North Surat – Taroom Project
Initial Advice Statement

9 February 2012

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- Revision H - Final
- 9 February 2012

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LIMITATION: The sole purpose of this report and the associated services performed by Sinclair Knight Merz Pty Ltd (SKM) is to complete an Initial Advice Statement on the North Surat - Taroom Project, in accordance with the scope of services set out in the contract between SKM and Cockatoo Coal (Cockatoo). That scope of services, as described in this report, was developed with Cockatoo.

In preparing this report, SKM has relied upon, and presumed accurate, certain information (or absence thereof) provided by the Client and other sources. Except as otherwise stated in the report, SKM has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

SKM derived the data in this report from a variety of sources. The sources are identified at the time or times outlined in this report. The passage of time, manifestation of latent conditions or impacts of future events may require further examination of the project and subsequent data analysis, and re-evaluation of the data, findings, observations and conclusions expressed in this report. SKM has prepared this report in accordance with the usual care and thoroughness of the consulting profession, for the sole purpose of the project and by reference to applicable standards, procedures and practices at the date of issue of this report. For the reasons outlined above, however, no other warranty or guarantee, whether expressed or implied, is made as to the data, observations and findings expressed in this report.

This report should be read in full and no excerpts are to be taken as representative of the findings. No responsibility is accepted by SKM for use of any part of this report in any other context.

This report has been prepared on behalf of, and for the exclusive use of Cockatoo, and is subject to, and issued in connection with, the provisions of the agreement between SKM and Cockatoo. SKM accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

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1. Introduction

1.1. Background

Cockatoo Coal Limited (Cockatoo) proposes to expand its coal mining operations in the Surat Basin, Queensland, through the development of the North Surat Coal Projects (the Projects) which includes the following two elements:

- Collingwood Coal Project (hereafter referred to as “Collingwood”).
- Taroom Coal Project (hereafter referred to as “Taroom”).

The Projects would be located approximately 400 kilometres (km) north-west of Brisbane and 320 km south-west of Rockhampton, between the Central Queensland towns of Taroom and Wandoan on the Leichhardt Highway as depicted in **Figure 1-1**.

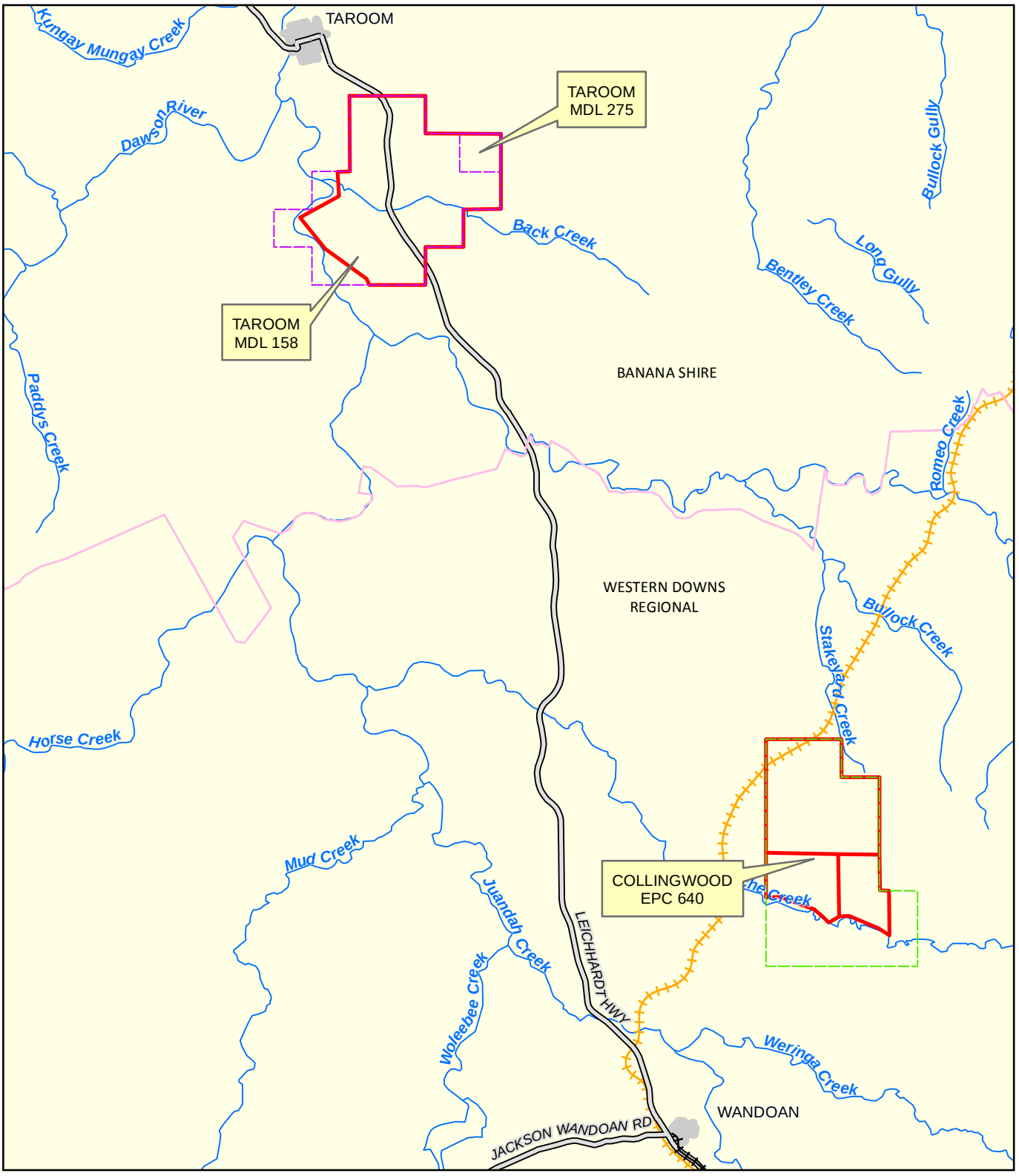
The development of the two greenfield open-cut coal mines would collectively deliver an additional 14 million tonnes per annum (Mtpa) of thermal coal to Australia’s export market based on a seven day per week, 24 hour per day operation. The expected mine life at Collingwood and Taroom is 20 and 25 years respectively. Each operation would include coal extraction by conventional methods, coal handling and processing infrastructure, associated Mine Infrastructure Areas (MIA) and off site infrastructure that links to key regional infrastructure such as power, rail, road and water networks.

The Projects would require new regional infrastructure and services to support operations. These services include water supply pipelines, transmission lines, rail connections and associated infrastructure, and workers accommodation.

The Projects will require capital expenditure of approximately A$1.8 billion (B) to bring it to full production with an expectation of further expenditure for replacement capital over the life of the Projects. In addition, $135 million (M) has already been invested in exploration and project development activities and $113M has been invested in Surat Basin Rail (SBR) and Wiggins Island Coal Export Terminal (WICET) infrastructure. Cockatoo would also contribute a further $1.4B in debt/equity positions for the development of the associated WICET and SBR, which are critical elements in getting the coal from Collingwood and Taroom to market.

Whilst acknowledging the synergies Collingwood and Taroom would have during the construction and operation phases, the complexity of statutory planning requirements for both projects necessitate the preparation of a separate Initial Advice Statement (IAS) for each project and their associated supporting infrastructure. This IAS specifically covers Taroom.

TAROOM AND COLLINGWOOD SITE LOCATIONS



LEGEND

- River/Creek
- Major Highway
- Existing Rail
- Proposed Surat Basin Rail
- Built Up Area
- Taroom Mineral Development Licence
- Collingwood Exploration Permit Coal
- Mining Lease Application
- Local Government Authority Boundary

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Kilometres

Cockatoo Coal Limited

Surat Coal Alliance

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1.2. Purpose and Scope of the IAS

This IAS has been prepared by the Proponent to provide information to:

- Enable the Coordinator-General to determine whether Taroom meets the criteria for declaration as a 'Significant Project' under section 26(1)(a) of the *State Development and Public Works Organisation Act 1971* (SDPWO Act*).*
- Provide sufficient detail to enable advisory agencies and other stakeholders to have effective input into establishing Terms of Reference (ToR) for the Environmental Impact Statements (EIS) to be developed for Taroom.

If the Coordinator-General declares 'Significant Project' status for Taroom pursuant to Section 27 of the SDPWO Act, the Proponent will prepare an Environmental Impact Statement (EIS) under the Act.

The IAS provides an overview of Taroom and potential environmental impacts. The scope of the Taroom project is detailed in **Section 3** and includes:

- Open-cut mining operation and mine infrastructure.
- Supporting local and regional infrastructure (e.g. road, rail, power and water).
- Overall accommodation strategy.

In summary, this IAS includes:

- Background and project description.
- A brief description of the existing socio-economic and environmental conditions.
- Potential environmental and social-economic impacts.
- An outline of the approach to environmental management practices.
- Community and stakeholder engagement.

1.3. The Proponent

Project proponent: Cockatoo Coal Limited

ACN: 112 682 158

Registered Address: Level 2, 66 Hunter Street, Sydney, NSW 2000 Australia.

Cockatoo is an emerging Pulverised Coal Injection (PCI) and thermal coal production company, with operations in Queensland and development projects in Queensland and New South Wales.

Cockatoo was (Australian Securities Exchange) ASX-listed in 2005 and is expanding production with the aim of becoming a major independent coal company, suited to contributing to the supply and ongoing growth in global demand for Pulverised Coal Injection (PCI) and thermal coal, particularly from Asia.

Cockatoo's Mining Lease Application (MLA) for Taroom was submitted on the 21st December 2011 by Cockatoo Coal Limited on behalf of the Taroom Joint Venture. The Collingwood (MLAs) are anticipated to be made in early 2012. Cockatoo Coal currently has two joint ventures in place with Mitsui for the Taroom and Collingwood projects, these being the Taroom Joint Venture and the Collingwood and Ownaview Joint Venture. Mitsui is a 49% stakeholder in both the Taroom and Collingwood projects. Cockatoo Coal and Mitsui are currently amalgamating the joint ventures into the North Surat Joint Venture with the Taroom Joint Venture and the Collingwood and Ownaview Joint Venture being dissolved.

Among Cockatoo's major assets, as of 1st September 2011, were:

- The Baralaba PCI coal mine, which is commencing a major expansion.
- Surat projects – four major development projects in the Surat Basin including Taroom, Collingwood, Woori and Tin Hut Creek.
- Shareholdings and management rights for the Bylong and Hume coal projects in NSW.
- 1,826 million tonnes (Mt) in JORC resources under management.
- 4,300 km^2 portfolio of coal exploration rights across the Bowen and Surat Basins.

Currently the company plans an increase in coal production at the Baralaba Mine to approximately 750,000 tonnes per annum (tpa) in the next 12 to 24 months, then 3.5 Mtpa in 2014.

In addition to the Baralaba Mine, Cockatoo has a number of projects in Queensland and New South Wales. Part of the expansion of the Cockatoo portfolio has involved the purchase of Anglo American's Australian thermal coal development projects which included 51% of Collingwood and Taroom.

The projects within the Surat Basin include:

- Taroom.
- Collingwood.
- Woori.
- Tin Hut Creek.

- Davies.
- Bottle Tree.
- Bushranger.

The projects within the Bowen Basin include:

- Baralaba South.
- Baralaba North.
- Dingo.
- Middle Creek.

Cockatoo's existing operations provide socio-economic benefits to the local community of Baralaba, as well as the broader Queensland region by providing various opportunities for employment. Cockatoo currently provides employment for, in the order of, 200 people and would require up to 3,000 jobs through the construction and operation of all projects, contributing to the State's economy.

1.4. Project Need

The Projects would help to meet future seaborne demand for thermal coal in the traditional North Asia Japan-Korea-Taiwan (JKT) market as well as in emerging markets such as China, India and south-east Asia. Cockatoo believes that the existing strong demand for this product will continue into the future. In response to increasing demand, Cockatoo is strengthening its growth options and has identified quality coal reserves associated with the Collingwood and Taroom sites.

Coal is Queensland's largest export commodity in terms of income (Commonwealth of Australia, 2010). The Queensland Government benefits from the contribution of revenue from the minerals and energy sector, including $2.3B in mineral royalties and $981M in dividends from government-owned rail, port and energy enterprises (Commonwealth of Australia, 2010).

The Projects would contribute to the State's economy and employment opportunities. It is anticipated that the Projects would generate revenue of approximately A$33.6B for coal export sales over the life of the Projects (based on a fixed coal price of $105 per tonne and available reserves), and deliver an estimated $2,755M in state royalties over the same period. The Projects will create employment opportunities in both the construction period and over the 20 to 25 year mining life. Mining activities would also deliver flow-on benefits to supplementary industries, creating additional income and employment opportunities.

The strategic significance of the Projects is also connected to the WICET and SBR projects. In order to meet projected demand for the export of coal from the Surat and Bowen Basins, Cockatoo, in a consortium with seven other Stage 1 owners, have funded the construction of the WICET located in Gladstone Harbour.

The potential for development of a significant export coal industry from the Surat Basin will be enhanced by the planned development of the SBR, connecting the region to the port of Gladstone by developing a new rail freight corridor from Wandoan northwards to the existing Moura-Gladstone rail line, joining at the township of Banana.

Cockatoo has committed to the development of WICET Stages 2/3 and the SBR to support the development of the Surat Basin projects. Both WICET Stages 2/3 and SBR are proposed to be constructed by mid 2015.

The Projects meet key Queensland and Federal government objectives for resource management and economic development of coal resources through the:

- Utilisation of existing resources to the fullest potential.
- Building of investment and trade opportunities.
- Development and expansion of existing markets.

1.5. 'No Project' Option

The alternative option to Taroom is to do nothing (i.e. continuation of existing land use, especially grazing).

The consequences of not proceeding with the Projects would be the non-realisation of benefits, to the detriment of the local, regional, state and national economies. Increased competition in the coal supply market would not be achieved, potential export markets would not be reached and the direct economic benefit from construction expenditure and the longer term benefits of mining operation would be lost.

Forecast demand growth for seaborne traded thermal coal, particularly in Asia, is expected to grow substantially over the next decade. This demand is driven mainly by increased urbanisation and improvements to quality of life for people in this part of the world. If Australia or Queensland were unable to meet this need, it would likely be fulfilled by increased exports from Indonesia, Southern Africa or Eastern Russia. The supply of coal from other sources would represent a significant lost opportunity for Queensland's economy and the people who benefit from it.

Project partners, Mitsui and Co, are already receiving significant interest from UMPP/IPP proponents for Surat Coal to supply projects in India, south coastal China and various other Southeast Asian countries.

2. Regulatory Process and Project Approvals

This section describes the project approval framework and the relevant legislation to be addressed by the Proponent. Due to the location, scale and nature of the project there will be a need for various approvals from Commonwealth, State and local government. The likely approvals required for Taroom are summarised below. However, Cockatoo acknowledges that some components of the Taroom project cannot (at this point in time) be fully defined and that further detailed investigations will be undertaken as part of the feasibility studies. A complete assessment of Taroom, including supporting infrastructure, will be presented in the EIS, along with identification of the various development approvals required for the project under Commonwealth and State Acts and their subordinate legislation.

2.1. Commonwealth Government

Table 2-1 outlines the approvals required from the Commonwealth government.

Table 2-1 Commonwealth Approvals

Legislation	Administering Authority	Approval Trigger	Relevance to Taroom
Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act)	Commonwealth Minister for the Environment. Department of Sustainability, Environment, Water, Population and Communities (SEWPAC)	Matters protected by Part 3 of the EPBC Act, being matters of National Environmental Significance (NES), on Commonwealth land and/or by Commonwealth agencies.	The following matters of NES have been identified and may be impacted: • Listed threatened species communities. • Listed migratory species. • National heritage places. However, although within the catchment of the Fitzroy River, which drains into the Great Barrier Reef, impacts are considered to be unlikely. A referral to SEWPAC is in preparation and will be submitted for determination as to whether the Project is a Controlled Action. If determined to be a controlled action, the Minister will decide on the appropriate process of assessment. This would likely be under the Bilateral Agreement with the Queensland Government whereby the Australian Government has accredited the Queensland *SDPWO Act* EIS process to meet the impact assessment requirements under both Commonwealth and State legislation. In addition, a Historical Heritage Management Plan (technical report) will be prepared.

Legislation	Administering Authority	Approval Trigger	Relevance to Taroom
Native Title Act 1993 (NT Act)	The Attorney-General's Department and Minister for Housing, Community and Indigenous Affairs	Development of an Indigenous Land Use Agreement (ILUA)	Land tenure searches have indicated that parts of the Taroom MLA have existing tenure that means Native Title has not been extinguished. The Iman Group has a Native Title Claim (IMAN #2 QC97/055) over the MLA area and will be the parties with whom an ILUA will be developed.

2.2. State Government

Table 2-2 outlines the approvals required from the Queensland government.

Table 2-2 State Approvals

Legislation	Administering Authority	Approval trigger	Relevance to Taroom
State Development and Public Works Organisation Act 1971 (SDPWO Act)	Coordinator General's (CG) Office. Department of Employment, Economic Development and Innovation (DEEDI)	Section 27 declaration as a Significant Project.	Cockatoo is seeking declaration from the CG of Taroom as a "significant project" and has prepared this IAS in support of this application. If declared a significant project, Cockatoo will follow the EIS process as defined by the SDPWO Act and the CG will manage the EIS process. The EIS will address matters required by the Project's Terms of Reference (ToRs).
		Surat Basin Infrastructure Corridor State Development Area (SBIC SDA) declared under section 77.	Elements of the supporting infrastructure situated within the SBIC SDA may require CG approval for a Material Change of Use (MCU). These include: • Rail spur. • Transmission line and easement. • Water pipeline and easement. • Workforce accommodation.
Mineral Resources Act 1989 (MR Act)	DEEDI	Issue of Mining Lease (ML) for mining purposes	Cockatoo will apply for a ML for the mining activities at Taroom.
Environmental Protection Act 1994 (EP Act) *Environmental Protection Regulation 2008* (EP Regulation)	Department of Environmental Resource Management (DERM)	Granting of a non standard environmental authority (mining activities). Various Environmentally Relevant Activities (ERAs) associated with mining activities.	Taroom is likely to involve a range of ERAs, depending on final construction and operation requirements. These will require permitting by the DERM. Cockatoo will prepare the necessary documentation as part of the EIS process. Cockatoo will need to obtain approval of Environmental Authorities (EA) for Taroom.

Legislation	Administering Authority	Approval trigger	Relevance to Taroom
Sustainable Planning Act 2009 (SP Act)	DERM	Development Permit for Operational Works for a Particular Dam	Permit would be required for the construction of a dam that would require a failure impact assessment. Consultation with DERM in relation to Back Creek diversion and associated in-stream dam structure.
Water Act 2000 (Water Act)	DERM	Take water and/or interfere with flow within a watercourse. Excavating, placing fill and /or destroying vegetation in a watercourse.	A Development Permit would be required for taking or interfering with the flow of surface or groundwater (e.g. dams, diversions, watercourse pumping). A Riverine Protection Permit would be required for excavating or placing of fill, or removing vegetation with a watercourse. However, these are exempt if the works are authorised under the EA (mining activities).
Water Supply (Safety and Reliability) Act 2008 (WSSR Act)	DERM	Dam that could potentially pose a risk to the population.	Failure Impact Assessment maybe required for the Back Creek diversion in-stream dam structure.
Aboriginal Cultural Heritage Act 2003 (ACH Act)	DERM	Compliance with the project's cultural heritage duty of care to avoid harm to or manage cultural heritage.	A Cultural Heritage Management Plan (CHMP) or an ILUA containing a cultural heritage management schedule is required to provide the project's cultural heritage duty of care. A CHMP or ILUA will provide all directions required to avoid harm or manage Aboriginal cultural heritage found in the Taroom MLA.
Queensland Heritage Act 1992 (QH Act)	DERM	Appropriate study, analysis and management of sites and places of state heritage significance, (including archaeological places).	A Historical Heritage Management Plan (technical report) and EIS will be prepared to address heritage matters required under the QHR, and matters required by the Project's ToR.
Nature Conservation Act 1992 (NC Act)	DERM	Taking or destruction of listed flora and fauna species.	Taroom would require a permit to take protected plants and/or animals existing within the project area.
Vegetation Management Act 1999 (VM Act)	DERM	Clearing of vegetation regulated under this Act.	Vegetation clearing permit for clearing of native vegetation associated with supporting infrastructure.

Legislation	Administering Authority	Approval trigger	Relevance to Taroom
Strategic Cropping Land Act 2011	DERM	Trigger maps identifying strategic cropping land (SCL)	The majority of Taroom site (including supporting infrastructure) has been mapped as an area of potential strategic cropping land within the Western Cropping Zone. On-ground verification of the extent of SCL may be completed by Cockatoo, with impacts to be confirmed SCL assessed as part of the EIS.
Fisheries Act 1994	DEEDI	Operational works for constructing or raising waterway barrier works.	Taroom would require barriers across creeks, which may limit fish movement.
Transport Infrastructure Act 1994 (TI Act)	Department of Transport and Main Roads (DTMR)	Impacts on State-roads.	Approval for road closure and realignment of State controlled roads (e.g. Leichhardt Hwy). Approvals under the TI Act for the transportation of oversized plant, equipment and materials during construction and operation would be sought on an as-needs basis during design, construction and operational phases.
	CG / DTMR	Connection to railway/interfere with railway	Connection to the SBR.
Electricity Act 1994	DEEDI	Connection to / interference with electricity infrastructure	Approval for connection to / interference with the Wandoan Substation and transmission of power to Taroom.
Explosives Act 1999	Chief Inspector, as designated under the Act	Storage, use, transportation, possession of explosives	Mining methods will include blasting of overburden.
Dangerous Goods Safety Management Act 2001 (DGSM Act)	Workplace Health and Safety Queensland, Department of Justice and Attorney-General	Storage and handling of dangerous goods and combustible liquids and the safe operation of major hazard facilities	Taroom is exempt from certain parts of the Act for activities pertaining to mining on a mining tenure. However, obligations exist in relation to prevention or control of certain hazards for activities associated with the supporting infrastructure (e.g. construction).

2.3. Local Government

Table 2-3 outlines the approvals required from the Banana Shire Council.

Table 2-3 Local Government Approvals

Legislation	Administering Authority	Approval trigger	Relevance to the Projects
Sustainable Planning Act 2009 (SP Act) *Sustainable Planning Regulation 2009* (SP Regulation)	Banana Shire Council	Approval for MCU and operational works for supporting infrastructure not on ML. Schedule 4, SP Regulation exempts activities authorised under the MR Act and all aspects of development for a mining activity to which an EA (mining activities) applies under the EP Act from assessment under the planning scheme.	Elements of the supporting infrastructure not located on the ML may require assessment and approval under the Taroom Shire Planning Scheme in accordance with the Integrated Development Assessment System (IDAS). Supporting infrastructure includes: • Rail spur. • Transmission line and easement. • Water pipeline and easement. • Access roads. • Workforce accommodation.
Building Act 1975	Banana Shire Council	Buildings works off ML (not otherwise made self-assessable or exempt)	Supporting infrastructure includes: • Rail spur. • Transmission line and easement. • Water pipeline and easement. • Access roads. • Workforce accommodation.
Local Government Act 1993	Banana Shire Council / DERM	Road closures / alterations	Permits for road closures and alterations would be required.
Dangerous Goods Safety Management Act 2001 *(DGSM Act)*	Banana Shire Council	Storage and handling of dangerous goods and combustible liquids and the safe operation of major hazard facilities	Taroom is exempt from certain parts of the Act for activities pertaining to mining on a mining tenure. However, obligations exist in relation to prevention or control of certain hazards for activities associated with the supporting infrastructure (e.g. construction). Depending on quantities, Council may licence the storage of fuel and combustible liquids.

3. Project Description

3.1. Overview

This section provides a project description of the proposed development at Taroom and is divided as follows:

- Location.
- Tenure.
- Geology.
- Resources and reserves.
- Coal handling and preparation
- Spoil waste management.
- Mine infrastructure
- Supporting infrastructure.
- Regional infrastructure.

3.2. Location

Taroom is located approximately 400 kilometres (km) north-west of Brisbane and 320 km south-west of Rockhampton, between the Central Queensland towns of Taroom and Wandoan on the Leichhardt Highway as depicted in **Figure 1-1**. Taroom and Wandoan are approximately 3 km north-east and 43 km south-west of the site respectively.

The coal resources at Taroom lie within the Mineral Development Licences (MDL) Number 158 and 275 (MDL 158 and MDL 275) and the MLA are shown **Figure 3-1**.

3.3. Tenure

Land areas affected by the Taroom MDLs, MLA and supporting infrastructure are listed in **Table 3-1**.

Table 3-1 Areas affected by MDLs, MLA and supporting infrastructure

Tenement	**Area (hectares)[1]**
MDL 275	309
MDL 158	5,566
Project components[2]	
Taroom MLA	5,159
Transmission line (based on 30 metre easement)	145
Pipeline (based on 100 metre easement)	264

Tenement	Area (hectares)[1]
Rail spur (based on 100 metre easement)	300

[1] Areas have been calculated using the conic Lambert projection, GDA 94. Area and distance calculations will be generated using GDA 94, MGA Zone 55 projection in the EIS.
[2] Note that calculations of area have been based on conservative easement widths. Refinement through detailed design of supporting infrastructure will result in a decrease in area affected.

The land on MDL 275 and MDL 158 is mostly cleared and is predominately used for grazing. There are 31 separate properties that are within the MLA for Taroom. A listing of the Real Property (RP) Descriptions for properties that lie wholly or partly within the MLA are provided in **Table 3-2**. Currently, one of the properties covered by the tenure of MDL 275 and MDL 158 is owned by Cockatoo. The JV is currently discussing acquisition of other affected properties with landowners.

Table 3-2 RP Descriptions for Properties within the MLA for Taroom

Lot	Plan	Tenure
6	F402	Freehold
213	F402	Freehold
215	F402	Freehold
224	F402	Freehold
94	F4023	Freehold
56	F4023	Freehold
85	F4027	Freehold
222	F4038	Freehold
214	F408	Freehold
38	FT1016	Freehold
67	FT1024	Freehold
153	FT113	Freehold
154	FT288	Freehold
46	FT579	Freehold
132	FT722	Leasehold
32	FT899	Freehold
225	FT905	Freehold
39	FT906	Freehold
40	FT906	Freehold
181	FT930	Freehold
1	PER6239	Leasehold
147	FT978	Leasehold
155	FT113	Freehold
1	FT921	Freehold

Lot	Plan	Tenure
31	F4010	Freehold
45	FT579	Freehold
47	FT928	Freehold
48	FT602	Freehold
4	FT902	Reserve
66	FT1024	Leasehold
156	FT113	Freehold

Similarly, land along the proposed supporting infrastructure corridors is cleared and grazed. Real Property Descriptions for properties that lie wholly or partly within the preliminary alignments are provided in **Table 3-3**. However, it should be noted that the location of the proposed infrastructure and services will be reviewed as part of the EIS process. Tenure will be confirmed through this process.

Table 3-3 Real Property Descriptions for Supporting Infrastructure Properties

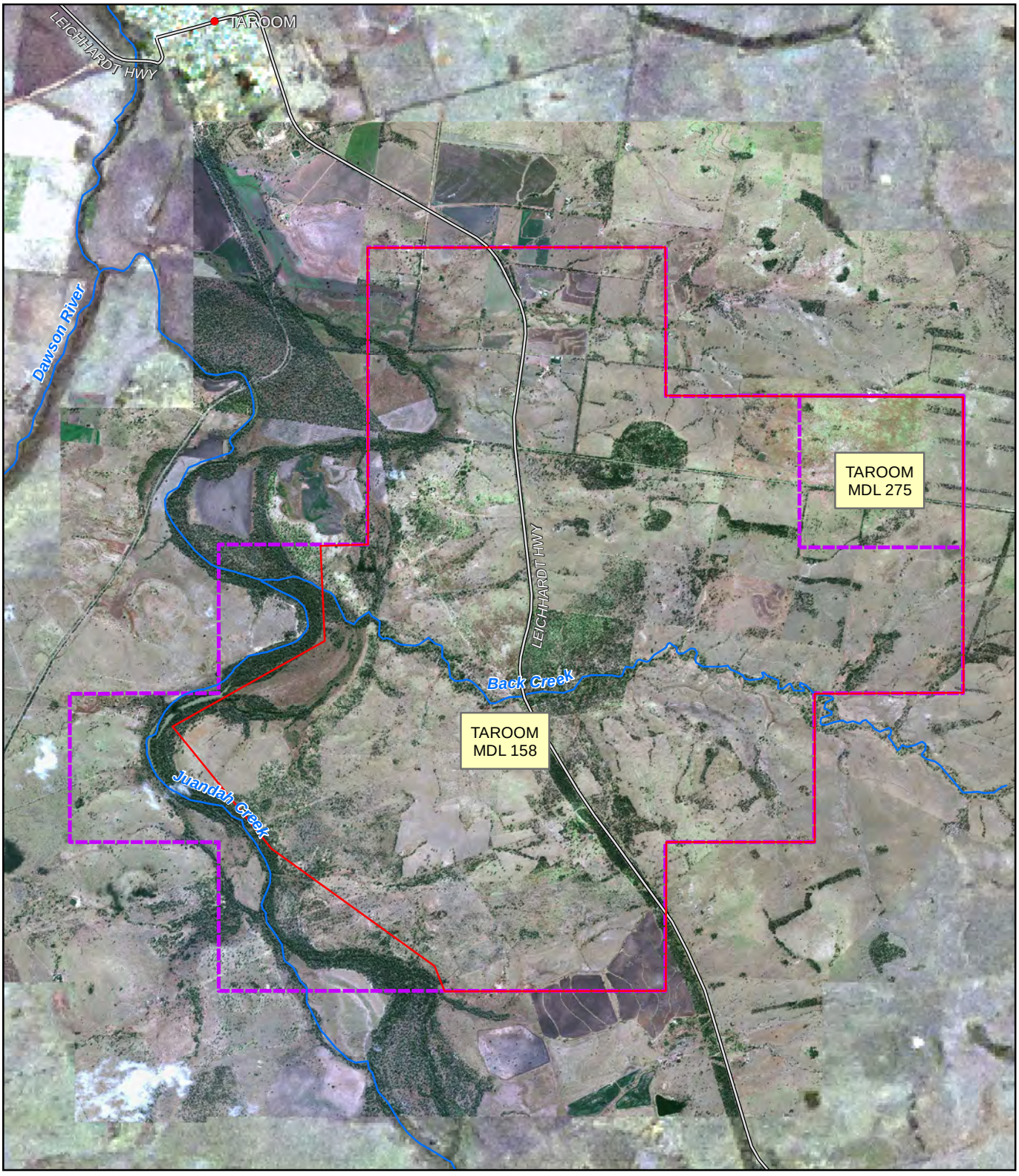
Lot	Plan	Lot	Plan
Rail Spur and Pipeline			
5	FT609	14	FT637
15	FT311	25	FT970
16	FT951	18	FT880
17	FT943	2	FT880
48	FT602	2	FT880
Transmission Line			
27	FT784	56	FT941
44	FT855	90	FT832
25	SP227753	7	FT941
5	SP227753	76	RP895260
58	W64137	K	SP150044
1	AP14260	1	RP204781
2	AP14260	66	FT521
159	SP184938	69	SP137906
01	AP14260	2	RP170076
102	W6415	50	FT991
3	W64139	2	RP170076
4	W64139	5	FT349
98	W6415	160	FT990
98	W6415	140	FT981
59	W64126	36	FT981

Lot	Plan	Lot	Plan
58	W64126	35	FT349
27	W64126	1	RP144130
28	W64126	23	CP900888
29	W64126	168	CP909136
19	W64130	1	SP130877
1	RP203544	01	SP130877
2	RP203544	31	FT146
96	W6415	47	FT928
4	W64137	48	FT602
3	W64131	46	FT579
5	W64134	3	SP107648
6	W64136	1	RP190841
1	W64112	3	SP107648
62	FT833	3	SP107648
4	RP190841		

Tenure of the Taroom deposit is held jointly by Cockatoo Coal (Taroom) Pty Limited (51%) and MCH Surat Basin Investments Pty Ltd (49%). MDL 275 was renewed on 30 April 2010, while MDL 158 was renewed on 30 May 2011.

A single MLA covers the entire project area.

TAROOM



LEGEND

- Major Highway
- River/Creek
- Taroom Mineral Development Licence
- Taroom Mining Lease Application

GDA94
A4 1:70,000

0 1
Kilometres

Cockatoo Coal Limited

Surat Coal Alliance

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3.4. Geology

The Taroom coal deposit is part of the Surat Coal Basin. The coal measures located in the vicinity of the Taroom site occur on the eastern flank of the Mimosa Syncline which controls much of the structure within the lease area for MDL158 and MDL 275. The regional dip of the Taroom coal deposit is approximately 1.2 degrees in a west-south-westerly direction, with a range of 0.2 degrees through to 4 degrees. A number of varying dip zones have been identified running in the north-east south-west direction.

The Taroom area contains at least 35 coal plies that can be grouped into six main intervals. A typical stratigraphic column of the Taroom resource is shown in **Figure 3-2**. The coal intervals exhibit the extensive splitting and rapid variation in ply thickness typical of the Surat Basin. The main coal intervals in top down order are named the T, P, N and M seams with minor discontinuous seam accumulations in the R and S groups.

The T seam consists of 9 main coal plies which reach a maximum cumulative thickness of up to 7 m in the central and north-eastern portions of the deposit. Towards the north, south and to a lesser extent the west the T seam splits and thins rapidly. The north-eastern area is more complex in terms of seam development with a wide range of different working sections possible as the underlying R and S seams coalesce with the T seam.

Each of the lower seam groups (P, N and M) are subdivided in the same manner as the T seam group. Notably, these seams exhibit large variations in seam and interburden thickness over the deposit area. The P seam group is typically 25 m to 40 m below the T seam and reaches a maximum thickness of 3 m. The N seam has a similar distribution to the P seam being best developed in the east and north. The seam can be as thick as 2.5 m and is generally located around 10 m below the P seam, however, the two seams are known to coalesce in places.

The basal seam in the sequence is the M seam. This seam appears to lense out to the north. Elsewhere the seam is generally located 10 m to 20 m below the N seam and attains a maximum thickness of 2.5 m in the east.

The S and R seams are minor in terms of seam thickness and reach their thickest development when in close proximity to the T-seam in the north-east of Taroom.

There appears to be some minor faulting present in the area but the level of exploration is currently insufficient to adequately identify their direction and/or throw.

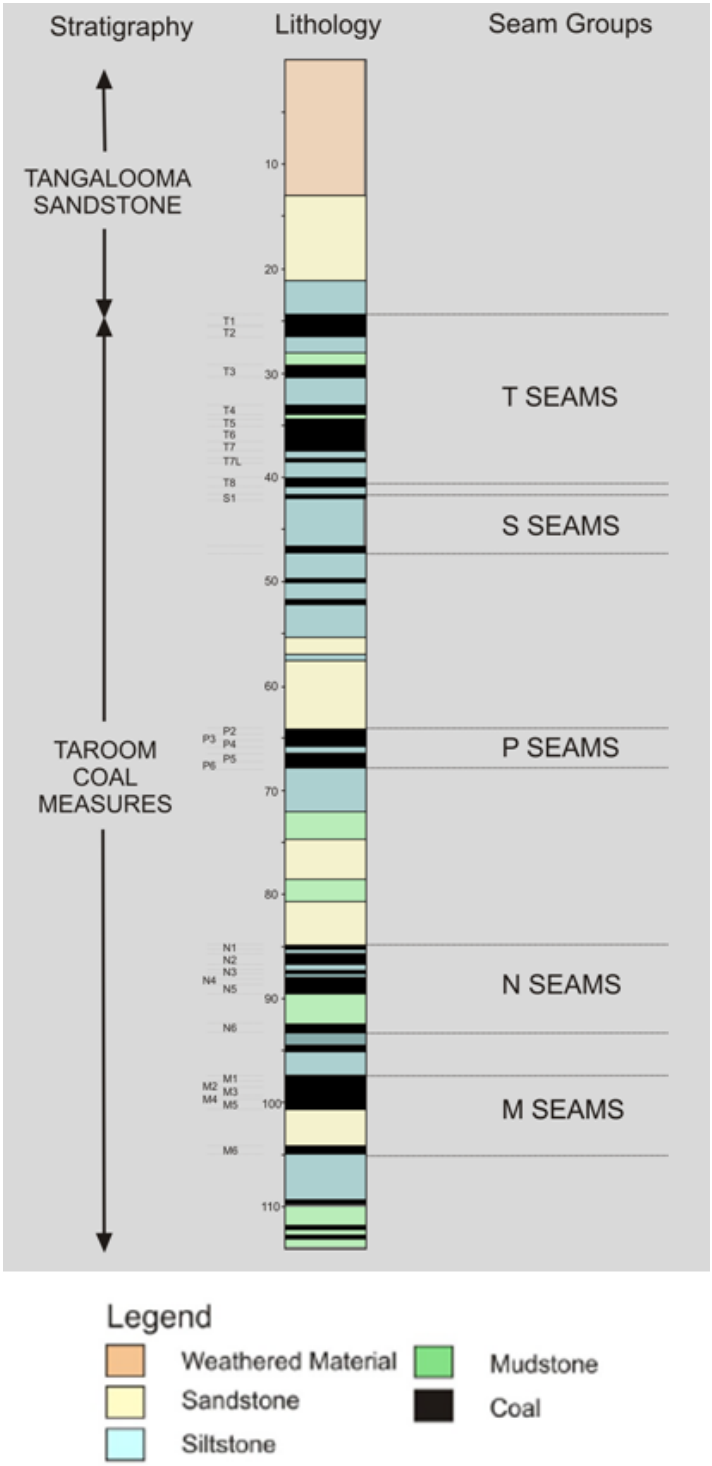


Figure 3-2 Indicative Taroom Stratigraphic Column

3.5. Resources and Reserves

The Taroom resource within MDL 275 and MDL 158 holds approximately 314 Mt of measured, indicated and inferred resource, generating approximately 12 Mtpa ROM coal, based on a seven day per week, 24 hour per day operation yielding 8 Mtpa of product coal. This resource is expected to provide approximately 200 Mt of product coal over an expected 25 year mine life.

The deposit contains a relatively high proportion of thin seams and thin interburden, which suggest that operations would be suited to a selective mining strategy. Information on the washability of coal from these seams would be available following collection of a pre-treated dataset and detailed CHPP simulations.

Pit shell design is constrained by crop lines to the east, the Juandah Creek to the west, strip ratio to the south and a combination of tenement boundaries and strip ratio to the north. A marginal strip ratio of 6:1 bcm/t has been used to define the pit shell boundary which reaches a maximum depth of approximately 120 m.

3.6. Mining

Mining would be conducted nominally seven days per week, 24 hours per day. Conventional truck and shovel methods are the most suitable methods for the relatively thin partings. Historic designs for the original Taroom mine proposal (c1983 CSR Coal Division) were predicated on dragline methods; however these overlooked around half the mineable coal in deeper seams. ROM coal would be processed on-site yielding 8 Mtpa of product coal suitable for export markets. Some lower specification coal suited for domestic power generators may be produced in small quantities. Over the mine life, the Taroom would produce a total of 200 Mt of product coal.

As noted above, it is proposed that the Taroom pit utilises a truck and shovel mining method as the most suited extraction technique for the relatively thin partings. The truck and shovel operation provides flexibility, and copes well with variable geology (such as variable dip, faults, thin sections, etc). Selective mining (as distinct from bulk mining) would be preferable, in minimising dilution and the generation of coal fines. A small crawler dragline could be utilised for some parting removal and rehandle work.

Overburden removal would use electric shovels (up to 110t-class) or 1000t-class excavators loading 240-320t-class rear dump trucks. Mining is proposed down to the M seam (and to the N seam in localised areas), to a maximum depth of 120 m. Interburden removal is likely to utilise smaller class equipment such as 250t-class or 350t-class hydraulic excavators and wheel loaders paired with 150t-class trucks.

The main elements of the open-cut mining operation would be:

- Clearing of vegetation ahead of mining and selective stripping of available topsoil to be stockpiled for later use in the rehabilitation program.
- Drilling and blasting of overburden prior to excavation.
- Loading, hauling and placement of overburden.
- Mining of ROM coal from the six major seam groups of the Taroom Coal Measures.
- Processing of ROM coal through a CHPP to be constructed for Taroom.
- Disposal of CHPP rejects and tailings initially into co-disposal storages (i.e. disposal of coarse and fine rejects together) away from the open-cut excavation, followed by co-disposal within the mined out areas once there is suitable space for the spoil/tailings.
- Progressive reshaping of spoil dumps, replacement of topsoil and revegetation of the mined out and backfilled areas.
- Development of infrastructure, including a rail spur and loop, train load-out facilities, water storages, and office and workshop facilities.
- Transport of product coal by rail to Gladstone for export.
- Construction of water management structures.

Operations would commence as a box cut in the north-east part of the deposit and the pit would develop firstly to the west, then to the south. Mining blocks with a variable alignment would progress from the east to the west. There would be a low stripping ratio at 4.5:1 bcm/t (waste volume/ROM coal tonnes), and relatively shallow pit depths between 20 m and 120 m. The fresh waste rock below the overlying weathered material is expected to require blasting.

Overburden would be transported to in-pit or out-of-pit emplacement areas while ROM coal would be transported to a new CHPP. Product coal would be loaded to trains for transport off the mining lease via a Cockatoo-constructed rail loop that would connect to the proposed SBR.

The Surat Basin Rail Joint Venture proposes to construct the SBR by mid 2015. This would tie into the Moura Railway system near Banana providing a direct link to the Port of Gladstone.

3.7. Coal Handling and Preparation

At this stage, the CHPP and rail load-out facilities would be located to the east of the deposit as shown in **Figure 3-3**. The CHPP would have a capacity of 1,750 t/h ROM

feed, to yield 1,200 t/h of product. The CHPP would be capable of processing up to 12 Mtpa of ROM coal to produce approximately 8 Mtpa of product coal. The plant is likely to operate seven days per week, 24 hours per day.

The CHPP's infrastructure would primarily comprise a ROM pad, ROM coal delivery system, coal washery module, coal waste delivery system (tailings and coarse rejects), clean coal delivery system, product stockpile, offices, fuel farm and workshops. The CHPP would be a system suitably sized to accommodate a maximum coal throughput of 12 Mtpa. Waste streams would include coal tailings, coarse rejects and water which are currently being assessed. The coal flow process design, CHPP design, and reject management are currently being developed for the Project's Pre-Feasibility Studies.

3.8. Spoil Waste Management

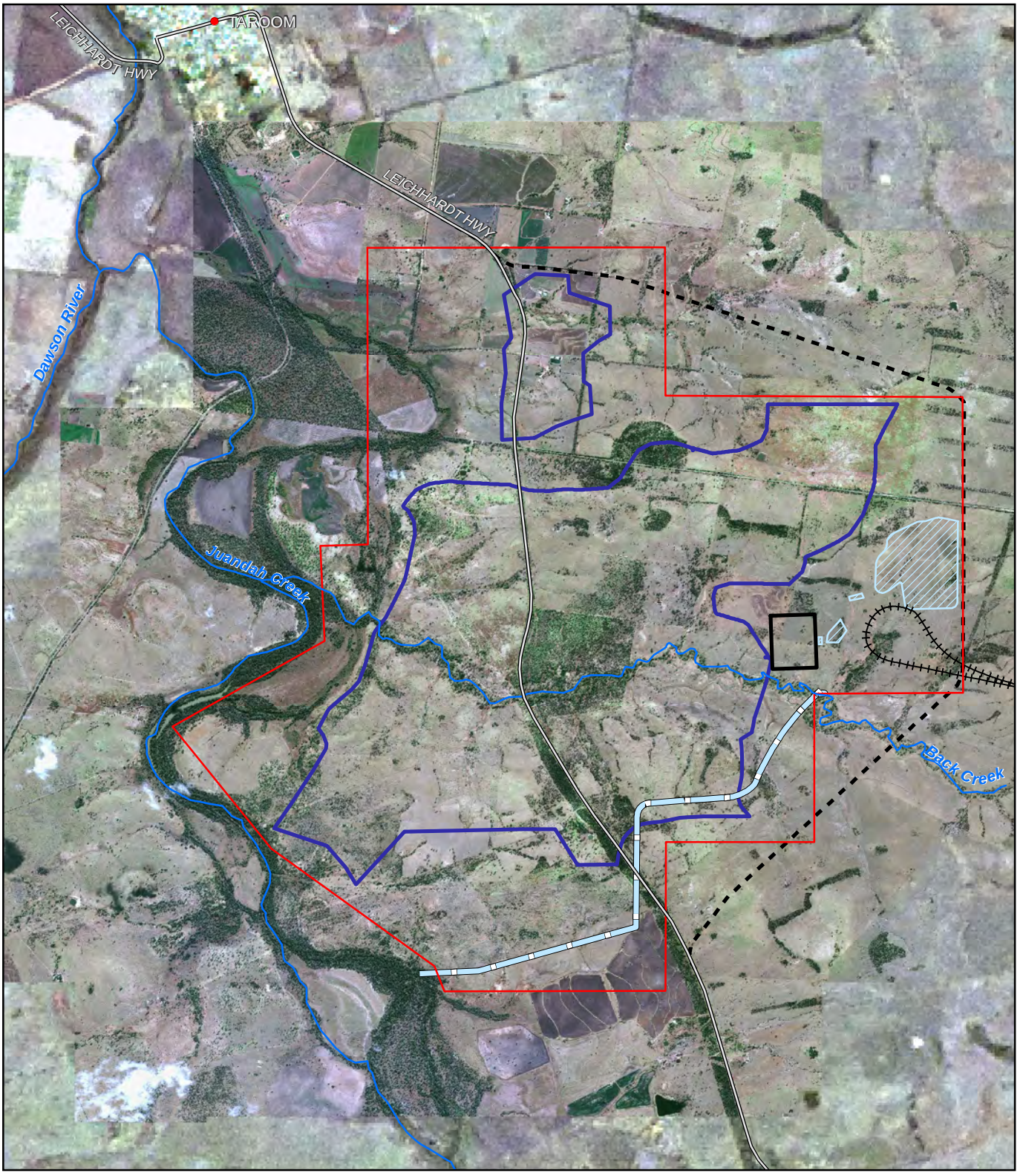
The geometry of the coal deposit makes it amenable to discrete mining blocks with varying orientation depending on scheduling constraints. Mining would advance from a box-cut in the north-east, then progressing to the west and then to the south with the initial overburden disposed of in out-of-pit dumps established on the eastern area of the mining lease. Once a sufficient open-cut pit void area has been established, in-pit spoil dumping would be phased into the mine plan. There may be a requirement to undertake minor rehandling of the spoils at certain stages of the project. Progressive rehabilitation would aim to re-establish a combination of productive grazing land and native scrub similar to remnant vegetation populations in the area.

The mineral waste materials from this mining operation would comprise three streams:

- Topsoil and subsoil. This material would be stockpiled for future landscaping and revegetation.
- Overburden and interburden.
- Coal washery rejects, both coarse reject (gravel-sized crushed stone bands) and fine tailings (predominantly sand-sized and finer).

The mine would require approximately 35 million cubic metres (Mm^3) of tailings/reject capacity. The life-of-mine (LOM) tailings impoundment structure would be constructed from the N satellite pit void, to the east of the main pits.

TAROOM SITE INFRASTRUCTURE



LEGEND

- Major Highway
- Rail
- River/Creek
- Proposed Back Creek Diversion
- Proposed Leichhardt Highway Diversion
- Taroom Mining Lease Application
- Proposed Pit Shell Boundary
- Proposed Dam
- Proposed CHPP

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3.9. Mine Infrastructure

Mine infrastructure to be developed within the mining lease as part of Taroom would consist of:

- Site access to main road.
- Light vehicle access roads.
- Heavy vehicle haul roads.
- Communications infrastructure i.e. towers, cabling.
- Offices and administration facilities.
- Ablutions and crib room facilities.
- Water Management System.
- Diversion of Back Creek (pending further environmental and technical investigations).
- Wastewater treatment facilities.
- Fuel and oil storage facilities.
- Power lines/poles and reticulation.
- Maintenance workshop, offices and associated amenities.
- CHPP.
- Coal stockpiling and blending facility.
- Fines recovery system.
- Train load-out facility.
- Dams (e.g. raw water, tailings, sediment, mine runoff/pit water).

The principal design requirements that would drive the site surface infrastructure would be the location of the CHPP, the railway spur loop and the mine plan. The CHPP would be located in close proximity to the open-cut voids to facilitate co-disposal of CHPP rejects within the voids. The MIA would be positioned to the west of the deposit, to minimise sterilisation of the resource and to reduce the distance between the CHPP and the proposed rail connection to the SBR.

3.10. Supporting Infrastructure

Supporting infrastructure and services located off the mining lease to be developed by Cockatoo as part of Taroom will include:

- Site access from the main road.

- A rail spur approximately 31 km in length that transports coal off lease and connects to the SBR line to the east of the Taroom MLA.
- A transmission line and easement approximately 52 km in length that runs south and connects to the Wandoan substation.
- A water pipeline and easement approximately 27 km in length that would run east adjacent to the easement for the rail spur to join the proposed Nathan Dalby pipeline (proposed to be constructed by SunWater).

Indicative locations and extents of the rail spur, high voltage transmission line and water pipeline are shown in **Figure 3-4**. To the extent practicable, to minimise potential environmental and social impacts, the alignment of the supporting infrastructure follows existing, approved/constructed infrastructure corridors.

A workers accommodation village will be located between the Collingwood and Taroom sites to house the construction workforce. Cockatoo is currently undertaking an options assessment study to identify the preferred options for the accommodation of the construction and operational workforce. The preferred option will be assessed in detail within the EIS.

A land agreement / acquisition strategy would be developed to ensure that land access and acquisition associated with supporting infrastructure would be undertaken. This is envisaged to occur later into the ML approval process.

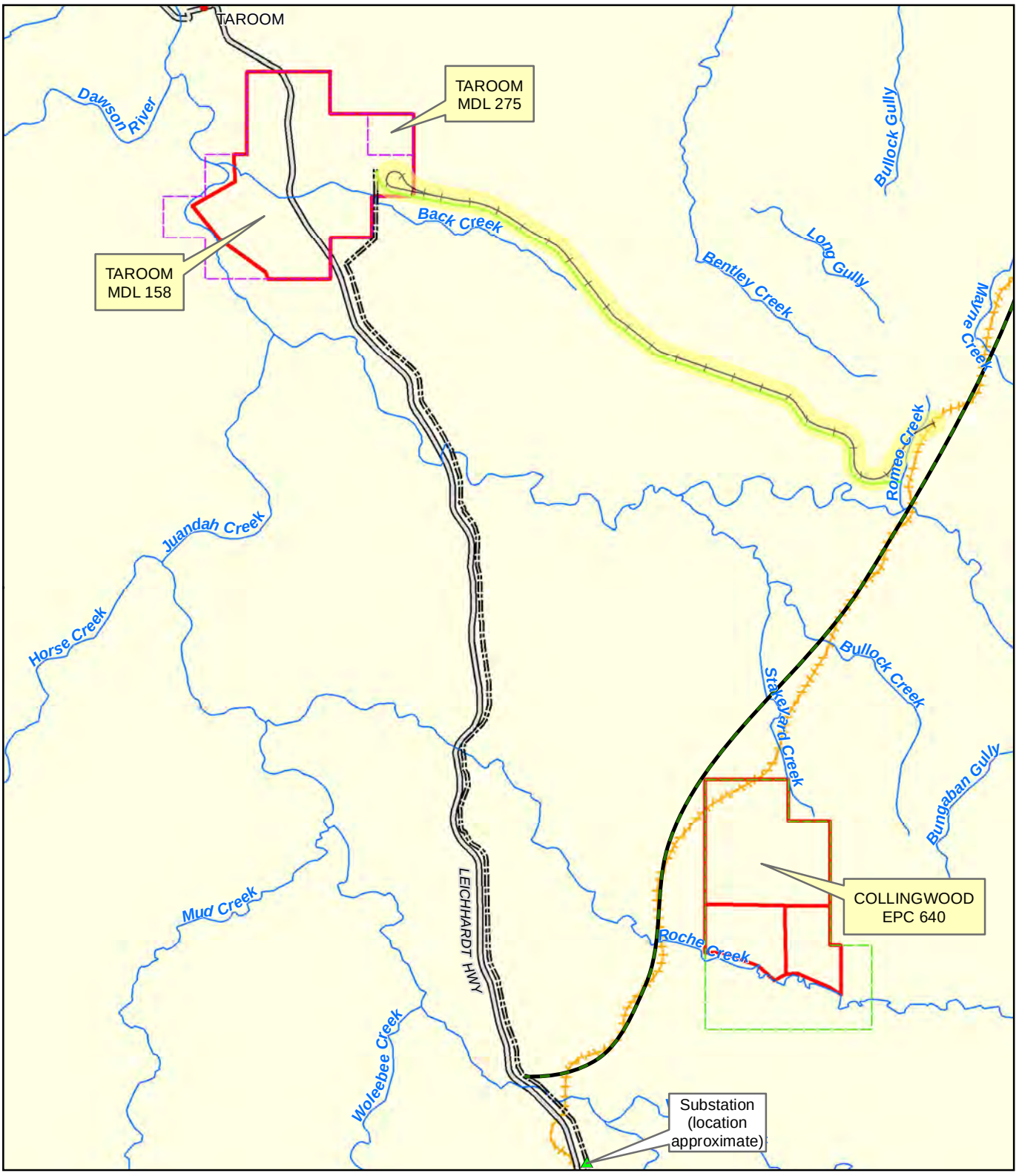
3.11. Local and Regional Infrastructure

The major regional infrastructure that is located within proximity to the Taroom site includes:

- Roads – The Leichhardt Highway bisects the deposit in a north-south direction and joins to the township of Taroom 7 km to the north and Wandoan 50 km to the south. There are also four local roads (Kehls Road, Saw Pit Lane, Elders Road and Smiths Road) that would be directly impacted by the proposed works. Access to the Taroom site is currently via publicly gazetted roads, namely Kehls Road, Saw Pit Lane, Elders Road and Smiths Road. However, other transport options are currently being investigated to minimise the impact to the neighbouring landowners and the environment. The impacts to local roads would be assessed by Cockatoo through the EIS and feasibility assessments.
- Rail – The SBR will stretch 214 km from a new rail siding just south of the Wandoan township to connect with the Moura Railway System near Banana (130 km west of Gladstone).

- Power – The proposed power supply is the Wandoan Substation.
- Water – The Glebe Weir (a small water resource located north of Taroom), the proposed Nathan Dam, Dawson River water allocations, groundwater and Coal Seam Gas (CSG) extraction wastewater are all possible sources of water for Taroom. These options would be assessed by Cockatoo through the EIS and mine feasibility assessments. This assessment will determine the approvals required for water infrastructure and usage.
- Workers accommodation – Cockatoo Coal is currently investigating options to position a workers construction camp half way between the proposed Taroom and Collingwood mine sites, close to the Number 4 Road. Further assessment of requirements for construction and operation accommodation will be undertaken as part of the EIS.

PROPOSED SERVICES FOR TAROOM



LEGEND

- River/Creek
- Major Highway
- Proposed Surat Basin Rail
- Taroom Mineral Development Licence
- Collingwood Exploration Permit Coal
- Mining Lease Application
- Proposed Cockatoo Coal Rail Alignments with 100m buffer
- Proposed Pipelines (Conceptual)
- Proposed Power Line Easements (Conceptual)
- Approximate route of Nathan Dalby Pipeline

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3.11.1. Road Diversions

The Leichhardt Highway provides access to the Taroom site, but also passes through the proposed mining lease. To access the full resource, approximately 9 km of the Leichhardt Highway would need to be diverted during the mining life. Options for realignment include connection to the Taroom-Roma Road to the south of the lease area, or diversion around to the east of the pit area. The timing and location of the diversion would be defined during the Feasibility Study and input would be sought from relevant stakeholders.

Four local roads would also be impacted by the proposed works and would therefore require realignment. These roads are Kehls Road, Saw Pit Lane, Elders Road and Smiths Road. Realignment of these roads may impact travel times if the realignment increases travelling distance.

3.11.2. Rail

The SBR will stretch 214 km from a new rail siding just south of the Wandoan township to connect with the Moura Railway system near Banana (130 km west of Gladstone). The SBR will support 22 to 24 train movements per day of trains up to 2.5 km in length. The railway will have the capacity to transport up to 42 Mt of coal per year, unlocking approximately 6.3 billion tonnes of coal reserves in the Surat Basin.

A separate rail spur would be constructed by Cockatoo to link the Taroom site with the SBR. This spur line would be approximately 31 km in length and located both on and off tenement.

3.11.3. Power Supply

It is estimated that power demand for Taroom would be approximately 15MW, based on 12 Mtpa ROM CHPP plus electric rope shovels. Infrastructure capable of providing power to meet projected demand, primarily based on the Wandoan Substation, is planned to be in place by mid 2013.

An alternative option would be a direct connection to Taroom by a high voltage overhead feeder from a CSG fired generation turbine at a nearby production field.

Cockatoo would develop a 66 kV transmission line and easement for the purpose of connecting to the regional power supply. The transmission line would be approximately 52 km in length (including 8 km of alignment common to both Collingwood and Taroom).

An alternate option would be direct connection to Taroom by a high voltage overhead feeder from a Coal Seam Gas (CSG) fired generation turbine at a nearby production field.

3.11.4. Water Supply

Typical industry water usage for open-cut mining operations is estimated to be in the order of 350 million litres per annum (ML/a) per 1 Mtpa ROM coal. On this basis, the Taroom's water usage is estimated at 4,200 ML/a, (or 11.5 ML/day). A water demand study is currently being undertaken as part of the Pre-Feasibility Studies.

As noted in **Section 3.10**, there are a number of potential sources of water for Taroom, namely:

- Nathan Dam.
- Glebe Weir.
- Dawson River Allocations.
- Groundwater.
- CSG extraction wastewater (from adjacent but separate developments).

Given the close proximity of the Taroom site to Glebe Weir and the proposed Nathan Dam, these water sources would be the most likely scenario. However, CSG extraction wastewater could also be utilised, depending on quality, and agreement with CSG producers. The options would be assessed by Cockatoo through the EIS and mine feasibility assessments.

Cockatoo would aim to reduce the dependence on the off-site water supply over time through strategies to increase water conservation and recycling measures.

Taroom would include the development of a water pipeline and easement that would run alongside the rail spur to join the proposed Nathan Dalby pipeline (proposed to be constructed by SunWater). The pipeline would be approximately 27 km in length. The assessment to be undertaken as part of the EIS will determine the approvals required for water infrastructure and usage.

3.12. Employment Opportunities

Taroom would employ up to 1,000 full-time equivalent personnel over the 18 month construction period and approximately 550 personnel during operation.

The EIS for Taroom, which amongst other things, will include a Social Impact Management Plan. This plan would review accommodation options, housing issues and workforce transportation to and from the site.

3.13. Project Timeline

An indicative timeline for the project is summarised in **Table 3-4**.

Table 3-4 Indicative Project Timeline

Description	Indicative Timing
Construction commencing	Fourth Quarter 2013
Mining commencing	Third Quarter 2014
Commissioning	First Quarter 2015
Construction completion	Second Quarter 2015
Mine decommissioning	2042

Construction commencement dates for Taroom and Collingwood have been offset by six months to capitalise on workforce opportunities and cost benefits associated with construction synergies between Collingwood and Taroom, including longevity of contracts and management of workforce accommodation. Once operational, Cockatoo will be required to meet contractual production requirements with SBR and WICET. Cockatoo will therefore require both mines to operate simultaneously as soon as possible.

4. Existing Environment and Potential Impacts

The following section provides a summary of the existing environment and potential impacts at Taroom and includes:

- Socio-economic factors.
- Land use, resource and landform.
- Surface water resources.
- Groundwater.
- Terrestrial flora and fauna.
- Noise and vibration.
- Air quality.
- Greenhouse gases.
- Cultural heritage values and native title.
- Infrastructure and transport.
- Waste management.
- Fuels, oils and chemicals.

4.1. Socio-Economic Factors

The area surrounding the Taroom site is within the Banana Shire LGA and generally supports broad-acre agricultural activities. The closest town is Taroom, approximately 3 km to the north-east of the Taroom site. The town of Wandoan is located approximately 43 km to the south-west. Taroom has a population of 629 and Wandoan has a population of 386.

According to the ABS there was a 0.3% increase in population in the Banana Shire LGA between 2006 and 2010. In comparison, there was a 1.5% increase in population in the Western Downs Regional LGA between 2006 and 2010. Banana Shire LGA is experiencing relatively low growth compared to other LGAs in the State for that period. These data would be used for future analysis in the EIS.

Local and other appropriately experienced mine workers would be sought to service the mine. It is anticipated that the local towns of Taroom, Wandoan and the surrounding regional towns such as Dalby, Toowoomba and Biloela would provide some of the operational workforce, with the remainder being sourced from further afield. It is also anticipated that, due to the short-term nature of construction activities and requirement for

specialist skills, much of the construction workforce would live remotely and travel to site for duties.

Cockatoo is exploring options for providing employees with accommodation during the operational phase of the mine, including local accommodation and roster commute. As a result, this is expected to lead to an increase in local employment opportunities.

Facilities to house the construction and operations workforces would be evaluated as part of the feasibility studies and assessed further as part of the EIS. However, Cockatoo is committed to working with Local and State governments to develop strong communities.

4.2. Land Use, Resource and Landform

The landscape in the vicinity of Taroom comprises gently undulating plains, with a dominant soil type classified as vertosols. The Taroom site is located at an elevation of 180 to 280 m AHD. There is an east-west striking ridgeline that bisects the central portion of the deposit. The terrain is (intermittently) drained by the westerly flowing creeks, which drain into the northerly flowing Juandah Creek along the western edge.

Vegetation has been extensively cleared to allow for the sowing of improved pastures mostly for grazing and to a lesser extent for pasture-cropping lands. Pockets of remnant native vegetation exist in riparian zones along the edges of Back Creek and Juandah Creek, as shown in **Figure 4-1**.

There is a small pocket of land classified as having a conservation land use in the northwest section of the Taroom site. The Land Resource Area is classified as Brigalow Scrub (including the sub categories Wandoan and Hinchley; Softwood Scrub (Eurombah); Alluvial Plains (Collibah and Juandah) according to the DERM Land Resource Use dataset.

Good Quality Agricultural Land (GQAL) is protected by State Planning Policy 1/92 (SPP 1/92) from developments which lead to alienation or reduced productivity of the land. Class A GQAL comprises the majority of the Taroom site, with some Class B land located in the north eastern portion of the site. Class A land is classified as being land that is suitable for current and potential crops with limitations to production which range from none to moderate levels (DPI/DHLGP, 1993).

The *Protecting Queensland's Strategic Cropping Land* policy framework was released by DERM in August 2010, and the *Strategic Cropping Land Bill 2011* was released in October, 2011. The *Strategic Cropping Land Act 2011* was given assent in December 2011, and is expected to commence on 30 January 2012. A search of the on-line trigger

maps has identified that areas of potential strategic cropping land may exist within the Taroom site. These areas are illustrated in **Figure 4-2**.

The likely impacts on land resources from Taroom include changes to:

- Landform.
- Drainage patterns.
- Land suitability.
- Land uses.

Impacts to land resources would be considered further in the EIS. This includes consideration of implications to and approvals for potential impacts to GQAL and strategic cropping land. A detailed soil investigation would be undertaken for the EIS.

Out-of-pit waste dumps would be located within the Taroom site. The designs of these dumps and the topsoiling and revegetation measures that would be applied, would be considered in the EIS. Consideration of the factors that may impact on the long-term stability of the spoil dumps (for example, climatic, geotechnical, chemical and geomorphological factors) would be included. Assessment of these factors would assist in determining the associated rehabilitation design parameters and the most appropriate post-mine landform and land use. Much of this information would be determined during the EIS process and through studies undertaken during the rehabilitation program. Proposed monitoring of rehabilitated areas would also be outlined in the EIS and Environmental Management Plan (EM Plan).

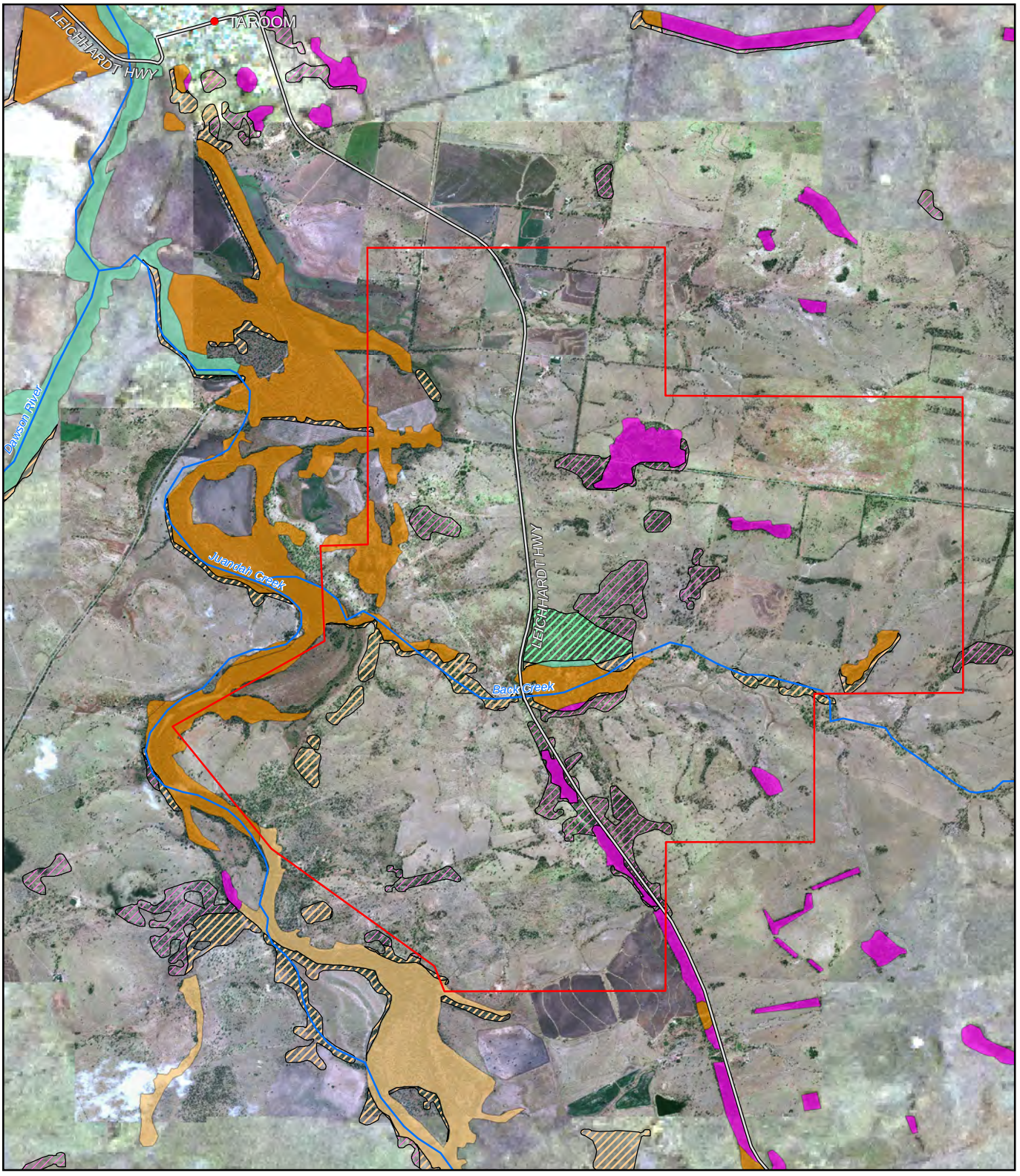
The degree to which each property is impacted upon by Taroom will be assessed during the EIS. The EIS process will include further consultation with landholders and the wider community to better understand these impacts and develop appropriate mitigation measures.

4.3. Surface Water Resources

Watercourses in the vicinity of the Taroom site are generally ephemeral in nature.

Taroom drains into Back Creek and Juandah Creek in the upper reaches of the Dawson River Catchment, a sub-basin of the larger Fitzroy River Catchment, which drains into the Great Barrier Reef north of Gladstone. The Fitzroy River Basin catchment is legislated under the *Water Resource (Fitzroy Basin) Plan 1999* such that any taking or interfering with water would need to be approved by the DERM.

REGIONAL ECOSYSTEMS AT TAROOM



LEGEND

- Major Highway
- River/Creek
- Taroom Mining Lease Application

High Value Regrowth (ver 2.1)

- Endangered RE
- Of Concern RE
- Least Concern RE

Regional Ecosystems (ver 6.1)

- Endangered - Dominant (11.9.5)
- Endangered - Sub-dominant
- Of Concern - Dominant (11.3.2, 11.3.3, 11.9.10)
- Of Concern - Sub-dominant (11.3.25/11.3.2/11.3.3)
- Not of Concern (11.3.25, 11.3.39)
- Non-remnant / Regrowth

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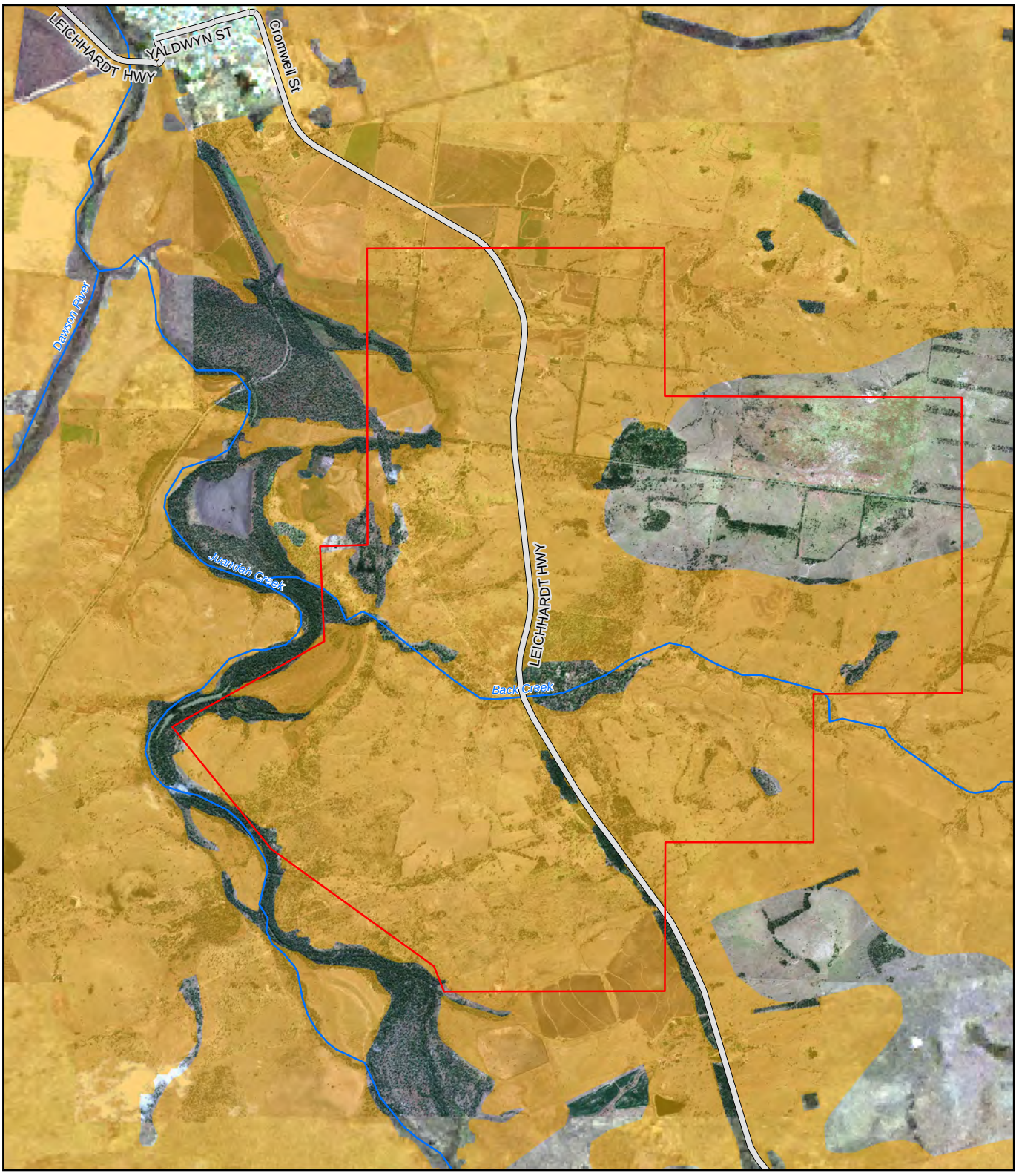
POTENTIAL STRATEGIC CROPPING LAND



LEGEND

- Major Roads
- River/Creek
- Taroom Mining Lease Application
- Potential Strategic Cropping Land

DATA SOURCES:
GeoEye1 Satellite Imagery
Qld State Govt Datasets

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Taroom is located approximately 678 km upstream from the mouth of the Fitzroy River and Great Barrier Reef Marine Park.

Diversion of Back Creek would be necessary to allow full access to the deposit, and to avoid sterilisation of the western section of the mining lease. The impact of the proposed diversion on the creek's physical and biological environments as well as the impact on flows to downstream users would be assessed as part of the EIS. Any creek diversions would include rehabilitation and specific monitoring programs, and appropriate licences would be sought.

Surface waters may also be affected by changes in the landform surrounding the creeks, run-off from disturbed areas (including the infrastructure areas), and potential voids left after mining ceases. The following mitigation strategies would reduce the potential impacts on surface waters:

- Development of a management plan for Back Creek.
- Implementation of a "clean water – dirty water" system to divert clean run-off around disturbed areas and direct run-off from disturbed areas to retention dams for treatment.
- The development of a detailed water management plan and water balance to ensure that water released from site (if any) is within the licensed discharge limits established in the Environmental Authority.

Sedimentation and contamination of surface water runoff from Taroom (including supporting infrastructure) will be strictly managed and is therefore not expected to adversely impact on surface water quality downstream. Consequently, potential indirect impacts to the Great Barrier Reef are unlikely.

The supply of water for mine activities has been discussed in **Section 3.10**.

4.4. Groundwater

The main aquifers of the Great Artesian Basin (GAB) underlie the Walloon Coal Measures at the mine site. Locally, the primary source of groundwater is from the Hutton Aquifer, the shallowest of the major sandstone aquifers of the GAB regionally. Further investigations would take place to better understand the connectivity between the Walloon Coal Measures and the underlying Hutton aquifer.

An alluvial aquifer is present on the western boundary of the mine lease area. Further investigation would help delineate the alluvial aquifer extent and connectivity with the Walloon Coal Measures. Outcomes of this investigation would be provided in the EIS.

Pit inflows are estimated to be low due to the relatively shallow depth of the pits, an estimated depth to water table between 15 to 30 m below ground surface, and the low conductivity of the Walloon Coal Measures. Any inflow to the pit is expected to be brackish to saline.

4.5. Terrestrial Flora and Fauna

4.5.1. Flora

The majority of the site has been cleared of remnant vegetation and is used for cattle grazing. Remnant vegetation is restricted to riparian areas along Juandah Creek and Back Creek, and within a small reserve located in the middle of the site. Brigalow/Semi-evergreen vine-thicket also occurs in isolated patches within the road reserve of the Leichhardt Highway and Smiths Road. The species and communities identified in this preliminary assessment will be reviewed and updated as part of the EIS.

DERM desktop mapping indicates that in total, 12 REs have been identified within the site. A description of each of these REs and their associated identified biodiversity status according to the VM Act and the EPBC Act has been included in **Table 4-1**. There is potential for the Project to adversely impact on up to 92 ha of the endangered Brigalow RE at Taroom. Note that these REs have been digitised at a scale of 1:100,000 with an accuracy of 100 m, and have not been ground-truthed.

Table 4-1 Regional Ecosystems at MLA and supporting infrastructure

RE Code	Short Description	VM Act Status[1]	Biodiversity Status[2]
11.3.2	*Eucalyptus populnea* woodland on alluvial plains	Of concern	Of concern
11.3.25 / 11.3.2 / 11.3.3	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines / *Eucalyptus populnea* woodland on alluvial plains / *Eucalyptus coolabah* woodland on alluvial plains	Least concern	Of concern
11.3.3	*Eucalyptus coolabah* woodland on alluvial plains	Of concern	Of concern
11.3.39	*Eucalyptus melanophloia* +/- *E. chloroclada* woodland on undulating plains and valleys with sandy soils	Least concern	No concern at present
11.9.5	*Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks	Endangered	Endangered
11.9.7	*Eucalyptus populnea, Eremophila mitchellii* shrubby woodland on fine-grained sedimentary rocks	Of concern	Of concern
11.9.7/11.10.9/11.10.9	*Eucalyptus populnea, Eremophila mitchellii* shrubby woodland on fine-grained sedimentary rocks / *Callitris glaucophylla* woodland on coarse-grained sedimentary rocks	Of concern	Of concern
11.3.2/11.3.25	*Eucalyptus populnea* woodland on alluvial plains /	Of concern	Of concern

RE Code	Short Description	VM Act Status[1]	Biodiversity Status[2]
	Eucalyptus tereticornis or *E. camaldulensis* woodland fringing drainage lines		
11.3.25/11.3.19/11.3.2	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines / *Callitris glaucophylla, Corymbia* spp. and/or *Eucalyptus melanophloia* woodland on Cainozoic alluvial plains / *Eucalyptus populnea* woodland on alluvial plains	Of concern	Of concern
11.9.5/11.9.5/11.9.6	*Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks / *Acacia melvillei +/- A. harpophylla* open forest on fine-grained sedimentary rocks	Endangered	Endangered
11.9.5/11.9.5	*Acacia harpophylla* and/or *Casuarina cristata* open forest on fine-grained sedimentary rocks	Endangered	Endangered
11.3.25/11.9.10/11.9.7	*Eucalyptus tereticornis* or *E. camaldulensis* woodland fringing drainage lines / *Acacia harpophylla, Eucalyptus populnea* open forest on fine-grained sedimentary rocks / *Eucalyptus populnea, Eremophila mitchellii* shrubby woodland on fine-grained sedimentary rocks	Of concern	Of concern

1 Status under the *Vegetation Management Act 1999* (Qld)
2 Status under the *Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)

The EPBC protected matters search identified three EPBC listed threatened ecological communities that may exist at the Taroom site. These ecological communities are listed in **Table 4-2**. REs associated with either of these ecological communities are also mapped within the site.

Table 4-2 EPBC Threatened Ecological Communities – MLA and supporting infrastructure

Species/Community	EPBC Status	Type of Presence
Ecological Community		
Brigalow (*Acacia harpophylla* dominant and co-dominant)	Endangered	Likely in patches of RE 11.9.5 at the site. Refer to **Figure 4-1**.
Weeping Myall Woodlands	Endangered	Unlikely. This community was not observed during a recent ecological survey of the Project site.
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	Endangered	Likely in patches of RE 11.3.3. Refer to **Figure 4-1**.

The database searches also identified two threatened flora species that may be present at the site. The likelihood of occurrence in the study area has been evaluated based on the preferred habitats of the species and knowledge of the type and condition of habitats present at the site. The species, their status and likelihood of occurrence are listed in **Table 4-3**.

Table 4-3 Threatened Flora Species Likely to Occur at MLA and supporting infrastructure

Species Name	EPBC Status	NC Status	Habitat	Likelihood of Occurrence	Source
Commersonia argentea	V		*C. argentea* was recorded from north of Chinchilla on stony ridges in eucalypt forest (Stanley and Ross, 1986). It is considered possible to occur in Brigalow woodland (RE 11.9.5) at the site. Flora surveys will confirm the presence of this species. Taroom has the potential to impact on up to 90 ha of potential habitat for this species. Any impacts would be minimised by avoidance and translocation of populations.	Unlikely. No suitable habitat.	EPBC
Cadellia pentastylis Ooline	*V*	*V*	Ooline has been recorded from along the Leichardt Highway north of Taroom. It is considered possible to occur in Brigalow woodland (RE 11.9.5) at the site. Flora surveys will confirm the presence of this species. Taroom has the potential to impact on up to 90 ha of potential habitat for this species. Any impacts would be minimised by avoidance and translocation of populations.	Possible in RE 11.9.5.	NC

Status: E= Endangered, V= Vulnerable, NT=Near Threatened
EPBC= *Environment Protection and Biodiversity Conservation Act 1999* (C'wlth)
NC = *Nature Conservation (Wildlife) Regulation 2004* (Qld)

The site would be ground-truthed during the field work programme for the EIS. Ground-truthing would involve seasonal flora surveys and vegetation mapping at a scale of 1:20,000 in accordance with the *Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland* (Neldner et al. 2005). Targeted searches for threatened flora species would also be undertaken. Mine infrastructure would be designed to minimise the impact on remnant vegetation and threatened ecological communities and species.

A preliminary assessment of potential impacts on threatened species occurring and likely to occur within the Taroom MLA and proposed supporting infrastructure locations is presented in **Table 4-4**. Assessment of potential impacts on state-listed threatened species would be undertaken in the EIS.

Table 4-4 Potential Impacts on likely EPBC listed species and threatened ecological communities (MLA and proposed supporting infrastructure locations)

Species/Community	Potential impacts
Ecological Community	
Brigalow (Acacia harpophylla dominant and co-dominant)	Brigalow is mapped as occurring within the Taroom site as small isolated patches of RE 11.9.5. Brigalow woodland on clay loams (possibly RE 11.3.1) was also observed along Juandah Creek during the recent ecological survey of the site. Flora surveys will confirm if these REs meet the EPBC listing criteria for the Brigalow ecological community. Taroom has the potential to impact on up to 91.70 ha of Brigalow. This will be minimised by avoidance where possible.
Coolibah - Black Box Woodlands of the Darling Riverine Plains and the Brigalow Belt South Bioregions	This TEC is mapped within patches of RE 11.3.3. Taroom has the potential to impact on up to 140.86 ha of Coolibah - Black Box Woodlands. This will be minimised by avoidance where possible.
Plants	
Commersonia argentea	*C. argentea* was recorded from north of Chinchilla on stony ridges in eucalypt forest (Stanley and Ross, 1986). It is considered possible to occur in Brigalow woodland (RE 11.9.5) at the site. Flora surveys will confirm the presence of this species. Taroom has the potential to impact on up to 90 ha of potential habitat for this species. Any impacts would be minimised by avoidance and translocation of populations.
Cadellia pentastylis Ooline	Ooline has been recorded from along the Leichardt Highway north of Taroom. It is considered possible to occur in Brigalow woodland (RE 11.9.5) at the site. Flora surveys will confirm the presence of this species. Taroom has the potential to impact on up to 90 ha of potential habitat for this species. Any impacts would be minimised by avoidance and translocation of populations.

4.5.2. Fauna

Areas of remnant regional ecosystems are mapped as areas of regional biodiversity significance. A Biodiversity Planning Assessment ecological corridor is associated with the creek which runs north-south through the site. A vegetated stock reserve represents the main concentration of remnant regional ecosystem on the site.

The database searches returned 21 threatened fauna species that may be present at the Taroom site. The likelihood of occurrence at the site has been evaluated based on the preferred habitats of the species and knowledge of the type and condition of habitats present at the site. The species, their status and likelihood of occurrence are listed in

Table 4-5. A review of threatened fauna species will be undertaken during the EIS process. The species identified in this preliminary assessment will be reviewed and updated as part of the EIS.

Table 4-5 Likelihood of Occurrence of Threatened Fauna Species

Species Name	EPBC Status	NC Status	Habitat	Likelihood of Occurrence	Source
Reptiles					
Delma torquata Collared Delma	V		The species requires the deep leaf litter and microhabitat complexity including rocks, logs, bark and other coarse woody debris. This kind of habitat may occur on the Project area within remnant vegetation around Juandah Creek, Back Creek and along the road reserve of the Leichhardt Highway.	Possible.	EPBC
Egernia rugosa Yakka Skink	V	V	The species usually occurs in dry sclerophyll open forest or woodland including poplar box, ironbark, brigalow with dense ground cover. Populations have been recorded in the Brigalow Belt North Bioregion (TSN, 2008).	Possible. Poplar Box and Brigalow woodlands occur in the site.	EPBC
Furina dunmalli Dunmall's Snake	V	V	The species occurs primarily in the Brigalow Belt region in the south-eastern interior of Queensland, also extending into the inland regions of north-east NSW. Known to occur in areas dominated by Brigalow, wattles and blue spotted gums, typically sheltering under fallen timber and ground litter.	Possible. Brigalow woodlands occur in the site.	EPBC
Paradelma orientalis Brigalow Scaly-foot	V	V	The species is endemic to Queensland, but may extend just over the border into NSW. Occurs mostly within the Brigalow Belt South bioregion found in a wide variety of remnant and non-remnant open forest to woodland habitats. Known to persist in highly disturbed vegetation types, for example those areas invaded by Buffel Grass (*Cenchrus ciliaris*), Parthenium (*Parthenium hysterophorus*) and other weeds.	Likely. Brigalow and Eucalypt woodlands occur in the site. This species was recorded in the Nathan Dam study area approximately 5 km to the north east.	EPBC
Rheodytes leukops Fitzroy River Turtle	V	V	Found only in the drainage of the Fitzroy River in creeks and rivers with large deep pools with rocky, gravelly or sandy substrates,	Possible in a tributary of the Dawson River which runs north south through the	EPBC

Species Name	EPBC Status	NC Status	Habitat	Likelihood of Occurrence	Source
			connected by shallow riffles.	site.	
Strophurus taenicauda Golden-tailed Gecko		NT	Brigalow and Cypress Pine woodlands of the Brigalow Belt bioregion.	Possible in RE 11.9.5 at the site.	NC
Denisonia maculata Ornamental Snake	V	V	Deep-cracking clay soils and adjacent slightly elevated ground of clayey and sandy loams. Also found in woodland and shrub land, including some Brigalow Acacia harpophylla, and also riverside woodland and open forest, particularly on natural levees	Unlikely. Most commonly found on land zone 4 in REs 11.4.3, 11.4.6, 11.4.8 and 11.4.9, none of which occur in the Project area.	EPBC
Birds					
Ephippiorhynchus asiaticus Black-necked Stork		NT	Inhabits permanent and ephemeral freshwater wetlands and adjacent grasslands and savannah woodlands; can also be found occasionally on inter-tidal shorelines. Feeds in shallow, still water on a variety of prey including fish, frogs, eels, turtles, crabs and snakes (Pizzey and Knight 2007).	Possible in farm dams and wetlands at the site.	NC
Erythrotriorchis radiates Red Goshawk	V	V	Occurs in large, contiguous woodlands and open forests in coastal and sub coastal regions, often along major river systems. This species may utilise riparian vegetation along river systems.	Possible occurrence along riparian vegetation (RE 11.3.25).	EPBC
Geophaps scripta scripta Southern Squatter Pigeon	V	V	Occurs in grassy eucalypt woodlands and disturbed habitats. It has an affinity for woodlands and natural grasslands close to water.	Likely in grassy woodlands and pastures across the site. Recorded in the Nathan Dam study area approximately 5 km north of the site.	EPBC
Lophoictinia isura Square-tailed Kite		NT	Occurs along inland timbered watercourses (Debus and Czechura 1989).	Possible in riparian vegetation.	NC
Melithreptus gularis Black-chinned Honeyeater		NT	Occurs along inland slopes of the Great Dividing Range in eastern Australia. Occupy dry eucalypt woodland, particularly associations containing ironbark and box (Garnett and Crowley 2000).	Possible in riparian vegetation or eucalypt woodlands.	NC
Neochmia	E	E	Grasslands and grassy	Possible in	EPBC

Species Name	EPBC Status	NC Status	Habitat	Likelihood of Occurrence	Source
ruficauda ruficauda Star Finch			woodlands located close to fresh bodies of water dominated by *Eucalyptus coolabah, E. tereticornis, C. tessellaris, Melaleuca leucadendra, E. camaldulensis* and *Casuarina cunninghamii* (TSSC 2008cu).	riparian vegetation (RE 11.3.25) and woodland fringing dams.	
Rostratula australis Australian Painted Snipe	V	V	Inhabits shallow vegetated wetlands (freshwater or brackish) including temporary and permanent lakes, swamps and claypans.	Possible in farm dams and wetlands at the site.	EPBC
Stictonetta naevosa Freckled Duck		NT	Inhabits large, well vegetated swamps (Pizzey and Knight 2007).	Site is outside the recorded distributional limits of this species.	NC
Mammals					
Chalinolobus dwyeri Large-eared Pied Bat	V	R	Roosts in sandstone outcrops. Known from Carnavon National Park.	Possible. May forage across the site.	EPBC
Chalinolobus pictatus Little Pied Bat		NT	Inhabits dry open forest, open woodland, mulga woodlands, chenopod shrublands, cypress pine forest, mallee, bimbil box. Roosts in caves, rock outcrops, mine shafts, tunnels, tree hollows and buildings. Can tolerate high temperatures and dryness but needs access to nearby open water.	Possible to roost in eucalypt tree hollows at the site.	NC
Dasyurus hallucatus Northern Quoll	E	E	Inhabits a range of habitats, but prefers rocky areas and eucalypt forests with hollow trees and logs. The species only occurs in a number of localised sites in Queensland, NT and Kimberley region.	Possible a riparian corridor which is connected to large tracts of remnant habitat in Barakula State Forest.	EPBC
Nyctophilus corbeni South-eastern Long Eared Bat	V	V	Occurs in callitris/ironbark/box open forest and buloke woodland in southern Queensland (EPA, 2002a).	Unlikely. Lack of suitable habitat within the site.	EPBC
Invertebrates					
Adclarkia dawsonensis Boggomoss Snail	CE	LC	Known from alluvial flats and riparian environments between Taroom and Theodore (Stanisic 2009). Recorded from 3 boggomosses at Mt. Rose Station (near Glebe Weir) and 5 riparian sites along the Dawson River	Possible. Targeted surveys for the Boggomoss Snail along the Dawson River upstream of Taroom did not	SKM

Species Name	EPBC Status	NC Status	Habitat	Likelihood of Occurrence	Source
			downstream of Glebe Weir.	identify any individuals. However, a tributary of the Dawson River runs north south through the site which may provide suitable habitat. Habitat assessment is required.	
Jalmenus eubulus Pale Imperial Hairstreak		V	Principally occurs in Brigalow woodland and the preferred food plant of the larvae is brigalow.	Possible in RE 11.9.5 at the site.	NC

Status: E= Endangered, V= Vulnerable, R= Rare, NT=Near Threatened
EPBC= Environmental Protection and Biodiversity Conservation Act 1999 (Commonwealth)
NC = Nature Conservation (Wildlife) Regulation 2004 (Qld)

A preliminary assessment of potential impacts on fauna occurring and likely to occur within Taroom and within supporting infrastructure easements is presented in **Table 4-6**. A detailed assessment of the potential impact to individual (EPBC and state-listed) species will be provided as part of the EIS. Measures that would be taken to prevent or ameliorate any potential adverse environmental impacts on fauna would be described in the EIS.

Table 4-6 Potential Impacts on likely EPBC listed species (including migratory species)

Species/Community	Potential impacts
Birds	
Erythrotriorchis radiatus Red Goshawk	The Red Goshawk is considered possible to occur along the Juandah Creek riparian corridor. This corridor is located outside Taroom and will not be impacted by the Project. Indirect impacts from surface water contamination, noise and dust will be managed through the Project Environmental Management Plan (EMP). Therefore impacts to potential habitat for the Red Goshawk are considered to be unlikely.
Geohaps scripta scripta Southern Squatter Pigeon	The Squatter Pigeon remains common in heavily-grazed country north of the Tropic of Capricorn (TSSC 2008fp) and is likely to occur in grassy woodlands and pastures across the site. Taroom will impact on potential habitat for this species across the site, including 212 ha* of eucalypt woodlands. This is unlikely to have a significant impact on this species, as suitable habitat in the vicinity is abundant and the Squatter Pigeon is expected to continue to use disturbed habitats in the vicinity of grassy woodlands.
Neochmia ruficauda ruficauda Star Finch	The Star Finch is considered possible to occur within riparian habitats along Juandah Creek and Back Creek. This Juandah Creek riparian corridor is located outside the Taroom site and will not be impacted by the Project. Indirect impacts from surface water contamination, noise and dust will be managed through the Project Environmental Management Plan (EMP). However, the project has the potential to impact on up to 202 ha* of potential riparian habitat for this species

Species/Community	Potential impacts
	along Back Creek and adjacent to Juandah Creek.
Rostratula australis Australian Painted Snipe	The Australian Painted Snipe is considered possible to occur at farm dams and waterbodies with fringing aquatic vegetation. If present, the Australian Painted snipe is likely to be a nomadic visitor to the site and the farm dams are unlikely to support an important population. Therefore significant impacts on this species are unlikely.
Mammals	
Chalinolobus dwyeri Large-eared Pied Bat	The Large-eared Pied Bat roosts in sandstone outcrops (Churchill, 2008). The closest sandstone outcrops are possibly located in Isla Gorge National Park 50 km to the north of the site and Nathan Gorge / Precipice National Park located 40 km to the north east. There is potential for the Large-eared Piet Bat to forage across the site, at dams and along the Juandah and Back Creeks riparian corridors. The Juandah Creek riparian corridor will not be impacted by the Project. The loss of foraging habitat along Back Creek and farm dams across the site is unlikely to have a significant impact on this species, as suitable foraging habitat is abundant in the vicinity.
Reptiles	
Delma torquata Collared Delma	The species requires the deep leaf litter and microhabitat complexity including rocks, logs, bark and other coarse woody debris. This kind of habitat may occur on the Project area within remnant vegetation around Juandah Creek, Back Creek and along the road reserve of the Leichhardt Highway.
Egernia rugosa Yakka Skink	The Yakka Skink usually occurs in dry sclerophyll open forest or woodland including Poplar Box, Ironbark, Brigalow with dense ground cover (Cogger, 2000; SEWPAC, 2011). It is considered possible to occur in Brigalow woodland (RE 11.9.5) and Ironbark woodland (RE 11.3.39) at the site. Taroom has the potential to impact on up to 94 ha* of potential habitat for this species. This will be minimised by avoidance where possible.
Furina dunmalli Dunmall's Snake	The Dunmall's Snake occurs in Brigalow woodland on cracking black clay and clay loams (SEWPAC, 2011). Brigalow woodland on clay loams (possibly RE 11.3.1) was observed along Juandah Creek during the recent ecological survey of the site, however is not mapped in the DERM Regional Ecosystem mapping. The extent of this community will be surveyed and mapped during the summer flora survey. The Dunmall's Snake is considered possible to occur in this habitat. Fauna surveys will confirm the presence of this species.
Rheodytes leukops Fitzroy River Turtle	The Fitzroy River Turtle is found only in the drainage of the Fitzroy River in creeks and rivers with large deep pools with rocky, gravelly or sandy substrates, connected by shallow riffles. It is known to occur in the Dawson River, downstream of the site, and is considered possible to occur in Juandah Creek, a tributary of the Dawson River with permanent flow. Juandah Creek will not be impacted by the project. Indirect impacts from surface water contamination will be managed through the Project Environmental Management Plan (EMP). Therefore impacts to the Fitzroy River Turtle are considered to be unlikely.
Paradelma orientalis Brigalow Scaly-foot	The Brigalow Scaly-foot inhabits a wide variety of open forest habitat types and is considered possible to occur in Brigalow woodlands (RE 11.9.5) at the site. Fauna surveys will confirm the presence of this species. Taroom has the potential to impact on up to 90 ha* of potential habitat for this species. This will be minimised by avoidance where possible.
Migratory Marine Birds	
Apus pacificus Fork-tailed Swift	Possible. Aerial habitat over inland regions.

Species/Community	Potential impacts
Ardea alba Great egret	Possible in vegetated dams (wetlands) at the site.
Ardea ibis Cattle egret	Possible in vegetated dams (wetlands) and pastures at the site.
Migratory Terrestrial Species	
Haliaeetus leucogaster White-bellied sea-eagle	Unlikely. Inhabits large rivers including inland, fresh and saline lakes, coastal seas and shoreline, islands. No suitable habitat at the site.
Hirundapus caudacutus White-throated needletail	Possible. Aerial habitat over coastal regions and mountain ranges.
Merops ornatus Rainbow bee-eater	Likely in open woody areas across the site.
Myiagra cyanoleuca Satin flycatcher	Unlikely. Inhabits heavily vegetated gullies in forests and during migration coastal forests and mangroves (Pizzey and Knight 2007).
Migratory Wetland Species	
Ardea alba Great egret	Possible in vegetated dams (wetlands) at the site.
Ardea ibis Cattle egret	Possible in vegetated dams (wetlands) and pastures at the site.
Gallinago hardwickii Latham's snipe	Possible in vegetated dams (wetlands) at the site.
Naettapus coromandelianus albipennis Australian cotton-pygmy goose	Possible in farm dams with combination of floating aquatic vegetation and open water at the site.
Rostratula benghalensis s. lat Painted snipe	Possible in vegetated dams (wetlands) at the site.

* Area calculation has been undertaken using the Lambert conic projection, GDA 94.

Baseline seasonal fauna surveys would be undertaken across the site in accordance with best practice fauna survey guidelines including, the Brisbane City Council (BCC) Ecological Assessment Guidelines, and the EPBC Act survey guidelines to detect any nationally threatened fauna species. Targeted searches for threatened fauna species likely to occur at the site would also be undertaken in suitable habitat.

4.5.3. Declared Weeds and Pests

Vegetation has been extensively cleared to allow for the sowing of improved pastures mostly for grazing and to a lesser extent for cropping lands. Degradation consistent with historical clearing and grazing practices is evident within Taroom.

Database searches returned three weed species and six pest animal species as potentially occurring at Taroom and listed as declared pests under the Queensland Land Protection (Pest and Stock Route Management) Act 2002 (LP Act) or Weeds of National Environmental Significance (WONS) (**Table 4-7**).

Table 4-7 Declared Weeds and Pest Animals Potentially Occurring at Taroom

Scientific Name	Common Name	WONS[1]	Declared[2]	Source
Acacia nilotica subsp. indica	Prickly Acacia	Yes	Class 2	EPBC
Alternanthera philoxeroides	Alligator weed	Yes	Not declared	EPBC
Parthenium hysterophorus	Parthenium	Yes	Class 2	EPBC, WL
Capra hircus	Feral Goat	NA	Class 2	EPBC, WL
Felis catus	Feral Cat	NA	Class 2	EPBC, WL
Lepus capensis	Brown Hare	NA	Class 2	EPBC, WL
Oryctolagus cuniculus	Rabbit	NA	Class 2	EPBC
Sus scrofa	Feral Pig	NA	Class 2	EPBC
Vulpes vulpes	Red Fox	NA	Class 2	EPBC

[1] WONS = Weeds of National Significance

[2] Declared status under the *Land Protection (Pest and Stock Route Management) Act 2002*:

- Class 1 Not generally established in Queensland and has potential to cause an adverse economic, environmental or social impact;
- Class 2 Established in Queensland and can cause significant adverse economic, environmental or social impact; or
- Class 3 Established in Queensland and has or could have adverse economic, environmental or social impact.

4.6. Noise and Vibration

The proximity of mining operations to sensitive receivers influences the potential for adverse noise and vibration impacts on the community. Although the Taroom site is within a rural setting, there are a number of receivers within close proximity to proposed mining areas, including four dwellings within 2 km. In addition, the town of Taroom is located less than 3 km to the north-east of the site.

The main noise and vibration sources during construction and operation would include:

- Overburden blasting and removal.
- Coal preparation plant operations.
- Coal haulage, conveying and loading of trains.
- Rail traffic.
- Road and haul transport movements.

The EIS would assess the potential impact of noise and vibration on nearby sensitive receivers. The proposed operations would be required to meet noise and vibration

objectives in accordance with the *EP Act* and the *Environmental Protection (Noise) Policy 2008*. As such, detailed noise and vibration studies would be undertaken as part of the EIS process.

4.7. Air Quality

Air quality in the region is mainly influenced by agricultural, pastoral and cropping activities, and also by vehicles travelling on nearby unsealed roads. Airborne particulate matter is generally the primary pollutant, generated as a result of mining activities during both the construction and operational stages. Emissions of particulate matter are generated from land clearing, excavation, coal extraction and processing activities, as well as from wind erosion of exposed areas of land.

The principal dust sources from Taroom include topsoil stripping, heavy mining equipment movements and coal handling and transport of coal via rail. Exhaust emissions from locomotives, vehicles, plant and equipment will be generated.

During operations, dust generation would be managed by the use of water carts for road watering, water sprays on crushers and conveyor transfer points, progressive rehabilitation, limiting disturbance to what is required for safe and continuous operations and, if appropriate, changing work practices during adverse meteorological conditions.

Assessment of the existing air quality, the potential effects from the Project and identifying suitable mitigation methods to ameliorate impacts of Taroom would be outlined in the EIS. The project would be required to meet air quality standards for dust levels under the *Environmental Protection Act 1994* and any subordinate legislation. Refer to **Section 2** for the legislation and approvals relevant to the project.

4.8. Greenhouse Gases

Coal mining activities and operation of supporting infrastructure as part of Taroom would result in the emission of some greenhouse gases (GHG) to the atmosphere. The total quantity of greenhouse gases (including direct and indirect emissions) attributable to the mine and supporting infrastructure would be estimated within the EIS. This greenhouse gas estimate would be used to identify suitable mitigation strategies in the EIS and to provide an appropriate context for actions that are being undertaken by Cockatoo at a corporate level.

The EIS would also examine the contribution that the mine makes to the cumulative greenhouse gas emissions from the region.

4.9. Visual Amenity

The visual landscape in the vicinity of the Taroom site and supporting infrastructure corridors are characterised as a rural landscape with open views of low-gradient, undulating landforms that are mostly comprised of cleared paddocks with some cropping lands. Along Back Creek and Juandah Creek, there are some road verges and fence lines, and small pockets of remnant vegetation exist in some areas. Outside the townships of Taroom and Wandoan, properties are scattered throughout the landscape.

The physical features associated with Taroom that may result in changes to landscape character and visual amenity include out-of-pit overburden dumps, mine site infrastructure (including the CHPP, power lines, rail line link and administration buildings) and associated traffic on surrounding roads. The impact on the existing landscape character and visual amenity in the vicinity of Taroom would be assessed in the EIS.

4.10. Cultural Heritage Values and Native Title

Land tenure searches have indicated that parts of the Taroom MLA have existing tenure that means Native Title has not been extinguished. The Iman Group has a Native Title Claim (IMAN #2 QC97/055) over the MLA area and will be the parties with whom an Indigenous Land Use Agreement (ILUA) will be developed.

An investigation of local Aboriginal cultural heritage objects and places would be undertaken in consultation with the relevant Traditional Owners, the Iman #2 People. The methods for managing any identified Indigenous places or objects would be developed and included in the EIS.

A Cultural Heritage Management Plan (CHMP) or an ILUA containing a cultural heritage management schedule is required to provide the project's cultural heritage duty of care to avoid harm to or manage cultural heritage. A CHMP or ILUA will provide all directions required to avoid harm or manage Aboriginal cultural heritage found in the Taroom MLA and supporting infrastructure corridors.

Work would also be undertaken to evaluate if there would be any impact to any remnants of European settlement. No European heritage items were identified in a preliminary search of the Register of National Estate; however more detailed investigations would be carried out for the EIS, including a Historical Heritage Management Plan (technical report).

4.11. Infrastructure and Transport

Taroom would necessitate the use and development of infrastructure in the region, including:

- Realignment of a portion of the Leichhardt Highway and potentially four local roads, namely, Kehls Road, Elders Road, Saw Pit Lane and Smiths Road.
- Power (new connections to the grid, with the possibility of supplementary on-site generation).
- Water (as outlined in **Section 3.10**).
- Road access for staff and plant equipment accessing the site.
- Rail transport corridor used to access the site and link to the proposed SBR to transport the coal product to the Gladstone coal port.
- Workers accommodation to house the construction and operation workforce.

The Feasibility Study would quantify the scale of infrastructure use and impacts on the region and the outcomes of the study would be summarised within the EIS.

The EIS would also include a Road and Transport Impact Assessment to address potential increases in traffic during the construction and operations phases of Taroom on both road and rail infrastructure. The Road and Transport Impact Assessment for Taroom would be developed in consultation with the Department of Transport and Main Roads during the EIS process.

The larger scale impacts of the operational rail transport of coal have been considered as part of the proposed Surat Basin Railway Project EIS which was assessed under the *SDPWO Act*. Potential impacts of the proposed port handling of coal at Gladstone have been assessed as part of the WICET Project EIS which has also been declared a significant project under section 26(1)(a) of the *SDPWO Act*.

4.12. Waste Management

4.12.1. Industrial and General Waste

Solid and liquid wastes likely to be generated from construction of the project include:

- General wastes from early works, including cleared vegetation.
- General building and plant materials.
- Waste fuels, oils and lubricants.
- Sewage collected from sanitary areas.
- Run-off from washdown areas.
- Tyres from dump trucks and other machinery.
- Other materials potentially including metals, timber, plasterboard, sealants, resin and paint from fitting out buildings, workshops and plant areas.

Wastes that would be produced during operation of Taroom include:

- Machinery replacements including conveyor belts.
- General waste from staff working on the site (e.g. paper, cans cardboard and other general consumables).
- Scrap metal, batteries, tyres and green waste from land cleared for coal recovery
- Waste water residues and associated materials from effluent treatment.

A general construction and operational waste management strategy for Taroom would be prepared and included in the EIS.

The Water Management System would include provision for capture of mine area run off and pit water for re-use within the mine operations.

4.12.2. Mining Waste Management

As noted in **Section 3.6**, mining would advance from a box-cut in the north-east, then progress to the west and then to the south. Initial overburden and seam interburden (composed of blasted sandstone, siltstone and mudstone) would be directed into out-of-pit dumps, but as appropriate open-cut void space is created, this would change to in-pit dumping.

It is planned that rehabilitation of the spoil dumps would commence when they reach full height. Normally such rehabilitation lags approximately two years behind land disturbance. The proposed end use of the rehabilitated land would be grazing or native scrub, similar to the existing unmined land.

Key matters for the waste management chapter of the EIS would therefore include:

- The proposed waste disposal options, especially the balance between in-pit and out-of-pit dumping, and the location of the out-of-pit dumps.

- Emplacement methods and staging, including spoil compaction, progressive landform shaping and rehabilitation procedures.
- Water diversion measures around the spoil dumps, groundwater monitoring measures and leachate collection.
- The estimated volume and dry tonnage of each element of the waste stream, and any special dumping and encapsulation requirements.
- The physical properties of the overburden, including rock type, strength, likely particle size distribution and bulking factors (as-placed relative to as-dug, which might involve a volumetric increase of 20-30%).
- The weathering or slaking characteristics of the overburden, and the erodibility of its weathering products.
- The chemical composition of the overburden, in particular its sulphide content and hence acid-generating potential.
- Proposed final waste emplacement shaping, sealing and revegetation.
- Placement of coaly and carbonaceous wastes, including interburden and washery rejects.
- The final waste dump landform geometry and maintenance provisions.

4.12.3. Fuels, Oils and Chemicals

Fuels and oils for plant and machinery, and detergents for cleaning would be required during the construction and operational phases of Taroom. These substances would need to be stored on-site during construction and operation. The storage of any hazardous materials such as batteries and hydrocarbon materials would be in accordance with regulatory requirements and standards. Standard operating procedures including an emergency response plan would be implemented for Taroom.

The development of a hazardous materials management strategy would be undertaken and included in the EM Plan for Taroom.

5. Environmental Management

Cockatoo is committed to acting in an environmentally and socially responsible manner during the design, construction and operation of Taroom. Cockatoo seeks to manage environmental matters through committing to:

- Minimising environmental impacts.
- Complying with legislative requirements.
- Communicating effectively with stakeholders.

Cockatoo recognises that the above commitments are critical throughout the Project life cycle and is therefore seeking to understand and minimise the potential environmental impacts of each project through the environmental assessment process. As part of this project, Cockatoo is undertaking an EIS under the SDPWO Act as well as undertaking a referral to the Commonwealth Government under the *EPBC Act* for matters of national environmental significance.

In preparation for the successful implementation of the Taroom, the EIS would describe and explain the measures that would be undertaken to prevent or ameliorate any potential impacts on the environment. Potential environmental impacts to be examined include: water quality (surface water and groundwater), land resources and land use changes, air quality, noise, flora and fauna, vibration, visual amenity and cultural heritage. The EIS would also address various social impacts, such as housing, change from agricultural to industrial work opportunities, and increased number of transient workers. Mitigation strategies to manage and reduce any potentially adverse impacts would be provided in the EIS.

The mitigation measures outlined in the EIS would be incorporated into the regulatory documents that are prepared as part of the approvals process prior to mining. This would include the EM Plan, the Environmental Authority, and the Plan of Operations. Regulation of environmental management and compliance with the ToR during mining would be managed by the DERM.

6. Community and Stakeholder Engagement

Cockatoo has adopted the International Association of Public Participation (IAP2) principles to engagement across all of our projects. Methods of interacting with the community range from informing to partnering.

Ongoing engagement will be conducted with the local community, potentially affected and directly impacted landowners, and other relevant stakeholders including but not limited to:

- Regional Councils (Western Downs Regional Council & Banana Shire Council).
- Power and water providers (for example, SunWater, Ergon and Powerlink).
- The Gladstone Port.
- Other resource companies.

Cockatoo Coal's definition of a stakeholder is anyone affected by Cockatoo Coal's actions or can affect Cockatoo Coal's actions. Public notification of the EIS will be undertaken to provide all relevant stakeholders with the opportunity to comment on issues of relevance to them in accordance with statutory requirements (section 33 of the SDPWO Act) and the Taroom ToR.

A specific community and stakeholder engagement strategy regarding Taroom will also be developed as part of the EIS assessment process, in line with Cockatoo Coal's overall community and stakeholder engagement framework. The objectives of this community and stakeholder engagement strategy will be to:

- Develop and maintain a relationship between Cockatoo and the community and stakeholders that is based on trust and mutual respect.
- Facilitate open communication with the community and stakeholders through the EIS process.
- Identify community and stakeholder issues and concerns in relation to Taroom.
- Proactively respond to and work with the community and stakeholders to develop appropriate solutions and strategies to minimise negative impacts associated with Taroom.
- Address relevant community and stakeholder issues through the EIS process.

7. Contact Details

For further information regarding the North Surat Coal Projects, please contact:

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For further information about Cockatoo, including the North Surat Coal Projects, please refer to:

www.suratcoal.com.au or www.cockatoocoal.com.au

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Appendix A Interested and Affected Parties

A list of interested and affected parties is as follows:

- Taroom land owners directly affected by Taroom mine
- Wandoan land owners directly affected by Taroom mine
- Grosmont residents
- Industrial neighbours
- Local businesses
- Banana Shire Council
- Western Downs Regional Council
- State Member for Callide
- QLD Environment Minister
- QLD Premier
- QLD Treasurer and Minister for State Development and Trade
- Minister for Energy and Water Utilities
- Minister for Agriculture, Food and Regional Economies
- Minister for Finance, Natural Resources and The Arts
- Minister for Employment, Skills and Mining
- QLD Treasury Department
- Department of Local Government and Planning
- Office of the Coordinator General
- Department of Transport and Main roads QLD
- Department of Environment and Resource Management (DERM)
- Department of Mines and Energy
- Federal Member for Flynn
- Federal Member for Maranoa
- Minister for Sustainable Population, Communities Environment and Water
- Minister for Resources and Energy
- Minister for Regional Australia, Regional Development
- Local community groups
- Queensland Urban Utilities
- Ergon Energy

- Queensland Rail
- Wubagul Train Station
- Wandoan Train Station
- Local emergency services