



FWP0001500

# LOCKHART FORWARD PROGRAM

Friday 13 September 2024 to Sunday 12 September 2027



# Summary

DETAIL				
Mine	Lockhart			
Reference	FWP0001500			
Forward program commencement date	Friday 13 September 2024			
Forward program end date	Sunday 12 September 2027			
Forward program revision (if applicable)				
Contact	Rose Gates			
Mining leases	ML 1762 (1992)			
Project location	PGH Bricks & Pavers Pty Ltd			
Date of submission	Friday 8 November 2024			

# Important

The department may make the information in your program and any supporting information available for inspection by members of the public, including by publication on its website or by displaying the information at any of its offices. If you consider any part of your program to be confidential, please communicate this to the department via the message function on this submission within the NSW Resources Regulator Portal.



# Three-year forecast – surface disturbance activities

# **Project description**

The Lockhart Clay Mine is located at Lot 1 DP 1153001, 270 Krauses Lane, Lockhart, Parish of Galore, County of Urana. Extraction of clay commenced in the mine in 1979 on the site at Krause Lane, Lockhart, and a formal development consent 42/09 was issued to Lockhart Shire Council in 1991. The land is privately owned by Mr James Morgan with the site being subject to a commercial lease arrangement enabling access for clay extraction. PGH has resolved to close the mine and provides this FWP to describe the proposed rehabilitation works to be undertaken on the site prior to relinquishment of the mining tenement. The site is characterised as having two distinct former extraction areas, the North Pit and South Pit, and a central dam. The site has been re-shaped to the final landform using stored overburden material.

## Description of surface disturbance activities

#### **Exploration activities**

There will be no exploration activities during this FWP period.

#### **Construction activities**

Work will be undertaken as required to maintain rehabilitation vegetation establishment, and to control weeds, feral animals and erosion on site.

#### Mining schedule

Mining development method and sequencing and general mine features.

There will be no mining activities during this closure FWP period.

Areas identified for emplacements, the sequencing of emplacements, construction, and management.

There will be no generation of overburden material due to mining activities.

Processing infrastructure activities and the location of tailings facilities and schedule for emplacement.

There are no residues or tailings on the site.



Waste disposal and materials handling operations.

No waste will be generated during the rehabilitation operations. Vegetation will be reused on site. Any domestic waste generated by contractors will be removed by them at the end of each day.

#### **Key production milestones**

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m³)	0	0	0
Rock/overburden	(m³)	0	0	0
Ore	(Mt)	0	0	0
Reject material <sup>1</sup>	(Mt)	0	0	0
Product	(Mt)	0	0	0

<sup>&</sup>lt;sup>1</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.



# Three-year rehabilitation forecast

# Rehabilitation maintenance and corrective actions

No performance issues/knowledge gaps have been identified to date. Rehabilitation works commenced late 2023. Any gaps and issues will be provided in the next ARR.

# Rehabilitation schedule

The aim of the rehabilitation is to establish within the excavated area of the mine a sloped wetland area that drains to the existing Southern Dam via a spillway. Within the southern portion of the mine, the slopes have been battered to safe and stable angles whilst the southern dam remains untouched. Overflows from the Southern Dam will be directed back to the natural watercourse in the south of the site. The Southern Dam will be used for stock water with the surrounding slopes to be revegetated with pasture species suitable for grazing. Much of these works have been undertaken to date, however vegetation will require some time to become established.

# Completion of rehabilitation

Pending resources regulator and landowner approval, the rehabilitation completion application is planned for an area of 10.34Ha on Lot 1 DP 1153001, 270 Krauses Lane, Lockhart, to be lodged in 2027 (Year 3 of this FWP). This covers the full extent of the disturbed area which previously contained two extraction pits.

# Progressive mining and rehabilitation statistics

# Three-yearly forecast cumulative disturbance and rehabilitation progression

	FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
Α	Total surface disturbance footprint	(ha)	11.28	11.28	11.28
В	Total active disturbance	(ha)	0	0	0
Ρ	Total new area of land proposed for active rehabilitation	(ha)	10.3	0	0

### NSW Resources Regulator

# Attachment 1 – Reporting Definitions

REPO	ORTING CATEGORY	DEFINITION			
Α	Total disturbance footprint – surface disturbance	All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.			
		The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).			
		Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.			
В	Total active disturbance	Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).			
С	Rehabilitation – land preparation	Includes the sum of all disturbed land within a mining lease that have commenced any, or all, of the following phases of rehabilitation – decommissioning, landform establishment and growth medium development. Refer to the glossary of terms in this document for the definition of these phases of rehabilitation.			
D	Ecosystem and land use establishment	Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long term and or require only a maintenance regime consistent with target reference/analogue sites.			
		Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.			



# Attachment 2 – Definitions

WORD	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	In the context of rehabilitation, an analogue site is a 'reference site' that represents an example of the defining characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and completion criteria for final land use domains.
Annual rehabilitation report and forward program	As described in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning Phase of Rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan this phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.

WORD	DEFINITION				
Department	The Department of Regional NSW.				
Disturbance	See Surface Disturbance.				
Disturbance area	An area that has been disturbed and that requires rehabilitation. This may include areas such as on-licence exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (i.e. managed to minimise dust generation and/or erosion).				
Domain	An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.				
Ecosystem and Land Use Development	This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved rehabilitation objectives and completion criteria. For vegetated land uses this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, and increasing habitat complexity, and development of a productive, self-sustaining soil profile. This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.				
Ecosystem and Land Use Establishment	This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform. For vegetated land uses this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.				
Exploration	Has the same meaning as that term under the State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007.				

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WORD	DEFINITION
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department's website.
Growth Medium Development	This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short lived pioneer species. This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical
	and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (i.e. defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the <i>Mining Act 1992</i> .
Landform Establishment	This phase of rehabilitation consists of the processes and activities required to construct the final landform. In addition to profiling the surface of rehabilitation areas to the approved final landform profile this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.

WORD	DEFINITION			
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.			
Mine rehabilitation portal	<ul> <li>Means the NSW Resources Regulator's online portal that lease holders must use (via a registered account) to: <ul> <li>upload rehabilitation geographical information system (GIS) spatial data</li> <li>develop rehabilitation GIS spatial data (using online tracing functions)</li> <li>generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities.</li> </ul> </li> <li>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</li> </ul>			
Mining area	As defined in the <i>Mining Act 1992</i> .			
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).			
Mining land	As defined in the <i>Mining Act 1992</i> .			
Native vegetation	Has the same meaning as that term under section 60B of the <i>Local Land Services Act</i> 2013.			
Overburden	Material overlying coal or a mineral deposit.			
Performance indicator	An attribute of the biophysical environment (for example pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.			

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WORD	DEFINITION			
Phases of rehabilitation	The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are: active mining decommissioning landform Establishment growth medium development ecosystem and land use establishment ecosystem and land use development.			
Progressive rehabilitation	The progress of rehabilitation towards achieving the approved rehabilitation completion criteria. This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.			
Rehabilitation Completion	The final phase of rehabilitation when a rehabilitation area has achieved the approved rehabilitation objectives and rehabilitation completion criteria for the final land use. Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of <i>Form ESF2 Rehabilitation completion and/or review of rehabilitation cost estimate</i> application by the lease holder.			
Rehabilitation Completion criteria	As defined in the Mining Regulation 2016.			
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.			
Rehabilitation management plan	As defined in the Mining Regulation 2016.			
Rehabilitation objectives	As defined in the Mining Regulation 2016.			
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.			
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.			

### NSW Resources Regulator

WORD	DEFINITION				
Relevant stakeholders	<ul> <li>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes: <ul> <li>the relevant development consent authority</li> <li>the local council</li> <li>the relevant landholder(s)</li> <li>community consultative committee (if required under the development consent) or equivalent consultative group</li> <li>affected land holder(s)</li> <li>government agencies relevant to the final land use</li> <li>affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities)</li> <li>local Aboriginal communities, and</li> <li>any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.</li> </ul> </li> </ul>				
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2009).				
Secretary	The Secretary of the Department.				
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).				
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.				
Tailings	A combination of the fine-grained solid material remaining after the recoverable metals and minerals have been extracted from the mined ore, and any process water <sup>2</sup> .				
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .				

Forward Program (SMALL MINE) v2.1

<sup>&</sup>lt;sup>2</sup> Commonwealth of Australia (DITR), 2007. *Tailings Management*.

Complete the following field	Is prior to calculating the Security Deposit.
Mine Name:	Lockhart
Lease(s):	ML1762
Title Holder:	PGH Bricks & Pavers Pty Ltd
Term of RCE:	13 Sep 2024 to 12 Sep 2027
Current Security:	\$343,000 Date of last Security Deposit review 9/01/2018
Mine Contact:	Joe Gauci
List key changes since previous submission:	e.g. significant landform rehabilitation undertaken in domain xyz e.g. change in mine waste (tailings) capping rate



### Regional NSW

#### **Open Cut Summary Rehabilitation Cost Estimation**

Note:	Sections	of this	page are	automatically	filled in	from the	registration	page
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Mine Name:	Lockhart		
Lease(s):	ML1762		
Authorisation Owner:	PGH Bricks & Pavers Pty Ltd		
Term of RCE:	13 Sep 2024 to 12 Sep 2027		
Current Security:	\$343,000	Date of Last Security Deposit Review:	9/01/2018
Mine Contact:	Joe Gauci		

Domain		Security Deposit		
Domain 1: Infrastructure		\$2,653		
Domain 2: Tailings & Rejects				
Domain 3: Overburden & Waste		\$92,833		
Domain 4: Active Mine & Voids		\$128,064		
Domain 5: Management Activities	\$27,726			
Subtotal (Domains and Sundry Items)		\$251,277		
Contingency	10%	\$25,128		
Post Closure Environmental Monitoring	10%	\$25,128		
Project Management and Surveying	10%	\$25,128		
Total Security Deposit for the Mining Project	(excl. of GST)	\$326.660		

Note: GST is not included in the above calculation or as part of rehabilitation security deposits required by the Department.

Alterations have been made to unit prices within this spreadsheet. (Attach a separate sheet providing details of changes).

 $\hfill \square$  The proposed rehabilitation design is generally consistent with the development consent for the project.

This mine security calculation has been estimated using the best available information at the time. It is a true and accurate reflection of the total rehabilitation liability held by this mine.

Joe Gauci Company Respresentative's Name 10/11/2024 \_\_\_\_\_ Date

National Raw Materials Manager Company Representative's Role / Responsibility

Signature

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain

\$2,653

Additional Assumptions. Record any relevant assumptions to this domain below.		
	Key Rehabilitation Area Data for Domain	Enter data below manually
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
		orks Subtotal	\$0						
				R	ail Infrastruct	ture Subtotal	\$0		
				Contar	ninated Mater	rials Subtotal	\$0		
		\$0							
		\$0							
Earthworks / Structural Works	Deep rip hard stand / lay down areas	Y	0.22	ha	\$960.00		\$211		D10 deep ripping.
	E	arthworks / S	tructural Wo	rks (Landforr	m Establishm	ent) Subtotal	\$211		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	220	m3	\$3.26		\$716	< =1km	Undertaken with 623 scraper and 14 M grader.
	Direct seeding / fertiliser (pasture grass species)	Y	0.22	ha	\$1,875		\$413		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	0.22	ha	\$420.00		<b>\$92</b>		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Land Preparation and Revegetation (Grow	wth Media De	velopment a	nd Ecosyster	n Establishme	ent) Subtotal	\$1,221		•
				W	ater Managem	nent Subtotal	\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	1.32	ha	\$925		\$1,221		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
			Mainte	enance of Re	habilitated Ar	reas Subtotal	\$1,221		
					Additional Ite	ems Subtotal	\$0		
	Total Cost fo	or Infras	tructur	e Doma	ain			\$2,653	

Domain 2a: Tailings & Rejects

#### **Total Cost for Tailings & Rejects Domain**

\$0

							Key Rehabi	itation Area Data for Domain	Enter data below manually
								Total Landform Establishment:	
							То	tal Growth Media Development:	
							1	otal Ecosystem Establishment:	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
				Cont	aminated Materi	ials Subtotal	\$0		
		Earthworks / St	tructural Work	s (Landfo	rm Establishme	ent) Subtotal	\$0		
		Earthworks / St	tructural Work	s (Landfo	rm Establishme	ent) Subtotal	\$0		
					Mine Wa	ste Subtotal	\$0		
	Land Preparation and Revegetation	(Growth Media Dev	velopment and	d Ecosyst	em Establishme	ent) Subtotal	\$0		
				١	Nater Managem	ent Subtotal	\$0		
Maintenance of Rehabilitated Areas Subtotal							\$0		
					Additional Ite	ms Subtotal	\$0		
	Total Cost for Tailings & Rejects Domain							\$0	

#### Domain 3a: Overburden & Waste

#### Total Cost for Overburden & Waste Domain

\$92,833

Key Rehabilitation Area Data for Domain Enter data below manually

			Total Canuth Madia Davalarment						
							lot	al Growth Media Development:	
							- 1	otal Ecosystem Establishment:	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
				Contar	ninated Materi	ials Subtotal	\$0		
				F	Roads and Tra	cks Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m push length	Y	78000	m3	\$0.80		\$62,254	< 50m push	Assumes D11 dozer push @ 400 bcm/hr.
	Minor reshaping and pushing	Y	2.89	ha	\$3,900		\$11,271		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y	2.89	ha	\$1,130.00		\$3,266		Undertaken using D10 dozer and 16M grader.
	E	\$76,790							
					Mine Wa	ste Subtotal	\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	2890	m3	\$3.26		\$9,410	< =1km	Undertaken with 623 scraper and 14 M grader.
	Direct seeding / fertiliser (pasture grass species)	Y	2.89	ha	\$1,875		\$5,419		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	2.89	ha	\$420.00		\$1,214		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Land Preparation and Revegetation (Grow	vth Media De	velopment ar	nd Ecosyster	m Establishme	ent) Subtotal	\$16,043		•
				W	ater Managem	ent Subtotal	\$0		
			Mainte	enance of Re	habilitated Are	eas Subtotal	\$0		
					Additional Ite	ms Subtotal	\$0		
	Total Cost for O	verburd	en & W	aste D	omain			\$92,83	3

#### Domain 4a: Active Mine & Voids

#### Total Cost for Active Mine & Voids Domain

\$128,064

Additional Assumptions. Recor	d any relevant assumptions to this domain below.					1	Kev Rehabili	tation Area Data for Domain	Enter data below manually
							10,100	otal Landform Establishment:	
							Tota	al Growth Media Development:	
							Тс	tal Ecosystem Establishment:	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
					Open	Cut Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m push length	Y	68700	m3	\$0.80		\$54,831	< 50m push	Assumes D11 dozer push @ 400 bcm/hr.
	Minor reshaping and pushing	Y	6.16	ha	\$3,900		\$24,024		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y	6.16	ha	\$1,130.00		\$6,961		Undertaken using D10 dozer and 16M grader.
	E	arthworks / S	tructural Wor	rks (Landforn	n Establishm	ent) Subtotal	\$85,816		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media - haul distance <1 km	Y	6160	m3	\$3.26		\$20,058	< =1km	Undertaken with 623 scraper and 14 M grader.
	Direct seeding / fertiliser (pasture grass species)	Y	6.16	ha	\$1,875		\$11,550		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	6.16	ha	\$420.00		\$2,587		Assumes 250 kg / ha. These rates hav fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc this is a suitable standard rate.
	Land Preparation and Revegetation (Grow	wth Media De	velopment ar	nd Ecosysten	n Establishm	ent) Subtotal	\$34,196		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	2	allow	\$2,500		\$5,000		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
				Wa	ater Managem	ent Subtotal	\$5,000		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	3.3	ha	\$925		\$3,053		Rehabilitation maintenance might include re-seeding, watering, fertilising minor re-shaping, erosion control, inspections/audits - does not include major repair works.
			Mainte	enance of Re	habilitated Ar	eas Subtotal	\$3,053		
					Additional Ite	ems Subtotal	\$0		
	Total Cost for A	ctive M	ine & V	oids Do	omain			\$128.06	4
								; ,,,,	

#### Domain 5a: Management Activities

#### **Total Cost for Management Activities**

\$27,726

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant	Description / Notes:
Water Management	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	N		ML	\$3,600			internation	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	N		ML	\$1,500				Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions				Wa	ater Managem	ent Subtotal	\$0		Assumes material is suitable for
	Repairs and/or stabilisation of new or compromised water course diversion	N		m	\$2,500				revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	N		m	\$1,500				up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	N		m	\$750.00				Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	N		m2	\$6.00				Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
Maintenance of Rebabilitated					Creek Diversi	ons Subtotal	\$0		Feral animal baiting programs if
Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y	1.32	ha	\$150.00		\$198		required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment control works)	Y	1.32	ha	\$400.00		\$528		Undisturbed areas within the lease boundary that require land management activities.
Undte ne lienee			Mainte	enance of Re	habilitated Ar	eas Subtotal	\$726		
nentage items	The restoration and care and maintenance of items that have heritage significance	Y		allow	Use alternate rate cell		\$0		artefacts, preservation of European heritage items or a combination of
					Heritage Ite	ems Subtotal	\$0		activities.
Sundry Items									Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demolition, etc.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with closure planning well progressed i.e. preferred cover design, closure environment modelled e.g. groundwater / subsidence / pit lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	N		allow	\$100,000				Costs to finalise options by domain and finalise degines for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range from ~375k to 31 M. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan Non State Significant Development with at least ≥2 of the following aspects requiring closure planning, but no significant issues realised at this time: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	N		allow	\$90,000				Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Estimated cost for developing closure plan including studies - basic to satisfy risks and decisions - includes risk assessment, options analysis, Closure Plan. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with no EPL and/or only one of the following relevant aspects: previous subsidence, low to medium geochemistry risk and/or spontaneous combustion propensity, known limited contamination, small approved final void	Y	1	allow	\$15,000		\$15,000		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includes risk assessment, sampling and analyses on <5 samples, one study and Closure Plan.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with only preliminary to conceptual closure planning in place	N		allow	\$300,000				Includes costs for key investigations and studies including designs e.g. geochemistry, Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide suface water, etc. Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assume at least 15 types of studies required ranging from geotechnical to ecology and social, development of a closure plan including address of obligations. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range to >\$3 M. Sites with more than 1 pit to add \$50,000 to rate.

	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least ≥2 of the following aspects resulting in significant issues requiring remediation: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	N		allow	\$125,000				Includes costs for key investigations and studies including economic treatments and designs e.g. geochemistry, Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	N		allow	\$27,950				Based on experience for a REF after completion of a detailed closure study (e.g. contamination investigation) costs could range from \$10,000 to \$100,000 ex GST. Note this does not apply to a Statement of Environmental Effects or Environmental Impact Statement.
	Site security during closure	N		yr.	\$75,000				Provisional sum for site security measures required during closure. This includes nightly patrols and first response in the event of an out of hours incident.
	Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	N		allow	\$0			Select type of HAZMAT Clean-up Required	Type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and nine work etc.
									Provisional sum for removal and
	Removal and disposal of radiation devices	N		each	\$31,630				disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strength, weight, source holder type, source holder weight, pick-up location (among others) will directly affect pricing.
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Z		allow	Use alternate rate cell				Provisional sum.
			-		Sundry Ite	ems Subtotal	\$15,000		
Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet	Y	1	Item	\$12,000		\$12,000		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation for small mine or quarry - medium to large fleet	N		Item	\$35,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	N		item	\$100,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	N		item	\$150,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	N		item	\$300,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	N		item	\$500,000				May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Additional Itoms			Мо	bilisation and	d Demobilisat	ion Subtotal	\$12,000		This item includes eate be added by
Additional Items	Other 1 <insert></insert>	N			This is				the operator>>
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	Other 3 <insert></insert>	N			left blank				This item includes < <to added="" be="" by="" operator="" the="">&gt;</to>
	•		•	•	Additional Ite	ms Subtotal	\$0		
	Total Cost for	r Manag	gement	Activiti	es			\$27,72	6

**Domain 1b: Infrastructure** 

#### **Total Cost for Infrastructure Domain**

**\$0** 

Key Rehabilitation Area Data for Domain	Enter data below manually
Total Landform Establishment:	
Total Growth Media Development:	
Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
nination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y		allow	\$35,000		\$0		For disconnection of all services, at building boundaries, physical cut at the point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, camp and workshops are in separate places), consider multiple disconnection fees.
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Y		allow	\$5,850		\$0		Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities such as steel lattice power lines.
	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of substations	Y		km	\$15,000		\$0		Applies to power lines on stobie, concrete or similar poles.
	Removal of power lines on tower or lattice structures (this includes disconnection, rolling up the wires and removing the structures) - does not include the removal of substations	Y		km	\$100,000		\$0		Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
	Remove small rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Y		Item	\$350,000		\$0		Smaller structures - minimal civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Remove medium rail, road, water course overpass - manage potential interruptions and demoilsh and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Y		ltem	\$500,000		\$0		Medium structures - minimal civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Remove large / significant rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on- site/locally	Y		ltem	\$1,300,000		\$0		Large structures - includes significant water management e.g. watercourse diversion and civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
	Demolish and/or remove substations (assumes they are in a closed building). Dispose of waste material on-site/locally	Y		m2	\$100.00		\$0		Simple structure to demolish mechanically (no labour required), assumes single story building with no asbestos and segregation of contents for scrap as applicable.
	Demolish and remove switchyard. Dispose of waste material on-site/locally	Y		m2	\$75.00		\$0		Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
	Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Y		m2	\$40.00		\$0		Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Y		m2	\$61.00		\$0		Simple structure to demolish, assumes no greater than 2 stories high. Does not include transport to regional disposal facility or equivalent.
	Demolish and remove light industrial buildings and disposal on-site/locally	Y		m2/floor	\$90.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent. Assumes asbestos free and mechanically demolished.
	Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Y		m2/floor	\$130.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Demolish and remove CHPP/process plant (include the area of each floor of the structure) and disposal on-site/locally	Y		m2/floor	\$225.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove washery, crushers, hoppers, mills, furnaces, agglomeration, electrowinning, floatation, sizing stations, rotary breakers, etc (include the area of each floor of the structure) and disposal on-site/locally	Y		m2/floor	\$225.00		\$0		Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove stacker OR reclaimer (radial or luffing etc. with maneuverability for stockpile control) and disposal on-site/locally	Y		allow	\$750,000		\$0		Cost for removal of stacker or reclaim unit only. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
	Collapse, demolish and remove bucket wheel stacker/reclaimer and disposal on-site/locally	Y		allow	\$2,000,000		\$0		Cost for just removal of the bucket wheel stacker/reclaim units. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
	Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc and disposal on-site/locally	Y		m	\$75.00		\$0		Includes both rails, does not include the conveyor system. Does not include transport to regional disposal facility or equivalent.
	Collapse, Cut and Remove 5000T coal silo and disposal on-site/locally	Y		allow	\$92,500		\$0		Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.

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Collapse, Cut and Remove 3000 T coal silo and disposal on-site/locally	Y	allow	\$77,500	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Y	allow	\$62,500	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent
Collapse, Cut and Remove rail loading bins and disposal on-site/locally	Y	allow	\$65,000	\$0	Collapse structure and remove. Does not include transport to regional
Demolish and Remove large concrete rail loading bin - and disposal on-site/locally	Y	allow	\$460,000	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Demolish and remove onground conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) and disposal on-site/locally	Y	m	\$185.00	\$0	Estimate for on-ground conveyor including anything up to 10 m off the ground. Does not include transport to regional disposal facility or equivalent.
Demolish and remove elevated conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally	Y	m	\$295.00	\$0	Estimate for elevated conveyor up to ~10 m off the ground. Does not include transport to regional disposal facility or equivalent.
Demolish and remove overhead conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally. This may include small scale fixed material stacking	Y	m	\$850	\$0	Estimate for overhead conveyor including conveyors that are >10 m off the ground that require a crane to remove. Does not include transport to regional disposal facility or equivalent.
infrastructure Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of	Y	m	\$150.00	\$0	Due to no canopy or infrastructure attached.
reclaim tunnel root) Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y	m	\$950.00	\$0	Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
Demolition and removal of vent raise fans, electrical substation and winch and disposal on-site/locally	Y	allow	\$25,000	\$0	Does not include filling and capping the shaft. Does not include transport to regional disposal facility or equivalent.
Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) and disposal on-site/locally	Y	allow	\$10,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove medium tank clean (Thickener etc 10 - 15 m diameter) and disposal on- site/locally	Y	allow	\$30,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove large tank clean (Thickener etc 15 - 30 m diameter) and disposal on-site/locally	Y	allow	\$45,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove extra large tank clean (Thickener etc >30 m diameter) and disposal on- site/locally	Y	allow	\$100,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove tank clean (Thickener etc) >50 m diameter and disposal on-site/locally	Y	allow	\$100,000	\$0	Estimate only - may require a detailed assessment from demolition expert due to specialised equipment required for removal. Does not include transport to regional disposal facility or equivalent.
Removal of UG tank <5000 L - including pipes, bunds etc. and disposal on-site/locally	Y	allow	\$21,000	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. and disposal on-site/locally	Y	allow	\$30,000.00	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Remove small underground pipe and disposal on- site/locally	Y	m	\$25.00	\$0	For example: 300 mm pipes - 0.5 m deep, does not include transport to regional disposal facility or equivalent.
Remove medium underground pipe and disposal on- site/locally	Y	m	\$60.00	\$0	For example: 500 mm pipes - 1 m deep, does not include transport to regional disposal facility or equivalent.
Remove large underground pipe and disposal on- site/locally	Y	m	\$165.00	\$0	For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	Y	m	\$12.00	\$0	~300 mm pipes and assumes pipes are in close proximity to infrastructure areas. Does not include transport to regional disposal facility or equivalent.
Remove surface pipelines (unsupported) and disposal on-site/locally	Y	m	\$15	\$0	-300 mm pipes and assumes pipes are used for water transfer between pits (or similar) and remotely located. Does not include transport to regional disposal facility or equivalent.
Remove pump and pontoon from small lake or dam including pipes and electrical supply or diesel tank/s	Y	allow	\$20,000.00	\$0	Includes equipment for retrieval - boats, etc. and labour. Does not include transport to regional disposal facility or equivalent.
Remove bitumen (car park and access roads) and dispose on-site/locally	Y	m2	\$10.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove bitumen (airstrip) and dispose on- site/locally	Y	m2	\$20.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.

	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Y		m2	\$36.00		\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00		\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
	Crush concrete to make road aggregate - 75 mm	Y		tonne	\$10.00		\$0	Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 50 mm	Y		tonne	\$13.00		\$0	Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 30 mm	Y		tonne	\$15.00		\$0	Does not include haulage of materials - assumes crushing plant is readily available
	Remove fence (cyclone/wire fence) and disposal on- site/locally	Y		m	\$20.00		\$0	Roll up fence and remove posts.
	Removal of small plastic tanks	Y		each	\$1,000.00		\$0	Remove small poly tanks used for water storage, etc.
	Demolish and remove galvanised/corrugated light weight tanks	Y		each	\$500.00		\$0	Demolish and remove small lightweight metal tanks. No costs included for managing liquids, etc.
	Demolish and remove communication towers	Y		each	\$5,000.00		\$0	Cost includes demolition and removal of tower only; separate costs required for disconnection of services, demolition of footings, etc.
	Removal of UG services (power within main gate areas, etc.)	Y		allow	\$50,000.00		\$0	Assume service disconnection at the mine boundary is at surface level. This cost covers all fees and charges
	Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7. <b>0</b> 0		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km	Y		tonne	\$12.50		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km	Y		tonne	\$32.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15 km but <25 km	Y		tonne	\$36.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill. fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km	Y		allow	Use alternate rate cell		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill - fees (general waste)	Y		tonne	\$193.00		\$0	Fee for waste disposal of general waste to local Council landfill; transport rates separate. Please note that this is not applicable to operations with approval for building and demolition waste disposal on site.
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	Y		tonne	\$174.00		\$0	Fee for waste disposal of industrial demolition / concrete / scrap metal waste to local Council landfill; transport rates separate. Rate does not assume material is recyclable. Please note that this is not applicable to operations with approval for building and demolition waste disposal on site.
Pail Infrastructure		Tern	nination of Se	ervices and D	emolition Wo	orks Subtotal	\$0	Remove all materials to allow area to be
	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0	reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities and disposal on- site/locally	Y		m2	\$185.00		\$0	Remove rail load point infrastructure including gantries and control structures. Does not include transport to regional disposal facility or equivalent.
	Reshape rail spur and load out areas. Does not	Y		ha	\$2,860		\$0	D10 Dozer and 16 H Grader (50%
ontominated Material-		-		R	ail Infrastruct	ture Subtotal	\$0	
onuoliiliatu mäteriäis	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	Y		Cluster	\$15,000		\$0	The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (v)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., or and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re- fuel, sewage treatment, secondary
								instantop, onemical storage etc.)

Contaminated

Undertake an intrusive site investigation on sites with small footprints to investigate e.g. <15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y	Cluster	\$44,000	\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
Undertake an intrusive site investigation on sites with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	٧	Cluster	\$106,000	\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (ivi)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y	allow	\$35,000	\$0		Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y	allow	Use alternate rate cell	\$0		Assumes complex site; detailed design drawings required for cover.
Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y	L	\$0.35	\$0		Cost for recent sump clean-up from resource activity - requires specialists to treat.
Remove material (carbonaceous / metalliferous spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) / roads and dump in a void on-site (Select Haul Distance from list)	Y	m3	Select from List		Select Haul Distance Here	This item includes scraping and removal of the volume of carbonaceous material using dozer, grader etc. to make safe an area and enable the establishment of rehabilitation.
Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill.	Y	m3	\$800.00	\$0		Includes load, haul and dump fees to a licensed facility.
Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y	m4	\$660.00	\$0		Includes load, haul and dump fees to a licensed facility.
Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Y	m3	\$220.00	\$0		Includes load, haul and dump fees to a licensed facility.
Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Y	m3	Select from List		Select Volume Here	Spreading of contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals - time frame of up to 24 months.
Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Y	Item	\$150,000	\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Y	m3	\$165.00	\$0		Additional cost as the treatment process is fast tracked.
Remove and dispose of asbestos (<750 m2)	Y	m2	\$50.00	\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
Remove and dispose of asbestos (>750 m2)	Y	m2	\$40	\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
Waste disposal to Council landfill - fees (asbestos)	Y	tonne	\$290	\$0		Landfill fees to regional landfill.
Treatment of known Acid Sulfate Soils	Y	ha	\$2,580	\$0		neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm depth only.

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	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Y		m2	\$1		\$0		Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul	Y		tonne	Select from			Select Haul Distance Here	Costs for haulage to location for
	Distance from list)	•		tonno	List			Select hau Distance here	authorised disposal. Rate for trackable liquid levy of \$78.20
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal to
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from			Select Haul Distance Here	Assumes transport in a 20,000 L tanker. Add disposal costs to additional items
			I	Contan	ninated Mater	ials Subtotal	\$0		
vents, snatts and Borenoies	Option 1 - Coal bore hole Exploration boreholes – rehabilitate coal boreholes and drill pads as required	Y		depth (m)	\$44.55		\$0		Cost to grout and cap an open exploration borehole. Assume a 20 m x 20 m drill pad requires rehabilitation - push cover of nearby growth media, rip and seed.
	Option 3 - Mineral RAB and aircore drill holes Exploration boreholes – backfill open Rotary Airblast (RAB) or aircore drill holes with cuttings	Y		allow	\$43		\$0		May include cutting of casing, installation of a casing cap, and/or manually backfilling the hole with drill cuttings. Does not include reshaping / ripping the drill pad, amelioration / seeding etc.
	Option 2 - Mineral drill hole requiring grouting Exploration boreholes – grout and cap open bore holes	Y		allow	\$5,700		\$0		Includes grouting and capping 100 - 200 m exploration boreholes to meet the requirements of Departmental Guidelines.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface, grouting and capping.
	Boreholes – cap and seal open bore holes - surface- to-in-seam gas drainage	Y		allow	\$17,890		\$0		Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	Y		allow	\$16,000		\$0		Vertical gas drainage boreholes.
	Boreholes – grout (with concrete) cap and seal bore holes (i.e. where sealing aguifers)	Y		allow	\$35,000		\$0		Includes multi skin sleaves to prevent aquifer mixing.
	Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		Includes large diameter boreholes used for supplying electricity (66kV), compressed air, water, solsenic, etc.
	Option 4 - Mineral diamond drill hole Rehabilitation of diamond drill holes and pad including sealing drill holes for mineral exploration	Y		ltem	\$2,070		\$0		Bog out cuting, remove fencing, remove rubbish, push sumps in, rehabilitate pads and tracks, cut and plug collars. Includes labour and equipment, disposal of rubbish locally on site
	Option 5 - Mineral reverse circulation drill holes Rehabilitation of reverse circulation drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$1,340		\$0		Sealing required, but not complete filling with concrete/grout
	Option 6 - Rehabilitation of drill hole collars Rehabilitation of drill hole collars (mineral exploration)	Y		each	\$415		\$0		Cut collar, remove, cap, backfill capped collar and cover with nearby organic or growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas - minor	v	_	Vents, Shaft	s and Boreho	oles Subtotal	\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim	Ť		na	\$1,040.00		\$0		Grader. D10 Dozer @ \$400 per hour and 16 H
	areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		grader @ \$230 per hour (50% utilisation) - no seed
	earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List	aka Subtatal	\$0	Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works				ĸ	oads and Tra	CKS SUDIOTAI	φΰ	Select Push Length Here	Major bulk pushing to achieve grades
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List				nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		D10 deep ripping. Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to
	stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Land Preparation and	E	arthworks / S	tructural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0	Select Haul Distance Hare	If topsoil is not available on site them
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select naul Distance Here	Virgin Excavated Natural Material (VENM) may need to be externally sourced.
,	Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$6.60		\$0		4 m centres.

	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	<b>\$0.43</b>		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where initigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated	Y		m	\$13.00		\$0		Standard rate for standard stock
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to bydromulching
	Land Preparation and Revegetation (Grow	vth Media De	velopment ar	nd Ecosystem	n Establishme	ent) Subtotal	\$0		[··)3-
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
	Removal of evaporation fans and/or other water transfer and management infrastructure	Y		allow	\$25,000		\$0		Provisional sum for removal of water management infrastructure.
Maintenance of Rehabilitated				Wa	ter Managem	ent Subtotal	\$0		Rehabilitation maintenance might
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.

Total Cost for			\$0					
				Additional Ite	ms Subtotal	\$0		
		Mainte	enance of Reh	nabilitated Are	eas Subtotal	\$0		
Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.

#### Domain 2b: Tailings & Rejects

#### **Total Cost for Tailings & Rejects Domain**

\$0

Additional Assumptions: Recon	d any relevant assumptions to this domain below:						Kee Datat 19		
							Key Kenabiin T	ation Area Data for Domain otal Landform Establishment:	Enter data below manually
							Tota To	I Growth Media Development: tal Ecosystem Establishment:	
								•	
		Applicable			Default Unit	Alternative		Basis for Costs Estimation	
Management Precinct Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	(Y or N) Y	Quantity	Unit	Rate \$15,000	Unit Rate	S0	and Additional Kelevant	Description / Notes: The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re- fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation on sites with small footprints to investigate e.g. <15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	¥		Cluster	\$44,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (v)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive is easily accessible and a small area e.g. –10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAOP, fieldwork, sampling and analysis.
	Undertake an intrusive site investigation on sites with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y		Cluster	\$106,000		\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
	Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y		allow	\$35,000		\$0		Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
	Leverop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y		allow	Use alternate rate cell		\$0		Assumes complex site; detailed design drawings required for cover.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y		L	\$0.35		\$0		resource activity - requires specialists to treat.
	spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) /	Y		m3	Select from List			Select Haul Distance Here	removal of the volume of carbonaceous material using dozer, grader etc. to
	Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill.	Y		m3	\$800.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.

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	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Y		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	у		m3	Select from List			Select Volume Here	Spreading of contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals - time frame of up to 24 months.
	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Y		Item	\$150,000		\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Y		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	Y		m2	\$50.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	Y		m2	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Waste disposal to Council landfill - fees (asbestos)	Y		tonne	\$290		\$0		Landfill fees to regional landfill.
		<u></u>	<u>_</u>	Contan	ninated Mater	ials Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas - minor works including deep rin and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works	E	arthworks / S	Structural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0	Salast Duch Langth Have	Major bulk pushing to achieve grades
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			Select Push Length Here	nominated in the approval/permit
									D10 Dozer @ \$400 per hour and 16 H
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		grader @ \$230 per hour (50% utilisation).
	Minor reshaping and pushing Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y y		ha m3	\$3,900 Select from List		\$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Minor reshaping and pushing Fill dams, volds etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Trim, rock rake & deep rip (includes levelling / Iandscaping and rip in 1 direction)	Y y Y		ha m3 ha	\$3,900 Select from List \$1,130.00		\$0 \$0	Select Haul Distance Here	grader © \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. Undertaken using D10 dozer and 16M grader.
	Minor reshaping and pushing Fill dams, volds etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Trim, rock rake & deep rip (includes levelling / Iandscaping and rip in 1 direction) Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	ү У Ү Ү		ha m3 ha ha	\$3,900 Select from List \$1,130.00 \$1,600		\$0 \$0 \$0 \$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. Undertaken using D10 dozer and 16M grader. Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Minor reshaping and pushing Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y		ha m3 ha ha m2	\$3,900 Select from List \$1,130.00 \$1,600 \$27.00	ant) Subtotel	\$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. Undertaken using D10 dozer and t6M grader. Combination of dozer and excavator work plus grader for ~4 hours each per ha. Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Mine Waste	Minor reshaping and pushing Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Trim, rock rake & deep rip (Includes levelling / Iandscaping and rip in 1 direction) Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y arthworks / S	Structural Wor	ha m3 ha m2 <b>ks (Landforn</b>	\$3,900 Select from List \$1,130.00 \$1,600 \$27.00	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. Undertaken using D10 dozer and excavator work plus grader for ~4 hours each per ha. Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of guily head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Mine Waste	Minor reshaping and pushing Fill dams, volds etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Trim, rock rake & deep rip (includes levelling / Iandscaping and rip in 1 direction) Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments  E Ideal Tailings Capping - reshaping, capping / sealing of trafficast private tailings facility with little chemical reactivity (no to to visk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (NMD) and/or low or moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y Y Y Y	Structural Wo	ha m3 ha m2 ks (Landforn	\$3,900 Select from List \$1,130.00 \$1,600 \$27.00 n Establishme \$82,000	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. Undertaken using D10 dozer and texavator work plus grader for -4 hours each per ha. Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosito of guily head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2. This includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Mine Waste	Minor reshaping and pushing Fill dams, volds etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List) Trim, rock rake & deep rip (includes levelling / Iandscaping and rip in 1 direction) Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments  E Ideal Tailings Capping - reshaping, capping / sealing of trafficable to ling is facility with little chemical reactivity (no to risk Potential Acid Forming (PAF) / Neutral Mine Drainage (MMD) / Saline Mine Drainage (SMD) and/or low moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y Y Y Y arthworks / S	Structural Wo	ha m3 ha m2 ks (Landforn ks allow	\$3,900 Select from List \$1,130.00 \$1,600 \$27.00 Establishme \$82,000	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation). This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. Undertaken using D10 dozer and 16M grader. Combination of dozer and excavator work plus grader for ~4 hours each per ha. Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2. This includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is seepage eth tickness of approximately 0.5 m to 1 mad 0.15 m -0.2 m growth media (assume at least 1 m thick cover required for carbonacous material covers). Water quality from runoff, seepage eth comets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional additional cost to import material self orm tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.

Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate physical properties (not significantly moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y	ha	\$146,500	\$0	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, geofabric, etc.) - use alternate rate colls below, specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / specialised/additional materials must be added separately if required. If site haulage longer than 10 km round tip add the volume of the relevant material requiring haulage for this distance in 0.5 (Spreading costs for tailings cap material included in rate). I additional materials con where works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	¥	ha	\$313,000	\$0	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping material/s are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage longer than 10 km round tip add the volume of the relevant material requiring haulage for this distance in 0.5 (spreading costs for tailings cap material included in rate), I additional materials on works aside from subage and spreading in additional to any long haulage volume in 8.05.
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Difficult Tailings Capping- reshaping, capping / sealing of weak or soft surfaced tailings facility with poor physical properties (significantly hydrophilic, low shear strength limits equipment choice greatly, artificial strengthening required) OR visible adverse impacts on legacy sites from chemical reactivity over lengthy exposure prior to rehabilitation	Ÿ	ha	\$843,000	\$0	This option is typically driven by time constraints and/or when tailings properties significantly restrict adequate desiccation, resulting in a tailings shear strength that is very weak excluding access by conventional small plant. Small equipment used for rehabilitation. This excludes any additional material required to form the final landform profile in addition to this cap. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). I additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.

	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Long naulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Y		m3	Select from List			Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. waste /
Land Proparation and	T	T	I	I	Mine Wa	aste Subtotal	\$0	Salaat Haul Distance Hare	If tancal is not available on site, then
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	у		m3	Select from List			Select Haul Distance Here	Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	<b>\$0.43</b>		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4.1, and where irrigation from water cart may be possible. Industry standard application rate of 250(kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of curren conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy
	Construct no-climb stock fence around rehabilitated	v		m	\$22.00		\$0		Standard rate for no-climb stock
	areas Construct standard stock fence around rehabilitated		-		\$22.00		<b>\$</b> 0		fencing. Standard rate for standard stock
	areas Purchase and erect warning signs	Y Y		m	\$13.00 \$250.00		\$0 \$0		fencing. Compliance with AS 1319-1994 - Safety signs for the occupational environment -
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		installed every 25 m. D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allov nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (\$0c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Gro	wth Media De	evelopment a	nd Ecosysten	n Establishm	ent) Subtotal	\$0	-	
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - DE Dozer (or similar) @ ~\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
				Wa	tor Managon	ent Subtotal	\$0		

	Total Cost for 1	Failings	s & Reje	cts Dor	nain			\$0
					Additional Ite	ms Subtotal	\$0	
			Mainte	enance of Rel	habilitated Ar	eas Subtotal	\$0	
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0	Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0	Areas requiring major repair - rills, guillies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0	Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0	Areas requiring minor repair - rills, minor growth media replacement.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0	Rehabilitation maintenance might include re-seeding, watering, fertilising minor re-shaping, erosion control, inspections/audits - does not include major repair works.

#### Domain 3b: Overburden & Waste

#### **Total Cost for Overburden & Waste Domain**

\$0

Management Precinct         Activity / Description         Applicable (Y or N)         Quantity         Unit         Default Unit Rate         Attrivity / Description         Description / Note (Y or N)           Contaminated Materials         Teal Boogham         Total Cost         Basils of Costs Estimation and Additional Environment (N or N)         Description / Note           Removal and disposal of plastic liner (i.e. dam, basch past, support data plastic liner (i.e. dam, basch past, support (i.e. dam, bast, support (i.e. dam, basch past, support (i.e. dam,	st a equire nes 1% by itment to sing ripping ithe liner. of \$78.20 posal to JU L tanker. nal items 16H and 16 H & ed and 16 H & seed
Management Presinct         Activity / Description         Applicable (Y or N)         Ountity         Unit         Default Unit Rate         Attentive Unit Rate         Total Ecosystem Establishment:           Contaminated Materials         Treatment of known Acid Suitate Soils         Y         ha         \$2,580         So         Basis for Costs Estimation and Additional Selevont Information         Assume ASIS is netable vin expression and dese not undershall and dese not part in additional select not part in addition	s: a equire nes 1% by itment to sing ripping the liner. for of \$78.20 posal to JU L tanker. nal items 16H and 16 H % and 16 H %
Management Precinct         Activity / Description         Applicable (Y or N)         Outmity         Unit         Default Unit Rate         Alternative Unit Rate         Total Cost         Basis for Costs Estimation and Additional Relevant Information         Description / Note and Additional Relevant Information           Contaminated Materials         Treatment of known Acid Sultate Soils         Y         ha         \$2,580         \$0         Assumes ASS is treatable vi neutralisation. Assum weight line addition addition assum weight line addition addition assum weight line addition addition assum weight line addition assum weight line addition assum weight line addition addition assum weight line addition assum weight line addition assum weight line addition addition assum weight line addition additin additinget addition addition addition additin addition addition	a equire ness 1% by trment to sing ripping the liner. for of \$78.20 posal to JU L tanker. nal items 16H and 16 H % and 16 H %
Management Precinct         Activity / Description         Applicable (Y or N)         Quantity         Unit         Default Unit Rate         Attennative Unit Rate         Total Cost         Basis for Costs Estimation and Additional Relevant Information         Description / Note           Contaminated Materials         Treatment of known Acid Sulfate Solts         Y         ha         \$2,580         \$0         Assumes ASS is treatable vi- work information           Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)         Y         m2         \$1         \$0         Provisional sum for curiting u vortes and consider to made disposal (Select Haul Distance Horn Isin)         Provisional sum for curiting u vortes and consider to the disposal to landill - fees only         Y         toone         Select from         Select Haul Distance Here Rate disposal to landill - fees only         Y         toone         Salect from         Select Haul Distance Here Rate disposal to landill - fees only         Y         toone         Salect from         Select Haul Distance Here Rate disposal costs to addition enders           Reads and Tracks         Unselect from isin         Y         toone         Salect from         Select Haul Distance Here Rate disposed from on the plan statube in the disposed from the p	a equire equire ness 1% bby timent to sing ripping the liner. for of \$78.20 posal to JU L tanker. nal items 16H and 16 H & ed and 16 H %
Management Precinct         Activity / Description         Applicable (Y or N)         Ounitity         Unit         Default Unit         Attenuative Unit Rate         Total Cost         and Additional Relevant Information         Description / Note           Contaminated Materials         Treatment of known Acid Suifate Soils         Y         Ina         \$2,550         \$0         Assume ASB is treateboxie recpring and isolation. Assume 900 mm depth and does not record and deposed of plastic liner (i.e. dam, each paid, sump etc.)         Y         mc2         \$1         \$0         Previdenal aum of record and on-site deposed providenal aum of recarding a transfer additions and trea 100 mm depth and/.         Previdenal aum of record and authorized disposed providenal aum of recarding a transfer additions and trea 100 mm depth and/.         Previdenal aum of record and authorized disposed authorized disposed authorized disposed for faulage to location tables to record and authorized disposed authorized disposed for faulage to location tables to reading authorized disposed authorized disposed for faulage to location tables to read authorized disposed authorized disposed for faulage to location tables to read authorized disposed authorized disposed for faulage to location tables to read authorized disposed for authorized disposed authorized disposed for faulage to location the disposed to landfill - fees only tables to read authorized disposed authorized disposed for faulage to location authorized disposed for faulage to location authorized disposed for faulage to location authorized authorized disposed authorized disposed for faulage to location authorized authorized disposed authorized to location authore authoris in and deep rip and time.         Y	a equire nes 1% by timent to sing ripping the liner. for of \$78.20 posal to JU L tanker. nal items 16H and 16 H & ed and 16 H & eseet
Contaminated Materials         Treatment of known Acid Sulfate Solis         Y         ha         \$2,580         S0         Assumes ASS is treatable vin neutralisation and does not or capping and isolation. Assum weight immediate and solit and does not or capping and isolation. Assum weight immediate and solit and does not or capping and isolation. Assum weight immediate and solit and does not or capping and isolation. Assum weight immediate and solit and does not or catting used in addition and does not or catting used in addition and does not or catting used in addition. Assum weight immediate and notice additional assum for catting used in addition of the addition and does not or catting used in addition and does not or catting used in addition. Assum weight immediate and notice additional assumes and solit additional assumes and soliticating and additional assumes and soliticating and additional assumes and soliticational assumes and soliticating assumes and soliticating assumes and soliticational assumes and additional assumes andit anditional assumes and additional assumes and additio	a equire ness 1% by the liner. Tor of \$78.20 posal to JD L tanker. nal items 16H and 16 H & ed and 16 H 6 .eeed
Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)         Y         m2         S1         S0         Provisional sum for cutting u yres and on-studies of costs for haulage to location list           Endp shuidage brinesal for disposal (Select Haul Distance from list)         Y         tonne         Select from List         Select Haul Distance Here Select Haul Distance Here Haul Distance Here         Costs for haulage to location and undroid disposal part of the sposal of and part of the sposal of and and disposal to landfil - fees only         Y         tonne         Select from List         Select Haul Distance Here Haul Distance Here         Rate for trackable liquid lexy per tonne and authorised disp landfill           Endp shuidage water (Gean or contaminated) (Select Haul Distance Here Haul	In the liner. In the
Long haulage brine/salt for disposal (Select Haul Distance from list)     Y     tonne     Select from List     Costs for haulage to coation authorised divides/ per tonne and the select Haul Distance Here List     Costs for haulage to coation authorised divides/ per tonne and the select Haul Distance Here Haul Distance from list)     Rate for trackable liquides/ per tonne and the select Haul Distance from list)     Rate for trackable liquides/ per tonne and the select Haul Distance from list)     Rate for trackable liquides/ per tonne and the select Haul Distance from list)     Rate for trackable liquides/ per tonne and the select Haul Distance from list)     Rate for trackable liquides/ light and the select meres with a select Haul Distance Here Assumes - 6m road with - Grader.       Roads and Tracks     Unsealed roads / vehicle park-up areas - minor works including deep rip and tim Unsealed roads / vehicle park-up areas - Minor earthworks, final tim and deep rip and tim Unsealed roads / vehicle park-up areas - Minor earthworks, final tim and deep rip and tim Unsealed roads / vehicle park-up areas - Minor earthworks, final tim and deep rip and sed (plasture grass)     Y     ha     \$1,500     \$0     S0     D10 Dozer @ \$400 per hour grader @ \$230 per hour (80 uitisation) - no seed (90 uitisation) - no seed (90 uitisation) - pasture grass a Unsealed roads / vehicle park-up areas - Minor earthworks, final tim and deep rip, ameliorate and sed (native tree/shrub/grass)     Y     ha     \$4,485     \$0     D10 Dozer @ \$400 per hour grader @ \$230 per hour (80 uitisation) - native tree/shrub uitisation) - native tree/shrub uitisation) - native tree/shrub uitisation) - native tree/shrub       Unsealed roads / haul roads / vehicle park-up areas with windrows and/or sma	for of \$78.20 posal to DU L tanker. inal items 16H and 16 H % ed and 16 H % eed
Brine disposal to landfill - fees only     Y     tonne     \$288     \$0     Derivation and authorised displants of y per tonne and authorised displants of y per tone and authorised displant per tone and authorised displants of y per tone and authori	000 Litanker. inal items 16H and 16 H % ied and 16 H % ied and 16 H
List     Select Haul Distance Honi     Assumes - 6 m to additional management       Roads and Tracks     Unsealed roads / vehicle park-up areas - minor works including deep rip and trim     Y     ha     \$1,040.00     \$0     Assumes - 6 m to additional management       Unsealed roads / access tracks / vehicle park-up areass with windrows and/or small earthen bunds - minor earthworks, and deep rip, aneliorate and generative tracks     Y     ha     \$1,500     \$0     Assumes - 6 m to additional management (access)       Unsealed roads / vehicle park-up areass with windrows and deep rip, ameliorate and generative tracks     Y     ha     \$1,500     \$0     grader @ \$230 per hour (50) utilisation) - no seed       Unsealed roads / vehicle park-up areas - Minor earthworks, final trim and deep rip, ameliorate and genet roads / vehicle park-up areas - Minor earthworks, final trim and deep rip, ameliorate and genet roads / vehicle park-up areas with windrows and/or small earthen bunds - Minor earthworks, final trim and deep rip, ameliorate and genet roads / vehicle park-up areas with windrows and/or small earthen bunds - Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)     Y     ha     \$4,870     \$0     grader @ \$230 per hour (50) utilisation) - native tree/shrub/grass)       Unsealed roads / vehicle park-up areas with windrows and/or small earthen bunds - Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)     Y     ha     \$4,870     \$0     grader @ \$230 per hour (50) utilisation) - native tree/shrub/grass)       Unsealed roads / vehicle park-up areas wi	and 16 H % and 16 H % ed and 16 H % seed
Roads and Tracks       Unsealed roads / vehicle park-up areas - minor       Y       ha       \$1,040.00       \$0       Assumes - fm road width - Grader.         Unsealed roads / vehicle park-up areas stracks / vehicle park-up areas with windrows and/or small earthen bunds - minor earthworks, final trim and deep rip and trim       Y       ha       \$1,500       \$0       Assumes - fm road width - Grader.         Unsealed roads / vehicle park-up areas - Minor earthworks, final trim and deep rip and tesed       Y       ha       \$1,500       \$0       D10 Dozer @ \$400 per hour uilisation) - no seed         Unsealed roads / vehicle park-up areas - Minor earthworks, final trim and deep rip and seed       Y       ha       \$3,700       \$0       D10 Dozer @ \$400 per hour (300 uilisation) - nester @ \$230 per hour (300 uilisation) - nester @ \$230 per hour (300 uilisation) - nester @ \$230 per hour (300 uilisation) - native tree/\$300 per hour (300 uilisation) - native tree/\$300 per hour (300 uilisation) - native tree/\$300 per hour (500 uilisation) - native tree/\$300 per hou	16H and 16 H % and 16 H % ed and 16 H 6 seed
Works including deep rip and trimCCraded: Craded: Craded: Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks, and deep rip and trimYha\$1,500\$0Craded: grade utilisation) - no seed utilisation) - no seed utilisation) - no seed or parture grassUnsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)Yha\$3,700\$0<	and 16 H % and 16 H % ed and 16 H %
Unsealed roads / vehicle park-up areas - Minor earthworks, final trim and deep rip, and seedYha\$3,700\$0D10 Dozer @ \$400 per hour grader @ \$230 per hour utilisation) - native tree/shrub utilisation) - native tree/shrub	and 16 H % ed and 16 H %
Unsealed roads / vehicle park-up areas - Minor earthworks, final trim and deep rip, ameliorate and works, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)Yha\$4,485\$0\$0D10 Dozer grader \$230 per hour (50° utilisation) - native tree/shrub urisiation) - native tree/shrub grader \$230 per hour (50° utilisation) - native tree/shrub grader \$230 per hour (50° utilisation) - native tree/shrub utilisation) - native tree/shrub utilisation) - native tree/shrub utilisation) - native tree/shrubD10 Dozer grader \$230 per hour (50° utilisation) - native tree/shrub grader \$230 per hour (50° utilisation) - pasture grass se grader \$230 per hour (50° utilisation) - pasture grass se grader \$230 per hour (50° utilisation) - pasture grass se grader \$230 per hour (50° utilisation) - native tree/shrub grader \$230 per hour (50° utilisation) - native tree/shrub grader \$230 per hour (50° utilisation) - native tree/shrubUnsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds - Minor earthworks, final trim and deep rip, ameliorate and sed (native tree/shrub/grass)Yha\$7,025\$0\$00D10 Dozer @ \$400 per hour grader @ \$230 per hour (50° utilisation) - native tree/shrub grader @ \$230 per hour (50° utilisation) - native tree/shrub	and 16 H %
Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthene bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)       Y       ha       \$4,870       \$0       D10 Dozer @ \$400 per hour grader @ \$230 per hour (50% utilisation) - pasture grass seed (pasture grass)         Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthene bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)       Y       ha       \$7,025       \$0       D10 Dozer @ \$400 per hour grader @ \$230 per hour (50% utilisation) - pasture grass seed (pasture grass)         Vinsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthene bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)       Y       ha       \$7,025       \$0       \$0       D10 Dozer @ \$400 per hour grader @ \$230 per hour (50% utilisation) - native tree/shrub/grass)	/ 300u
Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass) Y have been been been been been been been be	and 16 H % æd
	and 16 H % seed
Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Y material from the road, laydo surface using an excavator, c product the establist rehabilitation.	ng and bilised wn or other dozer and hment of
Roads and Tracks Subtotal \$0 Colum Durb Long to the Column	
(Landform Establishment) (Landform Establishment) the approval/permit – Select Push Length Y m3 Select from List Select from List	e grades ermit
Minor reshaping and pushing Y ha \$3,900 \$0 \$0 UD10 Decree \$400 per hour. grader @ \$230 per hour (509 utilisation).	and 16 H %
Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	e of ng an the void t of
Shotcrete application on cuttings and steep slopes Y m2 S185.00 S0 S0 S0 This rate is used to rehabilitat slopes of weathered rock, roz cuttings, etc that cannot be c and stabilised.	ite steep adway at back
Trim, rock rake & deep rip (includes levelling / Y ha \$1,130.00 \$0 Understack using D10 dozer understanding and in in a function)	and 16M
Structural works, banks, waterways - contour banks, drainage channels and other soil conservation Y ha S1,600 S0 S0 Work plus grader for -4 hours ha.	cavator s each per
Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments Y	aterial (rip- un-off from ntry to sion of ent If required ie an
Earthworks / Structural Works (Landform Establishment) Subtotal \$0	

Mine Waste						
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	¥	ha	\$82,000	\$0	This includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume material with the appropriate olume and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m - 0.2 m growth media (assume at least 1 m thick cover required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y	ha	\$146,500	\$0	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness ranging from >1 m to 2 m thickness ranging from >1 m to 2 m thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, goolabric, etc.) - use alternate rate cells below, specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / runsh / screen / borrow etc.). Costs for haulage of specialised/additional materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading or this distance in 8.05 (spreading or this distance in 8.05 (spreading or the row 30.2 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y	ha	\$313,000	\$0	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping material's are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials. competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.

	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or
	environment water quality values.								additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Difficult Tailings Capping- reshaping, capping / sealing of weak or soft surfaced tailings facility with poor physical properties (significantly hydrophilic, low shear strength limits equipment choice greatly, artificial strengthening required) OR visible adverse impacts on legocy sites from chemical reactivity over lengthy exposure prior to rehabilitation	Y		ha	\$843,000		\$0		This option is typically driven by time constraints and/or when tailings properties significantly restrict adequate desiccation, resulting in a tailings shear strength that is very weak excluding access by conventional small plant. Small equipment used for rehabilitation. This excludes any additional material required to form the final landform profile in addition to this cap. If sile haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Long haulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Y		m3	List		60	Select Haul Distance Here	50 km round trip e.g. waste /
Land Preparation and		1	1	1	Mine Wa	aste Subtotal	φU	Select Haul Distance Here	If topsoil is not available on-site, then
Revegetation (Growth Media Development and Ecosystem	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List				Virgin Excavated Natural Material (VENM) may need to be externally
Establishment)	Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$6.60		\$0		4 m centres. Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species)	Ŷ		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application ate of 2500(g/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.

	Supply from external sources a combination of								D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks
	virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		(90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Grow	vth Media De	velopment a	nd Ecosysten	n Establishme	ent) Subtotal	\$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
				Wa	ter Managem	nent Subtotal	\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
			Mainte	enance of Rel	habilitated Ar	eas Subtotal	\$0		
					Additional Ite	ems Subtotal	\$0		
	Total Cost for Overburden & Waste Domain							\$0	

#### Domain 4b: Active Mine & Voids

#### **Total Cost for Active Mine & Voids Domain**

\$0

Additional Assumptions: Reco	rd any relevant assumptions to this domain below:						Key Rehabili	ation Area Data for Domain	Enter data below manually
							Tota	I Growth Media Development:	
		Applicable			Default Unit	Alternative		Basis for Costs Estimation	
Management Precinct	Activity / Description	(Y or N)	Quantity	Unit	Rate	Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
Open Cut	Active pit area – benches blasted and doze to acceptable grade	Y		Lm	\$1.93		\$0		Blasting in a 8x9 pattern of bench height 25 m with D11 push of 50-75 m.
	Drill & blast faces to make safe	Y		m3	\$0.95		\$0		Bulk Drilling say 8°9 pattern, assuming a stern height of 6 m, charge length of 19 m, explosive density of 0.9, diameter of 229 mm, explosives at 665.3 kg/hole with a powder factor of 0.37 with an approximate bench height of 25 m.
	High wall treatment – (trench and safety berm)	Y		m	\$90.00		\$0		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works		1	1	1	Open	Cut Subtotal	\$0	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List				Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Land Preparation and	E E	arthworks / S	structural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$0	Select Haul Distance Here	If topsoil is not available on-site, then
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List				Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Planting mature trees (>15 cm) Planting tube stock (<15 cm)	Y Y		allow allow	\$15.00 \$6.60		\$0 \$0		4 m centres. 4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	<b>\$0.43</b>		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	<b>\$0.80</b>		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
									Assumes use on extreme slopes where
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.

									These rates have fluctuated over the last few years however in light of current
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		conditions (lower fuel prices, reduced
									rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Security fence around steep section of high wall	Y		m	\$64.00		\$0		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mm mesh & 32 mm post not concreted
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Grow	vth Media De	velopment ar	nd Ecosysten	n Establishme	ent) Subtotal	\$0		
14/ M									
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$2,500 \$10,500		\$0 \$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y Y Y		allow allow m3	\$2,500 \$10,500 Select from List		\$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y Y Y		allow allow m3	\$2,500 \$10,500 Select from List	ent Subtotal	\$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an atternate land-user - D6 Dozer (or similar) @ -3200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an atternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Water Management Waintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y Y Y Y		allow allow m3 Wa	\$2,500 \$10,500 Select from List ter Managerr \$925	ent Subtotal	\$0 \$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -2200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seading, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
Water Management Waintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	Y Y Y Y		allow allow m3 ha ha	\$2,500 \$10,500 Select from List ter Managerr \$925 \$1,200	ient Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -3200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement.
Water Management Maintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate	Y Y Y Y Y Y		allow allow m3 ha ha ha	\$2,500 \$10,500 Select from List ter Managerr \$925 \$1,200 \$1,700	ent Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -2200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, significant growth media replacement.
Water Management Maintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major	Y Y Y Y Y Y Y		allow allow m3 ha ha ha ha	\$2,500 \$10,500 Select from List ter Managem \$925 \$1,200 \$1,700 \$2,500	ent Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring remval using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, lertilising, minor re-shaping, erosion control, inspection3/audits - dose not include major repair works. Areas requiring minor repair - rills, significant growth media replacement. Areas requiring modoreate repair - rills, guilties, growth media replacement, some level of additional surface water management.
Water Management Maintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major Existing rehabilitation repair - total failure of landform	Y Y Y Y Y Y Y Y		allow m3 ha ha ha ha ha	\$2,500 \$10,500 Select from List ter Managem \$925 \$1,200 \$1,700 \$2,500 \$40,000	ent Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -3200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring modor repair - rills, significant growth media replacement. Areas trequiring major repair - rills, some level of additional surface water management. Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
Water Management Water Management Maintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major Existing rehabilitation repair - total failure of landform	Y Y Y Y Y Y Y	Mainte	allow allow m3 ha ha ha ha ha anance of Ref	\$2,500 \$10,500 Select from List ter Managerr \$925 \$1,200 \$1,700 \$2,500 \$40,000 abilitated Ar	ent Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -3200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, guilles, growth media replacement. Areas requiring moderate repair - rills, some level of additional surface water management. Areas tract require extensive rehabilitation repair - re-design and re- construction of landform.
Water Management Maintenance of Rehabilitated Areas	Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor Existing rehabilitation repair - moderate Existing rehabilitation repair - major Existing rehabilitation repair - total failure of Landform	Y Y Y Y Y Y	Mainte	allow allow m3 ha ha ha ha ha anance of Rel	\$2,500 \$10,500 Select from List ter Managerr \$925 \$1,200 \$1,700 \$2,500 \$40,000 rabilitated Ar Additional Ite	ent Subtotal eas Subtotal ems Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$	Select Haul Distance Here	Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -3200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seding, stering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, guilles, growth media replacement. Areas requiring moderate repair - rills, anguilles, growth media replacement. Areas trequiring moderate repair - rills, some level of additional surface water management.

#### Domain 5b: Management Activities

#### **Total Cost for Management Activities**

**\$0** 

Enter data below manually	Key Rehabilitation Area Data for Domain	
	Total Landform Establishment:	
	Total Growth Media Development:	
	Total Ecosystem Establishment:	

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Water Management	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	Y		ML	\$3,600		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	Y		ML	\$1,500		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
				Wa	ater Managem	ent Subtotal	\$0		-
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		Assumes maintenance has been kept up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Y		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
				(	Creek Diversio	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y		ha	\$150.00		\$0		Feral animal baiting programs if required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment control works)	Y		ha	\$400.00		\$0		Undisturbed areas within the lease boundary that require land management activities.
			Mainte	enance of Rel	habilitated Ar	eas Subtotal	\$0		
Heritage Items	The restoration and care and maintenance of items that have heritage significance	Y		allow	Use alternate rate cell		\$0		Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of activities.
					Heritage Ite	ms Subtotal	\$0		
Sundry Items	Development of an 'Unplanned' Project Closure Plan - State Significant Development with closure planning well progressed i.e. preferred cover design, closure environment modelled e.g. groundwater /subsidence / pit lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Y		allow	\$100,000		\$0		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan into a detailed closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demoliton, etc. Costs to finalise obtions by domain and finalise designs for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range from ~\$75k to >\$1 M. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least 22 of the following aspects requiring closure planning, but no significant issues realised at this time: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$90,000		\$0		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Estimated cost for developing closure plan including studies - basic to satisfy risks and decisions - includes risk assessment, options analysis, Closure Plan. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with no EPL and/or only one of the following relevant aspects: previous subsidence, low to medium geochemistry risk and/or spontaneous combustion propensity, known limited contamination, small approved final void	Y		allow	\$15,000		\$0		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includes risk assessment, sampling and analyses on <5 samples, one study and Closure Plan.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with only preliminary to conceptual closure planning in place	¥		allow	\$300,000		\$0		Includes costs for key investigations and studies including designs e.g. geochemistry. Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assume at least 15 types of studies required ranging from geotechnical to ecology and social, development of a closure plan including address of obligations. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range to >53 M. Sites with more than 1 pit to add \$50,000 to rate.

Additional Items	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km) Mobilisation & Demobilisation (Distance to site >1000 km) Other 1 <insert> Other 2 <insert> Other 2 <insert></insert></insert></insert>	Y Y N N	Мо	item item bilisation and	\$300,000 \$500,000 Demobilisat This is deliberately left blank	ion Subtotal	\$0 \$0 \$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. This item includes < <to added="" be="" by<br="">the operator&gt;&gt; This item includes &lt;<to added="" be="" by<br="">the operator&gt;&gt;</to></to>
Additional Items	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km) Mobilisation & Demobilisation (Distance to site >1000 km) Other 1 <insert> Other 2 <insert> Other 2 <insert> Other 1 <insert> Other 1 <insert></insert></insert></insert></insert></insert>	Y Y N N	Мо	item item	\$300,000 \$500,000 d Demobilisat This is deliberately	ion Subtotal	50 50 \$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. This item includes < <to added="" be="" by<br="">the operator&gt;&gt; This item includes &lt;<to added="" be="" by<br="">the operator&gt;&gt;</to></to>
Additional Items	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km) Mobilisation & Demobilisation (Distance to site >1000 km)	Y Y N	Мо	item item bilisation and	\$300,000 \$500,000 d Demobilisat This is	ion Subtotal	\$0 \$0 \$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. This item includes < <to added="" be="" by<br="">the operator&gt;&gt; This item includes &lt;<to added="" be="" by<="" th=""></to></to>
Additional Items	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km) Mobilisation & Demobilisation (Distance to site >1000 km)	Y Y	Мо	item item bilisation and	\$300,000 \$500,000 d Demobilisat	ion Subtotal	\$0 \$0 \$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required. This item includes < <to added="" be="" by<="" th=""></to>
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km) Mobilisation & Demobilisation (Distance to site >1000 km)	Y		item	\$300,000 \$500,000	in Subari	\$0 \$0		equipment and/or suitable plant to execute bulk earthworks as required. May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y		item	\$300,000		\$0		equipment and/or suitable plant to execute bulk earthworks as required.
									May include specialist demolition
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	Y		item	\$150,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	Y		item	\$100,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation for small mine or quarry - medium to large fleet	Y		Item	\$35,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Mobilisation and Demobilisatio	n Mobilisation & Demobilisation for small mine or quarry - small fleet	Y		Item	\$12,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
			l		Sundry Ite	ems Subtotal	\$0		
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y		allow	Use alternate		\$0		Provisional sum.
	Removal and disposal of radiation devices	Y		each	\$31,630		\$0		Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e. Americium – 241, Plutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strength weight, source holder type, source holder weight, pick-up location (among others) will directly affect pricing.
	Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	Y		allow	\$0		\$0	Select type of HAZMAT Clean-up Required	Type of HAZMAT Clean-up required - cleaning and decontaminating plant ar equipment, chemical storage locations oil and grease traps, tanks, vessels, ar pipe work etc
	Site security during closure	Y		yr.	\$75,000		\$0		Provisional sum for site security measures required during closure. Thi includes nightly patrols and first response in the event of an out of hour incident.
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	Y		allow	\$27,950		\$0		Based on experience for a REF after completion of a detailed closure study (e.g. contamination investigation) costs could range from \$10,000 to \$100,000 ex GST. Note this does not apply to a Statement of Environmental Effects or Environmental Impact Statement.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least a2 of the following aspects resulting in significant issues requiring remediation: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$125,000		\$0		Includes costs for key investigations and studies including economic treatments and designs e.g. geochemistry. Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provision sum to be used to refine the conceptue closure plan into a detailed closure pla with execution strategies for rehabilitation activities.

**Domain 1c: Infrastructure** 

#### **Total Cost for Infrastructure Domain**

**\$0** 

							Key Rehabilit T Tota	ation Area Data for Domain otal Landform Establishment: I Growth Media Development:	Enter data below manually
							То	tal Ecosystem Establishment:	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y		allow	\$35,000		\$0		For disconnection of all services, at building boundaries, physical cut at point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, ce and workshops are in separate plac consider multiple disconnection fees
	Disconnect and terminate services at remote areas (i.e. pump stations, remote workshops, sewage treatment plant etc.)	Y		allow	\$5,850		\$0		Used for infrastructure remote from primary connection. Can also be used for small mines / quarries that do not have dedicated supplies from supply authorities suc steel lattice power lines.
	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of substations	Y		km	\$15,000		\$0		Applies to power lines on stobie, concrete or similar poles.
	Removal of power lines on tower or lattice structures (this includes disconnection, rolling up the wires and removing the structures) - does not include the removal of substations	Y		km	\$100,000		\$0		Applies to power lines on steel towe and steel lattice structures assumin towers / km.
	Remove small rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Y		Item	\$350,000		\$0		Smaller structures - minimal civil w to demolish (constructed for the purposes of mining related works - not include transport to regional disposal facility or equivalent).
	Remove medium rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc.	Y		Item	\$500,000		\$0		Medium structures - minimal civil v to demolish (constructed for the purposes of mining related works - not include transport to regional

Remove mealum rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Y	Item	\$500,000	\$0	to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
Remove large / significant rail, road, water course overpass - manage potential interruptions and demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on- site/locally	Y	ltem	\$1,300,000	\$0	Large structures - includes significant water management e.g. watercourse diversion and civil works to demolish (constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent).
Demolish and/or remove substations (assumes they are in a closed building). Dispose of waste material on-site/locally	Y	m2	\$100.00	\$0	Simple structure to demolish mechanically (no labour required), assumes single story building with no asbestos and segregation of contents for scrap as applicable.
Demolish and remove switchyard. Dispose of waste material on-site/locally	Y	m2	\$75.00	\$0	Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
Demolish and remove demountable structures on concrete stumps. Assumes not being re-used	Y	m2	\$40.00	\$0	Crib huts, temporary offices and other 'non permanent' structures. Does not include transport to regional disposal facility or equivalent.
Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) and disposal on-site/locally	Y	m2	\$61.00	\$0	Simple structure to demolish, assumes no greater than 2 stories high. Does not include transport to regional disposal facility or equivalent.
Demolish and remove light industrial buildings and disposal on-site/locally	Y	m2/floor	\$90.00	\$0	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent. Assumes asbestos free and mechanically demolished.
Demolish and remove industrial buildings (workshops tyre change and servicing area etc not CHPP/process plant) and disposal on-site/locally	Y	m2/floor	\$130.00	\$0	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
Demolish and remove CHPP/process plant (include the area of each floor of the structure) and disposal on-site/locally	Y	m2/floor	\$225.00	\$0	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
Collapse, demolish and remove washery, crushers, hoppers, mills, furnaces, agglomeration, electrowinning, floatation, sizing stations, rotary breakers, etc (include the area of each floor of the structure) and disposal on-site/locally	Y	m2/floor	\$225.00	\$0	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m). Does not include transport to regional disposal facility or equivalent.
Collapse, demolish and remove stacker OR reclaimer (radial or luffing etc. with maneuverability for stockpile control) and disposal on-site/locally	Y	allow	\$750,000	\$0	Cost for removal of stacker or reclaim unit only. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
Collapse, demolish and remove bucket wheel stacker/reclaimer and disposal on-site/locally	Y	allow	\$2,000,000	\$0	Cost for just removal of the bucket wheel stacker/reclaim units. Does not include terminate services, remove rails and ballast etc. Does not include transport to regional disposal facility or equivalent.
Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc and disposal on-site/locally	Y	m	\$75.00	\$0	Includes both rails, does not include the conveyor system. Does not include transport to regional disposal facility or equivalent.
Collapse, Cut and Remove 5000T coal silo and disposal on-site/locally	Y	allow	\$92,500	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Collapse, Cut and Remove 3000 T coal silo and disposal on-site/locally	Y	allow	\$77,500	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.

Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Y	allow	\$62,500	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Collapse, Cut and Remove rail loading bins and disposal on-site/locally	Y	allow	\$65,000	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Demolish and Remove large concrete rail loading bin - and disposal on-site/locally	Y	allow	\$460,000	\$0	Collapse structure and remove. Does not include transport to regional disposal facility or equivalent.
Demolish and remove onground conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) and disposal on-site/locally	Y	m	\$185.00	\$0	Estimate for on-ground conveyor including anything up to 10 m off the ground. Does not include transport to regional disposal facility or equivalent.
Demolish and remove elevated conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally	Y	m	\$295.00	\$0	Estimate for elevated conveyor up to ~10 m off the ground. Does not include transport to regional disposal facility or equivalent.
Demolish and remove overhead conveyors, transfer stations & gantries (scrap only, does not include dismantling for reuse at another site) and disposal on-site/locally. This may include small scale fixed material stacking	Y	m	\$850	\$0	Estimate for overhead conveyor including conveyors that are >10 m off the ground that require a crane to remove. Does not include transport to regional disposal facility or equivalent.
infrastructure Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of	Y	m	\$150.00	\$0	Due to no canopy or infrastructure
reclaim tunnel roof) Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y	m	\$950.00	\$0	Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried
Demolition and removal of vent raise fans, electrical substation and winch and disposal on-site/locally	Y	allow	\$25,000	\$0	Does not include filling and capping the shaft. Does not include transport to regional disposal facility or equivalent.
Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) and disposal on-site/locally	Y	allow	\$10,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove medium tank clean (Thickener etc 10 - 15 m diameter) and disposal on- site/locally	Y	allow	\$30,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove large tank clean (Thickener etc 15 - 30 m diameter) and disposal on-site/locally	Y	allow	\$45,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove extra large tank clean (Thickener etc >30 m diameter) and disposal on- site/locally	Y	allow	\$100,000	\$0	Assume tank is clean - contents removed. If tank is full allow extra 30% for excavator and 2 men to dig out and dispose. Does not include transport to regional disposal facility or equivalent.
Demolish and remove tank clean (Thickener etc) >50 m diameter and disposal on-site/locally	Y	allow	\$100,000	\$0	Estimate only - may require a detailed assessment from demolition expert due to specialised equipment required for removal. Does not include transport to regional disposal facility or equivalent.
Removal of UG tank <5000 L - including pipes, bunds etc. and disposal on-site/locally	Y	allow	\$21,000	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. and disposal on-site/locally	Y	allow	\$30,000.00	\$0	Assume tank is clean (contents removed), does not include transport to regional disposal facility or equivalent.
Remove small underground pipe and disposal on- site/locally	Y	m	\$25.00	\$0	For example: 300 mm pipes - 0.5 m deep, does not include transport to regional disposal facility or equivalent.
Remove medium underground pipe and disposal on- site/locally	Y	m	\$60.00	\$0	For example: 500 mm pipes - 1 m deep, does not include transport to regional disposal facility or equivalent.
Remove large underground pipe and disposal on- site/locally	Y	m	\$165.00	\$0	For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	Y	m	\$12.00	\$0	~300 mm pipes and assumes pipes are in close proximity to infrastructure areas. Does not include transport to regional disposal facility or equivalent.
Remove surface pipelines (unsupported) and disposal on-site/locally	Y	m	\$15	\$0	~300 mm pipes and assumes pipes are used for water transfer between pits (or similar) and remotely located. Does not include transport to regional disposal facility or equivalent.
Remove pump and pontoon from small lake or dam including pipes and electrical supply or diesel tank/s	Y	allow	\$20,000.00	\$0	Includes equipment for retrieval - boats, etc. and labour. Does not include transport to regional disposal facility or equivalent.
Remove bitumen (car park and access roads) and dispose on-site/locally	Y	m2	\$10.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove bitumen (airstrip) and dispose on- site/locally	Y	m2	\$20.00	\$0	Scalp bitumen and stabilised material. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	Y	m2	\$36.00	\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.

	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00		\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
	Crush concrete to make road aggregate - 75 mm	Y		tonne	\$10.00		\$0	 Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 50 mm	Y		tonne	\$13.00		\$0	 Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 30 mm	Y		tonne	\$15.00		\$0	Does not include haulage of materials - assumes crushing plant is readily available.
	Remove fence (cyclone/wire fence) and disposal on- site/locally	Y		m	\$20.00		\$0	 Roll up fence and remove posts.
	Removal of small plastic tanks	Y		each	\$1,000.00		\$0	 Remove small poly tanks used for water storage, etc.
	Demolish and remove galvanised/corrugated light weight tanks	Y		each	\$500.00		\$0	Demolish and remove small lightweight metal tanks. No costs included for managing liquids, etc.
	Demolish and remove communication towers	Y		each	\$5,000.00		\$0	Cost includes demolition and removal of tower only; separate costs required for disconnection of services, demolition of footings, etc.
	Removal of UG services (power within main gate areas, etc.)	Y		allow	\$50,000.00		\$0	Assume service disconnection at the mine boundary is at surface level. This cost covers all fees and charges
	Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km	Y		tonne	\$7.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km	Y		tonne	\$9.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km	Y		tonne	\$12.50		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km	Y		tonne	\$32.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15 km but <25 km	Y		tonne	\$36.00		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km	Y		allow	Use alternate rate cell		\$0	Rate accounts for round trip haulage to Council landfill but excludes landfill fees. Input quantity against Waste disposal to Council landfill - fees for relevant waste type.
	Waste disposal to Council landfill - fees (general waste)	Y		tonne	\$193.00		\$0	Fee for waste disposal of general waste to local Council landfill; transport rates separate. Please note that this is not applicable to operations with approval for building and demolition waste disposal on site.
	Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)	Y		tonne	\$174.00		\$0	Fee for waste disposal of industrial demolition / concrete / scrap metal waste to local Council landfill; transport rates separate. Rate does not assume material is recyclable. Please note that this is not applicable to operations with approval for building and demolition waste disposal on site.
Rail Infrastructure		Tern	nination of Se	ervices and D	emolition Wo	rks Subtotal	\$0	Remove all materials to allow area to be
	Remove rail loop and spur, ballast etc. and disposal on-site/locally	Y		m	\$60.00		\$0	reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities and disposal on- site/locally	Y		m2	\$185.00		\$0	Remove rail load point infrastructure including gantries and control structures. Does not include transport to regional disposal facility or equivalent.
	Reshape rail spur and load out areas. Does not include growth media and revegetation	Y		ha	\$2,860		\$0	D10 Dozer and 16 H Grader (50% utilisation).
Contaminated Materials		Ī		Ra	ail Infrastruct	ure Subtotal	\$0	ĺ
	Undertake a preliminary site investigation (Phase 1), This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies may be required.	Y		Cluster	\$15,000		\$0	The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (vi)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product store, mine waste storage.

Undertake an intrusive site investigation on sites with small footprints to investigate e.g. <15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Ÿ	Cluster	\$44,000	\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (vi)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
Undertake an intrusive site investigation on sites with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Y	Cluster	\$106,000	\$0		The intrusive investigation would include at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 398 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rehabilitation program, site history, location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis.
Develop a Remediation Action Plan on sites with small footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y	allow	\$35,000	\$0		Develop remediation plan for approval including designs and detailed costs. Costs may increase if detailed designs required for construction.
Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive investigation including strategies to address contamination exceedances	Y	allow	Use alternate rate cell	\$0		Assumes complex site; detailed design drawings required for cover.
Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y	L	\$0.35	\$0		Cost for recent sump clean-up from resource activity - requires specialists to treat.
Remove material (carbonaceous / metalliferous spillage or otherwise) from footprint of the process facility (leach pads) / stockpile area (ROM product) / roads and dump in a void on-site (Select Haul Distance from list)	Y	m3	Select from List		Select Haul Distance Here	This item includes scraping and removal of the volume of carbonaceous material using dozer, grader etc. to make safe an area and enable the establishment of rehabilitation.
Load, cart and dispose of Hazardous classified contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill.	Y	m3	\$800.00	\$0		Includes load, haul and dump fees to a licensed facility.
Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfill. Add \$50/m3 for cartage from regional areas	Y	m4	\$660.00	\$0		Includes load, haul and dump fees to a licensed facility.
Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Y	m3	\$220.00	\$0		Includes load, haul and dump fees to a licensed facility.
Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Y	m3	Select from List		Select Volume Here	Spreading of contaminated soils on a prepared surface and stimulation of aerobic microbial activity within the soils through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of organic chemicals - time frame of up to 24 months.
Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Y	Item	\$150,000	\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Y	m3	\$165.00	\$0		Additional cost as the treatment process is fast tracked.
Remove and dispose of asbestos (<750 m2)	Y	m2	\$50.00	\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
Remove and dispose of asbestos (>750 m2)	Y	m2	\$40	\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
Waste disposal to Council landfill - fees (asbestos)	Y	tonne	\$290	\$0		Landfill fees to regional landfill.
Treatment of known Acid Sulfate Soils	Y	ha	\$2,580	\$0		Assumes ASS is treatable via neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm depth only.
Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Y	m2	\$1	\$0		Provisional sum for cutting using ripping tynes and on-site disposal of the liner.

1	Long haulage brine/salt for disposal (Select Haul	Y		tonne	Select from			Select Haul Distance Here	Costs for haulage to location for
	Distance from list)				LIST				Rate for trackable liquid levy of \$78.20
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Add disposal costs to additional items
		1 T	1	Contan	ninated Mater	ials Subtotal	\$0		where warranten
Vents, Shafts and Boreholes	Option 1 - Coal bore hole Exploration boreholes – rehabilitate coal boreholes and drill pads as required	Y		depth (m)	\$44.55		\$0		Cost to grout and cap an open exploration borehole. Assume a 20 m x 20 m drill pad requires rehabilitation - push cover of nearby growth media, rip and seed.
	Option 3 - Mineral RAB and aircore drill holes Exploration boreholes – backfill open Rotary Airblast (RAB) or aircore drill holes with cuttings	Y		allow	\$43		\$0		May include cutting of casing, installation of a casing cap, and/or manually backfilling the hole with drill cuttings. Does not include reshaping / ripping the drill pad, amelioration / seeding etc.
	Option 2 - Mineral drill hole requiring grouting Exploration boreholes – grout and cap open bore holes	Y		allow	\$5,700		\$0		Includes grouting and capping 100 - 200 m exploration boreholes to meet the requirements of Departmental Guidelines.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	Y		allow	\$6,960		\$0		Holes deeper than 100 m - includes cutting steel collar 6 m below surface, grouting and capping.
	Boreholes – cap and seal open bore holes - surface- to-in-seam gas drainage	Y		allow	\$17,890		\$0		Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	Y		allow	\$16,000		\$0		Vertical gas drainage boreholes.
	Boreholes – grout (with concrete) cap and seal bore holes (i.e. where sealing aquifers)	Y		allow	\$35,000		\$0		Includes multi skin sleaves to prevent aquifer mixing.
	Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		Includes large diameter boreholes used for supplying electricity (66kV),
	Option 4 - Mineral diamond drill hole Rehabilitation of diamond drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$2,070		\$0		Compressed an, water, sorsenic etc. Bog out cuttings, remove fencing, remove rubbish, push sumps in, rehabilitate pads and tracks, cut and plug collars. Includes labour and equipment, disposal of rubbish locally on site
	Option 5 - Mineral reverse circulation drill holes Rehabilitation of reverse circulation drill holes and pad including sealing drill holes for mineral exploration	Y		Item	\$1,340		\$0		Sealing required, but not complete filling with concrete/grout
	Option 6 - Rehabilitation of drill hole collars Rehabilitation of drill hole collars (mineral exploration)	Y		each	\$415		\$0		Cut collar, remove, cap, backfill capped collar and cover with nearby organic or growth material
Decide and Tracks	Linearland goods (sublishe medicus analyses			Vents, Shaft	s and Boreho	oles Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim Unsealed roads / access tracks / vehicle park-up	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader. D10 Dozer @ \$400 per hour and 16 H
	areas with windrows and/or small earthen bunds - minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List		\$0	Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of
Earthworks / Structural Works	1	1	1	R	oads and Ira	cks Subtotal	φU	Select Push Length Here	
(Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List				Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	I ris item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		D10 deep ripping.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0 <b>\$0</b>		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
Land Preparation and	E	artnworks / S	aructural Wo	KS (Landforn	Establishm	ent) Subtotal	φU	Select Haul Distance Here	If topsoil is not available on-site, then
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List				Virgin Excavated Natural Material (VENM) may need to be externally sourced.
Loubronnienty	Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$6.60		\$0		4 m centres. Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).

	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	<b>\$0.43</b>		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	<b>\$1.80</b>		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated	Y		m	\$22.00		\$0		Standard rate for no-climb stock
	Construct standard stock fence around rehabilitated	Y		m	\$13.00		\$0		Standard rate for standard stock
		v		elleur	\$250.00				Compliance with AS 1319-1994 - Safety
	r uicitase and elect warning signs			allow	\$250.00		30		installed every 25 m.
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D/ to spread material at \$205/nr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	I Itilise biotic soil media - organic tonsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to
	Land Preparation and Deveratetion (Com	wth Modia Da	velopment		Establisher	ent) Subtetel	\$0		hydromulching.
Water Management	Lunu rieparation and Revegetation (Gro	an meula De	reiopment af	ia Loosystem	Locabilonime	city Subtotal	ψŪ		Provisional sum for earthworks and
	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Removal of evaporation fans and/or other water	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Provisional sum for removal of water
	transfer and management infrastructure	Ŷ		allow	\$25,000	ent Subtetel	\$0 \$0		management infrastructure.
Maintenance of Rehabilitated				₩a	anayem				Rehabilitation maintenance might
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring major repair - rills, quilies growth modia replacement
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gumes, grown media replacement, some level of additional surface water management. Areas that require extensive
	Existing renabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		rehabilitation repair - re-design and re- construction of landform.
	•		Mainte	enance of Rel	habilitated Ar	eas Subtotal	\$0		
	Total Coat fo	r Infro-	tructure	Domo	Additional Ite	ems Subtotal	\$0	¢o	
	l otal Cost fo	or infras	tructur	e Doma	IU			\$U	

#### Domain 2c: Tailings & Rejects

#### **Total Cost for Tailings & Rejects Domain**

**\$0** 

Includes load, haul and dump fees to a licensed facility.

Additional Assumptions: Record any relevant assumptions to this domain below: Key Rehabilitation Area Data for Domain Enter data below manually Total Growth Media Development: Total Ecosystem Establishment Basis for Costs Estimati and Additional Polover Applicable (Y or N) Default Unit Rate Alternative Management Precinct Activity / Description Quantity Unit Total Cost al Relevant Description / Notes: ninated Material The preliminary investigation would nclude at minimum a desktor sessment of the area and site history incidents, etc. as per the National Environmental Protection (Site Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (w)) or similar approved and recognised assessment method. A cluster may include: . Mine infrastructure (i.e., tuel / chemica store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage Undertake a preliminary site investigation (Phase 1) This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple studies Cluster \$15,000 \$0 Y hay be required and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle reuel, sewage treatment, secondary workshop, chemical storage etc.) The intrusive investigation would include at minimum a site walkover and field at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 389 (2) (w)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the rebabilitation program. site history. rtake an intrusive site investigation on sites with small footprints to investigate e.g. ≤15 ha. This rehabilitation program, site history, location, etc. A cluster area where it is highly accounts for current and historical locations where Cluster Y \$44,000 \$0 areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators vestigations should be included. around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assumes site is easily accessible and a small area e.g. - 10-15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analysis. The intrusive investigation would includ at minimum a site walkover and field sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phas 2 intrusive investigation (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. Note: An intrusive investigation is not required for all contaminated areas and should be applied considering the Undertake an intrusive site investigation on sites rehabilitation program, site history, with large footprints to investigate e.g. >15 ha. This accounts for current and historical locations where areas of disturbance are clustered. If there are ocation, etc. location, etc. A cluster area where it is highly anticipated that contamination has occurred (i.e., underground tanks / pipes that are known to have leaked, chemical stores with earthen bunds, around ineffective oil/water separators etc.) and further field work is required involving intrusive investigation. Assume site has a history of contamination and/or a large area > 15 Y Cluster \$106.000 \$0 areas or disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included. contamination and/or a large area >15 ha requires investigation and testing (test pits, boreholes, etc.) based on Sampling and Analysis Quality Plan. Includes SAQP, fieldwork, sampling and analvsis. Develop a Remediation Action Plan on sites with Develop remediation plan for approval small footprints based on outcome of intrusive investigation including strategies to address contamination exceedances including designs and detailed costs. Costs may increase if detailed designs required for construction. Y allow \$35.000 \$0 Develop a Remediation Action Plan on sites with large footprints based on outcomes of intrusive Assumes complex site; detailed design Jse alterna v allow \$0 estigation including strategies to address rate cell drawings required for cover contamination exceedances Cost for recent sump clean-up from resource activity - requires specialists to al and disposal of contaminated water from Y L \$0.35 \$0 nks, bunded areas and sumps eat. Select Haul Distance Here Remove material (carbonaceous / metalliferous This item includes scraping and spillage or otherwise) from footprint of the process removal of the volume of carbonaceo Select from acility (leach pads) / stockpile area (ROM product) Y m3 material using dozer, grader etc. to List roads and dump in a void on-site (Select Haul make safe an area and enable the establishment of rehabilitation. Distance from list) Load, cart and dispose of Hazardous classified

contaminated material off site to a licensed landfill.

Assumes cartage to a licensed landfill.

Y

m3

\$800.00

\$0

		Load, cart and disposal of Restricted classified contaminated material off site to a licensed landfiil. Add \$50/m3 for cartage from regional areas	Y		m4	\$660.00		\$0		Includes load, haul and dump fees to a licensed facility.
		Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m3 for cartage to regional landfill	Y		m3	\$220.00		\$0		Includes load, haul and dump fees to a licensed facility.
		Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	у		m3	Select from List			Select Volume Here	prepared surface and stimulation of aerobic microbial activity within the solit through aeration and/or the addition of minerals, nutrients and moisture to promote the aerobic degradation of promote the promote the pr
		Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Y		Item	\$150,000		\$0		Required if treatment of hydrocarbon contamination is required to be fast tracked.
		On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	Y		m3	\$165.00		\$0		Additional cost as the treatment process is fast tracked.
		Remove and dispose of asbestos (<750 m2)	Y		m2	\$50.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
		Remove and dispose of asbestos (>750 m2)	Y		m2	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
		Waste disposal to Council landfill - fees (asbestos)	Y		tonne	\$290		\$0		Landfill fees to regional landfill.
Į				•	Contan	ninated Mater	ials Subtotal	\$0		
	Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader.
		Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed
		Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H
		Unsealed roads / Venicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas.	Y		ha	\$4,485		\$0		grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
		with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
		Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
		Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	removal of the volume of stabilised material from the road, laydown or other surface using an excavator, dozer and grader to enable the establishment of rehabilitation
Į.		E	arthworks / S	Structural Wo	rks (Landforn	n Establishme	ent) Subtotal	\$0		
	Earthworks / Structural Works	Mala kullan sektor ta aktor anadar a seterata da				Onland (man			Select Push Length Here	Malas kullus unklass ta anklass ana das
		Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	List				Major bulk pushing to achieve grades nominated in the approval/permit
		Minor reshaping and pushing	Y		ha	\$3,900		\$0	Select Haul Distance Here	grader @ \$230 per hour (50% utilisation).
		Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	У		m3	Select from List				material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
		Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
		Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
		Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
H	Mine Waste	E	arthworks / S	structural wol	rks (Landforn	h Establishme	ent) Subtotal	φU		
		Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	Y		ha	\$82,000		\$0		This includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m - 0.2 m growth media (assume at least 1 m thick cover required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap. use rate from 0.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
		Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite linea etc.)

	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	¥		ha	\$146,500		50		This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness ranging from J m to 2 m thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, geofabric, etc.) - use alternate rate cells below, specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e. load / haul / place / crush / screen / borrow etc.). Costs for haudage of specialised/additional materiais must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap. use rate from 9.0.2 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.), and / or additional requirements (i.e., geofabric / composite lining etc.).
	Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	¥		ha	\$313,000		\$0		This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / over facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping material/s are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised materials must be added separately if required. It site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). It additional material to make up landform, provide buttress or other works aside from tailings cap. use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.), and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.), and / or additional requirements (i.e., geofabric / composite lining etc.). Capping/cover material available where
	capping/covers, removal of contamination, etc.	Ŷ		m3	List Mino Min	aste Subtotal	\$0	Select Haul Distance Here	50 km round trip e.q. waste /
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	у		m3	Select from List	Justo		Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Direct seeding / fertiliser (pasture grass species)	Y	<u> </u>	ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding)

	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
	Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 + \$0.50 depending on size and input variables. Pasture seed +\$0.10
	Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
	Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
	Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
	Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y		m	\$22.00		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$13.00		\$0		Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
Water Management	Land Preparation and Revegetation (Grov	wth Media De	velopment ar	nd Ecosystem	n Establishme	ent) Subtotal	\$0		Provisional sum for earthworks and
	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ ~\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Maintenance of Rehabilitated				Wa	ter Managem	ent Subtotal	\$0		Rehabilitation maintenance might
Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		rehabilitation repair - re-design and re-
			Mainte	enance of Rel	nabilitated Ar	eas Subtotal	\$0		
	Total Coat for 3		8 Dolo	ote Der	Additional Ite	ems Subtotal	\$0	¢o	
	Total Cost for	ranings	a keje	uts Don	nan			\$U	

#### Domain 3c: Overburden & Waste

#### Total Cost for Overburden & Waste Domain

**\$0** 

Key Rehabilitation Area Data for Domain Enter data below manually Total Landform Establishment:

							To	tal Ecosystem Establishment:	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		Assumes ASS is treatable via neutralisation and does not require capping and isolation. Assumes 1% by weight lime addition and treatment to 100 mm depth only.
	Removal and disposal of plastic liner (i.e. dam, leach pad, sump etc.)	Y		m2	\$1		\$0		Provisional sum for cutting using ripping tynes and on-site disposal of the liner.
	Long haulage brine/salt for disposal (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Costs for haulage to location for authorised disposal.
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		Rate for trackable liquid levy of \$78.20 per tonne and authorised disposal to landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from List			Select Haul Distance Here	Assumes transport in a 20,000 L tanker Add disposal costs to additional items
				Contan	ninated Mater	ials Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H Grader.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - no seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,700		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the scraping and removal of the volume of stabilised material from the road, laydown or othe surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
	1	1		R	oads and Tra	cks Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			Select Push Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
	E	arthworks / S	tructural Wor	rks (Landforr	n Establishm	ent) Subtotal	\$0		

Mine Waste						
	Ideal Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with little chemical reactivity (no to low risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and good physical properties (not significantly hydrophilic, shear strength does not limit equipment choice, no artificial strengthening required)	¥	ha	\$82,000	\$0	This includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume material with the appropriate chemical and physical properties. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness of approximately 0.5 m to 1 mand 0.15 m - 0.2 m growth media (assume at least 1 m thick cover required for carbonaceous material covers). Water quality from runoff, seepage etc. meets site-specific environment water quality values. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for tailings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Efficient Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (low to medium risk Potential Acid Forming (PAF) / Neutral Mino Drainage (NMD) / Saline Mine Drainage (SMD) and/or low to moderate propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	¥	ha	\$146,500	\$0	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities where the tailings or rejects base is at a strength that enables economically efficient construction methods with small plant. This rate assumes suitable capping material is available on site within 10 km, and an average cap thickness ranging from >1 m to 2 m thickness constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capillary breaks, goofabric, cluch as capillary breaks, goofabric, specific material types (e.g. acid activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haulage of specialised/additional materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material required and the site or this distance in 8.05 (spreading costs for tailings cap material in to make up landform, provide buttress or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in 8.05.
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y	allow	Use alternate rate cell	\$0	 Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Adverse Tailings Capping - reshaping, capping / sealing of trafficable tailings facility with moderate chemical reactivity (medium to high risk Potential Acid Forming (PAF) / Neutral Mine Drainage (NMD) / Saline Mine Drainage (SMD) and/or moderate to high propensity for spontaneous combustion) and moderate physical properties (not significantly hydrophilic, shear strength limits equipment choice somewhat, no artificial strengthening required)	Y	ha	\$313,000	\$0	This item includes sourcing, carting, spreading, moisture conditioning and compaction of a suitable volume of material to cap / cover facilities of high geochemical risk, and / or low shear strength that prohibits economically efficient construction methods. This rate assumes suitable capping material/s are available on site within 10 km, and an average cap thickness of approximately >2 m + growth media up to 0.2 m depth. This may require additional materials (i.e., capillary breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, competent rock etc.), and associated activities (i.e., load / haul / place / crush / screen / borrow etc.). Costs for haudage of specialised materials must be added separately if required. If site haulage longer than 10 km round trip add the volume of the relevant material requiring haulage for this distance in 8.05 (spreading costs for talings cap material included in rate). If additional material to make up landform, provide buttress or other works aside from talings cap, use rate from 9.02 for relevant haulage and spreading in additional to any long haulage volume in

		Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / comoosite lining etc.).
		Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
		Difficult Tailings Capping- reshaping, capping / sealing of weak or soft surfaced tailings facility with poor physical properties (significantly hydrophilic, low shear strength limits equipment choice greatly, artificial strengthening required OR visible adverse impacts on legacy sites from chemical reactivity over lengthy exposure prior to rehabilitation	Y		ha	\$843,000		\$0		This cipiton is vipically unverted with constraints and/or when tailings properties significantly restrict adequate desiccation, resulting in a tailings shear strength that is very weak excluding access by conventional small plant. Small equipment used for rehabilitation. This excludes any additional material required to form the final landform resultie is addition to this ces
		Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
		Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	Y		allow	Use alternate rate cell		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
		Long haulage soil / weathered rock / sediment e.g. capping/covers, removal of contamination, etc.	Y		m3	Select from List			Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. waste /
ł	Land Preparation and		1		1	Mine Wa	ste Subtotal	\$0		
	Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
		Planting mature trees (>15 cm)	Y		allow	\$15.00		\$0 \$0		4 m centres.
					anow	\$0.00		ţ		Includes treating, weighing, mixing with
		Direct seeding / fertiliser (pasture grass species)	Ŷ		ha	\$1,875		\$0		fertiliser + spreading by tractor or helicopter (aerial seeding).
		Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$4,135		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
		Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00
		Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y		m2	\$0.43		\$0		Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
		Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y		m2	\$0.80		\$0		Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
		Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months	Y		m2	\$1.80		\$0		Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of ~3500kg/ha. This cost includes cover crop only, additional seeding required.
		Hydromulch - high performance flexible growth medium grade	Y		m2	\$2.50		\$0		Assumes use on extreme slopes where stabilisation is required for up to 18 months. Application rate of ~4,000kg/ha minimum. This cost includes cover crop only, additional seeding required.
		Single application of fertiliser (pasture)	Y		ha	\$420.00		\$0		Assumes 250 kg / ha. These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
		Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate.
		Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000		\$0		Assumes 2.5 t / ha as an average application rate.
		growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
		Construct no-climb stock fence around rehabilitated	Y		m	\$22.00		\$0		Standard rate for no-climb stock
		Construct standard stock fence around rehabilitated	Y		m	\$13.00		\$0		Standard rate for standard stock
		areas Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m
		Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.
		Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
		Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
		Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
		Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.

	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to hydromulching.
	Land Preparation and Revegetation (Grow	vth Media De	evelopment an	d Ecosysten	n Establishme	ent) Subtotal	\$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass.
	Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	Y		allow	\$10,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
				Wa	ater Managem	ent Subtotal	\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	\$925		\$0		Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
			Mainte	nance of Rel	habilitated Ar	eas Subtotal	\$0		
					Additional Ite	ems Subtotal	\$0		
	Total Cost for O	verburd	len & W	aste Do	omain			\$0	

#### Domain 4c: Active Mine & Voids

#### **Total Cost for Active Mine & Voids Domain**

\$0

							Key Rehabilit	ation Area Data for Domain	Enter data below manually
							T	otal Landform Establishment:	
							To	tal Ecosystem Establishment:	
								Basis for Costs Estimation	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	and Additional Relevant	Description / Notes:
Open Cut	Active pit area – benches blasted and doze to acceptable grade	Y		Lm	\$1.93		\$0	mormation	Blasting in a 8x9 pattern of bench height 25 m with D11 push of 50-75 m.
	Drill & blast faces to make safe	Y		m3	\$0.95		\$0		Bulk Drilling say 8'9 pattern, assuming a stem height of 6 m, charge length of 19 m, explosive density of 0.9, diameter of 229 mm, explosives at 665.3 (shole with a powder factor of 0.37 with an approximate bench height of 25 m.
	High wall treatment – (trench and safety berm)	Y		m	\$90.00		\$0		D10 dozer, 16H Grader and revegetation with pasture grass.
		-	1	I	Open	Cut Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		m3	Select from List			Select Push Length Here	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		Undertaken using D10 dozer and 16M grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work plus grader for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Installation of on-site rock material (rip- rap) where managing water run-off from disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If required to be sourced off site, assume an additional \$20/m2.
	E	arthworks / S	Structural Wor	rks (Landforr	n Establishm	ent) Subtotal	\$0		
Land Proparation and								Coloct Houl Distance Hare	If topooil is not supilable on site then
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm)	Y Y		m3 allow	Select from List \$15.00		\$0	Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm)	Y Y Y		m3 allow allow	Select from List \$15.00 \$6.60		\$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres. 4 m centres. Includes treating, weighing, mixing with
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species)	Y Y Y Y		m3 allow allow ha	Select from List \$15.00 \$6.60 \$1,875		\$0 \$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Exavated Natural Material (VENM) may need to be externally sourced. 4 m centres. 4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass species)	Y Y Y Y		m3 allow allow ha ha	Select from List \$15.00 \$6.60 \$1,875 \$4,135		\$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass species) Hydro-seeding with straw mulching and bitumen tack with native seed	Y Y Y Y		m3 allow ha ha m2	Select from List \$15.00 \$6.60 \$1,875 \$4,135 \$1.90		<u>\$0</u> \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres. 4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 + \$0.50 depending on size and input variables. Native seed +\$1.00
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass species) Hydro-seeding with straw mulching and bitumen tack with native seed	Y Y Y Y Y		m3 allow ha ha m2 m2	Select from List \$15.00 \$6.60 \$1,875 \$4,135 \$1.90 \$0.43		\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres. 4 m centres. 1ncludes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00 Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass species) Hydro-seeding with straw mulching and bitumen tack with native seed Hydro-seeding with straw mulching and bitumen tack with pasture seed Hydro-seeding with straw mulching and bitumen tack with pasture seed	Y Y Y Y Y		m3 allow ha ha m2 m2 m2	Select from List \$15.00 \$6.60 \$1,875 \$4,135 \$1.90 \$0.43 \$0.43		\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Exavated Natural Material (VENM) may need to be externally sourced. 4 m centres. 4 m centres. 1ncludes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00 Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Pasture seed +\$0.10 Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass species) Hydro-seeding with straw mulching and bitumen tack with native seed Hydro-seeding with straw mulching and bitumen tack with pasture seed Hydromulch - base grade or standard for flat areas that can be irrigated by water cart	Y Y Y Y Y Y		m3 allow ha ha m2 m2 m2 m2	Select from List \$15.00 \$6.60 \$1,875 \$4,135 \$1.90 \$0.43 \$0.43 \$0.43 \$0.43		<u>\$0</u> <u>\$0</u> \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Exavated Natural Material (VENM) may need to be externally sourced. 4 m centres. 4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 + \$0.50 depending on size and input variables. Native seed +\$1.00 Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 + \$0.50 depending on size and input variables. Native seed +\$1.00 Assumes use on flat areas with a gradient of less than 4:1, ad where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 4:1, ad where stability. This cost includes cover crop only, additional seeding required.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List) Planting mature trees (>15 cm) Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species) Direct seeding / fertiliser (tree or native grass species) Hydro-seeding with straw mulching and bitumen tack with native seed Hydro-seeding with straw mulching and bitumen tack with pasture seed Hydromulch - base grade or standard for flat areas that can be irrigated by water cart Hydromulch - bonded fibre matrix grade for steep areas to stabilise up to 12 months Hydromulch - high performance flexible growth medium grade	Y Y Y Y Y Y Y		m3 allow ha ha m2 m2 m2 m2 m2 m2	Select from List \$15.00 \$6.60 \$1,875 \$4,135 \$1.90 \$0.43 \$0.43 \$0.80 \$1.80 \$1.80		<u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u> <u>\$0</u>	Select Haul Distance Here	If topsoli is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced. 4 m centres. Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00 Process to be used on flat well prepared surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges from \$0.15 - \$0.50 depending on size and input variables. Native seed +\$1.00 Assumes use on flat areas with a gradient of less than 4:1, and where irrigation from water cart may be possible. Industry standard application rate of 2500kg/ha. Product will last short term (less than 3 months) and vegetation is required to grow ASAP for stability. This cost includes cover crop only, additional seeding required. Assumes use on steep areas where stabilisation is required for up to 12 months. Application rate of -\$300kg/ha. This cost includes cover crop only, additional seeding required.

	Single application of fertilizer (trees)	v		ba	\$140.00		ŝņ		These rates have fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced
	ongle application or lefuliser (trees)	т		па	\$140.00		οu		demand etc) this is a suitable standard
	Spoil amelioration (adding lime / gypsum etc.)	Y		ha	\$1,000.00		\$0		Assumes 2.5 t / ha as an average
	growth media amelioration with biosolids	Y		ha	\$1,015		\$0		Recent experience with agronomy projects.
	Security fence around steep section of high wall	Y		m	\$64.00		\$0		1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mm mesh & 32 mm post not concreted
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
	Supply from external sources virgin excavated natural material (VENM) for growth media.	Y		m3	\$80.80		\$0		D7 to spread material at \$205/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$70/m3 for imported fill material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allow nominal rate of \$60/m3 for imported fill material.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load and haul to final rehabilitation location required or respreading where necessary.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	I Itilisa hiotic soil madia - organic topsoil alternativa	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior to
	ounse blotte son media - organie topson alternative			1112	¥2.00				hydromulching.
	Land Preparation and Revegetation (Grow	wth Media De	evelopment a	nd Ecosystem	n Establishme	ent) Subtotal	\$0		hydromulching.
Water Management	Land Preparation and Revegetation (Grow Clean water dams to be retained after decommissioning – make safe and minor earthworks	wth Media De	evelopment an	allow	\$2,500	ent) Subtotal	\$0 \$0		hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass.
Water Management	Land Preparation and Revegetation (Grow Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks	vth Media De Y Y	evelopment a	allow allow	\$2,500 \$1,500 \$10,500	ent) Subtotal	\$0 \$0 \$0		hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass.
Water Management	Land Preparation and Revegetation (Gron Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y Y Y Y	evelopment a	allow allow allow	\$2,500 \$10,500 \$10,500 Select from List	ent) Subtotal	\$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Water Management	Land Preparation and Revegetation (Grow Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	vth Media De Y Y Y	evelopment an	allow m3	\$2,500 \$10,500 \$10,500 Select from List	ent) Subtotal	\$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, fruck and doovel
Water Management Water Management Maintenance of Rehabilitated Areas	Land Preparation and Revegetation (Grow Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y Media De Y Y Y Y	velopment a	niz allow allow m3 Wa	\$2,500 \$10,500 \$elect from List \$925	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertillising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
Water Management Water Management Maintenance of Rehabilitated Areas	Land Preparation and Revegetation (Gro Clean water dams to be retained after decommissioning – make safe and minor earthworks Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor earthworks Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list) Maintenance of areas that have been shaped and seeded and revegetation has been 'successful' Existing rehabilitation repair - minor	vth Media De Y Y Y Y	velopment a	nt Ecosystem allow allow m3 wa ha ha	\$2,500 \$10,500 \$10,500 Select from List \$925 \$1,200	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, minor growth media replacement.
Water Management Water Management Maintenance of Rehabilitated Areas	Land Preparation and Revegetation (Grow         Land Preparation and Revegetation (Grow         Clean water dams to be retained after         decommissioning – make safe and minor         earthworks         Large clean water dams (i.e. ≥ 2 ha) to be retained         after mine closure – make safe and minor         earthworks         Remove sediments from the floor of the dam to         enable it to be converted into clean water structure         (Select Haul Distance from list)         Maintenance of areas that have been shaped and         seeded and revegetation has been 'successful'         Existing rehabilitation repair - minor         Existing rehabilitation repair - moderate	Y Y Y Y Y Y	velopment a	m2 allow m3 wa ha ha ha	S2,500 \$10,500 \$10,500 Select from List ter Managerr \$925 \$1,200 \$1,700	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement.
Water Management Waintenance of Rehabilitated Areas	Land Preparation and Revegetation (Grow         Land Preparation and Revegetation (Grow         Clean water dams to be retained after         decommissioning – make safe and minor         earthworks         Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor         earthworks         Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)         Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'         Existing rehabilitation repair - minor         Existing rehabilitation repair - moderate         Existing rehabilitation repair - major	Y Media De Y Y Y Y Y Y Y	velopment a	niz allow m3 ha ha ha ha	1 Establishme           \$2,500           \$10,500           Select from           List           \$925           \$1,200           \$1,700           \$2,500	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use by an alternate land-user - 06 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, fruck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor repsing, erosion control, inspections/audits - does not include major repair works. Areas requiring minor repair - rills, significant growth media replacement. Areas requiring major repair - rills, guilies, growth media replacement, some level of additional surface water management.
Water Management Waintenance of Rehabilitated Areas	Land Preparation and Revegetation (Grow         Land Preparation and Revegetation (Grow         Clean water dams to be retained after         decommissioning – make safe and minor         earthworks         Large clean water dams (i.e. ≥ 2 ha) to be retained after mine closure – make safe and minor         earthworks         Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)         Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'         Existing rehabilitation repair - minor         Existing rehabilitation repair - moderate         Existing rehabilitation repair - major         Existing rehabilitation repair - total failure of landform	Y Media De Y Y Y Y Y Y Y		nt Ecosystem allow m3 m3 ha ha ha ha ha	\$2,500           \$10,500           \$10,500           Select from List           \$925           \$1,200           \$1,700           \$2,500           \$40,000	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, significant growth media replacement. Areas that require extensive rehabilitation repair re-design and re- construction of landform.
Water Management Water Management Maintenance of Rehabilitated Areas	Land Preparation and Revegetation (Grow         Land Preparation and Revegetation (Grow         Clean water dams to be retained after         decommissioning – make safe and minor         earthworks         Large clean water dams (i.e. ≥ 2 ha) to be retained         after mine closure – make safe and minor         earthworks         Remove sediments from the floor of the dam to         enable it to be converted into clean water structure         (Select Haul Distance from list)         Maintenance of areas that have been shaped and         seeded and revegetation has been 'successful'         Existing rehabilitation repair - minor         Existing rehabilitation repair - major         Existing rehabilitation repair - total failure of landform	Y Media De Y Y Y Y Y Y Y	velopment a	m2 allow allow m3 wa ha ha ha ha ha anance of Rel	* Establishme           \$2,500           \$10,500           \$10,500           Select from           List           ter Managem           \$925           \$1,200           \$1,700           \$2,500           \$40,000           abilitiest or	ent) Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - 06 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - 06 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, guilles, growth media replacement. Areas tracuiring major repair - rills, some level of additional surface water management. Areas tha require extensive rehabilitation repair - re-design and re- construction of landform.
Water Management Water Management Maintenance of Rehabilitated Areas	Land Preparation and Revegetation (Grow         Land Preparation and Revegetation (Grow         Clean water dams to be retained after         decommissioning – make safe and minor         earthworks         Large clean water dams (i.e. ≥ 2 ha) to be retained         after mine closure – make safe and minor         earthworks         Remove sediments from the floor of the dam to         enable it to be converted into clean water structure         (Select Haul Distance from list)         Maintenance of areas that have been shaped and         seeded and revegetation has been 'successful'         Existing rehabilitation repair - minor         Existing rehabilitation repair - major         Existing rehabilitation repair - total failure of         landform	vth Media De Y Y Y Y Y Y Y	Mainte	m2 allow allow m3 wa ha ha ha ha ha annee of Rel	S2,500 S10,500 Select from List S925 S1,200 S1,700 S2,500 S40,000 nabilitated Ar	eas Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Haul Distance Here	hydromulching. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pasture grass. Provisional sum for earthworks and revegetation required to rehabilitate dam batters et suitable for re-use by an alternate land-user - D6 Dozer (or similar) + pasture grass. This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam. Rehabilitation maintenance might include re-seeding, watering, fertillsing, minor re-shaping, erosion control, inspections/audits - does not include major repair works. Areas requiring moderate repair - rills, significant growth media replacement. Areas requiring moderate repair - rills, guilles, growth media replacement. Areas trequiring moderate repair - rills, some level of additional surface water management. Areas trequire extensive rehabilitation repair - re-design and re- construction of landform.

#### **Domain 5c: Management Activities**

#### **Total Cost for Management Activities**

**\$0** 

Autonal Assumptions. Accord							Key Rehabilit	ation Area Data for Domain	Enter data below manually
							T Tota	otal Landform Establishment:	
							То	tal Ecosystem Establishment:	
		Applicable			Dofault Unit	Altornativo		Basis for Costs Estimation	
Management Precinct	Activity / Description	(Y or N)	Quantity	Unit	Rate	Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
Water Management	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	Y		ML	\$3,600		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
	On-site treatment of contaminated water due to low pH (incudes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit	Y		ML	\$1,500		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Creek Diversions	r		-	Wa	ter Managem	ent Subtotal	\$0		A second s
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		up and significant works are not required.
	Installation of rock armouring	Y		m2	\$6.00		\$0		available - multiply costs by 2 for sourcing and transporting from offsite location.
	•			(	Creek Diversie	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y		ha	\$150.00		\$0		Feral animal baiting programs if required and waste materials required to be removed.
	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment control works)	Y		ha	\$400.00		\$0		Undisturbed areas within the lease boundary that require land management activities.
			Mainte	enance of Rel	nabilitated Ar	eas Subtotal	\$0		
Heritage Items	The restoration and care and maintenance of items that have heritage significance	Y		allow	Use alternate rate cell		\$0		Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of activities.
	•				Heritage Ite	ems Subtotal	\$0		h
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with closure planning well progressed i.e. preferred cover design, closure environment modelled e.g. groundwater /subsidence / pit lakes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Y		allow	\$100,000		\$0		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assumes outcomes of studies readily available including modelling, landform design, geochemistry, demoiltion, etc. Costs to finalise options by domain and finalise designs for construction. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range from ~\$75k to >\$1 M. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least 22 of the following aspects requiring closure planning, but no significant issues realised at this time: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$90,000		\$0		Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Estimated costs for developing closure plan including studies - basic to satisfy risks and decisions - includes risk assessment, options analysis, Closure Plan. Sites with more than 1 pit to add \$50,000 to rate.
	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with no EPL and/or only one of the following relevant aspects: previous subsidence, low to medium geochemistry risk and/or spontaneous combustion propensity, known limited contamination, small approved final void	Y		allow	\$15,000		\$0		Assumes sediment control is the key concern for rehabilitation e.g. small mines, exploration operations. Includes risk assessment, sampling and analyses on <5 samples, one study and Closure Plan.
	Development of an 'Unplanned' Project Closure Plan - State Significant Development with only preliminary to conceptual closure planning in place	Y		allow	\$300,000		\$0		Includes costs for key investigations and studies including designs e.g. geochemistry. Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities. Assume at least 15 types of studies required ranging from geotechnical to ecology and social, development of a closure plan including address of obligations. Assume a simple site e.g. single open cut, no legacy operations historic in the area, little social dependence, etc. Depending on site size, complexity, final land use requirements and knowledge base investigations can range to >\$3 M. Sites with more than 1 pit to add \$50,000 to rate.

	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development with at least 22 of the following aspects resulting in significant issues requiring remediation: previous subsidence, medium or higher geochemistry risk and/or spontaneous combustion propensity, known/ likely contamination, tailings / rejects, final void	Y		allow	\$125,000		\$0		Includes costs for key investigations and studies including economic treatments and designs e.g. geochemistry, Contamination Remediation Action Plan, subsidence risk, cover/capping and final landform, site wide surface water, etc. Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
	Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works.	Y		allow	\$27,950		\$0		Based on experience for a REF after completion of a detailed closure study (e.g. contamination investigation) costs could range from \$10,000 to \$100,000 ex GST. Note this does not apply to a Statement of Environmental Effects or Environmental Impact Statement.
	Site security during closure	Y		yr.	\$75,000		\$0		Provisional sum for site security measures required during closure. This includes nightly patrols and first response in the event of an out of hours incident.
	Choose type of HAZMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	Y		allow	\$0			Select type of HAZMAT Clean-up Required	Type of HAZIMAT Clean-up required - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc
	Removal and disposal of radiation devices	Y		each	\$31,630		\$0		Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium – 137 etc). Source Isotope type, quantity, strength, weight, source holder type, source holder weight, pick-up location (among holder weight, pick-up location (among holders) will directly affect pricing.
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y		allow	Use alternate rate cell		\$0		Provisional sum.
					Sundry Ite	ems Subtotal	\$0		
Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry - small fleet	Y		Item	\$12,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation for small mine or quarry - medium to large fleet	Y		Item	\$35,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	Y		item	\$100,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	Y		item	\$150,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y		item	\$300,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	Y		item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Mobilisation and Demobilisation Subtotal \$0									
Additional Items	Other 1 <insert></insert>	N			This is				This item includes < <to added="" be="" by="" operator="" the="">&gt;</to>
	Other 2 <insert></insert>	N			deliberately				This item includes < <to added="" be="" by="" operator="" the="">&gt;</to>
	Other 3 <insert></insert>	N			left blank				This item includes < <to added="" be="" by="" operator="" the="">&gt;</to>
	•		·		Additional Ite	ems Subtotal	\$0		
Total Cost for Management Activities								\$0	

### **Assumptions and rehabilitation requirements**

List or record any assumptions made when completing this tool:



Justification for Change of Rates in the Rehabilitation Cost Estimation Tool

Domain	Activity	DRG unit/rate	Adopted Rates	Justification

In completing the Rehabilitation Cost Estimation, we are seeking an adjustment to the rates currently utilised in the Rehabilitation Cost Estimation Tool. A justification for the rate change by a third party has been included and I confirm that only the rates identified in the above table have been altered in the Rehabilitation Cost Estimation Tool.

Authrorisation Representatives Name

Authorisation Representatives Role / Responsibility

Date

Signature