

**Chris Smith**

**& ASSOCIATES**

PTY LTD

# **Herdstown Pty Ltd**

## **Sewer Feasibility Strategy for Toolamba Precinct Structure Plan**

### **Rutherford Road, Toolamba**

**June 2021**

**Ref: 15018**

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## Sewerage Feasibility Strategy for Toolamba Precinct Structure Plan Rutherford Road, Toolamba

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## **1 Introduction**

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This report has been prepared on behalf of Herdstown Pty Ltd following the engagement of Chris Smith & Associates for consultancy services in relation to the Toolamba Precinct Structure Plan (Toolamba PSP) and Planning Scheme Amendment C168.

This report focuses on the feasibility, options and infrastructure required to provide reticulated sewer to the Toolamba PSP located at Rutherford Road Toolamba and the costs associated with this infrastructure.

The critical infrastructure to provide sewer to the Toolamba PSP is the proposed Sewage pump station to be located centrally within the development and approximately 10-12km of sewer rising main, that will transfer effluent to the Tatura Wastewater Management Facility (WMF). The strategy within this report has been developed with ongoing liaison and support of Goulburn Valley Water over the course of the project.

A gravity sewerage reticulation system would also be required to service individual allotments, however this would be developed in stages as the development proceeds.

## **2 Discussion with Goulburn Valley Water**

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Goulburn Valley Water (GVW) initially provided ~~the~~ principal support for the proposed system to discharge to the Tatura Wastewater Management Facility (WMF) as detailed in their correspondence dated 6 February 2012 shown in Appendix 10.3.

Furthermore, GVW has recently provided an updated letter of support to the Panel chair, dated 18 June 2021 also attached in Appendix 10.4. This latest correspondence is consistent with previous correspondence received on 6 February 2012.

The proposed connection point for Toolamba PSP system is the 375mm dia. sewer rising main in Dhurringile Road (at approximately the entrance to the Tatura WMF) which services the township of Tatura and also the Dhurringile Prison. Chris Smith & Associates has detailed information on this outfall having design and managed the construction of the Dhurringile Prison pump station and rising main.

GVW have previously indicated that because the sewer rising main is discharging directly to the Tatura WMF there will be no requirements for treatment of odour caused by the long retention times that will be experienced in the sewer rising main. However, consideration needs to be given to the location of air valves with respect to existing houses along the sewer rising main alignment.

GVW have indicated that all costs associated with the new sewerage infrastructure shall be funded by the developer. This condition for the developer to fully fund the sewerage works is consistent with GVW's New Customer Contribution Guidelines.

The developer had previously indicated their desire to provide Old Toolamba with frontage or access to the sewer rising main to provide options for Old Toolamba to also be provided with reticulated sewerage, however GVW has

indicated that their preferred option is for the most direct route, as there is no guarantee of Old Toolamba ever connecting.

### 3 Sewerage Catchments

The Toolamba PSP currently provides an approximate yield of 270 lots. Refer to Appendix 10.1 for a Conceptual Subdivision Layout. A preliminary review indicates that one sewage pump station centrally located would be sufficient to service all developable land within the Toolamba PSP with a possibility to service some immediate adjoining land located within the Toolamba Growth Plan, however for the purpose of this report the proposed pump station is considered to service the Toolamba PSP only.

As mentioned in GVW correspondence dated 18 June 2021, the provision of sewerage to Toolamba will provide opportunity for land within the Toolamba Growth Plan, being either existing dwellings or future land development to be serviced with reticulated sewerage. These catchments are summarised below and have been considered with our initial sizing the proposed sewage pump station and rising main.

Catchment No.	Catchment Description	Estimate No. of Lots	ADWF	PWWF
1	Toolamba PSP	270	1.37L/s	8.20L/s
2	Toolamba Township	100	0.53L/s	3.20L/s
3	Future Development	150	0.76L/s	4.56L/s
4	Old Toolamba	65	0.33L/s	1.97L/s
TOTAL		585	2.99L/s	17.94L/s

The above catchments are also shown on the Sewer Strategy Plan in Appendix 10.2.

It is envisaged the sewage pump station and sewer rising main provided as part of the Toolamba PSP would act as the regional (main) pump station and when and if other catchments are connected, they would pump to this regional pump station, before on pumped to the Tatura WMF. This arrangement is typical of how GVW's sewer network operates most other towns.

The catchments listed above have been used as part of sewer calculations in the next section.

### 4 Sewer Calculations

Preliminary calculations have been undertaken for the Toolamba PSP pump station and sewer rising main, with consideration of other catchments including the Toolamba Township, Future Development & Old Toolamba. The full details of the calculations are shown in Appendix 10.4 and are summarised below.

- A 100mm dia. sewer rising main is not suitable for the proposed development due to the high friction losses generated in the pipe work.

- A 150mm dia. sewer rising main would be sufficient for both the Toolamba PSP and all other catchments suitable for the estimate PWWF from all catchments of 17.94L/S.
- Slime scouring velocities in the 150mm dia. sewer rising main are achieved at around 17.08L/s and hence this should be the minimum flow rate for the proposed sewer pump station.

The slime scouring flows for the 150mm dia. sewer rising main of 17.08L/s provides sufficient capacity in the rising main to cater for the future connection of other sewer catchments identified in section 3 of this report.

Preliminary calculations shown in Appendix 10.5 indicate that if a Peak Wet Weather flowrate of 17.94L/s was adopted, the headloss through the system would be approximately 60.5m. The system calculations are based on a rising main length of 10km.

The design flow rate would be subject to review by Goulburn Valley Water as part of detailed design for the Toolamba PSP.

## **5 Sewer Rising Main Alignment Options & Costs**

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There are two options for the alignment of the sewer rising main which have been investigated as part of this report. These options are shown on the Sewer Strategy Plan in Appendix 10.2 and are detailed as follows: -

### **5.1 Option 1- Toolamba Rushworth Road Alignment**

This alignment is the most direct route from the Toolamba PSP to the Tatura WMF, being approximately 9972m in length. From experience the most cost-effective material for this construction would be 150mm class 16 PVC-M. The alignment would see the sewer rising main installed in the road reserve verge with 6 road crossings and 5 channel crossings, all of which we have assumed will be bored and constructed using HDPE pipework. There may also be a need to bore heavily treed areas, although the verge is generally flat, open and accessible. In total we have allowed for 600m of boring in our estimate.

The Toolamba- Rushworth Road is a sealed road and for a rural area the verge is generally well maintained. These factors make it suitable for a pipeline alignment. For the purpose of our estimate, we have allowed for 22 air and scour valves along the alignment. Although this alignment is extremely flat air and scour valves may be required at road and or channel crossings hence their inclusion in the estimate.

There are some smaller rural allotments in the vicinity of the Downer Road intersection that could benefit from this sewer rising main, if GVW was to allow their connection via a pressure sewer system into the sewer rising main. The estimated costs for this alignment are \$1,750,430 GST Exclusive. The full cost estimate for this sewer rising main alignment is shown in Appendix 10.6

## **5.2 Option 2- Bitcon Road Alignment**

This alignment achieves the developer's intention to provide the township of Old Toolamba with access to the proposed sewer rising main in order to encourage connection. This alignment would extend the sewer rising main to approximately 11306m in length. We believe that the most cost-effective material for this construction would be 150mm PVC-M. The alignment would see the sewer rising main installed in the road reserve verge with 6 road crossings and 6 channel crossings, all of which we have assumed will be bored and constructed using HDPE pipework. There may also be a need to bore heavily treed areas along this route in particular east of Downer Road and east of Craven Road. There is also a large depression between Craven and Bayunga Road which may need to be bored. In total we have allowed for 920m of boring in our estimate.

Bitcon Road is sealed east of Murchison- Mooroopna Road, however, is generally unsealed west of Murchison- Mooroopna Road. The verge is generally poorly maintained. For the purpose of our estimate, we have allowed for 24 air and scour valves along the alignment. Although this alignment is extremely flat air and scour valves may be required at road and or channel crossings hence their inclusion in the estimate.

The estimated costs for this alignment are \$2,031,890.00 GST Exclusive. The full cost estimate for this sewer rising main alignment is shown in Appendix 10.6

The Bitcon Road alignment could also consist of a route past Old Toolamba before joining back onto the Toolamba- Rushworth Road alignment via. either Downer, Craven or Bayunga Roads. Craven Road (a sealed road) and Downer Road (an unsealed road) both have verges that provide for suitable alignment options. Bayunga Road (an unsealed road) is generally built up through a depression and intuitively does not provide for a better pipeline alignment when compared with the Downer Road and Craven Road options.

None of the Downer/ Craven/ Bayunga Road alignment options offer any reduction in pipeline length compared with the Dhurringile Road alignment. They do however offer a reduction in boring costs due to fewer treed precincts. However, the reduction in boring costs is not outweighed by the reduction in cost sharing contributions for the Dhurringile Road segment (should they apply)

## **5.3 Summary of Options**

Option 1, the Toolamba- Rushworth Road alignment is the most direct route and the lowest estimated construction cost of \$1,750,430.00. This amount includes a 20% contingency sum, which is considered suitable for this level of estimate.

As such, Option 1 the Toolamba- Rushworth Road option and cost has been used in the feasibility review of this report. These costs shall be entirely funded by the developer.

## 6 Sewage Pump Station Costs

The proposed Toolamba PSP pump station will be sufficient to service all 270 allotments proposed in the Toolamba PSP. The pumps will also be sized to allow for future pump stations/ sewer system to discharge to this pump station. Hence there would be no need to upgrade this pump station in the future or for others to contribute to the upsizing of this asset. All works shall be funded by the developer.

The total estimated cost for the supply and installation of the proposed Toolamba PSP sewage pump station is \$644,600 GST Exclusive. Refer Appendix 10.7. This amount includes a 20% contingency sum, which is considered suitable for this level of estimate.

## 7 Sewerage Reticulation Costs

The Toolamba PSP catchment is proposed to be serviced by reticulated gravity sewerage that will connect back to the proposed pump station centrally located within the development.

The gravity sewerage system would be constructed on a stage by stage basis and whilst a gravity sewerage network has not been costed in detail (ie based on a layout design) for the Toolamba PSP, recent experience for similar sized developments with similar sized lots indicate the cost for the provision of gravity sewerage to be between \$5,000 to \$10,000 per lot, over the entire development (270 lots).

For the purpose of this report the median value of \$7,500 has been adopted.

## 8 Summary of Costs

The following table provides a summary of the total estimated cost and cost per lot to provide reticulated sewerage to the Toolamba PSP.

	Total Cost	Cost per Lot
SRM	\$1,750,430	\$6,500
SPS	\$644,600	\$2,400
Sewerage Retic	\$2,025,000	\$7,500
Total	\$4,420,030	\$16,400

*All costs are GST exclusive, and per lot costs are rounded up \$100*

The total estimate cost to provide sewerage reticulation to all 270 lots in the Toolamba PSP is \$4,500,000. This equates to an estimated cost of \$16,400 per lot.

The above costs per lot are slightly higher than other similar developments Chris Smith & Associates have recently been involved in, due to the sewer rising main costs. The stage 1 costs will also be significant, as the sewage pump station and sewer rising main needs to be constructed to facilitate stage 1.

The above costs per lot are very comparable to other sewer alternatives including the following

- Pressure sewer- \$20,000 per lot
- Onsite Effluent disposal \$10,000- \$20,000 per lot

## **9 Conclusion**

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Sewerage reticulation can be provided to the Toolamba PSP through the provision of a new sewage pump station and approximately 10km of sewer rising main along the Toolamba- Rushworth Road.

A new sewage pump station and 150mm dia. sewer rising main to be fully funded by the developer will be sufficient to cater for all 270 lots proposed in the Toolamba PSP however will be sufficient to act as the regional pump station, receiving flow from other catchments in the wider Toolamba precinct that may connect in future.

The sewer strategy discussed in this report has been developed in consultation with Goulburn Valley Water, who are supportive of receiving the effluent at the Tatura WMF from not only the Toolamba PSP, but the wider Toolamba network, if and when other catchments connect.

The costs associated with the provision of sewer are estimated at an average of \$16,400 per lot over the 270 lots within the Toolamba PSP and this is considered reasonable when compared to other alternatives such as pressure sewer or onsite effluent disposal.

## **10 Appendix**

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### **10.1 Conceptual Subdivision Layout Plan**



## **10.2 Sewer Strategy Plan**



**10.3 Goulburn Valley Water Correspondence dated 6 February 2012**

**COPY**



Goulburn Valley Region Water Corporation

ABN 184 578 076 056

104-110 Fryers Street,  
Shepparton, Victoria 3630

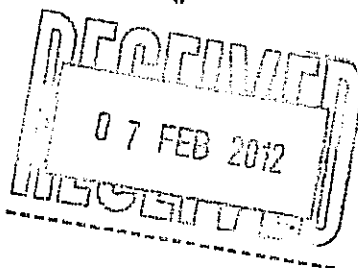
P.O. Box 185,  
Shepparton, Victoria 3632  
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Tel: (03) 5832 0400  
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Our Ref. FOL/1259 - DOC12/905

6 February 2012

Chris Smith  
Chris Smith & Associates  
11 Edward Street  
SHEPPARTON 3630



Dear Chris

**FUNDING ARRANGEMENTS ADVICE - PROPOSED RESIDENTIAL DEVELOPMENT TOOLAMBA**

Further to your letter dated 22 September 2011 and our subsequent meeting on 4 November 2011, I confirm the Corporation's support of the proposal to accept the direct effluent from the proposed residential development at Toolamba at the Tatura Wastewater Management Facility (WMF). This support is on the basis that the developer will contribute 100% of the cost associated with servicing the proposed development, and notably 12km (approx) sewer rising main from the development to the WMF. There may also be costs associated with necessary related works for augmentation at the WMF.

It should be noted that while in principle, above support is given, the Corporation has not undertaken a detailed review of the potential impacts of the future development and this is required once development details are better known.

As requested at the meeting, Goulburn Valley Water has sought advice from the Essential Services Commission (ESC) on the proposed development, and provided advice on the current status of servicing in Toolamba.

The ESC advised that all of the sewer infrastructure, including the pump station and sewer rising main to the Tatura WMF, would be at the developer's expense.

It was also brought to ESC's attention that the pump station and rising main constructed by the developer would be capable of servicing the existing Toolamba township, if it were to be sewered in future.

I also would like to confirm our previous offer that Goulburn Valley Water is willing to attend related public forums to assist in community engagement on the proposed development and potential servicing of existing landholders.

I trust that this advice allows you to continue to work with your client and should you require any additional information on this matter please contact me.

Yours sincerely

A handwritten signature in black ink.  
Paul Kerrins  
TECHNICAL CUSTOMER SERVICES COORDINATOR

**10.4 Goulburn Valley Water Correspondence dated 18 June 2021**

Our Ref. FOL/95 - DOC21/44657

18 June 2021

Lisa Kendal  
Panel Chair  
Planning Panels Victoria  
Planning Panels Victoria  
GPO Box 2392  
MELBOURNE GPO PRIVATE BOX VIC 3001

Dear Lisa

**SHEPPARTON PLANNING SCHEME AMENDMENT C168 AND C224: TOOLAMBA PRECINCT  
STRUCTURE PLAN AND TOOLAMBA GROWTH PLAN**

I am writing in response to your letter dated 14<sup>th</sup> May 2021 and the Proposed Panel Directions, which requests that Goulburn Valley Water (GVW) make a submission to the Panel in relation to any feasibility or implementation planning for reticulated sewerage servicing for Toolamba.

As per previous correspondence from the Corporation in 2012, I confirm that GVW supports the provision of reticulated sewerage in Toolamba. The following outlines a brief background and provides further details on the Corporation's position on this matter.

In response to a development application received by the Corporation in 2011, a concept level option for the provision of reticulated sewerage to the development was prepared by GVW in 2012. Based on this concept design, reticulated sewerage servicing would consist of the sewer assets required to service the new development and a pump station and sewer rising main (approximately 12km) capable of pumping wastewater from the development to the Corporation's Tatura Wastewater Management Facility (WMF).

As specified at the time, GVW's support of the above option was, and remains, on the basis that the developer will contribute 100% of the cost associated with servicing the proposed development, including the pump station and sewer rising main to the Tatura WMF. This condition for the developer to contribute the full cost of the assets required is consistent with GVW's New Customer Contribution Guidelines.

GVW recognises that the provision of reticulated sewerage to a single development in Toolamba creates opportunities for expansion of the reticulated sewer scheme to other new developments or existing dwellings within the township, however would only pursue this if there is desire from developers, existing landowners or other stakeholders to do so.

In relation to the details of any feasibility and implementation planning for reticulated sewerage, aside from an internal discussion paper prepared in 2012, which included the concept option for the development outlined above as well as concept options to extend the reticulated sewer to the wider township, the Corporation has not progressed with any further investigations. In addition, the provision of reticulated sewerage for Toolamba is not included in any of the Corporation's works programs.

If further exploration of reticulated sewerage servicing for Toolamba is of interest to any party, GVW is willing to discuss the sewer servicing options for Toolamba to support the health and prosperity of the community.

I trust this submission addresses the needs of the Panel and should you require any additional information on this matter, please contact myself on 0417 617 180 or Raju Ranjit on 0448 818 943.

Yours sincerely

A handwritten signature in black ink, appearing to read 'Regan Flanagan', with a stylized, cursive script.

Regan Flanagan  
MANAGER - PLANNING AND CLIMATE RESILIENCE

## **10.5 Sewerage Computations**

STANDARD SEWER PUMP STATION DESIGN

Catchment 1 - Proposed Development

Tenements = 270  
Person/Tenement = 2.5  
ADWF/Person = 175 L/day  
Wet Weather Peaking Factor = 6

Catchment 2 - Toolamba Township

Tenements = 100  
Person/Tenement = 2.5  
ADWF/Person = 175 L/day  
Wet Weather Peaking Factor = 6  
School ADWF/ Perso  
School Tenements 20 L/day  
120

Catchment 3 - Other Development in Town

Tenements = 150  
Person/Tenement = 2.5  
ADWF/Person = 175 L/day  
Wet Weather Peaking Factor = 6

Catchment 4 - Old Toolamba

Tenements = 65  
Person/Tenement = 2.5  
ADWF/Person = 175 L/day  
Wet Weather Peaking Factor = 6

Calculated Flows

ADWF = 1.37 L/s  
PWWF = 8.20 L/s

Calculated Flows

ADWF = 0.53 L/s  
PWWF = 3.20 L/s

Calculated Flows

ADWF = 0.76 L/s  
PWWF = 4.56 L/s

Calculated Flows

ADWF = 0.33 L/s  
PWWF = 1.97 L/s

	Catchment 1	All Catchments
Total ADWF=	1.37 L/s	2.99 L/s
Total PWWF=	8.20 L/s	17.94 L/s

ADOPTED FLOW 17.94 L/s  
Storage @ ADWF = 3hrs

100mm diameter PVC-M Class 16

ID = 110.3 mm  
Roughness = 0.3 mm  
Slime Scouring Flow = 7.54 L/s

Suction RL = 110 m

Discharge RL = 114 m

Static Lift = 4 m

Length of Rising Main = 10000 m

100mm dia. Sewer Rising Main 10km long

V(m/s)	ID(mm)	S	k(mm)	U	A	Target	Q(L/s)	Length of Main	H(pipe)	Fittings	HT	Comments
							0.00				4	
0.053377214	110.3	5.272E-05	0.3	1.14E-06	0.0095552	0.51	0.51	10000	0.53	0.00	4.53	
0.143376614	110.3	0.000311753	0.3	1.14E-06	0.0095552	1.37	1.37	10000	3.12	0.00	7.12	ADWF for catchment 1
0.312918784	110.3	0.001332647	0.3	1.14E-06	0.0095552	2.99	2.99	10000	13.33	0.00	17.33	ADWF for all catchment
0.470945243	110.3	0.00289907	0.3	1.14E-06	0.0095552	4.50	4.50	10000	28.99	0.00	32.99	
0.627925035	110.3	0.005039161	0.3	1.14E-06	0.0095552	6.00	6.00	10000	50.39	0.00	54.39	
0.789160371	110.3	0.007842167	0.3	1.14E-06	0.0095552	7.54	7.54	10000	78.42	0.00	82.42	Slime Scouring Velocity
0.858171185	110.3	0.009229093	0.3	1.14E-06	0.0095552	8.20	8.20	10000	92.29	0.00	96.29	PWWF for catchment 1
1.308183832	110.3	0.021023424	0.3	1.14E-06	0.0095552	12.50	12.50	10000	210.23	0.00	214.23	
1.5698195	110.3	0.030072461	0.3	1.14E-06	0.0095552	15.00	15.00	10000	300.72	0.00	304.72	
1.877512293	110.3	0.042776286	0.3	1.14E-06	0.0095552	17.94	17.94	10000	427.76	0.00	431.76	PWWF for all catchment

150mm diameter PVC-M Class 16

ID = 160.8 mm  
Roughness = 0.3 mm  
Slime Scouring Flow = 17.08 L/s

150mm dia. Sewer Rising Main 10km long

V(m/s)	ID(mm)	S	k(mm)	U	A	Target	Q(L/s)	Length of Main	H(pipe)	Fittings	HT	Comments
							0.00				4	
0.025121782	160.8	8.6374E-06	0.3	1.14E-06	0.0203078	0.51	0.51	10000	0.09	0.00	4.09	
0.067461715	160.8	4.9028E-05	0.3	1.14E-06	0.0203078	1.37	1.37	10000	0.49	0.00	4.49	ADWF for catchment 1
0.14723484	160.8	0.000201959	0.3	1.14E-06	0.0203078	2.99	2.99	10000	2.02	0.00	6.02	ADWF for all catchment
0.221589781	160.8	0.000430947	0.3	1.14E-06	0.0203078	4.50	4.50	10000	4.31	0.00	8.31	
0.320073998	160.8	0.000860311	0.3	1.14E-06	0.0203078	6.50	6.50	10000	8.60	0.00	12.60	
0.40378384	160.8	0.001337418	0.3	1.14E-06	0.0203078	8.20	8.20	10000	13.37	0.00	17.37	PWWF for catchment 1
0.492422372	160.8	0.001954565	0.3	1.14E-06	0.0203078	10.00	10.00	10000	19.55	0.00	23.55	
0.615528059	160.8	0.003002346	0.3	1.14E-06	0.0203078	12.50	12.50	10000	30.02	0.00	34.02	
0.738630321	160.8	0.004271519	0.3	1.14E-06	0.0203078	15.00	15.00	10000	42.72	0.00	46.72	
0.841056653	160.8	0.005496167	0.3	1.14E-06	0.0203078	17.08	17.08	10000	54.96	0.00	58.96	Slime Scouring Velocity
0.883408859	160.8	0.006047294	0.3	1.14E-06	0.0203078	17.94	17.94	10000	60.47	0.00	64.47	PWWF for all catchment

## **10.6 Sewer Rising Main Cost Estimate**

<p><b>ADVANCE COST ESTIMATE</b></p> <p><b>SEWER RISING MAIN</b></p>
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**CLIENT:** HERDSTOWN PTY LTD

**PROJECT:** PROPOSED RESIDENTIAL SUBDIVISION, RUTHERFORD RD TOOLAMBA

**DESCRIPTION:** OPTION 1: TOOLAMBA- RUSHWORTH ROAD

ITEM	DESCRIPTION OF WORKS	QTY.	UNIT	RATE	AMOUNT
<b>4.0</b>	<b>SEWER RISING MAIN</b>				
4.1	Establishment Costs	1	Item	\$ 10,000	\$ 10,000
4.2	Traffic Management	1	Item	\$ 10,000	\$ 10,000
4.3	Supply the following pipeline materials				
4.3.1	150mm DIA DIEL Tyton Extreame		m	\$ 100	\$ -
4.3.2	150mm DIA PVC-M PN16	9382	m	\$ 25	\$ 234,550
4.3.3	180mm OD PE100 PN16 Poly	590	m	\$ 40	\$ 23,600
4.3.4	280mm OD PE100 PN12.5 Poly sleeve	200	m	\$ 70	\$ 14,000
4.4	Excavate and backfill	9382	m	\$ 80	\$ 750,560
4.5	Under Road or channel bore	590	m	\$ 250	\$ 147,500
4.6	Bed, lay and joint	9972	m	\$ 10	\$ 99,720
4.7	Supply and construct Air & Scour valves as follows: (incl. pit, marker posts, covers, etc)				
4.7.1	ex 150mm DIA	22	No.	\$ 4,000	\$ 88,000
4.8	Crushed rock backfill (roads & driveways)	220	m <sup>3</sup>	\$ 60	\$ 13,200
4.9	Set out and survey control	1	Item	\$ 20,000	\$ 20,000
4.10	Pressure testing	1	Item	\$ 5,000	\$ 5,000
4.11	Contingency Sum (20%)	1	Item	\$ 283,300	\$ 283,300
4.12	Certification Services	1	Item	\$ 51,000	\$ 51,000
		Sewer Rising Main Total			\$ 1,750,430

<p><b>ADVANCE COST ESTIMATE</b></p> <p><b>SEWER RISING MAIN</b></p>
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**CLIENT:** HERDSTOWN PTY LTD

**PROJECT:** PROPOSED RESIDENTIAL SUBDIVISION, RUTHERFORD RD TOOLAMBA

**DESCRIPTION:** OPTION 2: BITCON ROAD

ITEM	DESCRIPTION OF WORKS	QTY.	UNIT	RATE	AMOUNT
<b>4.0</b>	<b>SEWER RISING MAIN</b>				
4.1	Establishment Costs	1	Item	\$ 10,000	\$ 10,000
4.2	Traffic Management	1	Item	\$ 10,000	\$ 10,000
4.3	Supply the following pipeline materials				
4.3.1	150mm DIA DIEL Tyton Extreame		m	\$ 100	\$ -
4.3.2	150mm DIA PVC-M PN16	10386	m	\$ 25	\$ 259,650
4.3.3	180mm OD PE100 PN16 Poly	920	m	\$ 40	\$ 36,800
4.3.4	280mm OD PE100 PN12.5 Poly sleeve	250	m	\$ 70	\$ 17,500
4.4	Excavate and backfill	10386	m	\$ 80	\$ 830,880
4.5	Under Road or channel bore	920	m	\$ 250	\$ 230,000
4.6	Bed, lay and joint	11306	m	\$ 10	\$ 113,060
4.7	Supply and construct Air & Scour valves as follows: (incl. pit, marker posts, covers, etc)				
4.7.1	ex 150mm DIA	24	No.	\$ 4,000	\$ 96,000
4.8	Crushed rock backfill (roads & driveways)	200	m <sup>3</sup>	\$ 60	\$ 12,000
4.9	Set out and survey control	1	Item	\$ 23,000	\$ 23,000
4.10	Pressure testing	1	Item	\$ 5,000	\$ 5,000
4.11	Contingency Sum (20%)	1	Item	\$ 328,800	\$ 328,800
4.12	Certification Services	1	Item	\$ 59,200	\$ 59,200
		Sewer Rising Main Total			\$ 2,031,890

## **10.7 Sewage Pump Station Cost Estimate**

<b>ADVANCE COST ESTIMATE SEWERAGE PUMP STATION</b>
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**CLIENT:** HERDSTOWN PTY LTD

**PROJECT:** PROPOSED RESIDENTIAL SUBDIVISION, RUTHERFORD RD TOOLAMBA

**DESCRIPTION:** SEWAGE PUMP STATION

ITEM	DESCRIPTION OF WORKS	QTY.	UNIT	RATE	AMOUNT
5.0	Sewage Pump Station				
5.1	Establishment Costs	1	ITEM	\$ 20,000	\$ 20,000
5.2	Construction of inlet sewer	1	m	\$ 15,000	\$ 15,000
5.3	Supply and install Sewage Pump Station	1	ITEM	\$ 450,000	\$ 450,000
5.4	Supply and install Flow Meter	1	ITEM	\$ 20,000	\$ 20,000
5.5	Electricity supply for pump station	1	ITEM	\$ 10,000	\$ 10,000
5.6	Set out and survey control	1	ITEM	\$ 1,500	\$ 1,500
5.7	Pump Station Commissioning	1	ITEM	\$ 5,000	\$ 5,000
5.8	Contingency Sum (20%)	1	ITEM	\$ 104,300	\$ 104,300
5.9	Certification Services	1	ITEM	\$ 18,800	\$ 18,800
		Sewerage Pump Station Total			\$ 644,600