



Environmental Management Guidelines for Industry

Format and Guideline for the Preparation of an Annual Environmental Management Report: SMALL MINE VERSION

*This form may be used as an alternative to the format described in the Department's **Guidelines to the Mining, Rehabilitation and Environmental Management Process**. The form is suitable for mines:*

- *with less than 4 hectares of total disturbance at any time during the MOP period.)*
- *which do not use dangerous or hazardous chemicals, or store greater than 600 litres of diesel fuel on the mine site*
- *which do not have or require an EPA pollution control licence, or have a dam prescribed under the Dam Safety Act.*
- *where the primary environmentally significant issues are erosion and sediment control, and rehabilitation,*
- *are free of acid mine drainage and possible contamination problems*
- *without Aboriginal or historic heritage issues*

At the discretion of NSW Trade & Investment – Division of Resources & Energy (the Department) the form may be used for some sites which do not meet these criteria.

ANNUAL ENVIRONMENTAL MANAGEMENT REPORTING

Each mine operator in NSW is required to develop a Mining Operations Plan (MOP) that applies current best mining practice to achieve agreed environmental outcomes. Site activities must not be undertaken other than in accordance with an accepted MOP. The publication "Guidelines to the Mining, Rehabilitation and Environmental Management Process" gives further detail of the context and regulatory framework which guides a MOP.

Progress against the MOP, and environmental performance in general, is reported each year through an Annual Environmental Management Report. The AEMR does not need to repeat information previously documented in the MOP

Changes of timing or scheduling, and minor deviations from the MOP that occur during the course of mining can be accommodated by annual review without a need to redraft and submit the MOP document.

COMPLETION GUIDELINES

The form may be filled in by hand or typed. A MS word version is available on request.

As this guide applies regardless of the stage in the mine life cycle and the nature of operations, there may be some sections which are not relevant to a specific mine site and may be noted as not applicable.

Completed forms should be sent to your Departmental contact or:

Administration Officer,
Environmental Sustainability Unit
NSW Trade & Investment – Division of Resources & Energy
PO Box 344
Hunter Region Mail Centre NSW 2310

PLANS REQUIRED

A plan, current at the end of the reporting period, of the same scale and with equivalent information to the plans provided with the MOP must be provided.

Where final rehabilitation outcomes have been further developed since the MOP was submitted or since the previous AEMR and amended version of the "Final Rehabilitation" plan should also be included with the AEMR. If available, provide photographs to illustrate operations and environmental performance.

All plans must show

- the name of the mine;
- a graphical scale;
- boundaries of leases;
- cadastral information (land ownership boundaries);
- a title block showing the date of preparation of the plan, title and number;
- signature of the person responsible for the plan.

ANNUAL ENVIRONMENTAL MANAGEMENT REPORT FOR SMALL MINES

Title Details

Name of mine: Challenger Mines – Adelong Gold Mine
Mining Titles/Leases: ML 1435 M(C)Ls 279-291 311-313 **Expiry Date** 27/9/2019
Name of leaseholder: Challenger Mines Pty Ltd
Name of mine operator (if different):
Postal Address: PO Box R1911
 Royal Exchange
 NSW 1225
Telephone/fax/email phone 02 8298 3682 fax 02 8298 3639

Land Ownership and Land Use Boundaries

Land Owner/Occupier (if the Crown, state agency)	Tenure, (freehold/leasehold)	Pre-mining land use
Challenger Mines Pty Ltd	Freehold and Leasehold	Agriculture

Consents and Licences

Local Council Area: Tumut Shire

Development Consent: granted required but not granted not required

Do licenses granted by other agencies apply to the mine activities? yes no

EPA NPWS NPWS Dam Safety Other Office of Water

MOP and AEMR Period

MOP Commencement Date: 01/06/2017 Completion date (nominal): 30/06/2019

AEMR Start Date: 01/01/2018 End Date: 31/12/2018

Comments

This year the AEMR is accompanied by an **Appendix** showing current photographs (**Plates**) of the Project Site. The location and direction of the **Plates** in the Appendix are shown on **Plans 1 to 3**.

Signatures

Leaseholder

Environmental Officer

Signature:



Name: KEN MAIDEN

Date: 15/02/2019

Signature:



Name: Gordon Barnes

Date: 4 / 02 / 2019

Mining operations during the reporting period

Describe the operations undertaken and the methods used. Descriptions should supplement information shown on **Plan 1**. Include where relevant:

- a) Land clearing;
- b) Construction activities;
- c) Ore Extraction;
- d) Mineral Processing.

A. Land Clearing

No clearing has taken place.

B. Construction Activities

Challenger Mines Pty Ltd continued with the completion of the remaining site preparation and commissioning from the previous reporting period (2017 AEMR) including:

- refurbishment of Goodwin dam spillway and installation of an outlet drain (**Plates 1 to 4**)
- erection fencing of quarry and adjoining mine shafts (**Plates 5 to 7**)
- water management infrastructure (**Plate 8**): maintained silt fencing.
- mine de-watering and decline strip: mine de-watering minimal.
- road works: no road works completed during the period

C. Ore Extraction and Mineral Processing

There was no ore extraction or mineral processing conducted during the period. Current infrastructure and site layout is shown in **Plates 9 to 14**.

TABLE 1: Production and Waste Summary

	Cumulative Production (cubic metres)		
	Start of Reporting Period	At end of Reporting Period	End of next reporting (estimated)
Topsoil stripped	0	0	0
Topsoil used/spread	0	0	0
Waste Rock	4,200	4,200	4,200
Ore/Mullock	18,100	18,100	18,100
Processing Waste	18,000	18,000	18,000
Product: Gold (troy ounces)	1,430oz	1,430oz	1,430oz

Rehabilitation during the AEMR period

Describe proposed rehabilitation and methods to be used for each rehabilitated area. Descriptions should supplement information shown on the plan. Include, where relevant:

- a) rehabilitated landform, profile, and slopes;
- b) subsoil and topsoil cover thicknesses;
- c) vegetation species, plant/seed density, soil treatment, method of establishment;
- d) agreed post mining land use, or land use options;
- e) passive water management features;
- f) ongoing maintenance requirements

Ongoing weed control: ground spraying of blackberry and briar.

Ongoing repair and construction of bunds and drains to direct waterflows.

Ongoing silt fence and diversion drain maintenance.

Tree planting is planned below Goodwin dam.

Ongoing removal of scrap steel, derelict mining equipment and rubbish.

FURTHER DEVELOPMENT OF FINAL REHABILITATION PLAN

Where the final rehabilitation plan has been further developed during the AEMR period, describe progress that has taken place and the stakeholders involved.

Where final rehabilitation outcomes and the strategies to achieve them have not yet been agreed between stakeholders, describe the steps that will be undertaken to progress agreement during the next reporting period.

Rehabilitation closure criteria were proposed in the updated and current MOP 2017-2019

TABLE 2: Rehabilitation Summary

		Cumulative Area Affected (hectares)		
		*End of 2017	End of 2018	End of 2019 (estimated)
A: MINE LEASE AREA				
A1	Mine Lease(s) Area	145.8 ha		
B: DISTURBED AREAS				
B1	Infrastructure area other disturbed areas to be rehabilitated at closure including facilities, roads	3.85	3.85	3.85
B2:	Active Mining Area excluding items B3 - B5 below	0.8	0.8	0.8
B3	Waste emplacements, active/unshaped/in or out-of-pit	0	0.0	0.0
B4	Tailings emplacements, active/unshaped/uncapped	0.2	0.2	0.2
B5	Shaped waste emplacement (awaits final vegetation)	0	0	0
	ALL DISTURBED AREAS	4.85	4.85	4.85
				F1
C REHABILITATION PROGRESS				
C1	Total Rehabilitated area (except for maintenance)	0.5	0.5	0.5
				F2
DC: REHABILITATION ON SLOPES				
D1	10 to 18 degrees	0	0	0
D2	Greater than 18 degrees	0	0	0
E: SURFACE OF REHABILITATED LAND				
E1	Pasture and grasses	0	0	0
E2	Native forest/ecosystems	0	0	0
E3	Plantations and crops	0	0	0
E4	Other (include nonvegetative outcomes)	0	0	0

TABLE 3: Maintenance Activities on Rehabilitated Land

(This period's activities and activities proposed in the next reporting period)

NATURE OF TREATMENT	Area Treated (ha)		Comment/control strategies/ treatment detail
	Report period 2018	Next period 2019	
Additional erosion control works (drains re-contouring, rock protection)	1.0	1.0	Ongoing repair and ongoing maintenance of existing drains, and diversion channels as per the Blue Book. Development of additional diversion drains as and where required. Ongoing silt control and sediment dam management.
Re-covering (detail - further topsoil, subsoil sealing etc.)	0	0	None planned
Soil treatment (detail - fertiliser, lime, gypsum etc.)	0	0	None planned
Treatment/Management (detail - grazing, cropping, slashing etc.)	0	0	None planned
Re-seeding/Replanting (detail - species density, season etc.)	0	0	None planned
Adversely Affected by Weeds (detail - type and treatment)	0	0	Ongoing hand spraying of blackberry and St John wort.
Feral animal control (detail - additional fencing, trapping, baiting etc.)	0	0	None planned

METEOROLOGICAL DATA

Summarise collected or local data and describe unusual climate features during the reporting period:

Rainfall to date of 419.5mm recorded compared to the long-term average of 791.2mm.

Source: Bureau of Meteorology Adelong (Tumut St) weather station 72000

ENVIRONMENTAL PERFORMANCE

For pollution control, erosion control and any other relevant environmental management strategies:

- a) state whether environmental control strategies were undertaken as described in the MOP;
- b) if the strategy as proposed in the MOP, previous AEMR was not followed, describe the risks the site was exposed to, and the environmental performance implications;
- c) review performance outcomes, including a summary and interpretation of monitored data. If useful, append photographs. Monitoring data need not be included but must be available on request;
- d) describe initiatives undertaken during the reporting period to improve or further assure acceptable performance;
- e) describe initiatives proposed for the next reporting period to improve or further assure acceptable performance.

Environmental control strategies and monitoring protocols were undertaken during the period of the AEMR consisting of quarterly water sampling and analysis and monthly dust sampling and installing additional sediment control features to improve sediment settling within the disturbed mine areas with ongoing maintenance of existing sediment controls.

The location of the groundwater monitoring bores (**Plate 15**) and dust monitoring stations (**Plate 16**) are shown on **Plans 1 to 3**. **Plan 1** shows the site layout at 1:10,000 scale for ML1435 and M(C)Ls 279-291 311-313. **Plan 2** shows the layout of the main mining area within ML1435 at 1:2,500 scale and **Plan 3** shows the layout over the photo base.

Quarterly water quality and dust sampling results are recorded on site and uploaded on to the mine website accessible to the public.

An Aerial Survey was completed by a drone to record high-resolution aerial photography and generate a detailed Digital Terrain Model over the main operational area (**Plans 2 and 3**). This has been used estimate the volume of mullock material around historic workings (**Plate 17**).

Environmental management activities consisted of:

- ongoing weed control programmes.
- review and updating of the PIRMP.
- updating of the site induction program to include new Environmental Management content.
- development of an Environmental Management System records management framework and repository.
- water sampling and dust sampling analysis as prescribed in the EPL
- meeting with local stakeholders at a Community Consultative Committee meeting on 20 November 2018
- a 24-hour complaints line for the site as per EPL requirements.
- identifying opportunities for any progressive rehabilitation

Further initiatives to improve environmental performance in the following AEMR period will include:

- excavate a trench around the northern side of the quarry inside the fenced area to contain tailings runoff
- removal of stored tailings from access roads and processing area
- move surplus equipment and materials to designated storage areas prior to removal from site
- establish a Monitoring Procedures Manual to fully document procedures for all monitoring on site
- install a height pole in Goodwin Dam to monitor water volumes

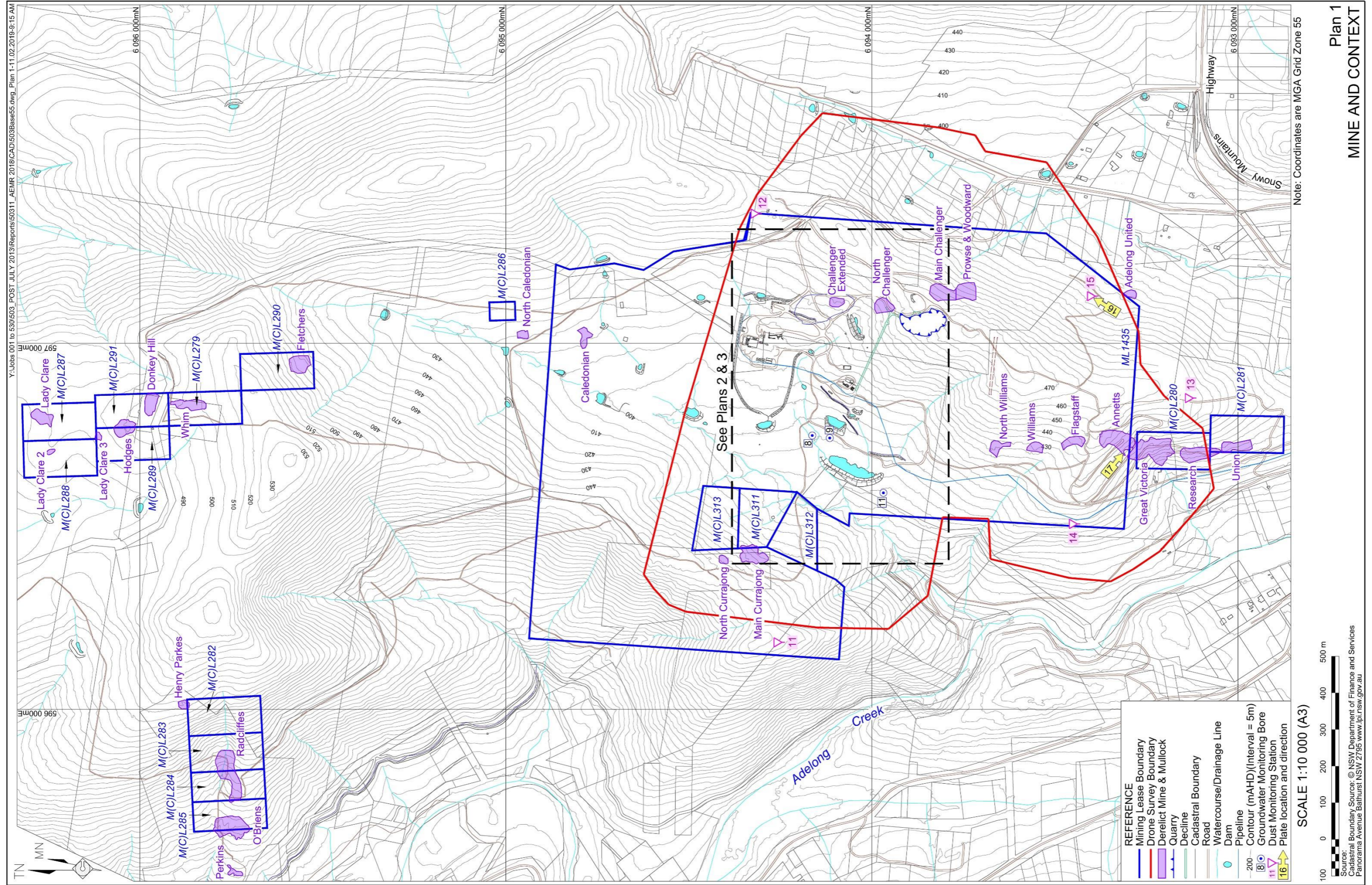
Complaints and Liaison

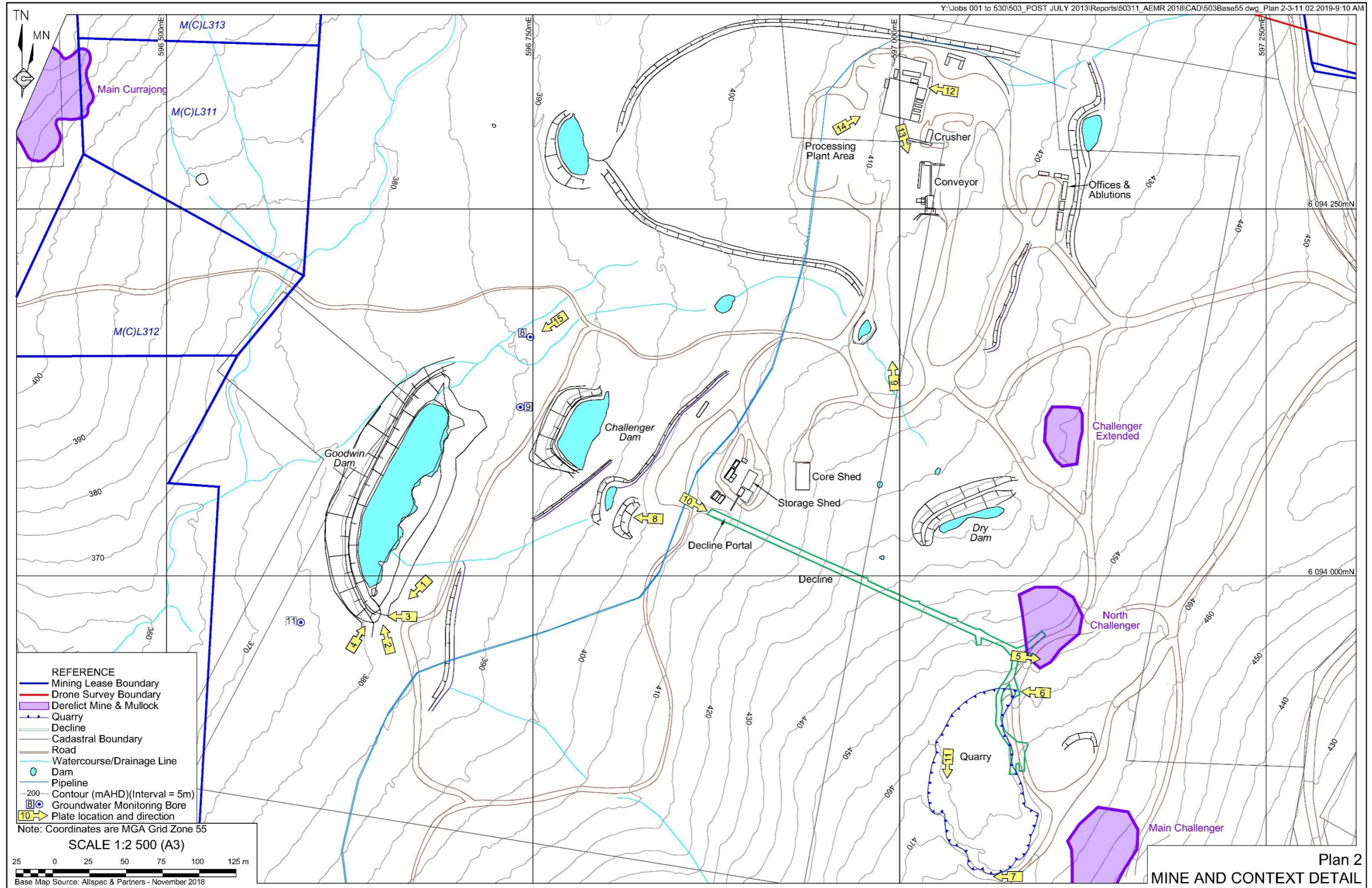
Summarise environmental complaints, and community and land occupier liaison.

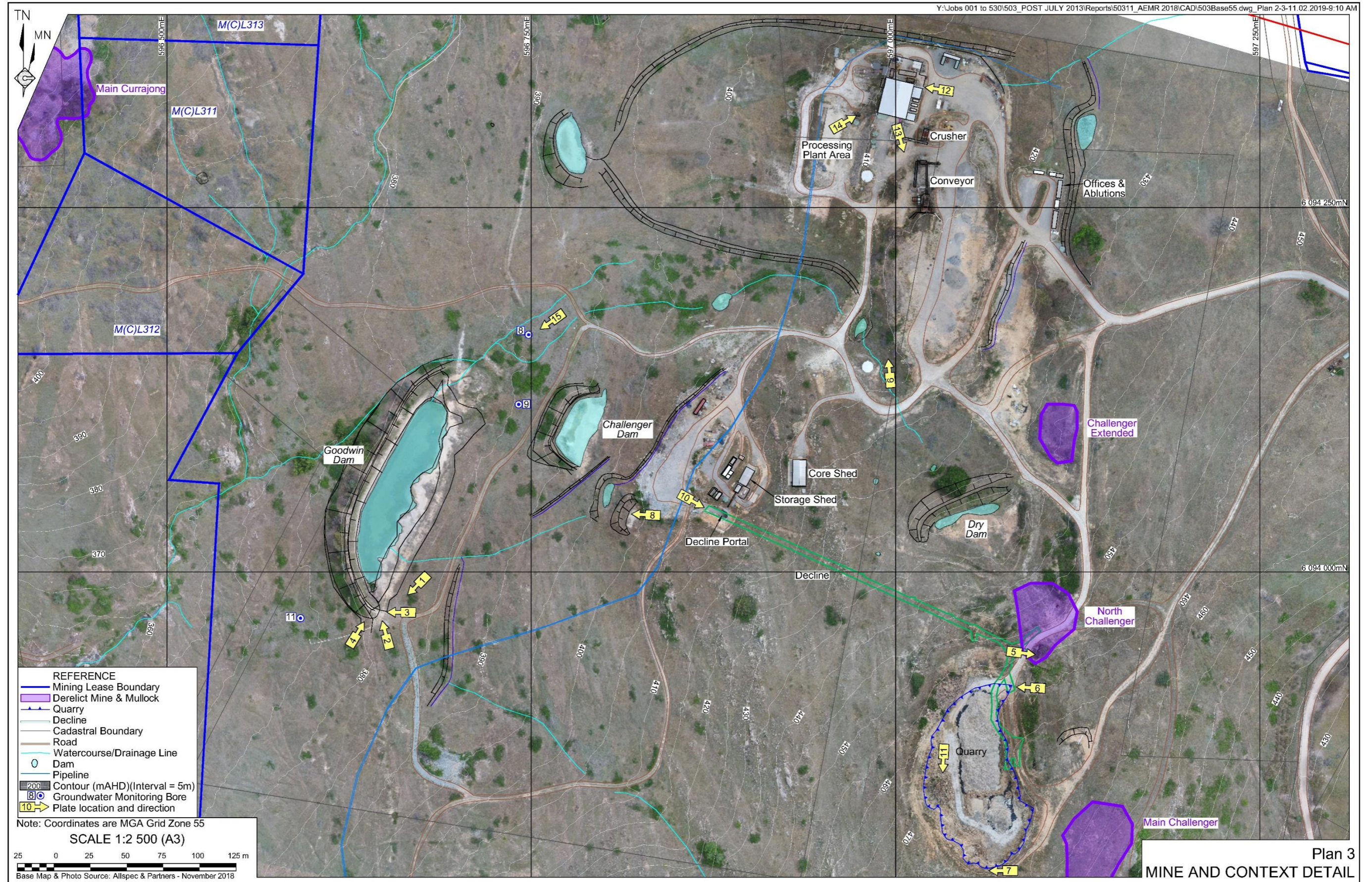
No official complaints were received from local stakeholders and community during this AEMR period

For further information and contact details see www.minerals.nsw.gov.au

Telephone (02) 4931 6605 Email minres.environment@industry.nsw.gov.au







Appendix 1

Site Photographs

(Total No. of pages including blank pages = 4)



Plate 1 **Goodwin Dam spillway**
(Ref: E503B_059)



Plate 2 **Goodwin Dam**
(Ref: E503B_060)



Plate 3 **Goodwin Dam spillway outlet**
(Ref: E503B_061)



Plate 4 **Goodwin Dam spillway outlet**
(Ref: E503B_063)



Plate 5 **Fencing around historic workings**
(Ref: E503B_021)



Plate 6 **Fencing around quarry showing tailings**
(Ref: E503B_019)



Plate 7 Fencing around quarry
(Ref: E503B_029)



Plate 8 Water settlement ponds with
Goodwin Dam in the background
(Ref: E503B_066)



Plate 9 Plant processing area
(Ref: E503B_037)



Plate 10 Decline portal into underground
workings
(Ref: E503B_068)



Plate 11 Quarry showing tailings on the left
(Ref: E503B_096)



Plate 12 Processing shed
(Ref: E503B_147)



Plate 13 **Crusher and conveyer**
(Ref: E503B_0134)



Plate 14 **Processing shed**
(Ref: E503B_155)



Plate 15 **Groundwater monitoring bore**
(Ref: E503B_159)



Plate 16 **Dust monitoring station**
(Ref: E503B_048)



Plate 17 **Mullock pile**
(Ref: E503B_052)