



FWP0001531

# MEADOW FLAT QUARRY FORWARD PROGRAM

Sunday 1 December 2024 to Tuesday 30 November 2027

# Summary

DETAIL		
Mine	Meadow Flat Quarry	
Reference	FWP0001531	
Forward program commencement date	Sunday 1 December 2024	
Forward program end date	Tuesday 30 November 2027	
Forward program revision (if applicable)		
Contact	Rose Gates	
Mining leases	ML 274 (1973)	
Project location	Csr Building Products Limited	
Date of submission	Wednesday 29 January 2025	

# 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 Meadow Flat Clay Mine is located off Curly Dick Road, Meadow Flat, within the Lithgow City Council Local Government Area (LGA) and comprises a total area of 32.5 hectares. ML 274 was granted on 1 December 1976 to CSR Building Products Pty Ltd.

# Description of surface disturbance activities

# **Exploration activities**

Exploration is expected to occur ahead of mining, most likely in the forms of a dozer ripping the surface for review and an excavator to create test pits. Due to the shallow nature of the resource auger holes may also be undertaken.

# **Construction activities**

No construction will occur during the FWP period.

# **Mining schedule**

Mining development method and sequencing and general mine features.

Over the next three years, quarry extension is expected to commence to the southerly and south-westerly direction. Mine faces will be constructed at a maximum of 3 horizontal: 1 vertical while in their working form. Final landform batter should be excavated and shaped in a manner that would ensure the maximum gradient does not exceed 5.5 horizontal to 1 vertical.

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

The overburden emplacement area (previously labelled as "Soil Storage Area" in the sites' MREMP) is situated to the north-east of the site and will be likely be utilised for storage of overburden and topsoil if no final slopes are available.

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

No processing of residues or tailings will occur during the MOP period.



Waste disposal and materials handling operations.

There are no waste disposal facilities on site as contractors and truck drivers will take all fuel, oils and litter with them when they leave the site each day. Dozer refueling would be undertaken on flat ground with a spill kit in the refueling vehicle. If any spills occur the spill procedure would be followed.

# Key production milestones

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(m³)	90	90	90
Rock/overburden	(m³)	1,750	1,750	1,750
Ore	(Mt)	0.01	0.01	0.01
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

Temporary stabilisation of mine faces this has been achieved in the existing pit footprint where extraction activities have ceased. Final rehabilitation has commenced, entailing seeding of topsoil to the tops of the existing batters where growth was previously unsuccessful. The southern batter and a portion of the western batter will be removed during the MOP period to open up the new pit area. Mining activities are planned to commence in the area that was once temporarily stabilised. No significant knowledge gaps were identified in the latest ARR.

# Rehabilitation schedule

Rehabilitation will be undertaken gradually as slopes become available. The initial phase of rehabilitation on any completed surface will be to rip the surface parallel to the contour to provide a key for subsoil retention and to assist the infiltration of rainfall. Shallow ripping (<0.5 m) would be employed on batter surfaces and deep ripping (> 1.0 m) would be employed on the quarry floor. Subsoil and topsoil reclaimed from stockpiles or transferred directly from areas being prepared for the subsequent quarrying campaign, will be placed over the prepared surface to a minimum depth of 200 mm and 50 mm respectively on batter slopes and 500 mm and 200 mm on the quarry floor. Where stockpiles or areas of unsuitable brick making materials are encountered during the quarrying activities, they will be retained on site or set aside and subsequently dozed down and contoured prior to subsoil and topsoil spreading. Appropriate drainage controls such as contour banks or drains will be established as required to divert surface runoff from areas upslope around rehabilitated surfaces and to minimise flows down the face of embankments. Once topsoil has been placed, seeding and maintenance of final slopes is to be carried out as per the procedure set out in Section 4 of the MREMP.

# Completion of rehabilitation

No areas within this site are planned for application for lodgment of rehabilitation completion with the Resources Regulator within the next three years.



# Progressive mining and rehabilitation statistics

# Three-yearly forecast cumulative disturbance and rehabilitation progression

FORECAST	UNIT	YEAR 1	YEAR 2	YEAR 3
A Total surface disturbance footprint	(ha)	5.4	5.45	5.49
<b>B</b> Total active disturbance	(ha)	2.84	2.62	2.66
P Total new area of land proposed for active rehabilitation	(ha)	0.79	0.28	0

# Attachment 1 – Reporting Definitions

REPORTING 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
D	Ecosystem and land use establishment	phases of rehabilitation. 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	<ul> <li>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.</li> <li>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.</li> <li>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</li> </ul>
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.



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.		

WORD	DEFINITION		
Phases of rehabilitation	<ul> <li>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</li> <li>active mining</li> <li>decommissioning</li> <li>landform Establishment</li> <li>growth medium development</li> <li>ecosystem and land use establishment</li> <li>ecosystem and land use development.</li> </ul>		
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.		

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:</li> <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>		
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:	Meadow Flat
Lease(s):	ML274
Title Holder:	CSR Building Products Limited
Term of RCE:	to 30/11/2028 end of FWP
Current Security:	\$75,000 Date of last Security Deposit review 18/04/2024
Mine Contact:	Joe Gauci
List key changes since previous submission:	Nil significant changes, no changes proposed.



# Regional NSW

# **Open Cut Summary Rehabilitation Cost Estimation**

#### Note: Sections of this page are automatically filled in from the registration page

Mine Name:	Meadow Flat		
Lease(s):	ML274		
Authorisation Owner:	CSR Building Products Limited		
Term of RCE:	to 30/11/2028 end of FWP		
Current Security:	\$75,000	Date of Last Security Deposit Review:	18/04/2024
Mine Contact:	Joe Gauci		

Domain		Security Deposit
Domain 1: Infrastructure		\$9,795
Domain 2: Tailings & Rejects		
Domain 3: Overburden & Waste		\$1,890
Domain 4: Active Mine & Voids		\$13,619
Domain 5: Management Activities		\$30,630
Subtotal (Domains and Sundry Items)		\$55,934
Contingency	10%	\$5,593
Post Closure Environmental Monitoring	10%	\$5,593
Project Management and Surveying	10%	\$5,593
Total Security Deposit for the Mining Project	t (excl. of GST)	\$72,714

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).

☑ 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 29.01.2025

Signature

National Raw Materials Manager Company Representative's Role / Responsibility

Domain 1a: Infrastructure

**Total Cost for Infrastructure Domain** 

\$9,795

							Key Rehabi	litation Area Data for Domain	Enter data below manually
								Total Landform Establishment:	
							Тс	tal Growth Media Development:	
								Fotal 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:
		Tern	nination of Se	ervices and	Demolition Wo	rks Subtotal	\$0		
					Rail Infrastruct	ure Subtotal	\$0		
				Conta	minated Materi	als Subtotal	\$0		
				Vents, Sha	fts and Boreho	les Subtotal	\$0		
					Roads and Tra	cks Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y	1.4	ha	\$1,130.00		\$1,582		Undertaken using D10 dozer and 16 grader.
	E	arthworks / S	Structural Wor	ks (Landfor	m Establishme	ent) Subtotal	\$1,582		
Land Preparation and Revegetation (Growth Media Development and Ecosystem	Direct seeding / fertiliser (pasture grass species)	Y	1.4	ha	\$1,875		\$2,625		Includes treating, weighing, mixing v fertiliser + spreading by tractor or helicopter (aerial seeding).
Establishment)	Single application of fertiliser (pasture)	Y	1.4	ha	\$420.00		\$588		Assumes 250 kg / ha. These rates h fluctuated over the last few years however in light of current condition (lower fuel prices, reduced demand this is a suitable standard rate.
	Land Preparation and Revegetation (Gro	wth Media De	velopment ar	nd Ecosyste	m Establishme	ent) Subtotal	\$3,213		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Ŷ	2	allow	\$2,500		\$5,000		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use b an alternate land-user - D6 Dozer (o similar) @ -\$200 per hour and past grass.
				N	later Managem	ent Subtotal	\$5,000		
			Mainte	enance of R	ehabilitated Are	eas Subtotal	\$0		
					Additional Ite	ms Subtotal	\$0		
Total Cost for Infrastructure Domain								\$9,795	

Domain 2a: Tailings & Rejects

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

\$0

Additional Assumptions: Record an	y relevant assumptions to this domain below	<i>I</i> :							
								tation Area Data for Domain	Enter data below manually
								Total Landform Establishment:	
							Tota	al Growth Media Development:	
							То	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:
				Conta	minated Mater	als Subtotal	\$0		
		Earthworks / S	tructural Work	s (Landfor	m Establishme	ent) Subtotal	\$0		
		Earthworks / S	tructural Work	s (Landfor	m Establishme	ent) Subtotal	\$0		
					Mine Wa	ste Subtotal	\$0		
	Land Preparation and Revegetation	(Growth Media De	velopment and	d Ecosyste	m Establishme	ent) Subtotal	\$0		
	· · · ·	·	•	, v	later Managem	ent Subtotal	\$0		
			Mainter		ehabilitated Ar				
					Additional Ite	ms Subtotal	\$0		
	Total Cost f	or Tailings	& Rejec	ts Do	main			\$0	

#### Domain 3a: Overburden & Waste

#### Total Cost for Overburden & Waste Domain

\$1,890

								litation Area Data for Domain Total Landform Establishment:	Enter data below manually
								tal Growth Media Development:	
								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:
					minated Mater		\$0		
					Roads and Tra	cks Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Minor reshaping and pushing	Y	0.2	ha	\$3,900		\$780		D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y	0.2	ha	\$1,130.00		\$226		Undertaken using D10 dozer and 16 grader.
	E	arthworks / S	structural Wo	rks (Landfor	m Establishme		\$1,006		
	n	-		1	Mine Wa	ste Subtotal	\$0		<b>I</b>
Land Preparation and Revegetation (Growth Media Development and Ecosystem	Direct seeding / fertiliser (pasture grass species)	Y	0.2	ha	\$1,875		\$375		Includes treating, weighing, mixing w fertiliser + spreading by tractor or helicopter (aerial seeding).
Establishment)	Single application of fertiliser (pasture)	Y	0.2	ha	\$420.00		\$84		Assumes 250 kg / ha. These rates ha fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand et this is a suitable standard rate.
	Land Preparation and Revegetation (Gro	wth Media De	velopment a				\$459		
				N	later Managem	ent Subtotal	\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	0.2	ha	\$925		\$185		Rehabilitation maintenance might include re-seeding, watering, fertilisin minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y	0.2	ha	\$1,200		\$240		Areas requiring minor repair - rills, minor growth media replacement.
			Mainte	enance of R	ehabilitated Ar		\$425		
					Additional Ite	ms Subtotal	\$0		
	Total Cost for O	verburd	len & W	aste D	omain			\$1,890	1
								. ,	

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

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

\$13,619

								litation Area Data for Domain Total Landform Establishment	
								tal 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:
		_			Open	Cut Subtotal	\$0		
Earthworks / Structural Works (Landform Establishment)	Minor reshaping and pushing	Y	0.7	ha	\$3,900		\$2,730	Active mining pit	D10 Dozer @ \$400 per hour and 16 grader @ \$230 per hour (50% utilisation).
	E	arthworks / S	tructural Wor	rks (Landfor	m Establishme	ent) Subtotal	\$2,730		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Direct seeding / fertiliser (pasture grass species)	Y	2.8	ha	\$1,875		\$5,250	Active pit (0.7 Ha) plus newer eastern area (2.1Ha) that is already shaped	Includes treating, weighing, mixing w fertiliser + spreading by tractor or helicopter (aerial seeding).
	Single application of fertiliser (pasture)	Y	2.8	ha	\$420.00		\$1,176	Active pit (0.7 Ha) plus newer eastern area (2.1Ha) that is already shaped	Assumes 250 kg / ha. These rates ha fluctuated over the last few years however in light of current conditions (lower fuel prices, reduced demand e this is a suitable standard rate.
	Land Preparation and Revegetation (Gro	wth Media De	velopment ar	nd Ecosyste	m Establishme	ent) Subtotal	\$6,426		• •
					ater Managem		\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y	2.1	ha	\$925		\$1,943	Historical rehabilitation to the west of pit (1.5Ha) and north (0.6Ha)	Rehabilitation maintenance might include re-seeding, watering, fertilisin minor re-shaping, erosion control, inspections/audits - does not include major repair works.
	Existing rehabilitation repair - minor	Y	2.1	ha	\$1,200		\$2,520	Historical rehabilitation to the west of pit (1.5Ha) and north (0.6Ha)	Areas requiring minor repair - rills, minor growth media replacement.
			Mainte	enance of Re	ehabilitated Ar	eas Subtotal	\$4,463		
					Additional Ite	ems Subtotal	\$0		
Total Cost for Active Mine & Voids Domain								\$13,61	9

#### Domain 5a: Management Activities

## **Total Cost for Management Activities**

\$30,630

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 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)	N		ML	\$3,600				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.
				Wa	ater Managem	ent Subtotal	\$0		
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	N		m	\$2,500				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	N		m	\$1,500				Assumes maintenance has been kept 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.
					Creek Diversie	ons Subtotal	\$0		
Maintenance of Rehabilitated Areas	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y	6.6	ha	\$150.00		\$990	The landowner maintains land outside disturbed area. Only area considered is the disturbed portion of the ML.	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	6.6	ha	\$400.00		\$2,640	The landowner maintains land outside disturbed area. Only area considered is the disturbed portion of the ML.	Undisturbed areas within the lease boundary that require land management activities.
			Mainte	enance of Re	habilitated Ar	eas Subtotal	\$3,630		
Heritage Items	The restoration and care and maintenance of items that have heritage significance	N		allow	Use alternate rate cell				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	N		allow	\$100,000				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, demoiliton, etc. Costs to finalise options by domain and finalise degings 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 >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 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 >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 pipe work etc
	Removal and disposal of radiation devices	N		each	\$31,630				Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Piutonium – 238, Caesium - 137 etc). Source Isotope type, quantity, strength, 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	N		allow	Use alternate rate cell				Provisional sum.
Mobilisation and Demobilisation			I	، ۱	Sundry Ite	ems Subtotal	\$15,000		
	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 Items		•·	Mo	bilisation and	d Demobilisat	tion Subtotal	\$12,000		This item includes < <to added="" be="" by<="" td=""></to>
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**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	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
ermination 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 demolish and remove bridge supports/pylons/bridge structure etc. and dispose of waste material on-site/locally	Y		Item	\$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 demoilsh 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
Collapse, Cut and Remove 1250 T coal silo and disposal on-site/locally	Y	allow	\$62,500	\$0	disposal facility or equivalent. Collapse structure and remove. Does not include transport to regional
Collapse, Cut and Remove rail loading bins and disposal on-site/locally	Y	allow	\$65,000	\$0	disposal facility or equivalent. Collapse structure and remove. Does not include transport to regional disposed facility or equivalent
Demolish and Remove large concrete rail loading bin - and disposal on-site/locally	Y	allow	\$460,000	\$0	disposal facility or equivalent. 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 dismantiling for reuse at another site) and disposal on-site/locally	Y	m	\$185.00	\$0	asposal raciity or equivalent. 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)			\$130.00	÷	attached. Assumes this area will be used for another land-use that requires the
Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y	m	\$950.00	\$0	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								Breaking up slab and disposal or for
thickness) and disposal on-site/locally	Y		m2	\$36.00		\$0		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-	Y		m	\$20.00		\$0		Roll up fence and remove posts.
	Y		each	\$1,000.00		\$0		Remove small poly tanks used for water
Demolish and remove galvanised/corrugated light weight tanks	Y		each	\$500.00		\$0		storage, etc. Demolish and remove small lightweight metal tanks. No costs included for
Demolish and remove communication towers	Y		each	\$5,000.00		\$0		managing liquids, etc. 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.
	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 include growth media and revegetation	Y		ha	\$2,860		\$0		D10 Dozer and 16 H Grader (50% utilisation).
			Ra	ail Infrastruct	ure Subtotal	\$0		
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., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pi-top facilities (i.e., vehicle re- fuel, sewage treatment, secondary workshop, chemical storage etc.)
	thickness) and disposal on-site/locally Crush concrete to make road aggregate - 75 mm Crush concrete to make road aggregate - 30 mm Remove fence (cyclone/wire fence) and disposal on- site/locally Removal of small plastic tanks Demolish and remove galvanised/corrugated light weight tanks Demolish and remove communication towers Removal of UG services (power within main gate areas, etc.) Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km Waste disposal to Council landfill (general waste) - haulage >15 km but <25 km Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km Waste disposal to Council landfill (general waste) - haulage >25 km but <50 km Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10 km but <15 km Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km Waste disposal to Council landfill - fees (general waste) Waste disposal to Council landfill - fees (general waste) Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage >25 km but <50 km Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) Nualee >25 km but <50 km Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) Nul <15 Km 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 suides	thickness) and disposal on-site/iocally  Tush concrete to make road aggregate - 75 mm  Crush concrete to make road aggregate - 30 mm  Crush concrete to make road aggregate - 30 mm  Crush concrete to make road aggregate - 30 mm  Y  Remove fence (cyclonel/wire fence) and disposal on- site/locally  Y  Remove fence (cyclonel/wire fence) and disposal on- site/locally  Y  Removal of small plastic tanks  Y  Demolish and remove galvanised/corrugated light  Y  Removal of UG services (power within main gate areas, etc.)  Waste disposal to Council landfill (general waste) - haulage >10 km but <15 km  Waste disposal to Council landfill (general waste) - haulage >10 km but <25 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >10  Km but <50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >15  Km but <25 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25  Km but <50 km  Waste disposal to Council landfill (industrial demolition / concrete / scrap metal) - haulage >25  Km but <50 km  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (general waste)  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal) - haulage >25  Y  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)  Audity - Stem  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)  Audity - Stem  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)  Audity - Stem  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)  Audity - Stem  Waste disposal to Council landfill - fees (industrial demolition / concrete / scrap metal)  Audity - Stem  Cundertake a preliminary site investigation (Phase 1), This accounts for current and histori	thickness) and disposal on-site/iocally  Crush concrete to make road aggregate - 75 mm  Crush concrete to make road aggregate - 30 mm  Crush concrete to make road aggregate readows  Crush concrete to make road aggregate - 30 mm  Crush concrete to make road aggregate - 30 mm  Crush concrete to make road aggregate - 30 mm  Crush concrete to concol landfill (refustrial demolitor / concrete / scrap metal) - haulage > 15  Remove rail loco concil landfill - fees (industrial demolitor / concrete / scrap metal) - haulage > 15  Remove rail loco and spur, ballast etc. and disposal or site/locally  Reshape rail sput and load out areas. Does not refuence reado and revegetation  Crushape	Indexess) and disposal on-site/locally     Image: Ima	mickness) and disposal on-site/ocally     r     mick     S13.00       Crush concrete to make road aggregate - 75 mm     Y     tonne     \$10.00       Crush concrete to make road aggregate - 50 mm     Y     tonne     \$13.00       Crush concrete to make road aggregate - 30 mm     Y     tonne     \$13.00       Crush concrete to make road aggregate - 30 mm     Y     m     \$20.00       Remove frame (cyclonel/wire fence) and disposal on- thelocally.     Y     m     \$20.00       Removal of small plastic tarks     Y     each     \$50.00.00       Denolish and remove galvanised/corrugated light     Y     each     \$50.00.00       Removal of small plastic tarks     Y     allow     \$50.00.00       Removal of LUG services (power within main gate areas, etc.)     Y     allow     \$50.00.00       Waste disposal to Council landill (general waste) - hualage > 10 km but < 15 km	halchoes) and disposal on-site/foodly in the set of the	minimized segment on water load segments - 75 mm     Y     Imm     11000     11000     1000       Cach concretes to make road aggregate - 75 mm     Y     Imm     10000     11000     1000       Cach concretes to make road aggregate - 75 mm     Y     Imm     10000     10000       Cach concretes to make road aggregate - 75 mm     Y     Imm     10000     10000       Cach concretes to make road aggregate - 75 mm     Y     Imm     10000     10000       Cach concretes to make road aggregate - 75 mm     Y     Imm     10000     10000       Cach concretes to make road aggregate - 75 mm     Y     Imm     10000     10000       Semodia than diggregate thats     Y     Imm     10000     10000     10000       Demodia than diggregate thats     Y     Imm     10000     10000     10000       Demodia than diggregate to concol incelling eneral wate) - Y     Imm     100000     10000     10000       Wate diggrocal to Concol incelling eneral wate) - Y     Y     Imm     100000     10000       Wate diggrocal to Concol incelling eneral wate) - Y     Y     Imm     100000     100000       Wate diggrocal to Concol incelling eneral wate) - Y     Y     Imm     100000     100000       Wate diggrocal to Concol incelling eneral wate) - Y     Y <td>hickness and depend or skedecty is a set of the set of</td>	hickness and depend or skedecty is a set of the set of

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 (EPA ct 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/vater 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 (tex 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 urrent 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 Erwironmental 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. 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 SAOP, 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 foctprint 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. Where an assessment/estimation has
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. Assumes ASS is treatable via
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.

	Removal and disposal of plastic liner (i.e. dam,								
	leach pad, sump etc.)	Y		m2	\$1		\$0		Provisional sum for cutting using rippin 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 \$78.2 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 tank Add disposal costs to additional items
			- -	Contan	ninated Mater	ials Subtotal	\$0		
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 20 m drill pad requires rehabilitation - push cover of nearby growth media, ri 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 - 2 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 use 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		Item	\$2,070		\$0		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 fillin 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 cappe collar and cover with nearby organic o growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor		1		s and Boreho	oles Subtotal	\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up	Y		ha	\$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
	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	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation) - native tree/shrub seed
	seed (native tree/shrub/grass)								
	seed (native tree/shrub/grass) 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	
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally	Y		-		cks Subtotal	\$0		removal of the volume of stabilised material from the road, laydown or ot surface using an excavator, dozer and grader to enable the establishment of rehabilitation.
Earthworks / Structural Works (Landform Establishment)	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally	Y		-	List	cks Subtotal	\$0	Select Haul Distance Here Select Push Length Here	removal of the volume of stabilised material from the road, laydown or ot surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing			R	List oads and Tra Select from	cks Subtotal	\$0 \$0		removal of the volume of stabilised material from the road, laydown or ol surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation).
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y		<b>R</b> m3	List oads and Tra Select from List	cks Subtotal			removal of the volume of stabilised material from the road, laydown or ott surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation	Y Y		m3 ha	List oads and Tra Select from List \$3,900	cks Subtotal	\$0		removal of the volume of stabilised material from the road, laydown or ot surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for ~4 hours each pe
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Fill dams, voids etc Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (Select Haul	Y Y Y		m3 ha ha	List oads and Tra Select from List \$3,900 \$1,600 Select from	cks Subtotal	\$0	Select Push Length Here	removal of the volume of stabilised material from the road, laydown or ol surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for ~4 hours each pe ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling /	Y Y Y Y		R m3 ha ha m3	List Select from List \$3,900 \$1,600 Select from List	cks Subtotal	\$0 \$0	Select Push Length Here	removal of the volume of stabilised material from the road, laydown or ott surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for -4 hours each pe ha. This item includes the volume of material reguing backful using an excavator and scraper to fill the void and enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures Fill dams, voids etc Source local material, cart and spread to cap or backfil, cap thickness determined by approval / permit (Select Haul Distance from List) Shotcrete application on cuttings and steep slopes	Y Y Y Y Y		R m3 ha m3 m3 m2	List oads and Tra Select from List \$3,900 \$1,600 Select from List \$185.00	cks Subtotal	\$0 \$0 \$0	Select Push Length Here	removal of the volume of stabilised material from the road, laydown or oll surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for ~4 hours each pe ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y Y Y Y Y		R m3 ha m3 m3 m2 ha	List Select from List \$3,900 \$1,600 Select from List \$185.00 \$1,130.00	cks Subtotal	\$0 \$0 \$0 \$0 \$0	Select Push Length Here	removal of the volume of stabilised material from the road, laydown or dt surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for ~4 hours each pe ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised. Undertaken using D10 dozer and 16M grader. D10 deep ripping. Installation of on-site rock material (rij rap) where managing water run-off fro disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent
(Landform Establishment)	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y Y Y Y		R m3 ha m3 m3 m2 ha ha ha m2	List Select from List \$3,900 \$1,600 Select from List \$185.00 \$1,130.00 \$960.00 \$27.00		\$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here Select Haul Distance Here	removal of the volume of stabilised material from the road, laydown or dt surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for ~4 hours each pe ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised. Undertaken using D10 dozer and 16M grader. D10 deep ripping. Installation of on-site rock material (rij rap) where managing water run-off for disturbed land and/or upon entry to water courses - prevents erosion of guily head (assumes competent material is locally available). If require additional \$20/m2.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list) Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length Minor reshaping and pushing Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures 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) Shotcrete application on cuttings and steep slopes Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction) Deep rip hard stand / lay down areas Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y Y Y Y Y Y Y	Structural Wor	R m3 ha m3 m3 m2 ha ha ha m2	List Select from List \$3,900 \$1,600 Select from List \$185.00 \$1,130.00 \$960.00 \$27.00		\$0 \$0 \$0 \$0 \$0 \$0 \$0	Select Push Length Here	removal of the volume of stabilised material from the road, laydown or oth surface using an excavator, dozer and grader to enable the establishment of rehabilitation. Major bulk pushing to achieve grades nominated in the approval/permit D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50% utilisation). Combination of dozer and excavator work plus grader for -4 hours each per ha. This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation. This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised. Undertaken using D10 dozer and 16M grader. D10 deep ripping. Installation of on-site rock material (in raj) where managing water run-off frod disturbed land and/or upon entry to water courses - prevents erosion of guily head (assumes competent material is locally available). If require

	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	Direct seeding / fertiliser (tree or native grass	Y		ha	\$4,135		\$0		helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	species) Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		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
	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/na. 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	\$1.8 <b>0</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 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.
Mara M	Land Preparation and Revegetation (Gro	wth Media De	evelopment ar	nd Ecosystem	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) 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	Y		allow	\$25,000	ont Cubrati	\$0 <b>\$0</b>		management infrastructure.
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been 'successful'	Y		ha	ster Managem \$925	ient Subtotal	\$U \$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.

Total C		\$0						
	\$0							
		Mainte	enance of Reh	abilitated Ar	eas Subtotal	\$0		
Existing rehabilitation repair - total failure landform	f Y		ha	\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.

#### Domain 2b: Tailings & Rejects

Additional Assumptions: Record any relevant assumptions to this domain below:

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

**\$0** 

Key Rehabilitation Area Data for Domain Enter data below manually Total Growth Media Development: Total Ecosystem Establishment Basis for Costs Estimation Applicable (Y or N) Default Unit Rate Alternative Management Precinct Activity / Description Quantity Unit Total Cost ional 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 re uel, sewage treatment, secondary workshop, chemical storage etc.) 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 388 (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, 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 Sector 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 Y 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 moval and disposal of contaminated water from Y L \$0.35 \$0 inks, bunded areas and sumps eat. Select from List Select Haul Distance Here spillage or otherwise) from footprint of the process acility (leach pads) / stockpile area (ROM product) Y m3 removal of the volume of carbonaceous material using dozer, grader etc. to oad, cart and dispose of Hazardous cla Includes load, haul and dump fees to a contaminated material off site to a licensed landfill Y m3 \$800.00 \$0 icensed facility ssumes cartage to a licensed landfill. oad, cart and disposal of Restricted classified ncludes load, haul and dump fees to a ed landfill. Y \$660.00 \$0 m4 ontaminated material off site to a licensed I add \$50/m3 for cartage from regional areas icensed 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	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.
Roads and Tracks	Unsealed roads / vehicle park-up areas - minor	Y		Contan ha	1,040.00	ials Subtotal	\$0 \$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y		ha	\$1,500		\$0		Grader. D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed	Y		ha	\$3,700		\$0		utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	(pasture grass) Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and	Y		ha	\$4,485		\$0		utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H grader @ \$230 per hour (50%
	seed (native tree/shrub/grass) 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		utilisation) - native tree/shrub seed 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 Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0	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			Select Push Length Here	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)	У		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.
	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.
Mine Waste	E	arthworks / S	Structural Wor	ks (Landforn	n Establishme	ent) Subtotal	\$0		to be sourced off site, assume an
Mine Waste	E 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) / Saine 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)		tructural Wor	<b>ks (Landforn</b> ha	1 Establishme	ent) Subtotal	\$0 \$0		to be sourced off site, assume an
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		tructural Wor			ent) Subtotal			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 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 form runoff. If site haulage longer than 10 km round trip add the volume of the relevant material include to raterial incovers or other works aside from tailings cap, use rate from 9.02 for relevant haulage and spreading in availational to any long

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 constructed in at 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 / 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 costs for tailings cap material included in rate). If additional materials are townsk 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	50	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., capillar) breaks, geofabric, etc.), specific material types (e.g. acid neutralising / consuming materials, di.e., tool / 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 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, arificial strengthening required) OR visible adverse impacts on legacy sites from chemical reactivity over lengthy exposure prior to rehabilitation	¥	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 8.06 (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 materials required for reshaping, capping / sealing of structure to facilitate water quality from	Y		allow	Use alternate		\$0		additional requirements (i.e., geofabric, composite lining etc.). Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or
	runoff, seepage etc. meeting site-specific environment water quality values.				rate cell				additional requirements (i.e., geofabric , composite lining etc.).
	cong naulage soil / weathered rock / sediment e.g. capping/covers. removal of contamination. etc.	Y		m3	List Mine Wa	aste Subtotal	\$0	Select Haul Distance Here	Capping/cover material available within 50 km round trip e.g. 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			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		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with
	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 prepare 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 prepare 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/h 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 currer 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 - Safet 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 - allo nominal rate of \$70/m3 for imported fil material.
	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filling 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 - allo nominal rate of \$60/m3 for imported fil 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	wth Media De	evelopment ar	d Ecosyster	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.
								Select Haul Distance Here	This item includes the volume of

Existing rehabilitation repair - minor       Y       ha       \$1,200       \$0       Areas requiring minor repair - minor, minor growth media replacement.         Existing rehabilitation repair - moderate       Y       ha       \$1,700       \$0       \$0       Areas requiring moderate repair - nills, significant growth media replacement.         Existing rehabilitation repair - major       Y       ha       \$1,700       \$0       \$0       Areas requiring moderate repair - nills, significant growth media replacement.         Existing rehabilitation repair - major       Y       ha       \$2,500       \$0       \$0       Areas requiring moderate repair - nills, guilles, growth media replacement.         Existing rehabilitation repair - total failure of landform       Y       ha       \$40,000       \$0       \$0       Areas that require extensive rehabilitation repair - relesign and reconstruction of landform.         Maintenance of Rehabilitated Areas Subtotal       \$0         Total Cost for Tailings & Rejects Domain       \$0	N	Aaintenance 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 - moderate     Y     na     \$1,700     \$0     significant growth media replacement.       Existing rehabilitation repair - major     Y     ha     \$2,500     \$0     Areas requiring major repair - rills, gullies, 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.       Construction of landform     V     Na     \$40,000     \$0     S0     Areas that require extensive rehabilitation repair - re-design and re-construction of landform.			Existing rehabilitation repair - minor	Y		ha	\$1,200		\$0		
Existing rehabilitation repair - major       Y       ha       \$2,500       \$0       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.         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 - total failure of landform       Y       ha       \$40,000       \$0       Existing rehabilitation repair - re-design and re-construction of landform.         Existing rehabilitation repair - total failure of landform       Existing rehabilitated repair - total failure of landform.       \$0       Existing rehabilitation repair - total failure of landform.         Existing rehabilitation repair - total failure of landform       Existing rehabilitated repair - total failure of landform.       S0       Existing rehabilitation repair - total failure of landform.			Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		
Existing renabilitation repair - total failure or landform     Y     ha     \$40,000     \$0     rehabilitation repair - re-design and re- construction of landform.       Image: Construction of landform     Image: Construction of landform     Image: Construction of landform     Image: Construction of landform       Image: Construction of landform     Image: Construction of landform     Image: Construction of landform     Image: Construction of landform       Image: Construction of landform     Image: Construction of landform     Image: Construction of landform     Image: Construction of landform			Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface water
Additional Items Subtotal \$0				Y		ha	\$40,000		\$0		rehabilitation repair - re-design and re-
					Mainte	enance of Rel	nabilitated Ar	eas Subtotal	\$0		
Total Cost for Tailings & Pojects Domain \$0							Additional Ite	ms Subtotal	\$0		
			Total Cost for 1			\$0					

#### Domain 3b: Overburden & Waste

#### Total Cost for Overburden & Waste Domain

\$0

								tation Area Data for Domain	Enter data below manually
								Total Landform Establishment: al Growth Media Development:	
								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:
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 19 weight lime addition and treatment 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 r tynes and on-site disposal of the li
	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 \$7 per tonne and authorised disposal landfill.
	Long haulage water (clean or contaminated) (Select Haul Distance from list)	Y		tonne	Select from List ninated Mater	ials Subtotal	\$0	Select Haul Distance Here	Assumes transport in a 20,000 L t Add disposal costs to additional it
Roads and Tracks	Unsealed roads / vehicle park-up areas - minor								Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y Y		ha ha	\$1,040.00 \$1,500		\$0 \$0		Grader. D10 Dozer @ \$400 per hour and 1 grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed	Y		ha	\$3,700		\$0		utilisation) - no seed D10 Dozer @ \$400 per hour and 1 grader @ \$230 per hour (50%
	(pasture grass) Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and	Y		ha	\$4,485		\$0		utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and grader @ \$230 per hour (50%
	seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor	Y		ha	\$4,870		\$0		utilisation) - native tree/shrub see D10 Dozer @ \$400 per hour and grader @ \$230 per hour (50%
	earthworks, final trim and deep rip, ameliorate and seed (pasture grass)			na	\$4,010				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 grader @ \$230 per hour (50% utilisation) - native tree/shrub see
	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 ar removal of the volume of stabilise material from the road, laydown o surface using an excavator, dozer grader to enable the establishmen rehabilitation.
	T		1	R	loads and Tra	cks Subtotal	\$0		r
arthworks / 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 grad nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 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 vir and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate st slopes of weathered rock, roadwa cuttings, etc that cannot be cut ba 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 grader.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excava work plus grader for ~4 hours eac 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 materia rap) where managing water run-o disturbed land and/or upon entry water courses - prevents erosion gully head (assumes competent material is locally available). If re
									to be sourced off site, assume an additional \$20/m2.

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 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 constructed in 1 m layers + growth media up to 0.2 m depth. This may require additional materials (such as capiling ythest), 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 / hau/ Jhae/ 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 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.).
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 spontneous 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 / hau/ Jplace / crush / screen / borrow etc.). Costs for haulage of specialised 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 8.05 (spreading costs for tailings cap material in towke up landform, provide buttress or other works aside from tailing scap, 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.).
	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	¥		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 6.05 (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. Long haulage soil / weathered rock / sediment e.g.	Y		allow	Use alternate rate cell Select from		\$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 within
	capping/covers, removal of contamination, etc.	Y		m3	List			Select Haul Distance Here	50 km round trip e.g. waste /
Land Preparation and				1	Mine Wa	aste 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	\$15.00 \$6.60		\$0 \$0		4 m centres. 4 m centres.
		Y			\$1,875		\$0		Includes treating, weighing, mixing with
	Direct seeding / fertiliser (pasture grass species)	Ť		ha	\$1,875		şu		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	<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		\$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	1	m	\$13.00		\$0		Standard rate for standard stock
	areas Purchase and erect warning signs	Y		allow	\$250.00		\$0		fencing. 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		Instanted every 2.5 ml. 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.

	Total Cost for O		lon 9 14		Additional Ite	ems Subtotal	şυ	\$0	
			Mainte		habilitated Ar		\$0 \$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, gullies, growth media replacement, some level of additional surface wate management.
	Existing rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rill significant growth media replacemer
	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, fertilisin minor re-shaping, erosion control, inspections/audits - does not include major repair works.
		•		Wa	ater Managem	ent Subtotal	\$0		
	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 a dozer to clean out the dam.
	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 b 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	Y		allow	\$2,500		\$0		Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for re-use b an alternate land-user - D6 Dozer (or similar) @ -\$200 per hour and pastu grass.
	Land Preparation and Revegetation (Grow	wth Media De	evelopment a	nd Ecosyster	n Establishm	ent) Subtotal	\$0		
	Utilise biotic soil media - organic topsoil alternative	Y		m2	\$2.50		\$0		Material that can be applied as an alternative to spreading topsoil prior hydromulching.
	Growth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	Topsoil stripping	Y		m3	\$4.86		\$0		Stripping or topsoil at an approximate depth of 0.2 m into stockpiles; load a haul to final rehabilitation location required or respreading where necessary.
	Clearing and grubbing of trees and vegetation	Y		ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
	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 Truck (90c/km) from imported stockpile - a nominal rate of \$60/m3 for imported material.

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

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

\$0

							Key Renabilit	ation Area Data for Domain	Enter data below manually
								otal Landform Establishment:	
								I Growth Media Development: tal Ecosystem Establishment:	
		Appliechle			Default Unit	Alternative		Basis for Costs Estimation	
Management Precinct Open Cut	Activity / Description	Applicable (Y or N)	Quantity	Unit	Rate	Unit Rate	Total Cost	and Additional Relevant Information	Description / Notes:
	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 <b>\$0</b>		D10 dozer, 16H Grader and revegetation with pasture grass.
Earthworks / Structural Works			[		Open	Cut 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).
	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	arthworks / S	tructural Wor	ks (Landforr	n Establishme	ent) Subtotal	\$0	Onland Hand Distance Hand	
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		4 m centres.
	Planting tube stock (<15 cm) Direct seeding / fertiliser (pasture grass species)	Y Y		allow ha	\$6.60 \$1,875		\$0 \$0		4 m centres. 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
							<b>Ş</b> U		helicopter (aerial seeding).
	Hydro-seeding with straw mulching and bitumen tack with native seed	Y		m2	\$1.90		\$0		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
		Y		m2 m2					Process to be used on flat well preparec 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 preparec surfaces under irrigation e.g. sewage
	tack with native seed Hydro-seeding with straw mulching and bitumen				\$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 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
	tack with native seed Hydro-seeding with straw mulching and bitumen tack with pasture seed Hydromulch - base grade or standard for flat areas	Y		m2	\$1.90 \$0.43		\$0 \$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 Process to be used on flat well prepared surfaces under 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.
	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	Y		m2 m2	\$1.90 \$0.43 \$0.80		\$0 \$0 \$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 Process to be used on flat well prepared surfaces under 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 minhs) 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 -3500kg/ha.

Spoil a growth Securi Purcha Supply virgin from its cec. Clearin Topsoi Growth	II amelioration of fertiliser (trees) II amelioration (adding lime / gypsum etc.) with media amelioration with biosolids urity fence around steep section of high wall chase and erect warning signs ply from external sources a combination of n excavated natural material (VENM) and spoil large excavation for filing voids and/or capping tring and grubbing of trees and vegetation soil stripping	Y Y Y Y Y Y		ha ha m allow	\$140.00 \$1,000.00 \$1,015 \$64.00 \$250.00		\$0 \$0 \$0 \$0		last few years however in light of curren conditions (lower fuel prices, reduced demand etc) this is a suitable standard rate. Assumes 2.5 t / ha as an average application rate. Recent experience with agronomy projects. 1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mm
growth Securi Purcha Supply virgin from it etc. Clearin Topsoi Growth Utilise	wh media amelioration with biosolids urity fence around steep section of high wall chase and erect warning signs ply from external sources a combination of n excavated natural material (VENM) and spoil I large excavation for filing voids and/or capping arring and grubbing of trees and vegetation	Y Y Y Y		ha m	\$1,015 \$64.00		\$0		application rate. Recent experience with agronomy projects. 1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mm
Securi Purcha Supply virgin I from I etc. Clearin Topsol Growtl Utilise	urity fence around steep section of high wall chase and erect warning signs ply from external sources a combination of n excavated natural material (VENM) and spoil large excavation for filing voids and/or capping uring and grubbing of trees and vegetation	Y Y Y		m	\$64.00				projects. 1800mm x 3 barb chain-link mesh security fence and gate standard 2.5mn
Purcha Supply virgin from lie etc. Clearin Topsoi Growth Utilise	chase and erect warning signs ply from external sources a combination of n excavated nutral material (VENM) and spoil I large excavation for filing voids and/or capping ming and grubbing of trees and vegetation	Y Y					\$0		security fence and gate standard 2.5mm
Supply virgin, i from la etc. Clearin Topsoi Growt Utilise	ply from external sources a combination of n excavated natural material (VENM) and spoil I large excavation for filing voids and/or capping arring and grubbing of trees and vegetation	Y		allow	\$250.00			1	mesh & 32 mm post not concreted
virgin from la etc. Ciearin Topsol Growti Utilise	n excavated natural material (VENM) and spoil large excavation for filing voids and/or capping aring and grubbing of trees and vegetation						\$0		Compliance with AS 1319-1994 - Safet signs for the occupational environment installed every 25 m.
Topsol Growtt Utilise L£		Y		m3	\$72.50		\$0		D10 push into void at \$270/hr, Excavator (\$220/hr) load Artic Trucks (90c/km) from imported stockpile - allor nominal rate of \$60/m3 for imported fill material.
Growti Utilise L£	soil stripping			ha	\$4,730.00		\$0		Clearing and grubbing of light vegetation growth e.g. regrowth
Utilise		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.
La	wth media supplementation with manure	Y		ha	\$747.50		\$0		Addition of manure to improve soil quality.
	se 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	evelopment ar	nd Ecosystem	n Establishme	ent) Subtotal	\$0		Provisional sum for earthworks and
decom	an water dams to be retained after mmissioning – make safe and minor hworks	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.
after m	je clean water dams (i.e. ≥ 2 ha) to be retained r mine closure – make safe and minor hworks	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.
enable	nove sediments from the floor of the dam to ole it to be converted into clean water structure ect 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.
		T		Wa	ter Managem	ent Subtotal	\$0		
	ntenance of areas that have been shaped and led 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.
Existin	ting rehabilitation repair - minor	Y		ha	\$1,200		\$0		Areas requiring minor repair - rills, minor growth media replacement.
Existin	ting rehabilitation repair - moderate	Y		ha	\$1,700		\$0		Areas requiring moderate repair - rills, significant growth media replacement.
Existin	ting rehabilitation repair - major	Y		ha	\$2,500		\$0		Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
Existin Iandfo		v		ha					
	ting rehabilitation repair - total failure of form	Y			\$40,000		\$0		Areas that require extensive rehabilitation repair - re-design and re- construction of landform.
		Ŷ	Mainte	enance of Rel			\$0 \$0 \$0		rehabilitation repair - re-design and re-

# Domain 5b: Management Activities

# **Total Cost for Management Activities**

**\$0** 

Additional Assumptions: Recor	d any relevant assumptions to this domain below:						Koy Bobobilit	ation Area Data for Domain	Enter data below manually
							Т	otal Landform Establishment:	Enter data below manually
								I Growth Media Development: al Ecosystem Establishment:	
									1
		Annlieghle			Default Linit	Alternative		Basis for Costs Estimation	
Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default 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				Wa	ter Managem	ent Subtotal	\$0		Assumes material is suitable for
	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		revegetating and has a reasonable chance of stabilising. Assumes maintenance has been kept
	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		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 Diversie	ons Subtotal	\$0		roomon.
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.
	on non nonco		Mainte	enance of Rel	nabilitated Ar	eas Subtotal	\$0		don moo.
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
					Heritage Ite	ms 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 // pli takes, preliminary seal designs, etc. and only finalisation of detailed engineering deigns required	Y		allow	\$100,000		\$0		Costs to finalise options by domain and finalise designs for construction. Assume a simple site e.g. single open out, 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	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 trisks 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 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.

	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		\$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 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 others) 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.
Additional Items		1	Мо	bilisation and	d Demobilisat	tion Subtotal	\$0		This item includes < <to added="" be="" by<="" td=""></to>
Additional tiems	Other 1 <insert> Other 2 <insert></insert></insert>	N			This is deliberately				the operator>> This item includes < <to added="" be="" by<="" td=""></to>
								1	the operator>>
	Other 3 <insert></insert>	N			left blank				This item includes < <to added="" be="" by="" operator="" the="">&gt;</to>
					Additional Ite	ems Subtotal	\$0	\$0	This item includes < <to added="" be="" by<="" td=""></to>

**Domain 1c: Infrastructure** 

# **Total Cost for Infrastructure Domain**

**\$0** 

							Tota	tation Area Data for Domain Fotal Landform Establishment: al Growth Media Development: btal 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:	
Fermination 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 ti point of attachment or distribution location. If infrastructure is not consolidated (i.e., administration, car and workshops are in separate place 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 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 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		ltem	\$350,000		\$0		Smaller structures - minimal civil wo to demolish (constructed for the purposes of mining related works - d 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. and dispose of waste material on-site/locally	Y		Item	\$500,000		\$0		Medium structures - minimal civil wo to demolish (constructed for the purposes of mining related works - c not include transport to regional disposal facility or equivalent).	
	Remove large / significant rail, road, water course								Large structures - includes significa water management e.g. watercours	

Remove medium 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	\$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.
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 attached.
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 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

								Breaking up slab and disposal or for
	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00		\$0	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		Term	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 include growth media and revegetation	Y		ha	\$2,860		\$0	 D10 Dozer and 16 H Grader (50% utilisation).
Contaminated Materials				R	ail Infrastruct	ture Subtotal	\$0	
	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., 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.)
	L			<u> </u>				<u> </u>

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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.	¥	Cluste	\$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 smail area e.g10-15 ha requires investigation and testing (text 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	Cluste	\$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 hanlysis 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 types and on-site disposal of the liner.

Vents, Shafts and Boreholes	Brine disposal to landfill - fees only Long haulage water (clean or contaminated) (Select Haul Distance from list) Option 1 - Coal bore hole Exploration boreholes – rehabilitate coal boreholes	Y Y		tonne					Date for trackable liquid loss of \$70
Vents, Shafts and Boreholes	Haul Distance from list) Option 1 - Coal bore hole	Y			\$288		\$0		Rate for trackable liquid levy of \$78. per tonne and authorised disposal to landfill.
Vents, Shafts and Boreholes				tonne	Select from List			Select Haul Distance Here	Assumes transport in a 20,000 L tar Add disposal costs to additional iten where warranted
		l	1	Contan	ninated Mater	ials Subtotal	\$0		Cost to grout and cap an open
	and drill pads as required	Y		depth (m)	\$44.55		\$0		exploration borehole. Assume a 20 20 m drill pad requires rehabilitation push cover of nearby growth media, 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 dr cuttings. Does not include reshapin 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 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 surfa- 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 preve aquifer mixing.
	Boreholes – cap and seal service boreholes for UG coal operations	Y		allow	\$45,000		\$0		Includes large diameter boreholes 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 cuttings, remove fencing, remove rubbish, push sumps in, rehabilitate pads and tracks, cut an plug collars. Includes labour and equipment, disposal of rubbish loca 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 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 ca collar and cover with nearby organi growth material
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor		1		s and Boreho	oles Subtotal	\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds –	Y Y		ha ha	\$1,040.00 \$1,500		\$0 \$0		Grader. D10 Dozer @ \$400 per hour and 1 grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed	Y		ha	\$3,700		\$0		utilisation) - no seed D10 Dozer @ \$400 per hour and 1 grader @ \$230 per hour (50%
	(pasture grass) Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and	Y		ha	\$4,485		\$0		utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 1 grader @ \$230 per hour (50%
	seed (native tree/shrub/grass) Unsealed roads / haul roads / vehicle park-up areas with windrows and/or small earthen bunds – Minor								utilisation) - native tree/shrub seed D10 Dozer @ \$400 per hour and 1
	earthworks, final trim and deep rip, ameliorate and seed (pasture grass)	Y		ha	\$4,870		\$0		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 1 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 an removal of the volume of stabilised material from the road, laydown o surface using an excavator, dozer grader to enable the establishmen
arthworks / Structural Works				R	oads and Tra	cks 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 grad nominated in the approval/permit
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		D10 Dozer @ \$400 per hour and 1 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 excavat work plus grader for ~4 hours each 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 vo and enable the establishment of rehabilitation.
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		This rate is used to rehabilitate ste slopes of weathered rock, roadway cuttings, etc that cannot be cut ba- and stabilised.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y	ļ	ha	\$1,130.00		\$0		Undertaken using D10 dozer and 7 grader.
	Deep rip hard stand / lay down areas	Y	<u> </u>	ha	\$960.00		\$0		D10 deep ripping. Installation of on-site rock materia
	Construction of spine drains / drop structures and/or	Y		m2	\$27.00		\$0		Installation of on-site rock materia rap) where managing water run-of disturbed land and/or upon entry h water courses - prevents erosing gully head (assumes competent material is locally available). If req to be sourced off site, assume an additional \$20/m2.
	stabilising water course entry points - required for large catchments		1						
	large catchments	arthworks / S	Structural Wor	ks (Landforn	n Establishm	ent) Subtotal	\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem	large catchments	arthworks / S Y	itructural Wor	r <b>ks (Landforn</b> m3	n Establishm Select from List	ent) Subtotal	\$0	Select Haul Distance Here	If topsoil is not available on-site, th Virgin Excavated Natural Material (VENM) may need to be externally
Revegetation (Growth Media	large catchments E Source, cart and spread growth media (Select Haul		tructural Wor		Select from	ent) Subtotal	<b>\$0</b> \$0	Select Haul Distance Here	Virgin Excavated Natural Material
Revegetation (Growth Media Development and Ecosystem	large catchments E Source, cart and spread growth media (Select Haul Distance from List)	Y	Structural Wor	m3	Select from List	ent) Subtotal		Select Haul Distance Here	Virgin Excavated Natural Material (VENM) may need to be externally sourced.

	Hydro-seeding with straw mulching and bitumen	v			<b>61 00</b>				Process to be used on flat well prepared surfaces under irrigation e.g. sewage
	tack with native seed	Y		m2	\$1.90		\$0		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 -
	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
	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		material. 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
	Land Preparation and Revegetation (Grow		evelopment ar			ent) Subtotal	\$0		hydromulching.
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	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) + pasture grass. This item includes the volume of
	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				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	ater Managem	nent 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. 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,
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		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		habilitated Ar Additional Ite		\$0 \$0		
	Total Cost fo	r Infras	structure	e Doma	in			\$0	

#### **Domain 2c: Tailings & Rejects**

Additional Assumptions: Record any relevant assumptions to this domain below:

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

\$0

Key Rehabilitation Area Data for Domain Enter data below manually Total Growth Media Development: Total Ecosystem Establishment Basis for Costs Estimation Applicable (Y or N) Default Unit Rate Alternative Management Precinct Activity / Description Quantity Unit Total Cost ional 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 sampling as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 2 intrusive investigation (EP Act Section 388 (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, 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 Sector 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 ect 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 Includes load, haul and dump fees to a licensed facility. contaminated material off site to a licensed landfill. Y \$800.00 \$0 m3

Assumes cartage to a licensed landfill.

	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)	у		m3	Select from List			Select Volume Here	Spreading or containinated solis 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 orranaic chemicals – time frame of un to
	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.
				Contan	ninated Mater	ials 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 Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$1,500		\$0		grader @ \$230 per hour (50% utilisation) - no seed D10 Dozer @ \$400 per hour and 16 H
	(pasture grass) Unsealed roads / vehicle park-up areas – Minor	Y		ha	\$3,700		\$0		grader @ \$230 per hour (50% utilisation) - pasture grass seed D10 Dozer @ \$400 per hour and 16 H
	earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	Y		ha	\$4,485		\$0		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	rms terr 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 rebabilitation
	E	arthworks / S	Structural Wo	ks (Landforn	n Establishme	ent) 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)	У		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.
	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 enthuarico / S	tructural Wo	m2	\$27.00	nni) Subsatal	\$0 \$0		Installation of on-site rock material (rip- 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				KS (Editatori	Lotablionin	city oubtotal	<i>.</i>		
	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) / Saine 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, molisture 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). 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.
1	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from	Y		allow	Use alternate		\$0		Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or

									_
	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 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 cells 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 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 materials 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		50		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 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 / hau/ 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 tailings cap material ito 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. Long naulage soil / weathered rock / sediment e.g.	Y		allow m3	Use alternate rate cell Select from		\$0	Select Haul Distance Here	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 within
	capping/covers, removal of contamination, etc.	ı .	1	I	List Mine Wa	aste Subtotal	\$0	Select haur Distance nere	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			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		ha	\$1,875		\$0		Includes treating, weighing, mixing with fertiliser + spreading by tractor or helicopter (aerial seeding).
1		1	1						Includes treating, weighing, mixing with
	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	\$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	Y		m	\$22.00		\$0		Standard rate for no-climb stock
	areas Construct standard stock fence around rehabilitated	Y		m	\$13.00		\$0		fencing. Standard rate for standard stock
	areas	-			•••••				fencing. Compliance with AS 1319-1994 - Safety
	Purchase and erect warning signs	Y		allow	\$250.00		\$0		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
	Land Preparation and Revegetation (Gro		velopment			ent) Subtotal	\$0		hydromulching.
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	- stopment af	allow	\$2,500		\$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.
	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	oont Subtotal	\$0	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				vva	ator Managem	Sin Subtotal			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,
	Existing rehabilitation repair - major	Y		ha	\$2,500		\$0		gullies, growth media replacement, some level of additional surface water management. Areas that require extensive
	Existing rehabilitation repair - total failure of landform	Y		ha	\$40,000		\$0		rehabilitation repair - re-design and re- construction of landform.
			Mainte		habilitated Ar		\$0 \$0		
	Total Cost for	Tailings	& Roio		Additional Ite	ents ouptotal	φu	\$0	
		annys	aneje		nani			φU	

#### Domain 3c: Overburden & Waste

#### Total Cost for Overburden & Waste Domain

**\$0** 

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

							Т	otal Ecosystem Establishment:	1
								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 Information	Description / Notes:
Contaminated Materials								mormation	Assumes ASS is treatable via
	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		neutralisation and does not require capping and isolation. Assumes 19
		-			+_,		**		weight lime addition and treatment
									100 mm depth only.
	Removal and disposal of plastic liner (i.e. dam,	Y		m2	\$1		\$0		Provisional sum for cutting using r
	leach pad, sump etc.)	1		1112	•••		\$0		tynes and on-site disposal of the li
	Long haulage brine/salt for disposal (Select Haul	Y		tonne	Select from			Select Haul Distance Here	Costs for haulage to location f
	Distance from list)				List				authorised disposal. Rate for trackable liquid levy of \$7
	Brine disposal to landfill - fees only	Y		tonne	\$288		\$0		per tonne and authorised disposal
					0-1				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 Add disposal costs to additional
				Contan	ninated Materi	ials Subtotal	\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas - minor	Y		ha	\$1,040.00		\$0		Assumes ~6 m road width - 16H
	works including deep rip and trim			na	\$1,010.00		ţŭ		Grader.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds -	Y		ha	\$1,500		\$0		D10 Dozer @ \$400 per hour and 1 grader @ \$230 per hour (50%
	minor earthworks and deep rip and trim			na	\$1,000				utilisation) - no seed
	Unsealed roads / vehicle park-up areas - Minor								D10 Dozer @ \$400 per hour and 1
	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								D10 Dozer @ \$400 per hour and 1
	earthworks, final trim and deep rip, ameliorate and	Y		ha	\$4,485		\$0		grader @ \$230 per hour (50%
	seed (native tree/shrub/grass)								utilisation) - native tree/shrub seed
	Unsealed roads / haul roads / vehicle park-up areas								D10 Dozer @ \$400 per hour and
	with windrows and/or small earthen bunds - Minor earthworks, final trim and deep rip, ameliorate and	Y		ha	\$4,870		\$0		grader @ \$230 per hour (50%
	seed (pasture grass)								utilisation) - pasture grass seed
	Unsealed roads / haul roads / vehicle park-up areas								
	with windrows and/or small earthen bunds – Minor	Y		ha	\$7,025		\$0		D10 Dozer @ \$400 per hour and grader @ \$230 per hour (50%
	earthworks, final trim and deep rip, ameliorate and			na	\$7,025		şu		utilisation) - native tree/shrub see
	seed (native tree/shrub/grass)								
								Select Haul Distance Here	This item includes the scraping an
	Remove stabilised material (blue metal, aggregate				Select from				removal of the volume of stabilise
	etc.) from roadways and disposal on-site/locally	Y		m3	List				material from the road, laydown of surface using an excavator, dozen
	(Select Haul Distance from list)				List				grader to enable the establishmen
									rehabilitation.
		ī	1	R	oads and Tra	cks Subtotal	\$0		1
rthworks / Structural Works (Landform Establishment)					<b>.</b>			Select Push Length Here	
(Landronn 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 gra nominated in the approval/permit
	the approval/permit = Select Push Length				LISU				noninated in the approva/permit
									D10 Dozer @ \$400 per hour and
	Minor reshaping and pushing	Y		ha	\$3,900		\$0		grader @ \$230 per hour (50%
									utilisation).
	Fill dams, voids etc Source local material, cart							Select Haul Distance Here	This item includes the volume of
	and spread to cap or backfill, cap thickness	Y		m3	Select from				material requiring backfill using an excavator and scraper to fill the ve
	determined by approval / permit (Select Haul Distance from List)	•			List				and enable the establishment of
	Distance from List)								rehabilitation.
									This rate is used to rehabilitate st
	Shotcrete application on cuttings and steep slopes	Y		m2	\$185.00		\$0		slopes of weathered rock, roadwa
									cuttings, etc that cannot be cut ba and stabilised.
	Trim, rock rake & deep rip (includes levelling /	Y							Undertaken using D10 dozer and
	landscaping and rip in 1 direction)	Ŷ		ha	\$1,130.00		\$0		grader.
	Structural works, banks, waterways - contour banks,						<u></u>		Combination of dozer and excava
	drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		work plus grader for ~4 hours each
	110000100								
									Installation of on-site rock materia
									rap) where managing water run-o disturbed land and/or upon entry
	Construction of spine drains / drop structures and/or				607.00				water courses - prevents erosion
	stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		gully head (assumes competent
	ango outorimonto								material is locally available). If rec to be sourced off site, assume an
									additional \$20/m2.

Mine Waste			-	-			1 1
wine 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) / Saine 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 maluage 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) / Saine 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 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, 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 / rush / screen / borrow etc.), and associated activities (i.e., load / haul / place / rush / screen / borrow etc.) and the relevant material required. If site haulage longer than 10 km round trip add the volume of the relevant material required in rate, 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	<b>\$</b> 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 materials 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.).
	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 option is typicary driven by time constraints and/or when taillings 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 workline is addition to this con-
	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 /
		n	T	T	Mine Wa	ste Subtotal	\$0		
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.
	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) Direct seeding / fertiliser (tree or native grass	Y Y		ha ha	\$1,875 \$4,135		\$0 \$0		fertiliser + spreading by tractor or helicopter (aerial seeding). Includes treating, weighing, mixing with fertiliser + spreading by tractor or
	species)			ΠE	<b>\$4,100</b>		÷		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
	Hydromuich - 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 curren 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	İ	m	\$13.00		\$0		Standard rate for standard stock fencing.
	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	j	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	wth 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 Re	habilitated Ar	eas Subtotal	\$0		
					Additional Ite	ems Subtotal	\$0		

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

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

\$0

								tation Area Data for Domain Total Landform Establishment:	Enter data below manually
								al Growth Media Development: tal Ecosystem Establishment:	
		Annellashia			Defende Halt	A 11		Basis for Costs Estimation	
Management Precinct Open Cut	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative 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 heig 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, diamett of 229 mm, explosives at 665.3 kg/hol 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	Open	Cut Subtotal	\$0		1
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%
	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)	Y		m3	Select from List			Select Haul Distance Here	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.
	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
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$1,130.00		\$0		and stabilised. 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
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y		m2	\$27.00		\$0		Ita. Installation of on-site rock material (rip rap) where managing water run-off fro disturbed land and/or upon entry to water courses - prevents erosion of gully head (assumes competent material is locally available). If require to be sourced off site, assume an additional \$20/m2.
Land Preparation and	E	arthworks / S	tructural Wo	rks (Landforr	n Establishm	ent) Subtotal	\$0	Select Haul Distance Here	Manage II is not excellent an alter the
Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y		m3	Select from List			Select hauf Distance here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
Establishmenty	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		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 prepare surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges froi \$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 prepare surfaces under irrigation e.g. sewage treatment irrigation areas. Ranges fro \$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 applicatio 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/h 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/t 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 hav fluctuated over the last few years however in light of current conditions

	Single application of fertiliser (trees)	Y		ha	\$140.00		\$0		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.
	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.
	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	wth Media De	evelopment a	nd Ecosystem	n Establishme	ent) Subtotal	\$0		
	Lana Proparation and Norogotation (orot					,			
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 et 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								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	Y		allow	\$2,500		\$0	Select Haul Distance Here	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
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	Y		allow allow m3	\$2,500 \$10,500 Select from List	ent Subtotal	\$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. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for ne-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
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	Y		allow allow m3	\$2,500 \$10,500 Select from List		\$0 \$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. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for ne-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
Maintenance of Rehabilitated	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	Y Y Y		allow allow m3	\$2,500 \$10,500 Select from List ter Managem		\$0 \$0 \$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. Provisional sum for earthworks and revegetation required to rehabilitate dam batters etc suitable for ne-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.
Maintenance of Rehabilitated	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		allow allow m3 Wa	\$2,500 \$10,500 Select from List ter Managem \$925		\$0 \$0 \$0 \$0		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, lertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair vorks. Areas requiring moderate repair - rills, significant growth media replacement.
Maintenance of Rehabilitated	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 Y		allow allow m3 ha ha	\$2,500 \$10,500 Select from List ter Managerr \$925 \$1,200		\$0 \$0 \$0 \$0 \$0 \$0		revegetation required to rehabilitate dam batters etc suitable for re-use by an atternate 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 ne-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. Areas requiring modoreate repair - rills, guilies, growth media replacement, some level of additional surface water management.
Maintenance of Rehabilitated	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 ha ha	\$2,500 \$10,500 Select from List ter Managerr \$925 \$1,200 \$1,700 \$2,500 \$40,000	ient Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$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. 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 moder are repair - rills, minor growth media replacement. Areas requiring moder repair - rills, guilies, growth media replacement, som level of additional surface water
Maintenance of Rehabilitated	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	Y Y Y Y Y Y		allow allow m3 ha ha ha ha ha anace of Re	\$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		revegetation required to rehabilitate dam batters etc suitable for re-use by an atternate 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 sedburnet 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. Areas requiring major repair - rills, guilties, growth media replacement, some level of additional surface water management. Areas that require extensive rehabilitation repair - redesign and re-
Maintenance of Rehabilitated	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	Y Y Y Y Y Y Y Y	Mainte	allow allow m3 ha ha ha ha ha anace of Rei	\$2,500 \$10,500 Select from List ter Managem \$925 \$1,200 \$1,200 \$1,700 \$2,500 \$40,000 abilitated Ar Additional Ite	ent Subtotal	\$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0		revegetation required to rehabilitate dam batters etc suitable for re-use by an atternate 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 minor repair - rills, minor growth media replacement. Areas requiring major repair - rills, guilties, growth media replacement, some level of additional surface water management.

# **Domain 5c: Management Activities**

#### Total Cost for Management Activities

\$0

ditional Assumptions: Reco	ord any relevant assumptions to this domain below:								
							Key Rehabilit	tation Area Data for Domain	Enter data below manually
							Т	otal Landform Establishment:	
							Tota	al Growth Media Development:	
							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:
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	Y		ML	\$1,500		\$0		Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at

								0
	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	ter Managem	ent Subtotal	\$0	 3
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 Diversi	ons Subtotal	\$0	location
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	ems Subtotal	\$0	
	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 /pl takes, prefininary 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 rehabilition 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 ~575k to ~51 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	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.

	and final landform, ter, etc. Provisional fine the conceptual letailed closure plan egies for es.
Develop a Review of Environmental Factors (REF) to facilitate rehabilitation including contamination works. Based on experience (e.g. contamination could range from \$1 ex GST Environmental Imperiation	iled closure study investigation) costs 0,000 to \$100,000 oes not apply to a mmental Effects or
Site security during closure Y yr. \$75,000 S0 \$00 S00 S00 Provisional sum for measures required includes rightly pattern in the even incident.	luring closure. This ols and first
cleaning and decontaminating plant and equipment,	aminating plant and
	tanks, vessels, and
Removal and disposal of radiation devices Y each S31,630 s0	ng devices on adiation source (i.e., lutonium – 238, , quantity, strength, er type, source up location (among
Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities <b>Y</b> allow <b>Use alternate SO Provisional sum.</b>	
Sundry Items Subtotal \$0	
Mobilisation and Demobilisation       Demobilisation for small mine or quarry - small fleet       Y       Item       \$12,000       \$0       May include special equipment and/or si execute bulk earthw	itable plant to
Mobilisation & Demobilisation for small mine or quarry - medium to large fleet Y Item Y Item S35,000 S0 S0 May include special equipment and/or si execute bulk earthw	itable plant to
Mobilisation & Demobilisation (Distance to site <150 Y item \$100,000 \$0 \$0 AD equipment and/or si execute bulk earthw	itable plant to
Mobilisation & Demobilisation (Distance to site >150 km but <500 km)       Y       item       \$150,000       \$0       \$0       May include special equipment and/or size equipment and/or size execute bulk earthware	itable plant to
Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)       Y       item       \$300,000       \$0       \$0       May include special equipment and/or su execute bulk earthw	itable plant to
Mobilisation & Demobilisation (Distance to site 1000 km) Y item S500,000 S0 May include special equipment and/or si execute bulk earthy	itable plant to
Mobilisation and Demobilisation Subtotal \$0	do bo added by
Additional Items     Other 1 <insert>     N     This is     This is     This item includes        Other 2 <insert>     N     deliberately     deliberately     This item includes</insert></insert>	-
Other 3 <insert> N I Ieft blank I Ieft blank This item includes &lt; the operator&gt;&gt;</insert>	<to added="" be="" by<="" td=""></to>
Additional Items 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