



Rehabilitation Cost Estimation Tool

The *Mining Act 1992* and the *Petroleum (Onshore) Act 1991* allow the Minister for Resources (or delegate) to impose and vary a security deposit condition on authorisations or titles granted under these Acts. The **security deposit** is required for the fulfilment of obligations under the authorisation or title (hereon in referred to as an authority), including those related to rehabilitation, and obligations that may arise in the future. Authority holders are required to submit a Rehabilitation Cost Estimate (RCE) whenever a potential change in rehabilitation liability occurs and at other key points throughout the tenure of an authority. The RCE is used by the NSW Department of Planning and Environment – Division of Resources and Geoscience (DRG) to assist in determining the amount of the security deposit required for an authority.

The objective of the Rehabilitation Cost Estimation Tool (the RCE Tool) is to provide exploration, mining and petroleum operators with guidance on calculating an appropriate RCE for their operations by assisting in the assessment and quantification of rehabilitation risks and liabilities pursuant to the *Mining Act 1992* and *Petroleum (Onshore) Act 1991*.

Please Note: The RCE Tool does not apply to the sealing of petroleum wells associated with exploration and production activities under the Petroleum (Onshore) Act 1991. Petroleum title holders can use the RCE Tool for guidance on calculating an appropriate RCE for disturbance associated with their activities. However, if it is the expectation that a separate estimate is submitted for the sealing of petroleum wells, the RCE is to be prepared by a suitably qualified expert in consideration of the scale, nature, risks and age associated with petroleum wells specific to the petroleum title. For petroleum production use the Open Cut Button. For petroleum exploration use the Exploration Button.

Prior to calculating a RCE, authority holders using the RCE Tool should refer to the *Rehabilitation Cost Estimate Tool Handbook* which provides guidance information about, and step by step instructions on how to use, the RCE Tool. The Handbook is available at the following location on the department's website: <http://www.resourcesandenergy.nsw.gov.au/miners-and-explorers/rules-and-forms/pgf>

Calculating a RCE

The framework of the RCE Tool has been developed in accordance with a tiered risk-based approach to calculating rehabilitation costs whereby the outcome of the estimation will be based on the nature, size, scale and complexity of the operation. While the authority holder has the opportunity to nominate unit rates* which are not the same as those in the RCE Tool, any other unit rate proposed by the authority holder must be based on a third party cost as it is assumed that if the authority holder defaults on their responsibility to rehabilitate the mine or exploration operation(s), a contractor will be engaged by the Government to carry out the required rehabilitation works.

Select Type of Mining/Exploration Operations from Buttons Below

By selecting the relevant type of mining/petroleum/exploration operation (below), followed by the **ENTER** button, the worksheet relevant to the operation type will be activated. Each worksheet shows the domains likely to be present for the operation type. A worksheet must be completed, with **ALL** relevant domains, in order to estimate the total rehabilitation costs for the exploration, petroleum operations and/or mining operation.

*Note: DRG may regularly make changes and updates to the spreadsheet as necessary. All authorisation holders are encouraged to use the most recent version of the spreadsheet, available on the DRG website.

Site Registration

Date

Month

Year

Complete the following fields prior to calculating the Security Deposit.

Mine Name:	Lidsdale Siding Coal Loading Facility		
Lease(s):	DP252472 Lot 1, DP252472 Lot 2, DP252472 Lot 7, DP827839 Lot 13, DP776498 Lot 1		
Title Holder:	Centennial Coal Company Limited		
Mine Operator:	Ivanhoe Coal Pty Ltd		
Expiry of MOP:	N/A		
Current Security:	N/A	Date of last Security Deposit review	N/A
Mine Contact:	Neil Thompson		
Position:	Environment and Community Coordinator		
Address:	Locked Bag 1002		
	Wallerawang NSW 2845		
Phone:	6355 9509	email:	neil.thompson@centennialcoal.com.au

Site Description

The following site specific information is requested to provide background information in the context of calculating the Security Deposit.

Summary of Mine Activities

Total annual production (tonnes): 1,500,000

Mine lease area (ha):

Area of extraction (ha):

Area of disturbance (ha): 12

Rehabilitation in progress (ha):

Rehabilitation complete (ha):
Achieved ecosystem sustainability

MOP Utilised:
Reference MOP no. version and date

MOP Plan(s) utilised:
Reference Plan no. version and date

☐ Plan(s) attached

1
2
3

NOTE:

Ensure rehabilitation cost estimation reflects all environmental issues affecting the lease. Contingencies should be allocated where costs have not been incorporated elsewhere in the estimation.

Environmental Sensitivities

Surrounding land use (tick all that apply):

- ☐ Cropping
- ☒ Pasture
- ☒ Forest
- ☒ Undisturbed habitat
- ☒ Urban

Environmental Issues affecting site (tick all that apply)

- ☐ Threatened flora
- ☐ Threatened fauna
- ☐ Cultural heritage items
- ☐ Natural heritage features
- ☒ Mine subsidence
- ☐ Surface water pollution
- ☐ Ground water pollution
- ☐ Hydrocarbon contamination
- ☐ Methane drainage/venting
- ☐ Spontaneous combustion
- ☐ Acid Mine Drainage
- ☐ Within drinking water catchment
- ☐ Other (describe below)



Planning & Environment

Underground Summary Rehabilitation Cost Estimation

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

Mine Name:	Lidsdale Siding Coal Loading Facility		
Lease(s):	DP252472 Lot 1, DP252472 Lot 2, DP252472 Lot 7, DP827839 Lot 13, DP776498 Lot 1		
Mine Owner:	Centennial Coal Company Limited		
Mine Operator:	Ivanhoe Coal Pty Ltd		
Expiry of MOP:	N/A		
Current Security:	N/A	Date of Last Security Deposit Review:	N/A
Mine Contact:	Neil Thompson		
Position:	Environment and Community Coordinator		
Address:	Locked Bag 1002 Wallerawang NSW 2845		
Phone:	6355 9509	email:	neil.thompson@centennialcoal.com.au

Domain		Security Deposit
Domain 1: Infrastructure		3,011,463.34
Domain 2: Tailings & Rejects		
Domain 3: Overburden & Waste		495.50
Domain 4: Subsidence & Management		104,346.00
Sub-Total (Domains and Sundry Items)		\$3,116,304.84
Contingency	10%	\$311,630.48
Post Closure Environmental Monitoring	10%	\$311,630.48
Project Management and Surveying	10%	\$311,630.48
Total Security Deposit for the Mining Project (excl. of GST)		\$4,051,196.29

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 Registration Form, Summary Report and calculation pages are to be printed and attached as an appendix the AEMR or MOP.

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.

PAUL WILLIAMS
Company Representative's Name

4/03/2020
Date

GROUP MANAGER ENVIRONMENT
Company Representative's Role / Responsibility

[Signature]
Signature

Underground Operations

Domain 1a: Infrastructure

Total Cost for Infrastructure Domain

\$3,011,463

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y	1	allow	\$35,000	\$7,896	\$7,896	CPI + CEY rate as per Paul Williams & Bernie Kirsch +	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	1	allow	\$5,500	\$5,739	\$5,739	CPI + +	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	1.2	km	\$15,000	\$15,652	\$18,782	CPI + +	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	0	km	\$100,000	\$104,346	\$0	CPI + +	Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
	Remove 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	0	Item	\$350,000	\$365,211	\$0	CPI + +	Major structures 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	0	m2	\$600.00	\$626.08	\$0	CPI + +	Simple structure to demolish, assumes single story building and segregation of contents for scrap as applicable.
	Demolish and remove switchyard - dispose of waste material on-site/locally	Y	0	m2	\$55.00	\$57.40	\$0	CPI + +	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	0	m2	\$40.00	\$41.74	\$0	CPI + +	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	253.6	m2	\$65.00	\$67.83	\$17,202	CPI + +	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	168.3	m2/floor	\$115.00	\$120.00	\$20,196	CPI + +	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 industrial buildings (workshops tyre change and servicing area etc - not CHPP/process plant) - and disposal on-site/locally	Y	366.1	m2/floor	\$180.00	\$187.82	\$68,761	CPI + +	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	0	m2/floor	\$265.00	\$276.52	\$0	CPI + +	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	0	m2/floor	\$265.00	\$276.52	\$0	CPI + +	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	0	allow	\$1,000,000	\$1,043,460	\$0	CPI + +	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	0	allow	\$2,500,000	\$2,608,650	\$0	CPI + +	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	0	m	\$75.00	\$78.26	\$0	CPI + +	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	0	allow	\$100,000	\$104,346	\$0	CPI + +	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	0	allow	\$85,000	\$88,694	\$0	CPI + +	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	0	allow	\$65,000	\$67,825	\$0	CPI + +	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	1	allow	\$65,000	\$67,825	\$67,825	CPI + +	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	0	m	\$210.00	\$219.13	\$0	CPI + +	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	786.7	m	\$370.00	\$386.08	\$303,729	CPI + +	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 infrastructure	Y	0	m	\$1,200	\$1,252	\$0	CPI + +	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.
Demolish reclaim tunnel, cut reo and expose reclaim conveyor, then collapse into the reclaim tunnel void (Does not include excavation to expose reclaim tunnel, removal of conveyor or backfilling void)	Y	300	m2	\$80.00	\$83.48	\$25,044	CPI + +	Does not include conveyor removal or backfill.
Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of reclaim tunnel roof)	Y	450	m	\$150.00	\$156.52	\$70,434	CPI + +	Due to no canopy or infrastructure attached.
Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	Y	0	m	\$950.00	\$991.29	\$0	CPI + +	Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) - and disposal on-site/locally	Y	1	allow	\$10,000	\$10,435	\$10,435	CPI + +	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	1	allow	\$30,000	\$31,304	\$31,304	CPI + +	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	0	allow	\$45,000	\$46,956	\$0	CPI + +	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	0	allow	\$85,000	\$88,694	\$0	CPI + +	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	0	allow	\$100,000	\$104,346	\$0	CPI + +	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	0	allow	\$21,000	\$21,913	\$0	CPI + +	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	0	allow	\$30,000	\$31,304	\$0	CPI + +	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	0	m	\$25.00	\$26.09	\$0	CPI + +	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	0	m	\$60.00	\$62.61	\$0	CPI + +	For example: 300 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	0	m	\$165.00	\$172.18	\$0	CPI + +	For example: 1 m pipes - 2 m deep.
Remove above ground pipe (supported) and disposal on-site/locally	Y	0	m	\$12.00	\$12.53	\$0	CPI + +	~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	49.2	m	\$15.00	\$15.66	\$770	CPI + +	~300 mm pipes and assumes pipes are used for water transfer
Remove pump and pontoon from a lake or dam including pipes and electrical supply or diesel tank/s - and disposal on-site/locally	Y	0	allow	\$150,000	\$156,519	\$0	CPI + +	Assumes infrastructure is moored and requires barge mobilisation to sever the mooring and / or is a significant fixed structure for controlled release of water - does not include transport to regional disposal facility or equivalent.
Remove bitumen (car park and access roads) and dispose on-site/locally	Y	5551.1	m2	\$10.00	\$10.43	\$57,898	CPI + +	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	0	m2	\$20.00	\$20.87	\$0	CPI + +	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	1155.6	m2	\$37.00	\$20.87	\$24,117	CPI + CEY rate as per Paul Williams & Bernie Kirsch +	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.

	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y	0	m2	\$75.00	\$78.26	\$0	CPI + +	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	0	tonne	\$17.00	\$17.74	\$0	CPI + +	Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 50 mm	Y	0	tonne	\$20.00	\$20.87	\$0	CPI + +	Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 30 mm	Y	0	tonne	\$22.00	\$22.96	\$0	CPI + +	Does not include haulage of materials - assumes crushing plant is readily available.
	Remove fence (cyclone/wire fence) - and disposal on-site/locally	Y	0	m	\$20.00	\$20.87	\$0	CPI + +	Roll up fence and remove posts.
Termination of Services and Demolition Works Subtotal							\$730,132		
Rail Infrastructure	Remove rail loop and spur, ballast etc. - and disposal on-site/locally	Y	4570.3	m	\$60.00	\$62.61	\$286,146	CPI + +	Remove all materials to allow area to be reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities - and disposal on-site/locally	Y	180	m2	\$265.00	\$276.52	\$49,774	CPI + +	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	2.3	ha	\$2,500.00	\$2,608.65	\$6,000	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation).
Rail Infrastructure Subtotal							\$341,920		
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple stu	Y	0	Cluster	\$15,000	\$15,651.90	\$0	CPI + +	The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. 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	1	Cluster	\$100,000	\$104,346.00	\$104,346	CPI + +	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.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y	0	L	\$0.35	\$0.37	\$0	CPI + +	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	25000	m3	Select from List	\$4.07	\$101,750	CPI + +	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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	Y	0	m3	\$700.00	\$730.42	\$0	CPI + +	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	0	m3	\$200.00	\$208.69	\$0	CPI + +	Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Y	11200	m3	Select from List	\$57.40	\$642,880	CPI + +	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	0	Item	\$150,000	\$156,519.00	\$0	CPI + +	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	0	m3	\$165.00	\$172.18	\$0	CPI + +	Additional cost as the treatment process is fast tracked.

	Remove and dispose of asbestos (<750 m2)	Y	0	m2	\$50.00	\$52.17	\$0	CPI + +	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	Y	0	m2	\$40.00	\$41.74	\$0	CPI + +	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos	Y	0	tonne	\$2,400	\$2,504.30	\$0	CPI + +	6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing \$20 / m2 for removal, 4 hours trucking @ \$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
	Treatment of known Acid Sulfate Soils	Y	0	ha	\$2,580	\$2,692.13	\$0	CPI + +	Assumes ASS is treatable via neutralisation and does not require capping and isolation.
	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y	0	m2	\$1.00	\$1.04	\$0	CPI + +	Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$848,976		
Vents, Shafts and Boreholes									
	Seal portals / drifts (width >3 m) – backfill the access for at least 50 m against a concrete bulk head with drainage slots. The rate includes some reshaping of batters around the adit entrance. If concrete bulk head not required, reduce rate by 25%	Y	0	allow	\$250,000	\$260,865.00	\$0	CPI + +	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, requirements for extra roof and/or rib support, equipment transport into the underground etc.
	Seal small adits (width <3 m) – install 0.5 concrete plug 3 m back from adit and backfill with appropriate material. The rate includes some reshaping of the batter around the entrance of the adit	Y	0	allow	\$25,000	\$26,086.50	\$0	CPI + +	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate assumes standard works program with suitable access, and additional roof and rib stabilisation works etc. is not required.
	Seal and rehabilitate ventilation fans shafts - allows for works in a remote location	Y	0	allow	\$150,000	\$156,519.00	\$0	CPI + +	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, equipment transport to the shaft etc.
	Install gate or grill over the adit (Where site might be used by bats)	Y	0	Item	\$200,000	\$208,692.00	\$0	CPI + +	Rate accounts for a range of factors including establishing clear access, and/or working in remote locations without services, and/or stabilisation works to prevent the entry collapsing and compromising the gate etc.
	Exploration boreholes – rehabilitate boreholes and drill pads as required	Y	0	depth (m)	\$40.00	\$41.74	\$0	CPI + +	Assumes a per metre drilling rate of ~\$150 / m of which ~25 - 30% is for rehabilitation which may include a variety of works (i.e., cut casing and install cap, install poly pipe to facilitate back-filling, grout preparation, grouting and capping, reshaping / ripping the drill pad, amelioration / seeding etc.)
	Exploration boreholes – backfill open bore holes with cuttings	Y	0	allow	\$300.00	\$313.04	\$0	CPI + +	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.
	Exploration boreholes – grout and cap open bore holes	Y	0	allow	\$7,950	\$8,295.51	\$0	CPI + +	Includes grouting and capping 100-200 m exploration boreholes to meet the requirements of EDG01.
	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	Y	7	allow	\$6,960	\$7,262.48	\$50,837	CPI + +	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	0	allow	\$15,000	\$15,651.90	\$0	CPI + +	Surface-to-in-seam gas drainage boreholes.
	Boreholes – cap and seal open bore holes - vertical gas drainage	Y	0	allow	\$16,000	\$16,695.36	\$0	CPI + +	Vertical gas drainage boreholes.
	Boreholes – grout (with concrete) cap and seal bore holes (i.e. where sealing aquifers)	Y	0	allow	\$35,000	\$36,521.10	\$0	CPI + +	Includes multi skin sleeves to prevent aquifer mixing.
	Boreholes – cap and seal service boreholes for UG operations	Y	0	allow	\$45,000	\$46,955.70	\$0	CPI + +	Includes large diameter boreholes used for supplying electricity (66kV), compressed air, water, solsenic etc.
Vents, Shafts and Boreholes Subtotal							\$50,837		
Roads and Tracks									
	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y	0	ha	\$960.00	\$1,001.72	\$0	CPI + +	Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y	0.3	ha	\$1,500	\$1,565.19	\$470	CPI + +	Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y	0	ha	\$3,698	\$3,858.71	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	ha	\$4,485	\$4,679.92	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	0	ha	\$3,820	\$3,986.02	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	ha	\$4,595	\$4,794.70	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - tree/shrub seed.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y	0	m3	Select from List	\$0.00	\$0	Select Haul Distance Here CPI + +	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.
Roads and Tracks Subtotal							\$470		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y	50700	m3	Select from List	\$1.19	\$60,333	Select Push Length Here CPI + +	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y	0	ha	\$3,900	\$4,069.49	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	m3	Select from List	\$0.00	\$0	Select Haul Distance Here CPI + +	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	0	m2	\$185.00	\$193.05	\$0	CPI + +	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	14.48	ha	\$960.00	\$1,001.72	\$14,505	CPI + +	16H Grader @ \$212 per hour - ripping in 1 direction only.
	Deep rip hard stand / lay down areas	Y	0	ha	\$960.00	\$1,001.72	\$0	CPI + +	D10 dozer @ \$332 per hour - deep rip in 2 directions @ 5 m spacing ~3 hr per hectare.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	14.48	ha	\$1,600	\$1,669.54	\$24,175	CPI + +	Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y	0	m2	\$35.00	\$36.53	\$0	CPI + +	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).
Earthworks / Structural Works (Landform Establishment) Subtotal							\$99,013		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y	14480	m3	Select from List	\$26.09	\$377,783	Select Haul Distance Here CPI + CEY rate as per Paul Williams & Bernie Kirsch +	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	0	allow	\$20.00	\$20.87	\$0	CPI + +	4 m centres.
	Planting tube stock (<15 cm)	Y	0	allow	\$10.00	\$10.43	\$0	CPI + +	4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y	14.48	ha	\$1,240	\$1,293.89	\$18,736	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y	14.48	ha	\$2,095	\$2,186.05	\$31,654	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y	0	m2	\$1.80	\$1.88	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Single application of fertiliser (pasture)	Y	14.48	ha	\$420.00	\$438.25	\$6,346	CPI + +	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	0	ha	\$140.00	\$146.08	\$0	CPI + +	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	14.48	ha	\$860.00	\$897.38	\$12,994	CPI + +	Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y	14.48	ha	\$1,015	\$1,059.12	\$15,336	CPI + +	Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y	0	m	\$9.50	\$9.91	\$0	CPI + +	Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y	0	m	\$4.00	\$4.17	\$0	CPI + +	Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y	0	allow	\$250.00	\$260.87	\$0	CPI + +	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	4478.4	m3	\$80.80	\$84.31	\$377,574	CPI + +	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.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal							\$840,423		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	0	allow	\$2,500	\$2,608.65	\$0	CPI + +	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.
								Select Haul Distance Here	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	5090.27	m3	Select from List	\$9.91	\$50,445	CPI + +	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
	Removal of evaporation fans and/or other water transfer and management infrastructure	Y	0	allow	\$25,000	\$26,086.50	\$0	CPI + +	Provisional sum for removal of water management infrastructure.
Water Management Subtotal							\$50,445		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y	14.48	ha	\$900.00	\$939.11	\$13,598	CPI + +	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	0	ha	\$1,200	\$1,252.15	\$0	CPI + +	Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y	0	ha	\$1,700	\$1,773.88	\$0	CPI + +	Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y	0	ha	\$2,500	\$2,608.65	\$0	CPI + +	Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y	0	ha	\$40,000	\$41,738.40	\$0	CPI + +	Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
Maintenance of Rehabilitated Areas Subtotal							\$13,598		
Additional Items	Other 1 <insert>	Y	737		\$0.00	\$48.37	\$35,650	CPI & other items	This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$35,650		
Total Cost for Infrastructure Domain							\$3,011,463		

Underground Operations

Domain 2a: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple stu	Y	0	Cluster	\$15,000	\$15,651.90	\$0	CPI + +	The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. 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	0	Cluster	\$100,000	\$104,346.00	\$0	CPI + +	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.
	Removal and disposal of contaminated water from tanks, bunded areas and sumps	Y	0	L	\$0.35	\$0.37	\$0	CPI + +	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	0	m3	Select from List	\$0.00	\$0	Select Haul Distance Here CPI + +	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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	Y	0	m3	\$700.00	\$730.42	\$0	CPI + +	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	0	m3	\$200.00	\$208.69	\$0	CPI + +	Includes load, haul and dump fees to a licensed facility.
	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	Y	0	m3	Select from List	\$0.00	\$0	Select Volume Here CPI + +	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	0	Item	\$150,000	\$156,519.00	\$0	CPI + +	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	0	m3	\$165.00	\$172.18	\$0	CPI + +	Additional cost as the treatment process is fast tracked.
	Remove and dispose of asbestos (<750 m2)	Y	0	m2	\$50.00	\$52.17	\$0	CPI + +	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos (>750 m2)	Y	0	m2	\$40.00	\$41.74	\$0	CPI + +	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos	Y	0	tonne	\$2,400	\$2,504.30	\$0	CPI + +	6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing \$20 / m2 for removal, 4 hours trucking @\$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
	Treatment of known Acid Sulfate Soils	Y	0	ha	\$2,580	\$2,692.13	\$0	CPI + +	Assumes ASS is treatable via neutralisation and does not require capping and isolation.

	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y	0	m2	\$1.00	\$1.04	\$0	CPI + +	Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y	0	ha	\$960.00	\$1,001.72	\$0	CPI + +	Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y	0	ha	\$1,500	\$1,565.19	\$0	CPI + +	Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y	0	ha	\$3,698	\$3,858.71	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	ha	\$4,485	\$4,679.92	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	0	ha	\$3,820	\$3,986.02	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	ha	\$4,595	\$4,794.70	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - tree/shrub seed.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y	0	m3	Select from List	\$0.00	\$0	CPI + +	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.
Roads and Tracks Subtotal							\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y	0	m3	Select from List	\$0.00	\$0	Select Push Length Here CPI + +	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y	0	ha	\$3,900	\$4,069.49	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	m3	Select from List	\$0.00	\$0	Select Haul Distance Here CPI + +	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	0	ha	\$960.00	\$1,001.72	\$0	CPI + +	16H Grader @ \$212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	0	ha	\$1,600	\$1,669.54	\$0	CPI + +	Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y	0	m2	\$35.00	\$36.53	\$0	CPI + +	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).

Earthworks / Structural Works (Landform Establishment) Subtotal							\$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	Y	0	ha	\$81,000	\$84,520.26	\$0	CPI + +	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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	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	0	allow		\$0.00	\$0	CPI + +	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	0	allow		\$0.00	\$0	CPI + +	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	Y	0	ha	\$108,000	\$112,693.68	\$0	CPI + +	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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	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	0	allow		\$0.00	\$0	CPI + +	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	0	allow		\$0.00	\$0	CPI + +	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline) and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	Y	0	ha	\$170,000	\$177,388.20	\$0	CPI + +	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 materials are available on site within 10 km, and an average cap thickness of approximately 2.5 m including growth media. 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.
	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	0	allow		\$0.00	\$0	CPI + +	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	0	allow		\$0.00	\$0	CPI + +	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Mine Waste Subtotal							\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y	0	m3		\$0.00	\$0	Select Haul Distance Here	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
	Direct seeding / fertiliser (pasture grass species)	Y	0	ha	\$1,240	\$1,293.89	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y	0	ha	\$2,095	\$2,186.05	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y	0	m2	\$1.80	\$1.88	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.

	Single application of fertiliser (pasture)	Y	0	ha	\$420.00	\$438.25	\$0	CPI + +	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	0	ha	\$140.00	\$146.08	\$0	CPI + +	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	0	ha	\$860.00	\$897.38	\$0	CPI + +	Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y	0	ha	\$1,015	\$1,059.12	\$0	CPI + +	Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y	0	m	\$9.50	\$9.91	\$0	CPI + +	Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y	0	m	\$4.00	\$4.17	\$0	CPI + +	Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y	0	allow	\$250.00	\$260.87	\$0	CPI + +	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	0	m3	\$80.80	\$84.31	\$0	CPI + +	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 filling voids and/or capping etc.	Y	0	m3	\$72.50	\$75.65	\$0	CPI + +	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.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal							\$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	0	allow	\$2,500	\$2,608.65	\$0	CPI + +	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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y	0	m3	Select from List	\$0.00	\$0	Select Haul Distance Here CPI + +	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y	0	ha	\$900	\$939.11	\$0	CPI + +	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	0	ha	\$1,200	\$1,252.15	\$0	CPI + +	Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y	0	ha	\$1,700	\$1,773.88	\$0	CPI + +	Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y	0	ha	\$2,500	\$2,608.65	\$0	CPI + +	Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y	0	ha	\$40,000	\$41,738.40	\$0	CPI + +	Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	Y	0	Allow	\$0.00	\$0.00	\$0	CPI & other items	This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Tailings & Rejects Domain							\$0		

Underground Operations

Domain 3a: Overburden & Waste

Total Cost for Overburden & Waste Domain

\$496

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Treatment of known Acid Sulfate Soils	Y	0	ha	\$2,580	\$2,692.13	\$0	CPI + +	Assumes ASS is treatable via neutralisation and does not require capping and isolation.
	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y	0	m2	\$1.00	\$1.04	\$0	CPI + +	Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y	0	ha	\$960.00	\$1,001.72	\$0	CPI + +	Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y	0	ha	\$1,500	\$1,565.19	\$0	CPI + +	Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y	0	ha	\$3,698	\$3,858.71	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	ha	\$4,485	\$4,679.92	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	0	ha	\$3,820	\$3,986.02	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	ha	\$4,595	\$4,794.70	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - tree/shrub seed.
	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	Y	0	m3	Select from List	\$0.00	\$0	CPI + +	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.
Roads and Tracks Subtotal							\$0		
Earthworks / Structural Works (Landform Establishment)	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	Y	0	m3	Select from List	\$0.00	\$0	CPI + +	Major bulk pushing to achieve grades nominated in the approval/permit
	Minor reshaping and pushing	Y	0	ha	\$3,900	\$4,069.49	\$0	CPI + +	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	0	m3	Select from List	\$0.00	\$0	CPI + +	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	0	m2	\$185.00	\$193.05	\$0	CPI + +	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	0	ha	\$960.00	\$1,001.72	\$0	CPI + +	16H Grader @ \$212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y	0	ha	\$1,600	\$1,669.54	\$0	CPI + +	Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour for ~4 hours each per ha.
	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	Y	0	m2	\$35.00	\$36.53	\$0	CPI + +	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).
Earthworks / Structural Works (Landform Establishment) Subtotal							\$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	Y	0	ha	\$81,000	\$84,520.26	\$0	CPI + +	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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	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	0	allow		\$0.00	\$0	CPI + +	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	0	allow		\$0.00	\$0	CPI + +	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).

	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	Y	0	ha	\$108,000	\$112,693.68	\$0	CPI + +	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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	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	0	allow		\$0.00	\$0	CPI + +	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	0	allow		\$0.00	\$0	CPI + +	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	Y	0	ha	\$170,000	\$177,388.20	\$0	CPI + +	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 2.5 m including growth media. 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.
	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	0	allow		\$0.00	\$0	CPI + +	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	0	allow		\$0.00	\$0	CPI + +	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
Mine Waste Subtotal					\$0				
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)	Source, cart and spread growth media (Select Haul Distance from List)	Y	0	m3	Select from List	\$0.00	\$0	CPI + +	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	0	allow	\$20.00	\$20.87	\$0	CPI + +	4 m centres.
	Planting tube stock (<15 cm)	Y	0	allow	\$10.00	\$10.43	\$0	CPI + +	4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y	0	ha	\$1,240	\$1,293.89	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y	0	ha	\$2,095	\$2,186.05	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y	0	m2	\$1.80	\$1.88	\$0	CPI + +	Rate can fluctuate however this is a suitable standard rate.
	Single application of fertiliser (pasture)	Y	0	ha	\$420.00	\$438.25	\$0	CPI + +	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	0	ha	\$140.00	\$146.08	\$0	CPI + +	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	0	ha	\$860.00	\$897.38	\$0	CPI + +	Assumes 2.5 t / ha as an average application rate.
	growth media amelioration with biosolids	Y	0	ha	\$1,015	\$1,059.12	\$0	CPI + +	Recent experience with agronomy projects.
	Construct no-climb stock fence around rehabilitated areas	Y	0	m	\$9.50	\$9.91	\$0	CPI + +	Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y	0	m	\$4.00	\$4.17	\$0	CPI + +	Standard rate for standard stock fencing.
	Purchase and erect warning signs	Y	0	allow	\$250.00	\$260.87	\$0	CPI + +	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	0	m3	\$80.80	\$84.31	\$0	CPI + +	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 filling voids and/or capping etc.	Y	0	m3	\$72.50	\$75.65	\$0	CPI + +	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.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) Subtotal							\$0		
Water Management	Clean water dams to be retained after decommissioning – make safe and minor earthworks	Y	0	allow	\$2,500	\$2,608.65	\$0	CPI + +	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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y	50	m3	Select from List	\$9.91	\$496	Select Haul Distance Here CPI + +	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
Water Management Subtotal							\$496		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y	0	ha	\$900.00	\$939.11	\$0	CPI + +	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	0	ha	\$1,200	\$1,252.15	\$0	CPI + +	Areas requiring minor repair - rills, minor growth media replacement.
	Existing rehabilitation repair - moderate	Y	0	ha	\$1,700	\$1,773.88	\$0	CPI + +	Areas requiring moderate repair - rills, significant growth media replacement.
	Existing rehabilitation repair - major	Y	0	ha	\$2,500	\$2,608.65	\$0	CPI + +	Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
	Existing rehabilitation repair - total failure of landform	Y	0	ha	\$40,000	\$41,738.40	\$0	CPI + +	Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	Y	0	allow	\$0.00	\$0.00	\$0	CPI & other items	This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Overburden & Waste Domain							\$496		

Underground Operations

Domain 4a: Subsidence and Management

Total Cost for Subsidence and Management Activities

\$104,346

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Subsidence Repairs	Minor stabilisation works and maintenance of mine subsidence areas - ripping etc.	Y	0	ha	\$1,500	\$1,565.19	\$0	CPI + +	D8 Dozer @ \$240 per hour and/or grader @ \$160 per hour.
	Crack filling to repair subsidence impacts	Y	0	m	\$1,485	\$1,549.54	\$0	CPI + +	Undertake more substantial works to backfill cracks and/or sink holes (e.g., filling with much prior to grouting, grouting, etc.)
	Water course restoration to repair subsidence impacts	Y	0	allow		\$0.00	\$0	CPI + +	Undertake more substantial works to remediate water courses (e.g., channel bed repairs, rock bar repairs, swamp stabilisation etc.)
	Create cut-through to re-establish natural water courses/drainage channels following subsidence	Y	0	allow	\$3,000	\$3,130.38	\$0	CPI + +	Includes all earthworks and revegetation required to re-establish the natural drainage profile of the subsided area.
Subsidence Repairs Subtotal							\$0		
Vents, Shafts and Boreholes	Maintenance and monitoring of sealed adits/portals and shafts (for a total of 5 years)	Y	0	allow	\$25,000	\$26,086.50	\$0	CPI + +	Estimate to undertake periodic inspections by a qualified person and provide a completions report for DRE sign-off.
Vents, Shafts and Boreholes Subtotal							\$0		
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	0	ML	\$3,600	\$3,756.46	\$0	CPI + +	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 (includes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit)	Y	0	ML	\$1,500	\$1,565.19	\$0	CPI + +	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
Water Management Subtotal							\$0		
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	Y	0	m	\$2,500	\$2,608.65	\$0	CPI + +	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	0	m	\$1,500	\$1,565.19	\$0	CPI + +	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	0	m	\$750.00	\$782.60	\$0	CPI + +	Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Y	0	m2	\$6.00	\$6.26	\$0	CPI + +	Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
Creek Diversions Subtotal							\$0		
Land Management	Pest management on buffer lands, non-disturbed, and rehabilitated areas	Y	0	ha	\$150.00	\$156.52	\$0	CPI + +	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	0	ha	\$400.00	\$417.38	\$0	CPI + +	Undisturbed areas within the lease boundary that require land management activities.
Land Management Subtotal							\$0		
Heritage Items	The restoration and care and maintenance of items that have heritage significance	Y	0	allow		\$0.00	\$0	CPI + +	Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of activities.
Heritage Items Subtotal							\$0		
Sundry Items	Development of an 'Unplanned' Project Closure Plan - for either State Significant or Non State Significant Developments	Y	1	allow	Select from List	\$104,346.00	\$104,346	CPI + +	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
	DRE tender preparation and assessment, stakeholder consultation, risk assessment facilitation and management, statutory reporting and instruments, permitting and compliance requirements, document and data management	Y	0	allow		\$0.00	\$0	CPI + +	Provisional sum for the NSW Government to prepare tender documentation (i.e., demolition, waste disposal, earthworks, environmental management etc.), manage stakeholders and establish permitting and compliance requirements for closure.
	Site security during closure	Y	0	yr.	\$75,000	\$78,259.50	\$0	CPI + +	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.
	HAZMAT Clean-up - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	Y	0	allow	\$100,000	\$104,346.00	\$0	CPI + +	Provisional sum to perform the site clean-up and ensuring the demolition program is not interrupted due to potential contamination of waste streams.
	Removal and disposal of radiation devices	Y	0	each	\$25,000	\$26,086.50	\$0	CPI + +	Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium - 241, Plutonium - 238, Caesium - 137 etc).
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y	0	allow		\$0.00	\$0	CPI + +	Provisional sum.
Sundry Items Subtotal							\$104,346		

Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry	Y	0	Item	\$40,000	\$41,738.40	\$0	CPI + +	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	Y	0	item	\$100,000	\$104,346.00	\$0	CPI + +	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	0	item	\$150,000	\$156,519.00	\$0	CPI + +	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	0	item	\$300,000	\$313,038.00	\$0	CPI + +	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	Y	0	item	\$500,000	\$521,730.00	\$0	CPI + +	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
Mobilisation and Demobilisation Subtotal							\$0		
Additional Items	Other 1 <insert>	Y	0.04	Allow	This is	\$0.02	\$0	CPI & other items	This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Subsidence and Management Activities							\$104,346		

Underground Operations

Domain 1b: Infrastructure

Total Cost for Infrastructure Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Termination of Services and Demolition Works	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	Y		allow	\$35,000		\$0		For disconnection of all services, at building boundaries, physical cut at 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	\$5,500		\$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 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		Item	\$350,000		\$0		Major structures 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	\$600.00		\$0		Simple structure to demolish, assumes single story building and segregation of contents for scrap as applicable.
	Demolish and remove switchyard - dispose of waste material on-site/locally	Y		m2	\$55.00		\$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	\$65.00		\$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	\$115.00		\$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 industrial buildings (workshops tyre change and servicing area etc - not CHPP/process plant) - and disposal on-site/locally	Y		m2/floor	\$180.00		\$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	\$265.00		\$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	\$265.00		\$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	\$1,000,000		\$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	\$2,500,000		\$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	\$100,000		\$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	\$85,000		\$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	\$65,000		\$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 onground conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) - and disposal on-site/locally	Y		m	\$210.00		\$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	\$370.00		\$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 infrastructure	Y		m	\$1,200		\$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.
Demolish reclaim tunnel, cut reo and expose reclaim conveyor, then collapse into the reclaim tunnel void (Does not include excavation to expose reclaim tunnel, removal of conveyor or backfilling void)	Y		m2	\$80.00		\$0	Does not include conveyor removal or backfill.
Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of reclaim tunnel roof)	Y		m	\$150.00		\$0	Due to no canopy or infrastructure attached.
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.
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	\$85,000		\$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		\$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
Remove medium underground pipe - and disposal on-site/locally	Y		m	\$60.00		\$0	For example: 300 mm pipes - 1 m deep - does not include transport to regional disposal facility
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	\$15.00		\$0	~300 mm pipes and assumes pipes are used for water transfer
Remove pump and pontoon from a lake or dam including pipes and electrical supply or diesel tank/s - and disposal on-site/locally	Y		allow	\$150,000		\$0	Assumes infrastructure is moored and requires barge mobilisation to sever the mooring and / or is a significant fixed structure for controlled release of water - 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	\$37.00		\$0	Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.

	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	Y		m2	\$75.00		\$0		Breaking up slab and disposal or for conversion to aggregate. Generally haulage rates will be \$0.60 - \$1.20 / km, depending on truck fleet, loaders etc. For off-site disposal use alternate rate option and add \$0.90 / km for transport.
	Crush concrete to make road aggregate - 75 mm	Y		tonne	\$17.00		\$0		Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 50 mm	Y		tonne	\$20.00		\$0		Does not include haulage of materials - assumes crushing plant is readily available.
	Crush concrete to make road aggregate - 30 mm	Y		tonne	\$22.00		\$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.
Termination of Services and Demolition Works Subtotal							\$0		
Rail Infrastructure	Remove rail loop and spur, ballast etc. - and disposal on-site/locally	Y		m	\$60.00		\$0		Remove all materials to allow area to be reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
	Remove train loading facilities - and disposal on-site/locally	Y		m2	\$265.00		\$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	\$2,500		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation).
Rail Infrastructure Subtotal							\$0		
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple stu	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) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. 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	\$100,000		\$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.
	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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	Y		m3	\$700.00		\$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	\$200.00		\$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	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed
Remove and dispose of asbestos	Y		tonne	\$2,400		\$0		6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing \$20 / m2 for removal, 4 hours trucking @ \$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		Assumes ASS is treatable via neutralisation and does not require capping and isolation.
Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y		m2	\$1.00		\$0		Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal						\$0		
Seal portals / drifts (width >3 m) – backfill the access for at least 50 m against a concrete bulk head with drainage slots. The rate includes some reshaping of batters around the adit entrance. If concrete bulk head not required, reduce rate by 25%	Y		allow	\$250,000		\$0		Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, requirements for extra roof and/or rib support, equipment transport into the underground etc.
Seal small adits (width <3 m) – install 0.5 concrete plug 3 m back from adit and backfill with appropriate material. The rate includes some reshaping of the batter around the entrance of the adit	Y		allow	\$25,000		\$0		Cost estimated from planned and executed works programs in NSW from multiple sites. Rate assumes standard works program with suitable access, and additional roof and rib stabilisation works etc. is not required.
Seal and rehabilitate ventilation fans shafts - allows for works in a remote location	Y		allow	\$150,000		\$0		Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, equipment transport to the shaft etc.
Install gate or grill over the adit (Where site might be used by bats)	Y		Item	\$200,000		\$0		Rate accounts for a range of factors including establishing clear access, and/or working in remote locations without services, and/or stabilisation works to prevent the entry collapsing and compromising the gate etc.
Exploration boreholes – rehabilitate boreholes and drill pads as required	Y		depth (m)	\$40.00		\$0		Assumes a per metre drilling rate of ~\$150 / m of which ~25 - 30% is for rehabilitation which may include a variety of works (i.e., cut casing and install cap, install poly pipe to facilitate back-filling, grout preparation, grouting and capping, reshaping / ripping the drill pad, amelioration / seeding etc.)
Exploration boreholes – backfill open bore holes with cuttings	Y		allow	\$300.00		\$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.
Exploration boreholes – grout and cap open bore holes	Y		allow	\$7,950		\$0		Includes grouting and capping 100-200 m exploration boreholes to meet the requirements of EDG01.
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	\$15,000		\$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 sleeves to prevent aquifer mixing.
Boreholes – cap and seal service boreholes for UG operations	Y		allow	\$45,000		\$0		Includes large diameter boreholes used for supplying electricity (66kV), compressed air, water, solsenic etc.
Vents, Shafts and Boreholes Subtotal						\$0		
Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$960.00		\$0		Assumes ~6 m road width - 16H Grader @ \$212 per hour.
Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,698		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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 @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	\$3,820				D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	\$4,595				D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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.
Roads and Tracks 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 @ \$332 per hour and 16H Grader @ \$212 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	\$960.00		\$0		16H Grader @ \$212 per hour - ripping in 1 direction only.
	Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		D10 dozer @ \$332 per hour - deep rip in 2 directions @ 5 m spacing ~3 hr per hectare.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour 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	\$35.00		\$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).
Earthworks / Structural Works (Landform Establishment) 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	\$20.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$10.00		\$0		4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,240		\$0		Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$2,095		\$0		Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y		m2	\$1.80		\$0		Rate can fluctuate however this is a suitable standard rate.
	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	\$860.00		\$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	\$9.50		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$4.00		\$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.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) 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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.

	Removal of evaporation fans and/or other water transfer and management infrastructure	Y		allow	\$25,000		\$0		Provisional sum for removal of water management infrastructure.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y		ha	\$900.00		\$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.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Infrastructure Domain							\$0		

Underground Operations

Domain 2b: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple stu	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) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. 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	\$100,000		\$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.
	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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	Y		m3	\$700.00		\$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	\$200.00		\$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	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos	Y		tonne	\$2,400		\$0		6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing \$20 / m2 for removal, 4 hours trucking @\$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		Assumes ASS is treatable via neutralisation and does not require capping and isolation.

	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y		m2	\$1.00		\$0		Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$960.00		\$0		Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,698		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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 @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	\$3,820		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	\$4,595		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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.
Roads and Tracks 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 @ \$332 per hour and 16H Grader @ \$212 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.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$960.00		\$0		16H Grader @ \$212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour 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	\$35.00		\$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).

Earthworks / Structural Works (Landform Establishment) Subtotal						\$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	Y		ha	\$81,000		\$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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	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.).
	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	Y		ha	\$108,000		\$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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	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.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline) and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	Y		ha	\$170,000		\$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 materials are available on site within 10 km, and an average cap thickness of approximately 2.5 m including growth media. 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.
	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.).
Mine Waste Subtotal						\$0		
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment)								Select Haul Distance Here
Source, cart and spread growth media (Select Haul Distance from List)		Y		m3	Select from List			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	\$1,240		\$0	Rate can fluctuate however this is a suitable standard rate.
Direct seeding / fertiliser (tree or native grass species)		Y		ha	\$2,095		\$0	Rate can fluctuate however this is a suitable standard rate.
Hydro-seeding with straw mulching and bitumen tack		Y		m2	\$1.80		\$0	Rate can fluctuate however this is a suitable standard rate.

	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	\$860.00		\$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	\$9.50		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$4.00		\$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 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 - allow nominal rate of \$60/m3 for imported fill material.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) 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.
	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.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y		ha	\$900		\$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.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Tailings & Rejects Domain							\$0		

Underground Operations

Domain 3b: Overburden & Waste

Total Cost for Overburden & Waste Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	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.
	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y		m2	\$1.00		\$0		Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$960.00		\$0		Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,698		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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 @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	\$3,820		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	\$4,595		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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.
Roads and Tracks 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 @ \$332 per hour and 16H Grader @ \$212 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	\$960.00		\$0		16H Grader @ \$212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour 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	\$35.00		\$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).
Earthworks / Structural Works (Landform Establishment) Subtotal							\$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	Y		ha	\$81,000		\$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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	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.).

	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	Y	ha	\$108,000		\$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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	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.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	Y	ha	\$170,000		\$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 2.5 m including growth media. 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.
	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.).
Mine Waste 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	\$20.00		\$0	4 m centres.
	Planting tube stock (<15 cm)	Y	allow	\$10.00		\$0	4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y	ha	\$1,240		\$0	Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y	ha	\$2,095		\$0	Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y	m2	\$1.80		\$0	Rate can fluctuate however this is a suitable standard rate.
	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	\$860.00		\$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	\$9.50		\$0	Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y	m	\$4.00		\$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 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 - allow nominal rate of \$60/m3 for imported fill material.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) 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.
	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.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y		ha	\$900.00		\$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.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Overburden & Waste Domain							\$0		

Underground Operations

Domain 4b: Subsidence and Management

Total Cost for Subsidence and Management Activities

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Subsidence Repairs	Minor stabilisation works and maintenance of mine subsidence areas - ripping etc.	Y		ha	\$1,500		\$0		D8 Dozer @ \$240 per hour and/or grader @ \$160 per hour.
	Crack filling to repair subsidence impacts	Y		m	\$1,485		\$0		Undertake more substantial works to backfill cracks and/or sink holes (e.g., filling with mulch prior to grouting, grouting, etc.)
	Water course restoration to repair subsidence impacts	Y		allow	Use alternate rate cell		\$0		Undertake more substantial works to remediate water courses (e.g., channel bed repairs, rock bar repairs, swamp stabilisation etc.)
	Create cut-through to re-establish natural water courses/drainage channels following subsidence	Y		allow	\$3,000		\$0		Includes all earthworks and revegetation required to re-establish the natural drainage profile of the subsided area.
Subsidence Repairs Subtotal							\$0		
Vents, Shafts and Boreholes	Maintenance and monitoring of sealed adits/portals and shafts (for a total of 5 years)	Y		allow	\$25,000		\$0		Estimate to undertake periodic inspections by a qualified person and provide a completions report for DRE sign-off.
Vents, Shafts and Boreholes Subtotal							\$0		
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 (includes 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.
Water Management Subtotal							\$0		
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		Assumes maintenance has been kept up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Y		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
Creek Diversions Subtotal							\$0		
Land Management	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.
Land Management 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 Items Subtotal							\$0		
Sundry Items	Development of an 'Unplanned' Project Closure Plan - for either State Significant or Non State Significant Developments	Y		allow	Select from List			Select Category Here	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
	DRE tender preparation and assessment, stakeholder consultation, risk assessment facilitation and management, statutory reporting and instruments, permitting and compliance requirements, document and data management	Y		allow	Use alternate rate cell		\$0		Provisional sum for the NSW Government to prepare tender documentation (i.e., demolition, waste disposal, earthworks, environmental management etc.), manage stakeholders and establish permitting and compliance requirements for closure.
	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.
	HAZMAT Clean-up - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	Y		allow	\$100,000		\$0		Provisional sum to perform the site clean-up and ensuring the demolition program is not interrupted due to potential contamination of waste streams.
	Removal and disposal of radiation devices	Y		each	\$25,000		\$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).
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y		allow	Use alternate rate cell		\$0		Provisional sum.
Sundry Items Subtotal							\$0		

Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry	Y		Item	\$40,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	Y		item	\$100,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	Y		item	\$150,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y		item	\$300,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	Y		item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation and Demobilisation Subtotal							\$0	
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
	Additional Items Subtotal							\$0	
Total Cost for Subsidence and Management Activities							\$0		

Underground Operations

Domain 1c: Infrastructure

Total Cost for Infrastructure Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
									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.
									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.
									Applies to power lines on stobie, concrete or similar poles.
									Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
									Major structures constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent.
									Simple structure to demolish, assumes single story building and segregation of contents for scrap as applicable.
									Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
									Crib huts, temporary offices and other "non permanent" structures - does not include transport to regional disposal facility or equivalent.
									Simple structure to demolish, assumes no greater than 2 stories high - does not include transport to regional disposal facility or equivalent.
									Needs to be calculated per floor/level (Assume 1 floor/level = 3; 4 m) - does not include transport to regional disposal facility or equivalent.
									Needs to be calculated per floor/level (Assume 1 floor/level = 3; 4 m) - does not include transport to regional disposal facility or equivalent.
									Needs to be calculated per floor/level (Assume 1 floor/level = 3; 4 m) - does not include transport to regional disposal facility or equivalent.
									Needs to be calculated per floor/level (Assume 1 floor/level = 3; 4 m) - does not include transport to regional disposal facility or equivalent.
									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.
									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.
									Includes both rails, does not include the conveyor system - does not include transport to regional disposal facility or equivalent.
									Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
									Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
									Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
									Collapse structure and remove - does not include transport to regional disposal facility 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.
							Estimate for elevated conveyor up to ~10 m off the ground - does not include transport to regional disposal facility or equivalent.
							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.
							Does not include conveyor removal or backfill.
							Due to no canopy or infrastructure attached.
							Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
							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.
							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.
							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.
							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.
							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.
							Assume tank is clean (contents removed) - does not include transport to regional disposal facility or equivalent.
							Assume tank is clean (contents removed) - does not include transport to regional disposal facility or equivalent.
							For example: 300 mm pipes - 0.5 m deep - does not include
							For example: 300 mm pipes - 1 m deep - does not include transport to regional disposal facility
							For example: 1 m pipes - 2 m deep.
							~300 mm pipes and assumes pipes are in close proximity to infrastructure areas - does not include transport to regional disposal facility or equivalent.
							~300 mm pipes and assumes pipes are used for water transfer
							Assumes infrastructure is moored and requires barge mobilisation to sever the mooring and / or is a significant fixed structure for controlled release of water - does not include transport to regional disposal facility or equivalent.
							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.
							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.
							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 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.

								Does not include haulage of materials - assumes crushing plant is readily available.
								Does not include haulage of materials - assumes crushing plant is readily available.
								Does not include haulage of materials - assumes crushing plant is readily available.
								Roll up fence and remove posts.
Subtotal						\$0		
Rail Infrastructure								
Remove rail loop and spur, ballast etc. - and disposal on-site/locally	Y		m	\$60.00		\$0		Remove all materials to allow area to be reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
Remove train loading facilities - and disposal on-site/locally	Y		m2	\$265.00		\$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	\$2,500		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation).
Rail Infrastructure Subtotal						\$0		
Contaminated Materials								
Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple stu	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) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
Undertake an intrusive site investigation. 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	\$100,000		\$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.
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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	Y		m3	\$700.00		\$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	\$200.00		\$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	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.

	Remove and dispose of asbestos	Y		tonne	\$2,400		\$0	6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing \$20 / m2 for removal, 4 hours trucking @ \$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0	Assumes ASS is treatable via neutralisation and does not require capping and isolation.
	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y		m2	\$1.00		\$0	Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0	
Vents, Shafts and Boreholes	Seal portals / drifts (width >3 m) – backfill the access for at least 50 m against a concrete bulk head with drainage slots. The rate includes some reshaping of batters around the adit entrance. If concrete bulk head not required, reduce rate by 25%	Y		allow	\$250,000		\$0	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, requirements for extra roof and/or rib support, equipment transport into the underground etc.
	Seal small adits (width <3 m) – install 0.5 concrete plug 3 m back from adit and backfill with appropriate material. The rate includes some reshaping of the batter around the entrance of the adit	Y		allow	\$25,000		\$0	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate assumes standard works program with suitable access, and additional roof and rib stabilisation works etc. is not required.
	Seal and rehabilitate ventilation fans shafts - allows for works in a remote location	Y		allow	\$150,000		\$0	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, equipment transport to the shaft etc.
	Install gate or grill over the adit (Where site might be used by bats)	Y		Item	\$200,000		\$0	Rate accounts for a range of factors including establishing clear access, and/or working in remote locations without services, and/or stabilisation works to prevent the entry collapsing and compromising the gate etc.
	Exploration boreholes – rehabilitate boreholes and drill pads as required	Y		depth (m)	\$40.00		\$0	Assumes a per metre drilling rate of ~\$150 / m of which ~25 - 30% is for rehabilitation which may include a variety of works (i.e., cut casing and install cap, install poly pipe to facilitate back-filling, grout preparation, grouting and capping, reshaping / ripping the drill pad, amelioration / seeding etc.)
	Exploration boreholes – backfill open bore holes with cuttings	Y		allow	\$300.00		\$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.
	Exploration boreholes – grout and cap open bore holes	Y		allow	\$7,950		\$0	Includes grouting and capping 100 - 200 m exploration boreholes to meet the requirements of EDG01.
	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	\$15,000		\$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 sleeves to prevent aquifer mixing.
	Boreholes – cap and seal service boreholes for UG operations	Y		allow	\$45,000		\$0	Includes large diameter boreholes used for supplying electricity (66kV), compressed air, water, solsenic etc.
Vents, Shafts and Boreholes Subtotal							\$0	
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$960.00		\$0	Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0	Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,698		\$0	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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 @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	\$3,820		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	\$4,595		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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.
Roads and Tracks 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 @ \$332 per hour and 16H Grader @ \$212 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	\$960.00		\$0		16H Grader @ \$212 per hour - ripping in 1 direction only.
	Deep rip hard stand / lay down areas	Y		ha	\$960.00		\$0		D10 dozer @ \$332 per hour - deep rip in 2 directions @ 5 m spacing ~3 hr per hectare.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour 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	\$35.00		\$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).
Earthworks / Structural Works (Landform Establishment) 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	\$20.00		\$0		4 m centres.
	Planting tube stock (<15 cm)	Y		allow	\$10.00		\$0		4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y		ha	\$1,240		\$0		Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y		ha	\$2,095		\$0		Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y		m2	\$1.80		\$0		Rate can fluctuate however this is a suitable standard rate.
	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	\$860.00		\$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	\$9.50		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$4.00		\$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.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) 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.
	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	Y		m3	Select from List			Select Haul Distance Here	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.

	Removal of evaporation fans and/or other water transfer and management infrastructure	Y		allow	\$25,000		\$0		Provisional sum for removal of water management infrastructure.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y		ha	\$900.00		\$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.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Infrastructure Domain							\$0		

Underground Operations

Domain 2c: Tailings & Rejects

Total Cost for Tailings & Rejects Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Contaminated Materials	Undertake a preliminary site investigation (Phase 1). This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple stu	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) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
	Undertake an intrusive site investigation. 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	\$100,000		\$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.
	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 High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	Y		m3	\$700.00		\$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	\$200.00		\$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	\$40.00		\$0		Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
	Remove and dispose of asbestos	Y		tonne	\$2,400		\$0		6 mm asbestos sheet approx. 15 kg / m2 = ~70 m2 per ton. Allowing \$20 / m2 for removal, 4 hours trucking @\$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
	Treatment of known Acid Sulfate Soils	Y		ha	\$2,580		\$0		Assumes ASS is treatable via neutralisation and does not require capping and isolation.

	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y		m2	\$1.00		\$0		Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$960.00		\$0		Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,698		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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 @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	\$3,820		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	\$4,595		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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.
Roads and Tracks 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 @ \$332 per hour and 16H Grader @ \$212 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.
	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	Y		ha	\$960.00		\$0		16H Grader @ \$212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour 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	\$35.00		\$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).

Earthworks / Structural Works (Landform Establishment) Subtotal						\$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	Y		ha	\$81,000		\$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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	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.).
	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	Y		ha	\$108,000		\$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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	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.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline) and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	Y		ha	\$170,000		\$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 materials are available on site within 10 km, and an average cap thickness of approximately 2.5 m including growth media. 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.
	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.).
Mine Waste 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
		Direct seeding / fertiliser (pasture grass species)	Y	ha	\$1,240		\$0	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
		Direct seeding / fertiliser (tree or native grass species)	Y	ha	\$2,095		\$0	Rate can fluctuate however this is a suitable standard rate.
		Hydro-seeding with straw mulching and bitumen tack	Y	m2	\$1.80		\$0	Rate can fluctuate however this is a suitable standard rate.

	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	\$860.00		\$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	\$9.50		\$0		Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y		m	\$4.00		\$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 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 - allow nominal rate of \$60/m3 for imported fill material.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) 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.
	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.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y		ha	\$900		\$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.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Tailings & Rejects Domain							\$0		

Underground Operations

Domain 3c: Overburden & Waste

Total Cost for Overburden & Waste Domain

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	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.
	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	Y		m2	\$1.00		\$0		Provisional sum for cutting using ripping tyres and on-site disposal of the liner.
Contaminated Materials Subtotal							\$0		
Roads and Tracks	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	Y		ha	\$960.00		\$0		Assumes ~6 m road width - 16H Grader @ \$212 per hour.
	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	Y		ha	\$1,500		\$0		Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	Y		ha	\$3,698		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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 @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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	\$3,820		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 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	\$4,595		\$0		D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - 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.
Roads and Tracks 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 @ \$332 per hour and 16H Grader @ \$212 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	\$960.00		\$0		16H Grader @ \$212 per hour - ripping in 1 direction only.
	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	Y		ha	\$1,600		\$0		Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour 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	\$35.00		\$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).
Earthworks / Structural Works (Landform Establishment) Subtotal							\$0		
Mine Waste	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	Y		ha	\$81,000		\$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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.
	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.).

	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	Y	ha	\$108,000		\$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 of approximately 2 m including growth media. This may require additional materials (such as 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.
	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.).
	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	Y	ha	\$170,000		\$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 2.5 m including growth media. 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.
	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.).
Mine Waste 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	\$20.00		\$0	4 m centres.
	Planting tube stock (<15 cm)	Y	allow	\$10.00		\$0	4 m centres.
	Direct seeding / fertiliser (pasture grass species)	Y	ha	\$1,240		\$0	Rate can fluctuate however this is a suitable standard rate.
	Direct seeding / fertiliser (tree or native grass species)	Y	ha	\$2,095		\$0	Rate can fluctuate however this is a suitable standard rate.
	Hydro-seeding with straw mulching and bitumen tack	Y	m2	\$1.80		\$0	Rate can fluctuate however this is a suitable standard rate.
	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	\$860.00		\$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	\$9.50		\$0	Standard rate for no-climb stock fencing.
	Construct standard stock fence around rehabilitated areas	Y	m	\$4.00		\$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 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 - allow nominal rate of \$60/m3 for imported fill material.
Land Preparation and Revegetation (Growth Media Development and Ecosystem Establishment) 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.
	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.
Water Management Subtotal							\$0		
Maintenance of Rehabilitated Areas	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	Y		ha	\$900.00		\$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.
Maintenance of Rehabilitated Areas Subtotal							\$0		
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
Additional Items Subtotal							\$0		
Total Cost for Overburden & Waste Domain							\$0		

Underground Operations

Domain 4c: Subsidence and Management

Total Cost for Subsidence and Management Activities

\$0

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

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

Management Precinct	Activity / Description	Applicable (Y or N)	Quantity	Unit	Default Unit Rate	Alternative Unit Rate	Total Cost	Basis for Costs Estimation and Additional Relevant Information	Description / Notes:
Subsidence Repairs	Minor stabilisation works and maintenance of mine subsidence areas - ripping etc.	Y		ha	\$1,500		\$0		D8 Dozer @ \$240 per hour and/or grader @ \$160 per hour.
	Crack filling to repair subsidence impacts	Y		m	\$1,485		\$0		Undertake more substantial works to backfill cracks and/or sink holes (e.g., filling with mulch prior to grouting, grouting, etc.)
	Water course restoration to repair subsidence impacts	Y		allow	Use alternate rate cell		\$0		Undertake more substantial works to remediate water courses (e.g., channel bed repairs, rock bar repairs, swamp stabilisation etc.)
	Create cut-through to re-establish natural water courses/drainage channels following subsidence	Y		allow	\$3,000		\$0		Includes all earthworks and revegetation required to re-establish the natural drainage profile of the subsided area.
Subsidence Repairs Subtotal							\$0		
Vents, Shafts and Boreholes	Maintenance and monitoring of sealed adits/portals and shafts (for a total of 5 years)	Y		allow	\$25,000		\$0		Estimate to undertake periodic inspections by a qualified person and provide a completions report for DRE sign-off.
Vents, Shafts and Boreholes Subtotal							\$0		
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 (includes 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.
Water Management Subtotal							\$0		
Creek Diversions	Repairs and/or stabilisation of new or compromised water course diversion	Y		m	\$2,500		\$0		Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
	Long term maintenance of water course diversion – Channel constructed through backfilled material	Y		m	\$1,500		\$0		Assumes maintenance has been kept up and significant works are not required.
	Long term maintenance of water course diversion – Channel constructed through competent material	Y		m	\$750.00		\$0		Assumes maintenance has been kept up and significant works are not required.
	Installation of rock armouring	Y		m2	\$6.00		\$0		Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
Creek Diversions Subtotal							\$0		
Land Management	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.
Land Management 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 Items Subtotal							\$0		
Sundry Items	Development of an 'Unplanned' Project Closure Plan - for either State Significant or Non State Significant Developments	Y		allow	Select from List			Select Category Here	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
	DRE tender preparation and assessment, stakeholder consultation, risk assessment facilitation and management, statutory reporting and instruments, permitting and compliance requirements, document and data management	Y		allow	Use alternate rate cell		\$0		Provisional sum for the NSW Government to prepare tender documentation (i.e., demolition, waste disposal, earthworks, environmental management etc.), manage stakeholders and establish permitting and compliance requirements for closure.
	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.
	HAZMAT Clean-up - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	Y		allow	\$100,000		\$0		Provisional sum to perform the site clean-up and ensuring the demolition program is not interrupted due to potential contamination of waste streams.
	Removal and disposal of radiation devices	Y		each	\$25,000		\$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).
	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	Y		allow	Use alternate rate cell		\$0		Provisional sum.
Sundry Items Subtotal							\$0		

Mobilisation and Demobilisation	Mobilisation & Demobilisation for small mine or quarry	Y		Item	\$40,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site <150 km)	Y		item	\$100,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	Y		item	\$150,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	Y		item	\$300,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation & Demobilisation (Distance to site >1000 km)	Y		item	\$500,000		\$0		May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
	Mobilisation and Demobilisation Subtotal							\$0	
Additional Items	Other 1 <insert>	N			This is				This item includes <<to be added by the operator>>
	Other 2 <insert>	N			deliberately				This item includes <<to be added by the operator>>
	Other 3 <insert>	N			left blank				This item includes <<to be added by the operator>>
	Additional Items Subtotal							\$0	
Total Cost for Subsidence and Management Activities								\$0	

Assumptions and Rehabilitation Requirements

List or record any assumptions made when completing this tool:

[illegible]



Justification for Change of Rates in the DRG's Rehabilitation Cost Estimation Tool

Domain	Activity	DRE unit/rate	Adopted Rates	Justification

In completing the Rehabilitation Cost Estimation, we are seeking an adjustment to the rates currently utilised in the DRG 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.

.....
Authorisation Representatives Name

.....
Date

.....
Authorisation Representatives Role / Responsibility

.....
Signature

Definitions for the DRG Rehabilitation Cost Estimation Tool

Term	Meaning
adit	Entrance to an underground mine which is horizontal or nearly horizontal, by which the mine can be entered, drained of water and ventilated
amelioration	Addition of materials to change physical or chemical properties of soil, tailings, or other materials.
aquifer	Has the same meaning as it has in the <i>Water Management Act 2000</i> .
armouring	Application of a self-sustaining mechanism for erosion control typically utilising rock.
authority	Means an exploration licence, an assessment lease or a mining lease granted under the <i>Mining Act 1992</i> .
authorisation	Means an authority, a small-scale title or an environmental assessment permit granted under section 252 in force under the <i>Mining Act 1992</i> .
backfill	The act of placing material to refill an excavation or void (such as an open cut or dam).
ballast (rail)	A free draining coarse aggregate or metallurgical slag used to support railway tracks and allow for drainage.
batters	Slopes manufactured during mining and/or excavation activities.
borehole	A hole made by drilling or boring, but excludes sampling and coring using hand held equipment; and petroleum wells.
capillary break	A layer of coarse material placed between finer-textured materials to prevent the vertical movement of water (and associated salts) by surface tension from the lower, finer-textured material into the upper finer-textured material (such as topsoil or growth media). It can also function to limit root penetration into the underlying seal and more than one capillary break can be present within a cover design.
capping / sealing	The act of applying material (such as clay) in a usually engineered design to seal off underlying material (such as waste, contaminated soil or spoil) in order to prevent exposure of this material to the environment and outside conditions.
CHPP	Coal Handling and Processing Plant - A plant used to upgrade the quality of coal including crushing, sizing washing and drying.
Clearing of vegetation	Any one or more of the following: - cutting down, felling, thinning, lopping, logging or removing vegetation - killing, destroying, poisoning, ringbarking, uprooting or burning vegetation.
contaminated	Condition or state where there is/are potentially hazardous substance(s) at concentrations above background or recommended land use levels and where assessment shows it poses, or is likely to pose, an immediate or long-term hazard to human health or the environment.
contour banks	Earthen structures constructed across cultivated slopes.
crusher/crushing plant	Equipment that crushes ore or rock - also referred to as a mill
demountable	A transportable prefabricated structure/building produced off site and transported to site, designed to be movable rather than permanently located.
Department	The Division of Resources and Geosciences within the NSW Department of Planning and Environment.
desiccation	Process of removing moisture or extreme drying.
de-water	Removal or draining groundwater or surface water from a structure by pumping or evaporation.
diversion	A drain or channel that diverts stormwater runoff around a site or landform.
earthworks	Equipment activity involving the placement and working of large amounts of earth to engineering or other design specification (such as cut and fill operations for roads, dams, landforms, etc.).
evaporation fans	Fans used to evaporate water as an alternative to discharging water off-site.
excavation	The removal of the surface layer of land to a depth greater than 500 mm from the natural surface level of that land.

exploration	Has the same meaning as it has in the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i> .
gas drainage	A method of reducing the in-situ gas content of the seam to within acceptable limits by drilling holes into the seam or surrounding strata ahead of mining.
goaf	The space remaining following extraction of the mineral.
groundwater	Water that occurs beneath the ground surface in the saturated zone.
hardstand	A hard-surfaced area on which heavy vehicles can be parked and equipment can be stored.
haul road	Roads used to transport mine materials (product and waste).
HAZMAT	Anything that, when produced, stored, moved, used or otherwise dealt with without adequate safeguards to prevent it from escaping, may cause injury or death or damage to life, property or the environment.
Item of heritage significance	Means: • any heritage items listed in one or more of the following: — the Commonwealth Heritage List — the World Heritage List — the National Heritage List — the State Heritage Register — an Environmental Planning Instrument • any relic (being any deposit, object or material evidence which relates to the settlement of the area that comprises New South Wales, not being Aboriginal settlement, and which is 50 or more years old) • within State Conservation Areas: — items that are listed on the DECC Historic Heritage Information Management System — in all other circumstances, any deposit, object or material evidence relating to the settlement or occupation of New South Wales or a part of New South Wales (not being Aboriginal settlement or occupation) if the deposit, object or material evidence is more than 25 years old at the date of the interference or removal.
leach	Dissolution and removal of a soluble substance from a substrate.
mine subsidence	Movement of strata resulting from the extraction of coal, metals or minerals and incorporates vertical ground movement (strain) and differential vertical movement (tilt).
open cut	Open-cut mining occurs where mineral deposits are close to the surface and typically involves blasting and removing surface layers of soil and rock to reach the mineral deposit. Also referred to as open-pit, or open-cast mining.
overburden	Top soil/strata overlying a coal seam.
petroleum title	means an exploration licence, assessment lease, production lease or special prospecting authority in force under the <i>Petroleum (Onshore) Act 1991</i> .
petroleum well	Means a hole made by drilling or boring in connection with prospecting for petroleum or operations for the recovery of petroleum, but excludes: • sampling and coring using hand held equipment • a hole constructed and operated for the following purposes where the operation of that hole does not involve fracture stimulation or the recovery of petroleum: — stratigraphic definition — seismic (for example shot holes, geophone, tilt meters bores)

DRG Schedule of Rehabilitation Costs

Reference Data V4



Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
Termination of Services and Demolition Works				
1.01	Disconnect and terminate all services (Water, electricity, gas etc at point of attachment to site)	allow	\$ 35,000	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.
1.02	Disconnect and terminate services at remote areas (i.e., pump stations, remote workshops, sewage treatment plant, etc.)	allow	\$ 5,500	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.
1.03	Removal of low/medium voltage powerlines including disconnection, rolling up the wires and removing the poles - does not include the removal of substations	km	\$ 15,000	Applies to power lines on stobie, concrete or similar poles.
1.04	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	km	\$ 100,000	Applies to power lines on steel tower and steel lattice structures assuming 3 towers / km.
1.05	Remove 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	Item	\$ 350,000	Major structures constructed for the purposes of mining related works - does not include transport to regional disposal facility or equivalent.
1.06	Demolish and/or remove substations (Assumes they are in a closed building) - dispose of waste material on-site/locally	m²	\$ 600.00	Simple structure to demolish, assumes single story building and segregation of contents for scrap as applicable.
1.07	Demolish and remove switchyard - dispose of waste material on-site/locally	m²	\$ 55.00	Includes demolition and removal of all switchgear and transformers etc. and segregation of contents for scrap as applicable.
1.08	Demolish and remove demountable structures on concrete stumps - assumes not being re-used	m²	\$ 40.00	Crib huts, temporary offices and other "non permanent" structures - does not include transport to regional disposal facility or equivalent.
1.09	Demolish and remove small buildings/tanks (admin buildings, single story accommodation etc) - and disposal on-site/locally	m²	\$ 65.00	Simple structure to demolish, assumes no greater than 2 stories high - does not include transport to regional disposal facility or equivalent.
1.10	Demolish and remove light industrial buildings - and disposal on-site/locally	m²/floor	\$ 115.00	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent.
1.11	Demolish and remove industrial buildings (workshops tyre change and servicing area etc - not CHPP/process plant) - and disposal on-site/locally	m²/floor	\$ 180.00	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent.
1.12	Demolish and remove CHPP/process plant (include the area of each floor of the structure) - and disposal on-site/locally	m²/floor	\$ 265.00	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent.
1.13	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	m²/floor	\$ 265.00	Needs to be calculated per floor/level (Assume 1 floor/level = 3-4 m) - does not include transport to regional disposal facility or equivalent.
1.14	Collapse, demolish and remove stacker OR reclaim (radial or luffing etc. with maneuverability for stockpile control) - and disposal on-site/locally	allow	\$ 1,000,000	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.
1.15	Collapse, demolish and remove bucket wheel stacker/reclaimer - and disposal on-site/locally	allow	\$ 2,500,000	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.
1.16	Remove stacker/reclaimer rails and ballast and demolish and remove concrete footings etc. - and disposal on-site/locally	m	\$ 75.00	Includes both rails, does not include the conveyor system - does not include transport to regional disposal facility or equivalent.
1.17	Collapse, Cut and Remove 5000T coal silo - and disposal on-site/locally	allow	\$ 100,000	Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
1.18	Collapse, Cut and Remove 3000 T coal silo - and disposal on-site/locally	allow	\$ 85,000	Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
1.19	Collapse, Cut and Remove 1250 T coal silo - and disposal on-site/locally	allow	\$ 65,000	Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
1.20	Collapse, Cut and Remove rail loading bins - and disposal on-site/locally	allow	\$ 65,000	Collapse structure and remove - does not include transport to regional disposal facility or equivalent.
1.21	Demolish and remove onground conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) - and disposal on-site/locally	m	\$ 210.00	Estimate for on-ground conveyor including anything up to 10 m off the ground - does not include transport to regional disposal facility or equivalent.
1.22	Demolish and remove elevated conveyors, transfer stations & gantries (scrap only – does not include dismantling for reuse at another site) - and disposal on-site/locally	m	\$ 370.00	Estimate for elevated conveyor up to ~10 m off the ground - does not include transport to regional disposal facility or equivalent.
1.23	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 infrastructure	m	\$ 1,200	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.
1.24	Demolish reclaim tunnel, cut reo and expose reclaim conveyor, then collapse into the reclaim tunnel void (Does not include excavation to expose reclaim tunnel, removal of conveyor or backfilling void)	m²	\$ 80.00	Does not include conveyor removal or backfill.
1.25	Remove and demolish conveyor from reclaim tunnel (Does not include excavation and demolition of reclaim tunnel roof)	m	\$ 150.00	Due to no canopy or infrastructure attached.
1.26	Demolition of reclaim tunnel concrete (Assumes complete removal and dumping in mine pit void)	m	\$ 950.00	Assumes this area will be used for another land-use that requires the structure to be dug up and re-buried somewhere else.
1.27	Demolition and removal of vent raise fans, electrical substation and winch - and disposal on-site/locally	allow	\$ 25,000	Does not include filling and capping the shaft - does not include transport to regional disposal facility or equivalent.
1.28	Demolish and remove small tank clean (Thickener etc 3 - 9 m diameter) - and disposal on-site/locally	allow	\$ 10,000	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.
1.29	Demolish and remove medium tank clean (Thickener etc 10 - 15 m diameter) - and disposal on-site/locally	allow	\$ 30,000	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.
1.30	Demolish and remove large tank clean (Thickener etc 15 - 30 m diameter) - and disposal on-site/locally	allow	\$ 45,000	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.
1.31	Demolish and remove extra large tank clean (Thickener etc >30 m diameter) - and disposal on-site/locally	allow	\$ 85,000	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.
1.32	Demolish and remove tank clean (Thickener etc) >50 m diameter - and disposal on-site/locally	allow	\$ 100,000	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.
1.33	Removal of UG tank <5000 L - including pipes, bunds etc. - and disposal on-site/locally	allow	\$ 21,000	Assume tank is clean (contents removed) - does not include transport to regional disposal facility or equivalent.
1.34	Removal of UG tank 5000 L - 15000 L - including pipes, bunds etc. - and disposal on-site/locally	allow	\$ 30,000	Assume tank is clean (contents removed) - does not include transport to regional disposal facility or equivalent.
1.35	Remove small underground pipe - and disposal on-site/locally	m	\$ 25.00	For example: 300 mm pipes - 0.5 m deep - does not include transport to regional disposal facility or equivalent.

Item		Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
1.36		Remove medium underground pipe - and disposal on-site/locally	m	\$ 60.00	For example: 500 mm pipes - 1 m deep - does not include transport to regional disposal facility or equivalent.
1.37		Remove large underground pipe - and disposal on-site/locally	m	\$ 165.00	For example: 1 m pipes - 2 m deep.

Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
1.38	Remove above ground pipe (supported) and disposal on-site/locally	m	\$ 12.00	~300 mm pipes and assumes pipes are in close proximity to infrastructure areas - does not include transport to regional disposal facility or equivalent.
1.39	Remove surface pipelines (unsupported) - and disposal on-site/locally	m	\$ 15.00	~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.
1.40	Remove pump and pontoon from a lake or dam including pipes and electrical supply or diesel tank/s - and disposal on-site/locally	allow	\$ 150,000	Assumes infrastructure is moored and requires barge mobilisation to sever the mooring and / or is a significant fixed structure for controlled release of water - does not include transport to regional disposal facility or equivalent.
1.41	Remove bitumen (car park and access roads) and dispose on-site/locally	m ²	\$ 10.00	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.
1.42	Remove bitumen (airstrip) and dispose on-site/locally	m ²	\$ 20.00	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.
1.43	Remove concrete pads & footings (<300 mm thickness) and disposal on-site/locally	m ²	\$ 37.00	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.
1.44	Remove concrete pads & footings (>300 mm thickness) and disposal on-site/locally	m ²	\$ 75.00	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.
1.45	Crush concrete to make road aggregate - 75 mm	tonne	\$ 17.00	Does not include haulage of materials - assumes crushing plant is readily available.
1.46	Crush concrete to make road aggregate - 50 mm	tonne	\$ 20.00	Does not include haulage of materials - assumes crushing plant is readily available.
1.47	Crush concrete to make road aggregate - 30 mm	tonne	\$ 22.00	Does not include haulage of materials - assumes crushing plant is readily available.
1.48	Remove fence (cyclone/wire fence) - and disposal on-site/locally	m	\$ 20.00	Roll up fence and remove posts.
Rail Infrastructure				
2.01	Remove rail loop and spur, ballast etc. - and disposal on-site/locally	m	\$ 60.00	Remove all materials to allow area to be reshaped and rehabilitated - does not include transport to regional disposal facility or equivalent.
2.02	Remove train loading facilities - and disposal on-site/locally	m ²	\$ 265.00	Remove rail load point infrastructure including gantries and control structures - does not include transport to regional disposal facility or equivalent.
2.03	Reshape rail spur and load out areas - does not include growth media and revegetation	ha	\$ 2,500	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation).
Contaminated Materials				
3.01a	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 stu	Cluster	\$ 15,000	The preliminary investigation would include at minimum a desktop assessment of the area and site history, incidents, etc. as per the National Environmental Protection (Site Contamination) Measure (NEPM) Phase 1 assessment (EP Act Section 389 (2) (iv)) or similar approved and recognised assessment method. A cluster may include: - Mine infrastructure (i.e., fuel / chemical store, workshop, vehicle wash-down, sewage treatment etc.) - Processing plants (i.e., ore and product storage, mine waste storage and disposal, rail load-out etc.) - Remote pit-top facilities (i.e., vehicle re-fuel, sewage treatment, secondary workshop, chemical storage etc.)
3.01b	Undertake an intrusive site investigation. This accounts for current and historical locations where areas of disturbance are clustered. If there are multiple cluster areas on site, multiple intrusive investigations should be included.	Cluster	\$ 100,000	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.
3.02	Removal and disposal of contaminated water from tanks, bunded areas and sumps	L	\$ 0.35	Cost for recent sump clean-up from resource activity - requires specialists to treat.
3.03-	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)	m ³	Select from List	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.
3.03a	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 (haul distance < 1km)	m ³	\$ 3.90	D10 Rip and push into void at \$270/hr, 0.2ha/hr, 150mm deep. 657 Scrapers cut to spoil at \$430/hr, 150BCM/hr/machine, Ancillary watercart and grader at \$0.75c/m3
3.03b	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 (haul distance >1 km but <2 km)	m ³	\$ 5.31	D10 Rip and push into void at \$270/hr, 0.2ha/hr, 150mm deep. 657 Scrapers cut to spoil at \$430/hr, 130BCM/hr/machine, Ancillary watercart and grader at \$0.75c/m3
3.03c	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 (haul distance >2 km but <5 km)	m ³	\$ 6.67	D10 Rip and push into stockpile at \$270/hr, 0.2ha/hr, 150mm deep. Excavator (\$220/hr) load Artic Trucks (90c/km)
3.03d	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 (haul distance >5 km)	m ³	\$ 8.92	As above, generally overhaul rates will be 60c-\$1.2, depending on truck fleet, loaders etc. - assumed 7.5 km. If haul distance is greater than 7.5 km, alternate rate option should be used - \$8.92 + additional km x \$0.90.
3.04	Load, cart and dispose of High Level contaminated material off site to a licensed landfill. Assumes cartage to a licensed landfill	m ³	\$ 700.00	Includes load, haul and dump fees to a licensed facility.
3.05	Load, cart and disposal of Low Level contaminated material off site to a licensed landfill. Add \$50/m ³ for cartage to regional landfill	m ³	\$ 200.00	Includes load, haul and dump fees to a licensed facility.
3.06-	Onsite remediation of hydrocarbon contaminated soils manual land farming (Select Volume from List)	m ³	Select from List	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.
3.06a	Onsite remediation of hydrocarbon contaminated soils (<50 m ³) - manual land farming	m ³	\$ 55.00	Current rates still adequate and recommend continue to allow for economies of scale.
3.06b	Onsite remediation of hydrocarbon contaminated soils (>50 m ³ but <100 m ³) - manual land farming	m ³	\$ 44.00	Current rates still adequate and recommend continue to allow for economies of scale.
3.06c	Onsite remediation of hydrocarbon contaminated soils (>100 m ³ but <500 m ³) - manual land farming	m ³	\$ 33.00	Current rates still adequate and recommend continue to allow for economies of scale.
3.06d	Onsite remediation of hydrocarbon contaminated soils (>500 m ³) - manual land farming	m ³	\$ 30.00	Current rates still adequate and recommend continue to allow for economies of scale.
3.07	Mobilisation of cement stabilisation plant and equipment for hydrocarbon (i.e., PAH, long chain hydrocarbons, etc.) contaminated soil treatment	Item	\$ 150,000	Required if treatment of hydrocarbon contamination is required to be fast tracked.
3.08	On-site remediation of hydrocarbon contaminated soils - using a mobile treatment unit	m ³	\$ 165.00	Additional cost as the treatment process is fast tracked.

Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
3.09	Remove and dispose of asbestos (<750 m ²)	m ²	\$ 50.00	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
3.10	Remove and dispose of asbestos (>750 m ²)	m ²	\$ 40.00	Where an assessment/estimation has been made to confirm the volume of asbestos to be removed.
3.11	Remove and dispose of asbestos	tonne	\$ 2,400	6 mm asbestos sheet approx. 15 kg / m ² = ~70 m ² per ton. Allowing \$20 / m ² for removal, 4 hours trucking @\$125 and \$100 / t disposal plus 20% OHP = \$2,400 / t.
3.12	Treatment of known Acid Sulfate Soils	ha	\$ 2,580	Assumes ASS is treatable via neutralisation and does not require capping and isolation.
3.13	Removal and disposal of plastic liner (i.e., dam, leach pad, sump etc.)	m ²	\$ 1.00	Provisional sum for cutting using ripping tynes and on-site disposal of the liner.

Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
Vents, Shafts and Boreholes				
4.01	Seal portals / drifts (width >3 m) – backfill the access for at least 50 m against a concrete bulk head with drainage slots. The rate includes some reshaping of batters around the adit entrance. If concrete bulk head not required, reduce rate by 25%	allow	\$ 250,000	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, requirements for extra roof and/or rib support, equipment transport into the underground etc.
4.02	Seal small adits (width <3 m) – install 0.5 concrete plug 3 m back from adit and backfill with appropriate material. The rate includes some reshaping of the batter around the entrance of the adit	allow	\$ 25,000	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate assumes standard works program with suitable access, and additional roof and rib stabilisation works etc. is not required.
4.03	Seal and rehabilitate ventilation fans shafts - allows for works in a remote location	allow	\$ 150,000	Cost estimated from planned and executed works programs in NSW from multiple sites. Rate accounts for a range of factors including variations in depth and size, accessibility limitations, equipment transport to the shaft etc.
4.04	Maintenance and monitoring of sealed adits/portals and shafts (for a total of 5 years)	allow	\$ 25,000	Estimate to undertake periodic inspections by a qualified person and provide a completions report for DRE sign-off.
4.05	Install gate or grill over the adit (Where site might be used by bats)	Item	\$ 200,000	Rate accounts for a range of factors including establishing clear access, and/or working in remote locations without services, and/or stabilisation works to prevent the entry collapsing and compromising the gate etc.
4.06a	Exploration boreholes – rehabilitate boreholes and drill pads as required	depth (m)	\$ 40.00	Assumes a per metre drilling rate of ~\$150 / m of which ~25 - 30% is for rehabilitation which may include a variety of works (i.e., cut casing and install cap, install poly pipe to facilitate back-filling, grout preparation, grouting and capping, reshaping / ripping the drill pad, amelioration / seeding etc.)
4.06b	Exploration boreholes – backfill open bore holes with cuttings	allow	\$ 300.00	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.
4.07	Exploration boreholes – grout and cap open bore holes	allow	\$ 7,950	Includes grouting and capping 100 - 200 m exploration boreholes to meet the requirements of EDG01.
4.08	Boreholes – cap and seal open bore holes with steel casing (i.e., goaf drainage etc.)	allow	\$ 6,960	Holes deeper than 100 m - includes cutting steel collar 6 m below surface, grouting and capping.
4.09	Boreholes – cap and seal open bore holes - surface-to-in-seam gas drainage	allow	\$ 15,000	Surface-to-in-seam gas drainage boreholes.
4.10	Boreholes – cap and seal open bore holes - vertical gas drainage	allow	\$ 16,000	Vertical gas drainage boreholes.
4.11	Boreholes – grout (with concrete) cap and seal bore holes (i.e. where sealing aquifers)	allow	\$ 35,000	Includes multi skin sleeves to prevent aquifer mixing.
4.12	Boreholes – cap and seal service boreholes for UG operations	allow	\$ 45,000	Includes large diameter boreholes used for supplying electricity (66kV), compressed air, water, solsenic etc.
Roads and Tracks				
5.01	Unsealed roads / vehicle park-up areas – minor works including deep rip and trim	ha	\$ 960	Assumes ~6 m road width - 16H Grader @ \$212 per hour.
5.02	Unsealed roads / access tracks / vehicle park-up areas with windrows and/or small earthen bunds – minor earthworks and deep rip and trim	ha	\$ 1,500	Assumes ~20 m road width - D10 Dozer @ \$332 per hour.
5.03	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip and seed (pasture grass)	ha	\$ 3,698	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - pasture grass seed.
5.04	Unsealed roads / vehicle park-up areas – Minor earthworks, final trim and deep rip, ameliorate and seed (native tree/shrub/grass)	ha	\$ 4,485	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - tree/shrub seed.
5.05	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)	ha	\$ 3,820	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - pasture grass seed.
5.06	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)	ha	\$ 4,595	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation) - tree/shrub seed.
5.07-	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (Select Haul Distance from list)	m³	Select from List	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.
5.07a	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (haul distance < 1km)	m³	\$ 4.45	D10 Rip and push into void at \$270/hr, 0.2ha/hr, 150mm deep. 657 Scrapers cut to spoil at \$430/hr, 150BCM/hr/machine, Ancillary watercart and grader at \$0.75c/m3
5.07b	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (haul distance >1 km but <2 km)	m³	\$ 5.64	D10 Rip and push into void at \$270/hr, 0.2ha/hr, 150mm deep. 657 Scrapers cut to spoil at \$430/hr, 130BCM/hr/machine, Ancillary watercart and grader at \$0.75c/m3
5.07c	Remove stabilised material (blue metal, aggregate etc.) from roadways and disposal on-site/locally (haul distance >2 km but <5 km)	m³	\$ 7.20	D10 Rip and push into stockpile at \$270/hr, 0.2ha/hr, 150mm deep. Excavator (\$220/hr) load Artic Trucks (90c/km)
5.07d	Remove stabilised material (blue metal, aggregate etc.) from roadways and dump in a void on-site (haul distance >5 km)	m³	\$ 9.45	Generally overhaul rates will be 60c-\$1.2, depending on truck fleet, loaders etc. - assumed 7.5 km. If haul distance is greater than 7.5 km, alternate rate option should be used - \$9.45 + additional km x \$0.90.
Open Cut				
6.01	Active pit area – benches blasted and doze to acceptable grade	Lm	\$ 1.70	Blasting at 90c/m3, D11 push at \$350 and 375 bcm/hr (80c/m3).
6.02	Drill & blast faces to make safe	m³	\$ 0.90	Bulk Drilling say 8*9 pattern, assuming a stem height of 6 m, charge length of 19 m, explosive density of 0.9, diameter of 229 mm, explosives at 665.3 kg/hole with a powder factor of 0.37 with an approximate bench height of 25 m will allow drilling and blasting at \$0.90/bcm.
6.03	High wall treatment – (trench and safety berm)	m	\$ 90.00	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour including revegetation with pasture grass.
Earthworks / Structural Works				
7.01-	Major bulk pushing to achieve grades nominated in the approval/permit – Select Push Length	m³	Select from List	Major bulk pushing to achieve grades nominated in the approval/permit
7.01a	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m push length	m³	\$ 0.80	D11 push at \$350 and 400 bcm/hr
7.01b	Major bulk pushing to achieve grades nominated in the approval/permit – 50 m-75 m push length	m³	\$ 1.14	D11 push at \$350 and 375 bcm/hr
7.01c	Major bulk pushing to achieve grades nominated in the approval/permit – 75 m-100 m push length)	m³	\$ 1.42	D11 push at \$350 and 250 bcm/hr
7.01d	Major bulk pushing to achieve grades nominated in the approval/permit – 150 m push length)	m³	\$ 1.89	D11 push at \$350 and 175 bcm/hr
7.02	Minor reshaping and pushing	ha	\$ 3,900	D10 Dozer @ \$332 per hour and 16H Grader @ \$212 per hour (50% utilisation).
7.03	Structural works, banks, waterways - contour banks, drainage channels and other soil conservation measures	ha	\$ 1,600	Combination of dozer and excavator work. Small dozer (D6 or similar) @ ~\$200 per hour plus grader @ \$212 per hour for ~4 hours each per ha.
7.04	Construction of spine drains / drop structures and/or stabilising water course entry points - required for large catchments	m²	\$ 35.00	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).
Mine Waste				
8.01	Reshaping, capping / sealing of a structure unlikely to present difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and physical properties (i.e., shear strength, etc.) - where the mine waste stream is geochemically benign and / or the strength condition within the upper 4 - 6 m meets the target shear strength profile.	ha	\$ 81,000	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 1 m including growth media. Water quality from runoff, seepage etc. meets site-specific environment water quality values.

Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
8.01a	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	allow	Use alternate rate cell	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
8.01b	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	allow	Use alternate rate cell	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
8.02	Reshaping, capping / sealing of structure likely to present moderate difficulties due to chemistry – reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), or physical properties – shear strength, etc. limiting equipment choice.	ha	\$ 108,000	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 of approximately 2 m including growth media. This may require additional materials (such as 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.
8.02a	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	allow	Use alternate rate cell	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
8.02b	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	allow	Use alternate rate cell	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
8.03	Reshaping, capping / sealing of structure likely to present considerable difficulties due to reactive materials (ARD / AMD / PAF / NMD / carbonaceous / saline), and / or physical properties (low shear strength greatly limiting equipment selection for material placement etc.)	ha	\$ 170,000	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 2.5 m including growth media. 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.
8.03a	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	allow	Use alternate rate cell	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).
8.03b	Additional materials required for reshaping, capping / sealing of structure to facilitate water quality from runoff, seepage etc. meeting site-specific environment water quality values.	allow	Use alternate rate cell	Include additional cost to import materials (i.e., shale / clay, competent drainage materials etc.) and / or additional requirements (i.e., geofabric / composite lining etc.).

Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
Rehabilitation				
9.01-	Source, cart and spread growth media (Select Haul Distance from List)	m ³	Select from List	If topsoil is not available on-site, then Virgin Excavated Natural Material (VENM) may need to be externally sourced.
9.01a	Source, cart and spread growth media - haul distance <1 km	m ³	\$ 3.26	610 m3/hr with 4 x 657 scrapers at \$430/hr, D10 trimming at \$270/hr 3ha/day at 150mm depth
9.01b	Source, cart and spread growth media - haul distance >1 km but <2 km	m ³	\$ 3.91	550 m3/hr with 4 x 657 scrapers at \$430/hr, D10 trimming at \$270/hr 3ha/day at 150mm depth
9.01c	Source, cart and spread growth media - haul distance >2 km but <5 km	m ³	\$ 5.97	D10 (2ha/day) pushing from stockpiled material from 80t exc and artic trucks.
9.01d	Source, cart and spread growth media - haul distance >5 km	m ³	\$ 8.22	Plus 90c/km - assumed 7.5 km. If haul distance is greater than 7.5 km, alternate rate option should be used - \$9.50 + additional km x \$0.90.
9.02-	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)	m ³	Select from List	This item includes the volume of material requiring backfill using an excavator and scraper to fill the void and enable the establishment of rehabilitation.
9.02a	Fill dams, voids etc. - Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (haul distance <1 km)	m ³	\$ 3.90	D10 push over soft material at \$270/hr 657 Scrapers cut to spoil at \$430/hr, 150BCM/hr/machine, Ancillary watercart and grader at \$0.75c/m3
9.02b	Fill dams, voids etc. - Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (haul distance >1 km but <2 km)	m ³	\$ 5.22	D10 push over soft material at \$270/hr 657 Scrapers cut to spoil at \$430/hr, 130BCM/hr/machine, Ancillary watercart and grader at \$0.75c/m3
9.02c	Fill dams, voids etc. - Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (haul distance >2 km but <5 km)	m ³	\$ 6.88	D10 Rip and push into stockpile at \$270/hr, 0.2ha/hr, 150mm deep. Excavator (\$220/hr) load Artic Trucks (90c/km)
9.02d	Fill dams, voids etc. - Source local material, cart and spread to cap or backfill, cap thickness determined by approval / permit (haul distance >5 km)	m ³	\$ 9.13	Generally overhaul rates will be 60c-\$1.2, depending on truck fleet, loaders etc. If haul distance is greater than 7.5 km, alternate rate option should be used - \$9.13 + additional km x \$0.90
9.03	Shotcrete application on cuttings and steep slopes	m ²	\$ 185.00	This rate is used to rehabilitate steep slopes of weathered rock, roadway cuttings, etc that cannot be cut back and stabilised.
9.04	Trim, rock rake & deep rip (includes levelling / landscaping and rip in 1 direction)	ha	\$ 960.00	16H Grader @ \$212 per hour - ripping in 1 direction only.
9.05	Deep rip hard stand / lay down areas	ha	\$ 960.00	D10 dozer @ \$332 per hour - deep rip in 2 directions @ 5 m spacing ~3 hr per hectare.
9.06	Planting mature trees (>15 cm)	allow	\$ 20.00	4 m centres.
9.07	Planting tube stock (<15 cm)	allow	\$ 10.00	4 m centres.
9.08	Direct seeding / fertiliser (pasture grass species)	ha	\$ 1,240	Rate can fluctuate however this is a suitable standard rate.
9.09	Direct seeding / fertiliser (tree or native grass species)	ha	\$ 2,095	Rate can fluctuate however this is a suitable standard rate.
9.10	Hydro-seeding with straw mulching and bitumen tack	m ²	\$ 1.80	Rate can fluctuate however this is a suitable standard rate.
9.11	Single application of fertiliser (pasture)	ha	\$ 420.00	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.
9.12	Single application of fertiliser (trees)	ha	\$ 140.00	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.
9.13	Spoil amelioration (adding lime / gypsum etc.)	ha	\$ 860.00	Assumes 2.5 t / ha as an average application rate.
9.14	growth media amelioration with biosolids	ha	\$ 1,015	Recent experience with agronomy projects.
9.15	Security fence around steep section of high wall	m	\$ 55.00	Class 1 cyclone wire (or similar) security fence @ 2.1 m with 3-4 m post spacing - complying with AS1725-2010 - Chain-link fabric security fences and gates.
9.16	Construct no-climb stock fence around rehabilitated areas	m	\$ 9.50	Standard rate for no-climb stock fencing.
9.17	Construct standard stock fence around rehabilitated areas	m	\$ 4.00	Standard rate for standard stock fencing.
9.18	Purchase and erect warning signs	allow	\$ 250.00	Compliance with AS 1319-1994 - Safety signs for the occupational environment - installed every 25 m.
9.19	Supply from external sources virgin excavated natural material (VENM) for growth media.	m ³	\$ 80.80	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.
9.20	Supply from external sources a combination of virgin excavated natural material (VENM) and spoil from large excavation for filing voids and/or capping etc.	m ³	\$ 72.50	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.
Water Management				
10.01	On-site treatment of contaminated water due to high salt (includes removal of metals etc, brine disposal and cost of mobile water treatment unit)	ML	\$ 3,600	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
10.02	On-site treatment of contaminated water due to low pH (includes removal of metals etc, neutralisation treatments and cost of mobile water treatment unit)	ML	\$ 1,500	Rate can fluctuate depending on treatment type however this is a suitable standard rate for current programs at mining operations.
10.03	Clean water dams to be retained after decommissioning – make safe and minor earthworks	allow	\$ 2,500	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.
10.04-	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (Select Haul Distance from list)	m ³	Select from List	This item includes the volume of contaminated sediment requiring removal using an excavator, truck and dozer to clean out the dam.
10.04a	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance <1km)	m ³	\$ 3.55	80t excavator and 90c/m3 haul with artic trucks, 220m3/hr, two trucks required for short distance + 75c ancillary - excludes any stockpile treatment: no dozer (add 90c/m3 if required).
10.04b	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance >1km but <2km)	m ³	\$ 4.45	80t excavator and 90c/m3 haul with artic trucks, 220m3/hr, three trucks required for short distance + 75c ancillary - excludes any stockpile treatment: no dozer (add 90c/m3 if required).
10.04c	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance >2km but <5km)	m ³	\$ 7.25	80t excavator and 90c/m3 haul with artic trucks, 220m3/hr, five trucks required for short distance + 75c ancillary - excludes any stockpile treatment: no dozer (add 90c/m3 if required).
10.04d	Remove sediments from the floor of the dam to enable it to be converted into clean water structure (haul distance >5km)	m ³	\$ 9.50	If haul distance is greater than 7.5 km, alternate rate option should be used - \$9.50 + additional km x \$0.90.
10.05	Removal of evaporation fans and/or other water transfer and management infrastructure	allow	\$ 25,000	Provisional sum for removal of water management infrastructure.
10.06	Exploration sump decommissioning	m ³	\$ 180.00	Rate based on capacity of sump developed for borehole. Includes filling of sump.
10.07	Water / mud disposal from sump	L	\$ 0.30	Disposal of non-contaminated sediments removed from sump.

Item	Activity Description	Unit	Unit Prices	Justification and Assumptions for Proposed Rates
Creek Diversions				
11.01	Repairs and/or stabilisation of new or compromised water course diversion	m	\$ 2,500	Assumes material is suitable for revegetating and has a reasonable chance of stabilising.
11.02	Long term maintenance of water course diversion – Channel constructed through backfilled material	m	\$ 1,500	Assumes maintenance has been kept up and significant works are not required.
11.03	Long term maintenance of water course diversion – Channel constructed through competent material	m	\$ 750.00	Assumes maintenance has been kept up and significant works are not required.
11.04	Installation of rock armouring	m ²	\$ 6.00	Assumes competent material is locally available - multiply costs by 2 for sourcing and transporting from offsite location.
Maintenance of Rehabilitated Areas				
12.01	Maintenance of areas that have been shaped and seeded and revegetation has been "successful"	ha	\$ 900	Rehabilitation maintenance might include re-seeding, watering, fertilising, minor re-shaping, erosion control, inspections/audits - does not include major repair works.
12.02	Pest management on buffer lands, non-disturbed, and rehabilitated areas	ha	\$ 150.00	Feral animal baiting programs if required and waste materials required to be removed.
12.03	Land management of undisturbed areas (rehabilitation, weeds, ferals, erosion and sediment control works)	ha	\$ 400.00	Undisturbed areas within the lease boundary that require land management activities.
12.04a	Minor stabilisation works and maintenance of mine subsidence areas - ripping etc.	ha	\$ 1,500	D8 Dozer @ \$240 per hour and/or grader @ \$160 per hour.
12.04b	Crack filling to repair subsidence impacts	m	\$ 1,485	Undertake more substantial works to backfill cracks and/or sink holes (e.g., filling with mulch prior to grouting, grouting, etc.)
12.05a	Water course restoration to repair subsidence impacts	allow	Use alternate rate cell	Undertake more substantial works to remediate water courses (e.g., channel bed repairs, rock bar repairs, swamp stabilisation etc.)
12.05b	Create cut-through to re-establish natural water courses/drainage channels following subsidence	allow	\$ 3,000	Includes all earthworks and revegetation required to re-establish the natural drainage profile of the subsided area.
12.06	Existing rehabilitation repair - minor	ha	\$ 1,200	Areas requiring minor repair - rills, minor growth media replacement.
12.07	Existing rehabilitation repair - moderate	ha	\$ 1,700	Areas requiring moderate repair - rills, significant growth media replacement.
12.08	Existing rehabilitation repair - major	ha	\$ 2,500	Areas requiring major repair - rills, gullies, growth media replacement, some level of additional surface water management.
12.09	Existing rehabilitation repair - total failure of landform	ha	\$ 40,000	Areas that require extensive rehabilitation repair - re-design and re-construction of landform.
Heritage Items				
13.01	The restoration and care and maintenance of items that have heritage significance	allow	Use alternate rate cell	Item for the redistribution of Aboriginal artefacts, preservation of European heritage items or a combination of activities.
Sundry Items				
14.01-	Development of an 'Unplanned' Project Closure Plan - for either State Significant or Non State Significant Developments	allow	Select from List	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
14.01a	Development of an 'Unplanned' Project Closure Plan - State Significant Development	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.
14.01b	Development of an 'Unplanned' Project Closure Plan - Non State Significant Development	allow	\$ 40,000	Provisional sum to be used to refine the conceptual closure plan into a detailed closure plan with execution strategies for rehabilitation activities.
14.02	DRE tender preparation and assessment, stakeholder consultation, risk assessment facilitation and management, statutory reporting and instruments, permitting and compliance requirements, document and data management	allow	Use alternate rate cell	Provisional sum for the NSW Government to prepare tender documentation (i.e., demolition, waste disposal, earthworks, environmental management etc.), manage stakeholders and establish permitting and compliance requirements for closure.
14.03	Site security during closure	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.
14.04	HAZMAT Clean-up - cleaning and decontaminating plant and equipment, chemical storage locations, oil and grease traps, tanks, vessels, and pipe work etc	allow	\$ 100,000	Provisional sum to perform the site clean-up and ensuring the demolition program is not interrupted due to potential contamination of waste streams.
14.05	Removal and disposal of radiation devices	each	\$ 25,000	Provisional sum for removal and disposal of monitoring devices on conveyors using a radiation source (i.e., Americium – 241, Plutonium – 238, Caesium - 137 etc).
14.06	Additional fees for accessing State, Crown or other public lands for rehabilitation/remediation activities	allow	Use alternate rate cell	Provisional sum.
Third Party Project Management and Contingencies				
15.00	Mobilisation & Demobilisation for exploration programs	Item	\$ 7,000	Assumes an exploration program of 10 or less holes and local contractors within 250 km are available to undertake rehabilitation of disturbance generated by dedicated exploration companies. Apply once per exploration pad.
15.00a	Mobilisation & Demobilisation for small mine or quarry	Item	\$ 40,000	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.01	Mobilisation & Demobilisation (Distance to site <150 km)	item	\$ 100,000	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.02	Mobilisation & Demobilisation (Distance to site >150 km but <500 km)	item	\$ 150,000	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.03	Mobilisation & Demobilisation (Distance to site >500 km but <1000 km)	item	\$ 300,000	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.04	Mobilisation & Demobilisation (Distance to site >1000 km)	item	\$ 500,000	May include specialist demolition equipment and/or suitable plant to execute bulk earthworks as required.
15.05	Contingency	Total	X%	A contingent amount to account for "unkown unknowns" and areas were data / details of rehabilitation methods are uncertain.
15.06	Post Closure Environmental Monitoring	Total	X%	Includes all monitoring post closure execution works and compilation of all monitoring and maintenance data into a final rehabilitation report and submission for regalatory sign-off.
15.07	Project Management and Surveying	Total	X%	Includes all costs for project management of the closure execution works and post closure management requirements until land and/or tenure relinquishment.