



**NSW  
Resources  
Regulator**

**FORM AND WAY**

# **ANNUAL REHABILITATION REPORT AND FORWARD PROGRAM FOR LARGE MINES**



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## Purpose

This document sets out the prescribed form and way required for an annual rehabilitation report and forward program for large mines, in accordance with Clauses 9 and 13 of Schedule 8A to the Mining Regulation 2016.

## Mandatory requirements

The lease holder must prepare an annual rehabilitation report and forward program for the mining area in accordance with the mining lease conditions, in the form and way specified in this document.

## Annual rehabilitation report and forward program structure

The annual rehabilitation report and forward program must be prepared to include all parts, sections and sub-sections specified in this document.

Each part, section and subsection of the annual rehabilitation report and forward program must be identified by the heading of the corresponding part, section and subsection of this document.

Where a part, section or subsection is not relevant or applicable, it must be noted as such and a justification provided. The headings of each part, section or subsection should not be deleted.<sup>1</sup>

## Annual rehabilitation report and forward program content

The information included in each part, section and subsection in the annual rehabilitation report and forward program must address all instructions detailed within the relevant part, section or subsection of this document.

Where a part, section or subsection is not relevant or applicable, it must be noted as such and a justification provided. The headings of each part, section or subsection headings should not be deleted.<sup>2</sup>

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<sup>1</sup> The inclusion of all parts, sections or subsections is to ensure consistency in the format of all annual rehabilitation reports and forward programs across NSW and compliance with the requirements of this document. The Resources Regulator recognises that the information in an annual report and forward program may be brief or very detailed. The length and complexity of an annual rehabilitation report and forward program will depend on the nature and scale of the mining operation, the level of risk to the environment and the rehabilitation outcomes to be achieved.

<sup>2</sup> (as above).

## Summary table

The annual rehabilitation report and forward program must include a summary table containing the following:

- a. name of mine
- b. annual rehabilitation report: reporting period commencement and end dates
- c. annual rehabilitation report: revision dates and version numbers
- d. forward program commencement date
- e. forward program revision dates and version numbers
- f. mining leases (lease number(s)) and expiry date(s)
- g. name of lease holder(s)
- h. date of submission.

The summary table must be on the first or second page of the annual rehabilitation report and forward program.

## 1. Part 1 – Annual rehabilitation report

Part 1 sets out the prescribed form and way for an annual rehabilitation report in accordance with Clauses 9 and 13 of Schedule 8A, to the Mining Regulation 2016.

The annual rehabilitation report must be submitted using the online form accessible at <https://nswresourcesregulator.service-now.com/regulator>.

### 1.1. Complaints register

This section must list (in a table) any complaints received during the reporting period in relation to rehabilitation and provide details of the response(s) to these complaints.

### 1.2. Current development consents, leases and licences

This section must show (in a table) the following approvals, or any new approvals for the mining area documented in the rehabilitation management plan:

- a. development consents granted under the *Environmental Planning and Assessment Act 1979*
- b. authorisations covering the mining area (including mining leases and exploration licences, and assessment leases and) granted under the *Mining Act 1992*

- c. any other approvals, licences, or authorities issued by government agencies that are relevant to the progress of mining operation and rehabilitation activities.

If there have been changes to the status of these approvals during the annual reporting period, the lease holder must include a summary of the scope and/or purpose of the new applications or modifications to existing approvals.

### 1.3. Land ownership and land use

This section must provide details of any changes to land ownership and land use related to the land, that has occurred during the annual reporting period and/or as recorded in the rehabilitation management plan.

### 1.4. Stakeholder consultation

This section must summarise, in a table, stakeholder consultation about rehabilitation undertaken during the annual reporting period.

This summary must identify:

- each relevant stakeholder (e.g. the NSW Resources Regulator, other government agencies, landholders, community)
- the consultation activities and forms of consultation
- the matters subject to consultation
- actions taken by the lease holder in response to matters raised by any stakeholder in relation to rehabilitation.

### 1.5. Surface disturbance and rehabilitation activities during the annual reporting period

This section must provide an overview of significant surface disturbance activities, including mining operations, ancillary mining activities and exploration carried out on the mining area, and rehabilitation activities that were undertaken during the annual reporting period. Information in this section must be consistent with spatial information depicted on *Plan 1 – Status of mining and rehabilitation at completion of annual reporting period* (refer to section 1.6). Information in this section must include, but is not limited to, the following:

- a. A description of the surface disturbance and rehabilitation activities that were conducted, and, an analysis of the progress against the schedule presented in the previous annual rehabilitation report and forward program, as well as any relevant development consent.
- b. A description of any rehabilitation planning activities that were conducted, including any specialist studies, for example contamination, heritage, landform design and demolition.
- c. An overview of any subsidence repair and/or remediation works undertaken.
- d. An overview of rehabilitation management and maintenance activities, for example re-seeding, weed and feral animal control and erosion control works.
- e. Details of any rehabilitation actions taken as required by any letters, notices or directions issued by government agencies, including the NSW Resources Regulator.
- f. Details of any rehabilitation areas that have achieved the final land use, as set out in clause 6 of Schedule 8A to the Mining Regulation 2016, in the reporting period. That is, rehabilitation areas where the NSW Resources Regulator has determined in writing that the relevant rehabilitation obligations have been fulfilled following submission of the relevant application by the lease holder.
- g. A material production schedule by completing Table 1.

Table 1: Material production during previous annual reporting period

MATERIAL	UNIT	QUANTITY
Stripped topsoil	(e.g. m <sup>3</sup> )	
Rock/overburden	(e.g. m <sup>3</sup> )	
Ore or ROM coal extracted	(e.g. Mt)	
Reject material <sup>3</sup>	(e.g. Mt)	
Product	(e.g. Mt)	

<sup>3</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.



## 1.6. Plan 1 – Status of mining and rehabilitation at completion of annual reporting period

### 1.6.1. Submission of Plan 1 spatial data to mine rehabilitation portal

Lease holders must submit all spatial theme data listed in Table 2 below through the NSW Resource Regulator’s mine rehabilitation portal (<http://www.minererehabilitationportal.nsw.gov.au>) prior to submission of the annual rehabilitation report and forward program to support *Plan 1 – Status of mining and rehabilitation at completion of annual reporting period*. Information on theme requirements is provided in guidelines.

Table 2: Spatial data themes to be submitted to support Plan 1

#### MINE REHABILITATION PORTAL SPATIAL DATA THEMES

Rehabilitation

Disturbance

Project approval boundary

Current landform contours

### 1.6.2. Submission of Plan 1 electronic copy

This section must include an electronic copy (PDF) of Plan 1, which must be prepared using the spatial data submitted through the mine rehabilitation portal in accordance the requirements of Section 1.6.1.

The Plan 1 electronic copy (PDF) must reference the mine rehabilitation portal submission ID numbers for each theme identified in Table 2. Submission ID numbers are unique identifiers generated by the mine rehabilitation portal to identify the data submission for each data theme uploaded by the lease holder and can be found in the ‘files submitted’ tab after data has been successfully submitted.

The Plan 1 electronic copy (PDF) is produced using the mine rehabilitation portal map viewer ‘print to PDF’ function.

The Plan 1 electronic copy (PDF) must be presented as at least two sub-plans:

1. Plan 1A: Current status of mining and rehabilitation.
2. Plan 1B: Current landform contours.

**Note:** For large operations it may be appropriate to prepare multiple sub-plans to clearly depict all mandatory requirements.

Each sub-plan must be provided in A3 format and contain the following:

- **title block** including the mine’s name, plan name, annual reporting period, the plan date (date of creation), mine rehabilitation portal data theme submission ID numbers
- **legend** identifying all features shown
- **north arrow**
- **scale bar**
- **labels** (where appropriate)
- **basemap** – satellite or NSW Base Map
- **spatial data themes** identified in Table 3.

Table 3: Plan 1 PDF version

PLAN ID	MINE REHABILITATION PORTAL SPATIAL DATA THEMES	DISPLAY FIELD (UNIQUE VALUES*)	SYMBOLGY REQUIREMENTS
Plan 1A	Rehabilitation	RehabPha	Refer to Appendix 1
	Disturbance	MineDomT	
	Project approval boundary	N/A	
	Current authorisations	N/A	
Plan 1B	Current landform contours	N/A	Refer to Appendix 1
	Project approval boundary	N/A	
	Current authorisations	N/A	

**\*Note:** Symbology based on the unique values found in this field

## 1.7. Disturbance and rehabilitation statistics

### Explanatory note 1: Disturbance and rehabilitation reporting categories

The sequence of actions required to rehabilitate disturbed areas to achieve the final land use are classified into conceptual stages referred to as phases of rehabilitation. These phases are:

- active mining
- decommissioning
- landform establishment
- growth medium development
- ecosystem and land use establishment
- ecosystem and land use development
- rehabilitation completion (sign-off).

Rehabilitation areas often progress through the initial phases of rehabilitation (decommissioning, landform establishment and growth media development) in a short period of time. For the purposes of rehabilitation reporting, a modified classification of rehabilitation reporting categories is to be adopted in the annual rehabilitation report and forward program so that areas within the decommissioning, landform establishment and growth medium development are cumulatively reported as **rehabilitation – land preparation**.

A description of each disturbance and rehabilitation reporting category is provided in Table 5 - Disturbance and rehabilitation reporting categories.

The mine rehabilitation portal KPI report workflow will generate the results required for the reporting categories in Table 4. Refer to the NSW Resources Regulator YouTube channel to [view a demonstration video](#) on how to use the mine rehabilitation portal to generate the KPI report.

Rehabilitation classified as 'ecosystem and land use development' will require lease holders to validate through monitoring data that rehabilitation is classified within this phase and retain appropriate records.

For rehabilitation to be classified as 'rehabilitation complete' it will require a determination in writing by the NSW Resources Regulator that the mining area (or part thereof) has achieved the final land use, as set out in clause 6 of Schedule 8A of the Mining Regulation 2016, following the submission of the relevant application by the lease holder.

### 1.7.1. Current disturbance and rehabilitation progression

This section must provide a summary of the current disturbance and rehabilitation status at the end of the annual reporting period by completing Table 4. The disturbance and reporting information provided in Table 4 must be consistent with the definitions of these reporting categories set out in Table 5 and the glossary.

All values reported in Table 4 must be generated using the mine rehabilitation portal following submission of spatial data themes used to generate Plan 1 (refer to Section 1.6.2).

Table 4: Status of disturbance and rehabilitation at end of reporting period

ANNUAL REPORTING PERIOD	Insert start and completion dates
TOTAL DISTURBANCE FOOTPRINT – SURFACE DISTURBANCE	(A1)*
UNDERGROUND MINING AREA (HECTARES)	(A2)*
TOTAL ACTIVE DISTURBANCE (HECTARES)	(B)*
REHABILITATION – LAND PREPARATION (HECTARES)	(C)*
ECOSYSTEM AND LAND USE ESTABLISHMENT (HECTARES)	(D)*
ECOSYSTEM AND LAND USE DEVELOPMENT (HECTARES)	(E)*
REHABILITATION COMPLETION (HECTARES)	(F)*

**\*Note:** Definitions for each disturbance and rehabilitation reporting category are provided in Table 5.

Table 5: Disturbance and rehabilitation reporting categories

REPORTING CATEGORY	DEFINITION
A1	<p>Total disturbance footprint – surface disturbance</p> <p>All areas within a mining lease that either have at some point in time or continue to pose a rehabilitation liability due to surface disturbance activities.</p> <p>The total disturbance footprint is the sum of the total active disturbance, decommissioning, landform establishment, growth medium development, ecosystem and land use establishment, ecosystem and land use development and rehabilitation completion (see definitions below).</p> <p>Underground mining operations should not include the footprint of underground mining areas/subsidence management areas in the total disturbance footprint.</p>
A2	Underground mining areas/subsidence management areas.
B	<p>Total active disturbance</p> <p>Includes on-lease exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste rock emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped) and temporary stabilised areas (e.g. areas sown with temporary cover crops for dust mitigation and temporary rehabilitation).</p>
C	<p>Rehabilitation – land preparation</p> <p>Includes the sum of all disturbed land within a mining lease that has commenced any, or all, of the following phases of rehabilitation – decommissioning, landform establishment and growth medium development.</p> <p>Refer to the glossary for the definition of these phases of rehabilitation.</p>
D	<p>Ecosystem and land use establishment</p> <p>Includes the area which has been seeded/planted with the target vegetation species for the intended final land use. However, vegetation has not matured to a stage where it can be demonstrated that it will be sustainable for the long-term and/ or require only a maintenance regime consistent with target reference/analogue sites.</p> <p>Typically, rehabilitation areas would be in this phase for at least two years (and usually more) before rehabilitation can be classified as being in the ecosystem and land use development phase. This phase does not apply to infrastructure areas that are being retained as part of final land use for the site.</p>

REPORTING CATEGORY		DEFINITION
E	Ecosystem and land use development	<p>Rehabilitation has matured to a level where target revegetation outcomes are on a trajectory towards meeting the approved rehabilitation objectives and rehabilitation completion criteria (as verified by monitoring).</p> <p>This phase includes infrastructure areas that are to be retained for an approved final land use, following completion of all necessary measures to render the infrastructure fit for this purpose (for example structural integrity).</p>
F	Rehabilitation completion	The NSW Resources Regulator has determined in writing that the mining area has achieved the approved rehabilitation objectives and approved rehabilitation completion criteria and final landform and rehabilitation plan following the submission of the relevant application by the lease holder.

### 1.7.2. Rehabilitation key performance indicators (KPIs)

#### Explanatory note 2: Rehabilitation reporting statistics

Rehabilitation statistics provide context and transparency about rehabilitation performance by reporting:

- cumulative disturbance and rehabilitation since the commencement of mining
- annual changes in disturbance and rehabilitation areas
- progression of rehabilitation areas to established rehabilitation.

The information in Table 3 provides a summary of the status of disturbance and rehabilitation since the commencement of mining up until the end of the annual reporting period. The status summary may assist the lease holder to:

- compare actual areas to predictions in the forward program for the annual reporting period
- calculate rehabilitation cost estimates.

The information in Table 6 includes the key performance indicators associated with disturbance and rehabilitation areas in the previous 12 months (the annual reporting period). This information provides context for the NSW Resources Regulator’s assessment that any land or water in the

mining area that is disturbed by activities under the mining lease is rehabilitated as soon as reasonably practicable after the disturbance occurs in accordance with Clause 5 of Schedule 8A of the Mining Regulation 2016.

The information in Table 8 provides a summary of the proportion of established rehabilitation (that is, land that has progressed to the ecosystem and land use development phase for each of the broad final land use categories of agricultural land uses, native biodiversity land uses and non-vegetated land uses, as relevant).

**Note:** Following submission of all spatial data required for Plan 1 and Plan 2 in accordance with the guidelines, all disturbance and rehabilitation statistics described in the sections below are to be generated using the mine rehabilitation portal.

Based on the existing mining and rehabilitation statistics, this section must present the rehabilitation key performance indicators by completing Table 6. All values presented in Table 6 must be generated using the mine rehabilitation portal following submission of spatial data themes used to generate Plan 1.

Table 6: Rehabilitation key performance indicators (KPIs) at end of annual reporting period

<b>ANNUAL REPORTING PERIOD</b>	Insert start and completion dates
<b>NEW ACTIVE DISTURBANCE AREA (hectares)</b>	(G)*
<b>NEW REHABILITATION COMMENCED DURING ANNUAL REPORTING PERIOD (hectares)</b>	(H)*
<b>ESTABLISHED REHABILITATION (hectares)</b>	(I)*
<b>ANNUAL REHABILITATION TO DISTURBANCE RATIO</b>	(J)*
<b>% REHABILITATED LAND TO TOTAL MINE FOOTPRINT</b>	(K)*

**\*Note:** Definitions for each key performance indicator are provided in Table 7.

Table 7: Disturbance and rehabilitation reporting categories

REPORTING CATEGORY		DEFINITION
G	New active disturbance area	The area of any new active disturbance that has been created during the annual reporting period (definition A1 in Table 5).
H	New rehabilitation commenced during annual reporting period	The sum of any new rehabilitation commenced in the annual reporting period. These areas may be in the rehabilitation land preparation phase or the ecosystem and land use establishment phase (definitions C and D in Table 5).
I	Established rehabilitation (hectares)	The total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E and F in Table 5).
J	Annual rehabilitation to disturbance ratio	The rehabilitation to disturbance ratio (H/G) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1:1 indicates that the area of new rehabilitation and disturbance in that year are the same.
K	% Rehabilitated land to total mine footprint	The proportion of the total mine footprint (area of land that has been disturbed by past or present surface disturbance activities) that has established rehabilitation ( $I/A1 \times 100$ ). For open cut mining, the proportion of the total mine footprint verified to be “established rehabilitation” should substantially increase as an operation progresses towards mine closure.
L	Established rehabilitation for agricultural final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E and F in Table 5) that has been returned to an agricultural final land use.
M	Established rehabilitation for native ecosystem final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or rehabilitation completion phase (definitions E and F in Table 5) that has been returned to native ecosystem final land use.
N	Established rehabilitation for other/non-vegetated final land uses (hectares)	The percentage of total area of land that is verified to be within either the ecosystem and land use development phase or the rehabilitation completion phase (definitions E and F in Table 5) that has been returned to other/ non-vegetated final land use.



### 1.7.3. Progressive achievement of established rehabilitation

Based on the existing mining and rehabilitation statistics, in Table 8, this section must detail the proportion of the land that has progressed to the reporting category ‘established rehabilitation’ for agricultural, native ecosystem or other final land use(s) at the end of the reporting period. Data presented in Table 8 must be generated using the mine rehabilitation portal using spatial data submitted for Plan 1.

*Table 8: Proportion of established rehabilitation for final land use classifications at the end of the reporting period*

<b>ANNUAL REPORTING PERIOD</b>	Insert start and completion dates
<b>ESTABLISHED REHABILITATION FOR AGRICULTURAL FINAL LAND USES (percent)</b>	L
<b>ESTABLISHED REHABILITATION FOR NATIVE ECOSYSTEM FINAL LAND USES (percent)</b>	M
<b>ESTABLISHED REHABILITATION FOR OTHER/NON-VEGETATED FINAL LAND USES (percent)</b>	N

### 1.7.4. Variation to the rehabilitation schedule

If rehabilitation key performance indicators reported in the annual rehabilitation report and forward program are not consistent with the life of mine rehabilitation schedule in the rehabilitation management plan, or the rehabilitation schedule for Year 1 in the most recent forward program, this section must:

- a. Identify the components of the most recent forward program that were not achieved.
- b. Identify the key factors that have delayed the progressive rehabilitation schedule and the timing for any corrective actions.
- c. Outline actions that will be included in the forward program and carried out to minimise disturbance and undertake progressive rehabilitation as far as reasonably practical.

## 1.8. Rehabilitation monitoring and research findings

### Explanatory note 3: Rehabilitation monitoring reporting

Lease holders must provide a summary of the rehabilitation monitoring undertaken during the annual reporting period in the annual rehabilitation report.

Where the monitoring program has identified performance issues, the forward program (Part 2 – Forward program) must provide details about corrective actions or measures that will be implemented.

Note: Copies of rehabilitation monitoring data and any associated specialist reports relevant to the mining area are not required to be submitted with the annual rehabilitation report and forward program. However, they must be made available on request by the NSW Resources Regulator and maintained on site as a record, in accordance with the relevant conditions of the mining lease and the record keeping requirements of the *Mining Act 1992*. This includes reports outlining the findings of rehabilitation trials and/ or research programs.

### 1.8.1. Rehabilitation monitoring

This section must provide a summary of the rehabilitation monitoring carried out in the annual reporting period, at established rehabilitation areas and at analogue sites, in accordance with the monitoring program detailed in the rehabilitation management plan.

This summary must include monitoring activities, such as inspections undertaken following the completion of key rehabilitation steps and phases of rehabilitation, in accordance with the rehabilitation quality assurance process in the rehabilitation management plan.

### 1.8.2. Status of performance against rehabilitation objectives and rehabilitation completion criteria

This section must:

- a. provide details about the monitoring program that has been implemented to evaluate how rehabilitation is progressing against the approved or, if not yet approved, the proposed rehabilitation objectives, rehabilitation completion criteria and final landform and rehabilitation plan
- b. include an appraisal of whether rehabilitation is moving towards achieving the approved or, if not yet approved, the proposed rehabilitation objectives and rehabilitation completion criteria as soon as reasonably practicable

- c. include summaries of the findings of the rehabilitation monitoring program, including:
  - i. specialist reports (e.g. ecology, water quality, agronomy)
  - ii. any performance issues and their causes including identification of any knowledge gaps that must be addressed to rectify identified performance issues.

Where the monitoring program has identified performance issues and/or knowledge gaps, details must be provided in the forward program component (Part 2) about what corrective action measures will be implemented.

### **1.8.3. Outcomes of rehabilitation research and trials**

This section must:

- a. summarise the results and outcomes of any research projects and rehabilitation trials (where relevant) and identify whether research projects and rehabilitation trials are complete, ongoing, or will lead to any follow up trials or research programs
- b. provide details about how the outcomes of completed trials and research have been used to influence rehabilitation planning and methodologies and/or continuously improve rehabilitation techniques.

## **2. Part 2 – Forward program**

Part 2 sets out the prescribed form and way for a forward program for large mines in accordance with Clauses 9 and 13 of Schedule 8A of the Mining Regulation 2016.

The forward program must be submitted using the online form accessible at <https://nswresourcesregulator.service-now.com/regulator>.

### **2.1. Three-year forecast – surface disturbance activities**

#### **2.1.1. Project description**

This section must outline the mining project, including the expected remaining life of the mine. The project description must be consistent with the development consent for the mine.

## 2.1.2. Description of surface disturbance activities

This section must detail the surface disturbance activities proposed for the next three years. Information in this section must address the activities illustrated in Plan 2 (refer to section 2.3). The following content must be included:

### a. Exploration activities

Identify and describe exploration activities that are proposed or likely to be proposed to be carried out in areas within the mining leases in the next three years.

### b. Construction activities

Identify and describe any construction activities scheduled in the next three years.

### c. Mining schedule

Outline the sequence and staging of mining operations over the next three years. This must be consistent with the life of mine rehabilitation schedule described in the rehabilitation management plan and relevant development consent(s) and include the following:

- A description of the method of mining development and sequencing and general mine features.
- A description of the areas identified for emplacements, the sequencing of emplacements, construction and management.
- The identification of processing infrastructure activities and the location of tailings facilities and schedule for emplacement.
- A description of waste disposal and materials handling operations over the next three years. This should include a discussion of disposal of putrescible waste, hydrocarbons, and management of contaminated soils.

This section must provide an outline of the key production milestones that underpin the proposed rehabilitation schedule (as outlined in section 2.2 and section 2.3). Table 9 must be completed.

Table 9: Material production schedule during the next three years

MATERIAL	UNIT	YEAR 1	YEAR 2	YEAR 3
Stripped topsoil (if applicable)	(e.g. m <sup>3</sup> )			
Rock/overburden	(e.g. m <sup>3</sup> )			
Ore	(e.g. Mt)			
Reject material <sup>4</sup>	(e.g. Mt)			
Product	(e.g. Mt)			

## 2.2. Three-year rehabilitation forecast

### 2.2.1. Rehabilitation planning schedule

This section must provide a schedule, with defined milestones, outlining the rehabilitation planning activities (where applicable) that will be carried out over the next three years, to address potential knowledge gaps and to ensure that rehabilitation is undertaken as soon as reasonably practicable. This must include the following information:

- relevant stakeholder consultation
- rehabilitation studies, risk assessments and/or design work associated with finalising the rehabilitation methodologies relating to establishment of the final landform, surface water management, final void management, and tailings dam decommissioning.

### 2.2.2. Rehabilitation research and trials

This section must include a detailed description of the rehabilitation research and trials that will be carried out in the three-year forecast period (where applicable). This section must include the rehabilitation research and trials identified in the rehabilitation management plan and/or any other rehabilitation research or trials proposed to address knowledge gaps identified in the annual rehabilitation report.

<sup>4</sup> This includes coarse rejects, tailings and any other wastes resulting from beneficiation.

### 2.2.3. Rehabilitation maintenance and corrective actions

This section must include a detailed description of the rehabilitation maintenance and corrective action measures that will be carried out to address all rehabilitation performance issues and/or knowledge gaps identified in the annual rehabilitation report (Part 1).

### 2.2.4. Rehabilitation schedule

This section must outline the key activities required to implement the mining and rehabilitation schedule for the next three years. The information in this section must be consistent with the spatial depiction of progressive rehabilitation shown on Plan 2 (section 2.3 below).

This section must describe how the mining and rehabilitation schedule has been developed to minimise disturbance and progressively rehabilitate as soon as reasonably practicable.

### 2.2.5. Subsidence remediation for underground operations

This section must provide an overview of the nature and scope of any subsidence monitoring and expected remediation works proposed to be conducted over the next three years.

## 2.3. Plan 2 – Mining and rehabilitation three-year forecast

### 2.3.1. Submission of Plan 2 spatial data to the mine rehabilitation portal

Lease holders must submit all spatial theme data listed in Table 10 below to the NSW Resources Regulator through the mine rehabilitation portal (<http://www.minerehabilitationportal.nsw.gov.au>) prior to submission of the annual rehabilitation report and forward program to support *Plan 2 – Mining and Rehabilitation Three-Year Forecast* (Plan 2). Information on theme requirements has been provided in the guidelines.

Table 10: Spatial data themes to be submitted to support Plan 2

**MINE REHABILITATION PORTAL SPATIAL DATA THEMES**

Forecast Data – Year 1

Forecast Data – Year 2

Forecast Data – Year 3

**2.3.2. Submission of Plan 2 electronic copy (PDF)**

This section must include an electronic copy (PDF) of Plan 2, which must be prepared using the spatial data submitted to the mine rehabilitation portal in accordance with Section 2.3.1.

The Plan 2 electronic copy (PDF) must reference the mine rehabilitation portal submission ID numbers for each theme identified in Table 11. Submission ID numbers are unique identifiers generated by the mine rehabilitation portal to identify the current data submission for each data theme uploaded by the lease holder and can be found in the 'Files Submitted' tab following successful submission of data.

The Plan 2 electronic copy (PDF) may be produced using the mine rehabilitation portal map viewer 'print to PDF' function.

The Plan 2 electronic copy (PDF) must be presented as the series of sub-plans:

1. Plan 2A Mining and Rehabilitation – Year 1
2. Plan 2B Mining and Rehabilitation – Year 2
3. Plan 2C Mining and Rehabilitation – Year 3.

Each sub-plan must be included in this section in A3 format and contain the following elements:

- **authorisation block** including mine's name, plan name, year (Year 1, 2 or 3), and the plan date (date of creation), mine rehabilitation portal data theme submission ID numbers
- **legend** identifying all features shown
- **north arrow**
- **scale bar**
- **labels** (where appropriate)
- **basemap** – Satellite or NSW Base map
- **spatial data** identified in Table 11.

Table 11: Plan 2 PDF requirements

PLAN ID	MINE REHABILITATION PORTAL SPATIAL DATA THEMES	DISPLAY FIELD (UNIQUES VALUES)	SYMBOLGY GUIDANCE
Plan 2A	forecast data – Year 1	Forecast Area	Refer to Appendix 1
	project approval boundary	N/A -	
	current authorisations	N/A	
Plan 2B	forecast data – Year 2	Forecast Area	Refer to Appendix 1
	project approval boundary	N/A -	
	current authorisations	N/A	
Plan 2C	forecast data – Year 3	Forecast Area	Refer to Appendix 1
	project approval boundary	N/A -	
	current authorisations	N/A	

**\*Note:** For large operations it may be appropriate to prepare multiple sub plans in A3 format to clearly depict all mandatory requirements.

## 2.4. Progressive mining and rehabilitation statistics

### 2.4.1. Three-yearly forecast cumulative disturbance and rehabilitation progression

Based on the information presented in Plan 2, this section must provide a summary of the forecast cumulative disturbance and rehabilitation progression during the next three years in Table 12. Table 12 must be completed from data generated using the NSW Resources Regulator’s mine rehabilitation portal.



Table 12: Predicted cumulative disturbance and rehabilitation progression during the next three-year term

YEAR	1	2	3
TOTAL DISTURBANCE FOOTPRINT – SURFACE DISTURBANCE (hectares)	(A1)*		
UNDERGROUND MINING AREA (hectares)	(A2)*		
TOTAL ACTIVE DISTURBANCE (hectares)	(B)*		
REHABILITATION – LAND PREPARATION (hectares)	(C)*		
ECOSYSTEM AND LAND USE ESTABLISHMENT (hectares)	(D)*		

\*Note: Definitions for each mining and rehabilitation phase are outlined in Table 5.

### Explanatory note 4: Disturbance and rehabilitation progress

The purpose of the information in Table 12 is to provide a detailed breakdown of disturbance and rehabilitation progress on an annual basis. This is a transparent way of:

- calculating cumulative disturbance and rehabilitation totals
- developing rehabilitation targets and key performance indicators
- comparing actual areas and reasons for change, as per the annual rehabilitation report and forward program
- calculating and validating rehabilitation cost estimates.

### 2.4.2. Rehabilitation key performance indicators (KPIs)

Based on the proposed mining and rehabilitation schedules included in Table 12, this section must identify progressive rehabilitation key performance indicators in Table 13. Table 13 must be completed using data generated using the mine rehabilitation portal and data submitted for Plan 2.

Table 13: Progressive rehabilitation key performance indicators during the next three-year term

YEAR	1	2	3
TOTAL NEW ACTIVE DISTURBANCE AREA DURING REPORTING PERIOD (hectares)	(O)*		
AREA OF LAND PROPOSED FOR ACTIVE REHABILITATION DURING REPORTING PERIOD (hectares)	(P)*		
ANNUAL REHABILITATION TO DISTURBANCE RATIO	(Q)*		

\*Note: Definitions for each KPI can be found in Table 14.

Table 14: Progressive rehabilitation KPI categories

REPORTING CATEGORY	DEFINITION
O	The area of any new active disturbance that will be created during the next three years, as defined under definition A1 (definition A1 Table 5).
P	The sum of any new rehabilitation to be commenced in the next three years. These areas may be in the phases “Rehabilitation - Land Preparation” or the “Ecosystem and Land Use Establishment” (definitions C and D in Table 5).
Q	The rehabilitation to disturbance ratio (S:R) indicates how many hectares of new rehabilitation are undertaken for each hectare of land disturbed during the three years. A ratio of 1:1 indicates that the area of new rehabilitation and disturbance in that period are the same.

## 2.5. Rehabilitation Cost Estimate

### Explanatory note 5: Rehabilitation Cost Estimate

A Rehabilitation Cost Estimate (RCE) must be based on one of the following specific stages of disturbance:

- maximum disturbance within a term (including liabilities associated with previous and on-going surface disturbance activities); or
- snapshot of disturbance.

Where the “maximum disturbance within a term” method is used by a lease holder, the RCE will need to be aligned with the three-yearly forecast for surface disturbance and rehabilitation activities (including liabilities associated with previous and on-going surface disturbance activities) as detailed in Part 2 of the form and way. Where the “snapshot of disturbance” method is used by a lease holder, the RCE will need to be aligned with the surface disturbance and rehabilitation activities as detailed in Part 1 of the form and way.

The lease holder is required to submit a RCE to the NSW Resources Regulator whenever a potential change in rehabilitation liability occurs. This information will be assessed by the NSW Resources Regulator to assist in determining the amount of the security deposit.

This section must include a rehabilitation cost estimate prepared in accordance with the NSW Resources Regulator’s Rehabilitation Cost Estimation Tool.

## Glossary

TERM	DEFINITION
Active	In the context of rehabilitation, land associated with mining domains is considered 'active' for the period following disturbance until the commencement of rehabilitation.
Active mining phase of rehabilitation	In the context of rehabilitation, the active mining phase of rehabilitation constitutes the rehabilitation activities undertaken during mining operations such as land clearing, salvaging and managing soil resources, salvaging habitat resources, and native seed collection. This phase also includes management actions taken during operations to manage risks to rehabilitation and enhance rehabilitation outcomes such as selective handling of waste rock and management of tailings emplacements.
Analogue site	An area of land and/or water that is a 'reference site' that represents an example of the defining values and characteristics (such as vegetation composition and structure or agricultural productivity) of the final land use. An analogue site is a selected location surrounding or within a proposed/existing mine site. The location is usually an undisturbed area or a self-sustaining vegetation community that demonstrates the existing environment without any impact of disturbance (i.e. acts as a baseline for the surrounding undisturbed environment). Characteristics of analogue sites can be assessed to develop the rehabilitation objectives and rehabilitation completion criteria for final land use domains.
Annual rehabilitation report	As defined in the Mining Regulation 2016.
Annual reporting period	As defined in the Mining Regulation 2016.
Closure	A whole-of-mine-life process, which typically culminates in the relinquishment of the mining lease. It includes decommissioning and rehabilitation to achieve the approved final land use(s).
Decommissioning	The process of removing mining infrastructure and removing contaminants and hazardous materials.
Decommissioning phase of rehabilitation	Activities associated with the removal of mining infrastructure and removal and/or remediation of contaminants and hazardous materials. In the context of the rehabilitation management plan (for large mines only) this

TERM	DEFINITION
	<p>phase of rehabilitation may also include studies and assessments associated with decommissioning and demolition of infrastructure or works carried out to make safe or 'fit for purpose' built infrastructure to be retained for future use(s) following lease relinquishment.</p>
<p>Department</p>	<p>Department of Regional NSW.</p>
<p>Disturbance</p>	<p>See Surface Disturbance.</p>
<p>Disturbance area</p>	<p>An area that has been disturbed and that requires rehabilitation.</p> <p>This may include areas such as exploration areas, stripped areas ahead of mining, infrastructure areas, water management infrastructure, sewage treatment facilities, topsoil stockpile areas, access tracks and haul roads, active mining areas, waste emplacements (active/unshaped/in or out-of-pit), tailings dams (active/unshaped/uncapped), and areas requiring rehabilitation that are temporarily stabilised (e.g. managed to minimise dust generation and/or erosion).</p>
<p>Domain</p>	<p>An area (or areas) of the land that has been disturbed by mining and has a specific operational use (mining domain) or specific final land use (final land use domain). Land within a domain typically has similar geochemical and/or geophysical characteristics and therefore requires specific rehabilitation activities to achieve the associated final land use.</p>
<p>Ecosystem and land use development</p>	<p>This phase of rehabilitation consists of the activities to manage maturing rehabilitation areas on a trajectory to achieving the approved or, if not yet approved, the proposed:</p> <ul style="list-style-type: none"> <li>■ rehabilitation objectives, and</li> <li>■ rehabilitation completion criteria, and</li> <li>■ for large mines – final landform and rehabilitation plan.</li> </ul> <p>For vegetated land uses, this phase may include processes to develop characteristics of functional self-sustaining ecosystems, such as nutrient recycling, vegetation flowering and reproduction, increasing habitat complexity, and the development of a productive, self-sustaining soil profile.</p> <p>This phase of rehabilitation may include specific vegetation management strategies and maintenance such as tree thinning, supplementary plantings and weed management.</p>

TERM	DEFINITION
Ecosystem and land use establishment	<p>This phase of rehabilitation consists of the processes to establish the approved final land use following construction of the final landform (as per the approved final landform and rehabilitation plan for large mines).</p> <p>For vegetated land uses, this rehabilitation phase includes establishing the desired vegetation community and implementing land management activities such as weed control. This phase of rehabilitation may also include habitat augmentation such as installation of nest boxes.</p>
Exploration	Has the same meaning as that term under the <i>State Environmental Planning Policy (Mining, Petroleum Production and Extractive Industries) 2007</i> .
Final landform and rehabilitation plan	As defined in the Mining Regulation 2016.
Final land use	As defined in the Mining Regulation 2016.
Final land use domain	A land management unit with a final land use. A mining lease may have one final land use (e.g. returning the entire mining lease to native vegetation) or several final land use units (e.g. a mix of pasture areas and native ecosystems). Each final land use unit represents a separate final land use domain.
Form and way	Means the form and way approved by the Secretary. Approved form and way documents are available on the Department’s website.
Forward program	As defined in the Mining Regulation 2016.
Growth medium development	<p>This phase of rehabilitation consists of activities required to establish the physical, chemical and biological components of the substrate required to establish the desired vegetation community (including short-lived pioneer species) to ensure achievement of the approved or, if not yet approved, the proposed:</p> <ul style="list-style-type: none"> <li>■ rehabilitation objectives</li> <li>■ rehabilitation completion criteria</li> <li>■ for large mines – final landform and rehabilitation plan.</li> </ul> <p>This phase may include spreading the prepared landform with topsoil and/or subsoil and/or soil substitutes, applying soil ameliorants to enhance the physical, chemical and biological characteristics of the growth media, and actions to minimise loss of growth media due to erosion.</p>

TERM	DEFINITION
Habitat	Has the same meaning as that term under the <i>Biodiversity Conservation Act 2016</i> and the <i>Fisheries Management Act 1994</i> (as relevant).
Indicator	An attribute of the biophysical environment (e.g. pH, topsoil depth, biomass) that can be used to approximate the progression of a biophysical process. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion (defined end point). It may be aligned to an established protocol and used to evaluate changes in a system.
Land	As defined in the <i>Mining Act 1992</i> .
Landform establishment	This phase of rehabilitation consists of the processes and activities required to construct the approved final landform (as per the development consent and, for large mines, the approved final landform and rehabilitation plan). In addition to profiling the surface of rehabilitation areas to the approved final landform profile, this phase may include works to construct surface water drainage features, encapsulate problematic materials such as tailings, and prepare a substrate with the desired physical and chemical characteristics (e.g. rock raking or ameliorating sodic materials).
Large mine	As defined in the Mining Regulation 2016.
Lease holder	The holder of a mining lease.
Life of mine	The timeframe of how long a mine is approved to mine, from commencement to closure.
Mine rehabilitation portal	Means the NSW Resources Regulator’s online portal that lease holders must use (via a registered account) to: <ul style="list-style-type: none"> <li>■ upload rehabilitation geographical information system (GIS) spatial data</li> <li>■ develop rehabilitation GIS spatial data (using online tracing functions)</li> <li>■ generate rehabilitation plans and rehabilitation statistics using the map viewer and Rehabilitation Key Performance Indicator functionalities.</li> </ul> <p>Data submitted to the mine rehabilitation portal is collated in a centralised geodatabase for use by the NSW Resources Regulator to regulate rehabilitation performance of lease holders.</p>

TERM	DEFINITION
Mining area	As defined in the <i>Mining Act 1992</i> .
Mining domain	A land management unit with a discrete operational function (e.g. overburden emplacement), and therefore similar geophysical characteristics, that will require specific rehabilitation treatments to achieve the final land use(s).
Mining lease	As defined in the <i>Mining Act 1992</i> .
Native vegetation	Has the same meaning as that term under the <i>Local Land Services Act 2013</i> .
Overburden	Material overlying coal or a mineral deposit.
Performance indicator	An attribute of the biophysical environment (e.g. pH, slope, topsoil depth, biomass) that can be used to demonstrate achievement of a rehabilitation objective. It can be measured and audited to demonstrate (and track) the progress of an aspect of rehabilitation towards a desired completion criterion, that is, a defined end point. It may be aligned to an established protocol and used to evaluate changes in a system.
Phases of rehabilitation	<p>The stages and sequences of actions required to rehabilitate disturbed land to achieve the final land use. The phases of rehabilitation are:</p> <ul style="list-style-type: none"> <li>■ active mining</li> <li>■ decommissioning</li> <li>■ landform establishment</li> <li>■ growth medium development</li> <li>■ ecosystem and land use establishment</li> <li>■ ecosystem and land use development</li> <li>■ rehabilitation completion (sign-off).</li> </ul>
Progressive rehabilitation	<p>The progress of rehabilitation towards achieving the approved or, if not yet approved, the proposed:</p> <ul style="list-style-type: none"> <li>■ rehabilitation objectives</li> <li>■ rehabilitation completion criteria</li> <li>■ for large mines – final landform and rehabilitation plan.</li> </ul> <p>This may be described in terms of domains, phases, performance indicators and rehabilitation completion criteria.</p>
Rehabilitation	As defined in the <i>Mining Act 1992</i> .


























TERM	DEFINITION
Rehabilitation completion	<p>The final phase of rehabilitation when a rehabilitation area has achieved the final land use for the mining area:</p> <ul style="list-style-type: none"> <li>■ as stated in the approved rehabilitation objectives and the approved rehabilitation completion criteria</li> <li>■ for large mines – as spatially depicted in the approved final landform and rehabilitation plan.</li> </ul> <p>Rehabilitation areas may be classified as complete when the NSW Resources Regulator has determined, in writing, that rehabilitation has achieved the final land use following submission of the relevant application by the lease holder.</p>
Rehabilitation completion criteria	Rehabilitation completion criteria set out the criteria the achievement of which will demonstrate the achievement of the rehabilitation objectives.
Rehabilitation cost estimate	As defined in the Mining Regulation 2016.
Rehabilitation management plan	As defined in the Mining Regulation 2016.
Rehabilitation objectives	Means the rehabilitation objectives required to achieve the final land use for the mining area.
Rehabilitation outcomes	Means the final land use for the mining area as stated in the approved rehabilitation objectives, the approved rehabilitation completion criteria and (for large mines) the approved final landform and rehabilitation plan.
Rehabilitation risk assessment	As defined in the Mining Regulation 2016.
Rehabilitation schedule	The defined timeframes for progressive rehabilitation set out in the forward program.
Relevant stakeholders	<p>Means any persons or bodies who may be affected by the mining operations, including rehabilitation, carried out on the lease land, and includes:</p> <ol style="list-style-type: none"> <li>a. the relevant development consent authority</li> <li>b. the local council</li> <li>c. the relevant landholder(s)</li> </ol>

TERM	DEFINITION
	<ul style="list-style-type: none"> <li>d. community consultative committee (if required under the development consent) or equivalent consultative group</li> <li>e. affected landholder(s)</li> <li>f. government agencies relevant to the final land use</li> <li>g. affected infrastructure authorities (electricity, telecommunications, water, pipeline, road, rail authorities)</li> <li>h. local Aboriginal communities</li> <li>i. any other person or body determined by the Minister to be a relevant stakeholder in relation to a mining lease.</li> </ul>
Risk	The effect of uncertainty on objectives. It is measured in terms of consequences and likelihood (AS/NZS ISO 31000:2018).
Secretary	The Secretary of the Department.
Security deposit	An amount that a mining lease holder is required to provide and maintain under a mining lease condition, to secure funding for the fulfilment of obligations under the lease (including obligations that may arise in the future).
Surface disturbance	Includes activities that disturb the surface of the mining area, including mining operations, ancillary mining activities and exploration.
Tailings	A combination of the fine-grained (typically silt-sized, in the range from 0.001 to 0.6 mm) solid materials remaining after the recoverable metals and minerals have been extracted from mined ore, together with the water used in the recovery process. <sup>5</sup>
Waste	Has the same meaning as that term under the <i>Protection of the Environment Operations Act 1997</i> .

<sup>5</sup> *Tailings Management: Leading Practice Sustainable Development Program for the Mining Industry*, Commonwealth of Australia (2016).

# Appendix 1 – Symbology guidance

MINE REHABILITATION PORTAL SPATIAL DATA THEMES	DISPLAY FIELD (UNIQUE VALUES)	SYMBOLGY GUIDANCE
Rehabilitation	RehabPha (Rehabilitation Phase)	<ul style="list-style-type: none"> <li> Decommissioning</li> <li> Landform Establishment</li> <li> Growth Media Development</li> <li> Ecosystem and Land Use Establishment</li> <li> Ecosystem and Land Use Development</li> <li> Relinquishment (Rehabilitated)</li> </ul>
Disturbance	MineDomT (Mining Domain Type)	<ul style="list-style-type: none"> <li> Beneficiation Facility</li> <li> Infrastructure Area</li> <li> Other</li> <li> Overburden Emplacement Area</li> <li> Tailings Storage Facility</li> <li> Underground Mining Area (SMP)</li> <li> Active Mining Area (Open cut void)</li> <li> Water Management Area</li> </ul>
Current Landform Contours	N/A	<ul style="list-style-type: none"> <li> Current Landform Contours</li> </ul>
Forecast Data Yr 1, Yr 2 and Yr 3	ForcstA (Forecast Area)	<ul style="list-style-type: none"> <li> Forecast Disturbance</li> <li> Forecast Land Prepared for Rehabilitation</li> <li> Ecosystem and Land Use Establishment</li> </ul>

MINE REHABILITATION PORTAL SPATIAL DATA THEMES	DISPLAY FIELD (UNIQUE VALUES)	SYMBOLGY GUIDANCE
Final Landform Contours	N/A	 Final Landform Contours
Project Approval Boundary	N/A	 Project Approval Boundary
Current Authorisations	N/A	 MINERALS - CURRENT TITLES  COAL - CURRENT TITLES  PETROLEUM-CSG - CURRENT TITLES