



Dubbo Project MOD1

Submissions Report

State Significant
Development 5251

August 2022



Prepared by:

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Dubbo Project MOD 1

Submissions Report

State Significant Development 5251

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Acronyms

AHD	Australian height datum
ANCOLD	Australian National Committee on Large Dams
ASM	Australian Strategic Materials (Holdings) Pty Ltd
CCC	Community Consultative Committee
DPE	Department of Planning and Environment
DRNSW	Department of Regional NSW
EP&A Act	Environmental Planning and Assessment Act 1979
EPL	Environment Protection Licence
HCl	hydrochloric acid
HDPE	high-density polyethylene
JHR	John Holland Rail
MAC	Muller Acoustic Consulting Pty Ltd
ML	Mining Lease
RIM	Rail Infrastructure Manager
RWC	R.W. Corkery & Co. Pty Limited
SEPP	State Environmental Planning Policy
SSD	State Significant Development
TAHE	Transport Asset Holding Entity
TfNSW	Transport for NSW
TIA	Traffic Impact Assessment
UGLRL	UGL Regional Linx



Executive Summary

Introduction

Australian Strategic Materials (Holdings) Ltd (the Applicant) submitted an application for a modification (MOD 1) to State Significant Development consent (SSD) 5251 for the Dubbo Project (the Proposed Modification). The application was accompanied by a *Modification Report* prepared by R.W. Corkery & Co. Pty Limited (RWC) which was exhibited from 30 March 2022 to 19 April 2022. During and following that period, the following submissions and were received by Department of Planning and Environment.

- Submissions from eight Government Agencies (including Dubbo Regional Council).
- Submissions from six members of the public or public organisations, including:
 - one by way of support for the Proposed Modification;
 - four by way of objection to the Proposed Modification; and
 - one providing a response on behalf of the Siding Springs Observatory.

Actions Taken Since Exhibition

Actions taken since the exhibition of the Proposed Modification, including minor adjustments to the proposed activities, include the following.

- Ongoing consultation in the form of community newsletters, Community Consultative Committee meetings, communication with community members at the 2022 Dubbo Show, response to community queries, and a site inspection by members of the DPE Planning Compliance team.
- Identification of an error in the Noise Impact Assessment (MAC, 2022) prepared in support of the *Modification Report* by a member of the public.
 - The error was found to be an error in the text of the assessment report only, rather than an error in the noise modelling and outcomes presented in the *Modification Report*.
- Correction to the *Modification Report* to indicate that the Natural Gas Pipeline for the Project may follow either the approved pipeline route or an alternative route (subject to further investigation and a separate approval, if required).

Responses to Matters Raised in Submissions

This report provides responses to each of the issues identified in the Government Agency and public submissions.



1. Introduction

1.1 Scope

Australian Strategic Materials (Holdings) Ltd (the Applicant) submitted an application for a modification (MOD 1) to State Significant Development consent (SSD) 5251 for the Dubbo Project (the Proposed Modification). The application was made under Section 4.55(2) of the *Environmental Planning & Assessment Act 1979* (EP&A Act). A *Modification Report* was prepared by R.W. Corkery & Co. Pty Limited (RWC) on behalf of the Applicant to support the application for the Proposed Modification.

The *Modification Report*, including supporting technical assessments, was publicly exhibited from 30 March 2022 to 19 April 2022. During and following that period, eight submissions were received by the Department of Planning and Environment (DPE) from Government agencies. A further six submissions were received from members of the public and private organisations.

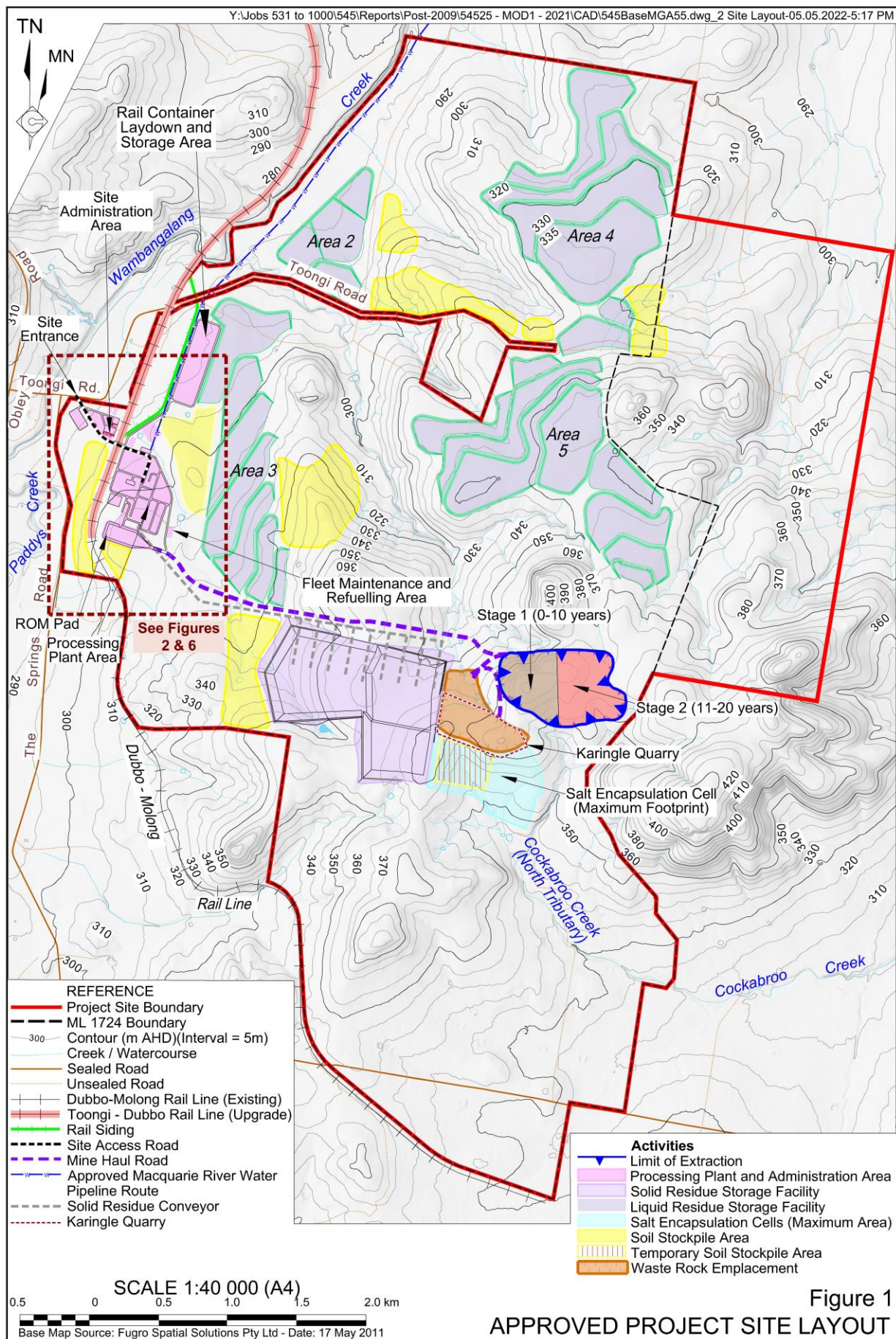
This *Submissions Report* has been prepared by RWC to provide an analysis and response to the key matters raised in submissions lodged with DPE during the public exhibition period for the Proposed Modification. This report concludes with an updated evaluation of the Proposed Modification's merits that reflect all additional matters arising from the review of submissions.

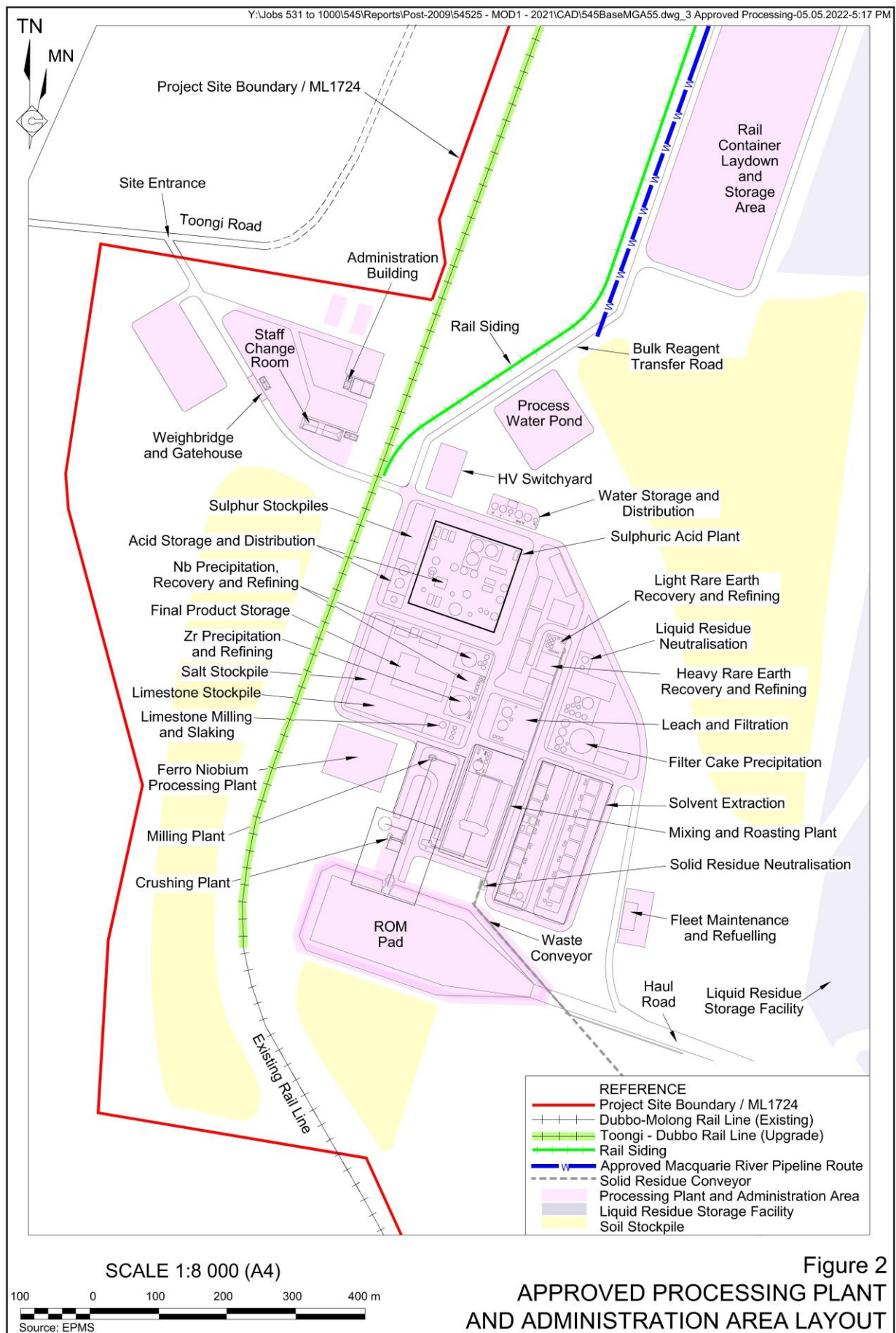
This *Submissions Report* has been prepared generally in accordance with the requirements of *State significant development guidelines – preparing a submissions report* dated November 2021.

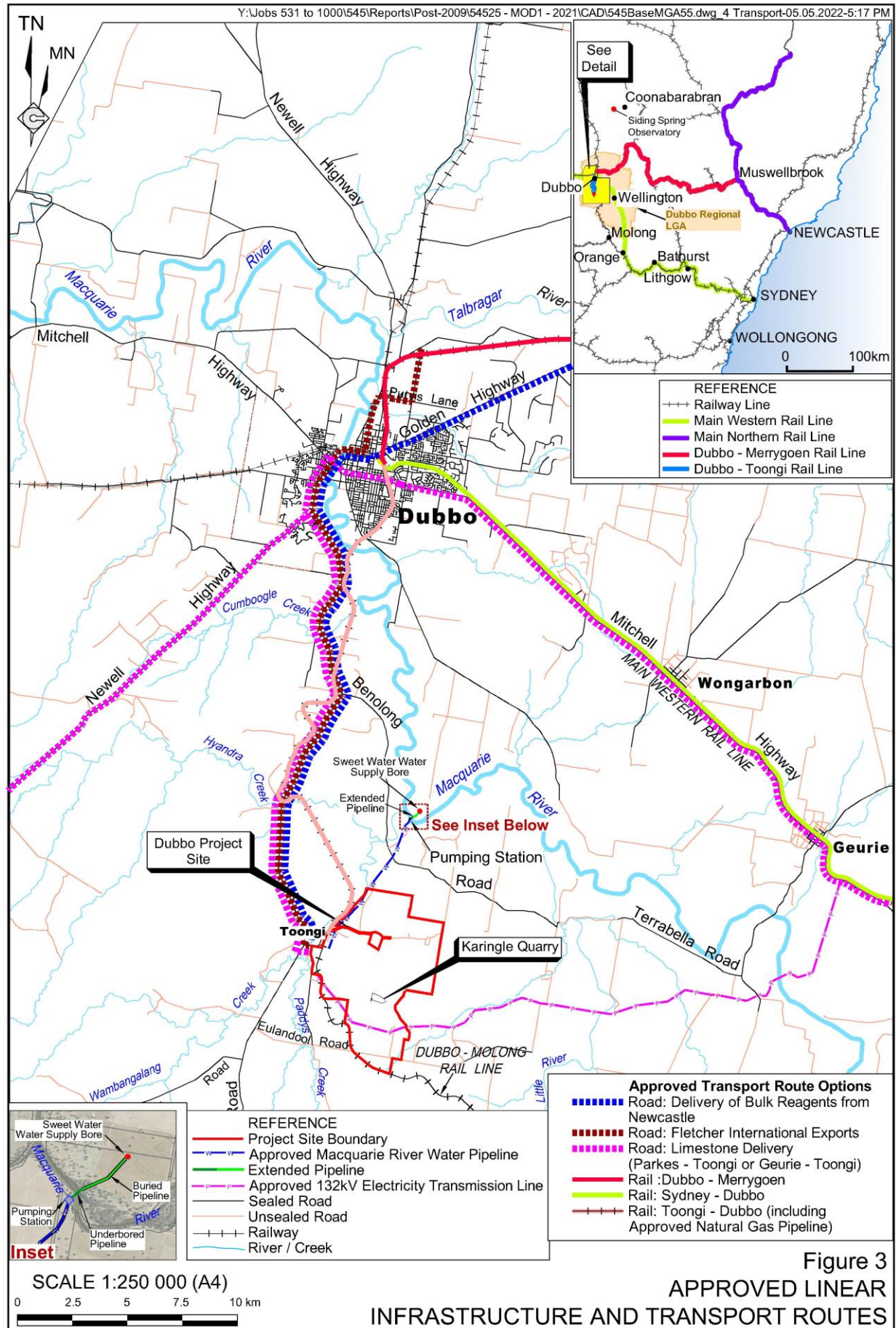
1.2 Project Overview

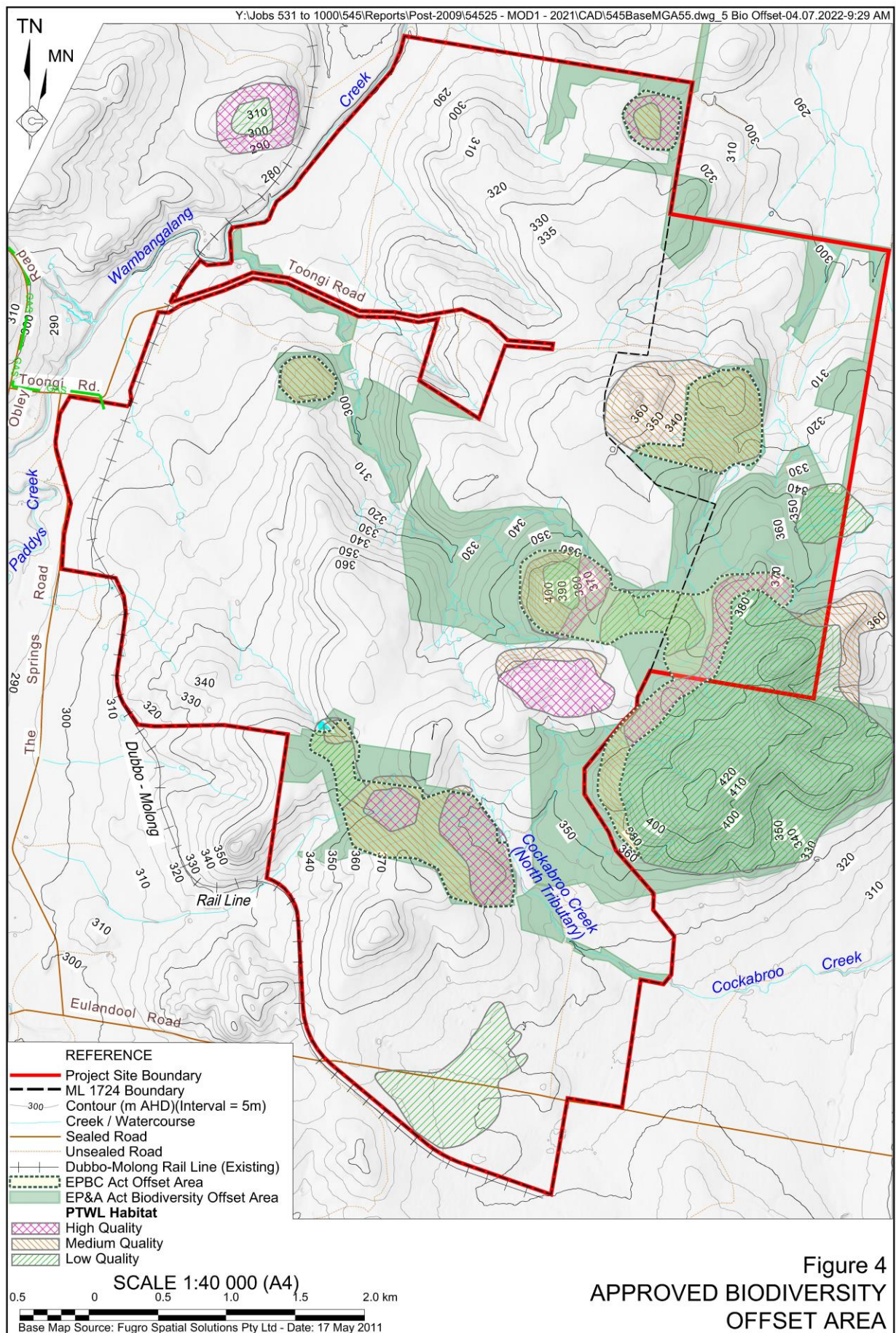
The approved Dubbo Project (the Project) is located largely to the east of the village of Toongi and approximately 25km south of Dubbo, NSW (the Project Site), with associated linear infrastructure components (e.g. pipelines, rail, roads and electricity transmission lines) extending to the north and east of the Project Site. The Project is operated by Australian Strategic Materials (Holdings) Ltd, a wholly owned subsidiary of Australian Strategic Materials Ltd (ASM). The Project Site boundary entirely encompasses Mining Lease (ML) 1724.

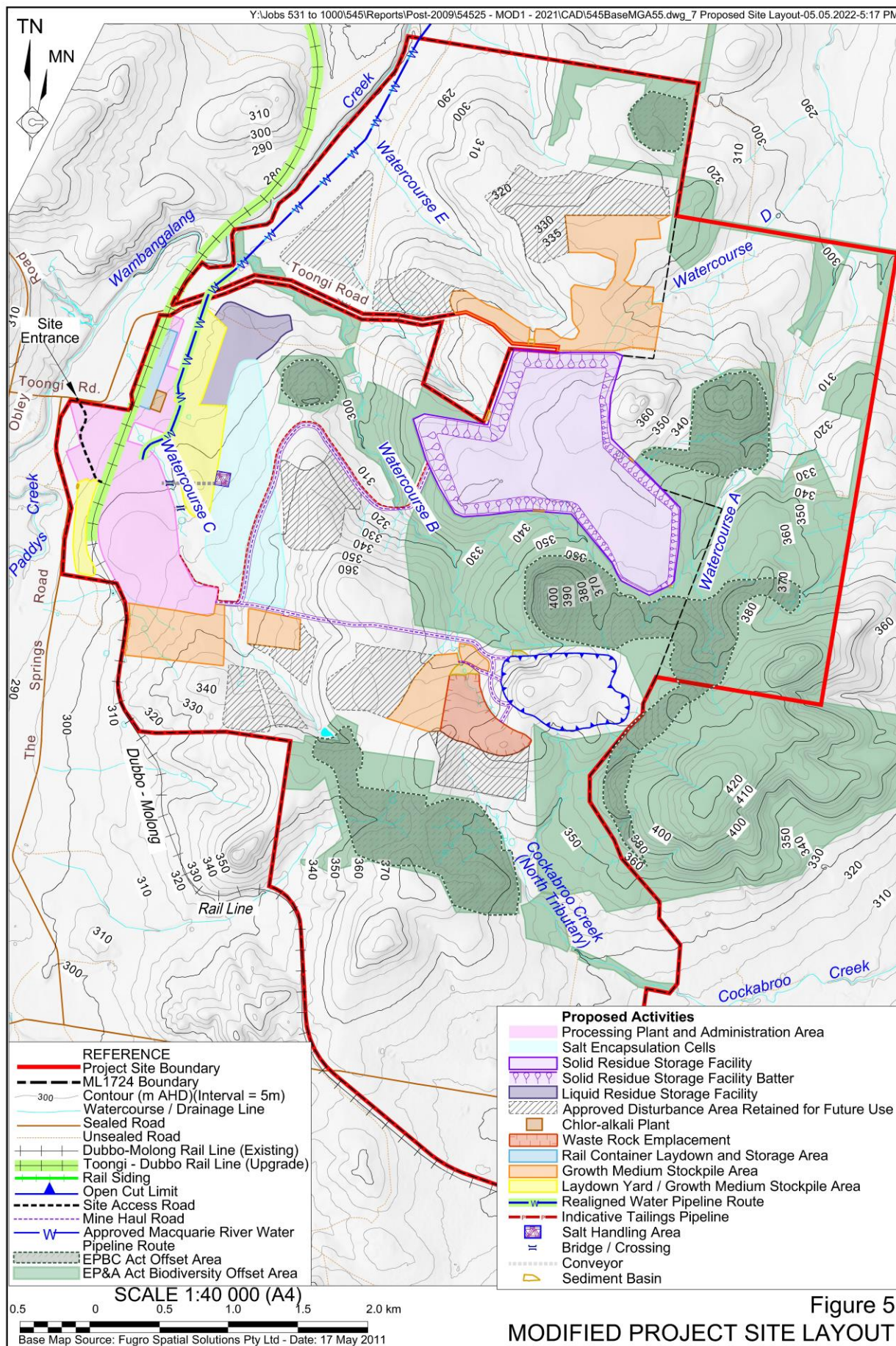
Figures 1 to 4 display the approved Project Site layout, approved Processing Plant and Administration Area layout, approved linear infrastructure and transport routes, and approved biodiversity offset areas respectively. **Figures 5 and 6** display the modified Project Site layout and modified Processing and Administration Area layout as presented in the *Modification Report*.





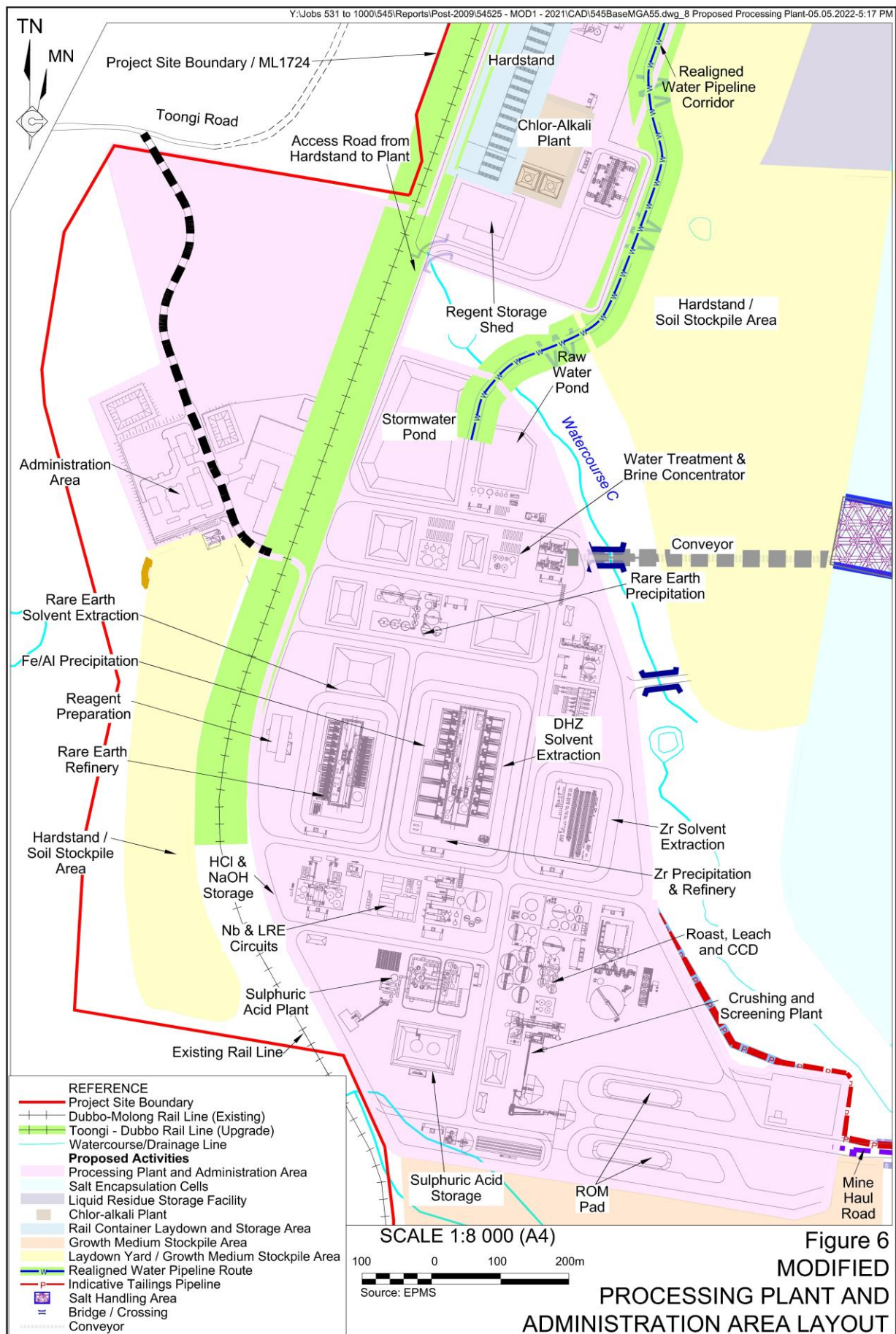




Figure 5
MODIFIED PROJECT SITE LAYOUT



Australian Strategic Materials (Holdings) Ltd
Dubbo Project





The Proposed Modification seeks consent for the following.

- Construction and operation of:
 - a Chlor-alkali Plant for the production of hydrochloric acid and sodium hydroxide for use in on-site processing operations;
 - a brine concentrator to maximise water recovery; and
 - a conveyor between the Processing Plant and Administration Area and the Salt Encapsulation Cells.
- Relocation of:
 - the Salt Encapsulation Cells from the approved location southwest of the Open Cut to the approved location of the Liquid Residue Storage Facility Area 3;
 - the Solid Residue Storage Facility from the approved location west of the Waste Rock Emplacement to the approved location of the Liquid Residue Storage Facility Area 5; and
 - the Rail Container Laydown and Storage Area from the approved location to an area immediately to the west of the approved location.
- Reclassification of various approved disturbance areas to permit alternate uses.
- Realignment of sections the approved Macquarie River Water Pipeline, located entirely within the Project Site.
- A range of adjustments to the approved Project Site layout.
- Extended construction hours for non-linear infrastructure to 24-hours per day, seven days per week.
- Extension of the Project life by eight years from 31 December 2037 to 31 December 2045.

Separate to the Proposed Modification, the Applicant anticipates that separate approvals would be sought for the realignment of:

- a section of the approved 132kV Electricity Transmission Line; and
- the approved gas pipeline to remove the pipeline from the Dubbo – Molong Railway corridor, if required following determination of the final gas pipeline route (see Section 3.4).

No other changes to the approved Project are proposed.



1.1 Document Format

This document has been compiled generally in accordance with the document *State Significant Development Guidelines - Preparing a Submissions Report* published in November 2021 and includes the following five sections in addition to an Executive Summary and appendices.

- Section 1: Presents a scope and format of this document and the assessment process to date.
- Section 2: Provides an analysis of submissions categorised according to the issues raised.
- Section 3: Describes the actions undertaken since the exhibition period to address the issues raised in submissions.
- Section 4: Provides a detailed response to the issues raised in submissions, divided into Government agency submissions and public submissions.
- Section 5: Provides an updated evaluation of the Proposed Modification, taking into consideration the feedback received from Government agencies and responses provided in this report.

Appendices to this report are presented as follows.

Appendix 1: Submissions Register

Appendix 2: Updated Compilation of Measures to Mitigate Environmental Impacts

Appendix 3: Agency Submissions

Appendix 4: Public Submissions



2 Analysis of Submissions

2.1 Breakdown of Submissions

Table 1 presents a summary of the submissions received during the exhibition period and the issues raised in each submission. Sections in this report where each issue has been addressed are identified in the Submissions Register included as **Appendix 1**.

During and following the exhibition period, eight Government agency submissions and six public submissions were received. Of these, five Government agencies indicated that they had no comment on the Proposed Modification. Of the six public submissions, one responded in support of the Proposed Modification, four objected to the Proposed Modification¹, and one from the Director of the Siding Springs Observatory addressed potential lighting-related impacts associated with the Project.

¹ Note: three public submissions were submitted as comments but have been addressed as submissions opposing the Proposed Modification in this report.



Table 1
Submissions Summary

Submitter	Issues Raised																					
	No Comment	Support	Project Life	Hours of Operation	Disturbance Footprint	Linear Infrastructure			Biodiversity	Aboriginal Heritage	Noise	Traffic and Transportation	Rehabilitation and Final Land Use	Greenhouse Gas Emissions	Radiation	Chlor-alkali Plant	Salt Encapsulation Cells	Solid Residue Storage Facility	Soil Stockpile Areas	Processing	Water Take and Licencing	Independent Audit
						Road Upgrades	Rail Infrastructure	Gas Pipeline														
Government Agency and Council Submissions																						
Biodiversity, Conservation and Science Directorate	✓																					
Mining, Exploration and Geoscience	✓																					
DPE - Hazards																✓						
Heritage NSW	✓																					
Transport for NSW						✓		✓				✓										
Resources Regulator	✓																					
NSW Environment Protection Agency				✓		✓					✓					✓				✓		
Dubbo Regional Council	✓																					
Public Submissions																						
SE-41260698						✓	✓	✓														
Dubbo Environment Group Inc. (SE-41199992)			✓		✓				✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SE-40914378		✓																				
SE-40891481											✓											
SE-40754883											✓											
Australian National University (SE-40603764)	✓																					
Total	6	1	1	1	1	2	1	2	1	1	4	2	1	1	1	3	1	1	1	1	1	1



3 Actions Taken Since Exhibition

3.1 Ongoing Community Consultation

Following the end of the exhibition period on 19 April 2022, the Applicant has continued to consult with the community in the following ways.

- Community Consultative Committee (CCC) meeting held on 2 May 2022.
 - An inspection of the Project Site, including roadworks at the Site Entrance off Toongi Road and preparatory work for installation of the new Site Office, was undertaken by the CCC prior to the meeting.
 - An overview of the Government agency and community submissions received following exhibition of the MOD 1 *Modification Report* was provided.
- Dubbo Project Community Newsletter (Issue No. 31) published in April 2022 and July 2022.
 - Issue No. 30 provided an update on the Project and works at the Project Site, including the commissioning of the environmental monitoring station, the commencement of construction works on the site entrance road, and the announcement of the signing of a Heads of Agreement with Hyundai Engineering Corporation to negotiate for the award of the Front End Engineering Design for the Project.
 - Issue No. 31 included an update on the status of MOD 1, noting that the exhibition period had ended and that a number of government agency and community submission had been received.
- Engagement with members of the public at the 2022 Dubbo Show, including a stand staffed by representatives of the Applicant from 27 to 29 May 2022 which provided information on the Project.
 - Multiple enquiries from community members were addressed and no complaints or negative comments were received.
- Consultation with a resident located in close proximity to the Dubbo - Molong railway line in Dubbo was received by DPE and passed on to the Applicant on 7 June 2022.
 - As the enquiry related to Project-related rail transportation operations which would not be altered under the Proposed Modification, the enquiry is not addressed further in this *Modification Report*.



- The resident has been invited to the next CCC meeting for the Project to continue consultation regarding use of the Dubbo – Molong Railway corridor.
- Inspection of the Project Site by DPE (Planning Compliance) personnel on 29 June 2022, including an inspection of the site office, site entrance road, environmental monitoring station, and biodiversity offset areas.

The Applicant notes that interested parties can subscribe to the Dubbo Project Community Newsletter for regular updates on the Project using the online form available here: <https://asm-au.com/dubbo-project-overview/dubbo-project-community-updates/>.

Any enquiries or complaints can also be directed to the Applicant via the Project's Community Information Line (Business hours: (02) 6882 2866; After hours: 0427 691 733) or using the info@asm-au.com email address.

3.2 Management and Mitigation Measures

An updated table of management and mitigation measures for the Project is presented as **Appendix 2**.

3.3 Correction to Noise Impact Assessment

A query from a community member regarding modelling completed for the Noise Impact Assessment (NIA) and Air Quality Impact Assessment (AQIA) was provided directly to the Applicant on 20 April 2022. The community member:

- requested to see day noise modelling for all wind directions, as was completed for the evening, night and inversion scenarios; and
- asked whether the prevailing wind direction rather than all wind directions was used for modelling of air quality.

Whilst this query was not intended as a formal submission, the response to this query is summarised below for completeness.

Table 16 of the Noise Impact Assessment (MAC, 2022), prepared in support of the *Modification Report*, indicates that the modelled meteorological conditions for the 'day- wind' assessment condition scenario only considered wind from the west (270 degrees) rather than from all directions. This is an error in Table 16 (text only) and Muller Acoustic Consulting have confirmed that the actual modelling completed for MAC (2022) assessed impacts during the day under all wind directions. The results presented in MAC (2022) therefore reflect modelling for all wind directions and do not reflect the text error in Table 16.

This error in the text was mistakenly carried over from the original Noise and Vibration Impact Assessment for the Dubbo Project (EMGA, 2013) which did in fact only consider wind from the west during the day scenario.



With regards to the Air Quality Impact Assessment (Northstar, 2022), wind directions used to model potential air quality impacts were based on wind direction data for the year 2015. This data included all wind directions and speeds at the frequency recorded by the Dubbo Airport Automatic Weather Station during 2015. Data from 2015 (air quality and meteorological conditions) was selected by Northstar as being most representative of conditions surrounding the Project Site following an examination of data for the years 2015 to 2020. Appendix B of Northstar (2022) provides a detailed explanation of why this data was selected for modelling purposes.

3.4 Natural Gas Pipeline Route

Table 2 in Section 3.3.1 of the *Modification Report* indicated that the construction and operation of the approved Natural Gas Pipeline within the Dubbo – Molong Railway corridor was no longer proposed and that a separate approval would be sought for an alternative alignment. The Applicant now acknowledges that, subject to the outcomes of a further study which will investigate the feasibility of constructing and maintaining the Natural Gas Pipeline, the final pipeline route may follow either the approved route (**Figure 3**) or an alternative route.

In the event that the approved Natural Gas Pipeline is rejected in favour of an alternative route, the Applicant anticipates that a revised Natural Gas Pipeline route would be presented, along with relevant environmental impact assessments, in a separate application at a later date. It is anticipated that this application would be the subject of consultation with potentially affected stakeholders and that public submissions would be sought during the public exhibition of that application.

As an alternative Natural Gas Pipeline route has not yet been identified, details of any alternative Natural Gas Pipeline route (including potentially affected landowners) are not available at this time.



4 Response to Submissions

4.1 Agency Submissions

4.1.1 Introduction

The following provides responses to each of the Government agency submissions which raised issues in response to the exhibition of the *Modification Report*. Each submission has been reviewed and is presented under the issues raised with the submitters comment(s). Copies of each submission are presented as **Appendix 3**. Where relevant, text extracted or paraphrased from individual submissions has been reproduced in *italics*, with responses to issues raised provided in normal text.

It is noted that the following Government agencies reviewed the Modification Report and were satisfied with and/or provided no comment on the Proposed Modification. As such, their submissions are not represented in the following subsections.

- Dubbo Regional Council
- Department of Planning and Environment - Biodiversity, Conservation and Science Directorate
- Department of Planning and Environment - Heritage NSW
- Department of Regional NSW - Resources Regulator
- Department of Regional NSW - Mining, Exploration and Geoscience

4.1.2 Environment Protection Authority

The existing approved hours of construction operation are 7am to 6pm Monday to Friday, 8am to 1 pm Saturday, and at no time on Sundays or public holidays. The Proposal seeks an extension to the construction hours to 24 hours a day, 7 days a week.

The EPA can support the proposed modification of construction hours. If approved the Proponent will have to make a separate application to vary Environment Protection Licence (EPL) 20702.

Response

Upon receipt of approval for MOD 1, the Applicant will submit an application to vary Environment Protection Licence (EPL) 20702.



The Proponent proposed to modify condition 2 of schedule 3 of the approval SSD-5251 that requires the construction of a 3m high, 1km long road noise barrier on land owned by Taronga Western Plains Zoo.

The EPA can support the proposed modification if alternative noise mitigation measures provide noise reduction equivalent to that provided by the approved road noise barrier condition 2 of schedule 3 of SSD-5251. The proponent must develop any noise reduction mitigation measure in consultation with Taronga Western Plains Zoo and the EPA.

Response

As outlined in sections 3.5.2 and 6.3.5.3.1 of the *Modification Report*, the Applicant proposes to upgrade the existing road surface in the vicinity of the Taronga Western Plains Zoo to open graded asphalt concrete. The noise impact assessment for the Proposed Modification, prepared by Muller Acoustic Consulting (MAC) and presented as Appendix 5 of the *Modification Report*, concluded that this alternative noise mitigation measure would provide noise mitigation equivalent to or exceeding that which would be afforded by the road noise barrier required under Condition 2 of Schedule 3 of SSD-5251.

The Applicant has consulted with Taronga Western Plains Zoo on multiple occasions since the granting of SSD-5251 and discussions regarding alternative road noise mitigation measures have generally been positive. The Applicant would continue to consult with Taronga Western Plains Zoo and the EPA in order to develop and agree upon any road noise mitigation measures prior to their implementation.

The modification proposes to construct and operate a Chlor-alkali Plant that has a capacity to produce approximately 100 000tpa of 34% Hydrochloric acid (HCl) and 95 000 tpa of 32% Sodium Hydroxide (NaOH).

The "Ore processing facility" definition in SSD-5251 must be updated to include Chlor-alkali Plant. The EPA requires the Chlor-alkali Plant to be included in the Processing and Design Validation in conditions 21 and 22 of schedule 3 of SSD-5251.

Response

The Applicant supports the request to include the Chlor-alkali Plant in the definition of "Ore Processing Facility" in SSD-5251, and in the Processing and Design Validation in Conditions 21 and 22 of Schedule 3 of SSD-5251.

The modification proposes to construct and operate a Brine concentrator to recover rare metals and rare earth elements for further processing off site and maximise water recovery.

The "Ore processing facility" definition in SSD-5251 must be updated to include the Brine concentrator. The EPA requires the Brine concentrator to be included in the Processing and Design Validation in conditions 21 and 22 of schedule 3 of SSD-5251.

Response

The Applicant supports the request to include the Brine Concentrator in the definition of "Ore Processing Facility" in SSD-5251, and in the Processing and Design Validation in Conditions 21 and 22 of Schedule 3 of SSD-5251.



The Dubbo Project is subject to EPL 20702 issued by the EPA under the Protection of the Environment Operations Act 1997 for the scheduled activities of: mining for cement or lime works; chemical storage; extractive industries; mining for minerals; mineral processing and crushing, grinding and separating. If Modification 1 is approved the Proponent will be required to make application to vary their EPL to add schedule activity "Chemical Production".

Response

Upon receipt of approval for MOD 1, the Applicant will submit an application to vary Environment Protection Licence (EPL) 20702 to include the scheduled activity "Chemical Production".

4.1.3 Department of Planning and Environment – Hazards

Besides Dubbo township, please clarify the closest residence located near the site boundary, in particular on the western side of the proposed Chlor-alkali plant.

Response

Sensitive receivers in the vicinity of the Project Site are shown on **Figure 7** (Figure 6 in the *Modification Report*). **Table 2** lists both the minimum distance between each receiver and the Project Site boundary and the minimum distance between each receiver and the proposed Chlor-alkali Plant. As shown on **Figure 7** and in **Table 2**, the closest non Project-related sensitive receiver to the Project Site boundary is R50 (residential) (250m), the closest sensitive receiver to the proposed Chlor-alkali Plant is R12 (Toongi Hall) (1 003m), and the closest residential sensitive receiver to the proposed Chlor-alkali Plant is R23 (1 181m).

Table 2
Sensitive Receivers – Distance to Project Site Boundary and Proposed Chlor-alkali Plant

Page 1 of 2

Sensitive Receiver ID ¹	Distance to Project Site Boundary (m)	Distance to Chlor-alkali Plant (m)
R58 ²	22	625
R51 ²	25	710
R55 ²	40	500
R54 ²	120	442
R2 ²	140	1 662
R50	250	2 147
R1 ²	277	1 054
R12	310	1 003
R3 ²	452	4 638
R49B ²	484	4 600
R23	536	1 181
R22	563	1 194
R48 ²	610	4 132
R4	616	5 980
R49A ²	674	4 398
R24	676	1 263
R25	780	1 276
R7B	1 421	3 665
R26	1 696	2 131



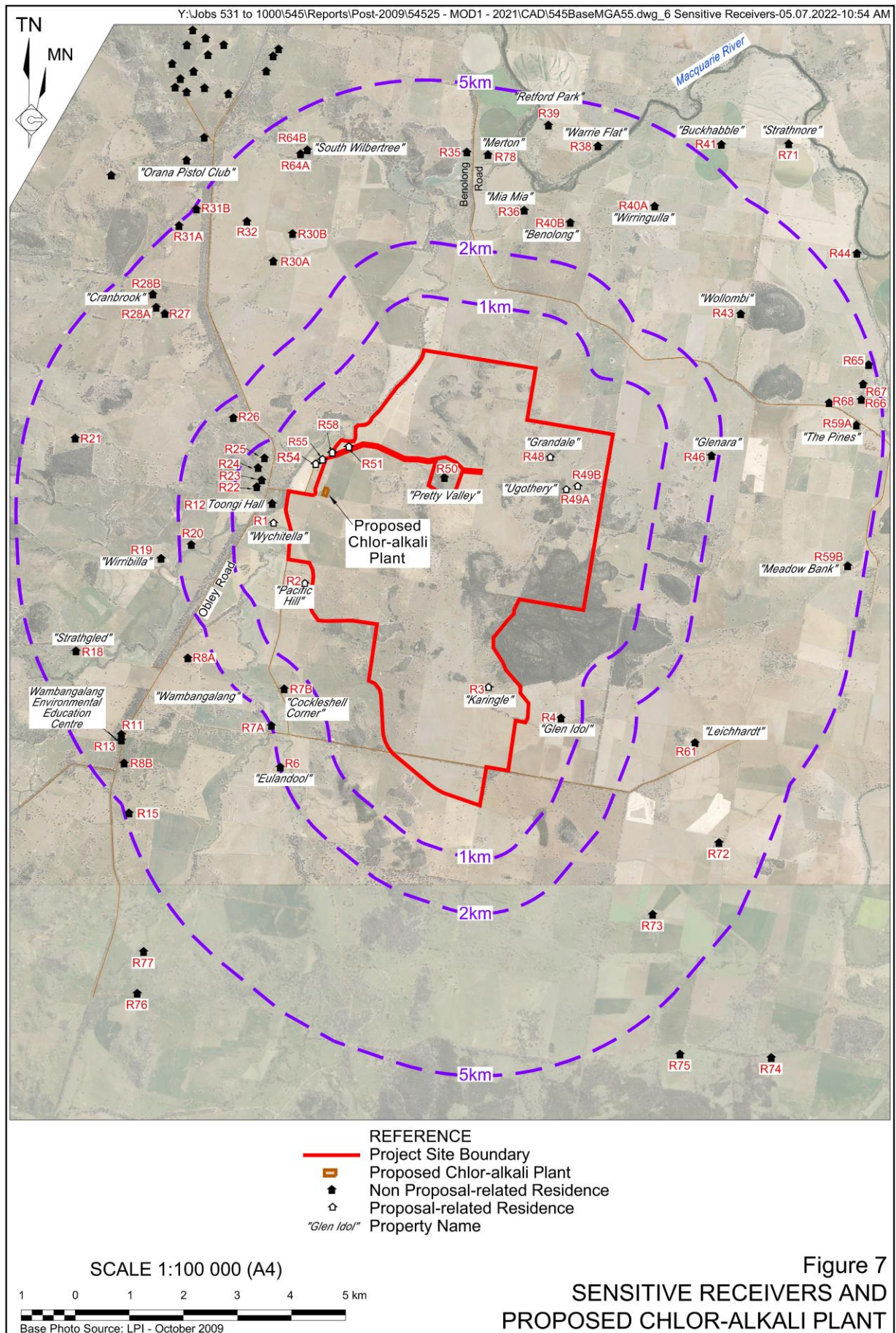
Table 2 (Cont'd)
Sensitive Receivers – Distance to Project Site Boundary and Proposed Chlor-alkali Plant

Page 2 of 2

Sensitive Receiver ID ¹	Distance to Project Site Boundary (m)	Distance to Chlor-alkali Plant (m)
R20	1 814	2 600
R46	1 862	7 103
R6	1 997	5 092
R7A	2 056	4 370
R19	2 360	3 222
R8A	2 459	3 924
R40B	2 767	6 640
R36	2 824	6 269
R61	3 126	8 192
R30A	3 220	4 276
R30B	3 240	4 732
R43	3 244	8 276
R40A	3 708	7 972
R35	3 737	6 727
R78	3 737	6 832
R73	3 787	9 824
R68	4 005	9 354
R27	4 023	4 381
R32	4 045	5 123
R21	4 061	4 685
R72	4 143	9 709
R11	4 207	5 807
R28A	4 214	4 574
R64B	4 264	6 228
R64A	4 268	6 178
R38	4 277	8 071
R28B	4 394	4 778
R18	4 417	5 410
R8B	4 478	6 187
R59A	4 516	9 838
R66	4 643	9 990
R67	4 677	10 027
R59B	4 685	9 700
R65	4 884	10 227
R15	4 931	6 874
R31B	4 960	5 680
R41	5 374	9 660
R31A	5 543	4 956
R44	5 609	10 687
R13	5 878	4 260
R77	5 893	9 079
R75	5 910	12 227
R71	6 251	10 631
R76	6 500	9 854
R74	7 135	13 260

Note 1: See **Figure 7**.

Note 2: Project-related residence.





It is noted that the proposed Chlor-alkali plant will have a production capacity of 100 000 tpa of 34% HCl solution and 95 000 tpa of 32% NaOH solution. These are significant production capacity. Please clarify whether the operation are intended to produce as demand and directly feed to the rest of the mining operation, or there will be buffer storage tanks on-site. If so, please provide the volume of the buffer storage tanks.

Response

The production of HCl and NaOH at the proposed Chlor-alkali Plant will be directed to on-site buffer storage tanks prior to use in on site processing operations. Storage tanks will be designed to accommodate sufficient HCl and NaOH solution to support seven days of processing operations at the average annual processing rate for the Project. It is anticipated that the buffer storage tanks would store approximately 1 800m³ of HCL solution and 1 500m³ of NaOH solution.

All HCl and NaOH storage tanks would be fully banded.

Please clarify whether concentrated HCl and concentrated NaOH will be produced as part of the process.

Response

The proposed Chlor-alkali Plant would produce approximately 100 000tpa of 34% HCl and 95 000tpa of 32% NaOH solution. Solutions of HCl and NaOH in excess of these concentrations would not be produced at the proposed Chlor-alkali Plant. These solutions would be totally consumed by processing operations on site and would not be exported from the Project Site as product.

From Chlor-alkali plant, Chlorine and Hydrogen will be produced. Chlorine is understood to be used to produce HCl, but Hydrogen is a by-product. Please clarify:

- a) *The anticipated quantity of production and production rate for Hydrogen and Chlorine from the ion exchange membrane process*
- b) *How these hydrogen will be handled on site (e.g. vented through a stack or feeding to other operations)*
- c) *What are the mechanism in place to prevent release of hydrogen and chlorine from the Chlor-alkali plant.*

Response

- a) It is anticipated that the proposed Chlor-alkali Plant would produce approximately 933tpa of hydrogen and approximately 33 067tpa of chlorine.
- b) Chlorine produced at the proposed Chlor-alkali Plant via electrolysis would be cooled and totally consumed in the process of hydrochloric acid production. No venting of chlorine products or feeding to other processing operations would be required.
- c) During normal operation of the proposed Chlor-alkali Plant, it is anticipated that all hydrogen produced would be converted into HCl or NaOH solutions and that no hydrogen would be vented to the atmosphere. Under emergency shutdown circumstances, any excess



hydrogen produced at the proposed Chlor-alkali Plant would be scrubbed under a nitrogen blanket and vented to the atmosphere via a stack (approximately 20m above ground level) at non-flammable levels (see below).

- d) Emissions from all vents and reliefs in the proposed Chlor-alkali plant, including those required under both continuous and emergency duties, would be processed using a hypochlorite scrubbing system. In this system, sodium hydroxide solution would be used to absorb and react with chlorine to form a sodium hypochlorite solution.

The hypochlorite scrubbing system would be designed to absorb the full chlorine production for the proposed Chlor-alkali Plant for 10 minutes. Pumps and exhaust fans which form part of the hypochlorite scrubbing system would be connected to an emergency power supply to ensure safe operation under emergency conditions.

4.1.4 Transport for NSW

TfNSW requests that a Traffic Impact Assessment (TIA) be prepared by a suitably qualified person in accordance with the Austroads Guide to Traffic Management Part 12, the Roads and Maritime Supplements to Austroads and the RTA Guide to Traffic Generating Developments.

Response

The EIS prepared to support the original development application for the Project, RWC (2013), proposed three possible transportation scenarios (A, B and C) (see Section 3.5.1 of the *Modification Report*). **Table 3** provides a summary of the worst-case daily vehicle movements predicted to occur as a result of the Project under each of the three approved transportation scenarios.

Table 3
Worst Case Heavy Vehicle Scenario Based on reagent Transport Options – Approved Project

Transport Route Section	Largest Haulage Vehicle	Daily Vehicle Movements			
		Option A	Option B	Option C	HV AADT (worst case)
Obley Road	B-double / Semi-trailer	88	158	138	158
Toongi Road	B-double / Semi-trailer	88	158	138	158
Boothenda Road	Semi-trailer	28	98	0	98
Yarrandale Road	Semi-trailer	28	98	0	98

Note 1: HV = Heavy Vehicle, AADT = Annual Average Daily Traffic
Source: Constructive Solutions (2013) – After Table 11.

The Traffic Impact Assessment (TIA) for the Project, prepared by Constructive Solutions Pty Ltd and hereafter referred to as Constructive Solutions (2013), assessed potential traffic impacts associated with the Project under transportation Option B, the transportation option likely to generate the greatest number of heavy vehicles². Traffic growth was forecast to 2036 by applying a conservative growth factor of 1.5% per annum in order to assess potential Project-related impacts on road and intersection performance under future conditions.

² Constructive Solutions (2013) assessed traffic impacts based on operational transportation rates as traffic levels generated during the two-year construction phase would be equivalent to levels generated during the operational phase (although with a greater proportion of light vehicles).



Constructive Solutions (2013) concluded that the Project would have the following impacts based on the worst-case traffic levels.

- No significant adverse impact on the performance of the key intersections modelled for performance assessment purposes (i.e. Obley Road / Newell Highway and Boothenda Road / Newell Highway). Results indicate that both intersections would continue to operate far below their capacity, even in Year 2036 with an applied traffic growth factor of 1.5% per annum.
- No significant adverse impacts on Yarrandale Road and associated interactions.
- No significant adverse impacts on transportation route roads including Obley Road, Toongi Road and Boothenda Road following the implementation of road upgrades which would mitigate any impacts by significantly improving and increasing the capacity of those roads.
- Negligible impacts as a result of reinstating level crossings along the Toongi – Dubbo railway line between the Project Site and Dubbo.

The Proposed Modification indicates that, in response to the findings of the transportation options review undertaken in accordance with Condition 42 of Schedule 3 of SSD-5251, the Applicant would implement the approved transport Option A as outlined in Section 2.12 of RWC (2013). It is noted that transportation levels under Option A are significantly lower compared to those under Option B as assessed in Constructive Solutions (2013). As such, it is anticipated that the adoption of Option A under the Proposed Modification would result in reduced traffic impacts compared to those originally assessed and approved for the Project.

The Proposed Modification would increase the size of the workforce required by the Project as outlined in **Table 4**. To avoid increases in light vehicle movements as a result of the proposed increase in employment and to manage fatigue-related issues, the Applicant would commit to transporting workers to the Project Site using buses/coaches, minibuses, carpool systems or a combination of these options and would actively discourage single person private vehicle commuting to the Project Site. Consequently, it is not anticipated that the Proposed Modification would result in increased vehicle movements compared to the approved Project.

Table 4
Approved and Proposed Employment

Project Phase	Project Employees (Full-time Equivalent) per Day	
	Approved Operations ¹	Proposed Modification ²
Construction and Site Establishment	Average of 300 to 400	Average of 625 Peak of up to 1 000
Operational	250	274

Note 1: Source: RWC (2013) – Section 2.15
Note 2: Source: Australian Strategic Materials (Holdings) Ltd

The Proposed Modification would not alter the approved limits on the number of truck or train movements for the Project as outlined under Condition 7 of Schedule 2 of SSD-5251.

In light of the above and noting that the Proposed Modification would result in equivalent or reduced traffic impacts compared to the approved traffic impacts for the Project, the Applicant contends that a new TIA is not required for the Proposed Modification.



The proposal seeks constructions works for a processing plant, administration area, construction of Chlor-alkali plant, the rail container Laydown and storage area, which appears to involve the penetration of ground. No further design details are provided to address Section 2.98 of the State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021 (previously Clause 86 of the ISEPP 2007) to confirm if there will be excavation greater than 2m in depth within 25m of the rail corridor.

The Applicant is requested to address the matters outlined in Section 2.98 of the SEPP (Transport and Infrastructure) 2021 applies. If the matters are relevant, the Applicant will need to contact TfNSW to ascertain the documentation requirements that will need to be addressed as part of the response to submissions.

Response

The Proposed Modification, including the construction of infrastructure in the vicinity of the Dubbo - Molong railway line, would not involve excavation or the penetration of the ground to a depth exceeding 2m within 25m of the railway corridor. As such, Section 2.98 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* is not relevant to the Proposed Modification.

The Applicant notes that works involved in the refurbishment of the railway line between Toongi and Dubbo may involve excavation or penetration of the ground to a depth exceeding 2m within 25m of the railway corridor (e.g. upgrades to existing culverts). The railway line refurbishment works form part of the approved Project and would be undertaken in consultation with the rail authority.

Stormwater management and documentation has not been provided in this modification application to confirm if there will be any stormwater discharge into the rail corridor as a result of this modification application.

The Applicant is requested to confirm if there will be any stormwater discharge into the rail corridor during RtS stage and provide additional design documentation and calculations to confirm post development flows to not exceed pre-development flows (if required).

Response

The Proposed Modification does not propose to discharge stormwater into the rail corridor. An indicative outline of surface water controls to be established at the Project Site is presented as Figure 14 in the *Modification Report*. As outlined in Section 3.6.3, the Applicant would revise the existing *Water Management Plan* and *Erosion and Sediment Control Plan* for the Project following approval of MOD 1 to ensure that surface water runoff within and in the vicinity of the revised Project Site would be managed appropriately. Further detail on surface water volumes, including anticipated storage volumes and impacts to flow in Watercourse C, would be presented in these revised documents.

The Modification Report indicates that the Applicant elected Option A – Rail (to Toongi) and Minor Road as its transportation following completion of a review of transport options in consultation with relevant government agencies and infrastructure managers in accordance with condition 42 of Development Consent to SSD 5251. As of 29 January 2022, UGL Regional



Linx (UGLRL) is the Rail Infrastructure Manager (RIM) appointed to manage the CRN on behalf of TfNSW. It is understood that discussions have been held with TfNSW on the feasibility of reopening the railway line to allow Transportation Option A.

The Applicant is requested to provide UGLRL as the rail infrastructure manager for the CRN on behalf of TfNSW with documentation demonstrating that UGLRL (or the previous RIM – John Holland Rail) has been consulted for Option A and provide documentation demonstrating consultation with JHR or TfNSW in respect of the movement of trains and upgrades of the Molong to Dubbo rail line from Dubbo to Toongi in accordance with condition 43 of Development Consent to SSD 5251.

Response

The Applicant will provide UGLRL with documentation detailing consultation with TfNSW and the current/former rail infrastructure managers undertaken to date regarding transportation Option A, train movements and upgrades to the Molong – Dubbo railway line associated with the Project.

The Applicant has a Third Party Works application (commenced in August 2021 with John Holland) with UGLRL. The Applicant has commenced discussions with UGLRL regarding the reinstatement of the Molong – Dubbo railway line. Additionally, the Applicant commenced consultation with relevant stakeholders including John Holland (to February 2022), TfNSW and ARTC in February 2021 and will continue to undertake consultation regarding pathing of Project-related trains through the Mindyarra Maintenance Centre in Dubbo.

A portion of the site is within the Corridor Land that is owned by Transport Asset Holding Entity (TAHE). There is an existing lease between TfNSW and the Applicant including an access and compensation deed. The access and compensation deed does not grant consent for other activities on or under the Corridor Land without TfNSW's prior written consent. Landowner's consent has not been provided from TAHE to support lodgement of this modification and evidence is requested.

The Applicant is requested to provide evidence if it has obtained landowner's consent for the purpose of lodgement of this modification. To arrange for landowner's consent from TAHE, please contact Andrew Burton from UGLRL to coordinate between the Applicant and TAHE via andrew.burton@uglregionallinx.com.au

Response

The Project is classified as 'public notification development' as it is classified as 'State Significant Development' under Section 5 of Schedule 1 of *State Environmental Planning Policy (Planning Systems) 2021*. As public notification development, consent of the landowner is not required when making a modification application under Section 98(2) of the *Environmental Planning and Assessment Regulation 2021* (EP&A Reg).

In accordance with Sections 98(4) and 98(5) of the EP&A Reg, a notice of the modification application was published:

- by the Applicant in the Daily Liberal newspaper on 21 March 2022;
- by DPE in the Daily Liberal newspaper on 30 March 2022; and
- on DPE's Major Projects Portal website at the commencement of the *Modification Report* exhibition period (30 March 2022).



4.2 Public Submissions

4.2.1 Introduction

The following provides responses to each of the public submissions which raised issues in response to the exhibition of the *Modification Report*. Each submission has been reviewed and is presented under the issues raised with the submitter's comment(s). Copies of each submission are presented in **Appendix 4**. Where relevant, text extracted or paraphrased from individual submissions has been reproduced in *italics*, with responses to issues raised provided in normal text.

The following public submissions were also received but are not addressed further in this report.

- One public submission in support of the Proposed Modification which noted that the Proposed Modification would represent long-term employment opportunities in the region as well as flow on to other industries.
- One submission from Chris Lidman, Director of the Siding Springs Observatory and Associate Professor at Australian National University, confirming that lighting during the construction phase of the Project under the Proposed Modification would be unlikely to affect observing conditions above the observatory.

4.2.2 Biodiversity

Representative Comment(s)

Biodiversity Impacts will be extreme and rehabilitation questionable.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

Figures 38 and 39 in the *Modification Report* present a comparison of disturbance to vegetation under the approved Project and the Proposed Modification. As outlined in Section 6.6.2 of the *Modification Report*, the Proposed Modification would result in:

- a reduced clearing of areas classified as CW212, CW213 (quality remnants and derived grasslands), white cypress pines, farm dams / waterbodies, and existing infrastructure / buildings;
- an increase in clearing of areas classified as cleared / grazed / cropped and unclassified areas; and
- no net change to clearing of areas classified as CW138.

The Proposed Modification would therefore represent a net reduction in biodiversity impacts within the Project Site compared to the approved Project.



Evidence of the Applicant's successful management of biodiversity values at the Project Site, including management of existing Biodiversity Offset Areas (**Figure 4**) and the implementation of pest management programs, is presented in Annual Review and Annual Rehabilitation Reports for the Project which are available online (<https://asm-au.com/dubbo-project-overview/environmental-reports-management-plans/>).

Detailed rehabilitation objectives and completion criteria for the Project Site, in addition to rehabilitation methodologies to be employed over the life of the Project, would be outlined in a *Rehabilitation Management Plan* for the Project.

4.2.3 Disturbance Footprint

Representative Comment(s)

As the site occupies 780 ha and with the highest point being 400m, it is significant disturbance on the Agricultural surround of Dubbo.

Comment - One might say it is like the Golden West HWY Denman to Singleton.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

As Outlined in Section 3.3.2 of the *Modification Report*, the Proposed Modification would result in a net reduction in the total disturbance footprint equivalent to approximately 5.41ha compared to the approved Project.

Following the cessation of mining and processing operations at the Project Site, and as shown on Figure 17 in the *Modification Report*, it is anticipated that the Project Site would be rehabilitated to permit final land uses including:

- agricultural land use (e.g. cropping, grazing);
- biodiversity conservation;
- vegetation and habitat conservation and enhancement (managed as part of the Biodiversity Offset Area); and
- potential future industrial land use (subject to separate future approval).

Detailed rehabilitation objectives and completion criteria for the Project Site, in addition to rehabilitation methodologies to be employed over the life of the Project, would be outlined in a *Rehabilitation Management Plan* for the Project.



4.2.4 Chlor-alkali Plant

Representative Comment(s)

The Applicant anticipates importing approximately 65 000tpa of salt to the Project Site for use in the Chlor-alkali Plant to produce approximately 100 000tpa of 34% HCl solution and 95 000tpa of 32% NaOH solution

Extreme care needed in handling huge quantities of aggressive chemicals.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

As noted in Section 1.4.4 of the *Modification Report*, construction and use of an on-site Chlor-alkali Plant would reduce the complex logistics requirements of transporting large volumes of HCl and NaOH. This would guarantee supply whilst also minimising safety and environmental risks associated with transportation of hazardous chemicals.

In addition, Section 3.4.3 of the *Modification Report* notes that the Applicant would ensure that the Chlor-alkali Plant:

- would be constructed within a sealed bunded area and that reagents, products and incident rainfall is not permitted to be discharged from the plant area; and
- would comply with the requirements of the *Protection of the Environment Operations (Clean Air) Regulation 2021*.

Finally, the Applicant would ensure that robust environmental and safety management systems are developed and implemented throughout the life of the Project to ensure that the transportation of reagents and other products to the Project Site would not result in adverse environmental impacts or harm to human health.

4.2.5 Traffic and Transportation

Representative Comment(s)

The Applicant was, at the time of finalisation of RWC (2013), unable to commit to implementation of Option A, namely rail transportation to the Project Site with select materials transported by road. Notwithstanding this, the Applicant committed to undertaking a review of the feasibility of each of the proposed transport options within three years of commencing the development.

Comment - *Obviously with up 75 trucks a day, workers vehicles, and 3 trains per week, Dubbo residence and Obley Rd will experience Noise, Dust (possible Radioactive), Chemical spills in the event of an accident.*

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)



Response

Potential traffic and traffic noise impacts associated with the approved Project were comprehensively assessed in RWC (2013). Assessments of traffic and traffic noise were based on transportation under Option B which represented the highest heavy vehicle traffic levels out of the three transportation options presented.

The Proposed Modification includes a commitment to implementing transportation Option A in response to the findings of the transportation options review undertaken in accordance with Condition 42 of Schedule 3 of SSD-5251. As such, the Applicant contends that the Proposed Modification would likely result in reduced traffic and traffic noise compared to the approved Project as well as reduced risk of road accidents and spills as a result of lower traffic levels.

Matters regarding radiation are addressed in Section 4.2.19, however, it is noted that radiation assessment outcomes for the Project show that impacts would be manageable and that predicted maximum radon concentrations would be well below the recommended reference levels for households and workplaces at all sensitive receiver locations.

4.2.6 Road Upgrades

Representative Comment(s)

The applicant proposes to bring forward the construction period. In order to ensure the safety of road users on the current narrow and poorly aligned Obley Road and Toongi Roads, the applicant must be required to complete all upgrades to the roads and to construct all associated bridges and improvements prior to the commencement of construction. The movement of large volumes of vehicles and heavy and oversized vehicles must not be allowed until these upgrades are complete.

SE-41260698, Dubbo NSW

Response

The Proposed Modification does not seek to bring forward the construction and site establishment phase of the Project. Construction of the Project in accordance with the approved Project Site layout could have commenced at any time following the granting of development consent SSD-5251 in May 2015 and the fulfillment of any pre-commencement conditions outlined in that consent. Based on the current Project schedule, the Applicant anticipates that construction and site establishment work would commence during the fourth quarter of 2023 and last for approximately two to three years.

As outlined in Section 2.2.1 of RWC (2013), upgrades to the road and rail network associated with the Project would form a component of the construction and site establishment phase of the Project and therefore cannot be separated from it.



4.2.7 Rail Infrastructure

Representative Comment(s)

The applicant should not be allowed to commence operations at its processing plant until the rail infrastructure improvements have been completed.

SE-41260698, Dubbo, NSW

Response

Following the outcomes of the Applicant's consultation with Dubbo Regional Council, TfNSW, and other stakeholders (e.g. infrastructure managers), it has been determined that all road and rail upgrade works would be undertaken during the two to three year construction and site establishment phase of the Project. However, as noted in Section 2.2.1 of RWC (2013), mining and processing would be undertaken concurrently for a period towards the end of the site establishment phase as ore feedstock would be necessary for plant commissioning.

4.2.8 Gas Pipeline

Representative Comment(s)

The applicant submits that the gas pipeline is no longer proposed to be placed within the rail corridor. The proposal does not appear to explain why this is the case. The applicant should disclose: where it intends to place the pipeline – private land, TSR, Crown Land or a combination; and the reason for the change.

SE-41260698, Dubbo NSW

Response

Table 2 in Section 3.3.1 of the *Modification Report* indicated that the construction and operation of the approved Natural Gas Pipeline within the Dubbo – Molong Railway corridor was no longer proposed and that a separate approval would be sought for an alternative alignment. As outlined in Section 3.4, it is now acknowledged that, subject to the outcomes of a further study which will investigate the feasibility of constructing and maintaining the Natural Gas Pipeline, the final pipeline route may follow either the approved route or an alternative route.

In the event that the approved Natural Gas Pipeline is rejected in favour of an alternative route, the Applicant anticipates that a revised natural gas pipeline route would be presented, along with relevant environmental impact assessments, in a separate application at a later date. It is anticipated that this application would be the subject of consultation with potentially affected stakeholders and that public submissions would be sought during the public exhibition of that application.

As an alternative Natural Gas Pipeline route has not yet been identified, details of any alternative Natural Gas Pipeline route (including potentially affected landowners) are not available at this time.



4.2.9 Salt Encapsulation Cells

Representative Comment(s)

Salt Encapsulation Cells- Occupies 34.5ha 17m above adjoining land, containing Brine Concentrate. A significant risk may happen in extreme rainfall, of banks breaching or overflowing.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

Section 3.3.4 of the *Modification Report* identifies that the relocated Salt Encapsulation Cells would conform to the approved design criteria, with the following amendments.

- Cell embankments would be constructed to a final height of approximately 13m above existing ground level.
- The number and size of individual cells would be tailored to accommodate the amount of salt generated by the Project, with all cells to be confined to the approved Liquid Residue Storage Facility Area 3 disturbance footprint.
- A Salt Handling Area would be constructed within the Salt Encapsulation Cells area footprint. This area would be used for the temporary stockpiling of salt transported by conveyor from the Brine Concentrator. This material would be loaded into haul trucks for placement into the Salt Encapsulation Cells.

Considering the management and safety measures incorporated into the approved and proposed Salt Encapsulation Cell design criteria, the risks associated with overflow following extreme rainfall events would be negligible. Regardless, the design and management of the Salt Encapsulation Cells would be detailed in the *Water Management Plan* for the Project to ensure that water levels within the cells are managed appropriately to prevent overflow and discharge during significant rainfall events.

4.2.10 Solid Residue Storage Facility

Representative Comment(s)

- *Maximum embankment height of 368.5m AHD or up to 35m above the natural land surface.*
- *A combined storage volume of approximately 27.7Mt or 22.3Mm³.*
- *The approved Solid Residue Storage Facility occupies an area of approximately 101.98ha.*

Comment - *With such a huge volume of solid residue, concerns of subsidence, dust, and extreme weather leaching chemical residue and radioactive material into the surrounding outside area, and water table and creeks.*

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)



Response

As identified in Section 6.2.5.2 of the *Modification Report*, the Applicant has committed to ensuring the surface of the active Solid Residue Storage Facility maintains a high moisture content to avoid generation of windblown dust. In addition, as noted in Section 6.5.1 of the *Modification Report*, the Applicant has committed to establishing vegetation cover on the embankments of the Solid Residue Storage Facility to minimise erosion by wind and rain.

As identified in Section 3.3.5 of the *Modification Report*, the relocated Solid Residue Storage Facility would conform to the following design criteria relevant to the prevention of leaks, leaching and contamination of groundwater.

- Storage cells and upstream faces would be double-lined, with the upper layer consisting of a HDPE liner (or material with equivalent permeability) and the lower layer consisting of either HDPE or compacted clay.
 - Permeability of each liner layer would not exceed 1×10^{-9} m/s over 900mm (or equivalent).
 - Embankment lifts would not be lined as there would be no phreatic surface within the stored compacted residue, and therefore no hydrostatic loading on the peripheral embankments.
- Installation of a leak detection system between the upper and lower liner layers.
- Maintenance of freeboard (between the top of the embankment and the residue surface) to accommodate rainfall from a 1:10 000-year event.
- Pumping of leachate, decant water and incident rainfall runoff to the Liquid Residue Storage Areas.

The relocated Solid Residue Storage Facility has been designed based on the following guideline documents. Detailed designs, taking into consideration any updated guideline requirements, would be prepared and relevant approvals and certifications for the detailed designs would be obtained prior to construction.

- *ANCOLD Guidelines on the Consequence Categories for Dams* (ANCOLD, 2012a).
- *ANCOLD Guidelines on Tailings Dams* (ANCOLD, 2012b).
- *NSW Dam Safety Committee Tailings Dams guideline DSC3F, June 2012* (NSW DSC, 2012).
- *ANCOLD Guideline on Selection for Acceptable Flood Capacity for Dams* (ANCOLD, 2000).

Considering the management and safety measures incorporated into the approved and proposed Solid Residue Storage Facility design criteria, potential risks associated with subsidence, windblown dust, and leaching of hazardous chemicals are negligible



4.2.11 Growth Medium Stockpile Areas

Representative Comment(s)

Soil Stockpile Areas which cover a total area of approximately 129ha.

- *combined storage volume of 20Mm³.*
- *Maximum elevations of 385m AHD (Cell A), 390m AHD (Cell B) and 370m AHD (Cell C), with maximum embankment heights of approximately 40m above the natural surface level.*
- *A combined upper surface area of approximately 81ha.*

Comment - *With such a huge volume of solid residue, concerns of subsidence, dust, and extreme weather leaching chemical residue and radioactive material into the surrounding outside area, and water table and creeks.*

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

It is noted that in this portion of the submission, the submitter has raised the issue of soil stockpile areas and then listed design characteristics for the proposed Solid Residue Storage Facility in bullet points. Concerns regarding solid residue are addressed in Section 4.2.10.

The Proposed Modification would include a total area of approximately 132ha for growth medium stockpiling (i.e. a 3ha increase compared to the approved Project). This area represents a conservative estimate of the total area required for growth medium stockpiling activities based on the stockpile design criteria outlined below. It is anticipated that a significant proportion of these areas would be progressively rehabilitated following the initial construction phase of the Project as growth medium resources are used for rehabilitation purposes at the Project Site.

Growth medium stockpiles at the Project Site would primarily be comprised of stripped topsoil and subsoil material which would be stored prior to use during progressive rehabilitation operations. As such, risk of subsidence or leaching of hazardous chemicals associated with these stockpiles would be negligible.

A range of management and mitigation measure targeting growth medium stockpiles are outlined in Section 3.3.6 of the *Modification Report*, including the following aimed at preventing and minimising erosion by wind and rain.

- Construct stockpiles in accordance with the following design criteria.
 - Maximum top surface width of 5m.
 - Maximum height of 3m for subsoil and 2m for topsoil.
 - Maximum side slopes of 1:5 (V:H).
- Ensure that soil material is slightly moist during stripping, with no stripping to be undertaken during excessively wet or dry conditions.
- Ensure that top and side surface of wind rows are rough to encourage runoff penetration and seed retention.



- Establish vegetative cover on soil stockpiles where they are expected to be retained in place for more than 3 months.
- Where practical and safe to do so and under appropriate weather conditions, allow stock to graze vegetated soil stockpiles to encourage natural return of organic materials. Stock would be removed where ground cover falls below 60% to minimise erosion and encourage survival and regrowth of cover vegetation.

4.2.12 Water Take and Licencing

Representative Comment(s)

MODIFIED WATER REQUIREMENT AND SUPPLY

1. water annual makeup water requirement for the Project would be approximately 4 050L of water for each tonne of ore processed, or an annual requirement for 4.05GL of water. That water was to be sourced from a range of sources including:

- the Macquarie River (high and general security water);
- the shallow alluvial aquifers associated with the Macquarie River.
- fractured rock aquifers associated with the Lachlan Fold Belt; and
- water harvested under the Applicant's harvestable right.

2. Approval Source Allocation (MLpa)

- Comment WAL9191 Macquarie and Cudgegong Regulated Rivers Water Source downstream of the upper limit of Lake Burrendong. 218(MLpa) High security licence.
- WAL30259 750 (MLpa) General security licence.
- WAL19994 22 (MLpa) High security licence.
- WAL3396 282 (MLpa) High security licence.
- WAL3412 34 (MLpa) High security licence.
- WAL36409 300 (MLpa) High security licence.
- WAL37691 Upper Macquarie Alluvial Groundwater Source (to be associated with water supply work approval 80 WA726382). 1 402 (MLpa) Approved to extract up to 1 250ML per annum under 80WA726382.
- Total 3 008(MLpa)

Comment - High dependency on ground water a major concern.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)



Response

As noted in Section 3.6.2 of the *Modification Report*, the Applicant has secured 3 008MLpa of water allocation, with 2 258MLpa comprising high security surface water allocations or reliable groundwater supply. Whilst groundwater would represent approximately 46.6% of the Project's water supply, the appropriate water allocations have already been secured as noted in the submission. Combined with water that would be collected and used under the Applicant's harvestable rights, there would be sufficient water allocation to support processing operations for the life of the Project.

As identified in Section 3.6.1 of the *Modification Report*, it is estimated that the Proposed Modification would result in the water requirement for the Project being reduced to approximately 2GLpa, representing a reduction of approximately 50% compared to the approved Project. Nevertheless, the Applicant would continue to optimise the Project and reduce water requirement where possible to ensure that risks associated with water security are minimised over the life of the Project.

4.2.13 Rehabilitation and Final Land Use

Representative Comment(s)

Comment - *It's hard to see how this site will be left in a state, similar to what it is now, given the Salt, Chemical and overburden will be left at the site and revegetated???*

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

The indicative final landform and land uses for the Project Site following completion of rehabilitation activities is presented in Figures 15 to 17 of the *Modification Report*. It is noted that the Solid Residue Storage Facility, Salt Encapsulation Cells, Waste Rock Emplacement and Open Cut would remain as significant new features within the landscape following the cessation of mining, processing and rehabilitation operations. While it is recognised that the final landform will differ from the pre-mining environment, the Applicant has committed to provide a low maintenance, geotechnically stable and safe, non-polluting landform which provides land suitable for the final land use of biodiversity conservation or agriculture. Additionally, revegetation to be undertaken during progressive rehabilitation of the Project Site would assist in naturalising the appearance of these features and reduce their visual impact.

Final land uses within the Project Site (see Section 4.2.13), with the exception of potential industrial land uses which would be subject to a separate approval if pursued in the future, would be consistent with existing land uses within and in the vicinity of the Project Site. Detailed rehabilitation objectives and completion criteria for the Project Site, in addition to rehabilitation methodologies to be employed over the life of the Project, would be outlined in a *Rehabilitation Management Plan* for the Project.



4.2.14 Greenhouse Gas Emissions

Representative Comment(s)

Greenhouse Gas Consideration

Scope 1 Emissions	140 040t CO ₂ -e
Scope 2 Emissions	120 560t CO ₂ -e
Scope 3 Emissions	1 107t CO ₂ -e
Scope 1 and 2 Emissions	260 600t CO ₂ -e
All Scope Emissions	261 707t CO ₂ -e

Comment - Greenhouse Gas emission needs to reduce dramatically.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

The greenhouse gas emissions quoted by the submitter are the emissions for the approved Project, not the Proposed Modification. The Applicant identified during preparation of the *Modification Report* that emissions associated with neutralisation processes within the Processing Plant were not included in the 2013 assessment in error.

Greenhouse gas emissions under the Proposed Modification are detailed in Table 17 of the *Modification Report* (see Section 6.2.6.3 of the *Modification Report*) and include the following.

- Scope 1 = 324 217.6 tonnes of CO₂ per year.
- Scope 2 = 247 981.5 tonnes of CO₂ per year.
- Scope 3 = 64 128.7 tonnes of CO₂ per year.
- Total (combined scope 1, 2 and 3) = 637 327.8 tonnes of CO₂ per year.

Table 5 provides a summary of greenhouse gas emissions as a result of the approved Project and Proposed Modification, with the scope 1 emissions for the approved Project adjusted to include emissions as a result of neutralisation processes (see Section 6.2.6.3 of the *Modification Report* for additional details).

Table 5
Calculated Greenhouse Gas Emissions – Approved Project and Proposed Modification

Scope	Greenhouse Gas Emissions (t/yr of CO ₂ -e)		
	Approved Project	Proposed Modification	Difference (Approved minus Proposed)
Scope 1	466 800 ¹	324 217.6	-142 582.4
Scope 2	120 560	247 981.5	+127 421.5
Scope 3	1 107	65 128.7	+64 021.7
Total	588 467	637 327.8	+48 860.8
Note 1: Scope 1 emissions increased from 140 040 t/yr of CO ₂ -e to 466 800 t/yr of CO ₂ -e to account for emissions as a result of ore processing.			
Source: <i>Modification Report</i> (RWC, 2022) – After Section 6.2.6.3.			



In summary, the Proposed Modification would result in an additional 48 860.8 t/yr of CO₂-e or an additional 8% compared to the approved Project. The Applicant therefore contends that the Proposed Modification would not significantly alter the greenhouse gas emissions generated by the Project. Furthermore, the Applicant has publicly committed to investigate ways for the Project to achieve a net zero carbon operation.

4.2.15 Noise

Representative Comment(s)

Noise created by mine (daylight) and Processing (24hrs) will undoubtable effect neighbouring properties.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

I am neighbours with the mines. I object to the new clause that they have submitted to run 24 hour 7 days a week, unless I can be guaranteed that no noise will affect my property. I don't want them in the next paddock to my abode. If I can be guaranteed that they won't be right next to my property/paddock and the noise is located further away then that's fine. Also I don't want any fumes or spray drifted to my property as well. I look forward to a reply.

SE-40891481, Toongi NSW

I am making a submission on behalf of my wife and I regarding the Dubbo Project modification and oppose the extended construction hours (24 hours per day/7 days per week) on the grounds of noise pollution. Inside our house we can hear machinery operating now as site preparation has commenced. While the noise is not obtrusive at this stage, it is an unknown what the noise (and dust etc) levels may be for actual construction and if the noise is excessive over 24 hours every day, it will certainly ruin any semblance of sanity with sleep interrupted constantly. We often have our house windows open (even heading into winter) so constant extreme noise is not welcome. Hopefully the noise for any of the construction (and later operation) will not be excessive, however we believe that it should be kept to normal working hours, NOT 24 hours/day with no break. Being in a rural area, we are aware that there will be some noise (stock, tractors etc), but those noises do not occur continuously and are not unduly noisy.

SE-40754883, Toongi NSW

Response

As noted in Section 3.7.2 of the *Modification Report*, the proposed extension of approved hours for 'other' construction activities to 24-hours per day, seven days per week is required in order to accommodate activities such as large concrete pad pours as well as complex construction operations for selected processing plant components that cannot be completed on day-shift only. It is anticipated that 'other' construction activities undertaken outside of regular daytime hours (i.e. 7:00am to 6:00pm, Monday to Friday, 8:00am to 1:00pm, Saturdays) would occur infrequently and would indicatively be limited to the following areas within the Project Site.

- Processing Plant and Administration Area
- Chlor-alkali Plant
- Rail Container Laydown and Storage Area
- Laydown Yards / Growth Medium Stockpile Area



As indicated in Section 6.3.4 of the *Modification Report*, the Applicant would ensure that out of hours construction activities would be limited to:

- a maximum of three teams, consisting of a generator, lighting set, welder, forklift / telehandler, crane, and power tools, or equivalent, at any one time; and
- activities within the Processing Plant and Administration Area, Rail Container Laydown and Storage Area, and Chlor-alkali Plant only.

Potential impacts associated with noise generation as a result of the Proposed Modification were comprehensively assessed by Muller Acoustic Consulting Pty Ltd (MAC), summarised in in Section 6.3.5 of the *Modification Report* and presented as Appendix 5 to the *Modification Report*. In summary, the noise impact assessment for the Proposed Modification determined the following based on noise modelling under two construction scenarios and three operational scenarios.

- Predicted noise levels under construction Scenario 1 and construction Scenario 2 would satisfy the relevant noise management level criteria at all receivers.
- The maximum noise trigger level criteria would be satisfied at the nearest sensitive receivers and therefore at more distant receivers during night-time constructing activities.
- Predicted operational noise levels are expected to satisfy the relevant Project Noise Trigger Levels at all sensitive receivers within 5km of the Project Site under noise enhancing meteorological conditions for each of the operational noise scenarios (Scenarios 3, 4 and 5).
- The maximum noise trigger level criteria would be satisfied at the nearest receivers and therefore at more distant receivers during operations.

Notwithstanding these assessment outcomes, is acknowledged that noise from the Project could range from being totally indiscernible to being clearly audible at times depending on proximity to the Project Site, meteorological conditions and the presence of other noise sources at the time.

To ensure that potential noise impacts during the construction and operational phases of the Project are avoided or minimised, the Applicant would revise the *Noise Management Plan* for the Project. The *Noise Management Plan* would ensure that site personnel are able to manage noise to ensure compliance with the relevant noise criteria, adapt to conditions which have the potential to increase noise impacts (e.g. meteorological conditions), and respond to any noise complaints in an appropriate manner.



4.2.16 Aboriginal Heritage

Representative Comment(s)

The approved Project included unavoidable direct impacts to 14 known Aboriginal heritage sites which were either completely or partially within the approved Project's disturbance footprint. A further 12 known Aboriginal heritage sites were located adjacent to the approved disturbance footprints and therefore required careful management to avoid impacts.

Comment - Every effort should be made to restrict disturbance of sites and Local Indigenous Consultation must be made and consent sought.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

The Proposed Modification would not result in any additional disturbance to recorded Aboriginal heritage sites within the Project Site. Disturbance to one Aboriginal heritage site which would otherwise have been impacted directly, site PH-IF1 (isolated lithic artefact) located within the approved Solid Residue Storage Facility footprint, would not occur as a result of the Proposed Modification.

One additional Aboriginal heritage site, site TV-AS3, would be located in close proximity to the proposed tailings pipeline and haul road. To ensure that potential impacts to this site are avoided, construction of the haul road in the vicinity of the site would only be undertaken following the installation of permanent, high visibility markers at minimum 10m spacings where the boundary of the site and associated PAD occur within 25m of the proposed haul road.

The Applicant would revise the *Heritage Management Plan* for the Project following approval of MOD 1. Relevant Aboriginal stakeholders and Heritage NSW would be consulted during the preparation of the revised plan.

4.2.17 Independent Audit

Representative Comment(s)

The Project should only go ahead if comments mentioned above are addressed, and The Company agrees to a yearly independent Audit of the Project done by an Australian University. The Audit would have to be available to the general public within 2 weeks of completion.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

Under Condition 9 of Schedule 5 of development consent SSD-5251, an Independent Environmental Audit is required to be commissioned by the Applicant every three years. Furthermore, the Applicant is also required to commission the following audits for the Project under SSD-5251.

- Condition 41 of Schedule 3 – independent road safety audit, required prior to commencement and every three years thereafter.
- Condition 52 of Schedule 3 – hazard audit, required within one year of commencement and every three years thereafter.



The Proposed Modification would not alter the above requirements for independent audits of the Project. The Applicant contends that the existing independent audit requirements for the Project are adequate and consistent with audit requirements for similar mining projects throughout NSW.

4.2.18 Radiation

Representative Comment(s)

We are aware that with the mining of rare earths, some uranium will be extracted and stored onsite. The workers and Dubbo region residents deserve to know what the radiation levels are at all times. Uranium -238 has a half-life of 704 million years and uranium -234 has a half -life of 245 000 years. Dubbo Environment Group requests that an independent monitor be engaged to publicly report these levels at least quarterly. This monitor should not be an agency of the Federal or State government, or a private contractor for the ASM company.

Dubbo Environment Group Inc. of Dubbo, NSW (SE-41199992)

Response

Radon concentrations associated with the Project were assessed by Northstar Air Quality Pty Ltd (Northstar, 2022) based on data presented in the original radiation assessment prepared by JRHC Enterprises Pty Ltd (JRHC, 2013) in support of RWC (2013). In summary, predicted maximum radon concentrations are expected to be well below the recommended reference levels for both households (200Bq/m³) and workplaces (1 000Bq/m³) at all receiver locations.

Condition 25 of Schedule 3 of SSD-5251 requires that the Applicant prepare and implement a *Radiation Management Plan* for the Project to the satisfaction of the Secretary. This plan would be prepared by a suitably qualified expert whose appointment has been approved by the Secretary and would be prepared in consultation with the EPA and the NSW Resources Regulator (or other suitable alternative to the former Division of Resources of Energy).

The Applicant would implement management and mitigation measures detailed in the *Radiation Management Plan* to avoid and minimise potential radiation impacts associated with the Project.



5 Evaluation

5.1 Introduction

This section provides an update to the evaluation of the merits of the proposed modification presented in Section 7 *Modification Report*. It takes into account amendments made to the Project and refinements to management and mitigation measures that have been made in response to the submissions received from Government agencies, organisations and the public. As assessment outcomes have not changed as a result of the review of submissions, this section presents the relevant updates to the merits of the Project. That is, this section does not replicate or supersede the evaluation of merits presented in Section 7 of the *Modification Report*, except where it discusses the amended outcomes of assessment. A final review of the public interest is provided in conclusion to the document.

5.2 Amendments and Refinements to the Project

As indicated in Section 4.1.4, the Applicant would commit to transporting workers to the Project Site using buses/coaches, minibuses, carpool systems, or a combination of these options to ensure that vehicle movements would be consistent with those already approved under SSD-5251. An updated table of management and mitigation measures for the Project is presented as **Appendix 2**.

No additional specific commitments, amendment or refinements to the Proposed Modification or the Project are proposed in response to the submissions received from Government agencies and the public following exhibition of the *Modification Report*.

5.3 Updated Context for the Project

A thorough analysis of the statutory and strategic context for the Project was presented in Section 2.1 of the *Modification Report*. In response to the submission from TfNSW, the relevance of Section 2.98 of *State Environmental Planning Policy (Transport and Infrastructure) 2021* has been addressed in Section 4.1.4 of this report.

It is considered that the outcomes of the response to submission do not change the statutory or strategic context of the Project, and that no further consideration on these matters is required.



5.4 Updated Justification Of The Project

5.4.1 Social and Economic Considerations

As described in Section 7.5.7 of the *Modification Report*, the Proposed Modification could be undertaken without significantly affecting the amenity of surrounding residents and it would have a positive influence on the socio-economic conditions of the district of Toongi and surrounding region. As a result, it is considered that on balance the Proposed Modification would provide for a net positive socio-economic benefit.

5.4.2 Biophysical Considerations

A detailed summary of the biophysical outcomes of assessment for the Project is presented in Section 7.5.6 of the *Modification Report*. There have been no changes to the outcomes of technical assessments as a result of the review of the Government agency and public submissions received following public exhibition of the *Modification Report*.

Additional clarification has been provided in relation to the management of transport activities as requested by TfNSW, however these matters do not change the outcomes of assessment regarding potential road transport risks and impacts on traffic. No additional management or mitigation measures relating to biophysical considerations are proposed.

5.5 The Consequences Of Not Proceeding With The Project

The consequences of not proceeding with the Project remain unchanged since the exhibition of the *Modification Report* and are presented in Section 7.8 of that report.

5.6 Conclusion

As identified in Section 7.9 of the *Modification Report*, on balance, the Proposed Modification would be in the public interest for the following reasons. Each of the benefits identified would continue until the end of 2045.

- Direct employment for up to 1 000 people during the two to three year construction phase and 274 people during the operational phase, with wages and salaries of approximately \$41 million per year.
- Injection of approximately \$287 million per year into the local, regional and State economy. This expenditure is likely to generate additional economic activity and flow on effects, providing further employment opportunities.
- Payment of approximately \$131 million per year in taxes, royalties, rates and other contributions.
- A substantial reduction in water consumption for Project operations.



- A reduction in the approved area of disturbance.
- Infrastructure upgrades, including implementation of rail transportation to the Project Site.
- Economic activity in a rural area in a time of recent significant drought conditions, excessive rainfall, rodent plague and impacts associated with the COVID-19 pandemic.
- Continued extraction of a State-owned resource in a manner that does not result in significant additional environmental impacts.
- The Project, including the Proposed Modification, aligns with the NSW Government's *Critical Minerals and High-Tech Metals Strategy* (DRNSW, 2021).



6 References

Department of Regional NSW (2021). *Critical Minerals and High-Tech Metals Strategy.*

Muller Acoustic Consulting Pty Ltd (MAC) (2022). *Noise Assessment – Dubbo Project – Toongi, NSW.* Presented as *Appendix 5* of RWC (2022). Prepared on behalf of Australian Strategic Materials (Holdings) Ltd

Northstar Air Quality Pty Ltd (2022). *Air Quality Impact Assessment.* Presented as *Appendix 4* of RWC (2022). Prepared on behalf of Australian Strategic Materials (Holdings) Ltd

R.W. Corkery & Co. Pty Limited (RWC) (2013). *Environmental Impact Assessment.* September 2013. Prepared for Australian Zirconia Ltd

R.W. Corkery & Co. Pty Limited (RWC) (2022). *Dubbo Project Modification 1 Report.* March 2022. Prepared for Australian Strategic Materials (Holdings) Ltd

Constructive Solutions Pty Ltd (2013). *Dubbo Zirconia Project Traffic Impact Assessment.* Presented as Part 11 of Volume 3 of the Specialist Consultant Studies Compendium accompanying RWC (2013)



Appendices

- Appendix 1 Submissions Register
- Appendix 2 Updated Compilation of Measures to Mitigate Environmental Impacts
- Appendix 3 Agency Submissions
- Appendix 4 Public Submissions



Appendix 1

Submissions Register

(Total No. of pages including blank pages = 2)

**Table A1.1**
Submissions Register

Submitter	Section Where Addressed
Public Authority	
Environment Protection Authority	4.1.2
Department of Planning and Environment – Hazards	4.1.3
Transport for NSW	4.1.4
Resources Regulator	4.1.1
Department of Regional NSW – Mining, Exploration and Geoscience	4.1.1
Heritage NSW	4.1.1
Biodiversity Conservation and Science Directorate	4.1.1
Australian National University	4.2.1
Organisation	
Dubbo Environment Group (SE-41199992)	4.2.2 - 4.2.5, 4.2.9 - 4.2.15
Public	
Ken Riley (SE-40754883)	4.2.15
Robert Usher (SE-40891481)	4.2.15
Name Withheld (SE-40914378)	4.2.1
Name Withheld (SE-41260698)	4.2.6 - 4.2.8



Appendix 2

Updated Compilation of Measures to Mitigate Environmental Impacts

(Total No. of pages including blank pages = 28)



Table A2.1
Updated Table of Mitigation Measures

Page 1 of 28

Environmental Aspect	Management and Mitigation Measure
Noise and Vibration	
Construction noise	Limit construction activities outside of INP standard hours of operation to: - a maximum of three teams, consisting of a generator, lighting set, welder, forklift / telehandler, crane, and power tools, or equivalent, at any one time; and - activities within the Processing Plant and Administration Area, Rail Container Laydown and Storage Area, and Chlor-alkali Plant only. Ensure the equipment operated would have sound power levels equivalent to those nominated in the noise and vibration impact assessment (MAC, 2022). If construction activities are to be undertaken coincident with operations (following the 18 month to 2 year construction phase), no additional equipment would be used to that presented in the EIS (2013) noise source figures and existing equipment would be re-deployed. Provide details to occupants of residences adjoining construction activities, with details ahead of time regarding the type of activities, their duration and specific measures to minimise noise during the period. Provide occupants with contact details for personnel managing the construction activities. Silence all mechanical plant and equipment with appropriate mufflers and enclosures. Ensure, where possible, equipment is not left idling unnecessarily. Ensure all contractors and personnel understand and minimise noise sensitivities by: - Minimising the use of air brakes; - No queuing of vehicles adjacent to any residential receptor, or if unavoidable switch engines off; - Parking of vehicles where appropriate to shield locations prior to being used for maintenance work undertaken outside standard hours of operation; - No warming of vehicles permitted before the nominated working hours; - Accessing sites via entry points most remote to receptors; - Conservative driving methods; - Minimising the use of radios and loud voices; - Locating machinery to orientate direct noise away from closest sensitive receptors; - Placement of mobile barriers/screens or extraction faces adjacent to static rock breaking sources to shield neighbouring receptors; - Undertake regular maintenance of machinery to minimise noise emissions; - Use of quietest suitable machinery reasonably available for selected work activities; - Ensure the coincidence of noise/plant machinery to minimise noise emissions; and Being aware of the expectation of landowners and surrounding residents. Respond to legitimate complaints from surrounding landowners and occupiers in a timely manner.
Black Text = Original EIS (RWC 2013a) including revisions under the Response to Submissions (RWC, 2013b). Blue Text = MOD 1 (the proposed modification).	



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Noise and Vibration (Cont'd)	
Construction noise (Cont'd)	Position the areas for loading and unloading materials and equipment as far away as possible from surrounding residences during site establishment and construction phase.
	Install broadband (frequency modulated) reversing alarms instead of tonal reversing alarms on all earthmoving equipment.
	Installation of an air conditioning system at residential receivers would be effective in facilitating further noise reductions for the interior of the residence (as this would allow for windows to be kept closed).
	Establish noise monitoring procedures for identifying and managing elevated noise levels.
Operational noise	Restricting all but processing, transport and low noise maintenance activities to daytime only.
	Install broadband (frequency modulated) reversing alarms on all mobile equipment.
	Ensure the mining fleet operated would have sound power levels equivalent to those nominated in the noise and vibration impact assessment (MAC, 2022).
	Construct semi-enclosed barriers and screens to ensure attenuation of noise generated by the crushing plant and ore handling circuit.
	Place the rock breaker within the open cut as opposed to the ROM pad.
	Complete a detailed review of potential enclosures, noise barriers and other attenuating measures prior to construction, taking into consideration the frequency and amplitude generated by the processing plant, to ensure (and demonstrate) sufficient acoustic attenuation is provided.
	Prepare a Noise Management Plan.
Maximum noise level (sleep disturbance)	Restrict train loading and unloading to after 6:00am and before 10:00pm unless the allocated rail path requires an overnight turn-around of the train.
	Implement and enforce a noise management plan which requires operators to avoid high impact events, e.g. between container and wagon. Operators unable to adhere to noise management requirements would be excluded from operating that equipment.
	Construction of a 300m long barrier along the western boundary of the Project Rail Siding.
	Install duratray (or equivalent) lining on rail wagons.
Blasting and vibration	Design and implementation of each blast by a suitable qualified blasting engineer or experienced shot-firer.
	Design each blast to ensure the assessment criteria are complied with at all residential receptors in the vicinity of the Project Site.
	Identify the blast envelope during design of each blast.
	Modify blast designs, mitigation measures and operating procedures, if required, on the basis of monitoring results.
	Initiate blasts between the hours of 9:00am and 5:00pm Monday to Saturday only. No blasts would be initiated outside these hours, except for safety or emergency reasons.
	Establish and maintain an environmental complaints line and register of complaints in accordance with the requirements of the Environment Protection Licence, once issued.
	Respond promptly to any issue of concern or complaint raised by the community or a government agency.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 3 of 28

Environmental Aspect	Management and Mitigation Measure
Noise and Vibration (Cont'd)	
Noise management plan mitigations	Provide training and awareness to contractors and employees regarding the statutory, construction and operational requirements for the Project.
	Identify noise affected properties consistent with the environmental assessment and any subsequent assessments.
	Outline mitigation measures required to achieve the noise limits established.
	Outline measures to reduce the impact of intermittent, low frequency and tonal noise (including truck reversing alarms).
	Outline the procedure to notify property owners and occupiers that could be affected by noise from the mine.
	Establish a protocol to handle noise complaints that includes recording, reporting and acting on complaints.
	Describe proactive and predictive modelling and real-time reactive management protocols for managing noise during adverse meteorological conditions.
Blasting and vibration management plan mitigations	Provide training and awareness to contractors and employees regarding statutory, construction and operational requirements for the Project.
	Identify potential blast and vibration affected properties consistent with the environmental assessment and any subsequent assessments.
	Outline mitigation measures to use to achieve the blast limits established.
	Outline the procedure to notify property owners and occupiers that could be affected by blasting and vibration from the mine.
	Establish a protocol to handle blast and vibration complaints that includes recording, reporting and acting on complaints.
	Specify procedures for undertaking independent blast investigations.
	Describe proactive and predictive modelling and real-time reactive management protocols for managing blasting during adverse meteorological conditions.
Road and vehicle noise	In addition to standard road pavement treatments to provide for a 20 year life for the entire Obley Road, AZL would apply an asphaltic concrete seal ('hot seal') to: - A 2.4km section of Obley Road between the Newell Highway and approximately 200m south of the Zoofari Lodge entrance; and 950m section of Obley Road from the Toongi Road intersection.
	ASM (Holdings) would ensure, through contractual arrangements with transport operators, that the trucks used achieve sound power levels specified in Australian Design Rule (ADR) 28/01 External Noise of Motor Vehicles.
	Reference to RTA (2001) indicates that a reduction in the speed of travel from 100km/hr to 80km/hr would further reduce truck passby noise by 4dB. ASM (Holdings) will continue to liaise with Dubbo City Council, TCSA and other relevant stakeholders regarding the possible reduction in the speed limit along this stretch of road.
	Construction of a 3m high, 1km long road noise barrier on land owned by Taronga Western Plains Zoo, or implementation of alternative noise mitigation measures, to achieve road noise reduction equivalent to 5dBA to 10dBA.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 4 of 28

Environmental Aspect	Management and Mitigation Measure
Air Quality	
Dust management - site establishment	Adopting a Level 2 watering to achieve 75% control of dust from haul roads.
	Apply gravel to disturbed areas where possible.
	Establish rehabilitation / cover crops where possible over exposed areas.
	Modify working practices by limiting excavation during periods of high winds.
	Limit the extent of clearing of vegetation and topsoil to the designated footprint required for construction and appropriate staging of any clearing.
	Confine all vehicles on site to designated routes with speed limits enforced.
	Control and reduce trips and trip distances where possible, for example by coordinating delivery and removal of materials to avoid unnecessary trips.
Dust management - operations	Adopting a Level 2 watering to achieve 75% control of dust from haul roads.
	Implement water injection during drilling of ore and overburden.
	Prevention of wind erosion on stockpiled material.
	Ensure the top surface of the Solid Residue Storage Facility maintains a high moisture content to avoid generation of wind blown dust.
	Employ water sprays on materials during screening operations.
Processing plant	Employ spray curtains at all crushers and miscellaneous transfer points not already located within enclosures.
	Operation of a bag house to capture particulate matter from the grinding mill.
	Regulate emissions from stacks and vents by operating within the prescribed in-stack concentration limits. This would be initially determined through the detailed design phase and verified by in-stack monitoring.
	Undertake periodic extractive monitoring to demonstrate compliance with in-stack limits (every 3 months for the first year of operation and then annually thereafter if compliance is easily achieved).
	Implement a regular and documented maintenance and inspection program for all plant items where emissions to air are deemed likely.
	Incorporate emission reduction design to reduce operating SO ₂ concentration of the Sulphuric Acid Plant stack to comply with criteria at sensitive receivers.
	Complete modelling of gaseous emissions from the final plant design and provide results, along with discussion on application of all reasonable and feasible emissions reduction technology, to the Environment Protection Authority.
Greenhouse gas	Maximise energy efficiency as a key consideration in the development of the mine plan. This includes electricity and process steam co-generation from the waste heat of the sulphuric acid plant.
	Implement an energy use and efficiency program.
	Undertake regular maintenance on diesel and electrically powered plant to ensure they operate efficiently.
	Develop targets for greenhouse gas emissions and energy use, monitor and report against these targets.
	Dedicate a number of trucks for the excavator to minimise truck idling times.
	Ensure that haul trucks are fully loaded to maximise productivity and efficiency.
	Assess and review lighting plant efficiency periodically.

Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 5 of 28

Environmental Aspect	Management and Mitigation Measure
Radiation	
Greenhouse gas (Cont'd)	Establishment of radiation design criteria, including: • Design of the residue storage facilities as zero-discharge facilities with a geo-membrane lining and leak detection system; • Ensuring all heavy mining equipment is air conditioned to minimise impacts of dust to workers; • Minimise dust using standard dust suppression techniques (wetting of materials before handling, wetting of roadways, provision of dust collection and extraction systems); • Construction of a separate wash-down pad for vehicles that have come from any operating areas; • Bunding to collect and contain spillages from tanks containing process slurries; • Burial of, or bunding of the residue pipeline within defined corridors to control spillage from residue pipeline failures; • Providing sufficient access and egress for mobile equipment to allow clean-up where there is the possibility for large spillages; • Leach and precipitation of radionuclides from ore to production of final compounds for despatch and disposal as solid or liquid residue; • Installation of venturi scrubber and wet electrostatic precipitator (ESP) as part of the FeNb processing circuit to capture and remove volatilised Polonium 210 and Lead 210 prior to ventilation from the circuit; and • Slurrying and mixture of residues from the FeNb processing circuit scrubber and ESP with the solid residues to be disposed of in the Solid Residue Storage Facility. Classification of work areas and workers • The Applicant has defined the whole of the Project Site within the fence-line as a “supervised area” (as defined in ARPANSA, 2005). Within this broader area, the open cut would be defined as a “controlled area” as would the milling and crushing areas, and the light rare earths processing area. • The Applicant has defined the FeNb processing circuit as a controlled area based on the capture and removal volatilised Polonium 210 and Lead 210 prior to ventilation from the circuit. • Employees working in the controlled areas would be defined as designated radiation workers. Other workers would be defined as “non-designated” radiation workers. Site access control • All visitors entering and departing the Project Site would be required to report to the gatehouse or other nominated locations for registration including time of arrival and departure, and an induction, if required. • Vehicle access would be through a controlled access point and exit from site would require all vehicles having trafficked the controlled area to pass through the wheel wash. Water from the wheel wash and wash-down areas would be collected and settled to remove solids, then treated for re-use at the on-site water treatment plant.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Radiation (Cont'd)	
Greenhouse gas (Cont'd)	Change room facilities - Workers in the “controlled area” (“designated workers”) would be required to change into work clothes at the commencement of their shift and then shower and change into “street clothes” at the end of their shift. This would be a general health and hygiene requirement (not just a radiation requirement) that would be implemented once the Project commences and would continue throughout the life of the Project. - Dirty clothes would be laundered on-site, with waste water sent to an on-site water treatment plant. Establishment of state-wide administrative controls including: - pre-employment and routine medical checks for workers; - inductions and regular training of all employees and contractors; - development of safe work procedures, which includes radiation safety aspects; - procedures to segregate, isolate and clean up contamination or contaminated equipment; - procedures for equipment or materials leaving the controlled area; - mandatory use of personal hygiene facilities (wash facilities) at entrances to lunch rooms and offices; - employment of suitably qualified and experienced radiation safety professionals to assist during the final design, construction and the operational phases of the Project; and - use of a computer-based data management system to store and manage all information relating to radiation management and monitoring. Systems for managing potentially radioactive wastes. - Material such as contaminated equipment and wastes from operational areas, including discarded conveyor belts, rubber lining material, pipes, filter media and used protective equipment would be cleaned on-site and disposed in accordance with approved regulatory controls. - Spill management procedures (in the event a Liquid Residue Storage Facility pipeline did leak/rupture). Install a system to capture and remove volatilised Polonium 210 and Lead 210 prior to ventilation from the FeNb processing circuit. Remove and residues from the scrubbing circuit and combine with other solid residues for disposal in the Solid Residue Storage Facility.
Surface Water	
	Surface water would be managed on site according to quality, namely: - clean water, namely runoff (typically upslope) that is not affected by any disturbed areas or Project-related activity(ies); - dirty or sediment-laden water, namely runoff containing only sediment and originating from disturbed or bare areas within the Project Site; or - contaminated water, namely water with the potential to contain chemicals or salt.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 7 of 28

Environmental Aspect	Management and Mitigation Measure
Surface Water (Cont'd)	
Sediment loss	Sediment loss would be controlled by a series of best management practices including: - diverting surface water runoff away from active works areas; - minimising areas of disturbed ground by: - only disturbing land when works are required; - delineating no-go areas; i.e. controlling access to only those area that would be worked; and - effectively and promptly stabilising ground that has reached its final design form of land that would not be re-worked within 20 days; - implementing ancillary or secondary measures such as: - reducing slope lengths on disturbed surfaces to control soil loss; - using sediment fence or similar sediment traps where necessary; and - using a series of “wet-type” sediment basins and actively managing them to the requirements of Landcom (2004) and DECC (2008d) (See RWC, 2013). - Inspect all surface water control structures at least quarterly and following any rainfall event of more than 10mm in 24-hours to ensure their adequacy and identify where remedial action is required. - Ensure that all potentially salt or chemically laden water is retained within the Project Site and is used for processing operations or is pumped to the Liquid Residue Storage Facility. - Ensure that all potentially sediment-laden water is directed to appropriately designed sediment basins and is either used for processing operations or dust suppression or, following testing to verify the quality of the water is acceptable, is discharged to natural drainage. - Ensure that all surface water flows from undisturbed sections of the Project Site are diverted around disturbed sections and permitted to flow to natural drainage. - Ensure that all roads within the Project Site are constructed in accordance with DECC (2008b). - Ensure that the capacity of existing and proposed water storages to be constructed under the Applicant’s harvestable rights does not exceed 182ML. - Ensure that all areas where reagents or processing-related chemicals or by-products are sealed, banded and, where appropriate, covered, with a suitable sump for the collection and removal of incident rainfall. - Ensure that all areas of proposed disturbance, with the exception of the proposed open cut, are progressively rehabilitated and that surface water control structures are removed once the rehabilitated areas have achieved a 70% cover.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Surface Water (Cont'd)	
Surface water management structures	Surface water management structures that would be constructed within the Project Site would include the following. • Clean water diversions to divert surface water runoff from undisturbed sections of the Project Site around areas of proposed disturbance. • Dirty water diversions to divert sediment-laden water to sediment basins for settling prior to discharge to natural drainage or use for processing operations. • Diversion of dirty water runoff from mineralised ore (ROM Pad) and waste rock emplacement and collection within storage basins. As these basins fill, the water would be pumped to the Liquid Residue Storage Facility to ensure no discharge from the Project Site. • Sealed and bunded areas for the retention of potentially contaminated runoff within the Processing Plant and Project Site Administration Area. Runoff from areas not exposed to potentially contaminating reagents would be diverted to sediment basins for settling prior to discharge to natural drainage or use for processing operations. • Twelve principal sediment and storage basins for the collection of sediment-laden or potentially contaminated water for transfer to the Water Re-use Dam, Process Water Pond or, following settling of suspended sediment, discharge to natural drainage via a stabilised spillway. A range of smaller sediment basins/stormwater retention structures would be constructed as required adjacent to the haul road and down-slope of the Liquid Residue Storage Facility, Solid Residue Storage Facility and Salt Encapsulation Cells as constructed. • A Water Re-use Dam for collection and storage of sediment-laden water for use for dust suppression, processing operations or discharge to natural drainage. • A Process Water Pond for the storage of water from the water pipeline and other water sourced from onsite for use within the processing plant.
Site administration area	Sediment-laden water only, would be drained to sediment basin 1. Excess stormwater ultimately directed to Wambangalang Creek via engineered outlets.
Rail container laydown and storage area	Area concrete sealed and bunded with temporary storage areas for loaded and unloaded containers individually bunded to contain potential spills. Sediment-laden stormwater runoff would drain to sediment basin 3. Excess stormwater ultimately directed to Wambangalang Creek via engineered outlets.
Processing plant area	Mixture of sealed and bunded areas and unsealed areas. Bunded areas to contain a sump. Sediment-laden stormwater runoff would drain to sediment basin 2. Excess stormwater ultimately directed to Wambangalang Creek via engineered outlets.
ROM pad	Runoff from this area drained to a dedicated storage basin (SB12). Sediment from this basin periodically removed and placed in Solid Residue Storage Facility. Diesel pumps installed to pump water to Liquid Residue Storage Facility.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Surface Water (Cont'd)	
Haul road	Drain to a series of sediment basins
Open cut	Initially free-draining and could potentially produce sediment-laden water. Dirty water diversion drains and temporary sediment basins constructed around perimeter or within footprint of open cut. Water pumped to the re-use dam, process water pond, used for dust suppression, or discharged to natural drainage following settling of suspended sediment.
Waste rock emplacement	Runoff into storage basins SB4 and SB5 with sediment removed periodically and placed in Solid Residue Storage Facility. Pumps installed to pump trapped water to Liquid Residue Storage Facility.
Solid residue storage facility	During construction of Solid Residue Storage Facility, runoff diverted to sediment basins. Clean water diversion drain constructed to divert runoff from the catchment of watercourse C from accumulating against the southern embankment. Once constructed, the Solid Residue Storage Facility would be double lined with HDPE or equivalent and would be internally draining.
Liquid residue storage facility	During construction of Liquid Residue Storage Facility, rainfall would be diverted around the exposed surfaces through the construction of diversion banks. Incident rainfall on the exposed surfaces during construction would be diverted to one or more sediment basins. During the operational life of the Liquid Residue Storage Facility cells, water levels would be managed to ensure maximum rate of evaporation is achieved. Liquid Residue Storage Facility isolated from surface water flows and would not discharge to natural drainage. The only losses from the Liquid Residue Storage Facility would be via evaporation. Complete a detailed analysis of wave run-up and (if necessary) provide for management measures as required.
Additional surface water measures	Inspect all surface water control structures at least quarterly and following any rainfall event of more than 10mm in 24-hours to ensure their adequacy and identify where remedial action is required. Ensure that all potentially salt or chemical-laden water is retained within the Project Site and is used for processing operations or is pumped to the Liquid Residue Storage Facility. Ensure that all potentially sediment-laden water is directed to appropriately designed sediment basins and is either used for processing operations or dust suppression or, following testing to verify the quality of the water is acceptable, is discharged to natural drainage. Ensure that all surface water flows from undisturbed sections of the Project Site are diverted around disturbed sections and permitted to flow to natural drainage. Ensure that all roads within the Project Site are constructed in accordance with DECC (2008b). Ensure that the capacity of existing and proposed water storages to be constructed under the Applicant's harvestable rights does not exceed 182ML. Ensure that all areas where reagents or processing-related chemicals or by-products are sealed, banded and, where appropriate, covered, with a suitable sump for the collection and removal of incident rainfall.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Surface Water (Cont'd)	
Additional surface water measures (Cont'd)	Ensure that all areas of proposed disturbance, with the exception of the proposed open cut, are progressively rehabilitated and that surface water control structures are removed once the rehabilitated areas have achieved a 70% cover.
	Ensure that all roads within the Project Site are constructed in accordance with Soils and Construction: Managing Urban Stormwater Vol. 2b (DECC, 2008b).
	Maintain a >20m buffer between the Project Site Administration Area and Watercourse C.
	Inspect all surface water control structures at least quarterly and following any significant rainfall event (to be defined within the Surface Water Monitoring Program – see Commitment 19.2).
	Design and construct any infrastructure with 40m of waterfront land in accordance with the Controlled Activity Approval Guidelines issued by NOW.
Groundwater	
	Ensure a <i>Groundwater Management Plan</i> is prepared by a suitably qualified expert including guidance on interpretation of groundwater data.
	Construct each cell of the Solid Residue Storage Facility and SEC with a double liner, at least one of which is HDPE.
	Construct the Solid Residue Storage Facility and each SEC cell with a leak detection system and leak / seepage collection mechanisms.
	Maintain the leak detection system following the completion of the SECs until such time as leakage is deemed (by hydrogeologist) to be unlikely.
	Install groundwater monitoring bores around the Solid Residue Storage Facility and SECs to monitor for changes in water chemistry which could indicate a leak.
	Construct each cell of the Liquid Residue Storage Facility with a HDPE liner.
	Weld the liner to form a continuous barrier over the internal embankments.
	Adopt and implement a <i>Cell and Liner Construction Protocol</i> which would incorporate the following.
	• Certification of all lining material from the manufacturer prior to delivery to the Project Site. • Registration of all individual batches of the lining material recorded by the contractor. • Construction of cell foundations in accordance with the extents and grades shown on the final drawings. • Preparation of the cell foundations to ensure removal of all roots, rocks and other matter which could impact on the liner. • Procedures for reviewing works completed if delays incurred between cell foundation preparation and liner laying. • Final inspection procedures and contingency measures.
	Adopt and implement a <i>Liner Integrity Testing Protocol</i> which would incorporate the following.
	• Installation of the HDPE lining by an experienced contractor. • Conformance of all lining material and construction methods and testing to the relevant Australian Codes.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Groundwater (Cont'd)	
	• Certification of all equipment prior to the start of installation and at regular intervals during the work. • Testing of the welding of the liner by the contractor and by an independent testing organisation. • Removal and off-site laboratory testing of small sections of the liner and contingency measures.
	Monitor the water balance within each cell, based on on-site monitoring of rainfall, evaporation and discharge.
	Monitor water levels and quality beyond the downstream toe of all external embankments.
	Design and implement a <i>Leak Detection Response Strategy</i> .
	Harvest precipitated salts in accordance with a <i>Salt Harvesting Protocol</i> .
	Manage potential leakage from the Liquid Residue Storage Facility, Solid Residue Storage Facility and SECs in accordance with Commitments 8.1 to 8.12 above.
	Manage potential leakage from the Liquid Residue Storage Facility, Solid Residue Storage Facility and SECs in accordance with Commitments 8.1 to 8.13 above.
	Establish deep rooted vegetation between Liquid Residue Storage Facility Areas 2 and 3 within the proposed Biodiversity Offset Area.
	Include monitoring of standing water levels in <i>Water Management Plan</i> and any significant rise or decline of these levels be investigated immediately.
Terrestrial Ecology	
Avoidance of impacts – native vegetation	The site of the proposed processing operations and related infrastructure has been located over land which has been cleared of most trees for cropping and grazing and has been regularly cultivated for many years, i.e. there is no remnant native vegetation.
	The areas targeted for the positioning of disturbance associated with the management of waste materials and residues generated by the mining and processing operations considered local landforms and vegetation with efforts made to exclude the following areas. • Threatened ecological communities listed under the EPBC and TSC Acts. • The remnant vegetation of Dowds Hill, identified by OzArk (2013a) as a regionally significant remnant. • Larger and intact remnants of native woodland vegetation, in particular, those wooded hill tops to the north of the open cut and north of Dowds Hill. • Major watercourses, several of which contain the Fuzzy Box Woodland on alluvial soils of the Southwestern Slopes, Darling Riverine Plains and Brigalow Belt South bioregions.
	All areas suitable for listing as EPBC Act listed White Box-Yellow Box-Blakely's Red Gum Grassy Woodland and Derived Native Grassland CEEC have been avoided through re-design of the Proposal. Furthermore, 61.8ha of this community would be protected in perpetuity within the Biodiversity Offset Area.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Terrestrial Ecology (Cont'd)	
Avoidance of impacts – native vegetation (Cont'd)	The size and location of the Liquid Residue Storage Facility was redesigned to reduce the impact on the TSC Act Listed NSW Fuzzy Box Woodland on alluvial soils of the South Western Slopes, Darling Riverine Plains and Brigalow Belt South bioregions EEC to 0.1ha (on the margin of the Processing Plant Area). It is likely that in final design of the Liquid Residue Storage Facility, this 0.1ha would be avoided along with the remaining 21.9ha which would be protected in perpetuity within the proposed Biodiversity Offset Area. Undertake Obley Road realignment and clear zone creation activities to limit disturbance to 2.05ha of CW213 White Box - White Cypress Pine - Inland Grey Box woodland on the western slopes of NSW.
Avoidance of impacts – pink-tailed worm-lizard	In order to avoid as many known records of the Pink-tailed Worm-lizard, and minimise the potential for impacts on additional species, the Applicant undertook the following impact avoidance. • The design of the Solid Residue Storage Facility was modified to avoid a known occurrence of the species on moderate quality habitat (Habitat Area 4a). • Several of the proposed cells of the Salt Encapsulation Cells have been modified to avoid impact on high quality habitat associated with a known occurrence of the species (Habitat Area 4e). • The design of Liquid Residue Storage Facility Area 4 was modified to avoid the known recorded and high quality habitat of Habitat Area 6. • Several proposed soil stockpile locations have been discounted due to encroachment of areas of high or moderate quality habitat (in particular Habitat Area 4).
Minimisation of impacts	Noting the largest area of impact would be associated with the Liquid Residue Storage Facility, the Applicant has, at significant cost, continued to modify the processing operations to improve water efficiency. Through this process optimisation, the water required has been reduced by approximately 20% since the Planning Focus Meeting, in turn reducing the area required for the Liquid Residue Storage Facility. Further reducing the areas required for the Liquid Residue Storage Facility, the Applicant has committed to the construction of a reverse osmosis water recycling plant to further reduce the volume of liquid residue discharged to the Liquid Residue Storage Facility. The process and water recycling optimisation has reduced the overall liquid residue generation by 50%, in turn reducing the area required for the Liquid Residue Storage Facility. As the area required for the Liquid Residue Storage Facility has been reduced, the Applicant targeted exclusion of those Liquid Residue Storage Facility Areas located on more ecologically sensitive areas. In particular, Liquid Residue Storage Facility Area 7 to be located on the "Ugothery" property to the north of Dowds Hill would have impacted on areas of two EECs, White Box - Yellow Box - Blakely's Red Gum Grassy Woodland EEC and Fuzzy Box Woodland EEC. Cell C of the Solid Residue Storage Facility has been modified to minimise the area of disturbance to the White Box - Yellow Box - Blakely's Red Gum Grassy Woodland EEC. Ancillary areas of disturbance such as soil stockpiles have also been modified to minimise impacts on EECs. No soil stockpile area is now located over areas mapped as EECs

Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Terrestrial Ecology (Cont'd)	
Mitigation of impacts – vegetation clearing	In order to mitigate the unavoidable impacts resulting from vegetation clearing, the Applicant would implement the following design features, operational controls and management measures. • Induct and train employees and contractors on environmental requirements and procedures. • Only clear sufficient vegetation for the subsequent 12 months operation only. • Ensure that all areas of proposed disturbance are clearly marked on the ground prior to the commencement of clearing campaigns to minimise the potential for over clearing of vegetation. • Install appropriate erosion and sediment control measures prior to vegetation clearing activities. • Directly transfer stripped soil materials onto rehabilitation areas where practicable to maximise the opportunity for retention of the natural seed stock, and thereby maximise the revegetation of the final landform with endemic species. • Spray weeds, where appropriate, prior to the topsoil stripping activities to avoid their proliferation on stockpiles or in subsequently rehabilitated areas • Undertake a program of weed control prior to soil stripping activities and following re-vegetation to ensure native plants are not overgrown during their early periods of growth • Undertake vegetation clearing operations, where practicable, between April and September to limit adverse impacts on tree dependent avifauna and microchiropteran bats. – Engage a suitably qualified ecology expert to undertake a pre-clearance study of all areas to be disturbed and to relocate any identified threatened fauna to suitable habitat. – Undertake all clearing of trees in accordance with a Vegetation Clearing Protocol (VCP). The VCP would require clearing of mature trees to be undertaken as follows. – Check all trees for the presence of nesting or roosting fauna before felling or pushing then start tree removal immediately after visual inspection. – When a tree with hollows requires removal, the tree is to be gradually nudged at intermittent intervals so that any animal occupying a habitat tree has the chance of vacating the area after the initial disturbance period. – Avoid leaving trees on ground unmanaged for more than two weeks as these would quickly become habitat for hollow dependent species. • Familiarise staff undertaking pre-clearing assessments prior to the clearing campaign in order to: – ensure they understand the nature and extent of each stage clearing; – determine what habitats are to be affected, the species which could be effected and how to manage species that may be affected by the activity; and – orientate themselves with the location, nature and extent of unaffected habitat so that they would know the best locations to release relocated fauna.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Terrestrial Ecology (Cont'd)	
Mitigation of impacts – vegetation clearing (Cont'd)	• Salvage tree trunks, major limbs and, if practicable, minor branches for use in rehabilitation of the Project Site or enhancement of the BOA. If material is stockpiled, signs would be erected noting the significance and importance of this material for future rehabilitation and habitat creation. • Confine, where practicable, vehicular access to formed and marked roads and tracks. • Limit vehicle speed limits within the Project Site to limit the potential for vehicle trauma to wildlife. • Following the completion of clearing operations, fence, as appropriate, sections of the Project Site not required for ongoing operations to limit access by non-authorised personnel. • Revegetate the Project Site as described in Section 2.17 (RWC, 2013) and in accordance with a Mining Operations Plan, or equivalent Rehabilitation Management Plan required by DRE, to be prepared prior to the commencement of activities on the Project Site. • Ensure species used during rehabilitation operations are consistent with vegetation community types located within the vicinity of the area to be rehabilitated and are suitable for the proposed final landform and land use. • Monitor all areas of progressive and final rehabilitation and undertake remedial action in the event that rehabilitation does not comply with the relevant completion criteria. • Fully implement the proposed Biodiversity Offset Strategy. • Prepare an Integrated Land Management Plan (ILMP) (incorporating measures for application, measurement and management of the specific activities to be implemented within the proposed BOA) in consultation with the relevant government agencies. OzArk (2013a) has prepared a template for the preparation of the ILMP, following the standard format presented in the Guide to Establishing a Biodiversity Offset Area. Presented as Appendix 17 of OzArk (2013a), the ILMP template provides a detailed outline of the standard and additional management actions to be defined within the ILMP following approval of the proposed BOA (refer to Section 2.17.8.5, RWC, 2013).
Mitigation of impacts – Pink-tailed worm-lizard	Conservation, enhancement and management of known high-quality potential habitat areas. Passive relocation of Pink-tailed worm-lizards from the eastern half of the open cut. Assisted relocation of Pink-tailed worm-lizards from the western half of the open cut. Monitoring and reporting. • Progress reports would be commissioned by AZL to follow each major survey and collection period, i.e. at the end of spring and the end of autumn. These reports would detail the areas surveyed, the animals collected and their relocation positions. It would also report on any modifications to the habitat areas that may be required. • An annual report would be prepared in June of each year to be submitted to both SEWPaC and OEH. This would contain the results of the two survey and collection periods for the year and recommend any changes to habitat modifications that may be required.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Terrestrial Ecology (Cont'd)	
Mitigation of impacts – other threatened species	Sandy creek and river banks in the Central West catchment are known breeding sites for the Rainbow bee-eater. Given there would be some construction required within such habitats for bridge upgrades, the following mitigation measures would be implemented. - Plan all bridge upgrades outside the breeding period (between august to January). - If this timing is not possible, inspect any creek bank to be affected for mouse size / snake sized horizontal holes in the expose incised creek bank. - If suitable holes detected, commission an experienced ecologist to determine if Rainbow bee-eaters could be affected by the activity and manage them accordingly. Limit the speed of all machinery on the Project Site at night (nominally maximum of 20km/h) to reduce the risk of collision with arboreal fauna and nocturnal birds (dunnarts, gliders and owls). Require employees to obey speed limits when travelling to and from work.
Offsetting of impacts	Where the impact on biodiversity cannot be avoided or mitigated, a biodiversity offset area has been proposed.
Aquatic Ecology	
	Iterative refinement of the footprint of the Project Site to reduce the loss of upper catchment area to the smallest rea practicable All new structures across watercourses would be designed and constructed in line with the <i>Guidelines and Policies for Aquatic Habitat Management and Fish Conservation</i> (NSW Fisheries, 1999) and <i>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (Fairfull & Witheridge, 2003). Pipelines across perennial watercourses would be installed by directional drilling (under-boring) methods or possibly hung below the rail line for larger bridge crossings such as that of the Macquarie River. Pipelines across ephemeral watercourses would be installed by trench excavation during periods of no flow within the channels and in accordance with <i>Controlled Activities on Waterfront Land Guidelines 2012</i> for laying pipes and cables in watercourses on waterfront land. To ensure that the remaining riparian corridors are not further impacted by the Proposal, the Applicant would implement the following measures. - Mark exclusion zones around riparian vegetation to avoid potential impacts. - Exclude stock from the riparian corridor within the Project Site. Preparation and implementation of an Erosion and Sediment Control Plan to include the following. - The provision for minimising clearing of vegetation across the Project Site and the appropriate location of silt fences and sediment traps. - Minimise the discharge of sediment from the Project Site and other areas of construction, e.g. water pipeline installation, road upgrades. All hazardous and potentially contaminating materials would be contained within bunded areas and on impenetrable surface to mitigate the potential water contamination from runoff of contaminants.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Aquatic Ecology (Cont'd)	
	Fit a Johnson Screen with a maximum of 2mm mesh and a max approach velocity of 0.4m/s to the Macquarie River pipeline water intake system to minimise loss of eggs, larvae and juvenile fish. The reconstruction of the bridge across Wambangalang Creek would be undertaken in such a manner so as to not to impact upstream habitat or change the current habitat regime of the Freshwater eel-tailed catfish. The design principles outlined in the <i>Guidelines and Policies for Aquatic Habitat Management and Fish Conservation</i> (NSW Fisheries, 1999) and <i>Why do Fish Need to Cross the Road? Fish Passage Requirements for Waterway Crossings</i> (Fairfull & Witheridge 2003) would be incorporated into the design of the bridge. During construction works, flows would be maintained within the creek reflecting the conditions at the time of construction.
Aboriginal Heritage	
Avoid impact -Group A	Exclusion of the following areas of higher archaeological potential. • Remnant vegetation of Dowds Hill. • Larger and intact remnants of native woodland vegetation. • Major drainage lines. Impact on the 26 sites located outside the impact footprint and at no direct or indirect risk of harm would be avoided. The locations of these sites would be clearly marked on mine plans and the areas avoided by all activities associated with the construction and operation of the mine and related infrastructure.
Avoidance with management -Group B	Eleven sites are located adjacent to component disturbance areas and face possible direct impacts. These specific sites would be managed as follows. • Project Site personnel would be alerted to their location and the location of the sites would be shown on mine plans. • Each site would be revisited by a suitably qualified archaeologist before construction, resurveyed and temporarily fenced until earthworks in the general vicinity is complete. • Work crews in the vicinity of any of these sites would be informed by way of an induction as to the site's location and its legislative protection under the NPW Act. All work crews would be informed that the fenced area remains a "no-go" area for the duration of the works. • If, at the time of construction, it becomes obvious that a site in this category would be impacted by the proposed works, the site would be managed as a Group C site with specific management recommendations formulated following the site visit by a suitably qualified archaeologist. One site (TS-GG-01) could suffer over time from modification of the drainage coming from the proposed open cut. Once the eastern half of the open cut has begun, a condition assessment schedule would be implemented to ensure that the site is not being harmed. Prior to the installation of the tailings pipeline and the construction of the haul road between the Processing Area and the Solid Residue Storage Facility, permanent high visibility markers are to be installed along the boundary of the PAD associated with site TV-AS3. The permanent markers are to be installed at minimum 10m spacings where the boundary of the PAD occurs within 25m of the haul road.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Aboriginal Heritage (Cont'd)	
Sites requiring management - Group C	This group includes sites either partially or completely within the impact footprint where cultural material was identified but where sub-surface archaeological deposits are considered unlikely.
	Collected surface artefacts are to be transferred to the custody of the RAP's via a Care Agreement which would be drafted and included in the <i>Aboriginal Cultural Heritage Management Plan</i> for the Project.
	The transfer of custody of the scar-bearing portions of the scarred trees to be impacted would also be subject of a Care Agreement.
Aboriginal Heritage - general	Disturbance on the Project Site, unless appropriately cleared by the RAPs, would remain within the limit of disturbance nominated in the EIS (RWC, 2013)
	Should any other objects or Aboriginal sites be identified during the course of construction, the Applicant would implement an <i>Unanticipated Finds Protocol</i> , as presented in <i>Appendix 5</i> of OzArk (2013b) (RWC, 2013).
	An <i>Aboriginal Cultural Heritage Management Plan</i> (ACHMP) would be prepared, including a Statement of Commitments with respect to the management of the identified (any as yet unidentified) sites. The ACHMP would incorporate the proposed management of sites included in this EIS, measures which have been reviewed by the RAPs for the Proposal.
	The site induction process for all personnel would include Aboriginal cultural heritage as a core component. The information presented would include: • Artefact recognition and implementation of the correct procedure if artefacts are recognised; • The procedures that must be followed if artefacts are identified; and • The penalties if the procedure is not followed.
	Continuing to modify processing operations to improve water efficiency thereby reducing the area required for the largest disturbance footprint, the Liquid Reside Storage Facility.
Historic Heritage	
	Identify on relevant plans all identified sites and ensure that activities in the vicinity of those sites are appropriately managed.
	Avoid impacts on sites DZP-HIF1 and DZP-HIF2 by establishing a fence and buffer zone around the sites.
	Unless unavoidable due to rail line upgrade, avoid DZP HS1.
	Document and record sites DZP-HS2, DZP-HS3 and DZP-HS4, prior to dismantling, and provide this record to Dubbo City Council and the NSW State Archives. Site DZP-HS2 is not recorded as having significance, however, would be documented together with the timber railway crossings to be dismantled and replaced.
	If items of suspected historic heritage significance are identified throughout the life of the Proposal, the following procedures would be implemented. Step 1 – No further earth disturbing works would be undertaken in the vicinity of the suspected item of historic heritage significance. Step 2 – A buffer of 20m x 20m would be established around the suspected artefact. No unauthorised entry or earth disturbance would be allowed within this buffer zone until the area has been assessed. Step 3 – A qualified archaeologist would be contacted to make an assessment of the discovery. Mitigation procedures would then be developed and implemented based on the assessment.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Soils and Land Capability	
Soil stripping	Strip soil material to the depths identified in Section 2.3.3.3 and Tables 2.1 and 2.2 of EIS (RWC, 2013).
	Ensure that soil material to be stripped is maintained in a slightly moist condition during stripping. Material would not be stripped in either an excessively dry or wet condition.
	Grade or push soil into windrows using graders or dozers for later collection by elevating scrapers or loading into trucks by front-end loaders to minimise compaction of soil materials.
	Use soil materials immediately in areas undergoing progressive rehabilitation, where practicable. Where this is not practicable, place soil transported by truck directly into storage or place soil transported by scrapers in thick "lifts" to minimise compaction.
	Minimise compaction of soil materials during grading or pushing of soil into windrows and loading into trucks.
Soil stockpiling	Construct the stockpiles as wind rows within each area, avoiding the construction of a single stockpile covering the entire area.
	Use bulldozers or other equipment to push soil dumped by scrapers into stockpiles (to avoid tracking over previously laid soil by the scraper) whenever possible. If material is deposited directly by scrapers it would be deposited in thick "lifts" to minimise compaction.
	Minimise, as far as practicable, the operation of machinery on soil stockpiles to minimise compaction.
	Ensure that soil stockpiles have a maximum height of 3m for subsoil and 2m for topsoil material.
	Leave the surface of the stockpile with an even but roughened surface to assist in erosion control and seed germination and emergence.
	If long term storage (>3 months) is planned, fertilise and establish an appropriate vegetative cover as soon as possible on all soil stockpiles to be retained for more than 3 months.
	Where practical and when conditions are suitable, allow occasional grazing on the vegetated stockpiles to encourage natural return of organic material, e.g. manure. When grazing livestock on stockpiles, livestock would be removed when the soil is wet enough that stock cause poaching of the soil. Livestock would also be removed when groundcover is less than 60% to encourage survival and growth of the pasture species.
Soil resspreading and rehabilitation	Test the subsoil to ensure that it is not toxic to plant growth. Major threats are salinity that has built up from adjacent liquid residue storage facilities, and elevated levels of some micronutrients from prolonged reducing (waterlogged) conditions.
	Ensure that subsoil to be worked is moist or dry, but not wet.
	Form sub-grade to desired shape prior to application of subsoil.
	Tyne sub-grade (approximately 60cm deep) to provide an undulating boundary and disrupt barriers to water movement from compaction.
	Place subsoil to achieve similar density (or slightly less) than natural subsoil. This would be achieved by placing subsoil in relatively thick lifts (20cm) with an elevating scraper and minimising further traffic on areas where material has been placed.

Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

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Environmental Aspect	Management and Mitigation Measure
Soils and Land Capability (Cont'd)	
Soil respreading and rehabilitation (Cont'd)	Lightly tyne the surface between lifts to reduce creation of slowly permeable layers.
	Prior to respreading, the topsoil would be tested to determine the ameliorants required to achieve the desired level of plant growth.
	Tyne the surface of underlying subsoil material below the depth of compaction to minimise formation of a dense layer at the top the subsoil / growth material.
	Ensure that topsoil is not respread when either excessively dry or wet.
	Minimise, as far as practicable, the operation of machinery / vehicles on respread topsoil material to minimise compaction.
	Place the soil material with only a few lifts from an elevating scraper or similar with sufficient regrading to create a density similar to natural soil.
	Establish vegetation on topsoiled areas as quickly as possible to minimise the risk of erosion from wind or water.
	Establish Land and Soil Capability Classes as nominated in Table 4.71. (EIS, 2013)
Traffic and Transportation	
	Preparation and implementation of a <i>Construction Traffic Management Plan</i> which addresses the following. • Road and bridgeworks during the construction phase and potential impacts for existing road traffic and for vehicles accessing the Project Site. • Utility upgrades adjacent to or across public roads. • Consideration of the respective intersections including temporary speed limits and other controls.
	• Significant deliveries including any oversize and overmass loads and the suitability of the existing road to accommodate them. In particular, consideration of constraints posed by the existing causeway over Wambangalang Creek would be required prior to its upgrade. • Traffic interaction at key intersections where there is a marked increase in traffic. • Arrangements for employees to have suitable access to and from the Project Site. • Impacts on other road users during the construction phase including the school bus, cyclists and pedestrians. • Impacts on the operation of the Zoo. • Avoidance of traffic delays during busy periods such as public holidays, Easter and Christmas holidays.
	Construction of all road and intersection upgrades in accordance with Austroads Standards and Council specifications with suitable dimensional capacity to accommodate the anticipated oversized loads.
	Intersection upgrades to provide simplified traffic interaction and provide appropriate warning(s) relating to the increased volume of heavy vehicles.
	Preparation and implementation of a Code of Conduct for contractors / employees travelling to and from the Project Site. The code would:



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Traffic and Transportation (Cont'd)	
	• identify the designated access routes; • cover the Applicant's expectations with respect to drivers' behaviour, management of speed and fatigue; • require the avoidance (wherever practical) of school bus operating periods; • specific driving protocols when avoidance of school bus periods is not practical; and • include disciplinary responses in the event of non-compliance with the code.
	Regular discussions with the school bus company(ies) to ensure that information regarding school bus routes, times and pick-up / drop-off locations remains up to date.
	The use of car pooling and buses where practical.
	Communication with organisers of "Zoo to Zoo" road cycling-type annual events to minimise impacts on construction activities, mine operations and the events.
	Education of the workforce through inductions, toolbox talks etc.
	Scheduling of shift changes to avoid peak traffic periods in Dubbo by at least 1 hour.
	Payment of a road maintenance contribution to Dubbo City Council commensurate with traffic volumes generated by the Project. Any maintenance contribution would take into consideration the road upgrades that are proposed by the Applicant.
	Upgrade Obley Road to provide a 10m pavement seal (two 3.5m lanes + two 1.5m shoulders) over a 12m formation between the Newell Highway and Toongi Road
	Provide for a 7.5m clear zone on all straight sections, and at least a 9m clear zone on the outside of all curves, of Obley Road between the Newell Highway and Toongi Road. Where the establishment of such a clear zone cannot be attained without impacting on important fauna habitat, e.g. breeding hollows, existing infrastructure, e.g. walkway / cycleway, or encroaching on freehold land, wire rope safety barriers would be installed 500mm from the outer edge of the pavement.
	Upgrade the intersection between Obley Road and the main visitor entrance to the Taronga Western Plains Zoo to provide an extended channelized right turn into the zoo.
	Upgrade the intersection between Obley Road and Toongi Road to provide channelized left turn deceleration lane, an auxiliary right turn acceleration lane on to Obley Road and channelized right turn from Obley Road into Toongi Road.
	Upgrade the crossings of Hyandra Creek, Twelve Mile Creek and Wambangalang Creek.
	Apply an asphaltic concrete seal to 2.4km section of Obley Road from the Newell Highway (200m beyond Zoofari Lodge / Dundullimal Homestead intersections) and 950m section of Obley Road from the Toongi Road intersection.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 21 of 28

Environmental Aspect	Management and Mitigation Measure
Traffic and Transportation (Cont'd)	
	Liaise with Taronga Conservation Society Australia, Dubbo City Council and the RMS regarding possible modification to pedestrian / cyclist access to Taronga Western Plains Zoo and implement if identified as reasonable, feasible and without creating subsequent drainage, amenity of other traffic hazard. Liaise with Taronga Conservation Society Australia, Dubbo City Council and the RMS regarding possible installation of lighting at entrances to the Taronga Western Plains Zoo subject to confirmation as to compliance with relevant standards and agreement of payment of operating costs. Upgrade Toongi Road to provide an 8.5m sealed pavement over a 10m formation. Advise personnel on 'Fatigue Management' as part of Staff induction.
Newell Highway	Consultation with Council and RMS in relation to moving the 60km/hr speed zone on the Newell Highway to the south of the Obley Road intersection (currently located approximately 1km north).
Obley Road	Provision of additional school bus stop pullover areas in consultation with the school bus operator(s) and Council. Consultation with the relevant cycling groups to provide specific consideration of safety aspects associated with their use of the road, particularly where sight distance is limited. Consultation with Council and RMS in relation to moving the 60km/hr speed zone on Obley Road to the south of the Dundullimal Homestead access road.
Toongi Road	Ensure that a suitable access point is established for the existing waste transfer station. Consultation with the relevant cycling groups to provide specific consideration of safety aspects associated with their use of the road, particularly where sight distance is limited. Consideration of intersection design for the Project Site Entrance from Toongi Road to address the risk posed by complacency of Project traffic turning in and out of the Project Site Entrance into Toongi Road (which has very low background traffic).
Rail Crossings	Where possible, scheduling trains outside the peak traffic periods (8:00am to 9:00am and 3:00pm to 4:00pm) to reduce the impact of traffic delays at rail crossings.
Visual Amenity	
Visual Screens	Stockpile Area 1 (refer to Figure 2.6 of EIS) has been designed to be oriented along the western side of the rail easement and would be vegetated with fast growing tree and shrub species to create a vegetated amenity bund. The amenity bund would provide screening of the processing plant operations from vantage points on Toongi Road, The Springs Road and to a lesser extent Obley Road. As establishment of the processing plant would be one of the initial construction activities to be undertaken on the Project Site, the vegetation cover and trees on the soil stockpiles would have 18 months to 2 years to establish prior to commencement of operations The Applicant would consider any reasonable request by a potentially affected resident for assistance to create a visual screen adjacent to their residence through planting of fast growing vegetation and/or landscaping, where such a screen would effectively reduce the visual impact of activities throughout the life of the Proposal.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Visual Amenity (Cont'd)	
Rehabilitation	The outer embankments of the Liquid Residue Storage Facility, Solid Residue Storage Facility, Waste Rock Emplacement and Salt Encapsulation Cells would be progressively rehabilitated. The establishment of a grass cover over these outer embankments would reduce the contrast between the surrounding agricultural paddocks and these structures.
Project Site	Implementation of the proposed BOA, which would incorporate the protection and enhancement of native vegetation across and surrounding the Project Site. Construction of the processing plant and other infrastructure within the Project Site from non-reflective, neutral coloured material.
Lighting	Ensure all construction lighting within the Project Site would be designed to meet the criteria of Zone A2 in AS/NZS 4282:2019. Ensure all light sources would have a correlated colour temperature of 3 000K or less. Ensure streetlights and catwalk lights would be full cut-off fittings with zero tilt. Ensure all fixed floodlights would be forward throw luminaires with a maximum upcast of five degrees. Wherever possible the upcast would be zero. Ensure lights with diffusing covers or visible bare lamps that emit light above the horizontal plane would not be used on the outside of buildings or structures. Ensure where lighting towers are used, they would have a maximum upcast of 5 degrees and use a forward throw distribution. Selection and placement of permanent and temporary lights that: - Are not directed towards, and therefore do not impact on the vision of motorists using, the Newell Highway. - Do not point towards surrounding residences; and - Minimise the 'lume' created by the lights.
Hazardous Materials	
	Sulphuric acid, caustic soda, hydrochloric acid, and sodium sulphide: - Tanks to be maintained within bunded area designed and constructed in accordance with Section 5.7 of AS 3780-1994 (Bunds and Compounds). Anhydrous ammonia: - The storage area would be secured when not in use. - The storage area would be well ventilated. - The storage vessels not exposed to direct sunlight, sparks or flame. - The storage vessels would be securely closed when not in use. Aluminium powder: - The storage area would be kept cool, dry and well ventilated and out of direct sunlight. - The storage tank would be kept away from sources of heat or ignition and out of direct sunlight. - The following materials would not be kept near the storage tank: - Strong oxidising agents. - Water. - Acids.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 23 of 28

Environmental Aspect	Management and Mitigation Measure
Hazardous Materials (Cont'd)	
	All other reagents would be transported, stored, handled and used in accordance with the relevant Material Safety Data Sheet for that material. In order to prevent the escape of liquid materials, the following measures would be taken. • All chemicals would be stored within concrete bunded areas. • Tanker deliveries would occur over sealed areas with kerbing and drainage design preventing any runoff to the environment if a spill occurs. • Spill kits would be provided as appropriate, enabling recovery of small quantities of spilt materials. Long-term or continuous emissions that may arise from plant operations would be addressed via an Environment Protection Licence (EPL) and occupational health and safety management systems.
Hazardous material transport	Road tanker transport (DG Class 8) - HCl (33 wt%), NaOH (50%) • Tanker/vehicle design standards as per the ADG (AS 2809). Thin walled tanker, puncture may occur in a vehicle accident. • Excess flow valves on tanker • Driver training and ADG licensing. • Route specific risk assessment as part of transporter compliance with the ADG. • Driver emergency response procedures Road tanker transport Anhydrous ammonia (DG Class 2.3) • Tanker/vehicle design standards as per the ADG (AS2809). Ammonia tankers have thick walls as they are pressure vessel – difficult to puncture, very unlikely unless a high energy impact (such a train impact or tanker rollover). • Excess flow valves on tanker • Driver training and ADG licensing. • Route specific risk assessment as part of transporter compliance with the ADG. • Driver emergency response procedures. Store all chemicals within concrete bunded areas or within appropriate self-bunded containers. Complete all tanker deliveries over sealed areas with kerbing and drainage design preventing any runoff to the environment if a spill occurs. Provide spill kits as appropriate, enabling recovery of small quantities of spilt materials. Consult with Dubbo Local Emergency Management Committee and engage with Cumboogle and Benolong brigades. Prepare and implement a Bushfire Mitigation Plan which will include: • establishment of hazard reduction and land management activities in order to manage fuel loads within the Project Site (while also managing for conservation of biodiversity); • consideration of appropriate areas for burns, grazing or mechanical hazard reduction would be focused on protecting AZL infrastructure and neighbouring properties; and • formation of first response and patrol strategies would be included to enable appropriate land management for mitigating the spread of bushfires.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Hazardous Materials (Cont'd)	
Hazardous material transport (Cont'd)	Discuss boundary management with the RFS, identify appropriate methods to reduce the potential for a fire to leave the Project Site and include in Bushfire Mitigation Plan.
	Maintain an Asset Protection Zone (APZ) of at least 50m around the open cut.
	Monitor fuel loads within the APZ and reduce as required (in accordance with the Bushfire Mitigation Plan).
	Maintain the internal haul road to ensure safe access and egress from the open cut in the event evacuation is called.
	Maintain accessibility to the water infrastructure within the Processing Plant Area for management of ember attack on the buildings.
	Provide training to site personnel in relation to specific fire fighting tasks and procedures
	Develop Emergency and Evacuation Management Procedures.
	(In the event of a local bush fire event that threatens the safety of personnel), require all personnel within the affected area to assemble at the designated Emergency Assembly Area and complete a head count.
	Ensure refuelling is undertaken within designated fuel bays or within cleared area of the Project Site.
	Ensure vehicles are turned off during refuelling.
	Ensure no smoking policy is enforced in designated areas of the Project Site.
	Ensure fire extinguishers are maintained within site vehicles and refuelling areas.
	Ensure a focus on housekeeping by ASM (Holdings) management.
	Ensure that a water cart is available to assist in extinguishing any fire ignited.
	Establish appropriate maintenance of mechanical equipment that is being used in the natural landscape, i.e. slashers, mowers, belt driven machinery, etc.
	Establish hot work protocols for welding, grinding, oxy work on tenure, including availability of portable water and a lookout for potential ignitions.
	Monitor equipment with exhaust stacks capable of throwing embers.
	Monitor for lightning strikes on tenure after dry electrical storms.
	Minimise the use petrol/diesel vehicles in long grass during hot and dry periods.
	Erect Give Way signs at the exit of the Site to Toongi Road.
	Liaise with Dubbo Traffic Committee and erect appropriate signage at intersection of Toongi and The Springs Roads.
	Advise all truck drivers of the potential conflict between Proposal-related traffic and the general public.
	Prepare and require contracted truck drivers (or Company representatives) to sign a <i>Driver's Code of Conduct</i> identifying minimum standards for driver behaviour.
	Implement a comprehensive <i>Transport Management Plan</i> for construction and Project operation.
	Consult with the relevant government agencies with respect to specifications of the 90m ventilation stack and implement any required visual or other identifiers, e.g. flashing light.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 26 of 28

Environmental Aspect	Management and Mitigation Measure
Socio-Economic Setting	
Social and community	Engage the community surrounding the Project in regular dialogue in relation to the proposed and ongoing operation of the Project and maintain an “open door” policy for any member of the community who wishes to discuss any aspect of the Project.
	Proactively and regularly consult with those residents most likely to be adversely impacted by the Proposal.
	Continue to support community organisations, groups and events, as appropriate, and review any request by a community organisation for support or assistance throughout the life of the Project.
	Consult with residences adjoining the Toongi-Dubbo Rail Line to ensure that all reasonable expectations related to local amenity are met, e.g. fencing or no fencing of the rail easement along Margaret Crescent.
	Implement a comprehensive and targeted environmental monitoring program, provide the local community with access to the results of monitoring and use these results, in consultation with the local community, to improve environmental performance at the Project Site.
	Form and maintain a Community Consultative Committee (CCC), including representative members of the local community and Dubbo City Council. The CCC would be an important forum for reviewing and discussing environmental monitoring and performance, and discussing possible improvements that could be made to operations to improve environmental (and social) performance).
	Regularly brief the CCC on activities within the Project Site and seek feedback in relation to Proposal-related impacts whether real or perceived. In addition, seek advice in relation to the most appropriate manner in which to provide assistance to the community in an effective, fair and equitable manner.
	Advertise and maintain a community complaints telephone line.
Employment and training	Give preference when engaging new employees, where practicable, to candidates who live within the Dubbo Local Government Area over candidates with equivalent experience and qualifications based elsewhere and ensure that the mining and other contractors do so as well. The Applicant has set a target of 80% of the start-up workforce to be drawn from the Dubbo and surrounding LGAs.
	Encourage the involvement of the local Aboriginal community in the workforce.
	Encourage and support participation of locally based employees and contractors in appropriate training or education programs that would provide skills and qualifications that may be of use throughout and following completion of the Project.
Economic Contribution and development	Give preference, where practicable, to suppliers of equipment, services or consumables located within the Dubbo Local Government Area.
	Assist community members and others, as appropriate, to establish complementary businesses in the vicinity of the Proposal where those businesses would provide a benefit to the community through increased economic activity or development.
	Assist Dubbo City Council to promote and encourage economic development that would continue beyond the life of the Project in the area surrounding the Project Site.



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Environmental Aspect	Management and Mitigation Measure
Socio-Economic Setting (Cont'd)	
Economic Contribution and development (Cont'd)	Enter into an agreement with Dubbo City Council, e.g. a Voluntary Planning Agreement, to provide a fair and reasonable contribution to any increase in management or maintenance costs of local services and infrastructure incurred as a consequence of the Project.
Infrastructure and services	Ensure that infrastructure and services installed for the Proposal, including the gas pipeline, electricity transmission line, appropriate buildings and hardstand areas, remain available for alternative uses following completion of the Proposal (provided that such uses are consistent with the final land uses identified in this document or any subsequent approval). Encourage and support, in consultation with the local community, the provision of services to the community (through a VPA). These may include health, education, transportation and other services.
Agricultural lands	Manage Project Site drainage as described and discussed in Section 4.5.4.2 of EIS (RWC, 2013) so as to minimise any changes to downstream water quantity, quality and flooding regime. Maintain agricultural operations on land not required for active mining or biodiversity offsetting purposes. Continue to appropriately manage weeds, pests and bush fire risks on land held by the Applicant in consultation with surrounding landowners. Undertake final landform construction and rehabilitation as nominated in Section 2.17 of EIS (RWC, 2013) (so as to return all but 1 200ha of the Project Site to agricultural production post-Project). Ensure that the land capability of those sections of the final landform to be used for agricultural purposes is similar to the current land capability. Any agricultural land that forms part of the final landform would be more heavily treed than it is at present due to proposed biodiversity and screen plantings.
General	Adhere to all operating conditions, e.g. restrictions on hours of operation and the required standard of facility. Prepare and make available detailed indicative illustrations of the proposed infrastructure and other facilities to be constructed on the Project Site. Implement the recommendations provided in each of the specialist assessments of the Project.
Waste	
	Maintain a register of the types and quantities of wastes produced on the Project Site. Design and maintain storage areas to contain spillages. Segregate and retain recyclable and non-recyclable waste in designated storage areas prior to removal from the Project Site. Keep the Project Site in a clean and tidy condition. Ensure waste is regularly removed from the Project Site by a licensed contractor. Classify all wastes to be disposed of in accordance with the NSW Waste Classification Guidelines. Restricted or hazardous wastes would not leave the Project Site without obtaining prior EPA approval. Clean used bulky bags, drums and pallets within the relevant covered and bunded storage areas in accordance with the product MSDS or relevant Australian Standard. Complete a visual (or other required) inspection to confirm any remnant reagent has been removed. Remove waste materials from the Project Site by licensed waste removal contractor



Table A2.1 (Cont'd)
Updated Table of Mitigation Measures

Page 28 of 28

Environmental Aspect	Management and Mitigation Measure
Environmental Management Systems	
	Incorporate the environmental procedures in an on-site management system. Prepare or update the following monitoring programs, management plans and protocols. • Environmental Monitoring Program. • Dose Assessment Monitoring Program. • Environmental Radiation Monitoring Program.
	• Mining Operations Plan (or equivalent). • Integrated Land Management Plan. • Noise Management Plan (incorporating and Noise Monitoring Program). • Blast Management Plan (incorporating and Blast Monitoring Program). • Air Quality Management Plan (incorporating and Air Quality Monitoring Program). • Water Management Plan: including: – Groundwater Management Plan (including a Groundwater Monitoring Program); – Surface Water Management Plan (including a Site Water Balance, Erosion & Sediment Control Plan(s) and Surface Water Monitoring Program); and – Water Reuse Management Plan; – Residue Storage Facility Management Plan (including a Cell and Liner Construction Protocol, Liner Integrity Testing Protocol, Leak Detection Response Strategy and Salt Harvesting Protocol); and – Surface and Ground Water Response Plan. • Aboriginal Cultural Heritage Management Plan. • Care Agreement (for management of artefacts). • Construction Traffic Management Plan. • Transport Management Plan. • Pink-tailed Worm-lizard Plan of Management. • Vegetation Clearing Protocol.
	• Cell and Liner Construction Protocol. • Liner Integrity Testing Protocol. • Leak Detection Response Strategy. • Salt Harvesting Protocol. • Bushfire Mitigation Plan.
	Incorporate relevant environmental data / information in <i>Annual Reviews</i> .
Black Text = Original EIS (RWC 2013a) including revisions under the Response to Submissions (RWC, 2013b). Blue Text = MOD 1 (the proposed modification).	



Appendix 3

Agency Submissions

(Total No. of pages including blank pages = 21)



DOC22/277571-8

The Department of Planning and Environment
Return via the Major Planning Portal

Attention: Mr Philip Nevill

8 June 2022

Dear Mr Nevill

EPA Advice - Dubbo Project Modification 1 Report - Project Layout and Processing Changes (SSD-5251)

Thank you for the invitation from the Department of Planning and Environment (DPE) sent to the Environment Protection Authority (EPA) on 24 March 2022 seeking comment on Australian Strategic Materials (Holdings) Ltd's (Proponent) Modification 1 Report - Project Layout and Processing Changes (SSD-5251) for the Dubbo Project (Proposal).

The EPA has reviewed the Dubbo Project Modification 1 Report (SSD 5251) dated March 2022 prepared by R.W. Corkery & Co. Pty. Limited on behalf of the Proponent and accompanying appendices and understands that the Proposal relates to the following:

- Construction and operation of:
 - Chlor-alkali Plant for the production of hydrochloric acid and sodium hydroxide for use in on-site processing operations
 - A Brine Concentrator to maximise water recovery
 - A conveyor between the Processing plant and Administration Area and the relocated Salt Encapsulation Cells
- Relocation of:
 - Salt Encapsulation Cells from the approved location southwest of the Open Cut to the liquid Residue Storage Facility Area 3
 - Solid Residue Storage Facility from the approved location west of the Waste Rock Emplacement to the Liquid Residue Storage Facility Area 5
 - Rail Container Laydown and Storage Area from the approved location to an area immediately west of the approved location
- Reclassification of various approved disturbance areas to permit alternate uses
- Realignment of sections of the approved Macquarie River Water Pipeline, located entirely within the Project Site, and an extension of approximately 600m of the pipeline to allow for connection to the water supply bore
- A range of adjustment to the approved Project Site Layout
- Extended construction hours for non-linear infrastructure to be 24 hours a day, 7 days a week
- Extension of the Project Life by eight (8) years from 31 December 2037 to December 2045.

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The EPA provides its comments on the Proposal below:

1. Hours of Construction Operations

The existing approved hours of construction operation are 7am to 6pm Monday to Friday, 8am to 1pm Saturday, and at no time on Sundays or public holidays. The Proposal seeks an extension to the construction hours to 24 hours a day, 7 days a week.

The EPA can support the proposed modification of construction hours. If approved the Proponent will have to make a separate application to vary Environment Protection Licence (EPL) 20702.

2. Road Noise Barrier

The Proponent proposed to modify condition 2 of schedule 3 of the approval SSD-5251 that requires the construction of a 3 m high, 1 km long road noise barrier on land owned by Taronga Western Plains Zoo.

The EPA can support the proposed modification if alternative noise mitigation measures provide noise reduction equivalent to that provided by the approved road noise barrier condition 2 of schedule 3 of SSD-5251. The proponent must develop any noise reduction mitigation measure in consultation with Taronga Western Plains Zoo and the EPA.

3. Chlor-alkali Plant

The modification proposes to construct and operate a Chlor-alkali Plant that has a capacity to produce approximately 100 000tpa of 34% Hydrochloric acid (HCl) and 95 000 tpa of 32% Sodium Hydroxide (NaOH).

The "Ore processing facility" definition in SSD-5251 must be updated to include Chlor-alkali Plant. The EPA requires the Chlor-alkali Plant to be included in the Processing and Design Validation in conditions 21 and 22 of schedule 3 of SSD-5251.

4. Brine concentrator

The modification proposes to construct and operate a Brine concentrator to recover rare metals and rare earth elements for further processing off site and maximise water recovery.

The "Ore processing facility" definition in SSD-5251 must be updated to include the Brine concentrator. The EPA requires the Brine concentrator to be included in the Processing and Design Validation in conditions 21 and 22 of schedule 3 of SSD-5251.

5. Other

The Dubbo Project is subject to EPL 20702 issued by the EPA under the *Protection of the Environment Operations Act 1997* for the scheduled activities of: mining for cement or lime works; chemical storage; extractive industries; mining for minerals; mineral processing and crushing, grinding and separating. If Modification 1 is approved the Proponent will be required to make application to vary their EPL to add schedule activity "Chemical Production".

If you have any questions about this matter, please contact Mr Joshua Loxley on (02) 6883 5333 or by email at info@epa.nsw.gov.au.

Yours sincerely



NARELLE SARGENT

Manager

Regulatory Operations Regional West

From: [Doris Yau](#)
To: [Philip Nevill](#)
Subject: RE: Dubbo Project Modification 1 (SSD 5251 - Mod 1) - Exhibition
Date: Wednesday, 13 April 2022 2:54:48 PM
Attachments: [image001.png](#)
[image003.png](#)

Hi Philip,

Thanks for the referral.

The modification appears to be related to layout changes on several operation of the mining site. In addition, it is going to construct and operate a new processing plant to produce hydrochloric acid (HCl) and sodium hydroxide (NaOH) to support its onsite operation. From the production of HCl and NaOH, it will generate toxic gas Chlorine and flammable gas Hydrogen. These are new source of hazards that have not been identified in the modification report. In addition, it is noted that production capacity of HCl and NaOH were provided in section 3.4.3, however, other details, such as storage buffers for these materials, are not provided. Given the location of the process plant is significantly away from Dubbo town (more than 12km), the modification may have little off-site concern. Notwithstanding, we will request the following information:

1. Besides Dubbo township, please clarify the closest residence located near the site boundary, in particular on the western side of the proposed Chlor-alkali plant.
2. It is noted that the proposed Chlor-alkali plant will have a production capacity of 100,000 tpa of 34% HCl solution and 95,000 tpa of 32% NaOH solution. These are significant production capacity. Please clarify whether the operation are intended to produce as demand and directly feed to the rest of the mining operation, or there will be buffer storage tanks on-site. If so, please provide the volume of the buffer storage tanks.
3. Please clarify whether concentrated HCl and concentrated NaOH will be produced as part of the process.
4. From Chlor-alkali plant, Chlorine and Hydrogen will be produced. Chlorine is understood to be used to produce HCl, but Hydrogen is a by-product. Please clarify:
 - a. The anticipated quantity of production and production rate for Hydrogen and Chlorine from the ion exchange membrane process
 - b. How these hydrogen will be handled on site (e.g. vented through a stack or feeding to other operations)
 - c. What are the mechanism in place to prevent release of hydrogen and chlorine from the Chlor-alkali plant.

Depending on the response, we may request additional information to clarify the risk to offsite.

Regards,
Doris

Doris Yau

Team Leader - Hazards

Industry Assessment | Department of Planning and Environment

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*The Department of Planning and Environment acknowledges that it stands on Aboriginal land.
We acknowledge the traditional custodians of the land and we show our respect for elders past, present
and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing
commitment to providing places in which Aboriginal people are included socially, culturally and economically.*

From: Philip Nevill <Philip.Nevill@planning.nsw.gov.au>

Sent: Friday, 25 March 2022 2:08 PM

Subject: Dubbo Project Modification 1 (SSD 5251 - Mod 1) - Exhibition

Dubbo Project Modification 1 – Project Layout and Processing Changes (SSD 5251 - Mod 1)

Good afternoon,

The Department of Planning and Environment has received a Modification Application and Modification Report for the Dubbo Project Modification 1 - Project Layout and Processing Changes (SSD-5251).

The Modification Report will be publicly exhibited from **30 March 2022** to **19 April 2022** and can be viewed at the following link:

<https://www.planningportal.nsw.gov.au/major-projects/projects/mod-1-project-layout-and-processing-changes>

The Department invites you to provide a submission on the modification application. Please see the attached exhibition notice for further information.

Any questions, please contact me on the details below.

Kind regards,

Philip Nevill

Senior Environmental Assessment Officer

Energy and Resource Assessment | Department of Planning and Environment
4 Parramatta Square | 12 Darcy Street | Locked Bag 5022 | Parramatta NSW 2150
T 02 82751036 E philip.nevill@planning.nsw.gov.au



*The Department of Planning and Environment acknowledges that it stands on Aboriginal land.
We acknowledge the traditional custodians of the land and we show our respect for elders past, present
and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing
commitment to providing places in which Aboriginal people are included socially, culturally and economically.*

14/04/2022

WST12/00029/11 | SF2012/004812

The Manager
Resource and Energy Assessments
Department of Planning, Industry and Environment
GPO Box 39
Sydney NSW 2001

Attention: Philip Nevill

Dear Mr Nevill

SSD-5251: TfNSW response to Dubbo Project for Mod 1- Project layout and processing changes

Thank you for referring SSD-5251 Dubbo Project for Mod 1- Project layout and processing changes via the Major Projects Portal on the 30 of March 2022 as a part of the public exhibition process.

TfNSW have reviewed the proposed modification 1 to SSD-5251 the Dubbo Project and understand that the modification involves the following changes:

Construction and operation:

- a Chlor-alkali Plant for the production of hydrochloric acid and sodium hydroxide for use in on-site processing operations;
- a brine concentrator to maximise water recovery; and
- a conveyor between the Processing Plant and Administration Area and the Salt Encapsulation Cells.

Relocation of:

- The Salt Encapsulation Cells from the approved location southwest of the Open cut to the approved location of the Liquid Residue Storage Facility Area 3;
- the Solid Residue Storage Facility from the approved location west of the Waste Rock Emplacement to the approved location of the Liquid Residue Storage Facility Area 5; and
- the Rail Container Laydown and Storage Area from the approved location to an area immediately to the west of the approved location.
- Reclassification of various approved disturbance areas to permit alternate uses.
- Realignment of sections the approved Macquarie River Water Pipeline, located entirely within the Project Site.
- Extended construction hours for non-linear infrastructure to 24-hours per day, seven days per week.
- Extension of the Project life by eight years from 31 December 2037 to 31 December 2045.

Realignment of:

- A section of the approved 132kV Electricity Transmission Line.
- The approved gas pipeline to remove the pipeline from the Dubbo – Molong Railway corridor.

TfNSW have reviewed the modification report and associated appendix for the proposed Dubbo Project- Modification 1 and require the following additional information to continue TfNSW

assessment of the impacts to the road network associated in relation to the proposed modifications to the project:

- TfNSW requests that a Traffic Impact Assessment (TIA) be prepared by a suitably qualified person in accordance with the *Austroads Guide to Traffic Management Part 12*, the *Roads and Maritime Supplements to Austroads* and the *RTA Guide to Traffic Generating Developments*. The TIA is to address the following.
- Project schedule:
 - Hours and days of work, number of shifts and start and end times,
 - Phases and stages of the project, including construction, operation and decommissioning,
- Traffic volumes:
 - Existing background traffic,
 - Project-related traffic for each phase or stage of the project,
 - Projected cumulative traffic at commencement of operation, and a 10-year horizon post-commencement,
- Traffic characteristics:
 - Number and ratio of heavy vehicles to light vehicles,
 - Peak times for existing traffic,
 - Peak times for project-related traffic including commuter periods,
 - Proposed hours for transportation and haulage,
 - Interactions between existing and project-related traffic,
- A description of all over size and over mass vehicles and the materials to be transported
- The origins, destinations and routes for:
 - Commuter (employee and contractor) light vehicles and pool vehicles,
 - Heavy (haulage) vehicles,
 - Over size and over mass vehicles,
- Road safety assessment of key haulage route/s (including crash history)
- The impact of the changes to the traffic generation on the public road network and measures employed to ensure traffic efficiency and road safety during construction, operation and decommissioning of the project,
- Assessment of the changes to the traffic generation at the key intersections with the state classified road network due to the proposed changes identified within this modification such as the increase in the construction workforce and the modifications identified above and within section 1.1 Scope of the Modification Report.
- The peak construction workforce based on the construction scheduling inclusive of should be identified (for light and heavy vehicles), include the traffic distribution (light and heavy vehicles) and the AM/PM peaks (cumulative for the light and heavy vehicles) turning at each intersection with the classified road network should be identified.
- An assessment of the warrants for turn treatments on unsignallised major roads as per Figure 3.25 of *Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings Management* is required to be prepared for each key intersection with the state classified road network and will need to take into account the matters identified in the above point and additionally identify the AM/PM background traffic generation along the classified road network. Strategic concept designs for any intersection upgrades to the state classified road network will be required to accompany the TIA. The strategic concept designs will need to be prepared in accordance with the separately attached strategic design requirements for DAs face sheet.

- Proposed road facilities, access and intersection treatments are to be identified and be in accordance with Austroads Guide to Road Design including provision of Safe Intersection Sight Distance (SISD),
- Local climate conditions that may affect road safety during the life of the project (e.g. fog, wet and dry weather, icy road conditions),
- The layout of the internal road network, parking facilities and infrastructure,
- Impact on rail corridors and level crossings detailing any proposed interface treatments,
- Impact on public transport (public and school bus routes) and consideration for alternative transport modes such as walking and cycling,
- Identification and assessment of potential impacts of the project, such as blasting, lighting, visual, noise, dust and drainage on the function and integrity of all affected public roads,
- Controls for transport and use of any dangerous goods in accordance with *State Environmental Planning Policy No. 33 – Hazardous and Offensive Development*, the *Australian Dangerous Goods Code* and *Australian Standard 4452 Storage and Handling of Toxic Substances*,
- Propose a Traffic Management Plan (TMP) to be developed following approval of the EIS, in consultation with relevant Councils and TfNSW. The TMP would need to identify strategies to manage the impacts of project related traffic, including any community consultation measures for peak haulage periods and a Driver Code of Conduct.

In relation to the rail component, TfNSW is the rail authority of the Country Rail Network (CRN) across NSW and Transport Asset Holding Entity (TAHE) is a State – owned corporation that holds rail property assets and rail infrastructure, including the CRN. As of 29 January 2022, UGL Regional Linx (UGLRL) has been appointed by TfNSW to manage the CRN to ensure any potential impacts to rail corridors are considered and addressed.

The site is within and immediately adjacent to the non-operational rail corridor from Dubbo to Molong. TfNSW has reviewed the submitted information and requests additional information in relation to the rail corridor to be provided during Response to Submissions (RtS) stage in order to continue assessment, as outlined under **TAB A**.

Once the Applicant has addressed the issues outlined during the response to submissions stage, TfNSW will provide recommended conditions to DPE.

If you wish to discuss this matter further, please contact Serena Li to discuss the rail corridor impacts via Serena.Li2@transport.nsw.gov.au and Alexandra Power for the road related matters via development.western@transport.nsw.gov.au

Yours faithfully



Alexandra Power
Team Leader Development Services
Development Services West
Regional and Outer Metropolitan

TAB A Additional Information to address impacts along the Country Rail Network

The modification application seeks approval for construction and operation of a range of additional plant, the relocation and realignment of a range of approved Project components, an increase on the approved reagent transportation rate and an extension of the life of the project on the Land (delineated in blue in Figure 1) which is within and immediately adjacent to the non-operational rail corridor from Dubbo to Molong.

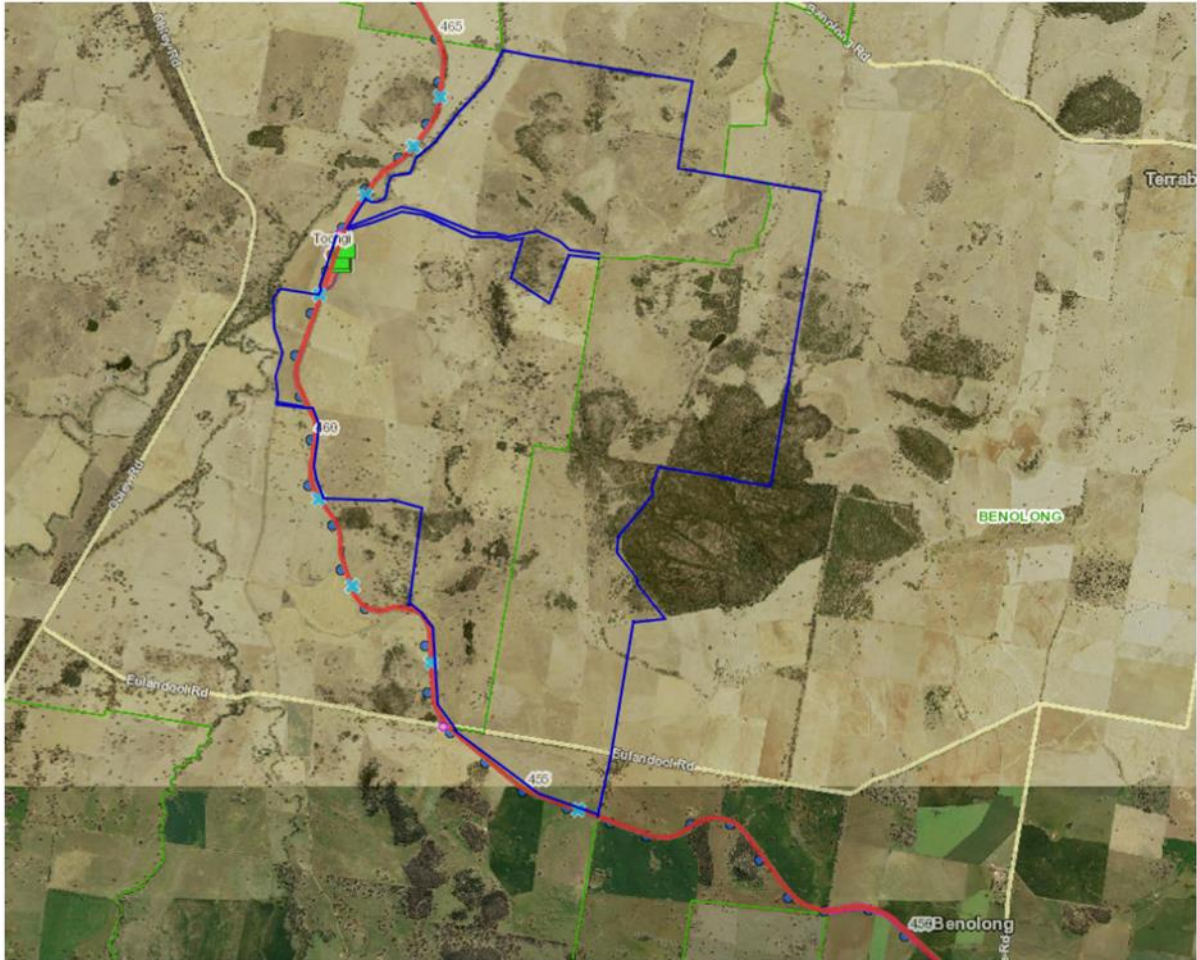


Figure 1: Project Site and Rail Corridor

Excavation in, above, below or adjacent to rail corridors

Comment

The proposal seeks constructions works for a processing plant, administration area, construction of Chlor-alkali plant, the rail container Laydown and storage area, which appears to involve the penetration of ground. No further design details are provided to address Section 2.98 of the *State Environmental Planning Policy (SEPP) (Transport and Infrastructure) 2021* (previously Clause 86 of the ISEPP 2007) to confirm if there will be excavation greater than 2m in depth within 25m of the rail corridor.

Recommendation

The Applicant is requested to address the matters outlined in Section 2.98 of the SEPP (Transport and Infrastructure) 2021 applies. If the matters are relevant, the Applicant will need to contact TfNSW to ascertain the documentation requirements that will need to be addressed as part of the response to submissions.

Stormwater Management

Comment

Stormwater management and documentation has not been provided in this modification application to confirm if there will be any stormwater discharge into the rail corridor as a result of this modification application.

Recommendation

The Applicant is requested to confirm if there will be any stormwater discharge into the rail corridor during RtS stage and provide additional design documentation and calculations to confirm post development flows to not exceed pre-development flows (if required).

Reopening of Toongi Line for Option A

Comment

The Modification Report indicates that the Applicant elected Option A – Rail (to Toongi) and Minor Road as its transportation following completion of a review of transport options in consultation with relevant government agencies and infrastructure managers in accordance with condition 42 of Development Consent to SSD 5251. As of 29 January 2022, UGL Regional Linx (UGLRL) is the Rail Infrastructure Manager (RIM) appointed to manage the CRN on behalf of TfNSW. It is understood that discussions have been held with TfNSW on the feasibility of reopening the railway line to allow Transportation Option A.

Recommendation

The Applicant is requested to provide UGLRL as the rail infrastructure manager for the CRN on behalf of TfNSW with documentation demonstrating that UGLRL (or the previous RIM – John Holland Rail) has been consulted for Option A and provide documentation demonstrating consultation with JHR or TfNSW in respect of the movement of trains and upgrades of the Molong to Dubbo rail line from Dubbo to Toongi in accordance with condition 43 of Development Consent to SSD 5251.

Please forward these documents to Andrew Burton for review via andrew.burton@uglregionallinx.com.au

Landowner's consent

Comment

A portion of the site is within the Corridor Land that is owned by Transport Asset Holding Entity (TAHE). There is an existing lease between TfNSW and the Applicant including an access and compensation deed. The access and compensation deed does not grant consent for other activities on or under the Corridor Land without TfNSW's prior written consent. Landowner's consent has not

been provided from TAHE to support lodgment of this modification and evidence is requested.

Recommendation

The Applicant is requested to provide evidence if it has obtained landowner's consent for the purpose of lodgment of this modification. To arrange for landowner's consent from TAHE, please contact Andrew Burton from UGLRL to coordinate between the Applicant and TAHE via andrew.burton@uglregionallinx.com.au

A fact sheet to assist developers prepare their submission

Strategic design requirements for DAs



Context

Development applications (DAs) will often include or require road infrastructure upgrades to enable people to access the development safely and/or mitigate the impacts of the development on the surrounding road network. For instance:

- a rural property access treatment, a widened shoulder, or a raised central median
- a pedestrian refuge, a bus lane or bus bay, new or relocated kerb and channel
- an intersection upgrade such as turning lanes, a roundabout or traffic signals
- additional through lanes, a realignment, a new overpass or an interchange.

TfNSW approvals are required under the *Roads Act, 1993* for works on State roads and traffic signals on any road. While these approvals are generally provided post development consent, TfNSW requires developers to provide a strategic design for the road infrastructure upgrades as part of their DA submission to:

- clarify the scope of works
- demonstrate a compliant design (in accordance with Austroads guides and TfNSW supplements) can be constructed within the road reserve (or land available)
- allow the consent authority to consider the environmental impacts of the upgrades as part of their determination under Part 4 of the *Environmental Planning and Assessment Act, 1979*.

In doing so, the strategic design provides TfNSW, the consent authority and the developer with confidence the development can proceed and will help streamline the post consent process.

When does TfNSW require a strategic design?

TfNSW requires a strategic design for road infrastructure upgrades on State roads and/or traffic signals (new or modifications to existing) on any road.

In most cases, the strategic design should be prepared AFTER the traffic analysis has been completed. While TfNSW recognises it can be beneficial to prepare a strategic design early in the process to gain some understanding of what can be achieved, proceeding directly to strategic design may ultimately lead to significant redesign work being required.

How much detail does TfNSW require?

The level of detail required will depend on the scope of the upgrades and the road environment. The key factors to determining the detail required include the width of the road reserve, the topography and the extent of widening/scope of works. Generally, TfNSW will require either:

1. a 2-dimensional plan overlaid on aerial photography; or
2. a 3-dimensional plan overlaid on ground survey, lidar or the like.

The scenarios and requirements for each of these options are detailed on the next page.

2-dimensional plan overlaid on aerial photography

This will suffice in less constrained environments where it can be easily demonstrated a compliant design can fit within the road reserve. The design needs to include the following:

- PDF format and, if available, CAD file in DGN or DWG format
- North point
- Road names
- Proposed edge of pavement
- New pavement shown as shaded
- Proposed line and pavement markings
- Proposed medians including type (raised or painted)
- Proposed footpaths and/or cycle ways
- Proposed safety barriers
- Property boundaries (from mapping program)
- Sight distance checks
- Proposed regulatory signage (e.g. parking restrictions, speed zone changes)
- Trees to be removed
- Hazard free zone (clear zone)
- Dimension all proposed design elements (incl. line marking)
- Typical section/s
- Turning paths of design vehicle at 15km/h.

3-dimensional plan overlaid on ground survey, lidar or the like

This will be required in more complex environments, where there are topographical constraints and/or the extent of widening or scope of works is significant and/or upgrades have the potential to impact on existing property boundaries. The design needs to include the following:

- CAD file in DGN or DWG format AND a PDF version
- North point
- Road names
- Proposed edge of pavement
- New pavement shown as shaded
- Proposed kerb and channel
- Proposed batters
- Proposed line and pavement markings
- Proposed medians including type (raised or painted)
- Proposed footpaths and/or cycle ways
- Proposed safety barriers
- Vegetation-tree trunks and foliage, including trees to be removed

- Cross sections
- Long sections
- Property boundaries
- Sight distance checks displayed as sections
- Proposed regulatory signage (e.g. parking restrictions, speed zone changes)
- Hazard free zone (clear zone)
- Dimension all proposed design elements (incl. line marking)
- Turning paths of design vehicle at 15km/h.

Significant or specific road infrastructure upgrades

The requirements listed in this document are the baseline requirements for the majority of DA related road infrastructure upgrades. For significant or specific road infrastructure upgrades additional information may be required to clarify the scope of works, demonstrate a compliant design can be constructed and allow the consent authority to consider the environmental impacts. For instance, this additional information may relate to drainage, utilities, road safety audits and design reports.

What if I am not sure and/or want pre-DA advice?

TfNSW encourages developers to engage with us before lodging their development application by contacting our teams (refer to emails below).

As highlighted earlier, the process for determining appropriate road infrastructure upgrades should generally be:

1. Traffic analysis and, where appropriate, traffic modelling to consider the impacts and identify appropriate treatment/s in terms of network performance.
2. Strategic design to clarify the scope of those upgrades, demonstrate a compliant design can be constructed with the road reserve (or land available) and allow the consent authority to consider the environmental impacts.

Given the above, it will generally be important to identify and agree on the appropriate treatment before TfNSW can provide advice on whether 2-D or 3-D will be required for the strategic design. In some instances, a hybrid model may be acceptable. That is a 2-D design with some 3-D elements.

Where appropriate, TfNSW will be happy to set up meetings to discuss your development and associated road infrastructure upgrades.

Our Development Services teams

Sydney Region development.sydney@transport.nsw.gov.au

South Region development.south@transport.nsw.gov.au

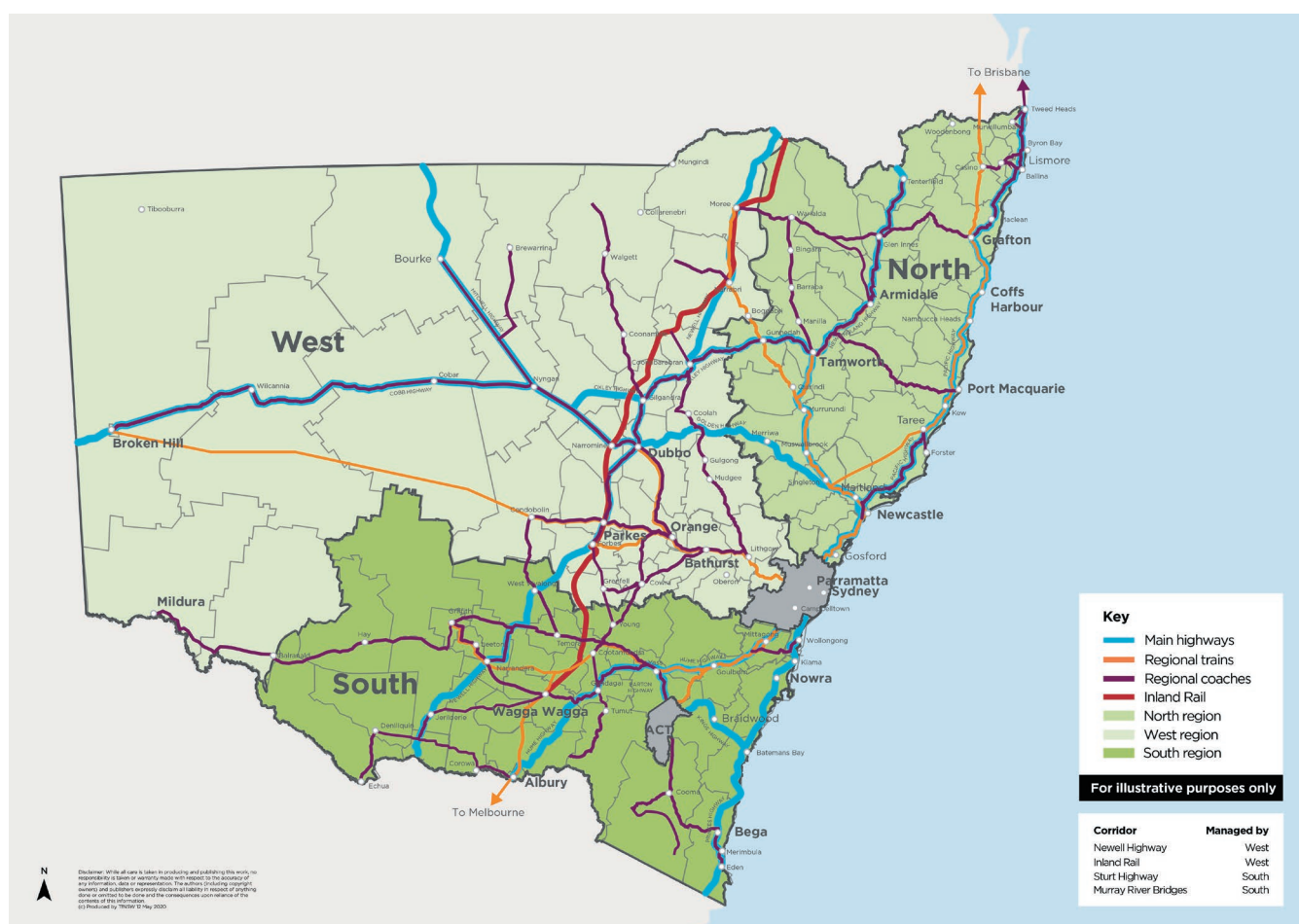
North Region development.north@transport.nsw.gov.au

West Region development.west@transport.nsw.gov.au

Regional Boundaries

with Local Government Areas

Effective 1 July 2020 for Community and Place Branch



Our ref:DOC22/267355

Your ref: SSD 5251

Philip Nevill
Senior Environmental Assessment Officer
Planning and Assessment Group
Philip.Nevill@planning.nsw.gov.au

Dear Philip,

Dubbo Project Modification 1 - Project Layout and Processing Changes (SSD-5251)

Thank you for your e-mail dated 25 March 2022 to the Biodiversity, Conservation and Science Directorate (BCS) of the Department of Planning and Environment inviting comments on The Dubbo Project Layout and Processing Changes Modification Application (MOD1).

BCS has reviewed the Dubbo project Modification 1 Report in addition to the project's consent (SSD5251) approved on 28 May 2015. As BCS understands the proposed modification includes the construction of compounds in areas previously approved for surface disturbance and a range of adjustments to the approved project site layout.

From review of the project's consent, it is noted that the proposed MOD1 would result in the reduction of impacts to native vegetation communities and an increase of impacts to areas classified as cleared, grazed or cropped.

BCS considers that the proposed MOD1 is unlikely to result in impacts to biodiversity values additional to, or exceeding that, previously approved within the project's consent. As such, BCS advises that a biodiversity development assessment report (BDAR) should not be required and that no changes to the existing Biodiversity Offset Area will be necessary for the MOD1 application. BCS has no further specific comment to make on the proposed modification.

If you require any further information regarding this matter, please contact me, via ben.ellis@environment.nsw.gov.au or (02) 8275 1838.

Yours sincerely,



Ben Ellis
AI Senior Team Leader Planning North West
Biodiversity, Conservation and Science Directorate

5 April 2022

From: [Nicole Davis](#)
To: [Philip Nevill](#)
Subject: Heritage NSW - ACH - Mod 1 - Project Layout and Processing Changes (SSD-5251-Mod-1) (Dubbo Regional)
Date: Thursday, 7 April 2022 4:42:00 PM
Attachments:

Hi Phillip,

Heritage NSW has reviewed the Dubbo Project Modification 1 Report - State Significant Development 5251 - R.W. Corkery & Co. Pty. Limited, March 2021, with respect to Aboriginal cultural heritage. Heritage NSW notes that no additional Aboriginal heritage sites would be located in close proximity to disturbance areas proposed as part of the modified Project Site layout, and therefore no additional sites would warrant careful management to ensure avoidance of impacts. Heritage NSW concurs with this assessment, and has no additional comments in relation to this modification proceeding.

Kind Regards
Nicole Davis

Nicole Davis

Manager Assessments
Heritage NSW

Department of Planning and Environment

T 02 4927 3156 **M** 0409 394 343 **E** nicole.davis@environment.nsw.gov.au

Locked Bag 5020 Parramatta 2124

Working Days Monday to Friday



I acknowledge the traditional custodians of the land and pay respects to Elders past and present. I also acknowledge all the Aboriginal and Torres Strait Islander staff working with NSW Government at this time.

Please consider the environment before printing this email.

MINING, EXPLORATION & GEOSCIENCE ADVICE RESPONSE

RDOC22/37107

Philip Nevill
Planning & Assessment Group
Department of Planning and Environment
Locked Bag 5022
PARRAMATTA NSW 2150

philip.nevill@planning.nsw.gov.au

Dear Phillip

Project: Dubbo Project – Modification 1
Stage: Advice on Modification Report
Development Application: SSD-5251-Mod-1

I refer to your correspondence dated 24 March 2022 inviting the Department of Regional NSW – Mining, Exploration & Geoscience (MEG) to provide comments on the Dubbo Project – Modification 1 (the Modification) submitted by Australian Strategic Materials (Holdings) Limited (the Proponent).

MEG notes that the proposed Modification is required to:

- permit additional processing and value adding activities to ensure the efficient production of metal oxide and raw feed products required to support the Applicant's integrated critical metals business
- maximise water recovery and minimise potential water supply constraints identified in the original development application for the Project
- optimise the Project Site layout to ensure efficient construction, processing, transportation and rehabilitation operations over the life of the Project
- accommodate critical Project deadlines and a revised Project schedule, including a two to three year construction and site establishment period and a 20 year mining period.

MEG has reviewed the Modification report and raises no issues at this time.

For further advice on this matter, please contact the Industry Advisory & Mining Concierge unit - Industry Development branch on 02 4063 6860 or mining.concierge@regional.nsw.gov.au.

Yours sincerely



Adam Banister
Senior Advisory Officer - Industry Advisory & Mining Concierge
Industry Development
Department of Regional NSW – Mining, Exploration & Geoscience
31 March 2022

for
Anthony Keon
Executive Director Strategy, Performance & Industry Development
Department of Regional NSW – Mining, Exploration & Geoscience

RDOC22/46265
MAAG0013746

Philip Nevill
Senior Environmental Assessment Officer
Energy and Resource Assessment – Department of Planning and Environment

Via: Major Projects Portal / Email

Dear Mr Nevill,

Re. Dubbo Project Modification 1

I refer to your request of 24 March 2022 for advice regarding the Dubbo Project Modification. The Resources Regulator has reviewed the request and has no further comments. However, to ensure consistency with the regulation of rehabilitation under the *Mining Act 1992*, the Regulator requests the opportunity to review a copy of the draft development consent prior to any approval of the project.

Limitations

It should be noted that the Resources Regulator does not provide any endorsement of the proposed rehabilitation methodologies presented in the plans provided. Under the conditions of a mining authorisation granted under the *Mining Act 1992*, the Resources Regulator requires the holder to adopt a risk-based approach to achieving the required rehabilitation outcomes.

The applicability of the controls to achieve effective and sustainable rehabilitation is to be determined based on site-specific risk assessments conducted by the authorisation holder. An authorisation holder may also be directed by the Resources Regulator to implement further risk control measures required to achieve effective rehabilitation outcomes during the life of the mine.

Regulatory requirements if approved

The proponent will be required to comply with rehabilitation requirements under the mining authorisations prior to the commencement of the works associated with the proposal.

The Resources Regulator may undertake assessments of the mine operators' proposed mining activities under the *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Regulation as well as other WHS regulatory obligations.

Background

The Mining Act Inspectorate within the Resources Regulator undertake risk-based compliance and enforcement activities in relation to obligations under the *Mining Act 1992*. This includes undertaking assessment and compliance activities in relation to mine rehabilitation activities and determination of security deposits.

The Mine Safety Inspectorate within the Resources Regulator is responsible for ensuring the mine operators' compliance with the Work Health and Safety (WHS) legislation, in particular the effective management of risks associated with the principal hazards as specified in the *Work Health and Safety (Mines and Petroleum Sites) Regulation 2014*.

Contact

Should you require any further information or clarification, please contact the Office of the Executive Director (ED.ResourcesRegulator@planning.nsw.gov.au)

Yours sincerely,

A handwritten signature in black ink, appearing to read 'P Day', written in a cursive style.

Peter Day
Executive Director
Resources Regulator

6 April 2022

From: Darryll Quigley <Darryll.Quigley@dubbo.nsw.gov.au>

Sent: Friday, 6 May 2022 4:52 PM

To: Mike Sutherland <msutherland@asm-au.com>

Subject: SSD-5251 Dubbo Project Modification 1

CAUTION: This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Mike,

Council forwarded a response to the Dept., this afternoon.

No objections/issues raised by Council which aren't covered by various licences etc., and agreements controlled by the EPA.

My apologies for the late response. Our Records Department assigned the matter to the Infrastructure Division and we were unaware that a Modification had even been lodged.

Thanks



Darryll Quigley

Manager Building and Development Services

Building & Development Services | Dubbo Regional Council

P 02 6801 4656

Darryll.Quigley@dubbo.nsw.gov.au

<http://dubbo.nsw.gov.au>



<https://www.dubbo.nsw.gov.au/nrl>

How was your experience today?

Click on one of the icons below to let us know!



We acknowledge the Wiradjuri people, the traditional custodians of the land. We pay respects to Elders past, present and emerging of the Wiradjuri Nation.

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Appendix 4

Public Submissions

(Total No. of pages including blank pages = 13)

SE-40603764
Australian National University
Comment

Coonabarabran, NSW

See attachment (1 page).

Wednesday, 06 April 2022

Assoc. Professor Chris Lidman
Director Siding Spring Observatory
Research School of Astronomy and
Astrophysics
Observatory Rd
Coonabarabran, NSW, 2357
Phone: +61 2 6125 0238
Fax: +61 2 6125 0233
Email: christopher.lidman@anu.edu.au
<http://rsaa.anu.edu.au>
www.anu.edu.au

CRICOS Provider No. 00120C

Re: Dubbo Project Modification 1

Dear Review Panel,

The Dubbo Project is located approximately 135 km from Siding Spring Observatory (SSO) and falls within the 200km limit specified in the Dark Sky Guidelines for state significant developments and within the area governed by the Dubbo Regional Council.

Lighting, Art, & Science Pty Limited were engaged by RW Corkey & Co Pty Limited on behalf of Australian Strategic Materials Ltd to conduct an assessment of the sky glow resulting from the construction phase of the Dubbo Project. The project already has approval, so the assessment is limited to the construction phase.

The report, which is provided in Appendix 6, concludes that the lighting associated to the construction will emit less than 1% of the light above the horizontal plane.

It is not possible to assess the likely impact this will have on the Observatory, since the luminous flux is not specified. However, we think it unlikely that the lighting from the construction phase will affect observing conditions above SSO.

We finish by noting the general principles on good lighting noted in section 4.1 of the Dark Sky Guidelines and ask Australian Strategic Materials Ltd to adopt them.

Yours sincerely,



Assoc. Professor Chris Lidman
Director, Siding Spring Observatory
The Australian National University

SE-40754883

Ken Riley

Objection

Toongi, NSW

I am making a submission on behalf of my wife and I regarding the Dubbo Project modification and oppose the extended construction hours (24 hours per day/7 days per week) on the grounds of noise pollution. Inside our house we can hear machinery operating now as site preparation has commenced. While the noise is not obtrusive at this stage, it is an unknown what the noise (and dust etc) levels may be for actual construction and if the noise is excessive over 24 hours every day, it will certainly ruin any semblance of sanity with sleep interrupted constantly. We often have our house windows open (even heading into winter) so constant extreme noise is not welcome. Hopefully the noise for any of the construction (and later operation) will not be excessive, however we believe that it should be kept to normal working hours, NOT 24 hours/day with no break. Being in a rural area, we are aware that there will be some noise (stock, tractors etc), but those noises do not occur continuously and are not unduly noisy.

SE-40891481
Robert Usher
Comment (Objection)

Toongi, NSW

I am neighbours with the mines. I object to the new clause that they have submitted to run 24 hour 7 days a week, unless I can be guaranteed that no noise will affect my property. I don't want them in the next paddock to my abode. If I can be guaranteed that they won't be right next to my property/paddock and the noise is located further away then that's fine. Also I don't want any fumes or spray drifted to my property as well.

I look forward to a reply.

SE-40914378
Name Withheld
Support

East Corrimal, NSW

I support the project, as it provides long term employment opportunities for the region, as well as the potential flow on industries.

SE-41199992
Dubbo Environment Group Inc.
Comment (Objection)

Dubbo, NSW

Please find attachments regarding the views of Dubbo Environment Group Inc. to this project (SSD 5251 Mod-1). We are aware that rare earths are necessary for the progress of renewable energy in our state, for which we are very happy. Our concerns are that precious environmental resources are not sacrificed in favour of the financial gains of the industry. We are also concerned that the dangers of radiation and toxic waste may not be adequately disclosed to the public. Thank you for the opportunity to comment.

See attachment (4 pages)

Submission Into Toongi Rare Earth Mine.

Mod 1 - Project Layout and Processing Changes

Areas of Concern

1. Disturbance Footprint- As the site occupies 780 ha and with the highest point being 400m, it is significant disturbance on the Agricultural surround of Dubbo.
 - **Comment**-One might say it is like the Golden West HWY Denman to Singleton.
2. Salt Encapsulation Cells- Occupies 34.5 ha 17m above adjoining land, containing Brine Concentrate. A significant risk may happen in extreme rainfall, of banks breaching or overflowing.
3. Solid Residue Storage Facility-
 - Maximum embankment height of 368.5m AHD or up to 35m above the natural land surface.
 - • A combined storage volume of approximately 27.7Mt or 22.3Mm³.
 - The approved Solid Residue Storage Facility occupies an area of approximately 101.98ha.
 - **Comment**-With such a huge volume of solid residue, concerns of subsidence, dust, and extreme weather leaching chemical residue and radioactive material into the surrounding outside area, and water table and creeks.
4. Soil Stockpile Areas which cover a total area of approximately 129ha.
 - combined storage volume of 20Mm³.
 - Maximum elevations of 385m AHD (Cell A), 390m AHD (Cell B) and 370m AHD (Cell C), with maximum embankment heights of approximately 40m above the natural surface level.
 - A combined upper surface area of approximately 81ha.

- **Comment**-With such a huge volume of solid residue, concerns of subsidence, dust, and extreme weather leaching chemical residue and radioactive material into the surrounding outside area, and water table and creeks.

5. Chlor-alkali Plant

- The Applicant anticipates importing approximately 65 000tpa of salt to the Project Site for use in the Chlor-alkali Plant to produce approximately 100 000tpa of 34% HCl solution and 95 000tpa of 32% NaOH solution
- Extreme care needed in handling huge quantities of aggressive chemicals.

6. Product Refinement and Value Adding

- Zirconium Basic Sulphate would be either: – calcined (roasted in the presence of oxygen) to produce Zirconia (ZrO_2); or – passed to a dehafniated zirconia (DHZ) and hafnium (Hf) circuit using solvent extraction to produce products that are also calcine to produce dehafniated zirconia (DHZ) and Hafnia (HfO_2).
- Niobium pentoxide (Nb_2O_5) produced by the approved Niobium circuit would be passed to an arc furnace with iron to produce ferroniobium metal.
- **Comment**-A proportion of the Rare Earth Element solutions produced by the approved solvent extraction circuit would be passed to individual rare earth element Precipitation and Calcination Circuits where a range of high purity rare earth element oxides would be produced.

7. TRANSPORTATION

- The Applicant was, at the time of finalisation of RWC (2013), unable to commit to implementation of Option A, namely rail transportation to the Project Site with select materials transported by road. Notwithstanding this, the Applicant committed to undertaking a review of the feasibility of each of the proposed transport options within three years of commencing the development.
 - i. Preferred Option A – Rail (to Toongi) and Minor Road • Rail transportation of reagents direct to the Project Site. • Rail transportation of selected reagents to the Fletcher International Exports Terminal north of Dubbo, and transportation to the Project Site by truck. • Road transportation of remaining reagents (including limestone), fuels and other materials to the Project Site by road using B-doubles, semi-trailers, specialised tankers, or other road registered vehicles.
 - ii. Contingency Option B – Rail (to Dubbo) / Road (to Toongi) • Rail transportation of all bulk reagents to the Fletcher International Exports Terminal north of Dubbo and transportation to the Project Site by truck (excluding B/Double configurations as the road network from the Fletchers International Exports Terminal was at the time unsuitable for B-double trucks).

- iii. Contingency Option C – Road • Road transportation of reagents and other materials to the Project Site using B-doubles, specialised tankers, semitrailers, and other road reg

- **Comment**-Obviously with up to 75 trucks a day, workers vehicles, and 3 trains per week, Dubbo residence and Obley Rd will experience Noise, Dust (possible Radioactive), Chemical spills in the event of an accident.

8. MODIFIED WATER REQUIREMENT AND SUPPLY

- water annual makeup water requirement for the Project would be approximately 4 050L of water for each tonne of ore processed, or an annual requirement for 4.05GL of water. That water was to be sourced from a range of sources including:
 - i. • the Macquarie River (high and general security water);
 - ii. • the shallow alluvial aquifers associated with the Macquarie River.
 - iii. • fractured rock aquifers associated with the Lachlan Fold Belt; and
 - iv. • water harvested under the Applicant's harvestable right.
- Approval Source Allocation (MLpa)
 - i. Comment WAL9191 Macquarie and Cudgegong Regulated Rivers Water Source downstream of the upper limit of Lake Burrendong. 218(MLpa) High security licence.
 - ii. WAL30259 750 (MLpa) General security licence.
 - iii. WAL19994 22 (MLpa) High security licence.
 - iv. WAL3396 282 (MLpa) High security licence.
 - v. WAL3412 34 (MLpa) High security licence.
 - vi. WAL36409 300 (MLpa) High security licence.
 - vii. WAL37691 Upper Macquarie Alluvial Groundwater Source (to be associated with water supply work approval 80 WA726382). 1 402 (MLpa) Approved to extract up to 1 250ML per annum under 80WA726382.
 - viii. Total 3 008(MLpa)
- **Comment**-High dependency on ground water a major concern.

9. Project Life

- Project is expected to formally commence in 2022, with an initial construction and site establishment phase occurring from 2022 to 2024 and mining operations occurring for the following 20 years from 2025 to 2045. This proposed extension to the Project life would therefore account for delays to commencement since development consent was originally granted and provide for the same Project life as originally granted.

10. REHABILITATION AND FINAL LAND USE

- **Comment**-It's hard to see how this site will be left in a state, similar to what it is now, given the Salt, Chemical and overburden will be left at the sit and revegetated???

11. Greenhouse Gas Consideration

- Scope 1 Emissions.....140 040t CO2-e • Scope 2 Emissions.....120 560t CO2-e • Scope 3 Emissions.....1 107t CO2-e • Scope 1 and 2 Emissions260 600t CO2-e • All Scope Emissions.....261 707t CO2-e
 - **Comment**-Greenhouse Gas emission needs to reduce dramatically.
12. Noise
- **Comment**-Noise created by mine (daylight) and Processing (24hrs) will undoubtable effect neighbouring properties.
13. **Comment**-Biodiversity Impacts will be extreme and rehabilitation questionable.
14. Aboriginal Heritage
- The approved Project included unavoidable direct impacts to 14 known Aboriginal heritage sites which were either completely or partially within the approved Project's disturbance footprint. A further 12 known Aboriginal heritage sites were located adjacent to the approved disturbance footprints and therefore required careful management to avoid impacts.
 - **Comment**-Every effort should be made to restrict disturbance of sites and Local Indigenous Consultation must made and consent sort.

Conclusion

The Project should only go ahead if comments mention above are addressed, and The Company agrees to a yearly independent Audit of the Project done by an Australian University. The Audit would have to be available to the general public within 2 weeks of completion.

We are aware that with the mining of rare earths, some uranium will be extracted and stored onsite. The workers and Dubbo region residents deserve to know what the radiation levels are at all times. Uranium -238 has a half-life of 704 million years and uranium -234 has a half -life of 245 000 years. Dubbo Environment Group requests that an independent monitor be engaged to publicly report these levels at least quarterly. This monitor should not be an agency of the Federal or State government, or a private contractor for the ASM company.

Ian George
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 0428845649

SE-41260698
Name Withheld
Comment (Objection)

Dubbo, NSW

The applicant submits that the gas pipeline is no longer proposed to be placed within the rail corridor. The proposal does not appear to explain why this is the case. The applicant should disclose: where it intends to place the pipeline – private land, TSR, Crown Land or a combination; and the reason for the change.

The applicant proposes to bring forward the construction period. In order to ensure the safety of road users on the current narrow and poorly aligned Obley Road and Toongi Roads, the applicant must be required to complete all upgrades to the roads and to construct all associated bridges and improvements prior to the commencement of construction. The movement of large volumes of vehicles and heavy and oversized vehicles must not be allowed until these upgrades are complete.

The applicant should not be allowed to commence operations at its processing plant until the rail infrastructure improvements have been completed.

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