

## **Appendix VIII**

Updated RECLAIM Estimate

Total	File Name	Description
\$128,284,831	WLWB RECLAIM Estimate for DDMI_August 2014.xlsm	WLWB Approved
\$129,545,615	WLWB RECLAIM Estimate for DDMI_August 2014 with A21.xlsm	WLWB Approved with addition of A21 open-pit
\$124,072,323	DDMI RECLAIM Estimate 2016 V1.xlms	DDMI Proposed: a) NCRP till and rock volumes updated as per Golder (2016) Table 3 b) NCRP unit cost for rock cover set to GNWT recommended \$3.30 (Letter to WLWB Feb 17, 2016) c) PKC Cover reduced by \$1.10 to align with reduced remine unit costs from GNWT (see NCRP) d) updated A21 - one breach volume corrected to be a causeway excavation e) There has been a net removal of buildings since 2011 that has not been credited in this version f) NCRP Contingency to 10% to reflect level of engineering detail (AANDC Letter to WLWB Oct 23, 2012)
\$124,582,618	DDMI RECLAIM Estimate 2016 V2.xlms	DDMI Proposed: a) added scarifying road/laydown area on A21 lease b) added A21 pipeline removal

**SUMMARY OF COSTS**

<b>CAPITAL COSTS</b>	<b>COMPONENT NAME</b>	<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
OPEN PIT	A514,A418, A21	\$3,034,738	\$97,322	\$2,937,416
UNDERGROUND MINE		\$1,402,419	\$1,365,476	\$36,943
TAILINGS FACILITY		\$22,097,261	\$43,969	\$22,053,292
ROCK PILE	NCRP	\$24,793,065	\$745,853	\$24,047,213
BUILDINGS AND EQUIPMENT		\$17,294,274	\$16,205,944	\$1,088,330
CHEMICALS AND CONTAMINATED SOIL MANAGEMEI		\$3,557,553	\$1,758,777	\$1,798,777
SURFACE AND GROUNDWATER MANAGEMENT		\$1,280,539	-	\$1,280,539
INTERIM CARE AND MAINTENANCE		\$0	-	\$0
	<b>SUBTOTAL: Capital Costs</b>	<b>\$73,459,849</b>	<b>\$20,217,339</b>	<b>\$53,242,509</b>
	<b>PERCENT OF SUBTOTAL</b>		<b>28%</b>	<b>72%</b>
<b>INDIRECT COSTS</b>		<b>COST</b>	<b>LAND LIABILITY</b>	<b>WATER LIABILITY</b>
MOBILIZATION/DEMOBILIZATION		\$9,111,200	\$2,507,550	\$6,603,650
POST-CLOSURE MONITORING AND MAINTENANCE		\$19,508,597	\$5,369,082	\$14,139,515
ENGINEERING	5%	\$3,672,992	\$1,010,867	\$2,662,125
PROJECT MANAGEMENT	5%	\$3,672,992	\$1,010,867	\$2,662,125
HEALTH AND SAFETY PLANS/MONITORING & QA/QC	0.5%	\$367,299	\$101,087	\$266,213
BONDING/INSURANCE	0.5%	\$367,299	\$101,087	\$266,213
CONTINGENCY				
- Open Pit	20%	\$606,947.57	\$167,042	\$439,906
- Underground Mine	20%	\$280,483.82	\$77,194	\$203,290
- Tailings	30%	\$6,629,178.19	\$1,824,457	\$4,804,721
- Rock Pile	10%	\$2,479,306.50	\$682,345	\$1,796,961
- Buildings and Equipment	20%	\$3,458,855	\$951,933	\$2,506,922
- Chemicals and Soil Management	20%	\$711,510.60	\$195,819	\$515,691
- Water Management	20%	\$256,107.80	\$70,485	\$185,623
MARKET PRICE FACTOR ADJUSTMENT	0%	\$0	\$0	\$0
	<b>SUBTOTAL: Indirect Costs</b>	<b>\$51,122,770</b>	<b>\$14,069,814</b>	<b>\$37,052,956</b>
<b>TOTAL COSTS</b>		<b>\$124,582,618</b>	<b>\$34,287,153</b>	<b>\$90,295,465</b>

Complete document can be found at:

Open Pit Name: A514,A418, A21 Pit # 1

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost	
<b>CONTROL ACCESS</b>									
Fence		m	450	FNCH	\$203.00	\$91,350 100%	\$91,350	\$0	
Signs		each	4.5	#N/A	\$37.08	\$167 100%	\$167	\$0	
Ditch, mat'l A		m3		#N/A	\$0.00	\$0	\$0	\$0	
, mat'l B		m3		#N/A	\$0.00	\$0	\$0	\$0	
Berm		m3		#N/A	\$0.00	\$0	\$0	\$0	
Block roads		m3	1350	SB1L	\$4.30	\$5,805 100%	\$5,805	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>STABILITY STUDY</b>									
Conduct stability and setback study		allow		#N/A	\$0.00	\$0	\$0	\$0	
<b>STABILIZE SLOPES</b>									
<b>A154</b>									
excavate 4 breaches in dike		m3	48114	SC1H	\$9.30	\$447,460	\$0	\$447,460	
break concrete guides & wall		m3	1288	SC1H	\$9.30	\$11,978	\$0	\$11,978	
construct fish habitat		m3		#N/A	\$0.00	\$0	\$0	\$0	
<b>A418</b>									
excavate 3 breaches in dike		m3	36086	SC1H	\$9.30	\$335,600	\$0	\$335,600	
break concrete guides & wall		m3	1288	SC1H	\$9.30	\$11,978	\$0	\$11,978	
construct fish habitat		m3		#N/A	\$0.00	\$0	\$0	\$0	
<b>A21</b>									
excavate 3 breaches in dike and 1 causeway		m3	51086	SC1H	\$9.30	\$475,100	\$0	\$475,100	
break concrete guides & wall		m3	1288	SC1H	\$9.30	\$11,978	\$0	\$11,978	
construct fish habitat				#N/A	\$0.00	\$0	\$0	\$0	
<b>COVER/CONTOUR SLOPES</b>									
Place fill, mat'l A		m3		#N/A	\$0.00	\$0	\$0	\$0	
Place fill, mat'l B		m3		#N/A	\$0.00	\$0	\$0	\$0	
Rip rap		m3		#N/A	\$0.00	\$0	\$0	\$0	
Vegetate slopes		ha		#N/A	\$0.00	\$0	\$0	\$0	
Vegetate pit floor		ha		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>CONSTRUCT DIVERSION DITCHES</b>									
Excavate ditches -soil		m3		#N/A	\$0.00	\$0	\$0	\$0	
Excavate ditches -rock		m3		#N/A	\$0.00	\$0	\$0	\$0	
Rip rap in channel base		m3		#N/A	\$0.00	\$0	\$0	\$0	
<b>CONSTRUCT SPILLWAY</b>									
Excavate channel		m3		#N/A	\$0.00	\$0	\$0	\$0	
Concrete		m3		#N/A	\$0.00	\$0	\$0	\$0	
Rip rap		m3		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>RECLAIM QUARRIES</b>									
Contour slopes		m3		#N/A	\$0.00	\$0	\$0	\$0	
Place overburden		m3		#N/A	\$0.00	\$0	\$0	\$0	
Vegetate		m3		#N/A	\$0.00	\$0	\$0	\$0	
<b>FLOOD PIT-Captial</b>									
Remove stationary equipment (sump pumps)		each	4	#N/A	\$5,618.00	\$22,472	\$0	\$22,472	
Remove dewatering pipeline		m	21035	PSRL	\$1.00	\$21,035	\$0	\$21,035	
Remove power lines		m	11108	POWRL	\$25.50	\$283,254	\$0	\$283,254	
Construct diversion ditches		m3		#N/A	\$0.00	\$0	\$0	\$0	
-Ditch, mat'l A		m3		#N/A	\$0.00	\$0	\$0	\$0	
-Ditch, mat'l B		m3		#N/A	\$0.00	\$0	\$0	\$0	
Construct embankment/dam		m3		#N/A	\$0.00	\$0	\$0	\$0	
siphon installation/operation		each	10	#N/A	\$119,925.00	\$1,199,250	\$0	\$1,199,250	
silt curtains		each	10	#N/A	\$11,731.00	\$117,310	\$0	\$117,310	
Remove pump post-closure		each		#N/A	\$0.00	\$0	\$0	\$0	
Remove pipeline post-closure		m		#N/A	\$0.00	\$0	\$0	\$0	
<b>FLOOD PIT-Annual Cost</b>									
Operate pumps (power)		m3		#N/A	\$0.00	\$0	\$0	\$0	
Maintain pump/pipeline		allow		#N/A	\$0.00	\$0	\$0	\$0	
Labour:fuel management, comissioning/decom		\$/h		#N/A	\$0.00	\$0	\$0	\$0	
Chemical addition, _____ kg/m3 of water		tonne		#N/A	\$0.00	\$0	\$0	\$0	
Chemicals, purchase and shipping		tonne		#N/A	\$0.00	\$0	\$0	\$0	
Passive/biological additives		\$/ha		#N/A	\$0.00	\$0	\$0	\$0	
Passive additives purchase and shipping		tonne		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
						Annual pumping costs			
Number of years of pump flooding						years			
						Total pumping costs			
						\$0	\$0	\$0	
						<b>Total</b>	\$3,034,738	\$97,322	\$2,937,416
						<b>% of Total</b>		3%	97%

1		Underground Mine Name			UG Mine # 1				
ACTIVITY/MATERIAL	Notes	Unit	Qty	Code	Unit Cost	Cost Land	Land Cost	Cost	
<b>CONTROL ACCESS</b>									
Fence		m	100	FNCH	\$203.00	\$20,300	100%	\$20,300 \$0	
Signs		each	4	#N/A	\$37.08	\$148	100%	\$148 \$0	
Block roads		m3		#N/A	\$0.00	\$0		\$0 \$0	
Berm		m3	300	SB1L	\$4.30	\$1,290	100%	\$1,290 \$0	
Block adits		m3	320	CLFH	\$530.25	\$169,680	100%	\$169,680 \$0	
Cap shaft		m3		#N/A	\$0.00	\$0		\$0 \$0	
Cap raises at A154/A418		m3	72	SRL	\$645.00	\$46,440	100%	\$46,440 \$0	
Soil cover on raise caps		m3	708	SB1L	\$4.30	\$3,044	100%	\$3,044 \$0	
Cap raise at A21		m3		#N/A	\$0.00	\$0		\$0 \$0	
Soil cover on raise cap		m3		#N/A	\$0.00	\$0		\$0 \$0	
Backfill adit A154		m3	100	SCSS	\$18.80	\$1,880	100%	\$1,880 \$0	
Contour portal area, A154		m3	2,500	SB1L	\$4.30	\$10,750	100%	\$10,750 \$0	
Backfill adit A21		m3		#N/A	\$0.00	\$0		\$0 \$0	
Contour portal area, A21		m3		#N/A	\$0.00	\$0		\$0 \$0	
Concrete bulkhead, pit portal, A154		allow	1	#N/A	\$75,000.00	\$75,000	100%	\$75,000 \$0	
Concrete bulkhead, pit portal, A21		allow	0	#N/A	\$75,000.00	\$0		\$0 \$0	
Backfill open stopes		m3		#N/A	\$0.00	\$0		\$0 \$0	
Remove decline surface infrastructure		allow	1	#N/A	\$1,000,000.00	\$1,000,000	100%	\$1,000,000 \$0	
<b>REMOVE HAZARDOUS MATERIALS</b>									
Remove hazardous materials, U/G labor		manhours	1,440	lab-usH	\$43.98	\$63,331	50%	\$31,666 \$31,666	
Remove/decontam. stationary & elect. equip		manhours	240	lab-usH	\$43.98	\$10,555	50%	\$5,278 \$5,278	
Remove/decontam. mobile equipment		each		#N/A	\$0.00	\$0		\$0 \$0	
Remove misc. haz. mat & explosives		kg		#N/A	\$0.00	\$0		\$0 \$0	
Other				#N/A	\$0.00	\$0		\$0 \$0	
<b>INSTALL BULKHEADS</b>									
Bulkheads to control water flow		each		#N/A	\$0.00	\$0		\$0 \$0	
Grout bulkhead		m3		#N/A	\$0.00	\$0		\$0 \$0	
<b>FLOOD MINE</b>									
Supply/install pump		each		#N/A	\$0.00	\$0		\$0 \$0	
Supply/install piping system		each		#N/A	\$0.00	\$0		\$0 \$0	
Operate pumps to flood workings		m3		#N/A	\$0.00	\$0		\$0 \$0	
Other				#N/A	\$0.00	\$0		\$0 \$0	
<b>INSTALL GROUNDWATER COLLECTION SYSTEM</b>									
Excavate/install sumps		m2		#N/A	\$0.00	\$0		\$0 \$0	
Install pumping wells		m3		#N/A	\$0.00	\$0		\$0 \$0	
Install pumps/pipelines/power supply		LS		#N/A	\$0.00	\$0		\$0 \$0	
<b>SPECIALIZED ITEMS</b>									
Install water quality monitoring pipes		each		#N/A	\$0.00	\$0		\$0 \$0	
Install permanent pumping system		each		#N/A	\$0.00	\$0		\$0 \$0	
Other				#N/A	\$0.00	\$0		\$0 \$0	
					<b>Total</b>	\$1,402,419		\$1,365,476 \$36,943	
					<b>% of Total</b>			97% 3%	

1 Tailings Impoundment Name:

Pond # 1

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	% Cost	Land Cost	Water Cost
<b>CONTROL ACCESS</b>								
Fence		m	160	FNCH	#####	\$32,480	100%	\$32,480
Signs		each	8	#N/A	\$37.08	\$297	100%	\$297
Berm		m3		#N/A	\$0.00	\$0		\$0
Block roads		m3	1440	SB1L	\$4.30	\$6,192	100%	\$6,192
Other				#N/A	\$0.00	\$0		\$0
<b>STABILIZE EMBANKMENT(S)</b>								
Toe buttress, drainage layer		m3		#N/A	\$0.00	\$0		\$0
Toe buttress, bulk fill		m3		#N/A	\$0.00	\$0		\$0
Rip rap		m3		#N/A	\$0.00	\$0		\$0
Vegetate		ha		#N/A	\$0.00	\$0		\$0
Raise crest		m3		#N/A	\$0.00	\$0		\$0
Flatten slopes		m3		#N/A	\$0.00	\$0		\$0
Other				#N/A	\$0.00	\$0		\$0
<b>COVER TAILINGS</b>								
Coarse PK, doze to slurry sump		m3		#N/A	\$0.00	\$0		\$0
Coarse PK, slurry pumping		m3		#N/A	\$0.00	\$0		\$0
Rock for expelled water from N or S dump		m2		#N/A	\$0.00	\$0		\$0
Rock for expelled water from roads		m2		#N/A	\$0.00	\$0		\$0
Rock for expelled water from new quarry		m2		#N/A	\$0.00	\$0		\$0
Soil cover, till		m3		#N/A	\$0.00	\$0		\$0
Cover rock from N or S dump		m3	2800000	SBSH	\$5.40	\$15,120,000		\$15,120,000
geotextile/geogrid over shoreline		m2	592000	GSTS	\$9.37	\$5,547,040		\$5,547,040
Cover rock from new quarry		m3		#N/A	\$0.00	\$0		\$0
Remove & treat pond/seepage		m3	1791000	OTPL	\$0.35	\$626,850		\$626,850
<b>STABILIZE DECANT SYSTEM</b>								
Excavate and replace		m3		#N/A	\$0.00	\$0		\$0
Plug/backfill with concrete or clay		m3		#N/A	\$0.00	\$0		\$0
Other				#N/A	\$0.00	\$0		\$0
<b>REMOVE TAILINGS DISCHARGE</b>								
Cyclones		allow		#N/A	\$0.00	\$0		\$0
Pipe		m	5000	PSRL	\$1.00	\$5,000	100%	\$5,000
Remove reclaim barge		allow		#N/A	\$0.00	\$0		\$0
<b>CONSTRUCT DIVERSION DITCHES</b>								
Excavate ditches -soil		m3		#N/A	\$0.00	\$0		\$0
Excavate ditches -rock		m3		#N/A	\$0.00	\$0		\$0
Rip rap in channel base		m3		#N/A	\$0.00	\$0		\$0
<b>FLOOD TAILINGS</b>								
Doze tailings to final contour		m3		#N/A	\$0.00	\$0		\$0
Raise crest of dam		m3		#N/A	\$0.00	\$0		\$0
Other				#N/A	\$0.00	\$0		\$0
<b>UPGRADE SPILLWAY</b>								
Excavate channel, dam		m3	3240	SC1L	\$6.80	\$22,032		\$22,032
Excavate channel, tailings	hydraulic mining of tailings	m3	136500	SCSH	\$5.00	\$682,500		\$682,500
Concrete		m3		#N/A	\$0.00	\$0		\$0
Rip rap channel to Lac de Gras		m3	6500	RR3L	\$7.00	\$45,500		\$45,500
Geotextile channel to Lac de Gras		m2	1000	GSTS	\$9.37	\$9,370		\$9,370
<b>CONSTRUCT SEEPAGE COLLECTION POND</b>								
Excavate seepage collection pond		m3		#N/A	\$0.00	\$0		\$0
Doze & spread excavated material		m3		#N/A	\$0.00	\$0		\$0
Vegetate spread material		ha		#N/A	\$0.00	\$0		\$0
Bedding layer		m3		#N/A	\$0.00	\$0		\$0
Supply geomembrane		m2		#N/A	\$0.00	\$0		\$0
Install geomembrane		m2		#N/A	\$0.00	\$0		\$0
Erosion protection layer		m3		#N/A	\$0.00	\$0		\$0
<b>INSTALL GROUNDWATER COLLECTION SYSTEM</b>								
Excavate/install sumps		m3		#N/A	\$0.00	\$0		\$0
Install pumping wells		m3		#N/A	\$0.00	\$0		\$0
Install pumps/pipelines/power supply		LS		#N/A	\$0.00	\$0		\$0
<b>SPECIALIZED ITEMS</b>								
Install permanent instrumentation, supply & technician		each		#N/A	\$0.00	\$0		\$0
Install permanent instrumentation, drilling		each		#N/A	\$0.00	\$0		\$0
TREAT SEEPAGE - see "Water Management" and "Water Treatment"								
TREAT SUPERNATANT								
Pump water (to pit, U/G)		m3		#N/A	\$0.00	\$0		\$0
Equipment maintenance and parts		allow		#N/A	\$0.00	\$0		\$0
Supply reagents		tonne		#N/A	\$0.00	\$0		\$0
Number of years of treatment						Annual treatment costs		
years						\$0		
Total treatment costs						\$0		
<b>Total</b>						\$22,097,261	\$43,969	\$22,053,292
<b>% of Total</b>						0%	0%	100%

\* for construction of passive treatment system refer to "Water Management"

Note #1 Reduced by \$1.10 to align with reduced rock remine unit cost updated from (GNWT-6 Letter to WLWB Feb 17 re Ekati Sable)

1 Rock Pile Name:		NCRP							
ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	% Cost	Land Cost	Water Cost	
<b>STABILIZE SLOPES</b>									
Flatten slopes with dozer, rock pile, north		m3	1501500	DSL	\$0.95	\$1,426,425	50%	\$713,213	\$713,213
Flatten slopes with dozer, till pile		m3		#N/A	\$0.00	\$0		\$0	\$0
Flatten slope with dozer, till pile, south		m3		#N/A	\$0.00	\$0		\$0	\$0
Divert runon, ditch mat'l B		m3		#N/A	\$0.00	\$0		\$0	\$0
Toe buttress, drain mat'l		m3		#N/A	\$0.00	\$0		\$0	\$0
Toe buttress, fill mat'l A		m3		#N/A	\$0.00	\$0		\$0	\$0
Toe buttress, fill mat'l B		m3		#N/A	\$0.00	\$0		\$0	\$0
Other				#N/A	\$0.00	\$0		\$0	\$0
<b>COVER ROCK PILE</b>									
Till on Type III rock areas		m3	2,000,000	SB3L	\$5.10	\$10,200,000		\$0	\$10,200,000
Type I rock cover		m3	3,980,000	SB3S	\$3.30	\$13,134,000		\$0	\$13,134,000
till on caribou ramps		m3	6400	SB3L	\$5.10	\$32,640	100%	\$32,640	\$0
rock cover from roads etc.		m3		#N/A	\$0.00	\$0		\$0	\$0
Rip rap drainage channel and chute		m3		#N/A	\$0.00	\$0		\$0	\$0
Vegetate		ha	5,980,000	#N/A	\$0.00	\$0		\$0	\$0
Other				#N/A	\$0.00	\$0		\$0	\$0
<b>VERY LOW PERMEABILITY COVER (in addition to above)</b>									
Liner subgrade preparation - compact		m2		#N/A	\$0.00	\$0		\$0	\$0
Supply geomembrane		m2		#N/A	\$0.00	\$0		\$0	\$0
Install geomembrane		m2		#N/A	\$0.00	\$0		\$0	\$0
Protective cover - excavate,haul,spread&compact		m3		#N/A	\$0.00	\$0		\$0	\$0
Vegetate		ha		#N/A	\$0.00	\$0		\$0	\$0
Install infiltration/seepage instrumentation		allow		#N/A	\$0.00	\$0		\$0	\$0
<b>CONSTRUCT DIVERSION DITCHES</b>									
Excavate ditches -soil		m3		#N/A	\$0.00	\$0		\$0	\$0
Excavate ditches -rock		m3		#N/A	\$0.00	\$0		\$0	\$0
Rip rap in channel base		m3		#N/A	\$0.00	\$0		\$0	\$0
<b>CONSTRUCT SEEPAGE COLLECTION POND</b>									
Excavate seepage collection pond		m3		#N/A	\$0.00	\$0		\$0	\$0
Doze & spread excavated material		m3		#N/A	\$0.00	\$0		\$0	\$0
Vegetate spread material		ha		#N/A	\$0.00	\$0		\$0	\$0
Bedding layer		m3		#N/A	\$0.00	\$0		\$0	\$0
Supply geomembrane		m2		#N/A	\$0.00	\$0		\$0	\$0
Install geomembrane		m2		#N/A	\$0.00	\$0		\$0	\$0
Erosion protection layer		m3		#N/A	\$0.00	\$0		\$0	\$0
<b>INSTALL GROUNDWATER COLLECTION SYSTEM</b>									
Excavate/install sumps		m3		#N/A	\$0.00	\$0		\$0	\$0
Install pumping wells		m3		#N/A	\$0.00	\$0		\$0	\$0
Install pumps/pipelines/power supply		allow		#N/A	\$0.00	\$0		\$0	\$0
<b>RELOCATE DUMPS</b>									
Load, haul, dump or doze		m3		#N/A	\$0.00	\$0		\$0	\$0
Add lime		tonne		#N/A	\$0.00	\$0		\$0	\$0
Contour reclaimed area		ha		#N/A	\$0.00	\$0		\$0	\$0
Other				#N/A	\$0.00	\$0		\$0	\$0
<b>SPECIALIZED ITEMS</b>									
Install permanent instrumentation		each		#N/A	\$0.00	\$0		\$0	\$0
Install permanent instrumentation, drilling		each		#N/A	\$0.00	\$0		\$0	\$0
<b>TREAT ROCK PILE SEEPAGE - see "Water Treatment"</b>									
collect and treat seepage		m3	848206	OTPL	\$0.35	\$296,872		\$0	\$296,872
<b>HEAP LEACH SEEPAGE TREATMENT - Cyanide Detox</b>									
Cyanide destruction water treatment pumping		m3		#N/A	\$0.00	\$0		\$0	\$0
Reagents		tonnes		#N/A	\$0.00	\$0		\$0	\$0
Electrician/mechanic to maintain treatment plant		allow		#N/A	\$0.00	\$0		\$0	\$0
Equipment maintenance and parts		allow		#N/A	\$0.00	\$0		\$0	\$0
						Annual treatment costs		\$0	
Number of years of treatment		years							
						Total treatment costs		\$0	\$0
<b>HEAP LEACH SEEPAGE TREATMENT - ARD/ML**</b>									
Upgrade/modify pumping system - report to WTP		allow		#N/A	\$0.00	\$0		\$0	\$0
						<b>Total</b>		\$24,793,065	\$745,853
						<b>% of Total</b>		3%	97%

Note #1

\* For construction of passive treatment system refer to "Water Management". ARD/ML seepage treatment becomes post-closure water treatment cost

\*\*Heap leach ARD/ML seepage treatment becomes post-closure water treatment cost

Note #1 Volumes Updated from Final Design (Golder 2016 Table 3)  
Unit cost updated from (GNWT-6 Letter to WLWB Feb 17 re Ekati Sable)

1 Chemicals/Soil Area Name:

**Note:** The procedures, equipment and packaging for clean up and removal of chemicals or contaminated soils are highly dependent on the nature of the chemicals and their existing state of containment. Government guidelines should be consulted on an individual chemical basis. Any estimate made here should be considered very rough unless specific evaluations have been conducted.

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	%			
						Cost	Land Cost	Water Cost	
<b>HAZARDOUS MATERIALS INVENTORY</b>									
Contaminated soil investigation ESA		each	1	#N/A	\$68,393.00	\$68,393	50%	\$34,197	\$34,197
Contaminated soil drilling and sampling		each	1	#N/A	\$277,143.00	\$277,143	50%	\$138,572	\$138,572
<b>LABORATORY CHEMICALS</b>									
load, manifest, ship & disposal fee		pallet	500	#N/A	\$1,000.00	\$500,000	50%	\$250,000	\$250,000
PCB hauling		each		#N/A	\$0.00	\$0		\$0	\$0
PCB disposal		each		#N/A	\$0.00	\$0		\$0	\$0
<b>FUEL</b>									
Tank decontamination		allow	1	#N/A	\$223,737.00	\$223,737	50%	\$111,869	\$111,869
Type 2		litre		#N/A	\$0.00	\$0		\$0	\$0
Type 3		litre		#N/A	\$0.00	\$0		\$0	\$0
<b>WASTE OIL</b>									
Oils/lubricants - burn on site		litre		#N/A	\$0.00	\$0		\$0	\$0
Oils/lubricants - ship off-site		litre	650000	ORH	\$1.20	\$780,000	50%	\$390,000	\$390,000
Removal glycol		litre	20000	ORH	\$1.20	\$24,000	50%	\$12,000	\$12,000
remove batteries		kg	25000	#N/A	\$0.50	\$12,500	50%	\$6,250	\$6,250
remove paints		litre	1500	#N/A	\$0.27	\$405	50%	\$203	\$203
remove solvents		litre	7500	#N/A	\$0.75	\$5,625	50%	\$2,813	\$2,813
Oils/lubricants - disposal fee		litre		#N/A	\$0.00	\$0		\$0	\$0
<b>PROCESS OR TREATMENT CHEMICALS</b>									
Sulfuric acid transfer to tanker		litre	80000	PCRH	\$2.50	\$200,000	50%	\$100,000	\$100,000
Haul to disposal facility		loads	2	#N/A	\$12,000.00	\$24,000	50%	\$12,000	\$12,000
Disposal fee		litre	80000	#N/A	\$1.00	\$80,000	50%	\$40,000	\$40,000
Type 4		kg		#N/A	\$0.00	\$0		\$0	\$0
<b>EXPLOSIVES</b>									
		allow	1	#N/A	\$10,000.00	\$10,000	50%	\$5,000	\$5,000
<b>CONTAMINATED SOILS</b>									
Type 1, light fuel		m3	5000	CSRH	\$146.00	\$730,000	50%	\$365,000	\$365,000
Type 2, heavy fuel and oil		m3	2500	CSRH	\$146.00	\$365,000	50%	\$182,500	\$182,500
Type 3, metals		m3	250	CSRL	\$47.00	\$11,750	50%	\$5,875	\$5,875
<b>HAZARDOUS MAT. TESTING AND ASSESSMENT</b>									
Technician and analyses		each	1	#N/A	\$110,000.00	\$110,000	50%	\$55,000	\$55,000
Drilling		each	1	#N/A	\$75,000.00	\$75,000	50%	\$37,500	\$37,500
Reporting		each	1	#N/A	\$20,000.00	\$20,000	50%	\$10,000	\$10,000
<b>OTHER</b>									
Remove nuclear densometers from mill		each	10	#N/A	\$4,000.00	\$40,000		\$0	\$40,000
<b>Total</b>						\$3,557,553		\$1,758,777	\$1,798,777
<b>% of Total</b>								49%	51%

1 Building / Equip Name:		Bldg / Equip #: 1							
ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	% Cost Land	Land Cost	Water Cost	
<b>DISPOSE MOBILE EQUIPMENT</b>									
Decontaminate, ship off-site		km		#N/A	\$0.00	\$0	\$0	\$0	
Decontaminate, dispose on-site		each	5000	lab-sH	\$49.60	\$248,000	\$0	\$248,000	
<b>DISPOSE STATIONARY EQUIPMENT</b>									
Decontaminate, ship off-site		km		#N/A	\$0.00	\$0	\$0	\$0	
Decontaminate, dispose on-site		each	5000	lab-sH	\$49.60	\$248,000	\$0	\$248,000	
<b>DISPOSE ORE CONCENTRATION EQUIPMENT</b>									
Decontaminate crushing plant		each		#N/A	\$0.00	\$0	\$0	\$0	
Decontaminate tanks & plumbing		each		#N/A	\$0.00	\$0	\$0	\$0	
Remove tanks & plumbing		each		#N/A	\$0.00	\$0	\$0	\$0	
<b>DISPOSE WATER TREATMENT EQUIPMENT</b>									
Decontaminate tanks & plumb.		each		#N/A	\$0.00	\$0	\$0	\$0	
Remove tanks & plumbing		each		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>DECONTAMINATE BUILDINGS &amp; TANKS</b>									
site wide allowance		each	1	#N/A	\$75,000.00	\$75,000	50%	\$37,500	
clean explosives facility		each	1	#N/A	\$50,000.00	\$50,000	50%	\$25,000	
<b>MOTHBALL BUILDINGS</b>									
Building 1		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 2		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 3		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 4		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 5		m2		#N/A	\$0.00	\$0	\$0	\$0	
Other		m2		#N/A	\$0.00	\$0	\$0	\$0	
<b>REMOVE BUILDINGS - areas are increased to account for height of buildings</b>									
Process plant		m2	61381	BRS1H	\$65.00	\$3,989,765	100%	\$3,989,765	
Maintenance plant		m2	27282	BRS1H	\$65.00	\$1,773,330	100%	\$1,773,330	
Camp		m3	15359	BRS1H	\$65.00	\$998,335	100%	\$998,335	
Power /boiler house(s)		m3	17810	BRS1H	\$65.00	\$1,157,650	100%	\$1,157,650	
Ammonium nitrate fuel storage		m2	9259	BRS1H	\$65.00	\$601,835	100%	\$601,835	
Explosives/cap storage & mixing		m3	600	BRS1H	\$65.00	\$39,000	100%	\$39,000	
Remove boneyard waste		each	1	#N/A	\$125,000.00	\$125,000	100%	\$125,000	
Crusher building		m2	4633	BRS1H	\$65.00	\$301,145	100%	\$301,145	
conveyors		m2	2500	BRS1H	\$65.00	\$162,500	100%	\$162,500	
south tank farm		m2	0	BRS1H	\$65.00	\$0	100%	\$0	
misc small buildings		m2	0	BRS1H	\$65.00	\$0	100%	\$0	
Paste Plant (new)		m2	20735	BRS1H	\$65.00	\$1,347,775	100%	\$1,347,775	
Mine Dry (new)		m2	3259	BRS1H	\$65.00	\$211,835	100%	\$211,835	
Lube Oil Storage		m2	2914	BRS1H	\$65.00	\$189,410	100%	\$189,410	
NIWTP Acid Storage		m2	3705	BRS1H	\$65.00	\$240,825	100%	\$240,825	
MAC E Wing		m2	1283	BRS1H	\$65.00	\$83,395	100%	\$83,395	
NIWTP		m2	3150	BRS1H	\$65.00	\$204,750	100%	\$204,750	
NIWTP Expansion		m2	2796	BRS1H	\$65.00	\$181,740	100%	\$181,740	
LDG Office		m2	993	BRS1H	\$65.00	\$64,545	100%	\$64,545	
Sewage Treatment Plant		m2	1471	BRS1H	\$65.00	\$95,615	100%	\$95,615	
UG Mine Dry		m2	954	BRS1H	\$65.00	\$62,010	100%	\$62,010	
Emulsion Plant		m2	1413	BRS1H	\$65.00	\$91,845	100%	\$91,845	
Surface Welding Shop		m2	1098	BRS1H	\$65.00	\$71,370	100%	\$71,370	
Surface Operations Building		m2	1076	BRS1H	\$65.00	\$69,940	100%	\$69,940	
Dorm 1 & 2		m2	2691	BRS1H	\$65.00	\$174,915	100%	\$174,915	
North Construction Offices		m2	547	BRS1H	\$65.00	\$35,555	100%	\$35,555	
Pit Muster		m2	485	BRS1H	\$65.00	\$31,525	100%	\$31,525	
Mine Rescue Fire Hall		m2	449	BRS1H	\$65.00	\$29,185	100%	\$29,185	
LDG Muster		m2	328	BRS1H	\$65.00	\$21,320	100%	\$21,320	
LDG Offices		m2	273	BRS1H	\$65.00	\$17,745	100%	\$17,745	
AZ1 Offices		m2	238	BRS1H	\$65.00	\$15,470	100%	\$15,470	
Fuel Tanks 1-6		m2	27918	BRS1H	\$65.00	\$1,814,670	100%	\$1,814,670	
Arctic corridors		m2	6372	BRS1H	\$65.00	\$414,180	100%	\$414,180	
Incinerator		m2	1000	BRS1H	\$65.00	\$65,000	100%	\$65,000	
<b>BREAK BASEMENT SLABS</b>									
Buildings - all		m2	4500	BRCL	\$40.00	\$180,000	100%	\$180,000	
Building 2		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 3		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 4		m2		#N/A	\$0.00	\$0	\$0	\$0	
Building 5		m2		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>REMOVE BURIED TANKS</b>									
Tank 1, decontaminate		m3		#N/A	\$0.00	\$0	\$0	\$0	
, excavate & dispose		m3		#N/A	\$0.00	\$0	\$0	\$0	
Tank 2, decontaminate		m3		#N/A	\$0.00	\$0	\$0	\$0	
, excavate & dispose		m3		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>LANDFILL FOR DEMOLITION WASTE</b>									
Place rock cover		m3	187500	SB3S	\$4.20	\$787,500	50%	\$393,750	
Vegetate		ha		#N/A	\$0.00	\$0	\$0	\$0	
Landfill disposal fee		tonne		#N/A	\$0.00	\$0	\$0	\$0	
<b>GRADE AND CONTOUR</b>									
Grade mill area		m2	30750	SB3S	\$4.20	\$129,150	50%	\$64,575	
Place rock cover		m3	34050	SB3S	\$4.20	\$143,010	50%	\$71,505	
Rip rap on ditches		m3		#N/A	\$0.00	\$0	\$0	\$0	
Vegetate		ha		#N/A	\$0.00	\$0	\$0	\$0	
Other				#N/A	\$0.00	\$0	\$0	\$0	
<b>RECLAIM ROADS</b>									
Haul roads, A 154 & A418 lease		ha	3.71	SCFYL	\$4,300.00	\$15,953	100%	\$15,953	
Service roads, A154 & A418 lease		ha	1.6	SCFYL	\$4,300.00	\$6,880	100%	\$6,880	
Haul roads, A21 lease		ha	15.2	SCFYL	\$4,300.00	\$65,360	100%	\$65,360	
Service roads, A21 lease		ha	28.39	SCFYL	\$4,300.00	\$122,077	100%	\$122,077	
Haul roads, PKC & dumps lease		ha	10.13	SCFYL	\$4,300.00	\$43,559	100%	\$43,559	
Service roads, PKC & dumps lease		ha	23.2	SCFYL	\$4,300.00	\$99,760	100%	\$99,760	
Haul roads, infrastructure lease		ha	14.85	SCFYL	\$4,300.00	\$63,855	100%	\$63,855	
Service roads, infrastructure lease		ha	5.4	SCFYL	\$4,300.00	\$23,220	100%	\$23,220	
Haul roads, airstrip lease		ha	0	SCFYL	\$4,300.00	\$0	100%	\$0	
Service roads, airstrip lease		ha	2.9	SCFYL	\$4,300.00	\$12,470	100%	\$12,470	
<b>SPECIALIZED ITEMS</b>									
Reclaim airstrip		ha	11	SCFYL	\$4,300.00	\$47,300	100%	\$47,300	
Yellowknife landfill disposal fee		allow	1	#N/A	\$250,000.00	\$250,000	100%	\$250,000	
					<b>Total</b>	\$17,294,274		\$16,205,944	\$1,088,330
					<b>% of Total</b>			94%	6%

Added A21  
Added A21

## 1 Capital Expenditures and Short Term Water Treatment identified in 'Instructions' worksheet

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
<b>STABILIZE EMBANKMENT</b>						
Toe buttress, drain mat'l		m3		#N/A	\$0.00	\$0
, fill mat'l A		m3		#N/A	\$0.00	\$0
, fill mat'l B		m3		#N/A	\$0.00	\$0
Rip rap		m3		#N/A	\$0.00	\$0
Vegetate		ha		#N/A	\$0.00	\$0
Raise crest		m3		#N/A	\$0.00	\$0
<b>UPGRADE SPILLWAY IN NORTH INLET BERM</b>						
Excavate channel		m3	680	SC1L	\$6.80	\$4,624
Place rip rap		m3	190	RR3L	\$7.00	\$1,330
<b>STABILIZE SEDIMENT CONTAINMENT PONDS</b>						
Place soil cover		m3		#N/A	\$0.00	\$0
Place geotextile		m2		#N/A	\$0.00	\$0
Vegetate		ha		#N/A	\$0.00	\$0
<b>BREACH EMBANKMENT</b>						
Remove fill		m3		#N/A	\$0.00	\$0
<b>COLLECTION PONDS</b>						
Breach 4 dams		m3	2200	SB1L	\$4.30	\$9,460
place geotextile, 4 by 15,000 m2		m2	60000	#N/A	\$10.00	\$600,000
place rock over geotextile		m3	60000	SBSH	\$6.50	\$390,000
<b>BREACH DITCHES</b>						
Excavate		m3	7875	SB1L	\$4.30	\$33,863
Backfill/recontour		m3	2625	SC1H	\$9.30	\$24,413
Vegetate		ha		#N/A	\$0.00	\$0
<b>REMOVE PIPELINES</b>						
Remove pipes		m		#N/A	\$0.00	\$0
Concrete plug deep pipes		m3		#N/A	\$0.00	\$0
Install pumps/pipelines/power supply		LS		#N/A	\$0.00	\$0
<b>NORTH INLET EAST DIKE</b>						
Excavate/construct spillway		m3	4500	SC1H	\$9.30	\$41,850
Excavate & backfill		m3		#N/A	\$0.00	\$0
<b>COLLECT DRAINAGE FOR TREATMENT</b>						
Excavate collection ditches		m3		#N/A	\$0.00	\$0
Rip rap ditches		m3		#N/A	\$0.00	\$0
Pipes		m		#N/A	\$0.00	\$0
Pumps		each		#N/A	\$0.00	\$0
Collect'n pond, exc. mat'l A		m3		#N/A	\$0.00	\$0
, exc. mat'l B		m3		#N/A	\$0.00	\$0
Collect'n pond, fill mat'l A		m3		#N/A	\$0.00	\$0
, fill mat'l B		m3		#N/A	\$0.00	\$0
Collect'n pond, liner		m2		#N/A	\$0.00	\$0
<b>COLLECT DRAINAGE FOR TREATMENT</b>						
Remove and treat north inlet water		m3	500000	OTPL	\$0.35	\$175,000
<b>SHORT TERM WATER TREATMENT*</b>						
Annual water treatment cost, from "Water Treatment"						\$0
					<b>Total</b>	<b>\$1,280,539</b>

1 Water Treatment

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
<b>ADDITION OF REAGENTS</b>						
H2O2		kg		#N/A	\$0.00	\$0
lime		kg		#N/A	\$0.00	\$0
ferric sulphate		kg		#N/A	\$0.00	\$0
ferrous sulphate		kg		#N/A	\$0.00	\$0
flocculents		kg		#N/A	\$0.00	\$0
Other				#N/A	\$0.00	\$0
<b>LABOUR AND SUPPLIES</b>						
Annual fuel		litres		#N/A	\$0.00	\$0
Annual power		kW-h		#N/A	\$0.00	\$0
Electrician/mechanic to maintain treatment plant		allow		#N/A	\$0.00	\$0
Equipment maintenance and parts		allow		#N/A	\$0.00	\$0
Misc. supplies, hoses, tools		allow		#N/A	\$0.00	\$0
Communications		allow		#N/A	\$0.00	\$0
Other				#N/A	\$0.00	\$0
<b>WATER SAMPLING AND ANALYSES</b>						
Sampling equipment		allow		#N/A	\$0.00	\$0
Analyses		allow		#N/A	\$0.00	\$0
Shipping to laboratory		allow		#N/A	\$0.00	\$0
Reporting		allow		#N/A	\$0.00	\$0
Other				#N/A	\$0.00	\$0
<b>SITE ACCESS</b>						
Road maintenance (incl. snow removal)		allow		#N/A	\$0.00	\$0
Winter road tariff		allow		#N/A	\$0.00	\$0
Truck rental		allow		#N/A	\$0.00	\$0
Air support		allow		#N/A	\$0.00	\$0
<b>Annual water treatment costs</b>						\$0
Number of years of water treatment		years				
<b>Total</b>						\$0

Note: Short term water treatment is intended to be included in "Water Management", whereas long term, or post-closure, water treatment is included in "Post-Closure Monitoring and Maintenance"

**1 Post-Closure Monitoring & Maintenance:**

ACTIVITY/MATERIAL	Notes	Quantit		Cost Code	Unit Cost	Cost
		Units	y			
<b>MONITORING &amp; INSPECTIONS</b>						
Annual geotechnical inspection		each	7	RPTH	\$20,000.00	\$140,000
Survey inspection		each	7	#N/A	\$50,000.00	\$350,000
Performance monitoring (water, dust, wildlife, etc.)		each	10	#N/A	\$250,000.00	\$2,500,000
Reporting		each	10	#N/A	\$100,000.00	\$1,000,000
person, labour, equipment, logistics, etc		each	1	#N/A	\$6,237,680.00	\$6,237,680
<b>INTERIM CARE AND MAINTENANCE</b>						
annual C&M		yrs	3	#N/A	\$2,223,639.00	\$6,670,917
fish consumption advisory signage		allow	1	#N/A	\$10,000	\$10,000
<b>POST-CLOSURE EFFECTS MONITORING AND COMMUNITY ENGAGEMNT</b>						
Aquatic Effects Monitoring and Reporting		yrs	3	#N/A	\$250,000	\$750,000
Wildlife Effects Monitoring and Reporting		yrs	3	#N/A	\$50,000	\$150,000
Traditional Knowledge Monitoring and Review (at site)		yrs	10	#N/A	\$120,000	\$1,200,000
Environmental Monitoring Advisory Board Unique to Diavik Environmental Agreemen		yrs		#N/A		\$0
Community Engagement (at communities)		yrs	10	#N/A	\$50,000	\$500,000
Subtotal, Annual post-closure costs						\$19,508,597
Discount rate for calculation of net present value of post-closure cost, %				0.00%		
Number of years of post-closure activity					years	
<b>Present Value of payment stream</b>						<b>\$19,508,597</b>

\*Regulatory costs - annual reporting, management plans, progress reports etc.

Include water treatment cost from "Water Treatment" worksheet if treatment is considered long term, such as ARD/ML.

**ANNUAL INTERIM CARE & MAINTENANCE**

	No.	hrs/yea	Rate	Annual Cost
Site supervisor	1	3650	\$61.20	\$223,380
laborers	3	3650	\$38.76	\$141,474
equipment operators	2	3650	\$56.10	\$204,765
mechanic	1	3650	\$61.20	\$223,380
electrician	1	3650	\$70.00	\$255,500
envir. coordinator	1	3650	\$61.20	\$223,380
				\$1,271,879 total staff
Fuel, power & heat		L/hr	mon/yr	fuel
	50	3	108000	
	40	7	201600	
	25	2	36000	
Fuel, mobile equipment	15	12	129600	
			475200	total fuel
air charter	flights/yr	cost/flight		
	52	4500		234000
camp costs	108	m-mont	1320	142560
misc. supplies, allowance				50000
reagents				50000
	Total annual C&M			\$2,223,639

**1 Mobilization/Demobilization:**

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
<b>MOBILIZE HEAVY EQUIPMENT</b>						
Excavators - 2		km	4800	MHERH	10.25	\$49,200
Dump trucks - 15		km	120000	MHERH	10.25	\$1,230,000
Dozers - 4		km	16000	MHERH	10.25	\$164,000
Demolition shears - 2		km	9600	MHERH	10.25	\$98,400
Crane - 2		km	1600	MHERH	10.25	\$16,400
Loader - 2		km	4800	MHERH	10.25	\$49,200
Compactor		km		MHERH	10.25	\$0
Service vehicles - 10		km	16000	MHERH	10.25	\$164,000
<b>MOBILIZE MISC. EQUIPMENT</b>						
Pump shipping		each		#N/A	0	\$0
Pipe shipping		m		#N/A	0	\$0
Minor tools and equipment		allow	1	#N/A	500000	\$500,000
Truck tires		allow	1	#N/A	500000	\$500,000
Other				#N/A	0	\$0
<b>MOBILIZE CAMP</b>						
Reclamation activities		allow	1	#N/A	150000	\$150,000
Long term reclamation activities (eg pump flooding)		allow		#N/A	0	\$0
<b>MOBILIZE WORKERS</b>						
Rotations over reclamation period		manhours	26000	#N/A	45	\$1,170,000
Reclamation activities - transport		each		#N/A	0	\$0
Reclamation activities - travel time		manhours		#N/A	0	\$0
Long term reclamation activities (eg pump flooding) - transport		each		#N/A	0	\$0
Long term reclamation activities (eg pump flooding) - travel time		each		#N/A	0	\$0
Monitoring Airfare		each		#N/A	0	\$0
<b>WORKER ACCOMODATIONS</b>						
Reclamation activities 20800 mandays		mandays	20800	ACCML	100	\$2,080,000
Long term reclamation activities (eg pump flooding)		manmonths		#N/A	0	\$0
<b>MOBILIZE FUEL</b>						
Fuel freight - reclamation activities		litre		#N/A	0	\$0
Fuel freight - long term reclamation activities		litre	7000000	FCMH	0.42	\$2,940,000
Fuel freight accomodations		litre		#N/A	0	\$0
<b>WINTER ROAD</b>						
Construction and operation - 400km	once for C&M, twice for contractor mob/dem	km		WRCH	11500	\$0
Limited winter use		km		#N/A	0	\$0
Winter road tarriff		km		#N/A	0	\$0
<b>DEMOBILIZE HEAVY EQUIPMENT</b>						
Excavators		km		#N/A	0	\$0
Dump trucks		km		#N/A	0	\$0
Dozers		km		#N/A	0	\$0
Demolition shears		km		#N/A	0	\$0
Crane		km		#N/A	0	\$0
Loader		km		#N/A	0	\$0
Compactor		each		#N/A	0	\$0
Light duty vehicles		km		#N/A	0	\$0
Other		km		#N/A	0	\$0
<b>DEMOBILIZE CAMP</b>						
		allow		#N/A	0	\$0
<b>DEMOBILIZE WORKERS</b>						
crew travel time		mandays		#N/A	0	\$0
crew transportation		each		#N/A	0	\$0
<b>WINTER ROAD</b>						
Construction and operation		km		#N/A	0	\$0
Limited winter use		km		#N/A	0	\$0
Winter road tarriff		km		#N/A	0	\$0
<b>Total</b>						<b>\$9,111,200</b>

tabled pending A21 pit development plans

Equipment Mobilization	# of machines	loads/	mach/	round trip	total road
		ne	km	ne	mileage
excavator		2	3	800	4800
dump trucks		15	10	800	120000
dozers		4	5	800	16000
demolition shears		2	6	800	9600
front end loader		2	3	800	4800
cranes		2	1	800	1600
service vehicles		10	2	800	16000

1 Interim Care and Maintenance

ACTIVITY/MATERIAL	Notes	Units	Quantity	Cost Code	Unit Cost	Cost
<b>INTERIM CARE &amp; MAINTENANCE</b>						
on-site caretaker		manmonths		#N/A	0	\$0
extra personnel		manmonths		#N/A	0	\$0
-electrician		manmonths		#N/A	0	\$0
-mechanic		manmonths		#N/A	0	\$0
annual fuel		litre		#N/A	0	\$0
misc. supplies		allow		#N/A	0	\$0
pick-up truck		each		#N/A	0	\$0
small dozer		allow		#N/A	0	\$0
small excavator		allow		#N/A	0	\$0
snow machine		allow		#N/A	0	\$0
communications		allow		#N/A	0	\$0
SNP/AEMP water sampling & reporting		each		#N/A	0	\$0
geotechnical assessment		each		#N/A	0	\$0
interim water treatment				#N/A		\$0
other		each		#N/A	0	\$0
				Annual Interim C&M Cost		\$0
Number of years of ICM		years		<b>Total</b>		\$0

**Unit Cost Table (for refining unit costs see "Estimator" worksheet)**

Filter by unit							
ITEM	Detail	COST CODE	UNITS	LOW \$	HIGH \$	SPECIFIED \$	COMMENTS
<b>Accommodation</b>							
		ACCM	manday	100.00	175.00		
<b>Buildings - Decontaminate</b>							
	Asbestos	BDA	m2	25.60	51.20		Low: removal of asbestos siding & flooring; High: removal of insulated pipes
<b>Buildings - Remove</b>							
	Wood	BRW	m2	27.50	41.00		Unit costs are based on 3m high, single storey building. Scale areas accorc
	Concrete	BRC	m2	40.00	65.00	6.00	
	Steel - teardown	BRS1	m2	45.00	65.00		
	Steel - for salvage	BRS2	m2	67.00	100.00		
<b>Concrete work</b>							
	Small pour	CSF	m3	426.50	639.75		Low: YK; High=1.5xLow
	Large pour	CLF	m3	353.50	530.25	2,130.00	Specified: concrete crown pillar
<b>Contaminated Soils</b>							
	ESA Phase 1	CS1	each	7500.00			Low: small, "clean" site
	ESA Phase 1	CS2	each	50000.00			Low: small, "clean" site
	Remediate on site	CSR	m3	47.00	146.00		
<b>Dozing</b>							
	doze rock piles	DR	m3	1.05	2.40		Low cost: doze crest off dump
	doze overburden/soil piles	DS	m3	0.95	3.80		High cost: push up to 300 m
<b>Excavate Rock; Low Spec's and QA/QC</b>							
	drill/blast/load/short haul	RB1	m3	11.40	17.05		Low:quarry operations for bulk fill
	drill/blast/load/long haul	RB2	m3	12.05	17.80		
	RB1 + spread and compact	RB3	m3	12.05	17.80		
	RB2 + spread and compact	RB4	m3	12.50	30.75		
	Specified activity	RBS	m3				
<b>Excavate Rock; High Spec's and QA/QC</b>							
	drill/blast/load/short haul	RC1	m3	12.05	17.80		(e.g. ditch/spillway excavation)
	drill/blast/load/long haul	RC2	m3	12.70	18.40		Low:foundation excavation;High:spillway excavation
	RC1 + spread and compact	RC3	m3	12.70	18.40		e.g. cover construction
	RC2 + spread and compact	RC4	m3	13.50	19.20		e.g. cover construction
	Specified activity	RCS	m3			175.00	Specified-drift excavation
<b>Excavate Rip Rap</b>							
	drill/blast/load/short haul/place	RR1	m3	13.50	17.75		High: quarry & place rip rap in channel
	drill/blast/load/long haul/place	RR2	m3	14.20	20.65		
	source is waste dump/short haul	RR3	m3	7.00			cost includes sorting
	source is waste dump/long haul	RR4	m3	7.60			
	Specified activity	RRS	m3				
<b>Excavate Soil; Low Spec's and QA/QC</b>							
	clear & grub	SBC	m2	3.40	5.00		
	excavate/load/short haul	SB1	m3	4.30	5.90		
	excavate/load/long haul	SB2	m3	4.60	7.30		
	SB1 + spread and compact	SB3	m3	5.10	8.90	4.20	Low: non-engineered; High:engineered; specified 2011 \$3.96 adjusted for ir
	SB2 + spread and compact	SB4	m3	5.50	11.00		Low: non-engineered; High:engineered
	Specified activity	SBS	m3	3.20	6.50		Low: rehandle waste rock dump by dozing; High:rehandle waste rock by ha
	Tailings	SBT	m3	1.35	3.70	15.50	High:contour surface - wet or frozen; Specified:haul/place wet infill
<b>Excavate Soil, High Spec's and QA/QC</b>							
	excavate/load/short haul	SC1	m3	6.80	9.30		
	excavate/load/long haul	SC2	m3	7.10	11.75		
	SC1 + spread and compact	SC3	m3	8.90	14.20		Low: non-engineered; High:engineered
	SC2 + spread and compact	SC4	m3	9.30	23.20		Low: non-engineered; High:engineered (e.g. complex covers, low volume d
	Specified activity	SCS	m3		5.00	18.80	High:hydraulic mining; Specified:Backfill adit with waste rock
<b>Fence</b>							
		FNC	m	13.55	203.00		
<b>Fuel and Electricity</b>							
	Fuel cost - gas	FCG	litre	1.05	1.40		
	Fuel cost - diesel	FCD	litre	0.99	1.39		
	Fuel mobilization	FCM	litre	0.22	0.42		High: winter road usage
	Electricity	FCE	kW-h	0.17	0.19	0.49	Low and High:Yellowknife; Specified:diesel generator
<b>Geo-Synthetics</b>							
	geotextile	GST	m2	3.44		9.37	Supply and install
	geogrid	GSG	m2	5.75			
	liner, HDPE	GSHDPE	m2	7.95			Supply and install; large quantity
	liner, ES3	GSES3	m2	20.20			FOB Yellowknife
	geosynthetic installation	GSI	m2	3.16	14.00		Low:geotextile; High:ES3 or HDPE

**Unit Cost Table (for refining unit costs see "Estimator" worksheet)**

Filter by unit

bentonite soil ammendment	GSBA	tonne	308.30	348.50	FOB Edmonton, add shipping & mixing
<b>Grouting (/m3 of rock grouted)</b>					
grout	m3		236.55	286.75	High: cement, FOB Yellowknife
<b>Labour &amp; Equipment Rates</b>					
Site manager	sman	\$/hr	125.00	152.00	
Supervisor	super	\$/hr	52.00	91.84	
Registered engineer	eng	\$/hr	95.00	220.00	
Environmental coordinator	envco	\$/hr	74.16	130.00	
Environmental technologist	envtech	\$/hr	36.00		
Electrician	elec	\$/hr	74.00	95.00	
Journeyman - various	journey	\$/hr	44.00	71.79	
Labour - skilled	lab-s	\$/hr	41.00	49.60	
Labour - unskilled	lab-us	\$/hr	31.00	43.98	
Equipment operator	oper	\$/hr	41.00	65.00	
Heavy duty mechanic	mech	\$/hr	49.00	72.85	
Water treatment plant operator	oper-wt	\$/hr	41.00	59.86	
Security / first aid	safety	\$/hr	36.00	66.97	
Administrative staff	admin	\$/hr	38.00	57.89	
Equipment rates include operator and fuel					
Loader - 4 cu.yd (3.06m3)	load-s	\$/hr	175.00		
Loader - 7 cu.yd (5.35m3)	load-l	\$/hr	315.00		
Excavator - 26.76-30.84 tonnes	exc-s	\$/hr	190.00		
Excavator - 68.95+tonnes	exc-l	\$/hr	420.00		
Grader	grad	\$/hr	190.00		
Dump truck off hwy 30-50 tonnes	truck-s	\$/hr	225.00		
Dump truck off hwy 55-75 tonnes	truck-l	\$/hr	300.00		
dozer, small	dozers	\$/hr	205.00	260.00	
dozer, large	dozerl	\$/hr	490.00	565.00	
smooth drum compactor	comp	\$/hr	155.00		
scooptram, 6 yd3 bucket	scoop	\$/hr	170.00		
flat bed truck with hiab	hiab	\$/hr	155.00		
fuel truck	ftruck	\$/hr	150.00		
water truck	wtruck	\$/hr	58.00	150.00	
<b>Mobilize Heavy Equipment</b>					
Road access	MHER	kmtonne	3.40	10.25	
Air access	MHEA	kmtonne	12.00		cargo rate>500lb
<b>Mobilize Camp</b>					
Road access	MCR	each	50000.00		refurbish existing camp
<b>Mobilize Workers</b>					
flight	MW	each	4500.00	9100.00	Low:e.g. 8 passenger; High: Dash 7
<b>Oil Removal</b>					
oil removal	OR	litre	0.43	1.20	Low:waste oil heater; High: ship offsite
<b>PCB Removal</b>					
Remove from site	PCBR	litre	40.20	46.90	Low: shipping, handling & disposal from Yellowknife
<b>Pipes, small (&lt;6in dia.)</b>					
remove/dispose on site	PSR	m	1.00	24.00	Low: remove/dispose on site; High: remove/re-use
supply	PSS	m	6.10	11.10	Low:supply; High:supply and ship
install	PSI	m	25.00		
<b>Pipes, large (&gt;6in dia.)</b>					
remove/dispose on site	PLR	m	22.00	72.00	Low: remove/dispose on site; High: remove/re-use
supply	PLS	m	129.00	143.00	Low:supply; High:supply and ship
install	PLI	m	50.00		
<b>Power Lines</b>					
remove/dispose on site	POWR	m	25.50		
<b>Process Chemicals</b>					
Remove from site	PCR	kg	0.45	2.50	Low: shipping, handling & disposal from Yellowknife
<b>Pumps</b>					
Pump capital cost	PC	each	195000.00		
Pump shipping	PS	each	2500.00		
Pump operating cost	POC	m3	0.12		pump operating costs should be calculated based on pump capacity, fuel cc
Pump maintenance	PM	allow	25000.00		
<b>Pump sand BackFill</b>					
	PBF	m3	85.00	300.00	
<b>Scarify - road/mine site</b>					
	SCFY	ha	4300	6030	2150
<b>Shaft, Raise &amp; Portal Closures</b>					

**Unit Cost Table (for refining unit costs see "Estimator" worksheet)**

Filter by unit						
Shaft & Raises	SR	m2	645.00	2132.00		Low:pre-cast concrete slabs, little site prep. Area=shaft+>1m all around
Portals	POR	m3	18.80	250.00	1200.00	Low:unit cost code SCS;High:excavate & backfill collapsed portal;Spec: inst
<b>Site Inspection Report</b>						
	RPT	each	10000.00	20000.00		
<b>SpillWay - Clear</b>						
	SW	each	3000.00	7000.00		
<b>Survey/Instrumentation</b>						
	SI	each	1800.00	3600.00		2 person crew
<b>Treatment Plant - Construct</b>						
Small (< 1000 m3/d)	TPS	lump sum	9000000	15000000		
Large (> 1000 m3/d)	TPL	lump sum	15000000	46000000		
Constructed Wetland	CWTS	ha	200000	300000		
<b>Treatment Plant - Operate</b>						
	OTP	m3	0.35	2.00		
<b>Treatment Chemicals</b>						
ferric sulphate	ferric	kg	1.19			
ferrous sulphate	ferrous	kg	1.32			
lime	lime	kg	0.56			
hydrogen peroxide, 35%	hperox	kg	1.50			
Sodium Metabisulfate	Nametab	kg	1.18			
Caustic soda, 50%	caustic	kg	0.74			
Sulfuric acid, 93%	sulfuric	kg	0.31			
flocculant	flocc	kg	6.00			
copper sulphate	copper	kg				
shipping	shipping	kg	0.20			
<b>Vegetation</b>						
Hydroseed, Flat	VHF	ha	4000.00			
Hydroseed, Sloped	VHS	ha	4500.00			
Veg. blanket/erosion mat	VB	ha	13000.00			
Tree planting	VT	ha	2600.00	6000.00		
Wetland species	VW	ha			47.72	Specified= /m3, Wetland Growth Media Substrate mixed and installed (sanc
<b>Water Sampling/Analysis/Reporting</b>						
	WS	each	7000.00	10000.00		
<b>Winter Road</b>						
Construction	WRC	km	2000.00	11500.00		
Usage	WRU	kmtone	0.29			

**Unit Cost Estimator**

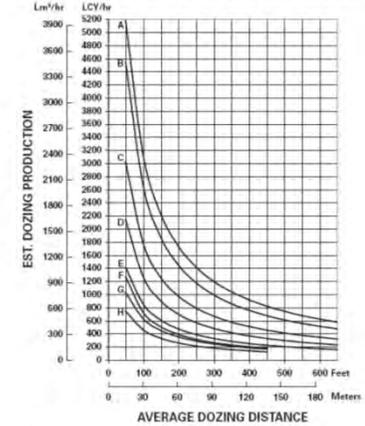
1 Equipment Productivity Figures and Graphs have been reproduced from Caterpillar Performance Handbook - Edition 42

EXCAVATION	
<b>Productivity</b>	
Machine Cat 336EL	
bucket capacity	3.16 m3
fill factor	75% %
cycle time	45 seconds
operator skill	80% %
machine availability	83% %
altitude adjustment	100% %
Hourly productivity	125.89 m3/hr
<b>Operating Costs</b>	
- Contractor	
Contractor hourly rate	\$180.00 \$/hr
Excavation cost - contractor rate	1.43 \$/m3
- Owner	
ownership, daily	\$/day
maintenance	\$/hr
fuel	\$/hr
consumables (cutters, tires)	\$/hr
operator	\$/hr
Owner hourly rate	\$0.00 \$/hr
Excavation cost - owner rate	\$0.00 \$/m3
Excavation cost - select contractor or owner rate (D22 or D31)	\$/m3

HAUL AND DUMPING	
<b>Productivity</b>	
Machine Cat 770	
truck capacity	25.1 m3
fill factor	80% %
load time	6.0 min.
haul distance	1.5 km
average velocity	20.0 km/hr
haul time + return time	9.0 min.
wait time	0.5 min.
dump time	1.0 min.
cycle time	16.5 min.
machine availability	83% %
altitude adjustment	100% %
Hourly productivity	13.7 ve. min/cycle
Hourly productivity	88.0 m3/hr
<b>Operating Costs</b>	
- Contractor	
Contractor hourly rate	\$225.00 \$/hr
Haul and Dump - contractor rate	2.56 \$/m3
- Owner	
ownership, daily	\$/day
maintenance	\$/hr
fuel	\$/hr
consumables (cutters, tires)	\$/hr
operator	\$/hr
Owner hourly rate	\$0.00 \$/hr
Haul/Dumping Cost - owner rate	\$0.00 \$/m3
Haul/Dumping Cost - select contractor or owner rate (I22 or I31)	\$/m3

SPREADING/DOZING	
<b>Productivity</b>	
Machine Cat D8	
Estimate production using example curves provided or equivalent from other supplier	600 m3/hr
Correction factors (see table provided)	
operator skill	0.75
material type, see table	0.80
slot dozing	1.00
side by side dozing	1.00
visibility	1.00
job efficiency	0.83
altitude adjustment	1.00
slope adjustment	1.00
Hourly productivity	298.8 m3/hr
<b>Operating Costs</b>	
- Contractor	
Hourly rate - contractor supplied	\$260.00 \$/hr
Dozing - contractor rate	0.87 \$/m3
- Owner	
ownership, daily	\$/day
maintenance	\$/hr
fuel	\$/hr
consumables (cutters, tires)	\$/hr
operator	\$/hr
Owner hourly rate	\$0.00
Spreading/Dozing Cost - owner rate	\$0.00 \$/hr
Spreading/Dozing Cost - select contractor or owner rate (N22 or N31)	\$/m3

ESTIMATED DOZING PRODUCTION • Universal Blades • D7G through D11T CD



KEY  
A - D11T CD  
B - D11T  
C - D10T  
D - D9T  
E - D8T  
F - D7E  
G - D7R Series 2  
H - D7G

NOTE: This chart is based on continuous field machine operation under varying job conditions. Refer to correction factors following these charts.

Excavator			
heaped bucket capacity, m3	Cat 320 1.5	Cat 325B 2.2	Cat 375 5.4
easy digging, shallow digging, small swing angle	Typical Cycle Times (seconds)		
med. to hard digging, rocky soil, swing angle to 90 deg.	16	18	20
tough digging, sandstone, caliche, at max. machine depth, swing angle > 120 deg.	23	23	25
Material	Fill Factor (% of heaped bucket capacity)		
Moist loam or sandy clay	100 - 110		
sand and gravel (not till)	95 - 110		
hard tough clay	80 - 90		
rock - will blasted	60 - 75		
rock - poorly blasted	40 - 60		
Operator Skill	poor	average	good
Correction factor	0.6	0.75	1
Machine availability	poor	average	good
Correction factor	0.9	0.95	1

Trucking			
Truck capacity - heaped, m3	Cat 771 D 27.5	Cat 777D 60.5	Cat 789C 137

Dozing	
JOB CONDITION CORRECTION FACTORS	
TRACK-TYPE TRACTOR	
OPERATOR -	
Excellent	1.00
Average	0.75
Poor	0.60
MATERIAL -	
Loose stockpile	1.20
Hard to cut; frozen -	
with tilt cylinder	0.80
without tilt cylinder	0.70
Hard to drift, "dead" (dry, non-cohesive material) or very sticky material	0.80
Rock, ripped or blasted	0.60-0.80
SLOT DOZING	1.20
SIDE BY SIDE DOZING	1.15-1.25
VISIBILITY -	
Dust, rain, snow, fog or darkness	0.80
JOB EFFICIENCY -	
50 min/hr	0.83
45 min/hr	0.67
BULLDOZER*	
Adjust based on SAE capacity relative to the base blade used in the Estimated Dozing Production graphs.	
GRADES - See following graph.	
*NOTE: Angling blades and cushion blades are not considered production dozing tools. Depending on job conditions, the A-blade and C-blade will average 60-75% of straight blade production.	

% Grade vs. Dozing Factor  
(-) Downhill  
(+) Uphill

