

22 September 2014

Project No. 1378110270\_3000-3080-308-L-Rev0-314

Manuherikia Catchment Water Strategy Group

c\- Kate Scott BTW South Limited PO Box 302 Cromwell 9342

## MT IDA DAM - UPDATED INFORMATION - SEPTEMBER 2014

## Dear Kate

On 4 June we submitted our indicative cost estimate for Mt Ida Dam based on the design by Pickens (2005) (ref: 1378110270\_3000-3080-308-L-Rev0-309). This letter¹ is in response to your query about providing construction cost estimates of Pickens design (2005) based on updated 2014 unit rates. The summary follows:

- The Mt Ida reports by Hamilton (2006) and Pickens (2005) estimated a dam at Mt Ida as costing approximately \$10 M and a distribution system estimate / upgrade of approximately \$12 M. The total cost was therefore around \$22 M. This is understood (Compass pers.comm.) to translate to \$11,000 per hectare (assuming 2,000 hectares irrigated).
- The unit rates provided by Pickens (2005) were updated to 2014 unit rates, no changes to design or construction methods were included in the cost estimate. The updated unit rates increase the cost of the dam to \$14 M.
- The updated estimate does not include costs for items such as consenting, bonds and insurance, construction management, or additional field explorations, which are typically included in construction cost estimates. Also, a contingency of 35 percent is more appropriate at this early design stage. Adding the additional items listed above and increasing the contingency to 35 percent increases the cost of the dam to approximately \$20 M. A summary of the dam cost estimate is included in Table 1 below and details of the cost estimate are included in Appendix A.
- With no cost increase to the distribution system (\$12 M) and assuming a dam cost of \$20 M, the total cost is around \$32 M which equates to a total cost of approximately \$16,000 per hectare.
- This cost estimate does not take into account the additional design features that are anticipated due to the estimated foundation conditions described in Golder's 23 May 2014 summary letter (ref: 1378110270 3000-3080-308-LR-Rev0).



<sup>&</sup>lt;sup>1</sup> This letter is subject to the attached limitations.

Table 1: Mt Ida Dam Updated Unit Rate Cost Estimates.

Item (from Pickens 2005)	Description	Cost Estimate*		
Dam Foundation and Preparation	Includes items such as stripping, excavation and dewatering.	\$410,000		
Diversion (EO to dam earthworks, and part of the outlet)	Includes items such as excavation, concrete and temporary works for diversion.	\$1,160,000		
Bulk Earthworks for Dam (excluding filters and armour)	Includes items such as stripping and excavation.	\$6,440,000		
Filters/Drainage and Armour	Includes items such as selecting and processing valley gravels and quarrying and placing armour.	\$1,180,000		
Outlet Works and Spillways	Includes items such as valves, pipes, and concrete placement.	\$560,000		
Ancillary Works	Includes items such as road relocation and security fencing.	\$360,000		
Additional Field Explorations	Includes items such as field explorations and laboratory testing	\$500,000		
Base Construction Cost (BC	\$10,610,000			
Site Establishment	10 % of BCS	\$1,060,000		
Consenting	2 % of BCS	\$220,000		
Bonds and Insurance	5 % of BCS	\$530,000		
Construction Management	7 % of BCS	\$750,000		
Engineering and Design	12 % of BCS and Site Establishment	\$1,400,000		
Direct Construction Cost (DC	S)	\$14,520,000		
Contingencies	35 % of DCS	\$5,080,000		
Total Estimated Preliminary Project Costs \$19,600,000				
*Costs are rounded up to the n	earest \$10,000			

Based on the updated 2014 unit rate costs, consenting costs, bonds and insurance cost, construction management cost, and increased contingency, the cost of the dam doubled from the 2006 cost estimate.

Yours sincerely

GOLDER ASSOCIATES (NZ) LIMITED

Tim McMorran

Principal Engineering Geologist

RA/TM/sb

CC: Allan Kane

Attachments: Report Limitations

Appendix A: Mt Ida Dam Updated Cost Estimate with 2014 Rates Only



## **Report Limitations**

This Report / Document has been provided by Golder Associates (NZ) Limited ("Golder") subject to the following limitations:

- i) This Report / Document has been prepared for the particular purpose outlined in Golder's proposal and no responsibility is accepted for the use of this Report / Document, in whole or in part, in other contexts or for any other purpose.
- ii) The scope and the period of Golder's Services are as described in Golder's proposal, and are subject to restrictions and limitations. Golder did not perform a complete assessment of all possible conditions or circumstances that may exist at the site referenced in the Report / Document. If a service is not expressly indicated, do not assume it has been provided. If a matter is not addressed, do not assume that any determination has been made by Golder in regards to it.
- iii) Conditions may exist which were undetectable given the limited nature of the enquiry Golder was retained to undertake with respect to the site. Variations in conditions may occur between investigatory locations, and there may be special conditions pertaining to the site which have not been revealed by the investigation and which have not therefore been taken into account in the Report / Document. Accordingly, if information in addition to that contained in this report is sought, additional studies and actions may be required.
- iv) The passage of time affects the information and assessment provided in this Report / Document. Golder's opinions are based upon information that existed at the time of the production of the Report / Document. The Services provided allowed Golder to form no more than an opinion of the actual conditions of the site at the time the site was visited and cannot be used to assess the effect of any subsequent changes in the quality of the site, or its surroundings, or any laws or regulations.
- v) Any assessments, designs and advice made in this Report / Document are based on the conditions indicated from published sources and the investigation described. No warranty is included, either express or implied, that the actual conditions will conform exactly to the assessments contained in this Report / Document.
- vi) Where data supplied by the client or other external sources, including previous site investigation data, have been used, it has been assumed that the information is correct unless otherwise stated. No responsibility is accepted by Golder for incomplete or inaccurate data supplied by others.
- vii) The Client acknowledges that Golder may have retained subconsultants affiliated with Golder to provide Services for the benefit of Golder. Golder will be fully responsible to the Client for the Services and work done by all of its subconsultants and subcontractors. The Client agrees that it will only assert claims against and seek to recover losses, damages or other liabilities from Golder and not Golder's affiliated companies. To the maximum extent allowed by law, the Client acknowledges and agrees it will not have any legal recourse, and waives any expense, loss, claim, demand, or cause of action, against Golder's affiliated companies, and their employees, officers and directors.
- viii) This Report / Document is provided for sole use by the Client and is confidential to it. No responsibility whatsoever for the contents of this Report / Document will be accepted to any person other than the Client. Any use which a third party makes of this Report / Document, or any reliance on or decisions to be made based on it, is the responsibility of such third parties. Golder accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this Report / Document.





## **APPENDIX A**



1.   Company   1.	Item	Description	Unit	Quantity	Unit Rate (Pickens 2005)	Unit Rate (2014)	Total Cost (Pickens 2005)	Total Cost (2014)	Comments/Assumptions
The content of the	1.0	Dam Foundation Preparation							
1   1   1   1   2   1   2   2   2   2	1.1	Strip to Waste/Stockpile							
Manual Content			_						
1.	1.1.a	Valley Floor	m3	4500	\$ 4.00	\$ 6.50	\$ 18,000	\$ 29,250.00	
Application of the control of the	1.1.h	Right Abut Working off Fill	m3	7000	\$ 5.00	\$ 8.50	\$ 35,000	\$ 59,500,00	I
Company   Comp		ŭ					·		
Description					7		, , , , , , , , , , , , , , , , , , , ,		
Company   Comp							\$ 5,000	•	· · · · · · · · · · · · · · · · · · ·
Common						Totals	\$ 318,000	\$ 404,250	
Common	_								
Company	2.0								
19	2.1	•	2	1000	ć 2.50	ć 4.50	ć 3.500	ć 4.500.00	Manager in a series and in the
15   Security Control   19   19   19   19   19   19   19   1		·			-	•			· · · · ·
1			1113	800	Ş 3.00	\$ 8.30	3 4,000	Ç 0,800.00	Triff excavation, low production rate
1-10   Programmer   1-10		2 Telsion Contact							If not founded on rock will require cement stabilisation or
2.5   Manuscript Control (1992)   1.0	2.3.a	Supply and lay pipe 1200 dia	m	150	\$ 1,500.00	\$ 2,500.00	\$ 225,000	\$ 375,000.00	site concrete to level
2.1	2.3.b	reinforced concrete surround and headwalls	m3	560	\$ 800.00	\$ 1,200.00	\$ 448,000	\$ 672,000.00	
1.									
Liberary on year and ellarative   1	2.3.c	drainage surround	m3	500	No cost	\$ 120.00		\$ 60,000.00	1,
Property Security Property Security S	2 3 d	temporary screen and final plug	ıs	1	\$ 5,000,00	\$ 15,000,00	\$ 5,000	\$ 15,000,00	· -
2.	2.3.0	temporary screen and imar plug	LJ	1	3,000.00	3 13,000.00	3,000	3 13,000.00	
Column   C	2.4	Temporary rock cut left bank to toe area fill	m3	1000	\$ 5.00	\$ 15.00	\$ 5.000	\$ 15.000.00	
Column   C					•		·		
1. See Section of the execution late   3   2600 \$   3   3.00 \$   5   3.00 \$   3.00			_			Totals	·		
1. See Section of the execution late   3   2600 \$   3   3.00 \$   5   3.00 \$   3.00									
2   Secret ent current ent of content ent ent ent ent ent ent ent ent en				c= · ·	<b>A</b>	•	A	A -	
1									As for 1.1a
13   The regarded concer fill product of the prod	5.2	Excavate left abutment clay slopes to waste/stockpile	mЗ	10000	ş 4.00	\$ 6.50	⇒ 40,000	\$ 65,000.00	
Decided   1	3.3	Terrace gravel sourced fill (or clav)	m3	670000	\$ 4.75	\$ 850	\$ 3 182 500	\$ 5.695,000,00	•
1.	<u>F</u>		0	2.2000	. 4.75	. 3.30	. 5,152,550	, 2,223,000.00	
Second and second control control of the control	3.4		m3	21000	\$ 3.00	\$ 8.50	\$ 63,000	\$ 178,500.00	_ · · · · · · · · · · · · · · · · · · ·
2.5   See Generation Report Growth   The   1.000   See   1.200   See   1.200   See   1.200   See   1.200   See			m3	35000	\$ 5.00	\$ 8.50	\$ 175,000	\$ 297,500.00	As above clays problematic, slow placement
Testin   S		-							
A	3.6	and downstream face of dam	m3	25000	\$ 3.50				Increase to allow for seeding
Contract Chromos Date   Cont	<b>_</b>	1				Totals	\$ 3,635,500	\$ 6,436,000	
Contract Chromos Date   Cont	4.0	Filters/Drainage and Armour							
A contract of Character Solitory for graves and entropies   93   1700   5   100   5   1700   5	4.0	Therity Braniage and Armour							
2   Command Contemp Page									Rate will depend on yield and grading requirements,
4.2.3 periors are in re-4.3 processed current  4.2.1 periors of the control reported current  4.2.2 periors of the control reported current  4.3 periors of the control reported current  4.4 periors of the control reported current  4.5 periors of the control reported current  4.6	4.1	Select and Process valley floor gravels and stockpile	m3	17000	\$ 10.00	\$ 25.00	\$ 170,000	\$ 425,000.00	washing will increase cost considerably
4. 25 Ob fall to add impatred and mg 1 1600 \$ 0.000 \$ 1,000 \$		,							
4.2. A 2 destinance are and was described and with a 200 \$ 1,000 \$ 2,000 \$ 1,0	4.2.a	vertical drain ex 4.21 processed source	m3	11000	\$ 7.00	\$ 10.00	\$ 77,000		
## desiron come have desirable and a function of the control of th	426	FO to (a) to add imported cand	m2	1650	¢ 60.00	ć 100.00	ć 00.000		
13   Discretance among titles or 4.1 processes convex   m3   door   door   more including earlier to the processes convex   m3   door   door   more including earlier to the processes convex   m3   door   door   more including earlier to the processes convex   m3   door   door   more including earlier to the processes   m3   door   door   marked the processes   m3   door   door   m3							· · · · · · · · · · · · · · · · · · ·		
A significant part of the context context mount including earliery		,							Assume process cost only as by product from 4.1
Add   Digitality armour					30		10,000	.,230.00	
4.5   Construct 3 pase coulset oration with links, filter surround   m   200   s   130.00   s   200.00   s   200.00   s   40.000   c   200.00   c		, ,		<u> </u>		<u></u> _		\$ -	
Construct A base color drains with initists, filter surround  5. 20 and monotone guidets  7									ü
Second	4.4.b		m3	6500	\$ 35.00	\$ 35.00	\$ 227,500	\$ 227,500.00	Assume no or minimal blasting
Collect works and spillways	4.5	· · · · · · · · · · · · · · · · · · ·		200	٠ م	6 200 =0		6 40.005.55	Poteile unknown
Second	4.5	and monitoring outlets	m	200	\$ 130.00		·		Details unknown
Supply and fit three left piec system with screen, valves,   S.   a   b   150,000   S   200,000	1	1				ı otals	797,500 پ	1,1/5,500 پ	
Supply and fit three left piec system with screen, valves,   S.   a   b   150,000   S   200,000	5.0	Outlet works and spillways							
S.1.2 and hotee system   S.1.2 and hotee sys									
Service Spillowy   Service Spi	5.1.a	and hoise system		1	\$ 150,000.00	\$ 200,000.00	\$ 150,000	\$ 200,000.00	Update 2005 est
S.2.b   coal rock ecovation and trimming (6) to bulk fill   m3   5000   \$   8.00   \$   1,000   \$   3,000   \$   4,000   \$   75,000   \$			LS	1	\$ 20,000.00	\$ 30,000.00	1 -,	\$ 30,000.00	Valve size not specified, include installation
Comment statisticed iffor chute including rock overthreak   m3   100   5   30.00   5   40.000   5   30.000   5   40.000   5   30.000   5   40.000   5   20.0000   5   20						_	'	\$ -	
5.2   primounth intake concrete	5.2.a		m3	5000	\$ 8.00	\$ 15.00	\$ 40,000	\$ 75,000.00	Production Slow
S.2.0   belimonth Intake concrete	<b>5</b> 2 h	_	m <sup>2</sup>	1000	\$ 20.00	\$ 40.00	\$ 20,000	\$ 40,000,00	Working on slone, again slow production
5.2.2   Controlled   m									
S22   cluste concrete							· · · · · · · · · · · · · · · · · · ·	\$ 50,000.00	·
S.2.2   filip bucket concrete	5.2.e	chute concrete	m3	36	\$ 1,000.00	\$ 1,300.00	\$ 36,000		Will require import to site
S.2.1b   bitunge pool excavation (assume free to dam fill)		,					,	\$ 13,000.00	
S.2.							-,		
Sab   Auxiliary spillway					T		'		
S.3.a glastion side walls and filter			LS	1	ې 5,000.00	00.000.00 چ	ş 5,000	\$ 10,000.00 \$	Details Ulikilowii
S.3.birockfill (Incl armour)			m3	70	\$ 100.00	\$ 500.00	\$ 7.000	\$ 35.000.00	<del> </del>
S.3.C   Sand fuse plug/filters					100.00				
6.0 Ancillary Works 6.1 Reroute Mt ida road past auxiliary spillway 6.2 Dam instrumentation (position, internal pressures) 6.3 Dam instrumentation (position, internal pressures) 6.4 Running course to dam crest 3m wide x 100 thick 6.5 Crest Access Barrier and local security fencing 6.5 Crest Access Barrier and local security fencing 6.6 Buttress left abutment downstream area 6.6.6.3 preparation 6.6.6.6.4 Drainage ex selected valley floor gravels 6.7 Dubuttes fill and rehabilitation ex selected strippings EO to 6.6.6.1 Ditems 6.7 Culvert Base of Infilled transverse gulley right abutment 6.8 earthworks 6.9 Allowance for minor items unforseen/unscheduled 6.9 Li S S S S S S S S S S S S S S S S S S		,			\$ -	\$ 50.00	\$ -	\$ 1,250.00	
Reroute Mt ida road past auxiliary spillway   LS   1   S   10,000.00   S   20,000.00   S   10,000   S   20,000.00   S   20,0						Totals	\$ 359,000	\$ 559,850	
Reroute Mt ida road past auxiliary spillway   LS   1   S   10,000.00   S   20,000.00   S   10,000   S   20,000.00   S   20,0	c 2	Ancillant Works							
Daminstrumentation (position, internal pressures)		•	1.0	4	¢ 40.000.00	¢ 20,000,00	ė mana	¢ 20,000,00	
Possible suspended deck for vehicle turning at right abutment									1
Sample   PS   1   \$   15,000.00   \$   20,000.00   \$   15,000   \$   20,000.00   \$   15,000   \$   20,000.00   \$   15,000   \$   15,000.00   \$			LO	1	75,000.00 ب	100,000.00	75,000	00.000.00 ب	1
Running course to dam crest 3m wide x 100 thick			PS	1	\$ 15.000.00	\$ 20.000.00	\$ 15.000	\$ 20.000.00	
Crest Access Barrier and local security fencing					'				
6.6.a prepartion 6.6.b drainage ex selected valley floor gravels m3 1000 \$ 5.00 \$ 15.00 \$ 5.00 \$ 15,000.00 buttress fill and rehabilitation ex selected strippings EO to 6.6.c 1.0 items m3 6000 \$ 2.50 \$ 5.00 \$ 15,000.00  Access track to downstream of base of dam EO to 6.8 earthworks 6.9 Allowance for minor items unforseen/unscheduled 1.5 1 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00  Totals \$ 215,350 \$ 350,800  Total Base Costs \$ 6,018,750 \$ 1,007,920  7.0 Site Establishment 1.0 Site Establishment 1.0 Contingency  Total grave for filling transverse guiley right and the manual for these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost  Details of these items unknown, 2005 increased to account for increased cost	6.5	Crest Access Barrier and local security fencing	PS	1	\$ 5,000.00	\$ 10,000.00	,	\$ 10,000.00	
6.6.b drainage ex selected valley floor gravels    M3   1000   \$   5.00   \$   15.00   \$   5.00   \$   15.00 .00						A	'	\$ -	1
buttress fill and rehabilitation ex selected strippings EO to 6.6.c. 1.0 items  m3 6000 \$ 2.50 \$ 5.00 \$ 15,000 \$ 30,000.00  6.7 culvert Base of infilled transverse gulley right abutment LS 1 \$ 15,000.00 \$ 20,000.00 \$ 15,000 \$ 20,000.00  Access track to downstream of base of dam EO to 6.8 earthworks LS 1 \$ 10,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00  6.9 Allowance for minor items unforseen/unscheduled LS 1 \$ 50,000.00 \$ 100,000.00 \$ 50,000 \$ 100,000.00  Totals \$ 215,350 \$ 350,800  Total Base Costs \$ 6,018,750 \$ 10,079,200  7.0 Site Establishment  10% of base cost 12% of base cost and site establishment \$ 794,475 \$ 1,330,454  1.5% of base cost, site establ., and engineering \$ 1,112,265 \$ 1,862,636					· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·		Details of these items unknown, 2005 increased to
6.6.c   1.0 items	6.6.b	, ,	mЗ	1000	ş 5.00	ş 15.00	ş 5,000	ş 15,000.00	account for increased cost
6.7 culvert Base of infilled transverse gulley right abutment LS 1 \$ 15,000.00 \$ 20,000.00 \$ 15,000.00 \$ 20,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 100,00	660	•	m3	6000	\$ 2.50	\$ 5.00	\$ 15,000	\$ 30.000 00	
Access track to downstream of base of dam EO to 6.8 earthworks 6.9 Allowance for minor items unforseen/unscheduled 6.9 Allowance for minor items unforseen/unscheduled 6.9 Allowance for minor items unforseen/unscheduled 6.9 Totals 6.9 Totals 6.9 Allowance for minor items unforseen/unscheduled 6.9 Totals 6.9 Allowance for minor items unforseen/unscheduled 6.9 Totals 6.9 Totals 6.9 Totals 6.9 Totals 6.0 Establishment 6.0 Engineering 6.8 Earthworks 6.9 I 1,000,000.00 6.9 I 1,000,000.00 6.9 I 1,000,000.00 6.9 Totals 6.9 I 1,000,000.00 6.9 I 1,000,000 6.9 I 1,000,000 6.9 I 1,000,000 6.9 I 1,000,000 6.	5.0.0		0		. 2.30	3.00	. 15,000		1
6.8 earthworks			LS	1	\$ 15,000.00	\$ 20,000.00	\$ 15,000	\$ 20,000.00	
6.9 Allowance for minor items unforseen/unscheduled LS 1 \$ 50,000.00 \$ 100,000.00 \$ 50,000 \$ 100,000.00 \$ 350,800 \$ 100,000.00 \$ 350,800 \$ 100,000.00 \$ 350,800 \$ 100,000.00 \$			_						
Totals \$ 215,350 \$ 350,800  Total Base Costs \$ 6,018,750 \$ 10,079,200  Total Base Costs \$ 601,875 \$ 1,007,920  Site Establishment								, ,,,,,,,,,	-
Total Base Costs   \$ 6,018,750   \$ 10,079,200	6.9	Allowance for minor items unforseen/unscheduled	LS	1	\$ 50,000.00				-
7.0 Site Establishment	<u> </u>					Totals	\$ 215,350	\$ 350,800	
7.0 Site Establishment						Total Base Costs	\$ 6.018.750	\$ 10.079.200	
12% of base cost and site							0,010,700	,5.0,200	
12% of base cost and site	7.0	Site Establishment			10% of base cost		\$ 601,875	\$ 1,007,920	
9.0 Contingency   15% of base cost, site									
<b>9.0 Contingency</b> estab., and engineering \$ 1,112,265 \$ 1,862,636	8.0	Engineering					\$ 794,475	\$ 1,330,454	
		Contingency			·			A	
Total Cost   \$ 8,527,305   \$ 14,280,211	9.0	Contingency		<u> </u>	estab., and engineering	Total Cart			
						ı otal Cost	8,527,365	14,280,211 و	l

Item	Description	Unit	Quantity	Unit Rate (Pickens 2005)	Unit Rate (2014)	Total Cost (Pickens 2005)	Total Cost (2014)	Comments/Assumptions
1.0	Dam Foundation Preparation	Sint	auritity	(i ienella 2003)	(2014)	- Communication (1 Tenerila 2003)	(2014)	Commentary resumptions
1.1	Strip to Waste/Stockpile							Location of waste dumps unknown, Allow extra cost to
1.1.a	Valley Floor	m3	4500	\$ 4.00	\$ 6.50	\$ 18,000	\$ 29,250.00	haul to waste stockpile
	Right Abut. Working off Fill Left Abut./Saddle Area	m3 m3	7000 11000	\$ 5.00 \$ 4.00	\$ 8.50 \$ 6.50			Steep slope, working off fill, Excavation rate likely to be low As for 1.1a,
1.1.0	Cutoff Subexcavation to toe area fill  Dewatering Cutoff	m3 LS	36000 1	\$ 6.00 \$ 5,000.00	\$ 6.50 \$ 10.000.00	\$ 216,000	\$ 234,000.00	As for 1.1a, Bulk excavation, rate will depend on haul
د.د	Dewatering Cuton	L3	1 1	5,000.00	\$ 10,000.00 Totals	, -,	\$ 10,000.00	Details unknown, Assume 2 days using 3 plant items
2.0	Diversion (EO to dam earthworks, and part of the outlet)							
2.1	Excavate stream to left bank and channel d/s of conduit to adjacent windrow	m3	1000	\$ 2.50	\$ 4.50	\$ 2,500	\$ 4500.00	May require regular maintenance
2.2	Excavate conduit bench	m3	800	\$ 5.00	\$ 8.50	\$ 4,000		Trim excavation, low production rate
	Diversion Conduit		,		A		A 0====	If not founded on rock will require cement stabilisation or
	Supply and lay pipe 1200 dia reinforced concrete surround and headwalls	m m3	150 560	\$ 1,500.00 \$ 800.00	\$ 2,500.00 \$ 1,200.00		\$ 375,000.00 \$ 672,000.00	site concrete to level Assume concrete haunch to 60%
2.3.c	drainage surround	m3	500	No cost	\$ 120.00		\$ 60,000.00	Filter gravel likely requires import, typically \$100+ in place
	temporary screen and final plug	LS	1	\$ 5,000.00	\$ 15,000.00	\$ 5,000		Screen details unknown, assume concrete plug and secondary grouting
				, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				Assume rock excavation using pick or breaker, production
2.4 2.5	Temporary rock cut left bank to toe area fill Cement Stabilised backfill to channel in core zone	m3 m3	1000 130	\$ 5.00 \$ 30.00	\$ 15.00 \$ 50.00	\$ 3,900	\$ 15,000.00 \$ 6,500.00	slow Assume bucket mixing using 5% cement
					Totals	\$ 693,400	\$ 1,154,800	
3.0 3.1	Bulk Earthworks for Dam (excluding filters and armour)  Strip borrows to waste/stockpile	m3	25000	\$ 3.50	\$ 3.50	\$ 87,500	\$ 87,500.00	
3.2	Excavate left abutment clay slopes to waste/stockpile	m3	10000	\$ 4.00	\$ 6.50		\$ 65,000.00	As for 1.1a Assume 400mm maximum layers to 98% standard
3.3	Terrace gravel sourced fill (or clay)	m3	670000	\$ 4.75	\$ 8.50	\$ 3,182,500	\$ 5,695,000.00	compaction, and tested
	EO to 3.3 to mix in clay to core zone working in gravel borrow	m3	21000	\$ 3.00	\$ 8.50			
3.5	Clay blanket Resurface and grass borrow downstream of embankmetns	m3	35000	\$ 5.00	\$ 8.50	\$ 175,000	\$ 297,500.00	As above clays problematic, slow placement
3.6	and downstream face of dam	m3	25000	\$ 3.50	\$ 4.50 Totals		\$ 112,500.00 \$ 6,436,000	Increase to allow for seeding
4.0	Filters/Drainage and Armour				. 5 (4)3	3,033,300	, 5, 750,000	
4.0	Filters/Drainage and Armour							
4.1	Select and Process valley floor gravels and stockpile	m3	17000	\$ 10.00	\$ 25.00	\$ 170,000	\$ 425,000.00	Rate will depend on yield and grading requirements, washing will increase cost considerably
4.2	Construct Chimney Drain vertical drain ex 4.21 processed source	m3	11000	\$ 7.00	\$ 10.00	\$ 77,000		Assume placing rate only
	·	m3	1650	\$ 60.00	•	,	\$ 165,000.00	Dam filter sand typically \$100+, assume process+import +
4.2.c	EO to (a) to add imported sand additional coarse base drain/filter	m3	200	\$ 10.00	\$ 10.00	\$ 2,000	\$ 2,000.00	Assume process cost only as by product from 4.1
	Place coarse armour filter ex 4.1 processed source Quarry and place schist coarse armour including auxiliary	m3	4000	\$ 4.00	\$ 6.00	\$ 16,000	\$ 24,000.00	
4.4 4.4.a	spillway area 200 armour	m3	6000	\$ 30.00	\$ 30.00	\$ 180,000	\$ - \$ 180,000.00	Assume no or minimal blasting
	300 armour Construct 3 base outlet drains with inlets, filter surround and	m3	6500	\$ 35.00	\$ 35.00			Assume no or minimal blasting
4.5	monitoring outlets	m	200	\$ 130.00	\$ 200.00 Totals		\$ 40,000.00 \$ 1,173,500	Details unknown
F 0	Outlet washes and a "Warran				iotals	, /37,500	1,1/3,500	
	Outlet works and spillways supply and fix three inlet pipe system with screens, valves,							
	and hoise system downstream butterfly valve and anchorage	LS LS	1 1	\$ 150,000.00 \$ 20,000.00	\$ 200,000.00 \$ 30,000.00	\$ 150,000 \$ 20,000		Update 2005 est  Valve size not specified, include installation
5.2	Service Spillway Local rock excvation and trimming (EO to bulk fill)	m3	5000	\$ 8.00		\$ - \$ 40,000	\$ -	Production slow
	-							
	cement stabilised fill for chute including rock overbreak repair bellmouth intake concrete	m3 m3	1000 18	\$ 30.00 \$ 1,000.00	\$ 40.00			Working on slope, again slow production
					\$ 1,600.00			Speacial form etc
5.2.e	1.5 dia pipe to head of chute chute concrete	m m3	25 36	\$ 1,200.00 \$ 1,000.00	\$ 2,000.00 \$ 1,300.00	\$ 30,000 \$ 36,000	\$ 50,000.00 \$ 46,800.00	Will require import to site
5.2.e 5.2.f			25	\$ 1,200.00	\$ 2,000.00	\$ 30,000 \$ 36,000 \$ 8,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00	·
5.2.e 5.2.f 5.2.g 5.2.h	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill)	m3 m3	25 36 10	\$ 1,200.00 \$ 1,000.00 \$ 800.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ -	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00	Will require import to site
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway	m3 LS LS LS	25 36 10 1 1	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ -	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.a	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour)	m3 LS LS LS LS m3 m3	25 36 10 1 1 1 1 70	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 500.00 \$ 5,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ -	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ - \$ 35,000.00 \$ 5,000.00	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.a	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter	m3 m3 LS LS LS m3	25 36 10 1 1 1 1	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 500.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ -	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ - \$ 35,000.00	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.a	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour)	m3 LS LS LS LS m3 m3	25 36 10 1 1 1 1 70	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 50.00 \$ 500.00 \$ 5,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ -	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ \$ 35,000.00 \$ 5,000.00 \$ 1,250.00	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.b 5.3.c	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway	m3 m3 LS LS LS LS LS LS LS  M3 m3 m3 LS	25 36 10 1 1 1 1 70 1 25	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ - \$ 100.00 \$ -	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ - \$ 359,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ - \$ 35,000.00 \$ 5,000.00 \$ 5,500.00 \$ 1,250.00 \$ 559,850	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.b 6.0 6.1	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)	m3 m3 LS	25 36 10 1 1 1 1 70 1 25	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ - \$ 5,000.00 \$ - \$ 75,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 50.00 \$ 50.00 \$ Totals	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ 7,000 \$ - \$ 359,000 \$ 75,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 35,000.00 \$ 1,250.00 \$ 559,850 \$ 20,000.00 \$ 100,000.00	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick	m3 m3 LS LS LS LS LS LS  M3 m3 m3  M3 M3 M3 M3 M3 M3 M3 M3 M3 M3 M3 M3 M	25 36 10 1 1 1 70 1 25	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00 \$ 10,000.00 \$ 15,000.00 \$ 45,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 500.00 \$ 500.00 \$ 500.00 \$ 10,000.00 \$ 10,000.00 \$ 20,000.00 \$ 20,000.00 \$ 60.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ - \$ 359,000 \$ 75,000 \$ 10,350	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 20,000.00 \$ 20,000.00 \$ 20,000.00 \$ 13,800.00	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area	m3 m3 m3 LS LS LS LS LS LS PS m3 PS	25 36 10 1 1 1 70 1 25	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 10,000.00 \$ 10,000.00 \$ 15,000.00 \$ 5,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 500.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ - \$ 359,000 \$ 75,000 \$ 10,000 \$ 15,000 \$ 10,350 \$ 5,000 \$ -	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 5,000.00 \$ 1,250.00 \$ 1,250.00 \$ 559,850 \$ 20,000.00 \$ 100,000.00 \$ 13,800.00 \$ 13,800.00 \$ 11,000.00 \$ 10,000.00	Will require import to site  Details unknown Cost should be included
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing	m3 m3 LS LS LS LS LS LS  M3 m3 m3  M3 M3 M3 M3 M3 M3 M3 M3 M3 M3 M3 M3 M	25 36 10 1 1 1 70 1 25	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00 \$ 10,000.00 \$ 15,000.00 \$ 45,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 500.00 \$ 500.00 \$ 500.00 \$ 10,000.00 \$ 10,000.00 \$ 20,000.00 \$ 20,000.00 \$ 60.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ - \$ 359,000 \$ 75,000 \$ 10,350	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 20,000.00 \$ 20,000.00 \$ 20,000.00 \$ 13,800.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.b 5.3.c  6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0	m3 m3 m3 LS LS LS LS LS  M3 m3 m3  CS  M3 M3 M3  CS  M3	25 36 10 1 1 1 1 25 1 1 230 1 1 1000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ - \$ 100.00 \$ - \$ 10,000.00 \$ 75,000.00 \$ 45.00 \$ 5,000.00 \$ 5,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 50.00 \$ 7000.00 \$ 20,000.00 \$ 20,000.00 \$ 60.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ 7,000 \$ - \$ 359,000 \$ 75,000 \$ 10,350 \$ 5,000 \$ 5,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 10,000.00 \$ 13,800.00 \$ 15,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items	m3 m3 m3 LS LS LS LS LS  M3 m3 m3 m3 m3 m3 m3 m3	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00 \$ 10,000.00 \$ 15,000.00 \$ 5,000.00 \$ 2.50	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 50.00 \$ 50.00 \$ 100,000.00 \$ 100,000.00 \$ 60.00 \$ 10,000.00 \$ 5,000.00 \$ 5,000.00 \$ 10,000.00 \$ 5,000.00 \$ 5,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 5,000 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 1,000.00 \$ 13,000.00 \$ 30,000.00 \$ 30,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment	m3 m3 m3 LS LS LS LS  M3 m3 m3  M3  LS  LS  LS  LS  LS  LS  LS  LS  LS  L	25 36 10 1 1 1 70 1 25 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00 \$ 10,000.00 \$ 10,000.00 \$ 15,000.00 \$ 2,50 \$ 15,000.00 \$ 2,50 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00  \$ 20,000.00 \$ 60.00 \$ 10,000.00  \$ 7,000.00 \$ 7,000.00  \$ 5.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ - \$ 359,000 \$ 75,000 \$ 10,350 \$ 5,000 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 5,000.00 \$ 1,250.00 \$ 1,250.00 \$ 20,000.00 \$ 20,000.00 \$ 13,800.00 \$ 13,800.00 \$ 7,000.00 \$ 15,000.00 \$ 20,000.00 \$ 20,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items	m3 m3 m3 LS LS LS LS LS  M3 m3 m3 m3 m3 m3 m3 m3	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ - \$ 5,000.00 \$ 100.00 \$ 10,000.00 \$ 15,000.00 \$ 5,000.00 \$ 2.50	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 7,000.00 \$ 7,000.00 \$ 5.00 \$ 15.00 \$ 15.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ - \$ - \$ 359,000 \$ 75,000 \$ 10,350 \$ 5,000 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 1,000.00 \$ 13,000.00 \$ 30,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks	m3 m3 m3 LS LS LS LS  m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 10,000.00 \$ 7,000.00 \$ 15.00 \$ 5.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 5,000 \$ 5,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 5,000.00 \$ 1,250.00 \$ 1,250.00 \$ 20,000.00 \$ 20,000.00 \$ 13,800.00 \$ 13,800.00 \$ 17,000.00 \$ 10,000.00 \$ 13,800.00 \$ 10,000.00 \$ 15,000.00 \$ 15,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.c 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 3,000.00 \$ 10,000.00 \$ 5,000.00 \$ 20,000.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 5,000 \$ 5,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 1250.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 30,000.00 \$ 30,000.00 \$ 30,000.00 \$ 30,000.00 \$ 350,800	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled	m3 m3 m3 LS LS LS LS  m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 \$ 7000.00 \$ 100,000.00 \$ 20,000.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00 \$ 15,000 \$ 20,000.00 \$ 10,000.00 \$ 15,000 \$ 15,000 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 10,000.00 \$ 20,000.00 \$ 13,800.00 \$ 15,000.00 \$ 15,000.00 \$ 10,000.00 \$ 13,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 5,000.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00 \$ 15,000.00 \$ 15,000.00 \$ 5,000.00 \$ 5,000.00 \$ 15,000.00 \$ 5,000.00 \$ 5,000.00	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 1250.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 1,300.00 \$ 13,000.00 \$ 20,000.00 \$ 13,000.00 \$ 15,000.00 \$ 30,000.00 \$ 30,000.00 \$ 30,000.00 \$ 350,800 \$ 500,000	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 100,000.00 <b>Totals</b>	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,000 \$ 10,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 20,000.00 \$ 20,000.00 \$ 10,000.00 \$ 13,800.00 \$ 13,800.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 30,000.00 \$ 30,000.00 \$ 15,000.00 \$ 350,800	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.a 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9 7.0 7.1	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled  Field Explorations  Field Explorations  Site Establishment Consenting	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 10,000.00 \$ 75,000.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 5,000.00 \$ 5,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 100,000.00 <b>Totals</b>	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 215,350 \$ 359,000 \$ 5,000 \$ 5,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 1250.00 \$ 100,000.00 \$ 10,000.00 \$ 20,000.00 \$ 13,800.00 \$ 10,000.00 \$ 15,000.00 \$ 15,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.a 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9 7.0 7.1	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled  Field Explorations Field Explorations	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 1,000.00 \$ 1,000.00 \$ 15,000.00 \$ 2,50 \$ 15,000.00 \$ 3,000.00 \$ 15,000.00 \$ 5,000.00 \$ 5,000.00 \$ 15,000.00 \$ 10,000.00 \$ 2,50 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00 \$ 10,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 100,000.00 <b>Totals</b>	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 215,350 \$ 359,000 \$ 5,000 \$ 5,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 1,250.00 \$ 100,000.00 \$ 100,000.00 \$ 13,800.00 \$ 10,000.00 \$ 15,000.00 \$ 15,000.00	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.c 6.6.c 6.7 6.8 6.9 7.0 7.1	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled  Field Explorations Field Explorations  Site Establishment Consenting Bonds and Insurance	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 15,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 75,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 5,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 100,000.00 \$ 15.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00	\$ 30,000 \$ 36,000 \$ 15,000 \$ 15,000 \$ 7,000 \$ 7,000 \$ 359,000 \$ 10,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 215,350 \$ 359,000 \$ 3	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 10,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 10,000.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 13,800.00 \$ 13,800.00 \$ 10,000.00 \$ 10,579,200 \$ 10,579,200 \$ 11,584 \$ 528,960 \$ 740,544	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9 7.0 7.1	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled  Field Explorations Field Explorations Field Explorations  Field Explorations  Field Explorations  Field Explorations  Field Sponds and Insurance Construction Management	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 15,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 75,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 2.50 \$ 15,000.00 \$ 5,000.00 \$ 15,000.00 \$ 15,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 100,000.00 <b>Totals</b>	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ - \$ 359,000 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 215,350 \$ 359,000 \$ 5,000 \$ 5,000 \$ 5,000 \$ 5,000 \$ 15,000 \$ 75,000 \$ 75,000	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 5,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 1250.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 13,800.00 \$ 17,000.00 \$ 10,000.00 \$ 10,000.	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9 7.0 7.1	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled  Field Explorations Field Explorations Field Explorations  Field Explorations  Field Explorations  Field Explorations  Field Sponds and Insurance Construction Management	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 10,000.00 \$ 75,000.00 \$ 15,000.00 \$ 15,000.00 \$ 2,50 \$ 15,000.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 10,000.00 \$ 10,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 15.00 \$ 100,000.00 \$ 15.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00	\$ 30,000 \$ 36,000 \$ 15,000 \$ 15,000 \$ 7,000 \$ 7,000 \$ 359,000 \$ 10,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 215,350 \$ 359,000 \$ 3	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 10,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 10,000.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 13,800.00 \$ 13,800.00 \$ 10,000.00 \$ 10,579,200 \$ 10,579,200 \$ 11,584 \$ 528,960 \$ 740,544	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account
5.2.e 5.2.f 5.2.g 5.2.h 5.2.i 5.3.a 5.3.a 5.3.b 5.3.c 6.0 6.1 6.2 6.3 6.4 6.5 6.6 6.6.a 6.6.b 6.6.c 6.7 6.8 6.9 7.0 7.1 8.0 9.0 10.0 11.0	chute concrete flip bucket concrete anchoring and drainage plunge pool excavation (assume free to dam fill) spillway book or coarse screen Auxiliary spillway gabion side walls and filter rockfill (incl armour) Sand fuse plug/filters  Ancillary Works Reroute Mt ida road past auxiliary spillway Dam instrumentation (position, internal pressures)  Possible suspended deck for vehicle turning at right abutment Running course to dam crest 3m wide x 100 thick Crest Access Barrier and local security fencing Buttress left abutment downstream area prepartion drainage ex selected valley floor gravels buttress fill and rehabilitation ex selected strippings EO to 1.0 items  culvert Base of infilled transverse gulley right abutment Access track to downstream of base of dam EO to earthworks Allowance for minor items unforseen/unscheduled  Field Explorations Field Explorations Field Explorations  Field Explorations  Field Explorations  Field Explorations  Field Sponds and Insurance Construction Management	m3 m3 m3 LS LS LS LS  M3 m3 m3 m3  LS LS  LS  LS  LS  LS  LS  LS  LS  LS	25 36 10 1 1 1 1 70 1 25 1 1 1 230 1 1 1000 6000	\$ 1,200.00 \$ 1,000.00 \$ 800.00 \$ 15,000.00 \$ 5,000.00 \$ 100.00 \$ 100.00 \$ 100.00 \$ 75,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 15,000.00 \$ 5,000.00 \$ 5,000.00 \$ 5,000.00 \$ 10,000.00 \$ 10,000.00	\$ 2,000.00 \$ 1,300.00 \$ 1,300.00 \$ 20,000.00 \$ 5,000.00 \$ 5,000.00 \$ 50.00 <b>Totals</b> \$ 20,000.00 \$ 100,000.00 \$ 100,000.00 \$ 100,000.00 \$ 15.00 \$ 20,000.00 \$ 15.00 \$ 15.00 \$ 7,000.00 \$ 15.00 \$ 100,000.00 <b>Totals</b>	\$ 30,000 \$ 36,000 \$ 8,000 \$ 15,000 \$ - \$ 5,000 \$ 7,000 \$ 7,000 \$ 10,000 \$ 75,000 \$ 10,350 \$ 10,350 \$ 5,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 215,350 \$ 359,000 \$ 15,000 \$ 75,000 \$ 15,000 \$ 15,000 \$ 75,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 15,000 \$ 115,000 \$	\$ 50,000.00 \$ 46,800.00 \$ 13,000.00 \$ 20,000.00 \$ 10,000.00 \$ 10,000.00 \$ 35,000.00 \$ 1,250.00 \$ 1,250.00 \$ 10,000.00 \$ 100,000.00 \$ 20,000.00 \$ 13,800.00 \$ 13,800.00 \$ 13,800.00 \$ 10,000.00 \$ 10,579,200 \$ 10,579,200 \$ 11,584 \$ 528,960 \$ 740,544	Will require import to site  Details unknown  Cost should be included  Details unknown  Details of these items unknown, 2005 increased to account