

Appendix 17  
**Estimated costs of high flow bypass culverts**

Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3, Malcolm St - Victoria St

DATE PREPARED 5/07/2013  
 REVISION No 3

**Costplan**

**SUMMARY**

Item	Description	Quantity	Cost	Notes	Contingencies	
<b>D</b>	<b>Design</b>			\$17,486,573		
1	Design and documentation	5.0%	\$874,329		10.0%	\$87,433
2	Additional investigations	0.5%	\$87,433	Survey, Geotechnical, Contamination etc	25.0%	\$21,858
3	Services locations/ potholing	0.3%	\$52,460		20.0%	\$10,492
4	Design verification	1.3%	\$227,325		10.0%	\$22,733
5	Design, construction inspection and signoff	1.0%	\$174,866		15.0%	\$26,230
	<b>Subtotal</b>		<b>\$1,416,412</b>	6.92%	<b>11.9%</b>	<b>\$168,745</b>
<b>P</b>	<b>Client Costs</b>			\$17,486,573		
1	Project management and planning	2.00%	\$349,731		10.0%	\$34,973
2	Contract management	4.00%	\$699,463		10.0%	\$69,946
3	Community engagement and Liaison	1	\$429,200	V high maintenance	20.0%	\$85,840
4	Dilapidation surveys	0.50%	\$87,433	?	20.0%	\$17,487
	<b>Subtotal</b>		<b>\$1,565,827</b>	7.65%	<b>13.3%</b>	<b>\$208,246</b>
<b>E</b>	<b>Earl Works</b>					
1	Traffic management	1	\$268,500		20.0%	\$53,700
2	Tree Removal/ alterations	1	\$102,450		20.0%	\$20,490
3	Prelims	1	\$401,178		20.0%	\$80,236
4	Existing service relocations during culvert construction	1	\$3,465,030		35.0%	\$1,212,761
5	Reinstatement works	1	\$220,484		20.0%	\$44,097
6	Culvert Supply	1	\$3,422,817		10.0%	\$342,282
7	Land Acquisition and modification	1	\$391,500		30.0%	\$117,450
	<b>Subtotal Direct costs</b>		<b>\$8,271,959</b>	40.41%	<b>22.6%</b>	<b>\$1,871,015</b>
<b>C</b>	<b>Culvert Works</b>					
1	Preliminaries	1	\$899,942		20.0%	\$179,988
2	Traffic and pedestrian management	1	\$611,076		20.0%	\$122,215
3	Environmental controls	1	\$150,400		20.0%	\$30,080
4	Existing service relocations/ protection during culvert construction	1	\$188,779		40.0%	\$75,512
5	Culvert clearing, excavation, installation and backfill	1	\$4,931,124		20.0%	\$986,225
6	Major structures and crossings	1	\$373,112		20.0%	\$74,622
7	Road and Street reinstatement works	1	\$636,625		20.0%	\$127,325
8	Misc works	1	\$221,650		20.0%	\$44,330
9	Contractors offsite OH and margin	1	\$1,201,906		20.0%	\$240,381
	<b>Subtotal Culvert construction</b>		<b>\$9,214,614</b>	45.02%	<b>20.4%</b>	<b>\$1,880,679</b>
	<b>TOTAL MOST LIKELY COSTS</b>		<b>\$20,468,813</b>	100.00%	<b>20.2%</b>	<b>\$4,128,685</b>
<b>P</b>	<b>Project Contingency</b>	<b>20.2%</b>	<b>\$4,128,685</b>			
	<b>TOTAL INCLUDING CONTINGENCY</b>		<b>\$24,597,498</b>	ALL UP RATE/M=	\$19,111	

NOTES

- Costs are exclusive of GST
- Costs are current as at July 2013
- This estimate captures all project costs with the exception of previous expenditure and escalation
- This estimate is based upon the route ( and culvert sizes) as shown on Worley Parsons Drawing Nos figure 4-10 from their April 2012 report and
- A downstream connection between Cranbrook Ave and Brownhill creek on the eastern side and within the Rail reserve
- This estimate is split into 2 main sections ( other than this summary sheet). These are-
- Early works - This includes service relocations required before culvert laying can commence, tree removals/ trimming and the supply of the culverts units
- Culvert works - This includes the laying of the culverts, minor service relocations, structures and reinstatement works.
- This estimate has been calculated on the basis of traditional tendering methods being adopted for the procurement of these works
- This estimate is one of a series to be used for route comparisons, it should be read in conjunction with the estimate for Option 3 Malcolm St - Hampton street

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Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3, Malcolm St - Victoria St  
**Earl Works**

**Costplan**

REVISION  
DATE

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5/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
<b>1</b>	<b>Traffic management</b>					For early works tasks
1	Traffic management gangs	weeks	20	\$5,700.00	\$114,000	2 x lab + vehicle
2	Traffic management devices	item	1	\$58,600.00	\$58,600	VMS x 2 + signs
4	Maintenance of access's to properties	item	1	\$65,600.00	\$65,600	
5	NVD controls and monitoring	item	1	\$12,000.00	\$12,000	
6	Dilapidation Surveys	item	1	\$18,300.00	\$18,300	street and driveway only
	<b>SU TOTAL</b>				<b>\$268,500</b>	
<b>2</b>	<b>Tree Removal alterations</b>					
1	Prune trees with overhanging branch	Hours	160	\$320.00	\$51,200	assume 1 hr/tree
2	Removal of trees in poor condition	No	35	\$550.00	\$19,250	
3	Arbourist attendance and reporting	hrs	160	\$200.00	\$32,000	
	<b>SU TOTAL</b>				<b>\$102,450</b>	
<b>3</b>	<b>Prelims</b>					
1	Preliminaries for SAWater contractor	%	12.0%	\$3,343,150.00	\$401,178	
2	spare	week	0	\$1.00	\$0	
	<b>SU TOTAL</b>				<b>\$401,178</b>	
<b>4</b>	<b>Existing service relocations during culvert construction</b>					
<b>4.1</b>	<b>Stormwater</b>					
1	Removal and reconnection part of the main works	m	0	\$0.00	\$0	NA for early works, undertake as part of main works
<b>4.2</b>	<b>Water</b>					
1	Relocate existing 100mm water main	m	426	\$245.00	\$104,370	
2	Relocate existing 648 dia MSCL water main	m	420	\$4,850.00	\$2,037,000	additional length required to avoid disturbing the existing underpass dive walls
3	Extra over for rail crossing	item	1	\$114,000.00	\$114,000	allowance to under bore Goodwood rail crossing
4	Install new FP	item	4	\$1,920.00	\$7,680	allowance
5	Install new SV	item	2	\$2,400.00	\$4,800	allowance
6	Install new 25mm water connections	no.	15	\$1,480.00	\$22,200	replacement of connections from new mains only, not for existing
<b>4.3</b>	<b>Sewer</b>					
1	Relocate existing 150mm main or install feeder main	m	1,525	\$480.00	\$732,000	narrow tree lined streets
2	Install new maintenance shafts	no.	15	\$5,220.00	\$78,300	not detailed but will be required
3	Install new I.O.'s	no.	7	\$2,350.00	\$16,450	not detailed but will be required
4	Install new 100mm property connections	No	58	\$3,450.00	\$200,100	off the new mains
5	Relocate existing MS	No	3	\$8,750.00	\$26,250	near Cranbrook/Arundel, scope unknown
						<b>\$3,343,150</b>
<b>4.4</b>	<b>Gas</b>					
1	Relocate gas mains	m	30	\$500.00	\$15,000	assumes that the existing main is above the culvert
<b>4.5</b>	<b>Power</b>					
1	Relocation of existing cables	no.	1	\$0.00	\$0	no allowance as all appears overhead
1	Relocation of Poles	no.	2	\$25,000.00	\$50,000	
2	Allowance for tiger tailing existing overhead wires	item	1	\$12,000.00	\$12,000	can be used for both elements
<b>4.6</b>	<b>Telstra / Comms</b>					
1	Relocation of existing cables	no.	2	\$15,000.00	\$30,000	
<b>4.7</b>	<b>Street Lighting</b>					
1	Allowance to prop existing street light	no.	24	\$620.00	\$14,880	where trench is close to existing poles
2	Relocation of existing poles	No	0	\$0.00	\$0	
<b>4.8</b>	<b>Other</b>					
	<b>SU TOTAL</b>				<b>\$3,465,030</b>	
<b>5</b>	<b>Reinstatement works</b>					
1	Temporary reinstatement of council roads	m2	2,060	\$66.89	\$137,793	60mm AC to trenches
2	Permanent reinstatement of council roads	m2	398	\$102.00	\$40,596	650mm water main diversion
3	Permanent reinstatement of DPTI roads	m2	63	\$465.00	\$29,295	650mm water main across Goodwood Road
4	Reinstatement of footpaths and driveway crossings	item	1	\$8,300.00	\$8,300	allowance
5	Reinstatement of crash barrier	item	1	\$4,500.00	\$4,500	for water main only
	<b>SU TOTAL</b>				<b>\$220,484</b>	
<b>6</b>	<b>Culvert Suppl</b>	total LM =	1,290			All rates include design and delivery to site, all units down to 2.4 wide are 1.22m long, units 1800 and less wide are 2.44m long Note, Excludes destructive testing>
	3600 x 1800 RCBC					

Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3, Malcolm St - Victoria St  
**Early Works**

**Costplan**

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
1	Base slab	m	124.4	\$2,176.00	\$270,781	102 units required, allow for 230LA loading as in rail corridor
2	Crown units 3300 X 1800 RCBC	m	124.4	\$3,029.00	\$376,929	allow for 230LA loading as in rail corridor
3	Base slab	m	366	\$1,170.00	\$428,220	300 units required
4	Crown units 2700 X 1800 RCBC	m	366	\$1,887.00	\$690,642	
5	Base slab	m	192	\$845.00	\$161,851	157 units required
6	Crown units 2400 X 1800 RCBC	m	192	\$1,549.00	\$297,408	
7	Base slab	m	608	\$682.98	\$414,951	498 units required
8	Crown units	m	608	\$1,286.24	\$782,034	
	What about splayed units?					treat as opportunity if design can fit
	<b>SU TOTAL</b>				<b>\$3,422,817</b>	
7	<b>Misc works</b>					
	<b>No 22 Cranbrook Street</b>					
1	Legal and LT Fees	item	1	\$31,500.00	\$31,500	Create approx 100m2 easement
2	Land purchase	item	1	\$210,000.00	\$210,000	approx 100m2 required for easement
3	Property modifications	item	1	\$150,000.00	\$150,000	Tree removal, fence relocations etc
	<b>SU TOTAL</b>				<b>\$391,500</b>	
	<b>SUBTOTAL EARLY WORKS</b>				<b>\$8,271,959</b>	<b>\$6,427</b>

Brownhill Keswick Creek Stormwater Project  
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**Culvert Works**

**Costplan**

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
<b>1</b>	<b>Preliminaries</b>					
1	Mobilisations incl-Subcontractor and materials deliveries	item	1	\$24,000.00	\$24,000	
2	Provision of Insurances and fees	item	1	\$93,000.00	\$93,000	Including CITB Levy
3	Establishment of site accommodation and facilities	item	1	\$36,000.00	\$36,000	
4	Survey Setout	hrs	512	\$150.00	\$76,800	
5	Recurring costs, Project management staff	weeks	32	\$11,250.00	\$360,000	allow 2.5 men fulltime
6	Recurring costs , accommodation and facilities etc	weeks	32	\$6,000.00	\$192,000	
7	As built surveys	item	1	\$38,400.00	\$38,400	
8	Testing	item	1	\$36,000.00	\$36,000	Density testing of backfill/ pavement materials
9	CCTV inspection upon completion	m	1,287	\$20.00	\$25,742	
10	Demobilisation and site cleanup	item	1	\$18,000.00	\$18,000	
	<b>SU TOTAL</b>				<b>\$899,942</b>	12.65%
<b>2</b>	<b>Traffic and pedestrian management</b>					
1	Traffic management gangs	weeks	32	\$8,677.00	\$277,664	Allow 3 man gang full time x 6d/week
2	Traffic management barriers, devices and audits	item	1	\$224,734.00	\$224,734	Include 4 x VMS, 200LM barriers and audits
3	Temporary pavements, walkways and maintenance of access's to properties	item	1	\$32,177.50	\$32,178	walkways and hoardings
4	Rail Track protectors	weeks	6	\$12,750.00	\$76,500	3 x track protection men
	<b>SU TOTAL</b>				<b>\$611,076</b>	
<b>3</b>	<b>Environmental controls</b>					
1	NVD controls and monitoring	Item	1	\$124,800.00	\$124,800	Street sweeping, enviro monitoring and reporting , silt control
2	Arbourist attendance and reporting	weeks	32	\$800.00	\$25,600	For culvert construction phase, assume 4 hrs/ week
	<b>SU TOTAL</b>				<b>\$150,400</b>	
<b>4</b>	<b>Existing service relocations: protection during culvert construction</b>					
<b>4.1</b>	<b>Stormwater</b>					
1	Remove and relay transverse culverts	No	13	\$3,000.00	\$38,613	assume relay/ replace small sections say 5m long. Assumed No
2	provide penetration and bandage joints ( or chimney)	No	13	\$1,200.00	\$15,445	
<b>4.2</b>	<b>Water</b>					
1	Removal and replacement of transverse domestic property connections	No	15	\$1,850.00	\$27,750	
2	Reset top stones where necessary	No	10	\$800.00	\$8,000	assumed number
<b>4.3</b>	<b>Sewer</b>					
1	Protection of main when close to new RCBC	No	2	\$12,000.00	\$24,000	
2	Assume sewer previously relocated as necessary					
<b>4.4</b>	<b>Gas</b>					
1	Removal and replacement of transverse domestic property connections	item	24,000	\$1.00	\$24,000	
2	Protection of existing Gas pipe work	No	4	\$1,500.00	\$6,000	
<b>4.5</b>	<b>Power</b>					
1	Tiger tailing Overhead wires	item	1	\$12,000.00	\$12,000	
2	Assume previously relocated as necessary					
<b>4.6</b>	<b>Telstra / Comms</b>					
1	Protection where RCBC's under	No	4	\$1,500.00	\$6,000	
<b>4.7</b>	<b>Street Lighting</b>					
1	Allowance for modifications	item	1	\$12,871.00	\$12,871	
<b>4.8</b>	<b>Other</b>					
1	Remove and replacement noise fencing on boundary	item	1	\$14,100.00	\$14,100	22 Cranbrook
	<b>SU TOTAL</b>				<b>\$188,779</b>	
<b>5</b>	<b>Culvert clearing, excavation, installation and backfill</b>	1287.1				
5.1	RCBC, 3600 x 1800		calc rate/m	\$4,937.32		In rail corridor/ private property easement
	Length	124				Number of 1.22m units =
	Nominal culvert width	3.6				101.6
	Nominal culvert height	1.8				
	culvert external width	3.95				Notes:
	culvert external height	2.05				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	Bedding thickness	0.1				2. Includes 200mm wide Densopol tape at joints
	base slab thickness	0.25				3. Includes separate crane to unload units and security guard for cranes at nights
	depth FSL- Invert	3.3				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	Trench side width	1.0				5. Upper backfill PM2-20 to FSL
						6. Include allowance for working within rail reserve





Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3, Malcolm St - Hampton Street

DATE PREPARED 3/07/2013  
 REVISION No 1

**Costplan**

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Item	Description	Quantity	Cost	Notes	Contingencies	
				\$14,470,098		
1	Design and documentation	5.0%	\$723,505		10.0%	\$72,350
2	Additional investigations	0.5%	\$72,350	Survey, Geotechnical, Contamination etc	25.0%	\$18,088
3	Services locations/ potholing	0.3%	\$43,410		20.0%	\$8,682
4	Design verification	1.3%	\$188,111		10.0%	\$18,811
5	Design, construction inspection and signoff	1.0%	\$144,701		15.0%	\$21,705
	<b>Subtotal</b>		<b>1 100 000</b>	6.78%	11.9%	13 000 000
				\$14,470,098		
1	Project management and planning	2.00%	\$289,402		10.0%	\$28,940
2	Contract management	4.00%	\$578,804		10.0%	\$57,880
3	Community engagement and Liaison	1	\$699,980	v.high maintenance	20.0%	\$139,996
4	Dilapidation surveys	0.50%	\$72,350	?	20.0%	\$14,470
	<b>Subtotal</b>		<b>1 000 000</b>	9.49%	14.7%	1 000 000
1	Traffic management	1	\$339,000		20.0%	\$67,800
2	Tree Removal/ alterations	1	\$103,440		30.0%	\$31,032
3	Prelims	1	\$195,439		20.0%	\$39,088
4	Existing service relocations during culvert construction	1	\$2,791,100		50.0%	\$1,395,550
5	Reinstatement works	1	\$204,004		35.0%	\$71,401
6	Culvert Supply	1	\$2,086,349		10.0%	\$208,635
7	Land Acquisition and modification	1	\$0		30.0%	\$0
	<b>Subtotal Direct costs</b>		<b>1 000 000</b>	33.09%	31.7%	1 000 000
1	Preliminaries	1	\$1,020,120		25.0%	\$255,030
2	Traffic and pedestrian management	1	\$646,530		25.0%	\$161,633
3	Environmental controls	1	\$171,900		25.0%	\$42,975
4	Existing service relocations/ protection during culvert construction	1	\$426,010		50.0%	\$213,005
5	Culvert clearing, excavation, installation and backfill	1	\$3,915,784		25.0%	\$978,946
6	Major structures and crossings	1	\$223,000		25.0%	\$55,750
7	Road and Street reinstatement works	1	\$918,167		25.0%	\$229,542
8	Misc works	1	\$125,950		25.0%	\$31,488
9	Contractors offsite OH and margin	1	\$1,303,306		25.0%	\$325,826
	<b>Subtotal Culvert construction</b>		<b>1 000 000</b>	50.63%	26.2%	1 000 000
			<b>1 000 000</b>	100.00%	26.0%	1 000 000
P	1		<b>1 000 000</b>			
			<b>1 000 000</b>	ALL UP RATE/M=	\$14,602	

NOTES

- Costs are exclusive of GST
- Costs are current as at July 2013
- This estimate captures all project costs with the exception of previous expenditure and escalation
- This estimate is based upon the route ( and culvert sizes) as shown on Worley Parsons Drawing Nos figure 13-24 from their April 2012 report
- This estimate is split into 2 main sections ( other than this summary sheet). These are-
- Early works - This includes service relocations required before culvert laying can commence, tree removals/ trimming and the supply of the culverts units
- Culvert works - This includes the laying of the culverts, minor service relocations, structures and reinstatement works.
- This estimate has been calculated on the basis of traditional tendering methods being adopted for the procurement of these works
- This estimate is one of a series to be used for route comparisons, it should be read in conjunction with the estimate for Option 3 Malcolm St - Victoria street

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Costplan

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ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
1						For early works tasks
1	Traffic management gangs	weeks	22	\$5,700.00	\$125,400	2 x lab + vehicle
2	Traffic management devices	item	1	\$58,600.00	\$58,600	VMS x 2 + signs
4	Maintenance of access's to properties	item	1	\$105,000.00	\$105,000	
5	NVD controls and monitoring	item	1	\$18,000.00	\$18,000	
6	Dilapidation Surveys	item	1	\$32,000.00	\$32,000	
					<b>33,000</b>	
1	Prune trees with overhanging branch	Hours	162	\$320.00	\$51,840	assume 2hr/tree
2	Removal of trees in poor condition	No	16	\$1,200.00	\$19,200	
3	Arbourist attendance and reporting	hrs	162	\$200.00	\$32,400	
					<b>103,440</b>	
3						
1	Preliminaries for SAWater contractor	%	12.0%	\$1,628,660.00	\$195,439	
2	spare	week	0	\$1.00	\$0	
					<b>1,103</b>	
4.1	<u>Stormwater</u>					
1	Removal and reconnection part of the main works	m	0	\$0.00	\$0	NA for early works, undertake as part of main works
4.2	<u>Water</u>					
1	Relocate existing 100mm water main	m	0	\$245.00	\$0	
2	Dogleg existing mains	no.	5	\$6,800.00	\$34,000	allowance to dogleg the main under the culvert as an alternative to bypassing around
4	Install new FP	item	0	\$1,920.00	\$0	allowance
5	Install new SV	item	10	\$2,400.00	\$24,000	allowance
6	Install new 25mm water connections	no.	0	\$1,480.00	\$0	replacement of connections from new mains only, not for existing
4.3	<u>Sewer</u>					
1	Relocate existing 150mm main or install feeder main	m	2,096	\$480.00	\$1,006,080	narrow tree lined streets
2	Relocate existing 225mm main or install feeder main	m	150	\$605.00	\$90,750	narrow tree lined streets
3	Replacement/ protection of existing transverse swere runs on Cr	Mno	3	\$24,000.00	\$72,000	
4	Install new maintenance shafts	no.	19	\$5,220.00	\$99,180	not detailed but will be required
5	Install new I.O.'s	no.	4	\$2,350.00	\$9,400	not detailed but will be required
6	Install new 100mm property connections	No	85	\$3,450.00	\$293,250	off the new mains
						<b>\$1,628,660</b>
4.4	<u>Gas</u>					
1	Relocate gas mains	No	4	\$8,800.00	\$35,200	assumes that the existing main is above the culvert
4.5	<u>Power</u>					
1	Relocation of existing cables	no.	0	\$0.00	\$0	no allowance as all appears overhead
1	Relocation of Poles	no.	1	\$25,000.00	\$25,000	assumed
2	Allowance for tiger tailing existing overhead wires	item	1	\$20,000.00	\$20,000	can be used for both elements
4.6	<u>Telstra / Comms</u>					
1	Relocation of existing cables	no.	1	\$1,050,000.00	\$1,050,000	2 locations, Northgate major fibre optic ( may be able to raise as alternative) allowance only
4.7	<u>Street Lighting</u>					
1	Allowance to prop existing street light	no.	52	\$620.00	\$32,240	where trench is close to existing poles
2	Relocation of existing poles	No	0	\$0.00	\$0	
4.8	<u>Other</u>					
					<b>1,100</b>	
1	Temporary reinstatement of council roads	m2	2,330	\$66.89	\$155,854	40mm AC to trenches
2	Permanent reinstatement of council roads	m2	200	\$102.00	\$20,400	
3	Permanent reinstatement of DPTI roads	m2	30	\$465.00	\$13,950	Cross road
4	Reinstatement of footpaths and driveway crossings	item	1	\$13,800.00	\$13,800	allowance
					<b>0,00</b>	
		total LM =	1,492			All rates include design and delivery to site, all units down to 2.4 wide are 1.22m long, units 1800 and less wide are 2.44m long
						Note, Excludes destructive testing>
	1500 X 1500 RCBC					

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3/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
5	Base slab	m	817	\$384.00	\$313,882	335 units required
6	Crown units	m	817	\$827.23	\$676,178	335 units required
	2100 X 1500 RCBC					
7	Base slab	m	384	\$552.26	\$212,234	315 units required
8	Crown units	m	384	\$1,081.60	\$415,659	
	1800 X 1800 RCBC					
9	Base slab	m	290	\$489.72	\$142,195	119 units required
10	Crown units	m	292	\$1,118.74	\$326,202	239 units required
	What about splayed units?					treat as opportunity if design can fit
	□□□□□□				□□0□□3□	
	□ □□□□□					
	NA					
	□□□□□□				□0	
	<b>SUBTOTAL EARLY WORKS</b>				<b>\$5,719,332</b>	<b>\$3,836</b>

Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3, Malcolm St - Hampton Street

Costplan

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REVISION  
DATE

1  
3/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
1						
1	Mobilisations incl-Subcontractor and materials deliveries	item	1	\$24,000.00	\$24,000	
2	Provision of Insurances and fees	item	1	\$84,000.00	\$84,000	Including CITB Levy
3	Establishment of site accommodation and facilities	item	1	\$36,000.00	\$36,000	
4	Survey Setout	hrs	608	\$150.00	\$91,200	
5	Recurring costs, Project management staff	weeks	3	\$11,250.00	\$427,500	allow 2.5 men fulltime
6	Recurring costs , accommodation and facilities etc	weeks	38	\$6,000.00	\$228,000	
7	As built surveys	item	1	\$45,600.00	\$45,600	
8	Testing	item	1	\$36,000.00	\$36,000	Density testing of backfill/ pavement materials
9	CCTV inspection upon completion	m	1,491	\$20.00	\$29,820	
10	Demobilisation and site cleanup	item	1	\$18,000.00	\$18,000	
					10 010	15.87%
1	Traffic management gangs	weeks	38	\$8,677.00	\$329,726	Allow 3 man gang full time x 6d/week
2	Traffic management barriers, devices and audits	item	1	\$242,254.00	\$242,254	Include 4 x VMS, 200LM barriers and audits
3	Temporary pavements, walkways and maintenance of access's to properties	item	1	\$74,550.00	\$74,550	walkways and hoardings
					30	
3						
1	NVD controls and monitoring	Item	1	\$141,500.00	\$141,500	Street sweeping, enviro monitoring and reporting , silt control
2	Arbourist attendance and reporting	weeks	38	\$800.00	\$30,400	For culvert construction phase, assume 4 hrs/ week
					1100	
4.1	<u>Stormwater</u>					
1	Remove and relay transverse culverts < 450 dia	No	13	\$3,000.00	\$39,000	
2	Remove and relay transverse culverts <900 dia	No	1	\$7,000.00	\$7,000	
3	Remove and relay transverse culverts <1200 dia	No	2	\$24,000.00	\$48,000	
4	provide penetration and bandage joints ( or chimney)	No	16	\$2,100.00	\$33,600	
4.2	<u>Water</u>					
1	Removal and replacement of transverse domestic property connections	No	50	\$2,450.00	\$122,500	
2	Reset top stones where necessary	No	10	\$800.00	\$8,000	assumed number
4.3	<u>Sewer</u>					
1	Protection of main when close to new RCBC	No	2	\$24,000.00	\$48,000	
2	Assume sewer previously relocated as necessary					
4.4	<u>Gas</u>					
1	Removal and replacement of transverse domestic property connections	No	50	\$1,200.00	\$60,000	
2	Protection of existing Gas pipe work	No	6	\$1,500.00	\$9,000	
4.5	<u>Power</u>					
1	Tiger tailing Overhead wires	item	1	\$12,000.00	\$12,000	
2	Assume previously relocated as necessary					
4.6	<u>Telstra / Comms</u>					
1	Protection where RCBC's under	No	3	\$8,000.00	\$24,000	
4.7	<u>Street Lighting</u>					
1	Allowance for modifications	item	1	\$14,910.00	\$14,910	
4.8	<u>Other</u>					
					010	
		1	1			1491
5.1	RCBC, 1500 x 1500			calc rate/m	\$2,309.03	Chainage 3202- chainage2386
	Length	1				Number of 2.44m units =
	Nominal culvert width	1				334.43
	Nominal culvert height	1				
	culvert external width	1.8				Notes:
	culvert external height	1.7				1, Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	Bedding thickness	0.1				2. Includes 200mm wide Densopol tape at joints
	base slab thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	depth FSL- Invert	3				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	Trench side width	0				5. Upper backfill PM2-20 to FSL
	Trench width	3				6. Include allowance for working in stages at nights Xing Goodwood road
						7. Includes saw cutting of pavements and kerbs as necessary





Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Scenario 1, Malcolm St - Victoria St

DATE PREPARED 3/07/2013  
 REVISION No 1

**Costplan**

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Item	Description	Quantity	Cost	Notes	Contingencies	
				\$13,463,840		
1	Design and documentation	5.0%	\$673,192		10.0%	\$67,319
2	Additional investigations	0.5%	\$67,319	Survey, Geotechnical, Contamination etc	25.0%	\$16,830
3	Services locations/ potholing	0.3%	\$40,392		20.0%	\$8,078
4	Design verification	1.3%	\$175,030		10.0%	\$17,503
5	Design, construction inspection and signoff	1.0%	\$134,638		15.0%	\$20,196
	<b>Subtotal</b>		<b>1 0 0 1</b>	6.89%	<b>11.9%</b>	<b>1 1 1 1 1 1</b>
				\$13,463,840		
1	Project management and planning	2.00%	\$269,277		10.0%	\$26,928
2	Contract management	4.00%	\$538,554		10.0%	\$53,855
3	Community engagement and Liaison	1	\$395,000	v.high maintenance	20.0%	\$79,000
4	Dilapidation surveys	0.50%	\$67,319	?	20.0%	\$13,464
	<b>Subtotal</b>		<b>1 1 1 0 1 0</b>	8.03%	<b>13.6%</b>	<b>1 1 3 1 1 1</b>
1	Traffic management	1	\$268,500		20.0%	\$53,700
2	Tree Removal/ alterations	1	\$98,450		20.0%	\$19,690
3	Prelims	1	\$401,178		20.0%	\$80,236
4	Existing service relocations during culvert construction	1	\$3,465,030		35.0%	\$1,212,761
5	Reinstatement works	1	\$220,484		20.0%	\$44,097
6	Culvert Supply	1	\$1,952,717		10.0%	\$195,272
7	Land Acquisition and modification	1	\$391,500		30.0%	\$117,450
	<b>Subtotal Direct costs</b>		<b>1 1 1 1 1 1 1</b>	42.96%	<b>25.3%</b>	<b>1 1 3 1 0 1</b>
1	Preliminaries	1	\$791,543		20.0%	\$158,309
2	Traffic and pedestrian management	1	\$550,869		20.0%	\$110,174
3	Environmental controls	1	\$147,200		20.0%	\$29,440
4	Existing service relocations/ protection during culvert construction	1	\$188,782		40.0%	\$75,513
5	Culvert clearing, excavation, installation and backfill	1	\$3,027,888		20.0%	\$605,578
6	Major structures and crossings	1	\$258,000		20.0%	\$51,600
7	Road and Street reinstatement works	1	\$613,573		20.0%	\$122,715
8	Misc works	1	\$218,650		20.0%	\$43,730
9	Contractors offsite OH and margin	1	\$869,476		20.0%	\$173,895
	<b>Subtotal Culvert construction</b>		<b>1 1 1 1 1 1 1 1</b>	42.12%	<b>20.6%</b>	<b>1 1 3 0 1 1 1</b>
			<b>1 1 1 1 1 1 1 1</b>	100.00%	<b>21.5%</b>	<b>1 3 3 1 3 3 0</b>
P	1		<b>1. 1</b>	<b>3 3 1 3 3 0</b>		
			<b>1 1 1 1 1 1 1 1</b>	ALL UP RATE/M=	\$14,934	

NOTES

- Costs are exclusive of GST
- Costs are current as at July 2013
- This estimate captures all project costs with the exception of previous expenditure and escalation
- This estimate is based upon the route ( and culvert sizes) as shown on Worley Parsons Drawing Nos figure 4-10 from their April 2012 report and
- A downstream connection between Cranbrook Ave and Brownhill creek on the eastern side and within the Rail reserve.
- This estimate is split into 2 main sections ( other than this summary sheet). These are-
- Early works - This includes service relocations required before culvert laying can commence, tree removals/ trimming and the supply of the culverts units
- Culvert works - This includes the laying of the culverts, minor service relocations, structures and reinstatement works.
- This estimate has been calculated on the basis of traditional tendering methods being adopted for the procurement of these works
- This estimate is one of a series to be used for route comparisons, it should be read in conjunction with the Dam Estimates
- This estimate utilises a reduced single sized culvert (1800 x 1500) as it is associated with the Dam option, Scenario 1

This estimate has been prepared solely for the BHKC authority. Under no circumstances shall it be passed onto any third parties without the express permission of Costplan Pty Ltd



Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Scenerio 1, Malcolm St - Victoria St

Costplan

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REVISION  
DATE

1  
3/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
7	Base slab	m	124	\$604.73	\$75,252	51 units required
8	Crown units	m	124	\$1,245.24	\$154,957	
	1800 X 1500 RCBC					
9	Base slab	m	1,164	\$483.78	\$563,062	477 units required
10	Crown units	m	1,164	\$996.19	\$1,159,446	
	What about splayed units?					treat as opportunity if design can fit
	□□□□□□□□				□1□□□□1□	
	□					Assume this is required under this option?
	□□□□□□□□□□□□□□□□					
1	Legal and LT Fees	item	1	\$31,500.00	\$31,500	Create approx 100m2 easement
2	Land purchase	item	1	\$210,000.00	\$210,000	approx 100m2 required for easement
3	Property modifications	item	1	\$150,000.00	\$150,000	Tree removal, fence relocations etc
	□□□□□□□□				31□00	
	<b>SUBTOTAL EARLY WORKS</b>				<b>\$6,797,859</b>	<b>\$5,281</b>



Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Scenerio 1, Malcolm St - Victoria St

**Costplan**

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REVISION  
DATE

1  
3/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
1	□□□□ □□□□					
1	Mobilisations incl-Subcontractor and materials deliveries	item	1	\$24,000.00	\$24,000	
2	Provision of Insurances and fees	item	1	\$68,000.00	\$68,000	Including CITB Levy
3	Establishment of site accommodation and facilities	item	1	\$36,000.00	\$36,000	
4	Survey Setout	hrs	448	\$150.00	\$67,200	
5	Recurring costs, Project management staff	weeks	□□	\$11,250.00	\$315,000	allow 2.5 men fulltime
6	Recurring costs , accommodation and facilities etc	weeks	28	\$6,000.00	\$168,000	
7	As built surveys	item	1	\$33,600.00	\$33,600	
8	Testing	item	1	\$36,000.00	\$36,000	Density testing of backfill/ pavement materials
9	CCTV inspection upon completion	m	1,287	\$20.00	\$25,743	
10	Demobilisation and site cleanup	item	1	\$18,000.00	\$18,000	
	□□□□□□□□				□□1□□3	15.82%
	□□□□□□□□□□□□□□□□□□□□□□□□					
	□□□□□□□□□□□□□□□□□□□□□□□□					
1	Traffic management gangs	weeks	28	\$8,677.00	\$242,956	Allow 3 man gang full time x 6d/week
2	Traffic management barriers, devices and audits	item	1	\$224,734.00	\$224,734	Include 4 x VMS, 200LM barriers and audits
3	Temporary pavements, walkways and maintenance of access's to properties	item	1	\$32,178.75	\$32,179	walkways and hoardings
4	Rail Track protectors	weeks	4	\$12,750.00	\$51,000	3 x track protection men
	□□□□□□□□				□□0□□□	
	□□□□□□□□□□□□□□□□□□□□□□□□					
3	□□□□□□□□□□□□□□□□□□□□□□□□					
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	□□□□□□□□□□□□□□□□□□□□□□□□					
4.1	<b>Stormwater</b>					
1	Remove and relay transverse culverts	No	13	\$3,000.00	\$38,615	assume relay/ replace small sections say 5m long. Assumed No
2	provide penetration and bandage joints ( or chimney)	No	13	\$1,200.00	\$15,446	
4.2	<b>Water</b>					
1	Removal and replacement of transverse domestic property connections	No	15	\$1,850.00	\$27,750	
2	Reset top stones where necessary	No	10	\$800.00	\$8,000	assumed number
4.3	<b>Sewer</b>					
1	Protection of main when close to new RCBC	No	2	\$12,000.00	\$24,000	
2	Assume sewer previously relocated as necessary					
4.4	<b>Gas</b>					
1	Removal and replacement of transverse domestic property connections	item	24,000	\$1.00	\$24,000	
2	Protection of existing Gas pipe work	No	4	\$1,500.00	\$6,000	
4.5	<b>Power</b>					
1	Tiger tailing Overhead wires	item	1	\$12,000.00	\$12,000	
2	Assume previously relocated as necessary					
4.6	<b>Telstra / Comms</b>					
1	Protection where RCBC's under	No	4	\$1,500.00	\$6,000	
4.7	<b>Street Lighting</b>					
1	Allowance for modifications	item	1	\$12,871.50	\$12,872	
4.8	<b>Other</b>					
1	Remove and replacement noise fencing on boundary	item	1	\$14,100.00	\$14,100	22 Cranbrook
	□□□□□□□□				1□□□□□	
	□□□□□□□□□□□□□□□□□□□□□□□□					
	□□□□□□□□□□□□□□□□□□□□□□□□					
5.6	RCBC, 1800 x 1500 ( In rail reserve)		calc rate/m	\$2,448.45		Chainage 1303.5 - chainage 1711.2
	Length	1□□				Number of 2.44m crown units =
	Nominal culvert width	1.□				50.82
	Nominal culvert height	1.□				
	culvert external width	2.1				Notes:
	culvert external height	1.75				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	Bedding thickness	0.1				2. Includes 200mm wide Densopol tape at joints
	base slab thickness	0.13				3. Includes separate crane to unload units and security guard for cranes at nights
	depth FSL- Invert	3.3				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
						5. Upper backfill PM2-20 to FSL





Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3A, Malcolm St - Victoria St

DATE PREPARED 4/07/2013  
 REVISION No 1

**Costplan**

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Item	Description	Quantity	Cost	Notes	Contingencies	
				\$17,012,326		
1	Design and documentation	5.0%	\$850,616		10.0%	\$85,062
2	Additional investigations	0.5%	\$85,062	Survey, Geotechnical, Contamination etc	25.0%	\$21,265
3	Services locations/ potholing	0.3%	\$51,037		20.0%	\$10,207
4	Design verification	1.3%	\$221,160		10.0%	\$22,116
5	Design, construction inspection and signoff	1.0%	\$170,123		15.0%	\$25,518
	<b>Subtotal</b>		<b>13</b>	6.92%	<b>11.9%</b>	<b>1</b>
				\$17,012,326		
1	Project management and planning	2.00%	\$340,247		10.0%	\$34,025
2	Contract management	4.00%	\$680,493		10.0%	\$68,049
3	Community engagement and Liaison	1	\$429,200	V high maintenance	20.0%	\$85,840
4	Dilapidation surveys	0.50%	\$85,062	?	20.0%	\$17,012
	<b>Subtotal</b>		<b>13001</b>	7.70%	<b>13.4%</b>	<b>0</b>
1	Traffic management	1	\$268,500		20.0%	\$53,700
2	Tree Removal/ alterations	1	\$102,450		20.0%	\$20,490
3	Prelims	1	\$401,178		20.0%	\$80,236
4	Existing service relocations during culvert construction	1	\$3,465,030		35.0%	\$1,212,761
5	Reinstatement works	1	\$220,484		20.0%	\$44,097
6	Culvert Supply	1	\$3,179,275		10.0%	\$317,927
7	Land Acquisition and modification	1	\$391,500		30.0%	\$117,450
	<b>Subtotal Direct costs</b>		<b>0001</b>	40.29%	<b>23.0%</b>	<b>100</b>
1	Preliminaries	1	\$896,942		20.0%	\$179,388
2	Traffic and pedestrian management	1	\$611,076		20.0%	\$122,215
3	Environmental controls	1	\$150,400		20.0%	\$30,080
4	Existing service relocations/ protection during culvert construction	1	\$188,779		40.0%	\$75,512
5	Culvert clearing, excavation, installation and backfill	1	\$4,733,510		20.0%	\$946,702
6	Major structures and crossings	1	\$373,112		20.0%	\$74,622
7	Road and Street reinstatement works	1	\$636,625		20.0%	\$127,325
8	Misc works	1	\$221,650		20.0%	\$44,330
9	Contractors offsite OH and margin	1	\$1,171,814		20.0%	\$234,363
	<b>Subtotal Culvert construction</b>		<b>300</b>	45.09%	<b>20.4%</b>	<b>13003</b>
			<b>10003</b>	100.00%	<b>20.3%</b>	<b>0003</b>
P	1	<b>0.3</b>	<b>0003</b>			
			<b>30001</b>	ALL UP RATE/M=	\$18,628	

NOTES

- Costs are exclusive of GST
- Costs are current as at July 2013
- This estimate captures all project costs with the exception of previous expenditure and escalation
- This estimate is based upon the route ( and culvert sizes) as shown on Worley Parsons Drawing Nos figure 4-10 from their April 2012 report and
- A downstream connection between Cranbrook Ave and Brownhill creek on the eastern side and within the Rail reserve
- This estimate is split into 2 main sections ( other than this summary sheet). These are-
- Early works - This includes service relocations required before culvert laying can commence, tree removals/ trimming and the supply of the culverts units
- Culvert works - This includes the laying of the culverts, minor service relocations, structures and reinstatement works.
- This estimate has been calculated on the basis of traditional tendering methods being adopted for the procurement of these works
- This estimate is one of a series to be used for route comparisons, it should be read in conjunction with the estimate for Option 3A Malcolm St - Hampton street

This estimate has been prepared solely for the BHKC authority. Under no circumstances shall it be passed onto any third parties without the express permission of Costplan Pty Ltd



Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3A, Malcolm St - Victoria St

Costplan

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REVISION  
DATE

1  
4/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
1	Base slab	m	124.4	\$2,176.00	\$270,781	102 units required, allow for 230LA loading as in rail corridor
2	Crown units 3300 X 1800 RCBC	m	124.4	\$3,029.00	\$376,929	allow for 230LA loading as in rail corridor
3	Base slab	m	366	\$1,170.00	\$428,220	300 units required
4	Crown units 2700 X 1800 RCBC	m	366	\$1,887.00	\$690,642	
5	Base slab	m	192	\$845.00	\$161,851	157 units required
6	Crown units 2400 X 1800 RCBC	m	192	\$1,549.00	\$297,408	
7	Base slab	m	200	\$682.98	\$136,651	164 units required
8	Crown units 1800 X 1800 RCBC	m	200	\$1,286.24	\$257,351	
7	Base slab	m	421	\$682.98	\$287,466	345 units required
8	Crown units	m	211	\$1,286.24	\$271,975	2.44m long
	What about splayed units?					treat as opportunity if design can fit
	□□□□□□				31□□□□	
	□ □□□□□□□					
	□□□□□□□□□□□□□□□□					
1	Legal and LT Fees	item	1	\$31,500.00	\$31,500	Create approx 100m2 easement
2	Land purchase	item	1	\$210,000.00	\$210,000	approx 100m2 required for easement
3	Property modifications	item	1	\$150,000.00	\$150,000	Tree removal, fence relocations etc
	□□□□□□				31□□00	
	<b>SUBTOTAL EARLY WORKS</b>				<b>\$8,028,417</b>	<b>\$6,238</b>

Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3A, Malcolm St - Victoria St

Costplan

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REVISION  
DATE

1  
4/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
1						
1	Mobilisations incl-Subcontractor and materials deliveries	item	1	\$24,000.00	\$24,000	
2	Provision of Insurances and fees	item	1	\$90,000.00	\$90,000	Including CITB Levy
3	Establishment of site accommodation and facilities	item	1	\$36,000.00	\$36,000	
4	Survey Setout	hrs	512	\$150.00	\$76,800	
5	Recurring costs, Project management staff	weeks	3	\$11,250.00	\$360,000	allow 2.5 men fulltime
6	Recurring costs , accommodation and facilities etc	weeks	32	\$6,000.00	\$192,000	
7	As built surveys	item	1	\$38,400.00	\$38,400	
8	Testing	item	1	\$36,000.00	\$36,000	Density testing of backfill/ pavement materials
9	CCTV inspection upon completion	m	1,287	\$20.00	\$25,742	
10	Demobilisation and site cleanup	item	1	\$18,000.00	\$18,000	
						12.97%
1	Traffic management gangs	weeks	32	\$8,677.00	\$277,664	Allow 3 man gang full time x 6d/week
2	Traffic management barriers, devices and audits	item	1	\$224,734.00	\$224,734	Include 4 x VMS, 200LM barriers and audits
3	Temporary pavements, walkways and maintenance of access's to properties	item	1	\$32,177.50	\$32,178	walkways and hoardings
4	Rail Track protectors	weeks	6	\$12,750.00	\$76,500	3 x track protection men
					\$11,000	
3						
1	NVD controls and monitoring	Item	1	\$124,800.00	\$124,800	Street sweeping, enviro monitoring and reporting , silt control
2	Arbourist attendance and reporting	weeks	32	\$800.00	\$25,600	For culvert construction phase, assume 4 hrs/ week
					\$1,000	
4.1	Stormwater					
1	Remove and relay transverse culverts	No	13	\$3,000.00	\$38,613	assume relay/ replace small sections say 5m long. Assumed No
2	provide penetration and bandage joints ( or chimney)	No	13	\$1,200.00	\$15,445	
4.2	Water					
1	Removal and replacement of transverse domestic property connections	No	15	\$1,850.00	\$27,750	
2	Reset top stones where necessary	No	10	\$800.00	\$8,000	assumed number
4.3	Sewer					
1	Protection of main when close to new RCBC	No	2	\$12,000.00	\$24,000	
2	Assume sewer previously relocated as necessary					
4.4	Gas					
1	Removal and replacement of transverse domestic property connections	item	24,000	\$1.00	\$24,000	
2	Protection of existing Gas pipe work	No	4	\$1,500.00	\$6,000	
4.5	Power					
1	Tiger tailing Overhead wires	item	1	\$12,000.00	\$12,000	
2	Assume previously relocated as necessary					
4.6	Telstra / Comms					
1	Protection where RCBC's under	No	4	\$1,500.00	\$6,000	
4.7	Street Lighting					
1	Allowance for modifications	item	1	\$12,871.00	\$12,871	
4.8	Other					
1	Remove and replacement noise fencing on boundary	item	1	\$14,100.00	\$14,100	22 Cranbrook
						\$1,000
5.1	RCBC, 3600 x 1800		calc rate/m	\$4,937.32		In rail corridor/ private property easement
	Length	1				Number of 1.22m units =
	Nominal culvert width	3				101.6
	Nominal culvert height	1				Notes:
	culvert external width	3.95				1, Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	2.05				2.Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	3.3				5. Upper backfill PM2-20 to FSL
	Trench side width	1.0				6. Include allowance for working within rail reserve
	Trench width	5.95				7. Includes saw cutting of pavements and kerbs as necessary
	Trench depth	3.65				
						\$1,000

Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3A, Malcolm St - Victoria St

Costplan

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REVISION  
DATE

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4/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
5.2	RCBC, 3300 x 1800		calc rate/m	\$4,013.84		ch 548.1 - ch 914.1
	Length	3.0				Number of 1.22m units =
	Nominal culvert width	3.3				300.0
	Nominal culvert height	1.0				Notes:
	culvert external width	3.65				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	2.02				2. Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0.1				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	3.3				5. Upper backfill PM2-20 to FSL
	Trench side width	1.0				6. Includes saw cutting of pavements and kerbs as necessary
	Trench width	5.65				
	Trench depth	3.58				
						□□□□□□
						1.0000
5.3	RCBC, 2700 x 1800		calc rate/m	\$4,222.71		ch 1104.6 - ch 914.1
	Length	1.0				Number of 1.22m units =
	Nominal culvert width	1.0				156.15
	Nominal culvert height	1.0				Notes:
	culvert external width	3.02				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	2				2. Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0.1				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	3.0				5. Upper backfill PM2-20 to FSL
	Trench side width	1.0				6. Include allowance for working in stages at nights Xing Goodwood road
	Trench width	5.02				7. Includes saw cutting of pavements and kerbs as necessary
	Trench depth	3.78				
						□□□□□□
						1.0000
5.4	RCBC, 2400 x 1800		calc rate/m	\$3,371.91		ch1303.5 ch 1104.6
	Length	1.0				Number of 1.22m units =
	Nominal culvert width	1.0				163.03
	Nominal culvert height	1.0				Notes:
	culvert external width	2.7				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	2				2. Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0.1				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	3.0				5. Upper backfill PM2-20 to FSL
	Trench side width	1.0				6. Includes saw cutting of pavements and kerbs as necessary
	Trench width	4.7				
	Trench depth	3.75				
1	Saw cut pavements 150mm thick	m	398	\$20.00	\$7,956	
2	Excavation to local spoil and test, load and cart to dumpsite	m3	3,506	\$41.83	\$146,640	
4	Supply and place bedding	m3	93	\$134.00	\$12,527	
5	Place precast RCBC base units	No	163	\$562.67	\$91,734	
6	Place precast RCBC crown units ( and Densopol)	No	163	\$562.67	\$91,734	1.22 long units
6	Densopol	m	1,092.3	\$11.00	\$12,016	
7	CLSM backfill to sides of excavation	m3	855	\$187.00	\$159,935	
8	CLSM backfill to 200 over culvert	m3	187	\$187.00	\$34,963	
9	QR backfill to FSL	m3	1,215	\$74.14	\$90,101	
10	Dewatering allowance	item	1	\$8,151.64	\$8,152	
11	Shoring Allowance	m2	1491.8	\$10.00	\$14,918	
						□□□□□□
						1.0000
5.5	RCBC, 1800 x 1800		calc rate/m	\$2,887.21		Ch 1303.5 - Ch 1711.2
	Length	0.0				Number of 1.22m crown units =
	Nominal culvert width	1.0				334.18
	Nominal culvert height	1.0				Notes:
	culvert external width	2.1				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	1.95				2. Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0.13				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	1.0				5. Upper backfill PM2-20 to FSL
	Trench side width	1.0				6. Includes saw cutting of pavements and kerbs as necessary
	Trench width	4.1				
	Trench depth	2.93				
1	Saw cut pavements 150mm thick	m	815	\$20.00	\$16,308	
2	Excavation to local spoil and test, load and cart to dumpsite	m3	4,898	\$41.83	\$204,871	
3	Supply and place bedding	m3	167	\$134.00	\$22,399	
4	Place precast RCBC base units	No	167	\$844.00	\$141,024	2.44 long units





Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3A, Malcolm St - Hampton  
 Street via Rail reserve

DATE PREPARED 5/07/2013

**Costplan**

REVISION No 1

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Item	Description	Quantity	Cost	Notes	Contingencies	
□	□□□□□□			\$13,441,495		
1	Design and documentation	6.0%	\$806,490	Including aquaduct on Cross road	10.0%	\$80,649
2	Additional investigations	0.5%	\$67,207	Survey, Geotechnical, Contamination etc	25.0%	\$16,802
3	Services locations/ potholing	0.3%	\$40,324		20.0%	\$8,065
4	Design verification	1.3%	\$174,739		10.0%	\$17,474
5	Design, construction inspection and signoff	1.0%	\$134,415		15.0%	\$20,162
	<b>Subtotal</b>		<b>□1□□3□1□</b>	7.74%	<b>11.7%</b>	<b>□1□3□1□</b>
□	□□□□□□□□			\$13,441,495		
1	Project management and planning	2.00%	\$268,830		10.0%	\$26,883
2	Contract management	4.00%	\$537,660		10.0%	\$53,766
3	Community engagement and Liaison	1	\$297,888		20.0%	\$59,578
4	Dilapidation surveys	0.25%	\$33,604		20.0%	\$6,721
	<b>Subtotal</b>		<b>□1□13□□□1</b>	7.20%	<b>12.9%</b>	<b>□1□□□□□</b>
□	□□□□□□ □□□					
1	Traffic management	1	\$185,000		20.0%	\$37,000
2	Tree Removal/ alterations	1	\$59,600		30.0%	\$17,880
3	Prelims	1	\$52,854		20.0%	\$10,571
4	Existing service relocations during culvert construction	1	\$2,453,930		35.0%	\$858,876
5	Reinstatement works	1	\$59,221		35.0%	\$20,727
6	Culvert Supply	1	\$2,044,577		10.0%	\$204,458
7	Land Acquisition and modification	1	\$0		30.0%	\$0
	<b>Subtotal Direct costs</b>		<b>□□□□□1□1</b>	30.72%	<b>23.7%</b>	<b>□1□□□□11</b>
□	□□□□□□□ □□□					
1	Preliminaries	1	\$895,382		25.0%	\$223,846
2	Traffic and pedestrian management	1	\$550,100		25.0%	\$137,525
3	Environmental controls	1	\$150,400		25.0%	\$37,600
4	Existing service relocations/ protection during culvert construction	1	\$266,841		35.0%	\$93,394
5	Culvert clearing, excavation, installation and backfill	1	\$4,737,711		25.0%	\$1,184,428
6	Major structures and crossings	1	\$225,000		25.0%	\$56,250
7	Road and Street reinstatement works	1	\$421,891		25.0%	\$105,473
8	Misc works	1	\$189,100		25.0%	\$47,275
9	Contractors offsite OH and margin	1	\$1,149,889		25.0%	\$287,472
	<b>Subtotal Culvert construction</b>		<b>□□□□□31□</b>	54.33%	<b>25.3%</b>	<b>□□1□3□□3</b>
	□□□□□□□ □□□□□□□□□□ □□□□		<b>□1□□0□□□□</b>	100.00%	<b>22.9%</b>	<b>□3□1□□□3</b>
P	□□□□□□□□□□□□□□	□□□□	<b>□3□1□□□3</b>			
	□□□□□□□□□□□□□□□□□□□□□□		<b>□1□□1□□□□</b>	ALL UP RATE/M=	\$12,866	

NOTES

- Costs are exclusive of GST
- Costs are current as at July 2013
- This estimate captures all project costs with the exception of previous expenditure and escalation
- This estimate is based upon the route ( and culvert sizes) as shown on Worley Parsons Drawing Nos figure 25-33 from their April 2012 report and
- An aqueduct crossing of Cross road based on prelim discussions with wallbridge and Gilbert
- This estimate is split into 2 main sections ( other than this summary sheet). These are-
- Early works - This includes service relocations required before culvert laying can commence, tree removals/ trimming and the supply of the culverts units
- Culvert works - This includes the laying of the culverts, minor service relocations, structures and reinstatement works.
- This estimate has been calculated on the basis of traditional tendering methods being adopted for the procurement of these works
- This estimate is one of a series to be used for route comparisons, it should be read in conjunction with the estimate for Option 3a Malcolm St - Victoria street

This estimate has been prepared solely for the BHKC authority. Under no circumstances shall it be passed onto any third parties without the express permission of Costplan Pty Ltd



Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3A, Malcolm St -  
 Hampton Street via Rail reserve

Costplan

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REVISION  
DATE

1  
5/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
	<u>1500 X 1500 RCBC 230 LA Rail loading</u>					Note, Excludes destructive testing>
5	Base slab	m	844	\$370.39	\$312,698	346 units required
6	Crown units	m	844	\$827.23	\$698,381	346 units required
	<u>1500 X 1500 RCBC</u>					
5	Base slab	m	481	\$384.00	\$184,581	197 units required
6	Crown units	m	481	\$848.03	\$407,631	197 units required
	<u>1800 X 1500 RCBC</u>					
7	Base slab	m	281	\$483.78	\$135,749	58 units required
8	Crown units	m	281	\$996.19	\$279,531	58 units required
	<u>1800 X 1800 RCBC</u>					
9	Base slab	m	17	\$483.78	\$8,263	7 units required
10	Crown units	m	16	\$1,118.74	\$17,743	1.22 units, 13 units required
	What about splayed units?					treat as opportunity if design can fit
	□□□□□□□□				□□0 □□□□□	
	□ □□□□□□□					
	NA					
	□□□□□□□□				0	
	<b>SUBTOTAL EARLY WORKS</b>				<b>\$4,855,181</b>	<b>\$3,217</b>





ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
	Trench width	3				7. Includes saw cutting of pavements and kerbs as necessary
	Trench depth	3.75				
						0.000000
						-1.000000
5.4	RCBC, 1500 x 1500 (in roads)		calc rate/m	\$2,265.23		Chainage 2147-- ch 2193 + ch2222 - ch 2656
	Length	1.0				Number of 2.44m crown units = 196.72
	Nominal culvert width	1.0				
	Nominal culvert height	1.0				Notes:
	culvert external width	1.8				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	1.7				2. Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0.1				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	3.0				5. Upper backfill PM2-20 to FSL
	Trench side width	0.0				6. Includes saw cutting of pavements and kerbs as necessary
	Trench width	3				
	Trench depth	3.75				
						0.000000
						-1.000000
5.6	RCBC, 1800 x 1500		calc rate/m	\$2,648.43		Chainage 2656- chainage 2796
	Length	1.0				Number of 2.44m crown units = 57.38
	Nominal culvert width	1.0				
	Nominal culvert height	1.0				
	culvert external width	2.1				
	culvert external height	1.65				
	Bedding thickness	0.1				
	base slab thickness	0.13				
	depth FSL- Invert	0.0				
	Trench side width	1.0				
	Trench width	4.1				
	Trench depth	3.50				
						0.000000
						-3.000000
5.6	RCBC, 1800 x 1800		calc rate/m	\$2,887.21		Ch 2796 - Ch 2811.1
	Length	1.1				Number of 1.22m crown units = 12.38
	Nominal culvert width	1.0				
	Nominal culvert height	1.0				Notes:
	culvert external width	2.1				1. Allow to double handle spoil to local stockpile area to enviro test, then Load and cart to dump, say 18 KM lead.
	culvert external height	1.95				2. Includes 200mm wide Densopol tape at joints
	Bedding thickness	0.1				3. Includes separate crane to unload units and security guard for cranes at nights
	base slab thickness	0.13				4. Backfill sides and to 200mm over culvert with 1.5mpa CLSM
	depth FSL- Invert	0.0				5. Upper backfill PM2-20 to FSL
	Trench side width	1.0				6. Includes saw cutting of pavements and kerbs as necessary
	Trench width	4.1				
	Trench depth	2.93				
						0.000000
						-3.000000
5.7	Aquaduct across Cross Road	30	calc rate/m	\$49,657		Assumed length
1	900 dia CFA piles x 21m deep	No	13	\$28,000.00	\$364,000	allow 5/ abutment and 3 central
2	Pile caps	m3	27	\$2,000.00	\$54,000	
4	Approach bed	m3	20	\$1,500.00	\$29,363	
4	Winch block/ prep	m3	30	\$1,000.00	\$30,000	
5	Excavation of cross road and base prep	m3	180	\$95.00	\$17,100	
6	Temp side shoring and service propping	Item	1	\$50,000.00	\$50,000	
7	Construction of PT aquaduct	m3	113.4	\$4,500.00	\$510,300	assume 1.8 x 1.5 internal and 2.7 x 2.4 external RC and PT
8	Winch into position and final positioning	Item	1	\$68,000.00	\$68,000	
9	CLSM backfill to sides	m3	180	\$187.00	\$33,660	
10	Flexible couplings at joints	No	2	\$35,000.00	\$70,000	
11	Dewatering allowance	item	1	\$15,000.00	\$15,000	
12	e/o contingency	%	20.0%	\$1,241,423	\$248,285	No design at all yet
						0.000000
						-1.000000
						0.000000
	Junction Box's					
1	JB 12A - T Intersection 3300 wide main x 1500 x 1500 2.5 deep	No	1	\$28,000.00	\$28,000	In rail reserve
2	JB 13/A - 1500 x 1500 45 bend x 2.5 deep	No	1	\$12,000.00	\$12,000	
3	JB 14/A-17/B In line / bend 1500 x 1500 x 2.7 deep	No	4	\$12,000.00	\$48,000	
4	JB 17/C+ 18/A In line / bend 1500 x 1500 either side of Aquaduct	No	1	\$12,000.00	\$12,000	2.24 deep + 3.04 deep

Brownhill Keswick Creek Stormwater Project  
 estimates - Option 3A, Malcolm St - Hampton Street via Rail reserve

Costplan

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REVISION  
DATE

1  
5/07/2013

ITEM	DESCRIPTION	UNIT	QTY	RATE	AMOUNT	COMMENTS
5	JB 19/A - 1500 x 1500 45 bend x 2.75 deep	No	1	\$12,000.00	\$12,000	
6	JB 20/A - 1500 x 1500 90 bend x 2.75 deep	No	1	\$12,000.00	\$12,000	
7	JB 21/A - 1500 x 1500 90 bend x 2.65 deep	No	1	\$12,000.00	\$12,000	
8	JB 22/A In line 1800 x 1500 x 2.38 deep	No	1	\$12,000.00	\$12,000	
9	JB 23/A - 1800 x 1500 45 bend x 2.86 deep	No	1	\$12,000.00	\$12,000	
10	Upstream inlet structure	item	1	\$65,000.00	\$65,000	No details, assume weir structure in creek, rework to creek floor and scour protection required?
					\$0.00	
1	Temporary reinstatement of council roads	m2	484	\$23.38	\$11,308	Token 25/10 AC
2	Permanent reinstatement of council roads	m2	4,838	\$53.56	\$259,097	Allow full width of Arundel, Vardon and Malcolm, 150 CR and 40/10 AC
	Reinstatement of rail reserve	LM	844	\$25.00	\$21,100	Allow to reform open drains
3	Permanent reinstatement of DPTI roads	m2	85	\$450.00	\$38,250	1500 RCBC crossing Cross Road, nights
4	Reinstatement of kerbing	LM	755	\$85.00	\$64,137	Assume 850% reconstructed
5	Verge, footpath and landscape works	item	1	\$28,000.00	\$28,000	verge and footpath reinstatement x 800LM
					\$1.1	
8.1	Trees					
1	Detail trimming of tree roots	No	80	\$350.00	\$28,000	May cause slower main excavation production
2	Additional Tree removal	No	7	\$1,500.00	\$10,500	Plug qty
3	Supply and Plant new trees	No	66	\$1,200.00	\$79,200	Advanced trees in 200 litre tubs replace poor health trees replace at 1:3 ratio (removed:replaced)
8.2	Fencing					
1	general fencing modifications	item	1	\$29,400.00	\$29,400	assume 50% of Rail corridor
1	Reconstruct rail pedestrian mazes ( eastern side only)	No	5	\$8,400.00	\$42,000	
					\$1.100	
					\$7,665,925	
9.1	Contractors offsite OH and margin					
1	Offsite overheads	%	4.0%	\$7,665,924.97	\$306,637	
2	Margin	%	6.0%	\$7,665,924.97	\$459,955	
9.2	Risk and Opportunity					
1	Contractors R+O	%	5.0%	\$7,665,924.97	\$383,296	Assuming he wears a degree of risk?
					\$1.1	
	TOTAL CONTRACTORS COSTS				\$8,815,814	Excludes Contingent risk

Brownhill Keswick Creek Stormwater Project  
 Concept estimates - Option 3AA, Hampton Street via Rail  
 reserve to DPTI culvert @ Cranbrook/Victoria

DATE PREPARED 13/11/2013

**Costplan**

REVISION No 1

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LM 2191

Item	Description	Quantity	Cost	Notes	Contingencies	
				\$19,728,371		
1	Design and documentation	6.0%	\$1,183,702	Including aquaduct on Coss road	10.0%	\$118,370
2	Additional investigations	0.5%	\$98,642	Survey, Geotechnical, Contamination etc	25.0%	\$24,660
3	Services locations/ potholing	0.3%	\$59,185		20.0%	\$11,837
4	Design verification	1.3%	\$256,469		10.0%	\$25,647
5	Design, construction inspection and signoff	1.0%	\$197,284		15.0%	\$29,593
	<b>Subtotal</b>		<b>1,837,282</b>	7.79%	<b>11.7%</b>	<b>101,000</b>
				\$19,728,371		
1	Project management and planning	2.00%	\$394,567		10.0%	\$39,457
2	Contract management	4.00%	\$789,135		10.0%	\$78,913
3	Community engagement and Liaison	1	\$297,888		20.0%	\$59,578
4	Dilapidation surveys	0.25%	\$49,321		20.0%	\$9,864
	<b>Subtotal</b>		<b>1,530,911</b>	6.64%	<b>12.3%</b>	<b>111,812</b>
1	Traffic management	1	\$185,000		20.0%	\$37,000
2	Tree Removal/ alterations	1	\$59,600		30.0%	\$17,880
3	Prelims	1	\$52,854		20.0%	\$10,571
4	Existing service relocations during culvert construction	1	\$5,291,640		35.0%	\$1,852,074
5	Reinstatement works	1	\$375,563		35.0%	\$131,447
6	Culvert Supply	1	\$2,630,119		10.0%	\$263,012
7	Land Acquisition and modification	1	\$391,500		30.0%	\$117,450
	<b>Subtotal Direct costs</b>		<b>10,386,216</b>	38.98%	<b>27.0%</b>	<b>3,300,000</b>
1	Preliminaries	1	\$992,420		25.0%	\$248,105
2	Traffic and pedestrian management	1	\$598,446		25.0%	\$149,612
3	Environmental controls	1	\$150,400		25.0%	\$37,600
4	Existing service relocations/ protection during culvert construction	1	\$273,660		35.0%	\$95,781
5	Culvert clearing, excavation, installation and backfill	1	\$6,195,010		25.0%	\$1,548,752
6	Major structures and crossings	1	\$273,000		25.0%	\$68,250
7	Road and Street reinstatement works	1	\$580,323		25.0%	\$145,081
8	Misc works	1	\$237,780		25.0%	\$59,445
9	Contractors offsite OH and margin	1	\$1,441,056		25.0%	\$360,264
	<b>Subtotal Culvert construction</b>		<b>10,386,216</b>	46.59%	<b>25.3%</b>	<b>1,100,000</b>
			<b>3,000,000</b>	100.00%	<b>24.0%</b>	<b>0</b>
P		1.0	0			
			<b>0</b>	ALL UP RATE/M=	\$13,051	

NOTES

- Costs are exclusive of GST
- Costs are current as at July 2013
- This estimate captures all project costs with the exception of previous expenditure and escalation  
 This estimate is based upon the route ( and culvert sizes) as shown on Worley Parsons Drawing Nos figure 25-33 from their April 2012 report and revised as follows, MS option 3AA Hampton to DPTI VIA Rail Reserve using all 1500 x 1500 RCBC with no connection to Malcolm street. Based on Costplan estimates
- No 5 and PT No 4
- An aqueduct crossing of Cross road based on prelim discussions with wallbridge and Gilbert
- This estimate is split into 2 main sections ( other than this summary sheet). These are-
- Early works - This includes service relocations required before culvert laying can commence, tree removals/ trimming and the supply of the culverts units
- Culvert works - This includes the laying of the culverts, minor service relocations, structures and reinstatement works.
- This estimate has been calculated on the basis of traditional tendering methods being adopted for the procurement of these works

This estimate has been prepared solely for the BHKC authority. Under no circumstances shall it be passed onto any third parties without the express permission of Costplan Pty Ltd