

# APPENDIX B



## V1.7

# ESB26: DPI-MR Rehabilitation Cost Calculation Tool

The objective of this "tool" is to provide mine operators with general guidance in calculating an appropriate Rehabilitation Estimate for the wide range of Mining Operations in NSW. It is acknowledged that the calculation of an appropriate Rehabilitation Estimate varies across the wide range of mine types in the State of NSW. With this in mind the intent of this "workbook" approach is to work towards a consistent approach in estimating Rehabilitation Costs in NSW.

For this reason this workbook is based on the principle that the most effective basis for unit costs is dependant on the specific rehabilitation approach nominated by the individual mine. Importantly, while the mine has the opportunity to nominate unit rates, they **MUST** be based on a **THIRD PARTY** cost as it is assumed that if the mine defaults on their responsibility to rehabilitate the mine site, a contractor will be engaged. Notwithstanding this the mine operator is to ensure that the appropriate consideration of individual site variations and complexities is given.

This workbook is also useful for determining mine closure costings and in this instance site specific unit rates can be used as it is assumed the mining company will undertake the mine closure and decommissioning works.

The framework of the workbook has been developed along a tiered approach which establishes the level of detail required based on the scale and type of the mine operation. In order to best address the complexity of different land uses across the site, the mine operation is divided into a series of domains. Each domain represents a unique area of the operating mine and comprises a number of precincts. By selecting the relevant type of mining operation (below), followed by the **ENTER** button, the relevant domain worksheets will be activated. A worksheet must be completed for each domain to calculate the total mine closure costs.

### Step 1: Type of Mining Operations

- Open Cut Coal Mine
- Underground Coal Mine
- Open Cut AND Underground Coal Mine
- Open Cut Metals Mine
- Underground Metals Mine
- Open Cut AND Underground Metals Mine
- Hard Rock, Alluvial & Other Quarry Operations

### Step 2:

**NOTE:** Following selection of the ENTER button, the relevant worksheets are opened. Each time the workbook is opened, the type of mining operation (Step 1) must first be selected following the ENTER button (Step 2) to re-open active worksheets.

## Site Registration

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Complete the following fields prior to calculating the security bond.

<b>Mine Name:</b>	Rocglen Coal Mine			
<b>Lease(s)</b>	ML 1620 and MLA 395			
<b>Mine Owner</b>	Whitehaven Coal Mining Pty Ltd			
<b>Mine Operator</b>	Whitehaven Coal Mining Pty Ltd			
<b>Expiry of MOP</b>	XX 2018			
<b>Current Security</b>	\$	3,985,022.39	<b>Date of last Security Bond review</b>	1/04/2008
<b>Mine Contact</b>	Danny Young			
<b>Position</b>	Group Environmental Manager			
<b>Address</b>	PO Box 600 Gunnedah NSW 2380			
<b>Phone</b>	67419316	<b>e-mail</b>	<a href="mailto:dyoung@whitehavencoal.com.au">dyoung@whitehavencoal.com.au</a>	

## Site Description

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

### Summary of Mine Activities

Total annual production (tonnes):

Mine lease area (ha):

Area of extraction (ha):

Area of disturbance (ha):

Rehabilitation in progress (ha):

Rehabilitation complete (ha):

Estimate based on Plan(s):

include version and date

Plan(s) outlining Domain Areas

include version and date

Plan(s) attached

**NOTE:**  
Ensure rehabilitation cost calculation 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)

Visual amenity



**NSW DEPARTMENT OF  
PRIMARY INDUSTRIES**

**Summary Rehabilitation Cost Calculation**

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

**Mine Name:**

**Lease(s):**

**Mine Owner:**

**Mine Operator:**

**Expiry of MOP:**

**Current Security:**  **Date of Last Security Bond Review:**

**Mine Contact:**

**Position:**

**Address:**

**Phone:**  **email:**

Domain	Security Deposit
Domain 1: Infrastructure Areas	\$683,666.50
Domain 2: Tailings & Rejects Emplacements (1)	
Domain 2: Tailings & Rejects Emplacements (2)	
Domain 2: Tailings & Rejects Emplacements (3)	
Domain 3: Overburden & Waste Dumps	\$2,004,299.00
Domain 4: Active Mine & Voids	\$1,376,949.90
Domain 5: Other	
<b>Sub-Total (Domains and Sundry Items)</b>	<b>\$4,064,915.40</b>
Contingency	\$474,465.27
Third Party Project Management	\$679,737.31
<b>Total Security Deposit for the Mining Project (excl. of GST)</b>	<b>\$5,219,117.98</b>

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.

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.

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**Signature**  
**General Manager**

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**Print Name**

-----  
**Date:**

-----  
**Signature**  
**Accepted: DPI Reporting Officer**

-----  
**Print Name**

-----  
**Date:**

# Domain 1: Infrastructure Areas

Detail of person filling out the Worksheet:

Name	Danny Young
Position	Group Environmental Manager
Department	Whitehaven Coal Mining Pty Ltd
Date	XX 2011

Legend:

	Item fixed no entry required
	Input from site optional (if information available)
	Input mandatory

Management Precinct	Activity / Description	Quantity	Unit	Unit Price	Total Cost	Description / Notes:
Coal Handling and Preparation Plant (CHPP)	Disconnect and terminate services	1	@	\$27,500.00	\$27,500.00	No CHPP - ROM infrastructure powered by gensets
	Disconnect and terminate powerlines		km	\$11,000.00	\$0.00	N/A
	Demolish and remove small buildings		m <sup>2</sup>	\$77.00	\$0.00	Relocatable/demountable structures only
	Demolish and remove industrial buildings		m <sup>2</sup>	\$176.00	\$0.00	N/A
	Demolish and remove CHPP		m <sup>2</sup>	\$176.00	\$0.00	N/A
	Demolish and remove conveyors & gantries (includes overland conveyors)	115	m	\$60.50	\$6,957.50	Total length of conveyor from product to load out bin
	Remove Concrete pads and Footings	1500	m <sup>2</sup>	\$11.00	\$16,500.00	Total area of concrete footings for ROM pad
	Deconstruct Large Tanks (e.g. Thickener)	1	@	\$165,000.00	\$165,000.00	Coal Bin
	Deconstruct Small Tanks (e.g. Thickener)		@	\$50,000.00	\$0.00	N/A
	Remove carbonaceous material (spillage or otherwise) from footprint of the CHPP, ROM & Product stockpiles, conveyors and workshops	9,000	m <sup>3</sup>	\$2.86	\$25,740.00	Area of ROM pad stripped to depth of 30cm
	Final trim, rock rake & deep rip	3	Ha	\$550.00	\$1,650.00	Area of ROM pad
	Source, cart and spread topsoil.	9000	m <sup>3</sup>	\$1.32	\$11,880.00	Subsoil 15 cm, topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	3	Ha	\$4,070.00	\$12,210.00	Area of ROM pad
<b>Precinct Security Deposit</b>					<b>\$267,437.50</b>	
Rail Line and Loop	Remove Rail Loop and spur		m	\$6.60	\$0.00	N/A
	Reshape rail spur and load out area		Ha	\$5,500.00	\$0.00	N/A
	Final trim, rock rake & deep rip		Ha	\$550.00	\$0.00	N/A
	Spoil amelioration and supply and spread pasture seed and fertiliser.		Ha	\$4,070.00	\$0.00	N/A
<b>Precinct Security Deposit</b>					<b>\$0.00</b>	
Main Workshop Area	Disconnect and terminate services	1	@	\$5,500.00	\$5,500.00	This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost
	Demolish and remove small buildings		m <sup>2</sup>	\$77.00	\$0.00	N/A
	Demolish and remove industrial buildings	420	m <sup>2</sup>	\$176.00	\$73,920.00	Area of workshop and wash-bay
	Remove Concrete pads, Footings and bitumen (car park) for dumping in a void on the site	420	m <sup>2</sup>	\$11.00	\$4,620.00	Area of workshop and wash-bay
	Remove contaminated material from workshop and hardstand areas for disposal in the decline void AND/OR	5000	m <sup>3</sup>	\$2.20	\$11,000.00	Depth of 0.5m around workshop area
	Reshaping, capping, sealing of material presenting environmental difficulties (AMD, Hydrocarbon material, etc)		Ha	\$49,500.00	\$0.00	N/A
	Removal of UG tank (including pipes, bunds, etc) (include all facilities on site)		@	\$82,500.00	\$0.00	N/A
	On site remediation of contaminated soil (<1000m <sup>3</sup> )	1000	m <sup>3</sup>	\$55.00	\$55,000.00	where an assessment of the volume of contaminated soil has been made this volume is to be included. Where the volume is not known or has not been quantified a default volume of 3000m <sup>3</sup> per fuel storage facility is to be used in cell C-37
	On site remediation of contaminated soil (1000-10,000m <sup>3</sup> )		m <sup>3</sup>	\$44.00	\$0.00	where an assessment of the volume of contaminated material has been made this volume is to be included. Where the volume is not known or has not been quantified a default volume of 3000m <sup>3</sup> per fuel storage facility is to be used
	On site remediation of contaminated soil (>10,000m <sup>3</sup> )		m <sup>3</sup>	\$33.00	\$0.00	where an assessment of the volume of contaminated soil has been made this volume is to be included. Where the volume is not known or has not been quantified a default volume of 3000m <sup>3</sup> per fuel storage facility is to be used in cell C-37
	Final trim, rock rake & deep rip	2	Ha	\$550.00	\$1,100.00	Workshop area
Source, cart and spread topsoil.	6000	m <sup>3</sup>	\$1.32	\$7,920.00	Subsoil 15 cm, topsoil 15 cm	
Spoil amelioration and supply and spread seed and fertiliser.	2	Ha	\$4,070.00	\$8,140.00	Workshop area	
<b>Precinct Security Deposit</b>					<b>\$167,200.00</b>	
Admin Buildings	Disconnect and terminate services	1	@	\$5,500.00	\$5,500.00	This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost
	Demolish and remove small buildings		m <sup>2</sup>	\$77.00	\$0.00	N/A - offices are demountable
	Demolish and remove industrial buildings		m <sup>2</sup>	\$176.00	\$0.00	N/A
	Remove Concrete pads, Footings and bitumen (car park)	2000	m <sup>2</sup>	\$11.00	\$22,000.00	Removal of footings for demountable structures and hardstand from carparks
	Final trim, rock rake & deep rip	1	Ha	\$550.00	\$550.00	Admin area
	Source, cart and spread topsoil.	6000	m <sup>3</sup>	\$1.32	\$7,920.00	Subsoil 15 cm, topsoil 15 cm
	Spoil amelioration and supply and spread pasture seed and fertiliser.	1	Ha	\$4,070.00	\$4,070.00	Admin area
<b>Precinct Security Deposit</b>					<b>\$40,040.00</b>	
Access & Haul Roads	Remove carbonaceous material from roadways (coal / rejects spillage)	9900	m <sup>3</sup>	\$2.86	\$28,314.00	Assumed carbonaceous material depth of 0.3m on haul roads (3.3 ha)
	Reshape deep rip and ameliorate sealed unsealed roads	10.5	Ha	\$5,500.00	\$57,750.00	Total area of access and haul roads
	Source, cart and spread topsoil.	31500	m <sup>3</sup>	\$1.32	\$41,580.00	Subsoil 15 cm, topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	10.5	Ha	\$4,070.00	\$42,735.00	Total area of access and haul roads
<b>Precinct Security Deposit</b>					<b>\$170,379.00</b>	
Sewerage / Water Treatment Plant	Disconnect and terminate services	1	@	\$2,750.00	\$2,750.00	This item includes disconnecting and terminating all services such as power, water and sewer. It is a "one off" cost
	Demolish and remove small buildings / tanks	20	m <sup>2</sup>	\$77.00	\$1,540.00	Enter the total area of small buildings and tanks.
	Remove contaminated material from areas for disposal (ie. chemical spillage in / around storage sheds).		m <sup>3</sup>	\$2.20	\$0.00	N/A
	Final trim, rock rake & deep rip	1	Ha	\$550.00	\$550.00	Septic tank area only
	Source, cart and spread topsoil.	3000	m <sup>3</sup>	\$1.32	\$3,960.00	Subsoil 15 cm, topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	1	Ha	\$4,070.00	\$4,070.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
<b>Precinct Security Deposit</b>					<b>\$12,870.00</b>	

Hardstand /Laydown Areas	Remove contaminated material from areas for disposal (ie. chemical/hydrocarbon spillage in the hard stand area).		m <sup>3</sup>	\$2.20	\$0.00	Enter the total volume (ie. area x depth of material) to be scalped off for disposal. UNIT RATE: Depends on the haulage distance to the point where the material is to be disposed.
	Final trim, rock rake & deep rip	3	Ha	\$550.00	\$1,650.00	Workshop and admin area
	Source, cart and spread topsoil.	9000	m <sup>3</sup>	\$1.32	\$11,880.00	Subsoil 15 cm, topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	3	Ha	\$4,070.00	\$12,210.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
<b>Precinct Security Deposit</b>					<b>\$25,740.00</b>	
Other	Other 1 <insert>				\$0.00	This item includes <<to be added by the operator>>
	Other 2 <insert>				\$0.00	This item includes <<to be added by the operator>>
	Other 3 <insert>				\$0.00	This item includes <<to be added by the operator>>
<b>Precinct Security Deposit</b>					<b>\$0.00</b>	

**Total Security Deposit for the "Domain"                      \$683,666.50**

# Domain 3: Overburden & Waste Dumps

Detail of person filling out the Worksheet:

Legend:

Name	Danny Young
Position	Group Environmental Manager
Department	Whitehaven Coal Mining Pty Ltd
Date	XX 2011

	Item fixed no entry required
	Input from site optional (if information available)
	Input mandatory

Management Precinct	Activity / Description	Quantity	Unit	Unit Price	Total Cost	Description / Notes:
Successful Rehabilitation	Maintenance of Established Revegetated Area (up to 5 years)	79.6	Ha	\$715.00	\$56,914.00	This item includes the total area of rehabilitation that has been established and requires subsequent fertiliser application. It assumes application twice on the first five (5) years after establishment
	Maintenance of Shaped Topsoiled and Seeded Areas (up to 5 years)		Ha	\$715.00	\$0.00	This item includes the total area of that have been shaped, topsoiled and seeded and requires subsequent fertiliser application. It assumes application twice on the first five (5) years after establishment
<b>Precinct Security Deposit</b>					<b>\$56,914.00</b>	
Shaped Overburden Dumps	Final trim, rock rake & deep rip	29	Ha	\$550.00	\$15,950.00	This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.
	Structural works, banks, rock lined waterways	10	Ha	\$1,540.00	\$15,400.00	This item includes the area requiring earthworks (banks, & drains, etc) to manage all surface water on the top of the emplacement to ensure that it is shed off the dump.
	Source, cart and spread topsoil.	87000	m <sup>3</sup>	\$1.32	\$114,840.00	Subsoil 15 cm topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	29	Ha	\$4,070.00	\$118,030.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
	Maintenance of rehabilitated areas (up to 5 years)	29	Ha	\$715.00	\$20,735.00	This item includes the total area of that have been shaped, topsoiled and seeded and requires subsequent fertiliser application. It assumes application twice on the first five (5) years after establishment
<b>Precinct Security Deposit</b>					<b>\$284,955.00</b>	
Unshaped Overburden Dumps (minor reshaping required)	Minor pushing, final trim, rock rake & deep rip	32	Ha	\$550.00	\$17,600.00	This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.
	Structural works, banks, rock lined waterways	15	Ha	\$1,540.00	\$23,100.00	This item includes the area requiring earthworks (banks, & drains, etc) to manage all surface water on the top of the emplacement to ensure that it is shed off the dump.
	Source, cart and spread topsoil.	96000	m <sup>3</sup>	\$1.32	\$126,720.00	Subsoil 15 cm topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	32	Ha	\$4,070.00	\$130,240.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
	Maintenance of rehabilitated areas (up to 5 years)	32	Ha	\$715.00	\$22,880.00	This item includes the total area that has been shaped, topsoiled and seeded and requires subsequent fertiliser application. It assumes maintenance for a period of (5) years after establishment, including application of fertiliser twice during this time.
<b>Precinct Security Deposit</b>					<b>\$320,540.00</b>	
Unshaped Overburden Dumps (major earthworks required) - this excludes Low walls	Major bulk pushing to achieve grades nominated in the MOP (i.e. < 18°)	620000	m <sup>3</sup>	\$1.21	\$750,200.00	This item includes the volume requiring major reshaping, rock raking and deep ripping (only as required) to enhance revegetation program.
	Minor pushing, final trim, rock rake & deep rip	62	Ha	\$550.00	\$34,100.00	This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.
	Structural works, banks, rock lined waterways	10	Ha	\$1,540.00	\$15,400.00	This item includes the area requiring earthworks (banks, & drains, etc) to manage all surface water on the top of the emplacement to ensure that it is shed off the dump.
	Source, cart and spread topsoil.	186000	m <sup>3</sup>	\$1.32	\$245,520.00	Subsoil 15 cm topsoil 15 cm
	Spoil amelioration and supply and spread seed and fertiliser.	62	Ha	\$4,070.00	\$252,340.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
	Maintenance of rehabilitated areas (up to 5 years)	62	Ha	\$715.00	\$44,330.00	This item includes the total area that has been shaped, topsoiled and seeded and requires subsequent fertiliser application. It assumes maintenance for a period of (5) years after establishment, including application of fertiliser twice during this time.
<b>Precinct Security Deposit</b>					<b>\$1,341,890.00</b>	
Other	Other 1 <insert>				\$0.00	This item includes <<to be added by the operator>>
	Other 2 <insert>				\$0.00	This item includes <<to be added by the operator>>
	Other 3 <insert>				\$0.00	This item includes <<to be added by the operator>>
<b>Precinct Security Deposit</b>					<b>\$0.00</b>	

**Total Security Deposit for the "Domain"      \$2,004,299.00**

Domain 4: Active Mine & Voids

Detail of person filling out the Worksheet:

Legend:

Name	Danny Young
Position	Group Environmental Manager
Department	Whitehaven Coal Mining Pty Ltd
Date	XX 2011

	Item fixed no entry required
	Input from site optional (if information available)
	Input mandatory

Management Precinct	Activity / Description	Quantity	Unit	Unit Price	Total Cost	Description / Notes:
<b>Active Pit</b> (including the voids and any internal benches or mine strips)	Major bulk pushing of the low wall to achieve grades nominated in the MOP (i.e. < 18°)		m <sup>3</sup>	\$1.21	\$0.00	This item includes the volume requiring major reshaping, rock raking and deep ripping (only as required) to enhance revegetation program <b>UNIT RATE: dozer push rate</b>
	Active pit area - benches blasted and doze to < 18°		m <sup>3</sup>	\$1.21	\$0.00	This item includes the total area of rehabilitation that has been established and requires subsequent fertiliser application. It assumes application twice on the first five (5) years after establishment <b>UNIT RATE: drill &amp; blast + dozer push</b>
	Final trim, rock rake & deep rip	15.3	Ha	\$550.00	\$8,415.00	This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.
	Structural works, banks waterways	3	Ha	\$1,540.00	\$4,620.00	This item includes the area requiring earthworks (banks, & drains, etc) to manage all surface water on the top of the emplacement to ensure that it is shed off the reshaped areas.
	Source, cart and spread topsoil.	45900	m <sup>3</sup>	\$2.20	\$100,980.00	Subsoil 15cm topsoil 15cm
	Spoil amelioration and supply and spread / tree pasture seed and fertiliser.	15.3	Ha	\$4,070.00	\$62,271.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
<b>Precinct Security Deposit</b>					<b>\$176,286.00</b>	
<b>Ramps</b>	Major bulk pushing of the low wall to achieve grades nominated in the MOP (i.e. < 18°)	120000	m <sup>3</sup>	\$1.21	\$145,200.00	This item includes the volume requiring major reshaping.
	Final trim, rock rake & deep rip		Ha	\$550.00	\$0.00	This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.
	Structural works, banks waterways		Ha	\$1,540.00	\$0.00	This item includes the area requiring earthworks (banks, & drains, etc) to manage all surface water on the top of the emplacement to ensure that it is shed off the reshaped areas.
	Source, cart and spread topsoil.	3600	m <sup>3</sup>	\$2.20	\$7,920.00	Subsoil 15cm topsoil 15cm
	Spoil amelioration and supply and spread pasture / tree seed and fertiliser.	1.2	Ha	\$4,070.00	\$4,884.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
	<b>Precinct Security Deposit</b>					<b>\$158,004.00</b>
<b>Highwall treatment</b>	Drill & Blast Highwall <b>OR</b>	527000	m <sup>3</sup>	\$0.70	\$368,900.00	This item includes the total area of rehabilitation that have been established and require subsequent fertiliser application. It assumes application twice on the first five (5) years after establishment <b>UNIT RATE: drill &amp; blast + dozer push</b>
	Major bulk pushing of the high wall to achieve grades nominated in the MOP (i.e. < 18°)	263500	m <sup>3</sup>	\$1.21	\$318,835.00	This item includes the volume requiring major reshaping, rock raking and deep ripping (only as required) to enhance revegetation program <b>UNIT RATE: dozer push rate</b>
	Final trim, rock rake & deep rip		Ha	\$550.00	\$0.00	This item includes the area requiring minor reshaping, rock raking and deep ripping to enhance revegetation program.
	Source, cart and spread topsoil (at 20cm)	105400	m <sup>3</sup>	\$1.32	\$139,128.00	This includes sourcing, carting and spreading of a suitable volume of topsoil to cover the reshaped area.
	Spoil amelioration and supply and spread pasture seed and fertiliser.	5.27	Ha	\$4,070.00	\$21,448.90	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass seed and fertiliser
	Security fence around steep section of highwall		m	\$55.00	\$0.00	This item includes the erection of a 2m security fence (lineal metre) around the void and other dangerous areas.
	High wall treatment - (trench + safety berm)	1200	m	\$63.25	\$75,900.00	This item includes the construction of a safety berm and fill (lineal metre) around the highwall to stop all vehicles, act accidentally driving over haul road (engineered control).
<b>Precinct Security Deposit</b>					<b>\$924,211.90</b>	
<b>Disturbance ahead of Mining + water management structures</b>	Areas cleared ahead of mining - re-establish vegetation commensurate with surround vegetation	10	Ha	\$2,310.00	\$23,100.00	This includes the direct application of seed to restore the vegetation that was disturbed as part of clearing operations ahead of the mine.
	Areas topsoil stripped ahead of mining - source cart and respread topsoil	3000	m <sup>3</sup>	\$2.20	\$6,600.00	Subsoil 15cm topsoil 15cm
	Reshape, deep rip, ameliorate and seed highwall / internal access roads and tracks	1	Ha	\$5,500.00	\$5,500.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass / tree seed and fertiliser
	Reshape, deep rip, ameliorate and seed exploration lines / areas		Ha	\$4,070.00	\$0.00	This item includes the area requiring the addition of ameliorates such as lime or gypsum prior to the application of grass / tree seed and fertiliser
	Clean water dams to be retained after mine closure - make safe and minor earthworks.	4	@	\$2,200.00	\$8,800.00	This item includes making the dam spillway, and walls stable and ensuring the integrity of the dam wall, etc.
	Dirty Water Dams (Drain and remove sediments to make dam clean water)	21150	m <sup>3</sup>	\$3.52	\$74,448.00	Assumes dirty water dam area of 4.23 ha
<b>Precinct Security Deposit</b>					<b>\$118,448.00</b>	
<b>River &amp; Creek Diversions</b>	Creek diversion - Channel maintenance through spoil / backfill (20% of estimated diversion construction costs (\$1500/m) due to unknown in landform stability)		m	\$330.00	\$0.00	N/A
	Creek diversion - Channel maintenance insitu (10% of estimated construction cost (\$1500/m) for diversion)		m	\$165.00	\$0.00	N/A
	Creek diversion - Vegetation maintenance		m <sup>2</sup>	\$0.33	\$0.00	N/A
<b>Precinct Security Deposit</b>					<b>\$0.00</b>	
<b>Other</b>	Other 1 <insert>				\$0.00	This item includes <to be added by the operator>>
	Other 2 <insert>				\$0.00	This item includes <to be added by the operator>>
	Other 3 <insert>				\$0.00	This item includes <to be added by the operator>>
<b>Precinct Security Deposit</b>					<b>\$0.00</b>	

**Total Security Deposit for the "Domain"      \$1,376,949.90**

### Third Party Project Management & Contingencies

Detail of person filling out the Worksheet:

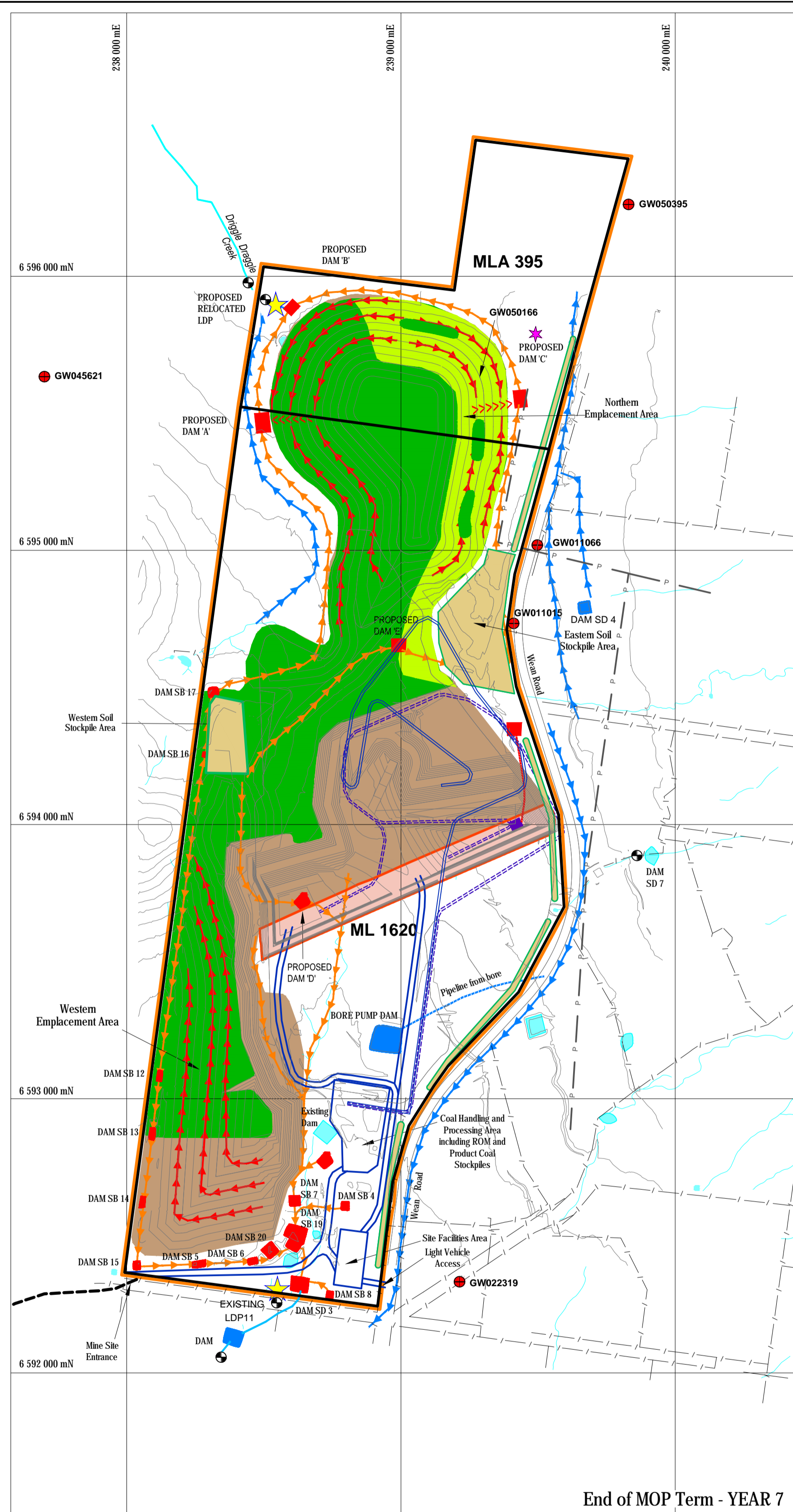
<b>Name</b>	Danny Young
<b>Position</b>	Group Environmental Manager
<b>Department</b>	Whitehaven Coal Mining Pty Ltd
<b>Date</b>	XX 2011

Legend:

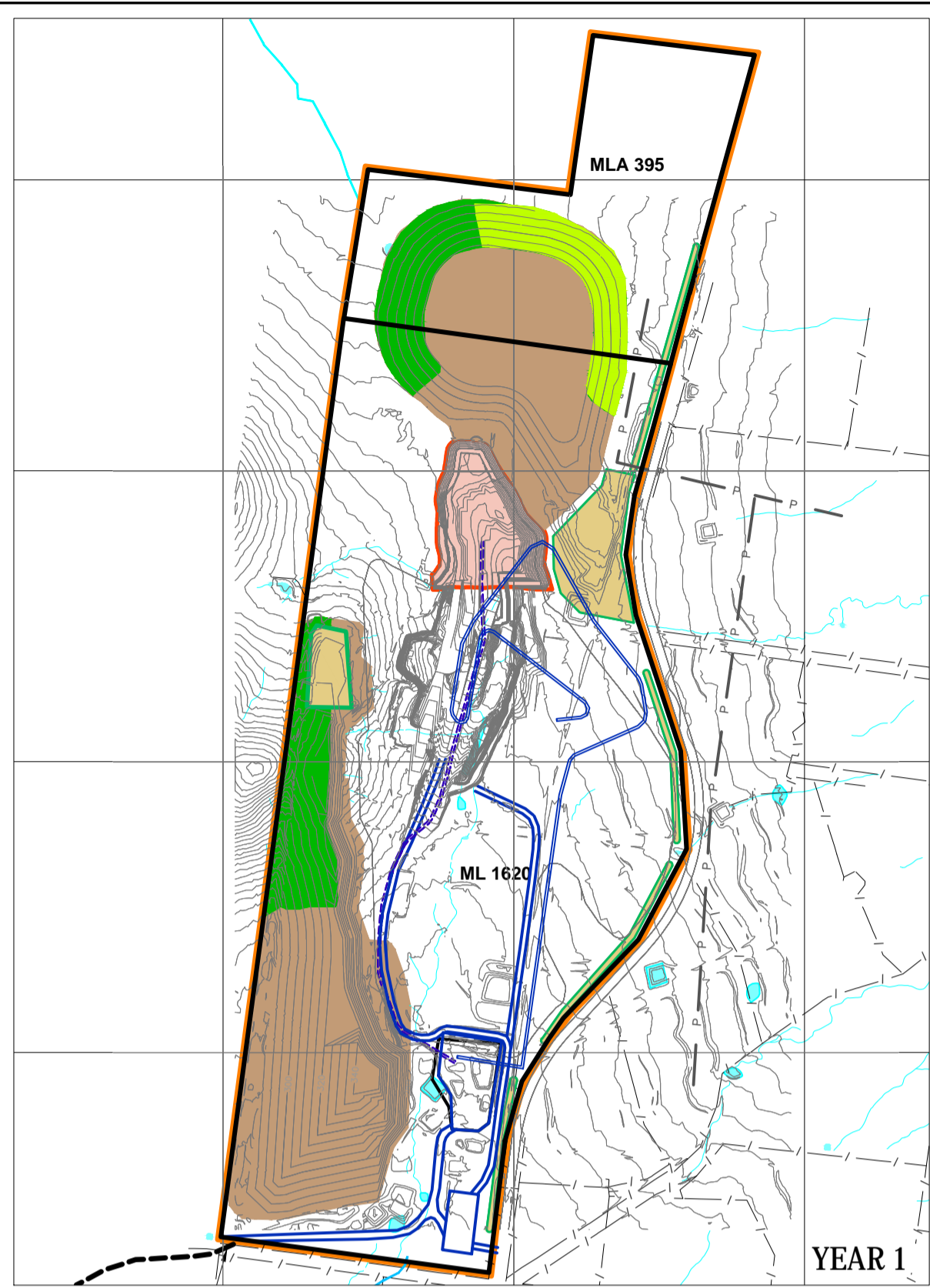
	Item fixed no entry required
	Input from site optional (if information available)
	Input mandatory

Item	Activity / Description	Quantity	Unit	Cost	Total Cost	Description / Notes:
<b>Sub-Total (Domains)</b>					<b>\$4,064,915.40</b>	
Third Party Project Management	Mobilisation & Demobilisation (third party contractor rates apply).	1	@	\$40,000.00	\$40,000.00	Cost would have to be determined (justified) on the basis of the equipment required and the distance of the mine from the likely contractor to be used.
	DPI Tender Preparation and Assessment	1	@	\$5,000.00	\$5,000.00	Values provided in this cell are provided as a minimum, and should be assessed based on the size of the site, and works required.
	Development of Unplanned Closure Plan	1	@	\$25,000.00	\$25,000.00	Values provided in this cell are provided as a minimum, and should be assessed based on the size of the site, and works required.
	Post closure environmental monitoring	5%	%	\$203,245.77	\$203,245.77	% of the subtotal for all domains
	Project Management & Surveying	10%	%	\$406,491.54	\$406,491.54	% of the subtotal for all domains
	Indexation		@		\$0.00	
	Other <insert>		@		\$0.00	
	Other <insert>		@		\$0.00	
<b>Sub-Total (Sundry Items)</b>					<b>\$679,737.31</b>	
<b>Sub-Total (Domain and Sundry Items)</b>					<b>\$4,744,652.71</b>	
Contingency	Contingency	10%	%	\$4,744,652.71	\$474,465.27	
<b>Precinct Security Deposit</b>					<b>\$5,219,117.98</b>	<b>exclusive of GST</b>

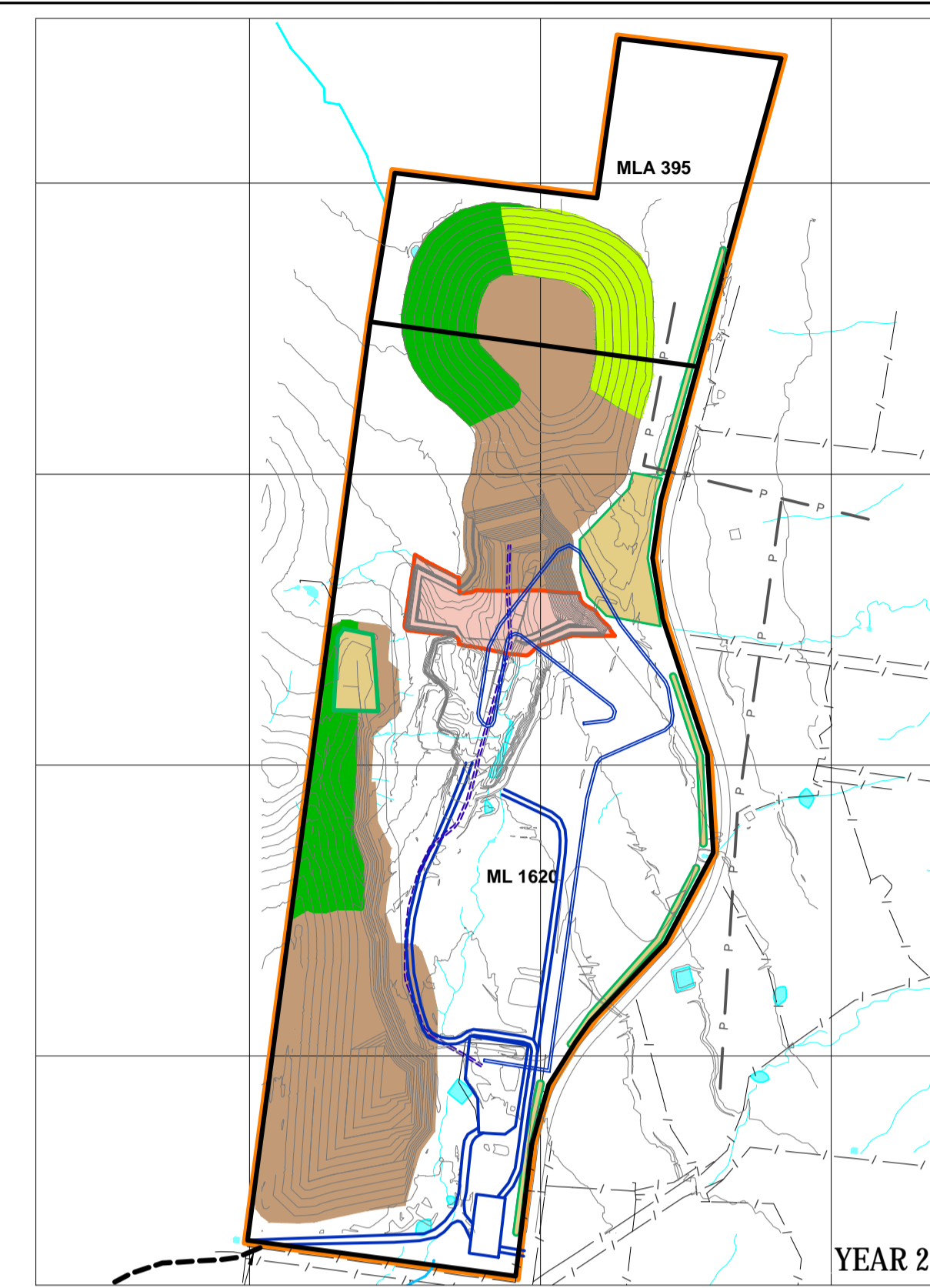
<b>Sub-Total Rehabilitation Estimate for "Domains"</b>	\$4,064,915.40
<b>Total Rehabilitation Estimate for "Sundry Items"</b>	\$679,737.31
<b>Contingency (based on Sundry and Domains)</b>	\$474,465.27



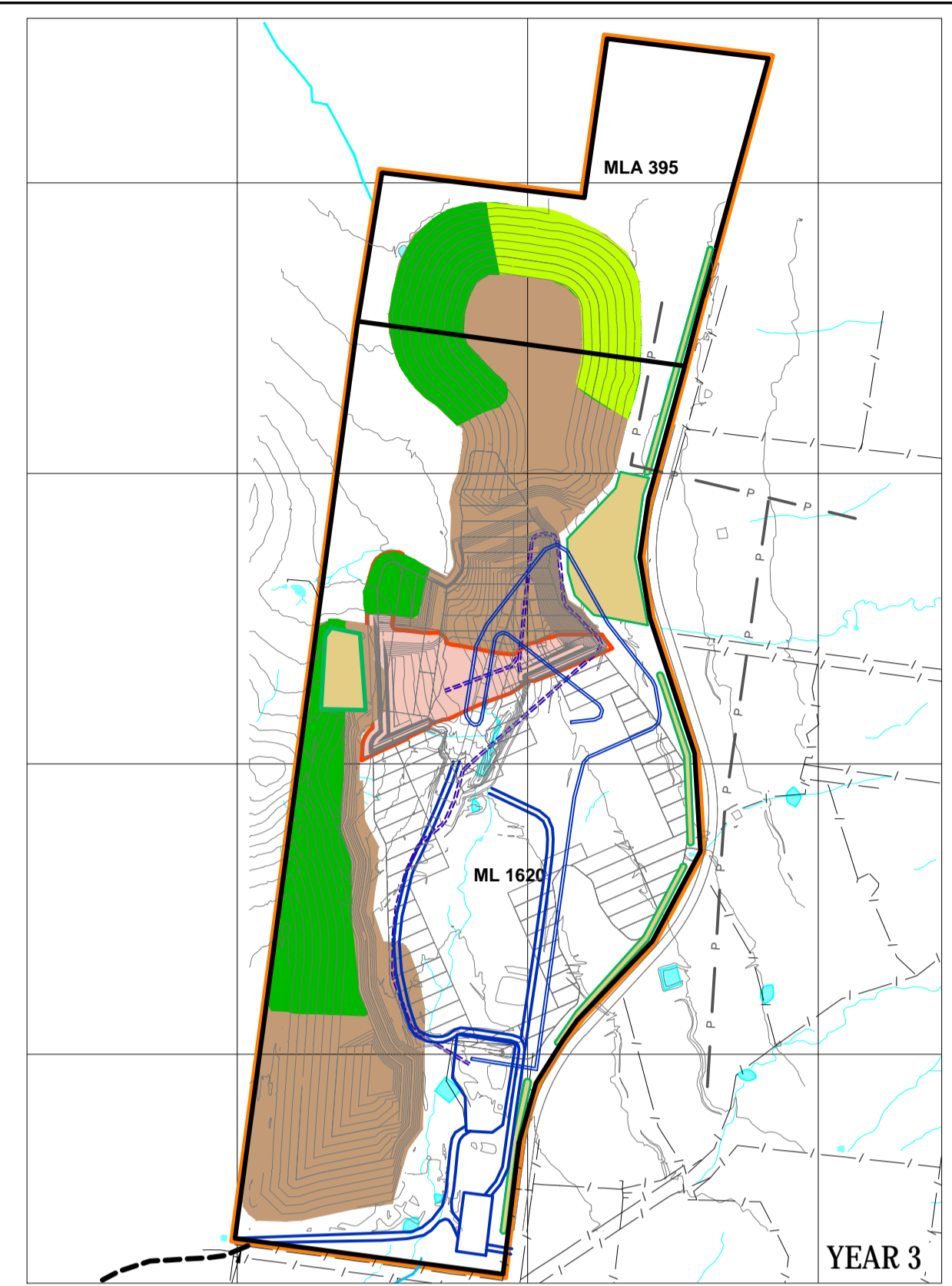
End of MOP Term - YEAR 7



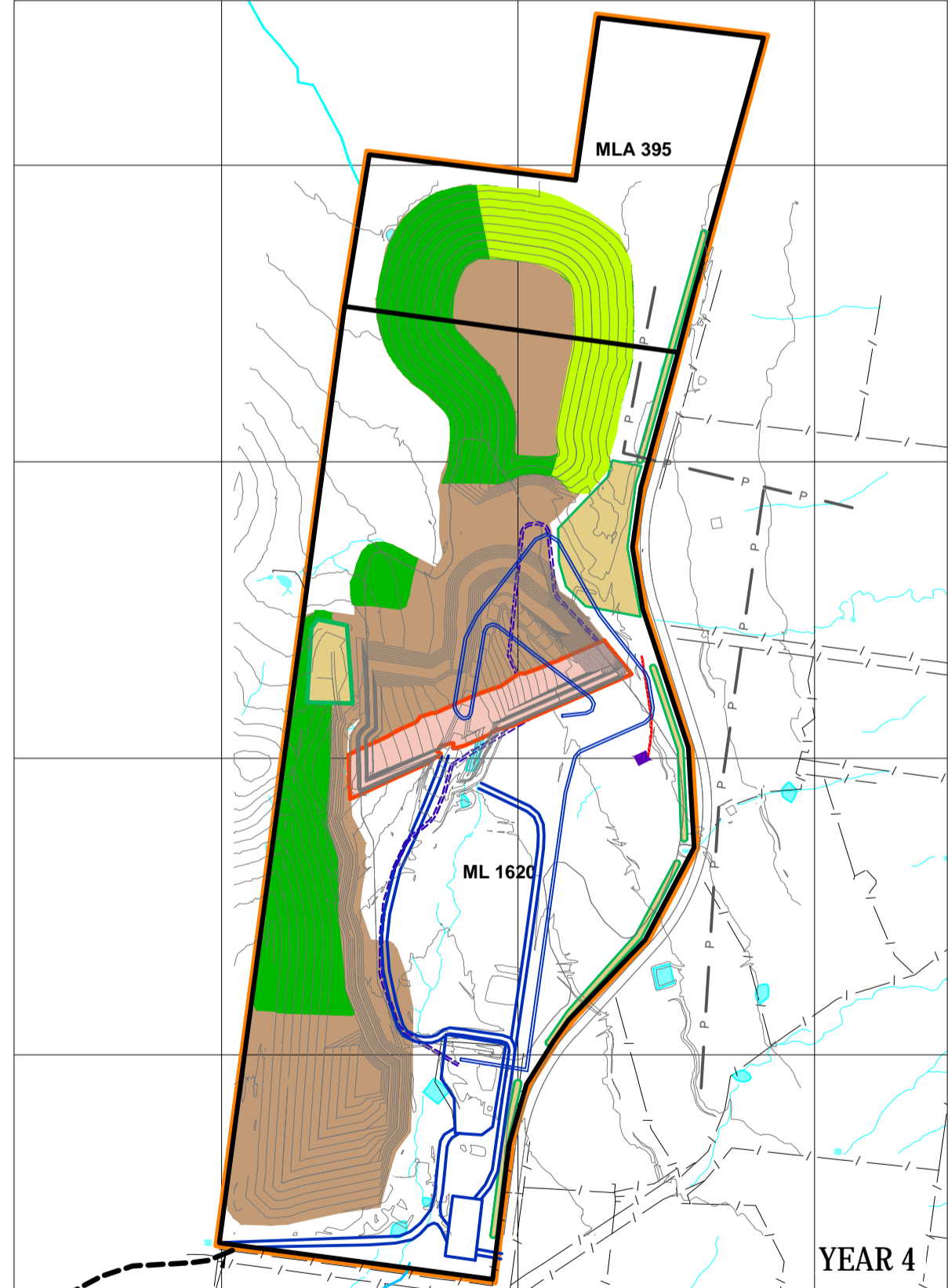
YEAR 1



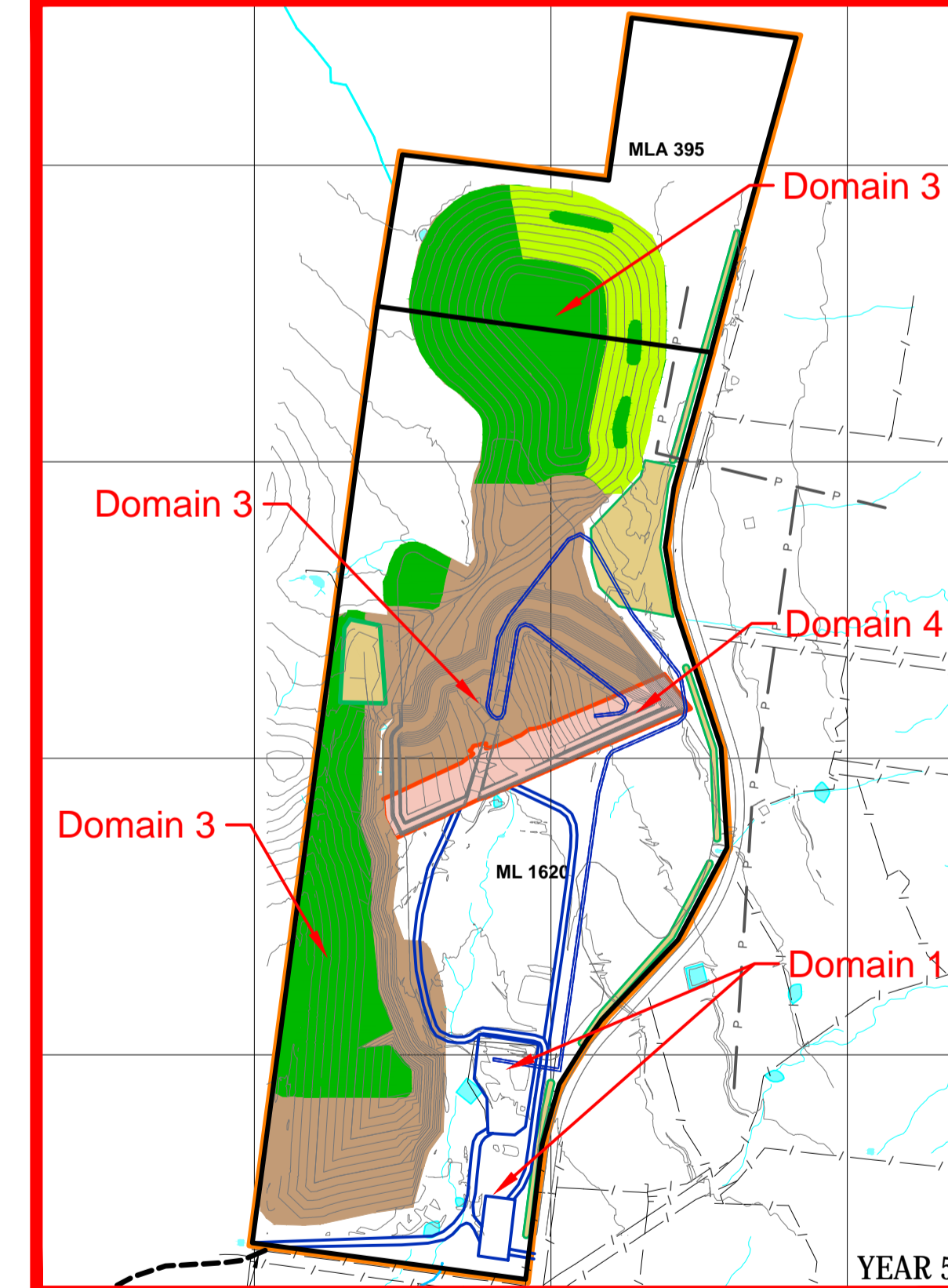
YEAR 2



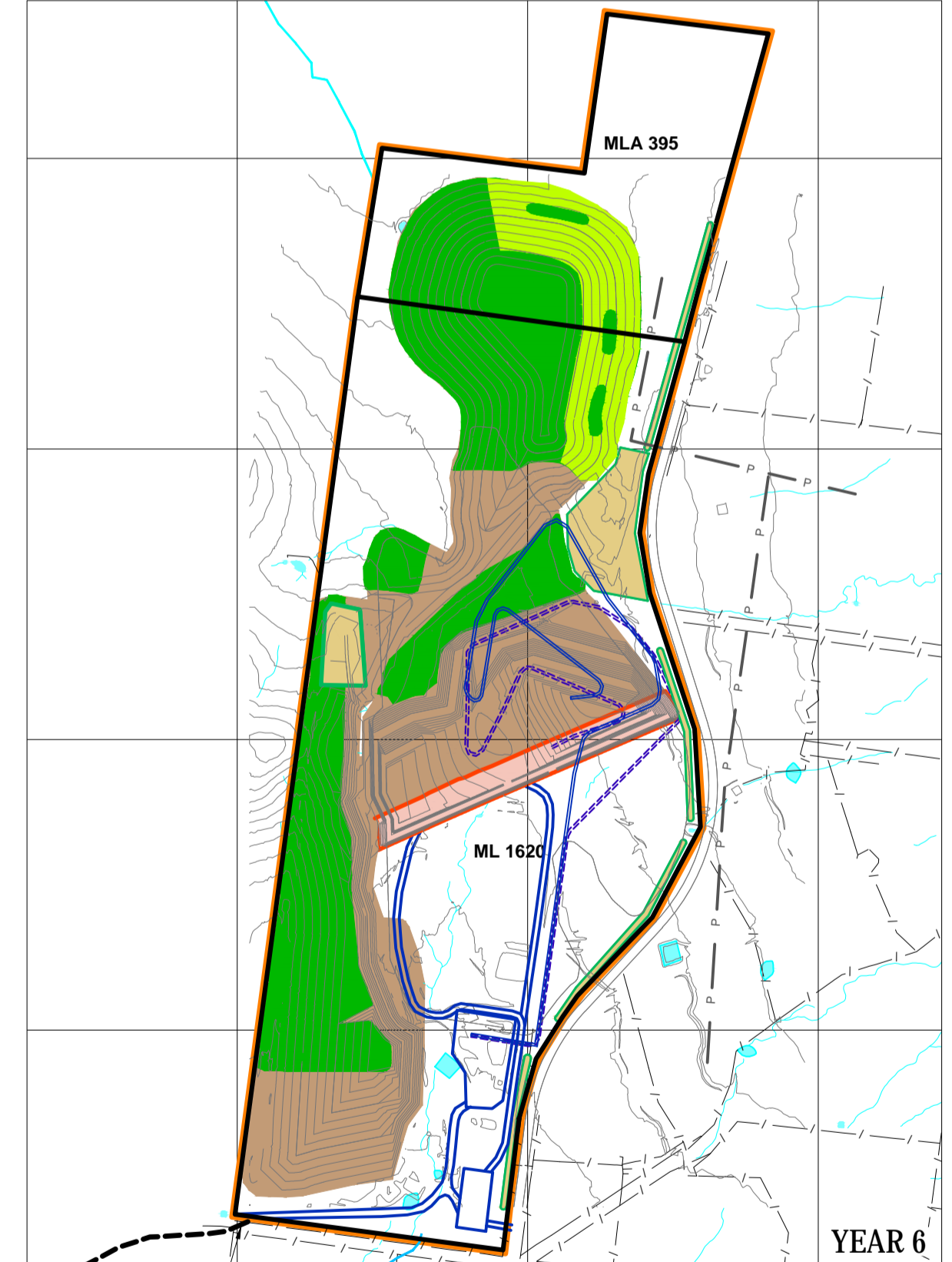
YEAR 3



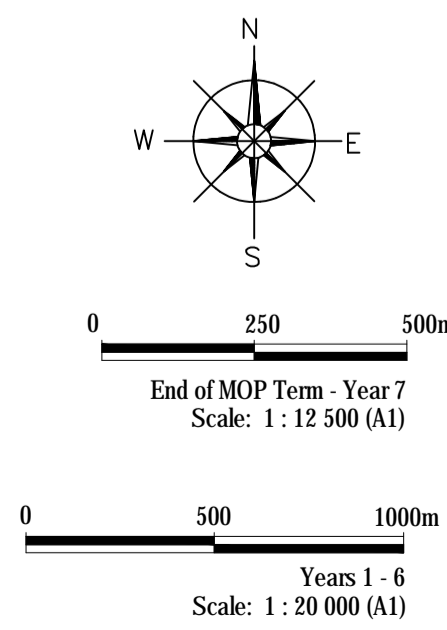
YEAR 4



YEAR 5



YEAR 6



**LEGEND**

- Project site boundary
- Mine lease boundary
- Fence
- Coal transport route
- Dam
- Water course
- Power line
- Haul Road
- Area disturbed by mining (this MOP)
- Area disturbed by infrastructure (this MOP)
- Area disturbed by overburden emplacement (this MOP)
- Soil stockpiling areas
- Clean water flow
- Dirty water flow - contour bank
- Dirty water flow - channel
- Sump
- Drop structure
- Clean water dam
- Dirty water dam
- Clean water pump line
- Dirty water pump line
- Surface water sampling site
- Groundwater monitoring site
- Licenced Discharge Point
- Rehabilitated Pasture
- Rehabilitated Bushland

NOTE:  
FYUJXGCHUY%\$

Date of Application:	Checked by:
Compiled by:	Certified by: (Mine Surveyor)
Revised by:	Endorsed by: (Manager of Mining Engineering)

**ROCGLLEN COAL MINE - MINING OPERATION PLAN**

**WHITEHAVEN COAL**  
Whitehaven Coal Mining Pty Ltd

**Proposed Rehabilitation**

Date: 22-07-11	Scale: Refer scale bar	Plan No.: <b>5</b>
Prepared by: GSS Environmental		