

2. COST ESTIMATE METHODOLOGY

2.1 Quantity Measurements

2.1.1 Estimating Methods

Project estimates are compiled by two different methods depending upon the level of available information and intended purpose.

Where the contractor is committed to a contract price, very detailed elemental estimating methods are used which utilise detailed design documentation and an accurate schedule of quantities. This applies equally to design and construct projects and construct only. This is a very time consuming and expensive process often requiring quantity surveyors, estimating engineers, surveyors and various contributing consultants such as geotechnical, hydraulics and formworks designers. This method will be used by the contractors tendering for Parkes Way should the project proceed to the construction stage.

Where a contractor is requested to provide an indicative or budget estimate, greater reliance is placed on “grossed up” rates from similar projects. In addition the contractor draws on their expertise or judgement to include factors to compensate for the lack of a detailed schedule of rates and the often very generalised drawings that are available. This second method was used for the Parkes Way Feasibility Study estimating.

2.1.2 Quantity determination

The following tabulation lists selected key items listed in the option costings.

	Feasibility Design	Variant 2c
Earthworks		
Cut	226,150 m ³	102,577 m ³
Fill	190,042 m ³	111,621 m ³
		Includes to London Cct
	Amounts over these quantities are allowed for some batter trim, foundation preparation, rock bolting, haul roads, construction water supply and detailed filling – unmeasured amounts were added based upon experience	
Drainage		
Trunk Mains	Generalised quantities made of stormwater pipes and structures requiring reconstruction or replacement	
Local collectors	Allowance made for local inlet pits and collection systems – no drawings available – general assessment	
Corranderrk Pond	Allowance made to decommission the pond and back fill – no drawings or depth available	

Pavements		
Type 1 – Parkes Way and Ramps	87,500 m ²	71,652 m ²
Type 2 Concrete over structures	7,500 m ²	13,153 m ²
Type 3 – Commonwealth Ave correction	12,000 m ²	12,000 m ²
Type 4 – Pedestrian and verge	39,000 m ²	6,921 m ²
Retaining Walls and structures		
Wall area	21138 m ²	15950 m ²
Infill shotcrete	9,703 m ²	5944 m ²
Insitu Concrete	9,944 m ³	3857 m ³
Precast Concrete Beams and Props	1,153 number	288 number
900 dia piles at 1800 centres	21,973 lm	12,293 lm
Throw screens	1050	695
Traffic Staging	51 months	40 months
Traffic Signals	28 number	20 number

2.2 Construction Rates

2.2.1 Sources of Rates

The rates used in compiling the budget estimate were sourced from recent projects tendered in the ACT and New South Wales. These include projects at Kings Avenue and Majura Parkway in the ACT and the South Western Rail Project and other major urban development projects in Sydney.

The rates are adjusted for escalation and forward projected to a feasible start date for Parkes Way

2.2.2 Utilities

At the direction of EDD, sewer mains and reticulation were deleted from Variant 2c. The basis of this assumption was predicated on the fact that the water and sewer diversion required by Variant 2c were significantly less than that required by the Feasibility Design and related primarily to unencumbering adjacent land rather than the lowering of Parkes Way

Water mains, HV underground mains and Communications were quantified from sketch drawing provided by SMEC and rates appropriate to the preliminary feasibility pricing were applied. Rates for installation of deep sewer (micro-tunnelled) mains were based on experience from the recent Constitution Avenue Upgrade project.

2.2.3 Traffic management

Traffic Management prices contain a mix of construction items and time dependent recurring items such as traffic controllers.

In Stage 1 for both options, the costs of demolishing the existing Canberra Avenue bridges and reconstruction of both new permanent and temporary structures is included.

Also included in each Traffic stage are amounts to cover:

- Purchase, installation and removal of temporary traffic barriers
- Installation and removal of temporary pavements and diversions
- Design of traffic management plans and approvals
- Traffic control crews, signs and controls.

The Feasibility Design has six major construction and traffic stages while Variant 2c has 5.

3. COST ESTIMATE ASSUMPTIONS

3.1 Design Basis for Estimates

The cost estimate provided as part of this Volume relates in the first instance to the Feasibility Design for the project while a second estimate has been developed for Variant 2c which has a significantly reduced anticipated cost. The following points relating to the design basis for the cost estimate should be noted:

- The estimate is based on design sketches dated 15 April 2014 outlining option 6 (the Feasibility Design).
- The General Arrangement plan sketches that were referenced were:
 - 3002385-140512-ID-LSEC-MCP0-OPT6-SH02&3
 - 3002385-140512-ID-LSEC-MCS0-OPT6-SH02&3
 - 3002385-140512-ID-LSEC-MCT0-OPT6-SH02&3
- Typical cross sections of roadworks were also supplied indicating the proposed structural members including piling requirements.
- Services drawings supplied on the 23 May 2014 consisted of:
 - Communications 3002385-140513-ID-UT-OPT6-COMMS-SH 1 to 6 & 11-15
 - Gas & Electricity 3002385-140513-ID-UT-OPT6-ELEC_GAS-SH01-6 & 11-15.
 - Water Supply & sewer 3002385-140513-ID-WS-OPT6-WS-SE-SH 1 to 6 & 11-15.

3.2 Construction Considerations

- The feasibility Design provides for the new Parkes Way alignment to be excavated down through the existing west bound carriageway. Access ramps linking Commonwealth Avenue traffic south of Parkes Way to Parkes Way are located in the central median of Commonwealth Avenue.
- Key to the construction methodology is the early demolition of the existing Commonwealth Avenue bridges over Parkes way. They will be replaced with bridges that accommodate the new sunken carriageway as well as minimising disruption to existing traffic flows during construction.

3.3 Contingency

The accuracy of the concept cost is based on basic outline plans, some longitudinal elevations and highly qualified geotechnical and groundwater studies which are of a preliminary nature.

Comments on specific areas of the works now made:

- At this design level the extent of filling of the existing landform and surface stripping and treatment is unknown. The ability to carry out local cuts to fills and thereby avoid disposal costs is not known. Likewise the details of the earthworks ramps and

connections are not defined. An allowance for this work has been made in the general earthworks rate and in specific items.

- Reconstruction of major trunk drainage is not clear and there are no details of local surface drainage to connect to the trunk drains. We have “created” a priced scope for this work which attempts to rationalise what is in effect a contingency.
- The extent of pavements, especially the surface service roads and pedestrian areas has no definition however quantities have been determined based upon the network of service roads shown on the drawings.
- The extent of the main concrete structures is defined by the cut areas and approximate sizes have been taken into account. An allowance for tanking has been made pending a more detailed groundwater investigation. It is also noted that the boreholes indicate very weak material at depth in the approximate region of the intersection of Commonwealth Avenue and Parkes Way. This feature could lead to a more extensive structural solution than currently contemplated.
- Significant amounts have been included to address traffic management and in particular the demolition and reconstruction of the Commonwealth Avenue bridges.

3.4 Client & Consultant Allowances

The following is not a complete list however we anticipate that the consulting services required to document the project will include:

- Full investigation into the traffic management and public and private transport.
- Review of Environmental factors.
- Detailed geotechnical and hydrogeological investigation.
- Engagement with all parties impacted by the scope of the project.
- Detailed design of civil, structural, electrical, communications, landscaping and urban enhancement.
- Contract documentation and administration

3.5 Limitations of Estimate

The prepared cost estimate reflects the preliminary and skeletal nature of the concept provided. As such it forms an initial stage in the design evolution. It is not considered appropriate to be used as a basis for financing of the project or for any investment decisions made in the development of adjacent commercial blocks or as a commitment to proceed with or abandon the project.

As such, the pricing is heavily qualified by the general nature of the design sketches whose limitations are noted in the following comments:

- The limitations on the extent of work which have been priced are not detailed. We understand that the foreshore block development earthworks and roadworks are not to be included in the Parkes Way Lowering cost assessment. Nor are the developments

of any of the landforms associated with any of the other commercial or development sites included.

- The services drawings show major structures but do not include detailed features such as local stormwater collection systems feeding into the major trunk system. Likewise the water supply shows the major trunk mains but not local reticulation. Similar limitations apply to all others services.
- No details of street lighting, signalling, vegetative planting, street furniture, traffic or pedestrian signalling, signage or ventilation etc were developed as part of the Feasibility Design. As such, nominal allowances have been made for these items.
- There are no details of any integration of the concept design with the existing bicycle network or future light rail facilities. Whilst light rail (LRT) has been considered as part of the design process, requirements for the LRT are still evolving and as such have not been confirmed. Given this, it cannot yet be confirmed that LRT can be accommodated in Commonwealth Avenue within the median traffic ramps.
- The drawings showing structures are of a general nature but do not include any detailed features such water proofing of walls, details of roof structure or intersection bridging, rock bolting or surface treatments.
- Whilst typical pavement profiles have been assumed for the purpose of the cost estimate, no pavement drawings have been developed. Furthermore, localised treatments such as kerbs, islands, asphalt treatments, pavers, crossings, conduits, collection pits, planters etc have not been detailed as part of the Feasibility Design. As such, nominal allowances have been made for these items.

4. FEASIBILITY DESIGN – COST ESTIMATE SUMMARY

Following is a summary of the cost estimate from the delivery of the project described in the Feasibility Design, inclusive of relevant overall costs for each RMS specification area. A more detailed estimate inclusive of line items is contained in Appendix A of this Volume.

Item Description	2014 Amount (ex. GST)
G1_JOB SPECIFIC REQUIREMENTS	\$5,640,000
G2-C2_GENERAL REQUIREMENTS	\$4,900,000
G4_PRINCIPAL'S PROJECT ACCOMMODATION	\$500,000
G7_PUBLIC UTILITIES	\$20,422,700
G10_TRAFFIC MANAGEMENT	\$26,827,000
G36_ENVIRONMENTAL PROTECTION (MANAGEMENT SYSTEM)	\$2,400,000
G38_SOIL AND WATER MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)	\$4,900,000
G40_CLEARING AND GRUBBING	\$1,200,000
R11_STORMWATER DRAINAGE	\$13,325,000
R15_KERBS AND GUTTERS	\$1,200,000
R33_TRENCH DRAINS	\$2,400,000
R40_HORIZONTAL DRAINS	\$240,000
R44_EARTHWORKS	\$10,145,000
R64_SOIL NAILS	\$624,000
PAVEMENTS (incl. R71, R73,R82, R83, R106, R107, R116, R121)	\$27,859,000
R101_COLD MILLING OF ROAD PAVEMENT MATERIALS	\$500,000
R132_SAFETY BARRIER SYSTEMS	\$2,400,000
R141_PAVEMENT MARKING	\$400,000
R143_SIGNPOSTING	\$700,000
R151_STREET LIGHTING	\$5,000,000
R151_FEATURE LIGHTING	\$1,200,000
R173_GENERAL CONCRETE PAVING	\$10,549,000
R179_LANDSCAPE PLANTING	\$6,700,000
R201_FENCING	\$1,200,000

R201_FENCING - Throw Screens	\$840,000
R204_PROPERTY ADJUSTMENTS	\$1,200,000
STRUCTURES	\$97,748,000
Total - Direct Construction Costs	\$251,019,700
Contractors Contingency, Preliminaries & Margin	
Contractors Preliminaries & Margin (50%)	\$125,509,850
Professional Fees - Design & Other Consultants (10%)	\$25,101,970
Total - Construction Costs	\$401,631,520
Professional Fees - Clients Project Management	\$20,081,576
Contract Contingency @ 10%	\$40,163,152
TOTAL PROJECT COST	\$461,876,248

5. VARIANT 2C

5.1 Variant Description

Following on from provision of initial cost estimates of the original Feasibility Design, the need to investigate a reduced scale version of the project was identified. The ambition of the new variant was to reduce the scale and cost of the project, whilst limiting compromises to road network performance and urban design outcomes. To this end, the project team in conjunction with EDD utilised value management principles to undertake an investigation into a number of variants of the original Feasibility Design. This limited process identified a preferred alternative, Variant 2c, which has subsequently been developed to a pre-concept design level and included in this Feasibility Study. Following is discussion on the likely cost implications of adopting the Variant 2c alternative.

5.2 Cost Implications of Variant 2c

Given that the scale of the project proposed in Variant 2c has been reduced from the original Feasibility Design proposal for Parkes Way, there are some significant differences in quantities and project requirements. The changes have resulted in significant cost savings for this Variant. Some of the major items that will impact the cost of Variant 2c relative to the Feasibility Design are discussed below:

Design Item	Cost Implication
Re-grading of Parkes Way Mainline	The Feasibility Design proposes a deep cut trench with the Parkes Way eastbound exit ramp flying over the mainline. In contrast, the Variant 2c design proposes a much shallower Parkes Way mainline that flies over the eastbound exit ramp. This alternate approach will lower the cost of excavation, contiguous piling, structures and dewatering of the trench.
Reduction in Boulevard Length	In the Feasibility Design the lowered trench length of Parkes Way ran between Edinburgh Avenue and Coranderrk St (approx. 1100m). The proposed Variant 2c design has truncated this length to between Edinburgh Avenue and Allara St, a revised length of 850m. This reduction in length will save on the cost of excavation, contiguous piling and structures.
Deletion of Commonwealth Ave. Northbound Exit Ramp	The Feasibility Design proposes a free flow ramp connection between Commonwealth Avenue northbound and Parkes Way westbound to cater for the heavy PM peak hour movement in this direction. The Variant 2c design proposed deletion of this ramp, by running this traffic along the surface Parkes Boulevard. This revised design removes a total length of tunnel and trench of approx. 400 m saving on the cost of excavation, contiguous piling, structures, pavements and significant traffic management complications.
Creation of Tunnel	The Variant 2c design proposes to enclose the open trench included in the Feasibility Design option, creating a cut and cover tunnel approximately 400m long. This has added some cost associated with the structure, noting that a significant proportion of structure was already proposed in the Feasibility Design to support the Parkes Boulevard. In addition, the creation of a tunnel will create requirements associated with ventilation, tunnel lighting, emergency and fire

systems. It should be noted that allowance has not been made in the cost estimate for the inclusion of these systems due to the uncertainty of likely requirements. It is understood that the likely scope of requirements for these tunnel systems will be the subject of a separate study and that the costs associated with provision of these systems will be investigated as part of the study.

Related to the cost implications described above, it should be noted that the Parkes Boulevard road corridor proposed in the Variant 2c design is approximately 3.5m narrower than that proposed in the Feasibility Design for a large proportion of its length. This will gift high value land back to development sites and is likely to increase the yield from adjacent blocks. Offsetting this increased lot yield, the proposed road corridor consumes additional land from blocks adjacent to Marcus Clarke St.

5.3 Cost Estimate Summary – Variant 2C

Following is a summary of the cost estimate from the delivery of the project alternative Variant 2c, inclusive of relevant overall cost for each RMS specification area. A more detailed estimate inclusive of line items is contained in Appendix B of this Volume.

Item Description	2014 Amount (ex. GST)
G1_JOB SPECIFIC REQUIREMENTS	\$3,600,000
G2-C2_GENERAL REQUIREMENTS	\$2,800,000
G4_PRINCIPAL'S PROJECT ACCOMMODATION	\$300,000
G7_PUBLIC UTILITIES	\$10,454,000
G10_TRAFFIC MANAGEMENT	\$28,382,000
G36_ENVIRONMENTAL PROTECTION (MANAGEMENT SYSTEM)	\$1,400,000
G38_SOIL AND WATER MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)	\$1,400,000
G40_CLEARING AND GRUBBING	\$700,000
R11_STORMWATER DRAINAGE	\$13,325,000
R15_KERBS AND GUTTERS	\$700,000
R33_TRENCH DRAINS	\$1,400,000
R40_HORIZONTAL DRAINS	\$140,000
R44_EARTHWORKS	\$4,437,000
R64_SOIL NAILS	\$348,000
PAVEMENTS (incl. R71, R73,R82, R83, R106, R107, R116, R121)	\$26,803,000
R101_COLD MILLING OF ROAD PAVEMENT MATERIALS	\$300,000

R132_SAFETY BARRIER SYSTEMS	\$1,400,000
R141_PAVEMENT MARKING	\$200,000
R143_SIGNPOSTING	\$400,000
R151_STREET LIGHTING	\$5,000,000
R151_FEATURE LIGHTING	\$700,000
R173_GENERAL CONCRETE PAVING	\$1,872,000
R179_LANDSCAPE PLANTING	\$2,000,000
R201_FENCING	\$700,000
R201_FENCING - Throw Screens	\$556,000
R204_PROPERTY ADJUSTMENTS	\$700,000
STRUCTURES	\$43,777,000
Total - Direct Construction Costs	\$153,794,000
Contractors Contingency, Preliminaries & Margin	
Mobilisation	\$6,151,760
Recurring Overheads	\$30,758,800
Demobilisation Costs	\$768,970
Delay Allowance	\$1,537,940
Escalation (5%)	\$7,689,700
Contractors Risk Allowance	\$7,689,700
Contractors Project Development Costs	\$1,537,940
Contractors Margin & Offsite Overhead	\$19,993,220
Professional Fees - Design & Other Consultants (10%)	\$15,379,400
Total - Construction Costs	\$245,301,430
Professional Fees - Clients Project Management	\$4,906,029
Contract Contingency @ 10%	\$24,530,143
TOTAL PROJECT COST	\$274,737,602

5.4 Works Packaging

The possibility of a staged delivery of the project has been identified. Given the proposed works associated with Parkes Section 3 (and how they relate to the Coranderk St

intersection), and the Australia Forum (and its relationship to the London Circuit works) it is likely that these elements of the project may need to be delivered prior to and independent of the Parkes Way lowering works. The three proposed packages of work are shown in Figure 1.

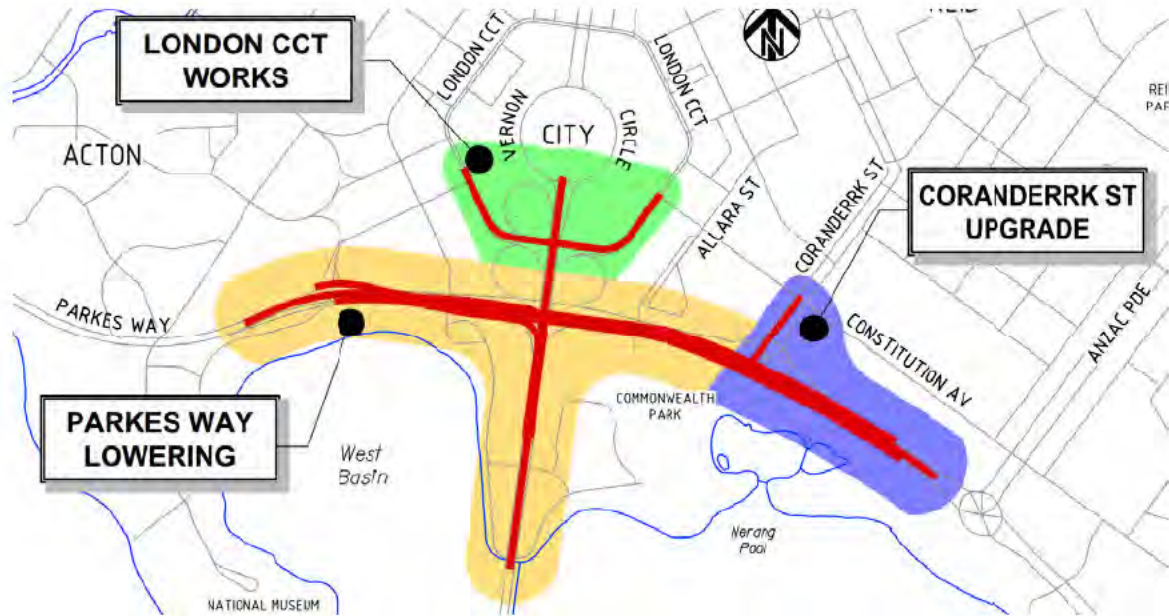


Figure 1 – Proposed Works Packages

An assessment of the likely distribution of costs for three packages has been undertaken:

Work Package	Cost Estimate
London Circuit Works	\$17,214,730
Parkes Way Lowering Works	\$226,409,650
Coranderrk St Upgrade Works	\$31,113,300
Variant 2c TOTAL	\$274,737,602

APPENDIX A

COST ESTIMATION SPREADSHEETS – FEASIBILITY DESIGN

Feasibility Design - Summary

Description	Amount 2014 Excluding GST
G1_JOB SPECIFIC REQUIREMENTS	\$ 2,400,000
Traffic Signals	\$ 3,240,000
G2-C2_GENERAL REQUIREMENTS	\$ 4,900,000
G4_PRINCIPAL'S PROJECT ACCOMMODATION	\$ 500,000
G7_PUBLIC UTILITIES	
Sewer	\$ 6,685,700
Watermains	\$ 3,633,000
Gas mains	\$ 1,727,000
HV underground mains	\$ 2,616,000
Communications	\$ 5,761,000
G10_TRAFFIC MANAGEMENT	
Traffic Stage 1	\$ 15,318,000
Traffic Stage 2	\$ 2,930,000
Traffic Stage 3	\$ 2,510,000
Traffic Stage 4	\$ 2,643,000
Traffic Stage 5	\$ 2,077,000
Traffic Stage 6	\$ 1,349,000
G36_ENVIRONMENTAL PROTECTION (MANAGEMENT SYSTEM)	\$ 2,400,000
G38_SOIL AND WATER MANAGEMENT (SOIL AND WATER MANAGEMENT PLAN)	\$ 4,900,000
G40_CLEARING AND GRUBBING	\$ 1,200,000
R11_STORMWATER DRAINAGE	\$ 13,325,000
R15_KERBS AND GUTTERS	\$ 1,200,000
R33_TRENCH DRAINS	\$ 2,400,000
R40_HORIZONTAL DRAINS	\$ 240,000
R44_EARTHWORKS	\$ 10,145,000
R64_SOIL NAILS	\$ 624,000
PAVEMENTS	\$ 27,859,000
R71_CONSTRUCTION OF UNBOUND AND MODIFIED PAVEMENT COURSE	<i>Incl in Pavements</i>
R73_CONSTRUCTION OF PLANT MIXED HEAVILY BOUND PAVEMENT COURSE	<i>Incl in Pavements</i>
R82_LEAN MIX CONCRETE SUBBASE	<i>Incl in Pavements</i>
R83_JOINTED CONCRETE BASE	<i>Incl in Pavements</i>
R101_COLD MILLING OF ROAD PAVEMENT MATERIALS	\$ 500,000
R106_SPRAYED BITUMINOUS SURFACING (WITH CUTBACK BITUMEN)	<i>Incl in Pavements</i>
R107_SPRAYED BITUMINOUS SURFACING (WITH POLYMER MODIFIED BINDER)	<i>Incl in Pavements</i>
R116_HEAVY DUTY DENSE GRADED ASPHALT	<i>Incl in Pavements</i>
R121_STONE MASTIC ASPHALT	<i>Incl in Pavements</i>
R132_SAFETY BARRIER SYSTEMS	\$ 2,400,000
R141_PAVEMENT MARKING	\$ 400,000
R143_SIGNPOSTING	\$ 700,000
R151_STREET LIGHTING	\$ 5,000,000
R151_FEATURE LIGHTING	\$ 1,200,000
R173_GENERAL CONCRETE PAVING	\$ 10,549,000
R179_LANDSCAPE PLANTING	\$ 6,700,000
R201_FENCING	\$ 1,200,000
R201_FENCING - Throw Screens	\$ 840,000
R204_PROPERTY ADJUSTMENTS	\$ 1,200,000
STRUCTURES	\$ 97,748,000
Total - Direct Construction Costs	\$ 251,019,700
Contractors Preliminaries & Margin	\$ 125,509,850
Professional Fees - Design & Other Consultants	\$ 25,101,970
Total - Construction Costs	\$ 401,631,520
Professional Fees - Clients Project Management	\$ 20,081,576
Contract Contingency @ 10%	\$ 40,163,152
Total	\$ 461,876,248

Feasibility Design - Traffic Signals

Item	Description	Unit	Qty	New rate	Amount
10	Intersection signalling	sets	8	\$ 230,000	\$ 1,840,000
11	Pedestrian signalling	sets	20	\$ 70,000	\$ 1,400,000
Traffic Signals					\$ 3,240,000

Feasibility Design - Services

Item	Description	Unit	Qty	New rate	Amount
13	Gas mains				
	Gas 100 dia	m	300	\$ 500.00	\$ 150,000.00
	Gas 350 dia	m	1281	\$ 1,000.00	\$ 1,281,000.00
	Gas 450 dia	m	47	\$ 1,500.00	\$ 70,500.00
				Sub-total	\$ 1,501,500.00
	Contingency for major valves and structures				\$ 225,225.00
				Gas mains	\$ 1,726,725.00
14	Sewer mains				
	Use SW prices plus 40/m for testing and higher standard				
	150 dia	m	21	\$ 2,000.00	\$ 42,000.00
	600 dia	m	603	\$ 3,000.00	\$ 1,809,000.00
	750 dia	m	1059	\$ 3,500.00	\$ 3,706,500.00
14.1	Sewer manholes	m	23	\$ 15,000.00	\$ 345,000.00
14.2	Contingency for encasement	item	1000	\$ 500.00	\$ 500,000.00
14.3	Contingency for pump wells	Item	2	\$ 141,600.00	\$ 283,200.00
				Sewer	\$ 6,685,700.00
15	Watermains				
	150 dia	m	128	\$ 1,000.00	\$ 128,000.00
	225 dia	m	273	\$ 1,100.00	\$ 300,300.00
	300 dia	m	1018	\$ 1,300.00	\$ 1,323,400.00
	375 dia	m	104	\$ 1,500.00	\$ 156,000.00
	600 dia	m	318	\$ 2,500.00	\$ 795,000.00
	675 dia	m	152	\$ 3,000.00	\$ 456,000.00
				Sub-total	\$ 3,158,700.00
	Contingency for major valves and structures				\$ 473,805.00
				Watermains	\$ 3,632,505.00
16	HV underground mains	m	654	\$ 4,000.00	
				HV underground mains	\$ 2,616,000.00
17	Communications				
	ICON	m	1332		
	TEL	m	1023		
	AAPT	m	400		
	TA	m	1582		
	OPT	m	682		
	ICON/AAPT/TA	m	424		
	NG	m	318		
			5761	\$ 1,000.00	
				Communications	\$ 5,761,000.00

Feasibility Design - Traffic Stage 1

Item	Description	Unit	Qty	New rate	Amount
20	Median Temporary Pavement	m2	7890	\$ 55	\$ 430,690
21	Temporary Separation Barriers				
21.1	Purchase	m	2200	\$ 138	\$ 304,251
21.2	Place and Relocate	m	2200	\$ 22	\$ 48,286
22	SW Temporary Pavement	m2	3311	\$ 55	\$ 180,737
23	Traffic Modifications - Parkes way	Item	1	\$ 100,000	\$ 100,000
24	Demolish existing Commonwealth Ave Bridge	m2	2948	\$ 400	\$ 1,179,200
25	New Temporary/Permenant Bridges	m2	1071	\$ 3,127	\$ 3,349,017
26	New Permanent Bridge	m2	1219	\$ 3,127	\$ 3,811,813
27	Temporary Pavements to Commonwealth Ave Traffic Switching	m2	1428	\$ 55	\$ 77,950
28	Other Traffic Modifications	Item	1	\$ 500,000	\$ 500,000
29	Design and Canberra Factor	Item	1	\$ 1,000,000	\$ 1,000,000
30	Traffic controllers 10 man team plus vehicles, trucks, signs, etc.	mths	18	\$ 217,350	\$ 3,912,300
31	London Circuit Loops	m2	4098	\$ 55	\$ 223,697
	Earthworks	Item	1	\$ 200,000	\$ 200,000
Traffic Stage 1					\$ 15,317,940

Feasibility Design - Traffic Stage 2

Item	Description	Unit	Qty	New rate	Amount
21	Temporary Separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	1000	\$ 21.95	\$ 21,948.00
22	SW temporary Pavement	m2	0	\$ 54.59	\$ -
23	Traffic Mods - Parkes way	Item	0	\$ 100,000.00	\$ -
24	Demolish existing Commonwealth Ave Bridge	m2	0	\$ 400.00	\$ -
25	New Temp/Perm Bridges	m2	0	\$ 3,127.00	\$ -
26	New Permanent Bridge	m2	0	\$ 3,127.00	\$ -
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other Traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 200,000.00	\$ 200,000.00
30	Traffic controllers	mths	12	\$ 217,350.00	\$ 2,608,200.00
	10 man team plus vehicles, trucks, signs, etc				
Traffic Stage 2					\$ 2,930,148.00

Feasibility Design - Traffic Stage 3

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	1200	\$ 138.30	\$ 165,955.20
21.2	Place and relocate	m	4000	\$ 21.95	\$ 87,792.00
22	SW Temporary Pavement	m2	0	\$ 54.59	\$ -
23	Traffic Modifications - Parkes Way	Item	0	\$ 100,000.00	\$ -
24	Demolish existing Commonwealth Ave Bridge	m2	0	\$ 400.00	\$ -
25	New Temporary/Permenant Bridges	m2	\$ -	\$ 3,127.00	\$ -
26	New Permanent Bridge	m2	0	\$ 3,127.00	\$ -
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 200,000.00	\$ 200,000.00
30	Traffic controllers	mths	9	\$ 217,350.00	\$ 1,956,150.00
	10 man team plus vehicles, trucks, signs etc.				
Traffic Stage 3					\$ 2,509,897.20

Feasibility Design - Traffic Stage 4

Item	Description	Unit	Qty
21	Temporary separation Barriers		
21.1	Purchase	m	0
21.2	Place and relocate	m	1200
22	SW temporary Pavement	m2	4730
	Londonderry ramp temp pavt	m2	1350
23	Traffic Modifications - Commonwealth Avenue	Item	1
24	Demolish existing Commonwealth Ave Bridge	m2	0
25	New Temp/Perm Bridges	m2	0
26	New Permanent Bridge	m2	0
27	Temporary pavements to Commonwealth Ave traffic switching	m2	0
28	Other traffic modifications	Item	1
29	Design and Canberra factor	Item	1
30	Traffic controllers	mths	6
	10 man team plus vehicles, trucks, signs, etc		
31	Commonwealth temp pavt at London	m2	2040
32	Demolish existing bridge	m2	800

New rate	Amount
\$ 138.30	\$ -
\$ 21.95	\$ 26,337.60
\$ 54.59	\$ 258,195.56
\$ 54.28	\$ 73,278.00
\$ 250,000.00	\$ 250,000.00
\$ 400.00	\$ -
\$ 3,127.00	\$ -
\$ 3,127.00	\$ -
\$ 54.59	\$ -
\$ 100,000.00	\$ 100,000.00
\$ 200,000.00	\$ 200,000.00
\$ 217,350.00	\$ 1,304,100.00
\$ 54.28	\$ 110,731.20
\$ 400.00	\$ 320,000.00
Traffic Stage 4	\$ 2,642,642.36

Feasibility Design - Traffic Stage 5

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	2500	\$ 21.95	\$ 54,870.00
22	Commonwealth Ave temp pavt	m2	1800	\$ 54.59	\$ 98,256.24
		m2	0	\$ 54.28	\$ -
23	Traffic Mods - Commonwealth	Item	1	\$ 100,000.00	\$ 100,000.00
24	Demolish existing Commonwealth Ave Bridge	m2	0	\$ 400.00	\$ -
25	New Temp/Perm Bridges	m2	0	\$ 3,127.00	\$ -
26	New Permanent Bridge	m2	0	\$ 3,127.00	\$ -
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 100,000.00	\$ 100,000.00
30	Traffic controllers	mths	6	\$ 217,350.00	\$ 1,304,100.00
	10 man team plus vehicles				
	trucks, signs, etc				
31	Demolish existing bridge	m2	800	\$ 400.00	\$ 320,000.00
Traffic Stage 5					\$ 2,077,226.24

Feasibility Design - Traffic Stage 6

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	2500	\$ 21.95	\$ 54,870.00
22	Rehabilitate pavements	m2	12619	\$ 27.14	\$ 342,479.66
23	Traffic Mods - Commonwealth	Item	1	\$ 100,000.00	\$ 100,000.00
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 100,000.00	\$ 100,000.00
30	Traffic controllers	mths	3	\$ 217,350.00	\$ 652,050.00
	10 man team plus vehicles, trucks, signs, etc				
Traffic Stage 6					\$ 1,349,399.66

Feasibility Design - Drainage

Item	Description	Unit	Qty	New rate	Amount
	Drg Trunk S/water drainage 1/2				
1	Stormwater				
	MC 20 Marcus				
1.0.1	900 dia RCP	m	58	\$ 580.00	\$ 33,640.00
		m	20	\$ 580.00	\$ 11,600.00
		m	12	\$ 580.00	\$ 6,960.00
1.0.2	2 x 1200 RCP	m	124	\$ 1,680.00	\$ 208,320.00
		m	23	\$ 1,680.00	\$ 38,640.00
	MC P0 Parkes				
	Circa 2m deep				
1.0.3	3600 x 900 RCBC	m	1,055	\$ 3,100.00	\$ 3,269,880.00
1.0.4	3600 x 900 RCBC	m	468	\$ 3,100.00	\$ 1,450,800.00
1.0.5	2 x 1050 RCP	m	189	\$ 2,000.00	\$ 378,000.00
1.0.6	1 x 675 RCP	m	39	\$ 320.00	\$ 12,480.00
	MC F0 Lake Rd				
1.0.7	2 x 900 RCP	m	171	\$ 1,160.00	\$ 198,360.00
	MC C0 Commonwealth				
1.0.8	1 x 675 RCP	m	117	\$ 320.00	\$ 37,440.00
	Drainage Structures				
1.0.9	Headwall, 3600 x 900 RCBC	no	1		
1.1	Concrete Junction Box				
	Allow 3m deep				
1.10.1	3600 x 3600 RCBC, 3m deep	no	1	\$ 46,000.00	\$ 46,000.00
1.10.2	3600 - 3600 RCBC struct	no	1	\$ 46,000.00	\$ 46,000.00
1.10.3	3600/2x1200/2x1050 struct	no	1	\$ 51,750.00	\$ 51,750.00
1.10.4	2x1050/2x1050/2x900 struct	no	1	\$ 51,750.00	\$ 51,750.00
1.10.5	2x1050/1x675/1x675 struct	no	1	\$ 40,250.00	\$ 40,250.00
1.10.6	1x675/1x675 struct	no	1	\$ 13,800.00	\$ 13,800.00
1.10.7	2x900 struct	no	2	\$ 11,500.00	\$ 23,000.00
1.10.8	2x1200/2x1200 struct	no	1	\$ 17,250.00	\$ 17,250.00
1.10.9	2x1200/1x900/2x900 struct	no	1	\$ 20,700.00	\$ 20,700.00
1.11	Gross Pollutant Trap				
1.11.1	2 x 1200 RCP in/out	no	1	\$ 46,000.00	\$ 46,000.00
1.12	Pump Station				
1.12.1	Well storage 20 cubic	no	1	\$ 230,000.00	\$ 230,000.00
	2 x 250l/s pumps at 20m head				
1.13	Decommission Existing	m	1,400	\$ 30.00	\$ 42,000.00
	Drg Trunk S/water drainage 2/2				
	MC 50 Allara				
1.14	2 x 3600x1200 RCBC	m	1447.2	\$ 1,290.00	\$ 1,866,888.00
1.15	3 x 3600x1200 RCBC	m	2233	\$ 1,290.00	\$ 2,880,570.00
	Drainage Structures				
1.16	Concrete Junction Box				
	Allow 3m deep				
1.16.1	2x3600x1200 RCBC inlet, 3m deep	no	2		
1.16.2	2x3600x1200 junctions	no	2		
1.16.3	2x3600x1200 bends	no	2		
1.16.4	1x3600x1200*2 junction	no	1		
	Allowance for Local Collectors				
	Drg Trunk S/water drainage 1/2				
1.17	Parkes Way Trench				
1.17.1	450 RCP each side	m	1600	\$ 190.00	\$ 304,000.00
1.17	Parkes Way surface				

1.17.2	450 RCP each side	m	1600	\$ 190.00	\$ 304,000.00
	Commonwealth				
1.18	450 RCP each side	m	600	\$ 190.00	\$ 114,000.00
	Marcus Clark Street				
1.19	Assume not in scope				
	Lake Rd				
1.2	Assume not in scope				
	Coranderrk Street				
1.21	450 RCP each side	m	420	\$ 190.00	\$ 79,800.00
	Inlet Pits and grates				
1.22	Assume at 40m centres				
	4220/40	no	105	\$ 8,240.00	\$ 865,200.00
	Decommission Corranderrk Pond				
	7800*1.5				
	Assume 1.5m deep average				
1.23	Excavate and fill	m3	11700	\$ 30.00	\$ 351,000.00
	Decommission Corranderrk Trunk Mains				
	Large RCBC				
1.24	Line to pond	m	200	\$ 690.00	\$ 138,000.00
1.25	Other RCBC's	m	200	\$ 690.00	\$ 138,000.00
1.26	RCPs say 900 dia	m	150	\$ 60.00	\$ 9,000.00
R11 Drainage					\$ 13,325,078.00

Feasibility Design - Earthworks

Item	Description	Unit	Qty	Rate New	Amount
8	Excavation				
8.1	MCCO				
	Start Chainage	1,000			
	End Chainage	1,995			
	Length of Section	m	995		
8.1.1	Cut Volume	m ³	3,787	\$ 17.70	\$ 67,033.55
8.1.2	Fill Volume	m ³	59,418	\$ 15.00	\$ 891,266.28
8.1.3	Excess Material	m ³	55,631		
8.2	MCDO				
	Start Chainage	1,000			
	End Chainage	1,661			
	Length of Section	m	661		
8.2.1	Cut Volume	m ³	704	\$ 17.70	\$ 12,463.37
8.2.2	Fill Volume	m ³	43,068	\$ 15.00	\$ 646,025.64
8.2.3	Excess Material	m ³	42,364		
8.3	MCPO				
	Start Chainage	1,000			
	End Chainage	2,850			
	Length of Section	m	1,850		
8.3.1	Cut Volume	m ³	171,758	\$ 17.70	\$ 3,040,119.43
8.3.2	Fill Volume	m ³	6,725	\$ 15.00	\$ 100,876.19
8.3.3	Excess Material	m ³	-165,033		
8.4	MCQO				
	Start Chainage	1,000			
	End Chainage	1,566			
	Length of Section	m	566		
8.4.1	Cut Volume	m ³	21,551	\$ 23.60	\$ 508,604.10
8.4.2	Fill Volume	m ³	10	\$ 14.16	\$ 136.70
8.4.3	Excess Material	m ³	-21,541		
8.5	MCR0				
	Start Chainage	1,000			
	End Chainage	1,530			
	Length of Section	m	530		
8.5.1	Cut Volume	m ³	22,774	\$ 23.60	\$ 537,466.09
8.5.2	Fill Volume	m ³	9	\$ 15.00	\$ 141.41
8.5.3	Excess Material	m ³	-22,765		
8.6	MCSO				
	Start Chainage	1,000			
	End Chainage	2,533			
	Length of Section	m	1,533		
8.6.1	Cut Volume	m ³	1,233	\$ 23.60	\$ 29,102.53
8.6.2	Fill Volume	m ³	50,289	\$ 15.00	\$ 754,332.21
8.6.3	Excess Material	m ³	49,056		
8.7	MCTO				
	Start Chainage	1,000			
	End Chainage	2,507			
	Length of Section	m	1,507		
8.7.1	Cut Volume	m ³	4,343	\$ 23.60	\$ 102,489.80
8.7.2	Fill Volume	m ³	30,507	\$ 15.00	\$ 457,611.24
8.7.3	Excess Material	m ³	26,165		
	Excess Material	m ³	36,124	\$ 15.00	\$ 541,859.21
8.8	Haul Roads	Item	1	\$ 500,000.00	\$ 500,000.00

8.9	Water Control	Item	1	\$ 150,000.00	\$ 150,000.00
8.10	Foundation Preparation	m2	100000	\$ 2.50	\$ 250,000.00
8.11	Formation Trim and Restore Batters	m2	60000	\$ 3.00	\$ 180,000.00
8.13	Detailed Backfill to Ramps				
	Assume 605lm*6.5m*3.5m				
	Assume select growing medium and detailed placement	m3	13763.75	\$ 54.60	\$ 751,500.75
8.1.2a	Fill to London CCT	m3	41,601	\$ 15.00	\$ 624,015.00
R44 Excavation					\$ 10,145,043.47

8.12	Rock Bolt allowance				
	Assume rock bolts at 1/20 m2	no	1056.9	\$ 590.00	\$ 623,571.00
R64 Soil Nails					\$ 623,571.00

Feasibility Design - Pavements

Item	Description	Unit	Qty	New rate	Amount
Parkes Way Mainline and Ramps					
2.1	<i>Pavement type 1</i>				
2.1.1	Subgrade trim and preparation	m2	87,500	\$ 2.00	\$ 175,000.00
2.1.2	SMZ - Supply from external sources (300mm, CBR>15)	tonne	60,375	\$ 30.00	\$ 1,811,250.00
2.1.3	SMZ - place	m3	26,250	\$ 20.00	\$ 525,000.00
2.1.4	Heavily Bound sub-base - supply (245mm, E=5MPa)	tonne	52,522	\$ 50.00	\$ 2,626,093.75
	Heavily bound sub-base - place	m3	21,438	\$ 25.00	\$ 535,937.50
2.1.5	7mm primer seal between layers	m2	262,500	\$ 10.00	\$ 2,625,000.00
2.1.6	AC20 - DG 90mm thick AR450	m2	87,500	\$ 70.00	\$ 6,125,000.00
2.1.7	AC14 - DG 45mm thick AR450	m2	87,500	\$ 35.00	\$ 3,062,500.00
2.1.8	SMA 14 - 40mm thick A15E PMB	m2	87,500	\$ 35.00	\$ 3,062,500.00
2.1.9	Resurface west of Londonderry	m2	3,885	\$ 30.00	\$ 116,550.00
Surfacing Over Structures					
2.2	<i>Pavement type 2</i>				
2.2.1	Surface preparation of structure	m2	7,500	\$ 2.00	\$ 15,000.00
2.2.2	AC20 - DG 200mm thick AR450	m2	7,500	\$ 150.00	\$ 1,125,000.00
2.2.3	AC14 - DG 150mm thick AR450	m2	7,500	\$ 120.00	\$ 900,000.00
2.2.4	7mm Primer Seal between layers	m2	7,500	\$ 10.00	\$ 75,000.00
2.2.5	SMA 14 - 40mm thick A15E PMB	m2	7,500	\$ 35.00	\$ 262,500.00
Commonwealth Avenue Correction					
2.3	<i>Pavement type 3</i>				
2.3.1	Surface preparation of structure	m2	12,000	\$ 2.00	\$ 24,000.00
2.3.2	AC20 - DG 200mm thick AR450	m2	12,000	\$ 150.00	\$ 1,800,000.00
2.3.3	AC10 - DG 30mm thick AR450	m2	12,000	\$ 25.00	\$ 300,000.00
2.3.4	10mm sprayed bitumen water proofing	m2	12,000	\$ 10.00	\$ 120,000.00
London Circuit and Commonwealth Avenue - New pavements					
2.4	<i>Pavement type 1</i>				
2.1.1	Subgrade trim and preparation	m2	7,010	\$ 2.00	\$ 14,020.00
2.1.2	SMZ - Supply from external sources (300mm, CBR>15)	tonne	4,837	\$ 30.00	\$ 145,107.00
2.1.3	SMZ - place	m3	2,103	\$ 20.00	\$ 42,060.00
2.1.4	Heavily Bound sub-base - supply (245mm, E=5MPa)	tonne	4,208	\$ 50.00	\$ 210,387.63
	Heavily bound sub-base - place	m3	1,717	\$ 25.00	\$ 42,936.25
2.1.5	7mm Primer Seal between layers	m2	21,030	\$ 10.00	\$ 210,300.00
2.1.6	AC20 - DG 90mm thick AR450	m2	7,010	\$ 70.00	\$ 490,700.00
2.1.7	AC14 - DG 45mm thick AR450	m2	7,010	\$ 35.00	\$ 245,350.00
2.1.8	SMA 14 - 40mm thick A15E PMB	m2	7,010	\$ 35.00	\$ 245,350.00
2.1.9	Earthworks	Item	1	\$ 200,000.00	\$ 200,000.00
2.1.10	Kerbs	lm	1,800	\$ 85.00	\$ 153,000.00
2.1.11	Drainage	lm	560	\$ 300.00	\$ 168,000.00
2.1.12	Pits etc.	no	30	\$ 3,500.00	\$ 105,000.00
2.1.13	Lines, signs etc.	Item	1	\$ 300,000.00	\$ 300,000.00
Pavements					\$ 27,858,542.13

Verge/Pedestrian Realm Treatment					
2.4	<i>Pavement type 4</i>				
2.4.1	Geotextile substrate	m2	39,000	\$ 2.00	\$ 78,000.00
2.4.2	DSB20 - 100 thick - supply	tonne	9,555.00	\$ 33.00	\$ 315,315.00
2.4.3	DSB20 - 100 thick - place	m3	3,900.00	\$ 21.00	\$ 81,900.00
2.4.4	Concrete base - N32 - supply 100mm thick	m3	3,900.0	\$ 350.00	\$ 1,365,000.00
2.4.5	Concrete base - N32 - place 100mm thick	m3	3,900.0	\$ 35.00	\$ 136,500.00
2.4.6	SL 82 mesh to concrete base	m2	39,000.0	\$ 11.00	\$ 429,000.00
2.4.7	Forms to concrete base 1 - 0.4lm/m2 - 0.1m high	lm	15,600.0	\$ 22.00	\$ 343,200.00
2.4.8	60mm pavers - supply and place on mortar	m2	39,000	\$ 200.00	\$ 7,800,000.00
General Concrete Paving					\$ 10,548,915.00

Feasibility Design - Miscellaneous Costs and Road Furniture

Item	Description	Unit	Qty	New rate	Amount
9	Throw Screens	m			
	1180 - 1315	m	291	\$ 800	\$ 232,800
	1350 - 1430	m	197	\$ 800	\$ 157,600
	1465 - 1535	m	180	\$ 800	\$ 144,000
	1620 - 1690	m	181	\$ 800	\$ 144,800
	1720 - 1815	m	201	\$ 800	\$ 160,800
10	Lighting				
	2200 m	m	2200	\$ 2,273	\$ 5,000,000
	London	m	450	\$ 2,273	\$ 1,022,727
11	Landscaping				
	67000 m2	m	67000	\$ 100	\$ 6,700,000
12	Guardrailing	m	300	\$ 150	\$ 45,000
Miscellaneous Costs and Road Furniture					\$ 13,607,727.27

Feasibility Design - Retaining Walls and Structures

Item	Description	Unit	Qty	New rate	Amount
3.3.2	Fix panels	m2	10274		incl
	<i>Water Proofing of walls</i>				
3.4	Water Proof Membrane	m2	5642	\$ 260.00	\$ 1,466,920
4	MC PO - OPT6 - SH02				
	<i>Edge Piles</i>				
4.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	8499	\$ 830.00	\$ 7,054,078
4.1.1	Supply concrete to 3.1	m3	5406		incl
4.1.2	Supply and place reo at 160kg/m3	t	892		incl
4.1.3	Drill piles	lm	8499		incl
4.1.4	Place concrete and reo	lm	8499		incl
4.1.5	Trim face of cut	m2	12514	\$ 20.00	\$ 250,280
	<i>Centre Piles</i>				
4.2	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	4249	\$ 830.00	\$ 3,527,039
4.2.1	Supply concrete to 3.1	m3	2703		incl
4.2.2	Supply and place reo at 160kg/m3	t	446		incl
4.2.3	Drill piles	lm	4249		incl
4.2.4	place concrete and reo	lm	4249		incl
	<i>Facing Panels</i>				
4.3	200 thick fixed to piles				
	Height = 6, length = 580lm, 4 sets				
4.3.1	Supply panels 0.2m thick, 13920m2	m2	13920	\$ 510.00	\$ 7,099,200
4.3.2	Fix panels	m2	13920		incl
	<i>Water Proofing of walls</i>				
4.3.3	water proof membrane	m2	12514	\$ 260.00	\$ 3,253,640
5	MC RO - OPT6 - SH01				
	<i>Edge Piles</i>				
5.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	1728	\$ 830.00	\$ 1,434,240
5.1.1	Supply concrete to 3.1	m3	1099		incl
5.1.2	Supply and place reo at 160kg/m3	t	181		incl
5.1.3	Drill piles	lm	1728		incl
5.1.4	place concrete and reo	lm	1728		incl
5.1.5	Trim face of cut	m2	1632	\$ 20.00	\$ 32,640
	<i>Facing Panels</i>				
5.2	200 thick fixed to piles				
5.2.1	Supply panels 0.2m thick, 3265m2	m2	3265	\$ 510.00	\$ 1,665,150
5.2.2	Fix panels	m2	3265		incl
6	MC QO - OPT6 - SH01				
	<i>Edge Piles</i>				
6.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	1427	\$ 830.00	\$ 1,184,687
6.1.1	Supply concrete to 3.1	m3	908		
6.1.2	Supply and place reo at 160kg/m3	t	150		
6.1.3	Drill piles	lm	1427		
6.1.4	place concrete and reo	lm	1427		
6.1.5	Trim face of cut	m2	1350	\$ 20.00	\$ 27,000
	<i>Facing Panels</i>				
6.3	200 thick fixed to piles				
	Height = 5.3, length = 308lm, 2 sets				
6.3.1	Supply panels 0.2m thick, 3265m2	m2	3265	\$ 510.00	\$ 1,665,150
6.3.2	Fix panels	m2	3265		
7	Shotcreting				
Z1	<i>Infill Shotcrete between piles - Parkes way</i>				
7.1	200 thick shotcrete, assume F81 mesh	m2	1344	\$ 270.00	\$ 362,880
7.1.1	Supply shotcrete - nett vol, 200 thick	m3	268.8		incl
7.1.2	Place shotcrete	m2	1344		incl
7.1.3	Supply and place locating pins at 1/0.9m2	no	1493		incl
7.1.4	Supply and place F81 mesh	m2	1344		incl
Z2	<i>Infill Shotcrete between piles - Parkes way</i>				
7.2	200 thick shotcrete assume F81 mesh	m2	1260	\$ 270.00	\$ 340,200
7.2.1	Supply shotcrete - nett vol, 200 thck	m3	252		
7.2.2	Place shotcrete	m2	1260		
7.2.3	Supply and place locating pins at 1/0.9m2	no	1400		
7.2.4	Supply and place F81 mesh	m2	1260		
Z3	<i>Infill Shotcrete between piles - Parkes way</i>				
7.3	200 thick shotcrete assume F81 mesh	m2	3536	\$ 270.00	\$ 954,720
7.3.1	Supply shotcrete - nett vol, 200 thck	m3	707.2		

Structure Unidentified Scope	\$	19,549,695
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Structure Unidentified Scope	\$	97,748,476
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APPENDIX B

COST ESTIMATION SPREADSHEETS – VARIANT 2C DESIGN

Variant 2C - Traffic Signals

Item	Description	Unit	Qty	New rate	Amount
New					
10	Intersection signalling	sets	5	\$ 230,000	\$ 1,150,000
11	Pedestrian signalling	sets	15	\$ 70,000	\$ 1,050,000
Traffic Signals					\$ 2,200,000

Variant 2C - Services

Item	Description	Unit	Qty	New rate	Amount
13	Gas mains				
	Gas 100 dia	m	300	\$ 500.00	\$ 150,000.00
	Gas 350 dia	m	1281	\$ 1,000.00	\$ 1,281,000.00
	Gas 450 dia	m	47	\$ 1,500.00	\$ 70,500.00
					\$ 1,501,500.00
	Contingency for major valves and structures				\$ 225,225.00
Gas mains					\$ 1,726,725.00
14	Sewer mains				
	Use SW prices plus 40/m for testing and higher standard				
	150 dia	m	21	\$ 1,000.00	\$ 21,000.00
	600 dia	m	603	\$ 1,500.00	\$ 904,500.00
	750 dia	m	1059	\$ 2,000.00	\$ 2,118,000.00
14.1	Sewer manholes	m	23	\$ 6,000.00	\$ 138,000.00
14.2	Contingency for encasement	item	1000	\$ 500.00	\$ 500,000.00
14.3	Contingency for pump wells	Item	2	\$ 141,600.00	\$ 283,200.00
Sewer					\$ 3,964,700.00
Sewer - Client Directed					\$ -
15	Watermains				
	150 dia	m	128	\$ 1,000.00	\$ 128,000.00
	225 dia	m	273	\$ 1,100.00	\$ 300,300.00
	300 dia	m	1018	\$ 1,300.00	\$ 1,323,400.00
	375 dia	m	104	\$ 1,500.00	\$ 156,000.00
	600 dia	m	318	\$ 2,500.00	\$ 795,000.00
	675 dia	m	152	\$ 3,000.00	\$ 456,000.00
					\$ 3,158,700.00
	Contingency for major valves and structures				\$ 473,805.00
Watermains					\$ 3,632,505.00
Watermains - Client directed					\$ 350,000.00
16	HV underground mains	m	654	\$ 4,000.00	
HV underground mains					\$ 2,616,000.00
17	Communications				
	ICON	m	1332		
	TEL	m	1023		
	AAPT	m	400		
	TA	m	1582		
	OPT	m	682		
	ICON/AAPT/TA	m	424		
	NG	m	318		
			5761	\$ 1,000.00	
Communications					\$ 5,761,000.00

Variant 2C - Traffic Stage 1

Item	Description	Unit	Qty	New rate	Amount
20	Median Temporary Pavement	m2	6500	\$ 55	\$ 354,814
21	Temporary separation Barriers				
21.1	Purchase	m	2200	\$ 138	\$ 304,251
21.2	Place and relocate	m	2200	\$ 22	\$ 48,286
22	SW temporary Pavement	m2	3311	\$ 55	\$ 180,737
23	Traffic Mods - Parkes way	Item	1	\$ 100,000	\$ 100,000
24	Demolish existing Commonwealth Ave Bridge	m2	2,948	\$ 400	\$ 1,179,200
25	New Temp/Perm Bridges	m2	844	\$ 3,127	\$ 2,639,188
26	New Permanent Bridge	m2	3016	\$ 3,127	\$ 9,431,032
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	1428	\$ 55	\$ 77,950
28	Other raffic Modifications	Item	1	\$ 500,000	\$ 500,000
29	Design and Canberra factor	Item	1	\$ 1,000,000	\$ 1,000,000
30	Traffic controllers 10 man team plus vehicles, trucks, signs, etc	mths	15	\$ 217,350	\$ 3,260,250
31	London Circuit Loops	m2	4098	\$ 55	\$ 223,697
	Earth works	Item	1	\$ 200,000	\$ 200,000
Traffic Stage 1					\$ 19,499,405

Variant 2C - Traffic Stage 2

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	1000	\$ 21.95	\$ 21,948.00
22	SW temporary Pavement	m2	0	\$ 54.59	\$ -
23	Traffic Mods - Parkes way	Item	0	\$ 100,000.00	\$ -
24	Demolish existing Commonwealth Ave Bridge	m2	0	\$ 400.00	\$ -
25	New Temp/Perm Bridges	m2	0	\$ 3,127.00	\$ -
26	New Permanent Bridge	m2	0	\$ 3,127.00	\$ -
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 200,000.00	\$ 200,000.00
	Excavation volume halved				
	Dsay 8 mnyhs in lieu of 12				
30	Traffic controllers	mths	8	\$ 217,350.00	\$ 1,738,800.00
	10 man team plus vehicles, trucks, signs, etc				
Traffic Stage 2					\$ 2,060,748.00

Variant 2C - Traffic Stage 3

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	1200	\$ 138.30	\$ 165,955.20
21.2	Place and relocate	m	4000	\$ 21.95	\$ 87,792.00
22	SW temporary Pavement	m2	0	\$ 54.59	\$ -
23	Traffic Mods - Parkes way	Item	0	\$ 100,000.00	\$ -
24	Demolish existing Commonwealth Ave Bridge	m2	0	\$ 400.00	\$ -
25	New Temp/Perm Bridges	m2	\$ -	\$ 3,127.00	\$ -
26	New Permanent Bridge	m2	0	\$ 3,127.00	\$ -
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 200,000.00	\$ 200,000.00
30	Traffic controllers	mths	9	\$ 217,350.00	\$ 1,956,150.00
	10 man team plus vehicles, trucks, signs, etc				
Traffic Stage 3					\$ 2,509,897.20

Variant 2C - Traffic Stage 4

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	1200	\$ 21.95	\$ 26,337.60
22	SW temporary Pavement	m2	4730	\$ 54.59	\$ 258,195.56
	Londonderry ramp temp pavt	m2	1350	\$ 54.28	\$ 73,278.00
23	Traffic Mods - Commonwealth	Item	1	\$ 250,000.00	\$ 250,000.00
24	Demolish existing Commonwealth Ave Bridge	m2	0	\$ 400.00	\$ -
25	New Temp/Perm Bridges	m2	0	\$ 3,127.00	\$ -
26	New Permanent Bridge	m2	0	\$ 3,127.00	\$ -
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 200,000.00	\$ 200,000.00
30	Traffic controllers	mths	6	\$ 217,350.00	\$ 1,304,100.00
	10 man team plus vehicles, trucks, signs, etc				
31	Commonwealth temp pavt at London	m2	2040	\$ 54.28	\$ 110,731.20
32	Demolish existing bridge	m2	800	\$ 400.00	\$ 320,000.00
				Traffic Stage 4	\$ 2,642,642.36

Variant 2C - Traffic Stage 5

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	2500	\$ 21.95	\$ 54,870.00
22	Rehabilitate pavements	m2	12619	\$ 27.14	\$ 342,479.66
23	Traffic Mods - Commonwealth	Item	1	\$ 100,000.00	\$ 100,000.00
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 100,000.00	\$ 100,000.00
30	Traffic controllers	mths	3	\$ 217,350.00	\$ 652,050.00
	10 man team plus vehicles, trucks, signs, etc				
31	Demolish existing bridge	m2	800	\$ 400.00	\$ 320,000.00
Traffic Stage 6					\$ 1,669,399.66

Variant 2C - Traffic Stage 6

Item	Description	Unit	Qty	New rate	Amount
21	Temporary separation Barriers				
21.1	Purchase	m	0	\$ 138.30	\$ -
21.2	Place and relocate	m	2500	\$ 21.95	\$ 54,870.00
22	Rehabilitate pavements	m2	12619	\$ 27.14	\$ 342,479.66
23	Traffic Mods - Commonwealth	Item	1	\$ 100,000.00	\$ 100,000.00
27	Temporary Pavements to Commonwealth Ave traffic switching	m2	0	\$ 54.59	\$ -
28	Other traffic Modifications	Item	1	\$ 100,000.00	\$ 100,000.00
29	Design and Canberra factor	Item	1	\$ 100,000.00	\$ 100,000.00
30	Traffic controllers	mths	3	\$ 217,350.00	\$ 652,050.00
	10 man team plus vehicles, trucks, signs, etc				
Traffic Stage 6					\$ 1,349,399.66

Variant 2C - Drainage

Item	Description	Unit	Qty
Drg Trunk S/water drainage 1/2			
1	Stormwater		
	MC 20 Marcus		
1.1	900 dia RCP	m	58
		m	20
		m	12
1.2	2 x 1200 RCP	m	124
		m	23
	MC P0 Parkes		
	Circa 2m deep		
1.3	3600 x 900 RCBC	m	1,055
1.4	3600 x 900 RCBC	m	468
1.5	2 x 1050 RCP	m	189
1.6	1 x 675 RCP	m	39
	MC F0 Lake Rd		
1.7	2 x 900 RCP	m	171
	MC C0 Commonwealth		
1.8	1 x 675 RCP	m	117
	Drainage Structures		
1.9	Headwall, 3600 x 900 RCBC	no	1
1.1	Concrete Junction Box		
	Allow 3m deep		
1.10.1	3600 x 3600 RCBC, 3m deep	no	1
1.10.2	3600 - 3600 RCBC structure	no	1
1.10.3	3600/2x1200/2x1050 struct	no	1
1.10.4	2x1050/2x1050/2x900 struct	no	1
1.10.5	2x1050/1x675/1x675 struct	no	1
1.10.6	1x675/1x675 struct	no	1
1.10.7	2x900 struct	no	2
1.10.8	2x1200/2x1200 struct	no	1
1.10.9	2x1200/1x900/2x900 struct	no	1
1.11	Gross Pollutant Trap		
1.11.1	2 x 1200 RCP in/out	no	1
1.12	Pump Station		
1.12.1	Well storage 20 cubic	no	1
	2 x 250l/s pumps at 20m head		
1.13	Decommission existing	m	1,400
Drg Trunk S/water drainage 2/2			
	MC 50 Allara		

1.14	2 x 3600x1200 RCBC	m	1447.2
1.15	3 x 3600x1200 RCBC	m	2233
	Drainage Structures		
1.16	Concrete Junction Box		
	Allow 3m deep		
1.16.1	2x3600x1200 RCBC inlet, 3m deep	no	2
1.16.2	2x3600x1200 junctions	no	2
1.16.3	2x3600x1200 bends	no	2
1.16.4	1x3600x1200*2 junction	no	1
	Allowance for local Collectors		
	Drg Trunk S/water drainage 1/2		
1.17	Parkes way trench		
1.17.1	450 rcp each side	m	1600
1.17	Parkes way surface		
1.17.2	450 rcp each side	m	1600
	Commonwealth		
1.18	450 rcp each side	m	600
	Marcus		
1.19	Assume not in scope		
	Lake Rd		
1.2	Assume not in scope		
	Coranderrk		
1.21	450 rcp each side	m	420
	Inlet Pits and grates		
1.22	Assume at 40m centres		
	4220/40	no	105
	Decommission Corranderrk Pond		
	Excavate and fill		
	Assume 1.5m deep average		
1.23	7800*1.5	m3	11700
	Decommission Corranderrk Trunk Mains		
	Large RCBC		
1.24	Line to pond	m	200
1.25	Other RCBC's	m	200
1.26	RCPs say 900 dia	m	150

New rate	Amount
\$ 580.00	\$ 33,640.00
\$ 580.00	\$ 11,600.00
\$ 580.00	\$ 6,960.00
\$ 1,680.00	\$ 208,320.00
\$ 1,680.00	\$ 38,640.00
\$ 3,100.00	\$ 3,269,880.00
\$ 3,100.00	\$ 1,450,800.00
\$ 2,000.00	\$ 378,000.00
\$ 320.00	\$ 12,480.00
\$ 1,160.00	\$ 198,360.00
\$ 320.00	\$ 37,440.00
\$ 46,000.00	\$ 46,000.00
\$ 46,000.00	\$ 46,000.00
\$ 51,750.00	\$ 51,750.00
\$ 51,750.00	\$ 51,750.00
\$ 40,250.00	\$ 40,250.00
\$ 13,800.00	\$ 13,800.00
\$ 11,500.00	\$ 23,000.00
\$ 17,250.00	\$ 17,250.00
\$ 20,700.00	\$ 20,700.00
\$ 46,000.00	\$ 46,000.00
\$ 230,000.00	\$ 230,000.00
\$ 30.00	\$ 42,000.00

\$ 1,290.00	\$ 1,866,888.00
\$ 1,290.00	\$ 2,880,570.00
\$ 190.00	\$ 304,000.00
\$ 190.00	\$ 304,000.00
\$ 190.00	\$ 114,000.00
\$ 190.00	\$ 79,800.00
\$ 8,240.00	\$ 865,200.00
\$ 30.00	\$ 351,000.00
\$ 690.00	\$ 138,000.00
\$ 690.00	\$ 138,000.00
\$ 60.00	\$ 9,000.00
R11 Drainage	\$ 13,325,078.00

Variant 2C - Excavation

Item	Description	Unit	Qty	Rate New	Amount
8	Excavation				
8.1	No Division into sectors				
	Start Chainage	1,000			
	End Chainage	2,850			
	Length of Section	m	1,850		
8.1.1	Cut Volume	m ³	102,577	\$ 17.70	\$ 1,815,612.90
	Assume cut fill balance in final design e.g if ripped rock bulks 1.15*102.577-70020-41601		6,343		
8.1.2	Fill Volume	m ³	70,020	\$ 15.00	\$ 1,050,300.00
8.1.2a	Fill to London CCT	m ³	41,601	\$ 15.00	\$ 624,015.00
	Excess Material	m ³	0	\$ 15.00	\$ -
8.8	Haul Roads	Item	1	\$ 400,000.00	\$ 400,000.00
8.9	Water Control	Item	1	\$ 120,000.00	\$ 120,000.00
8.10	Foundation Preparation	m ²	80000	\$ 2.50	\$ 200,000.00
8.11	Formation trim and restore batters	m ²	40000	\$ 3.00	\$ 120,000.00
8.13	Detailed backfill to ramps				
	Assume 605lm*6.5m*0.5m				
	Assume select growing medium and detailed placement	m ³	1966.25	\$ 54.60	\$ 107,357.25
				R44 Excavation	\$ 4,437,285.15
8.12	Rock Bolt allowance				
	Assume rock bolts at 1/20 m ²	no	590	\$ 590.00	\$ 348,100.00
				R64 Soil Nails	\$ 348,100.00

Variant 2C - Pavements

Item	Description	Unit	Qty	New rate	Amount
	Parkes Way mainline and Ramps				
2.1	<i>Pavement type 1</i>				
2.1.1	Subgrade trim and preparation	m2	71,652	\$ 2.00	\$ 143,304.00
2.1.2	SMZ - Supply from external sources	tonne	49,440	\$ 30.00	\$ 1,483,196.40
	300mm, CBR>15				
2.1.3	SMZ - place	m3	21,496	\$ 20.00	\$ 429,912.00
2.1.4	Heavily Bound sub-base - supply	tonne	43,009	\$ 50.00	\$ 2,150,455.65
	245mm, E=5MPa				
	Heavily bound sub-base - place	m3	17,555	\$ 25.00	\$ 438,868.50
2.1.5	7mm primer seal between layers	m2	214,956	\$ 10.00	\$ 2,149,560.00
2.1.6	AC20 - DG 90mm thick AR450	m2	71,652	\$ 70.00	\$ 5,015,640.00
2.1.7	AC14 - DG 45mm thick AR450	m2	71,652	\$ 35.00	\$ 2,507,820.00
2.1.8	SMA 14 - 40mm thick A15E PMB	m2	71,652	\$ 35.00	\$ 2,507,820.00
2.1.9	Resurface west of Londonderry	m2	3,885	\$ 30.00	\$ 116,550.00
	Surfacing over structures				
2.2	<i>Pavement type 2</i>				
2.2.1	Surface preparation of structure	m2	13,153	\$ 2.00	\$ 26,306.00
2.2.2	AC20 - DG 200mm thick AR450	m2	13,153	\$ 150.00	\$ 1,972,950.00
2.2.3	AC14 - DG 150mm thick AR450	m2	13,153	\$ 120.00	\$ 1,578,360.00
2.2.4	7mm primer seal between layers	m2	13,153	\$ 10.00	\$ 131,530.00
2.2.5	SMA 14 - 40mm thick A15E PMB	m2	13,153	\$ 35.00	\$ 460,355.00
	Commonwealth Avenue correction				
2.3	<i>Pavement type 3</i>				
2.3.1	Surface preparation of structure	m2	12,000	\$ 2.00	\$ 24,000.00
2.3.2	AC20 - DG 200mm thick AR450	m2	12,000	\$ 150.00	\$ 1,800,000.00
2.3.3	AC10 - DG 30mm thick AR450	m2	12,000	\$ 25.00	\$ 300,000.00
2.3.4	10mm sprayed bitumen water proofing	m2	12,000	\$ 10.00	\$ 120,000.00
	London Circuit and C'Vealth new pavements				
2.4	<i>Pavement type 1</i>				
2.1.1	Subgrade trim and preparation	m2	7,010	\$ 2.00	\$ 14,020.00
2.1.2	SMZ - Supply from external sources	tonne	4,837	\$ 30.00	\$ 145,107.00
	300mm, CBR>15				
2.1.3	SMZ - place	m3	2,103	\$ 20.00	\$ 42,060.00
2.1.4	Heavily Bound sub-base - supply	tonne	4,208	\$ 50.00	\$ 210,387.63
	245mm, E=5MPa				
	Heavily bound sub-base - place	m3	1,717	\$ 25.00	\$ 42,936.25
2.1.5	7mm primer seal between layers	m2	21,030	\$ 10.00	\$ 210,300.00
2.1.6	AC20 - DG 90mm thick AR450	m2	7,010	\$ 70.00	\$ 490,700.00
2.1.7	AC14 - DG 45mm thick AR450	m2	7,010	\$ 35.00	\$ 245,350.00
2.1.8	SMA 14 - 40mm thick A15E PMB	m2	7,010	\$ 35.00	\$ 245,350.00
2.1.9	earthworks	Item	1	\$ 200,000.00	\$ 200,000.00
2.1.10	Kerbs	lm	1,800	\$ 85.00	\$ 153,000.00
2.1.11	Drainage	lm	560	\$ 300.00	\$ 168,000.00
2.1.12	Pits etc	no	30	\$ 3,500.00	\$ 105,000.00
2.1.13	Lines, signs etc	Item	1	\$ 300,000.00	\$ 300,000.00
	New Road west of marcus clarke				
2.4	<i>Pavement type 1</i>				
2.1.1	Subgrade trim and preparation	m2	1,782	\$ 2.00	\$ 3,564.00
2.1.2	SMZ - Supply from external sources	tonne	1,230	\$ 30.00	\$ 36,887.40
	300mm, CBR>15				
2.1.3	SMZ - place	m3	535	\$ 20.00	\$ 10,692.00
2.1.4	Heavily Bound sub-base - supply	tonne	1,070	\$ 50.00	\$ 53,482.28
	245mm, E=5MPa				
	Heavily bound sub-base - place	m3	437	\$ 25.00	\$ 10,914.75
2.1.5	7mm primer seal between layers	m2	5,346	\$ 10.00	\$ 53,460.00
2.1.6	AC20 - DG 90mm thick AR450	m2	1,782	\$ 70.00	\$ 124,740.00
2.1.7	AC14 - DG 45mm thick AR450	m2	1,782	\$ 35.00	\$ 62,370.00
2.1.8	SMA 14 - 40mm thick A15E PMB	m2	1,782	\$ 35.00	\$ 62,370.00
2.1.9	earthworks	Item	1	\$ 200,000.00	\$ 200,000.00

2.1.10	Kerbs	lm	440	\$ 85.00	\$ 37,400.00
2.1.11	Drainage	lm	220	\$ 300.00	\$ 66,000.00
2.1.12	Pits etc	no	15	\$ 3,500.00	\$ 52,500.00
2.1.13	Lines, signs etc	litem	1	\$ 100,000.00	\$ 100,000.00
Pavements					\$ 26,803,218.85

Verge/Pedestrian Realm Treatment					
2.4	<i>Pavement type 4</i>				
2.4.1	Geotextile substrate	m2	6,921	\$ 2.00	\$ 13,842.00
2.4.2	DSB20 - 100 thick - supply	tonne	1,695.65	\$ 33.00	\$ 55,956.29
2.4.3	DSB20 - 100 thick - place	m3	692.10	\$ 21.00	\$ 14,534.10
2.4.4	Concrete base - N32 - supply 100mm thick	m3	692.1	\$ 350.00	\$ 242,235.00
2.4.5	Concrete base - N32 - place 100mm thick	m3	692.1	\$ 35.00	\$ 24,223.50
2.4.6	SL 82 mesh to concrete base	m2	6,921.0	\$ 11.00	\$ 76,131.00
2.4.7	Forms to concrete base 1 - 0.4lm/m2 - 0.1m high	lm	2,768.4	\$ 22.00	\$ 60,904.80
2.4.8	60mm pavers - supply and place on mortar	m2	6,921	\$ 200.00	\$ 1,384,200.00
General Concrete Paving					\$ 1,872,026.69

Variant 2C - Miscellaneous and Road Furniture

Item	Description	Unit	Qty	New rate	Amount
9	Throw Screens	m			
	Commonwealth ramp	m	90	\$ 800	\$ 72,000
	Parkes	m	605	\$ 800	\$ 484,000
10	Lighting				
	2200 m	m	2200	\$ 2,273	\$ 5,000,000
	London	m	450	\$ 2,273	\$ 1,022,727
11	landscaping				
	Limit to Verges on Parkes and fixing commonwealth				
	67000 sm	m	20000	\$ 100	\$ 2,000,000
12	Guardrailing	m	300	\$ 150	\$ 45,000
Miscellaneous and Road Furniture					\$ 8,623,727

Variant 2 (Variant 2C - Retaining Walls and Structures

Item	Description	Unit	Qty	New rate	Amount
	MC PO - OP9 - A+B				
3	Area of walls = 4611.4 m2	m2	4611.4		
	Section length = 1400 lm				
	<i>Edge Piles</i>				
3.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	3495	\$ 830.00	\$ 2,901,034
3.1.1	Supply concrete to 3.1	m3	2223		incl
3.1.2	Supply and place reo at 160kg/m3	t	367		incl
3.1.3	Drill piles	lm	3495		incl
3.1.4	place concrete and reo	lm	3495		incl
3.1.5	Trim face of cut	m2	4611	\$ 20.00	\$ 92,228
	MC PO - OP9 - D				
	<i>Centre Piles</i>				
	Area of Centre Wall		4062		
3.2	Contiguous piles - 600 dia at 1.8m plus 2.4 socket	lm	1422	\$ 442.67	\$ 629,275
3.2.1	Supply concrete to 3.1	m3	402		incl
3.2.2	Supply and place reo at 160kg/m3	t	66		incl
3.2.3	Drill piles	lm	1422		incl
3.2.4	place concrete and reo	lm	1422		incl
	<i>Facing Panels</i>				
3.3	200 thick fixed to piles				
3.3.1	Supply panels 0.2m thick, 4611m2	m2	4611	\$ 510.00	\$ 2,351,814
3.3.2	Fix panels	m2	4611		incl
	Water Proofing of walls below Lake level				
3.4	water proof membrane	m2	800	\$ 260.00	\$ 208,000
	MC PO - OP9 - E+E1				
4	Area of walls = 4002 m2	m2	4001.9		
	Section length = 460+240 = 700 lm		700		
	<i>Edge Piles</i>				
4.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	4090	\$ 830.00	\$ 3,394,654
4.1.1	Supply concrete to 4.1	m3	2602		incl
4.1.2	Supply and place reo at 160kg/m3	t	429		incl
4.1.3	Drill piles	lm	4090		incl
4.1.4	place concrete and reo	lm	4090		incl
4.1.5	Trim face of cut	m2	4002	\$ 20.00	\$ 80,038
	<i>Facing Panels</i>				
4.3	200 thick fixed to piles				
4.3.1	Supply panels 0.2m thick, 4002m2	m2	4002	\$ 510.00	\$ 2,040,969
4.3.2	Fix panels	m2	4002		incl
	Water Proofing of walls below Lake level only				
4.3.3	water proof membrane	m2	800	\$ 260.00	\$ 208,000
	MC PO - OP9 - C				
5	Area of walls = 550 m2	m2	549.8		
	<i>Edge Piles</i>				
5.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	892	\$ 830.00	\$ 740,452
5.1.1	Supply concrete to 5.1	m3	567		incl
5.1.2	Supply and place reo at 160kg/m3	t	94		incl
5.1.3	Drill piles	lm	892		incl
5.1.4	place concrete and reo	lm	892		incl
6.1.5	Trim face of cut	m2	550	\$ 20.00	\$ 10,996
	<i>Facing Panels</i>				
5.2	200 thick fixed to piles				
5.2.1	Supply panels 0.2m thick, 550m2	m2	550	\$ 510.00	\$ 280,398
5.2.2	Fix panels	m2	550		incl
	Water Proofing of walls below Lake level only				
5.2.3	water proof membrane	m2	549.8	\$ 260.00	\$ 142,948
	MC RO - OP9 - F+G				
6	Area of walls = 532 m2	m2	532		
	Section length = 76 lm		440		
	<i>Edge Piles</i>				
6.1	Contiguous piles - 900 dia at 1.8m plus 2.4 socket	lm	882	\$ 830.00	\$ 732,244
6.1.1	Supply concrete to 3.1	m3	561		

		Total	\$	43,776,960
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