TITLE	CA3 Sewer
PROJECT OPTION	Option 2 Gravity
Completed by	Thomas Wager, Director - Water & Wastewater
Checked by	Dan Collins, Director - Civil

[illegible]

INCREMENTAL CASHFLOWS ONLY (FUTURE \$)

ENSURE THE ASSET WRITE OFF COSTS ARE CAPTURED. THIS IS GENERALLY THE RESIDUAL VALUE WITHIN THE ASSET REGISTER.

[illegible]

Instructions: Use the building blocks below to construct formulas above. Look at the formula in the line above for an example. You will need to delete this example line prior to entering a new business case.

Inputs

stom

[illegible]