3 Project changes

As noted in Section 1.3, the Project design has been refined to improve its environmental and operational performance since the completion of the environmental assessment (EA) in September 2012. These refinements have not changed the fundamentals of the Project design, particularly its layout and footprint, which remain consistent with that described in the EA.

3.1 Project summary

The Project summary table presented in the main EA (Table 3.1) is replicated in Table 3.1 below with significant Project changes underlined. These and various smaller changes have been considered by the technical specialists and assessments from the EA revised where required, including the proposed management and monitoring measures. All changes are described in this section.

Table 3.1 Project summary

Aspect	Description
Proponent	Cobbora Holding Company (CHC) Pty Limited. CHC's coal customers are Delta Electricity (Vales Point power station only), Macquarie Generation and Origin Energy.
Project life	The mine life is 21 years.
Project schedule	Project construction will take about 2.5 years from the last quarter of 2013 to the second quarter of 2015. Product coal delivery will begin in <u>early</u>-2015 to meet the CHC's contractual requirements and is scheduled to continue until 2036.
Mine	Mining will occur in three areas covering some <u>4,130 ha</u> (previously 3,950 ha) and incorporating multiple mining faces, waste rock emplacements, sedimentation dams and out-of-pit tailings emplacements that will be developed progressively.
Resource and ROM coal production	The JORC-compliant coal resource to be mined is 440 Mt (measured), 305 Mt (indicated) and 700 Mt (inferred), as at 30 April 2012. Run-of-mine (ROM) coal will be extracted at a rate of up to some 20 Mtpa.
Waste rock	So the mining pits can be established, excavated waste rock will be initially placed in out-of-pit emplacements, which will also form environmental bunds. Once the pits are established, material will primarily be placed in open cut mine voids so as to minimise out-of-pit emplacement.
Mine waste	Maximum waste rock thickness is 75 m, minimum 0.3 m.
Coal handling and preparation plant	Saleable product will be coal that has been beneficiated (cleaned) via dense medium separation and possibly some unprocessed bypass coal. ROM coal will be processed to produce up to 12 Mtpa of product coal.
Coarse rejects and tailings	Coarse rejects will be emplaced with waste rock; very fine rejects (tailings) <u>will be initially pumped to two out-of-pit tailings emplacements and then to a series of emplacements within the open cut mine voids so as to minimise out-of-pit impacts.</u>
Rail spur and balloon loop	Coal will be loaded onto trains at a dedicated rail spur and balloon loop. A rail spur and balloon loop (28 km in total) will link the coal loading facility to the Dunedoo–Gulgong Railway at Tallawang.
Locomotive provisioning facility	A locomotive provisioning facility, owned and operated by a third party, will be built subject to coal hauliers' requirements, along the rail spur on land CHC owns.

Table 3.1 Project summary

Aspect	Description
Water demand, supply and disposal	Water demand will be up to 4,340 ML per year (previously 3,700 ML per year), largely for process water in the CHPP and dust suppression. The main water sources will be harvested surface water and water collected in the mine. Where required, the Project will use up to 3,311 ML of water per year from the Cudgegong River, as allocated under the Project's high security Water Access Licences. Water from the Cudgegong River will be delivered by a pipeline 26 km long from a pumping station 5 km south of Mebul to the site's raw water dam. Water management will focus on separating clean water, overburden water (sediment laden runoff from disturbed mining areas), infrastructure water (runoff from infrastructure areas), pit water (water from the base of the pit) and process water. Clean water will be diverted around disturbed areas and returned to the environment; overburden water will be harvested and used on site or displaced from sedimentation dams into creeks if water quality criteria are met; infrastructure water will be harvested and pumped to the process water circuit. Pit water and process water will be re-used and will not be discharged off-site.
Mine access	Access will be via a road that will intersect with a diversion of Spring Ridge Road off the Golden Highway. All Project-related heavy vehicles and the majority of Project-related light vehicles will use this route.
Employment	The average construction workforce is projected to be about 350 people, peaking at about 550. The operations workforce is projected to be about 300 in 2016 and 2017, increasing to peak at about 590 people between 2027 and 2030.
Operations hours	Mining operations will occur 24 hours a day, seven days a week.
Rehabilitation	Mine rehabilitation will be progressive.
Decommissioning and closure	The final landform will be developed to be consistent with the surrounding topography and land use (ie a mix of agricultural land and woodland). Two of the three mining areas will be back-filled to above the final water table. A void and lake will be left in the third mining area. Mine infrastructure generally will be removed and the areas rehabilitated at the end of mining operations, although some infrastructure (eg the water supply pipeline) may, in agreement with landholders and regulatory agencies, be left to provide additional water to local users.

3.2 Disturbance footprint and mining area

The Project's disturbance footprint will be about 4,540 ha (previously 4,300 ha) of which the mining areas will be 4,130 ha (previously 3,950 ha). The disturbance footprint has been used for the updated assessment of impacts as opposed to the impact area of 4,700 ha used in the EA that included wider buffers. The disturbance footprint continues to allow for small variations to the final alignment and siting mine components based on detailed engineering investigations. The disturbance corridors have been modified from the main EA (Section 1.3.2) as Project definition has improved and are as follows:

- the water pipelines will disturb an area up to 20 m wide;
- the rail spur will disturb an area about 20 to 100 m wide;

- powerlines will generally be located across agricultural land and a small area will be disturbed when each pole is erected; an allowance has been made to clear a corridor 40 m wide where powerlines traverse areas containing trees; and
- road realignments will disturb an area about 10 m wide.

Some areas outside of the above corridors may be temporarily disturbed during construction. These will be on agricultural land generally owned by CHC. They will not be in areas containing threatened flora species, endangered ecological communities and woodland. Areas of archaeological sensitivity will be avoided where possible. Where areas of archaeological sensitivity cannot be avoided, they will be collected or salvaged in accordance with the Aboriginal heritage management plan. These temporary construction areas will be rehabilitated to an agricultural land use as soon as they are no longer required for construction.

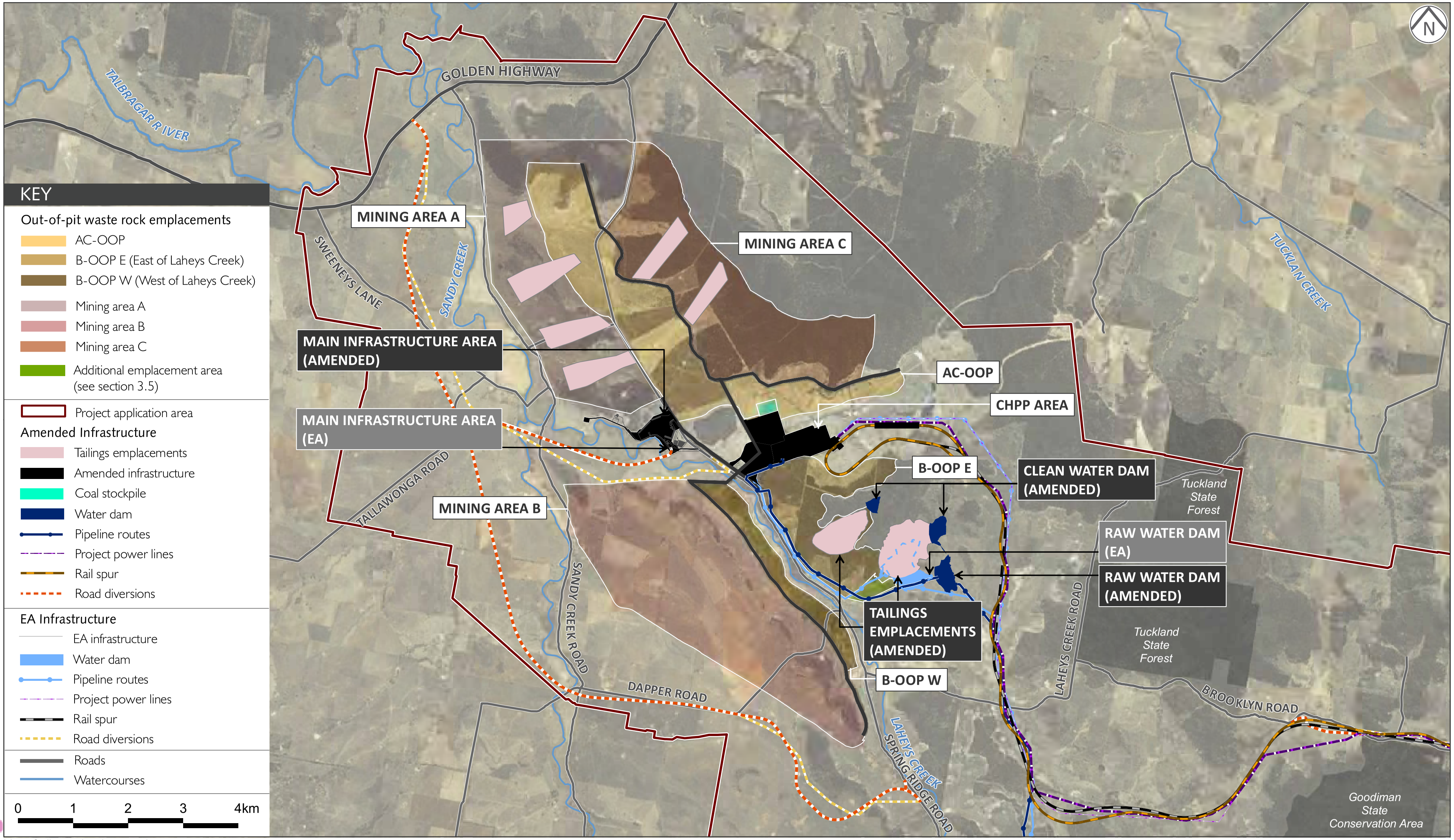
The main EA (Section 1.3) states “construction of water pipelines will disturb an area approximately 10 m wide in a 20 m wide corridor”. The wider corridor was used in impact assessments. This differs to the main EA (Section 3.18.6), which states “Construction will require disturbing a corridor or ‘construction spread’ about 5 m wide”, which is incorrect.

3.3 Tailings management

The EA presents an out-of-pit tailings emplacement area (TEA), known as TEA 1, about 2 km north of the main infrastructure area (MIA). This was to be filled over the first five years of operations (see Section 3.6.5 of the main EA). Two in-pit tailings emplacement areas (TEA2 and TEA3), both in the base of mining area A, were to be filled over the remaining mine life.

While the total volume of tailings has not changed, it is now proposed to develop two out-of-pit tailings emplacements about 3 km south-east of the MIA and six smaller in-pit emplacements in mining areas A and C (Figure 3.1 and Figure 3.2). The out-of-pit emplacements are still located with the mining areas. The methods used to thicken tailings (Section 3.6.2 of the main EA) and tailings production volumes (Table 3.5 of the main EA) have not changed.

The Project will still use two types of tailings emplacement designs, valley-type for the out-of-pit emplacements and impoundment-type for the in-pit emplacements. The design and management of the tailings emplacements is described in detail in Appendix B ‘Tailings storage facilities management plan’.



Note: Sedimentation dams not shown

Mining Operations and Infrastructure Areas

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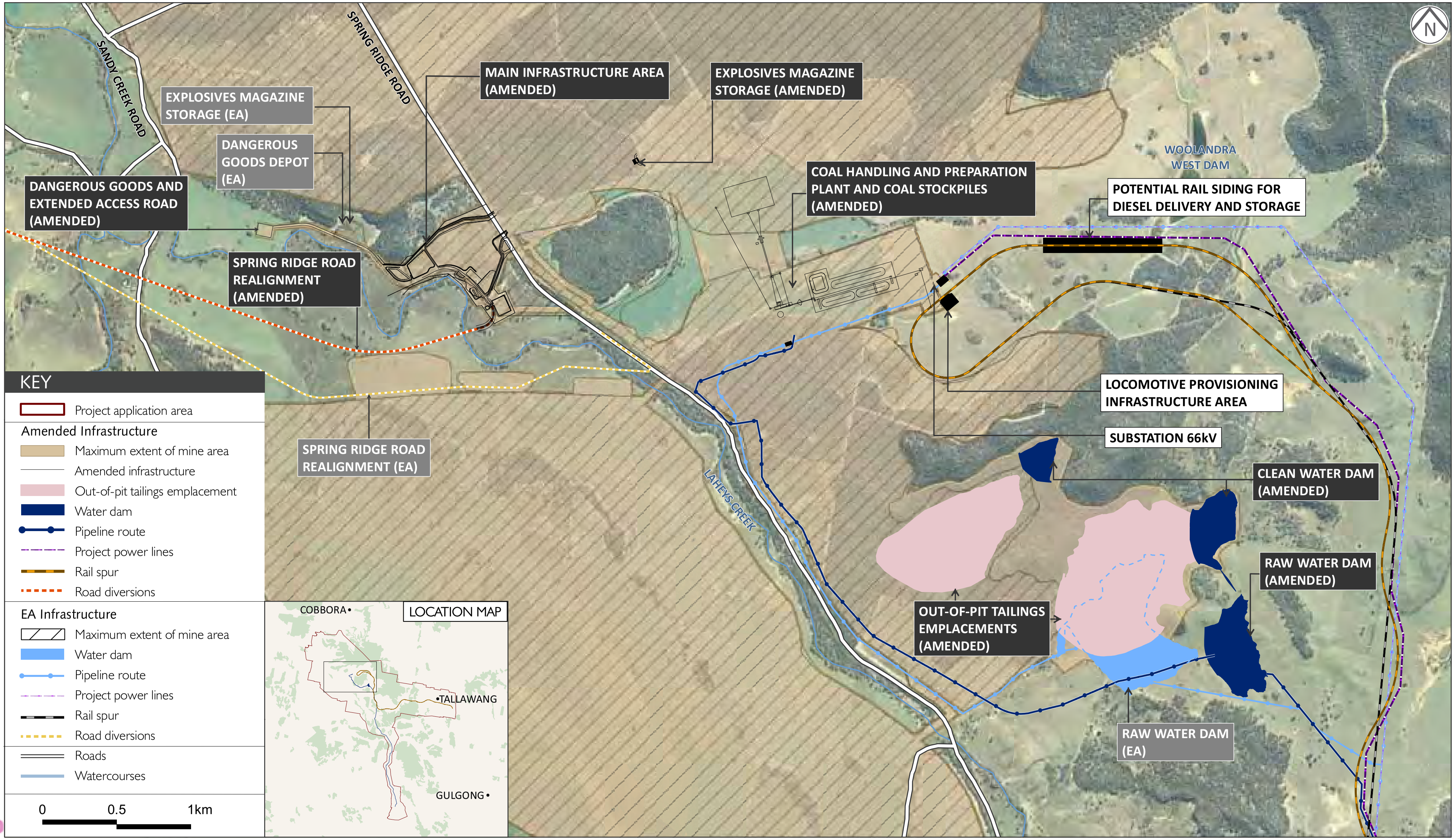
Figure 3.1



Indicative Infrastructure Area Layout

Cobbora Coal Project - Preferred Project Report and Response to Submissions

Figure 3.2

3.3.1 Out-of-pit tailings emplacements

The two out-of-pit tailings emplacements — out-of-pit west and out-of-pit east — will be valley-type emplacements constructed on the existing land surface. Out-of-pit west emplacement will be largely in the original footprint of the B-OOP E waste rock emplacement. Out-of-pit east emplacement will be partly within the area of the previously proposed raw water dam (Figure 3.2).

The primary embankments will be constructed from material excavated from the mining areas. The embankments will be constructed in stages, increasing the capacity of the emplacements as the mine progresses. The total capacity of the out-of-pit emplacements will be about 14 million cubic metres (Mm^3). Together, the out-of-pit emplacements will take about eight years to fill.

Tailings will be discharged as a slurry and solids will quickly settle forming a 'beach' downslope of the discharge points. Free water will flow to a pond on the surface of the settled tailings. This water will be pumped to the pit water circuit (see Section 3.13.4 of the main EA).

Seepage from the tailings will be collected in subsoil drains within the primary embankment. The subsoil drains will direct water to a small seepage dam downslope of the emplacement. A pumping system will return water from the decant pond and seepage dam to the pit water circuit.

Diversion drains or embankments will minimise runoff from surrounding slopes entering the emplacements with clean water dams constructed upstream of the emplacements.

The out-of-pit emplacements will be lined to minimise seepage and to maximise water recovery. Ground conditioning of the floor and embankments of the out-of-emplacements (typically using a clay liner) will limit seepage rates and maximise water recovery.

The specifications of clay liners will be decided after a detailed geotechnical assessment of the clay available in the locations of the emplacements. Preliminary soil texture observations are available for the out-of-pit tailings emplacement east location where the average clay depths are 2.7 m. This indicates in situ clays will be available to line the emplacements. Bulk samples will be laboratory tested to confirm or otherwise the clay's suitability to construct liners. If suitable clay material is not found, CHC will work with the Environment Protection Authority (EPA) to determine other suitable options, including synthetic liners to the same permeability standards.

In identifying the best liner design, the geology, the depth to groundwater and the groundwater quality (main EA section 7.3.4) will all be considered. The design will protect groundwater in accordance with ANZECC/ARMCANZ (2000a) guidelines, meaning there will be minimal impacts as a result of any tailings leachate permeating to underlying aquifers.

Irrespective of minimal predicted leachate impacts, the EPA requires seepage monitoring for all tailings emplacements using a network of piezometers (monitoring wells). Groundwater monitoring will provide regular feedback about the performance of the seepage control systems. The tailings storage facilities management plan details mechanisms to minimise impacts should the leachate control system not perform as expected.

The two out-of-pit emplacements will allow tailings deposition to alternate between the emplacements so the tailings can dry better, therefore increasing the bulk density. The first in-pit emplacement (in-pit emplacement 1) will be commissioned in about Year 7 before the out-of-pit emplacements are full. Tailings will then be discharged more slowly to reach the final fill volume of the out-of-pit emplacements to keep the level rise below about 1 to 2 m per year over the last two years of their operation. This will enhance the drying of the tailings and form a stronger crust that will be more easily rehabilitated.

The modified out-of-pit tailings emplacements:

- provide a greater distance between mining/infrastructure areas and the initial tailings emplacement area, improving safety;
- increase the area of the initial tailings emplacements and allow deposition in the two emplacements to alternate, which will allow the depth of the tailings to increase more slowly, increasing their evaporation rates and bulk density. In turn, this will improve the strength of the tailings and decrease the time required for rehabilitation; and
- decrease the ratio of the embankment’s volumes to tailing capacity volumes improving storage efficiency.

3.3.2 In-pit tailings emplacements

As the end of the use of out-of-pit tailings emplacements approaches, tailings will be placed in impoundment-type emplacements constructed in mining areas A and C (Figure 3.2).

The estimated capacity of the in-pit emplacements is summarised in Table 3.2.

Table 3.2 Estimated in-pit tailings emplacement capacities

In-pit emplacement	Volume (m^3)
In-pit 1	9.3
In-pit 2	8.8
In-pit 3	13.5
In-pit 4	8.2
In-pit 5	8.5
In-pit 6	4.9
Total	**53.2**

In-pit emplacements will be formed from disused access ramps, which will be underlain by the low permeability pit base, with side walls made from emplaced waste rock. The embankments will be engineered with a compacted upslope surface, and keyed into side walls. The higher permeability side walls will provide a preferred lateral pathway for seepage.

Seepage through the higher permeability side walls will be captured by drains along the downslope embankment toe and will flow to dams excavated into the pit floor. Pumps in these dams will return seepage to the pit water system.

In the event the mining area downslope of a tailings emplacement is backfilled with waste rock, seepage will be recovered using bores drilled through the emplaced waste rock. The bores will be positioned to draw water from the covered dams.

Water seeping into fractures in the pit base could percolate down to the underlying Permian aquifers, although fine tailings will quickly fill the pores and interstitial spaces in the underlying materials, minimising seepage. The water quality of the seepage is expected to be similar to that in the Permian aquifers and no impact to groundwater is predicted (see Section 7.5.4 of the main EA). Groundwater monitoring bores will be installed down-gradient of the tailings emplacements and groundwater levels and quality regularly monitored.

The embankments will be raised above the surrounding mining area so surface runoff will not enter the emplacements.

As for the out-of-pit tailings emplacements, tailings discharge to the in-pit emplacements will be slowed to about 1 to 2 m per year over the last two years of their operation.

The modified in-pit tailings emplacements locations:

- optimise the use of tailings emplacements by increasing the density of settled tailings;
- allow multiple emplacements to operate simultaneously and provide more flexibility in tailings deposition rates;
- allow the tailings deposition rates to decrease when the tailings depth is within 2 m of the final level to increase evaporation rates and final tailings strengths so that a 'crust' forms and helps capping;
- allow tailings to be managed in dedicated emplacements should operational monitoring show that potentially acid forming (PAF) material needs specific management;
- improve seepage management; and
- separate the tailings emplacements from the mine high walls, isolating the tailings from the porous coal seam at the base of the wall and preventing sterilisation of potentially economic coal.

3.3.3 Tailings emplacements rehabilitation

Once each tailings emplacement is full, the tailings will be left to dry and then covered and rehabilitated as described in the main (EA Section 9.4.1). The schedule for the use, drying and rehabilitation of the tailings emplacements is provided in Table 3.3.

Table 3.3 Tailings placement schedule

Tailings emplacement	Emplacement type	Mine year			
		Emplacement operation (normal filling rate)	Emplacement operation (reduced filling rate)[1]	Drying	Rehabilitation
Out-of-pit west	Valley	1 to 6	7 to 8	9 to 16	17 to 18
Out-of-pit east	Valley	1 to 6	7 to 8	9 to 16	17 to 18
In-pit 1	Impoundment	7 to 8	9 to 10	11 to 18	19 to 20
In-pit 2	Impoundment	9 to 11	12 to 13	14 to 21	22 to 23
In-pit 3	Impoundment	12 to 14	15 to 16	17 to 24	25 to 26
In-pit 4	Impoundment	15 to 17	18 to 19	20 to 27	28 to 29
In-pit 5	Impoundment	18 to 19	20 to 22	23 to 30	31 to 32
In-pit 6	Impoundment	-[2]	20 to 22	23 to 30	31 to 32

Notes: [1] *Tailings level rise of about 1 to 2 m/year.*
[2] *In-pit 6 will be operated with in-pit 5, both operating with the low filling rate to facilitate post-closure rehabilitation.*

The EA mine plans are based on allowing tailings emplacements to dry for five years before capping (see Section 3.20.4 of the main EA). Indicative mine plans based on a more conservative final drying time of eight years are presented in Figures 3.3 to 3.10.

At mine closure, the total thickness of the rehabilitated tailings emplacements (including capping) will remain below final landform height presented in the main EA (Figure 3.18).

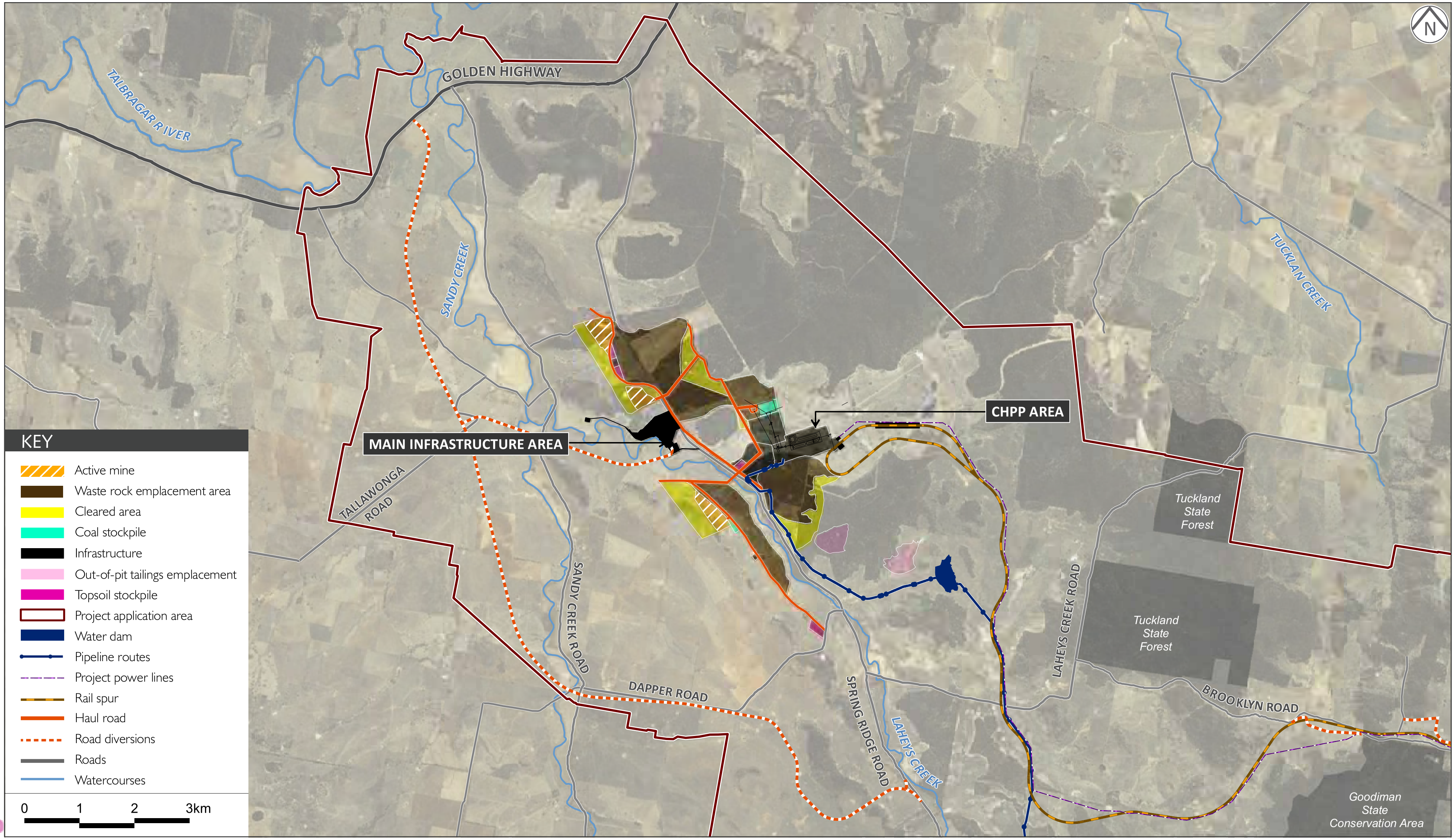
The mine footprint has expanded by about 180 ha largely as a result of the out-of-pit east tailings emplacement and rearranged mining area B (B-OOP E) waste rock emplacement that adds about 100 ha to the mine footprint. The final landform will remain largely the same as that proposed in the EA (see main EA Section 3.20.3). The updated final land uses are shown in Figure 3.11 and are summarised in Table 3.4.

Table 3.4 Final land use of mining areas

Final land use	Rural land capability class	Landform	Area (EA Table 3.10)		Area (updated)	
			ha	%	ha	%
Cropping	III	Flat to gently sloping land	1,000	25	418	10.1
Grazing	IV	Flat to gently sloping land	585	15	1,634	39.6
Woodland	V and VI	Flat to steeply inclined land	2,200	56	1,901	46.1
Pre-mining	Various	-	-	-	27	<1
Final void and high walls	VIII	Steeply inclined or inundated	165	5	143	3.4
Total			**3,950**	**100**	**4,123**	**100**

Notes: Sediment basins returned to pre-mining land use — not delineated in the EA.

The last tailings emplacements to be used, in-pit emplacements 5 and 6, will be decommissioned and rehabilitated after the CHPP is shut down. They will be allowed to dry for around eight years and then be capped, that is rehabilitation will continue after the end of operations. After drying they will be covered with waste rock that has been stockpiled close by. A layer of soil or suitable top dressing will be placed at the top of the profile to facilitate revegetation. The profile above the tailings emplacement will comprise at least 1 m of capping material, 1.2 m of waste rock forming a 'capillary break' and 0.3 m of soil or suitable top dressing. The final landform above in-pit emplacements will have a slope of 0 to 3° and will be rehabilitated to Rural Land Capability Class III. The final landform profile will remain unchanged (Figure 3.12), with the exception that the B-OOP E waste rock emplacement will be 20 m higher than described in the EA and the top of out-of-pit tailings emplacement east will be 30 m higher than the existing land surface.



Indicative Mine Plan - Year 1

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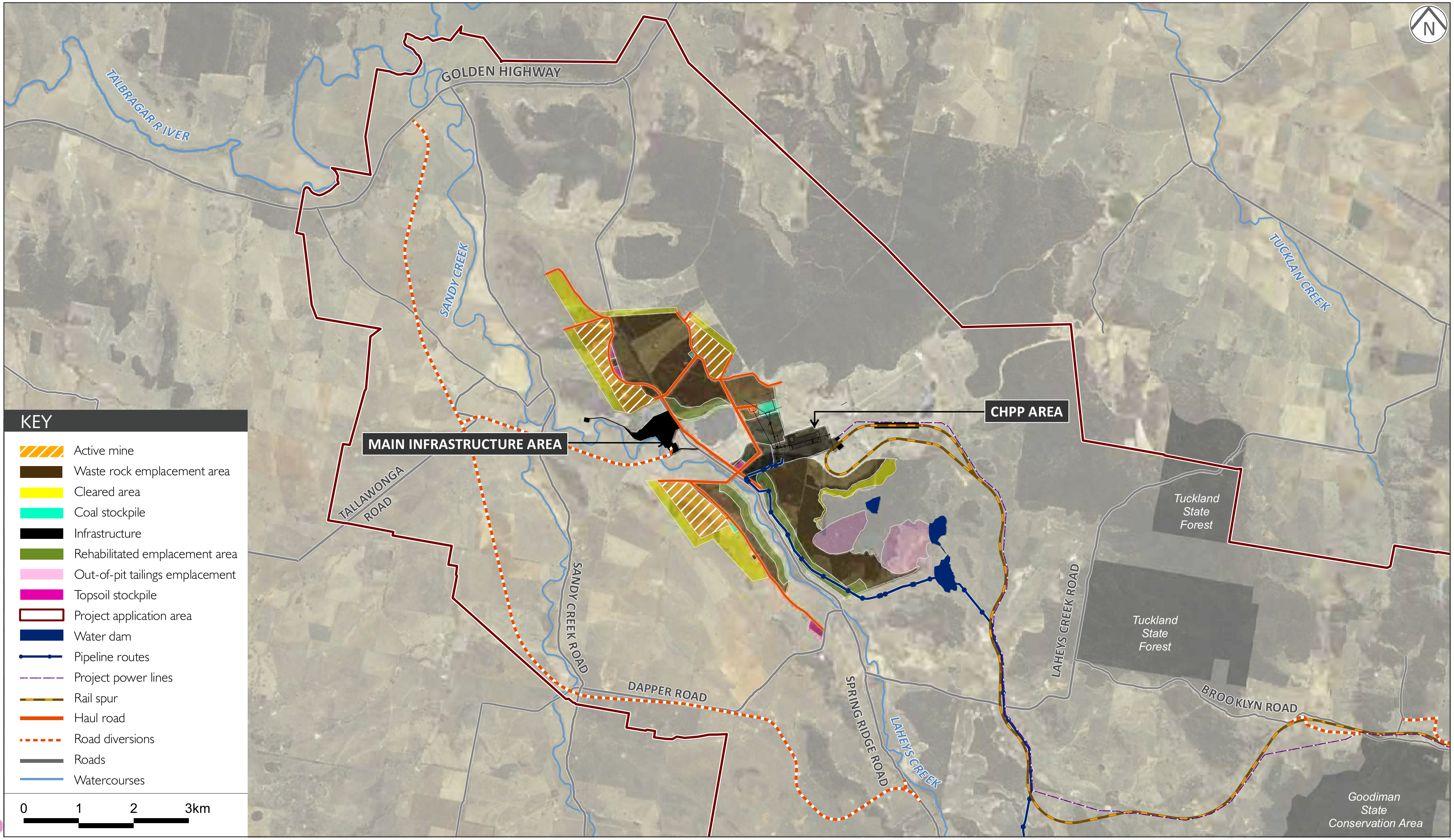
Figure 3.3



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Indicative Mine Plan - Year 2

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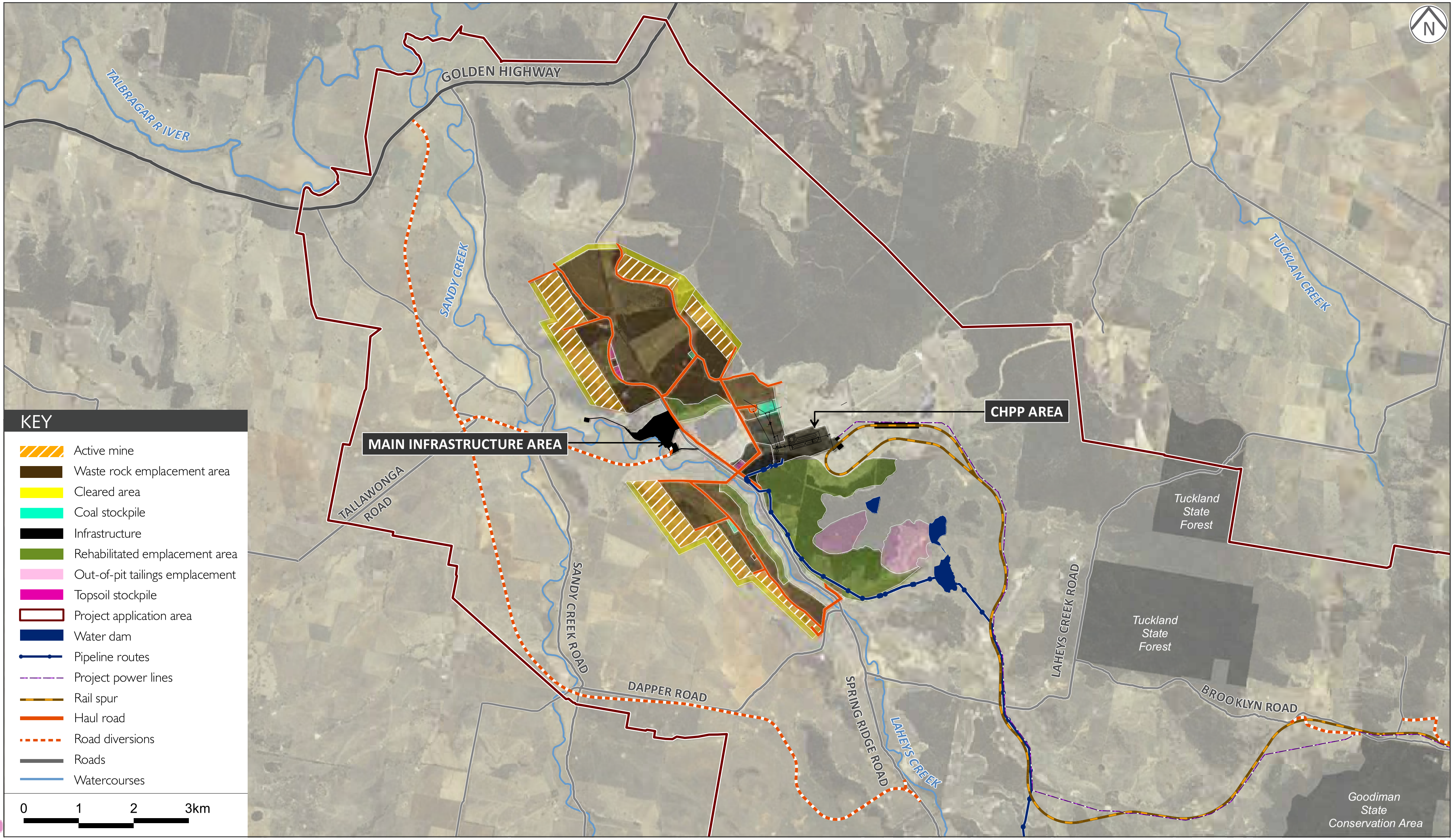
Figure 3.4



Indicative Mine Plan - Year 4

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Figure 3.5

EMM
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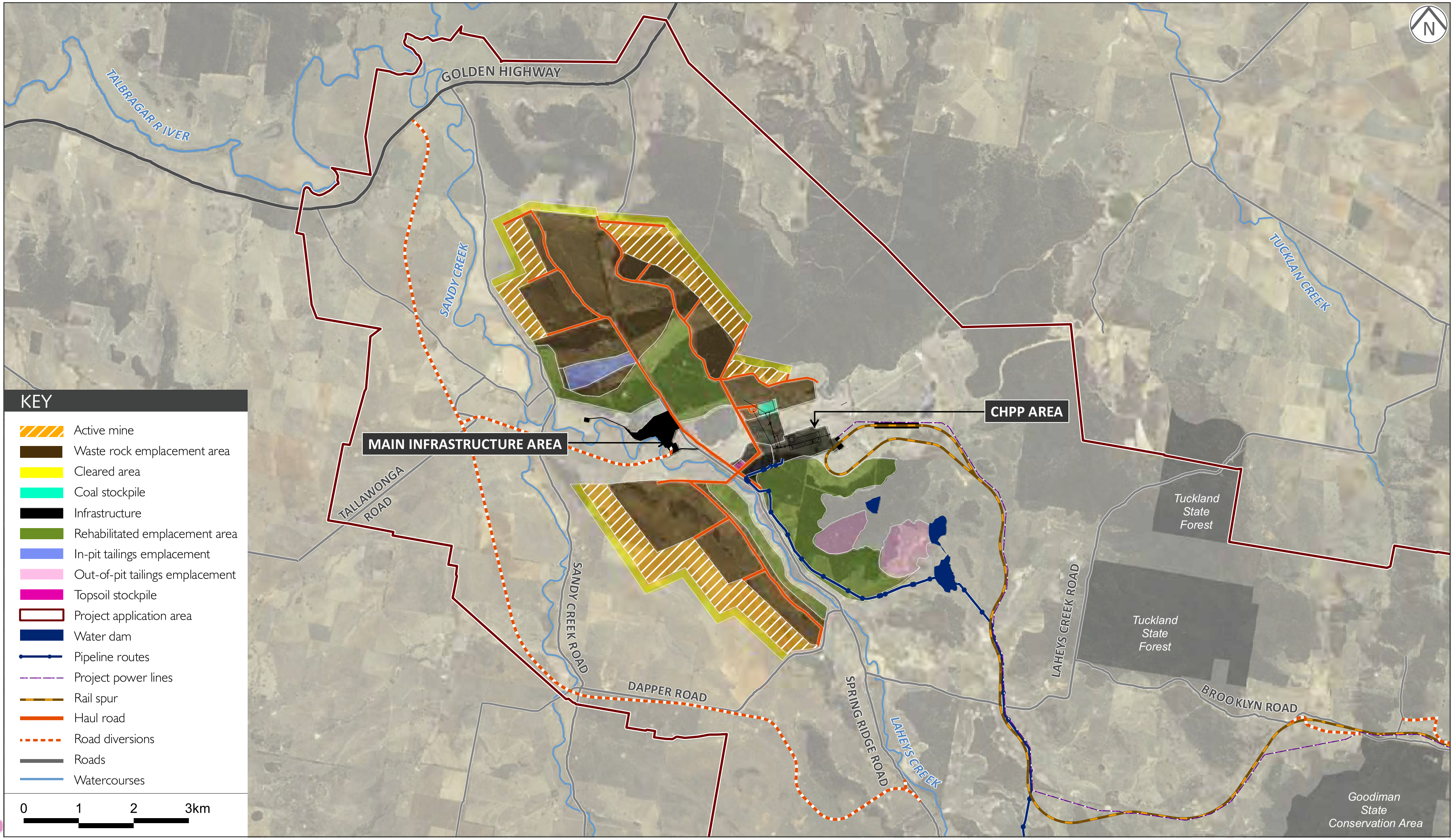

Indicative Mine Plan - Year 8

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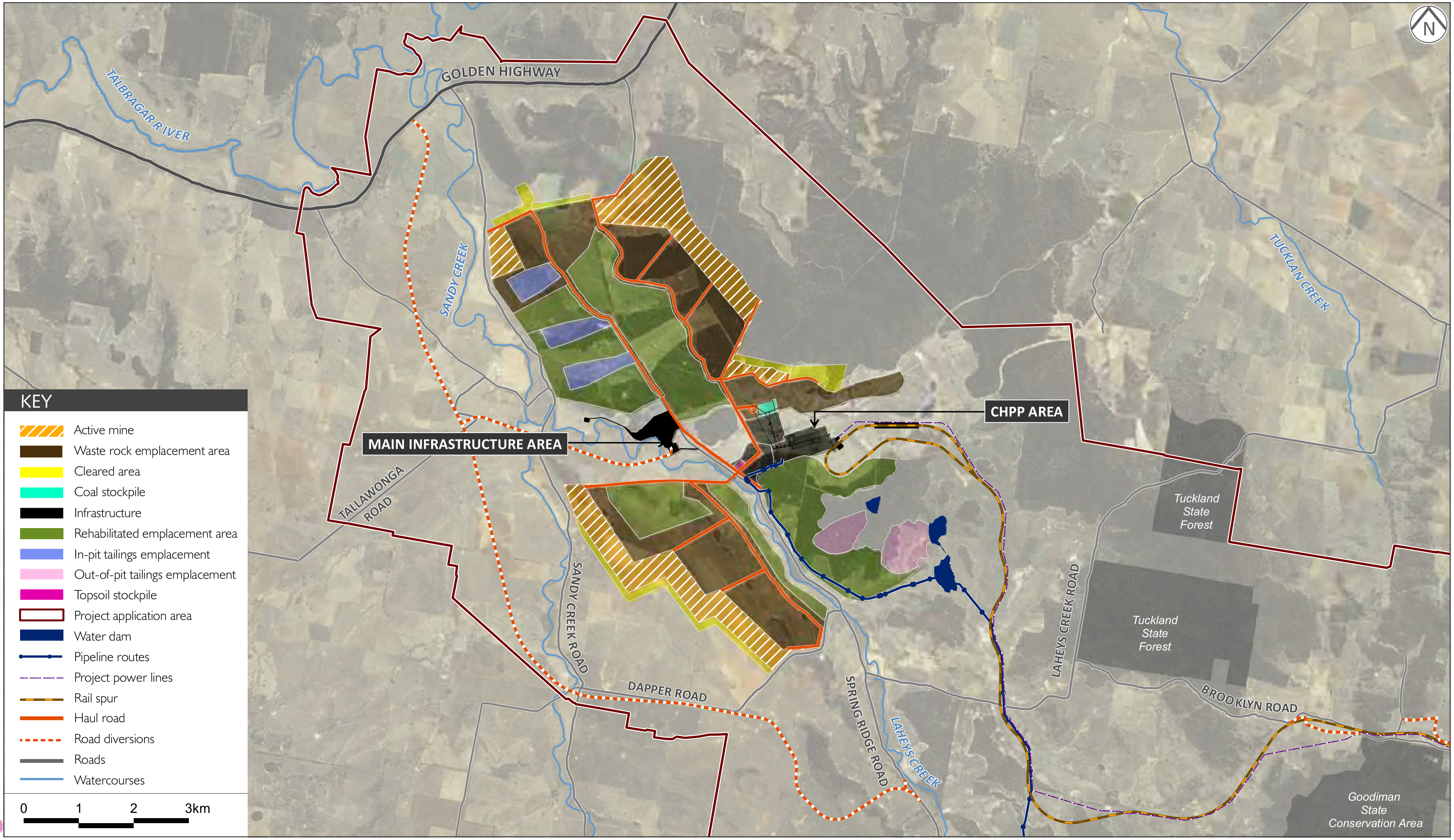
Figure 3.6

EMM Cobbora Holding Company Pty Limited



Indicative Mine Plan - Year 12

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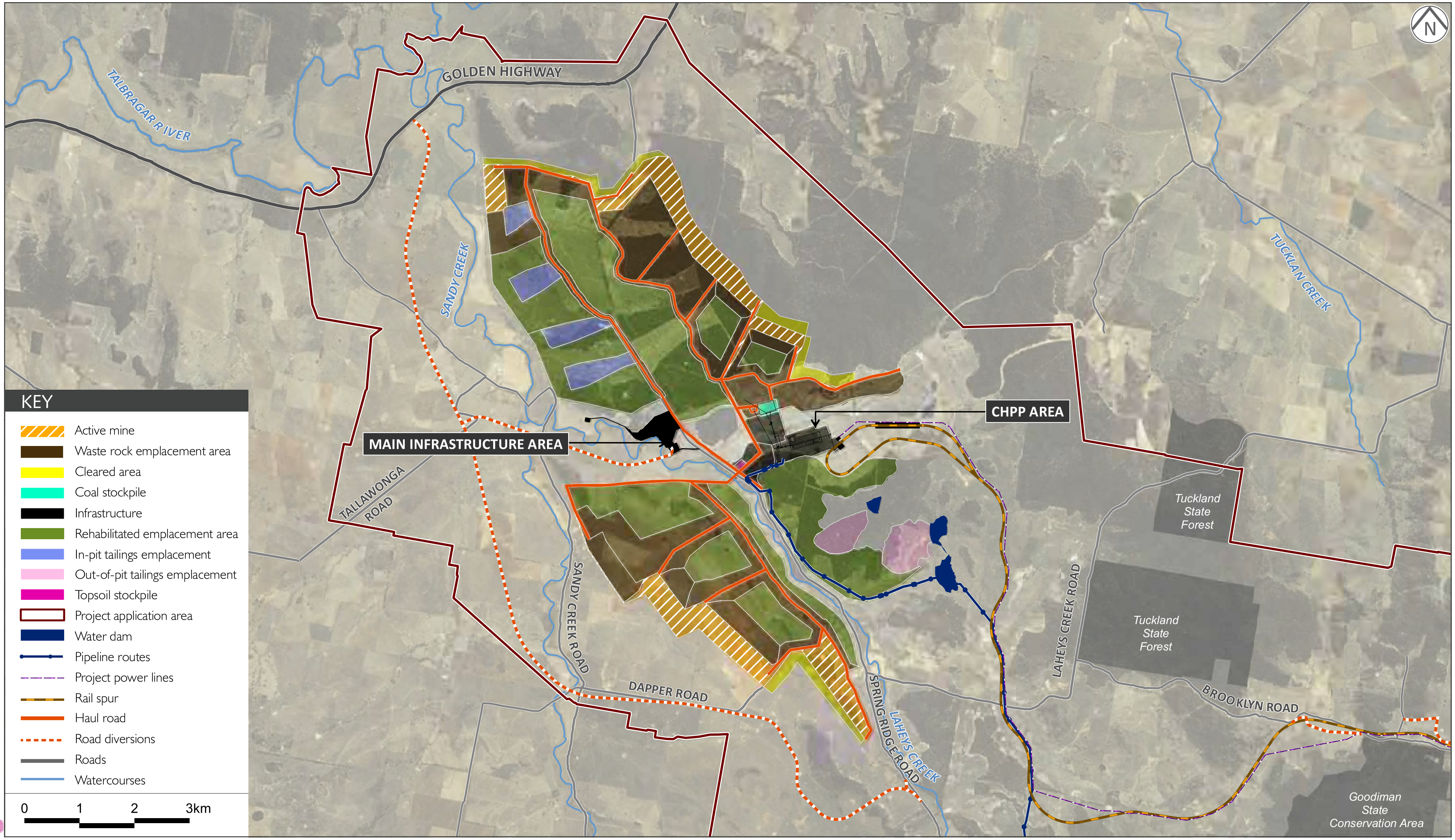
Figure 3.7

Integrated Design Solutions | 030518 Cobbora Coal Project - RTS F3-7 Rev A - 31 January 2013



EMM Cobbora Holding Company Pty Limited

Indicative Mine Plan - Year 16

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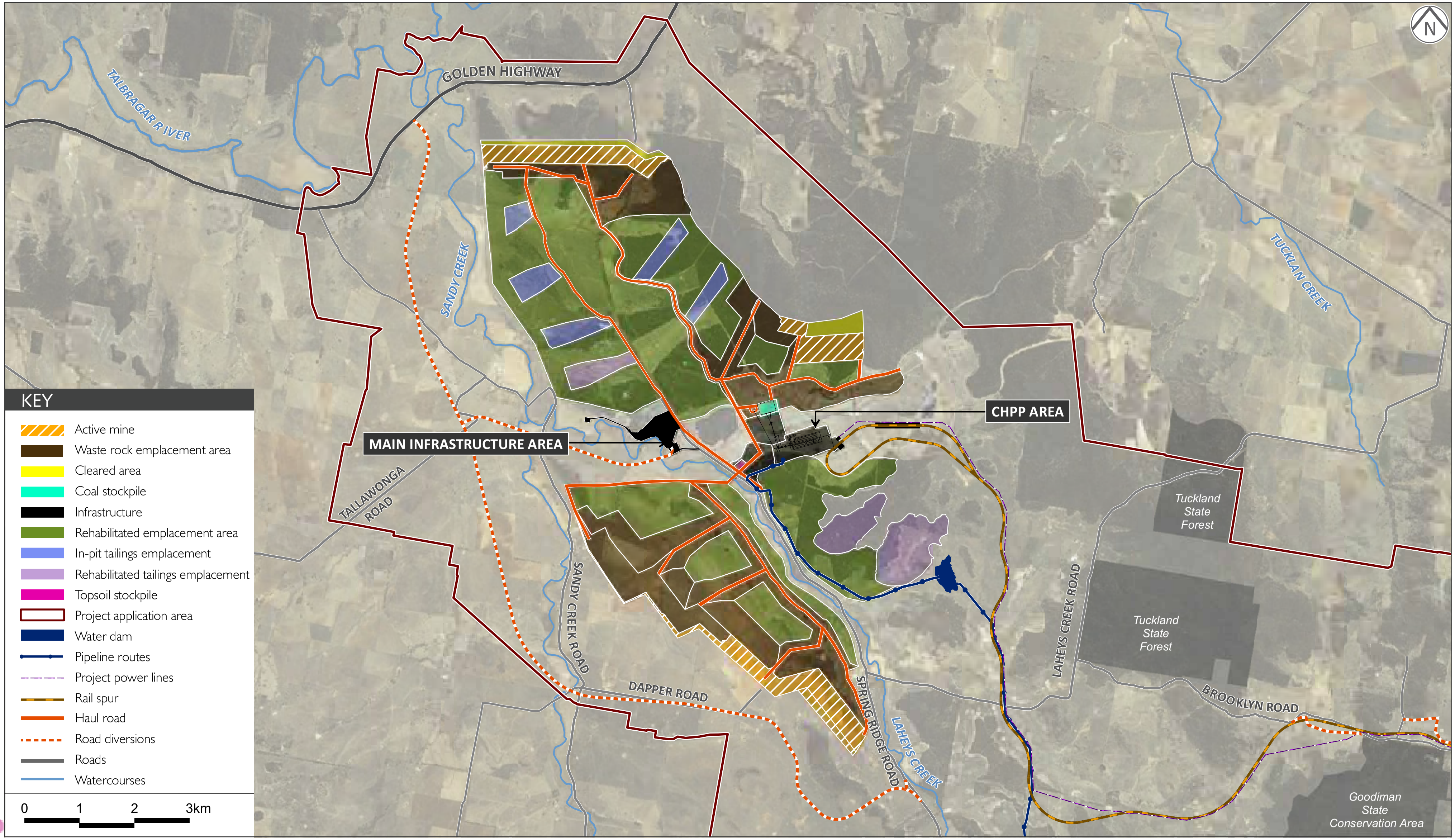
Figure 3.8



Indicative Mine Plan - Year 20

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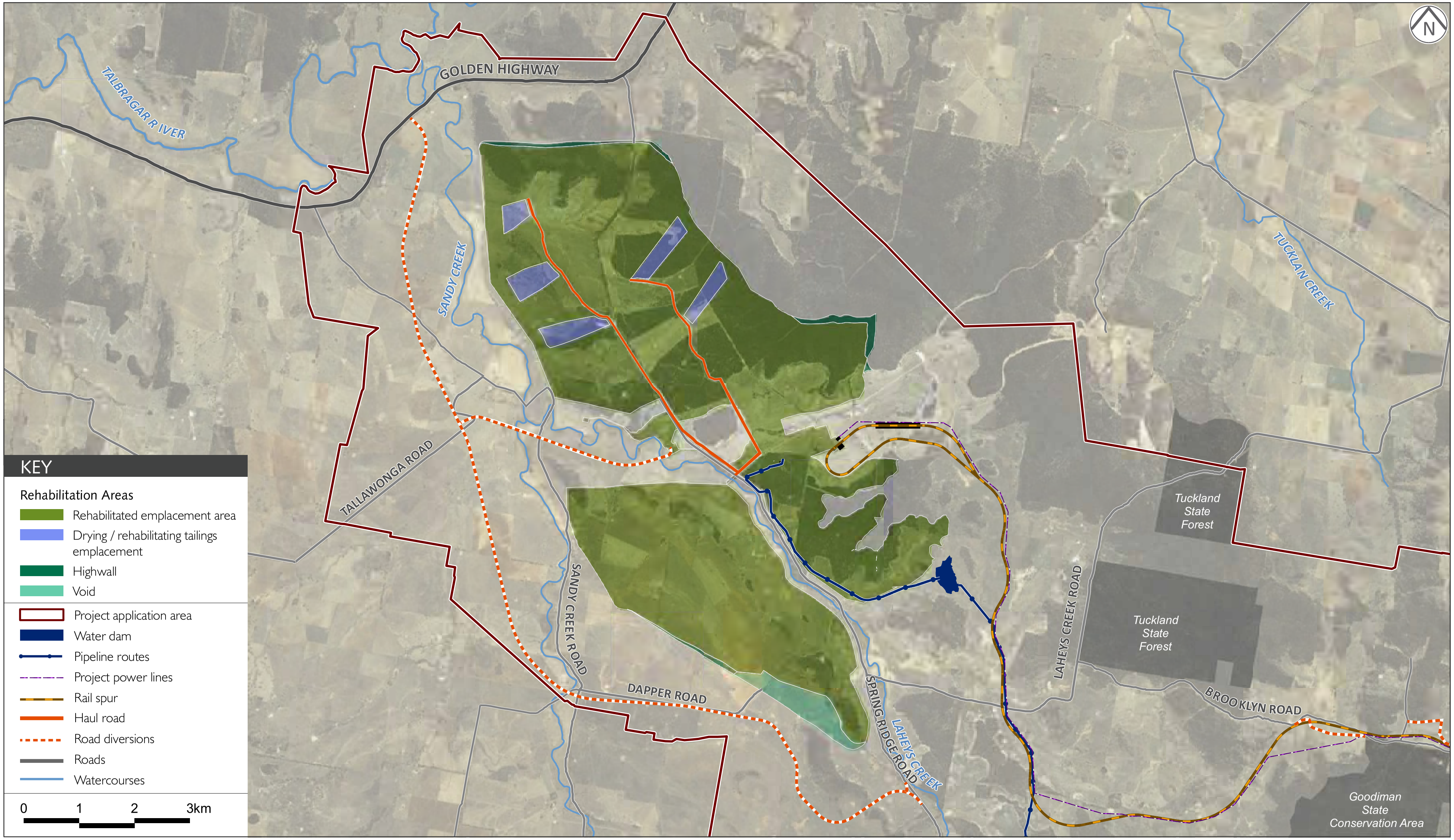
Figure 3.9

Integrated Design Solutions | 030518 Cobbora Coal Project - RTS F3-9 Rev B - 04 Febuary 2013



Indicative Mine Plan - Year 21

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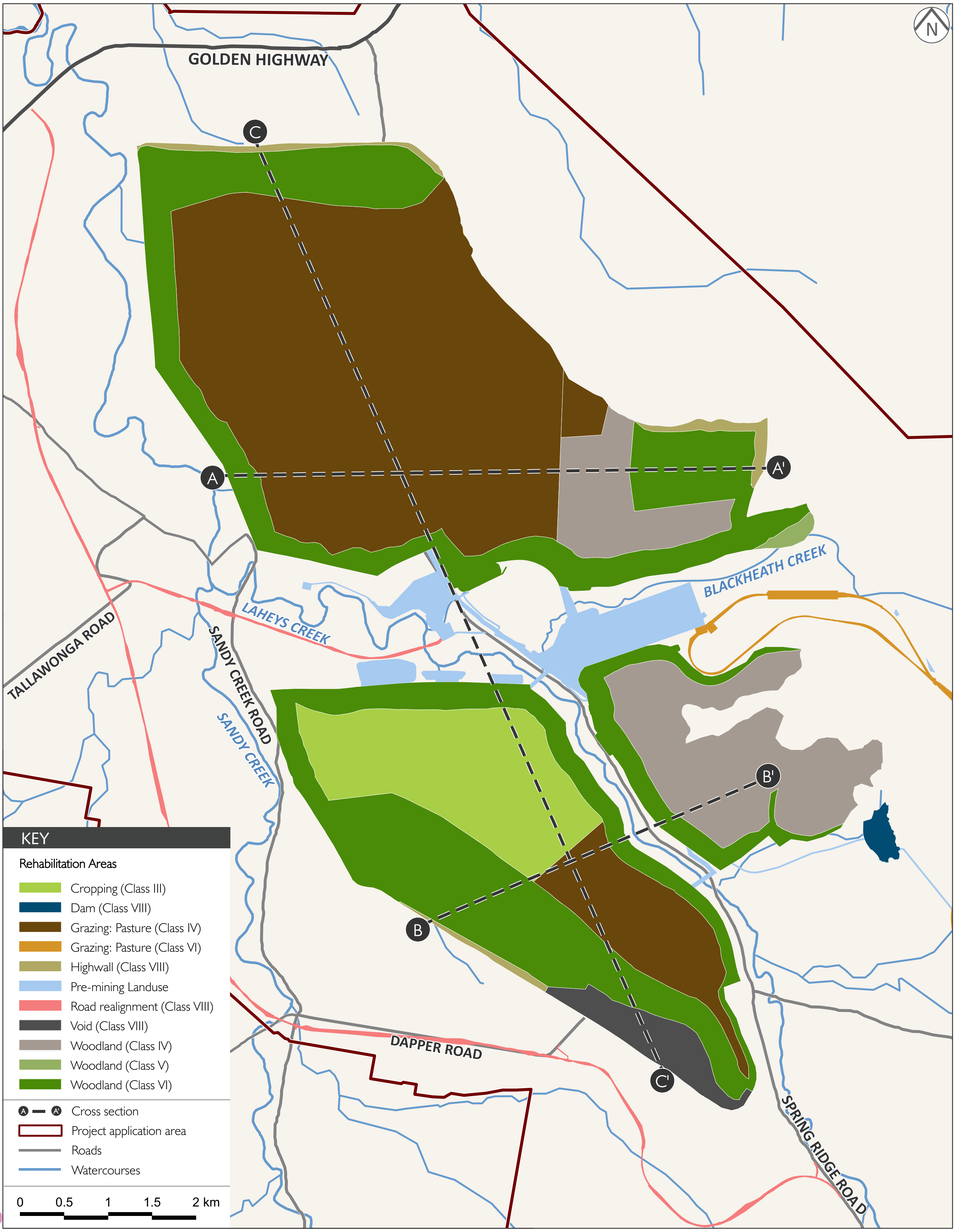
Figure 3.10

EMM Cobbora Holding Company Pty Limited



Integrated Design Solutions | 030518 Cobbora Coal Project - RTS F3-11 Rev B - 04 Febuary 2013

Final Land Use

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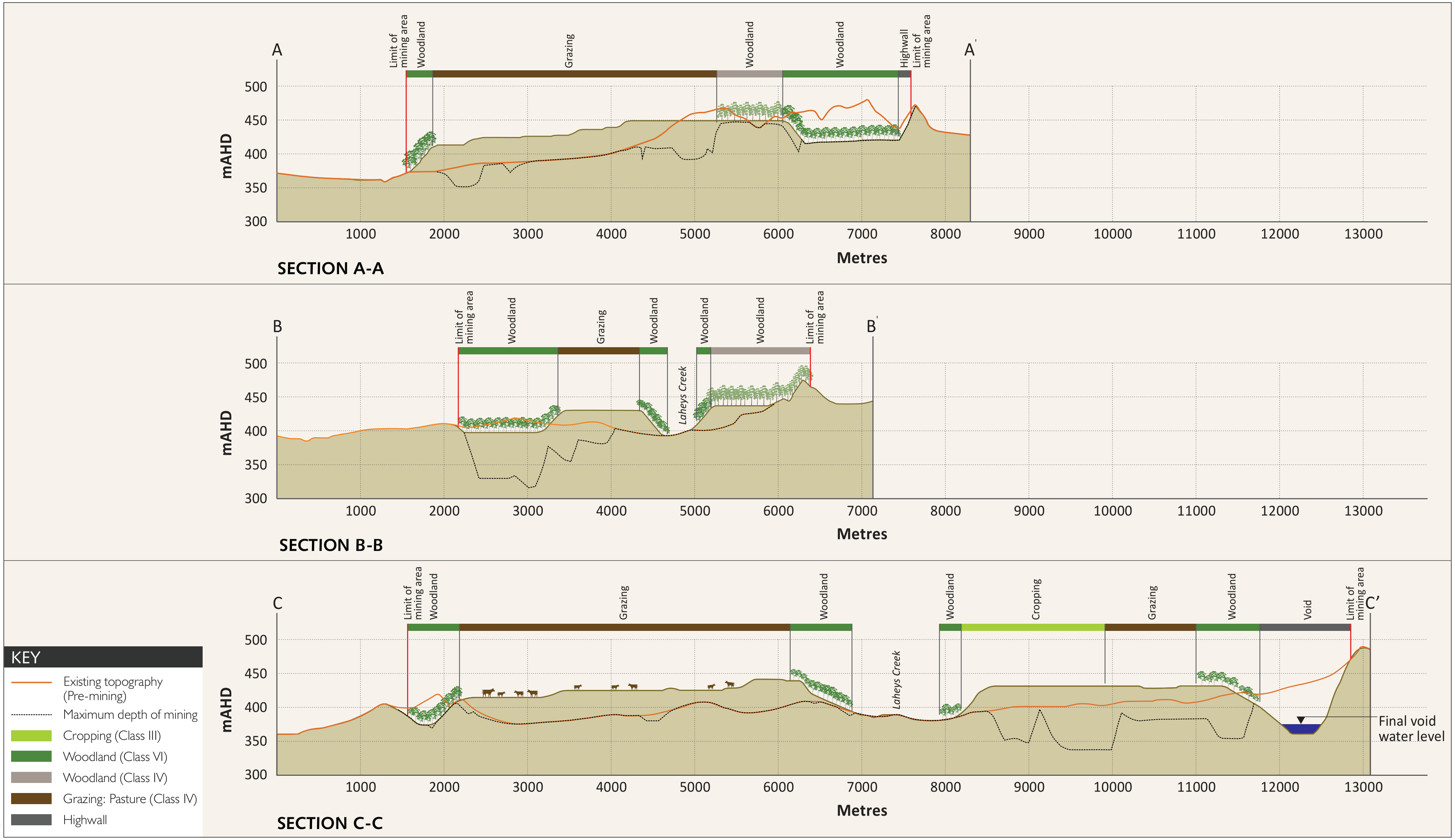
Figure 3.11



EMM Cobbora Holding Company Pty Limited

Final Landform Cross-sections

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Figure 3.12

3.3.4 Tailings management options

As described in the main EA (Section 3.21.1) and above, a range of tailings management options were considered. These are documented in Appendix C 'Dewatering Options report – comparison of options for tailings dewatering'.

3.4 Water

The main EA describes the proposed water infrastructure required to support the mine (Section 3.13) and provides a layout of this infrastructure (Figure 3.16 of the main EA). It is proposed to change the locations of the raw water dam; sedimentation and mine water dams; and sections of the water supply pipeline. The mine water balance described in EA (Appendix E 'Surface water assessment') has also been refined.

3.4.1 Water dams

It is proposed to relocate the raw water dam to an area with greater relief about 800 m to the east of the B-OOP E waste rock emplacement (Figure 3.2). This is to allow the construction of the out-of-pit tailings emplacement east. The capacity of the raw water dam will decrease from about 1.5 GL to about 1 GL and the water surface area when full from about 30 ha to about 17 ha. This will reduce evaporative loss from the dam. The water supply pipeline routes around the dam will be altered to avoid out-of-pit tailings emplacement east.

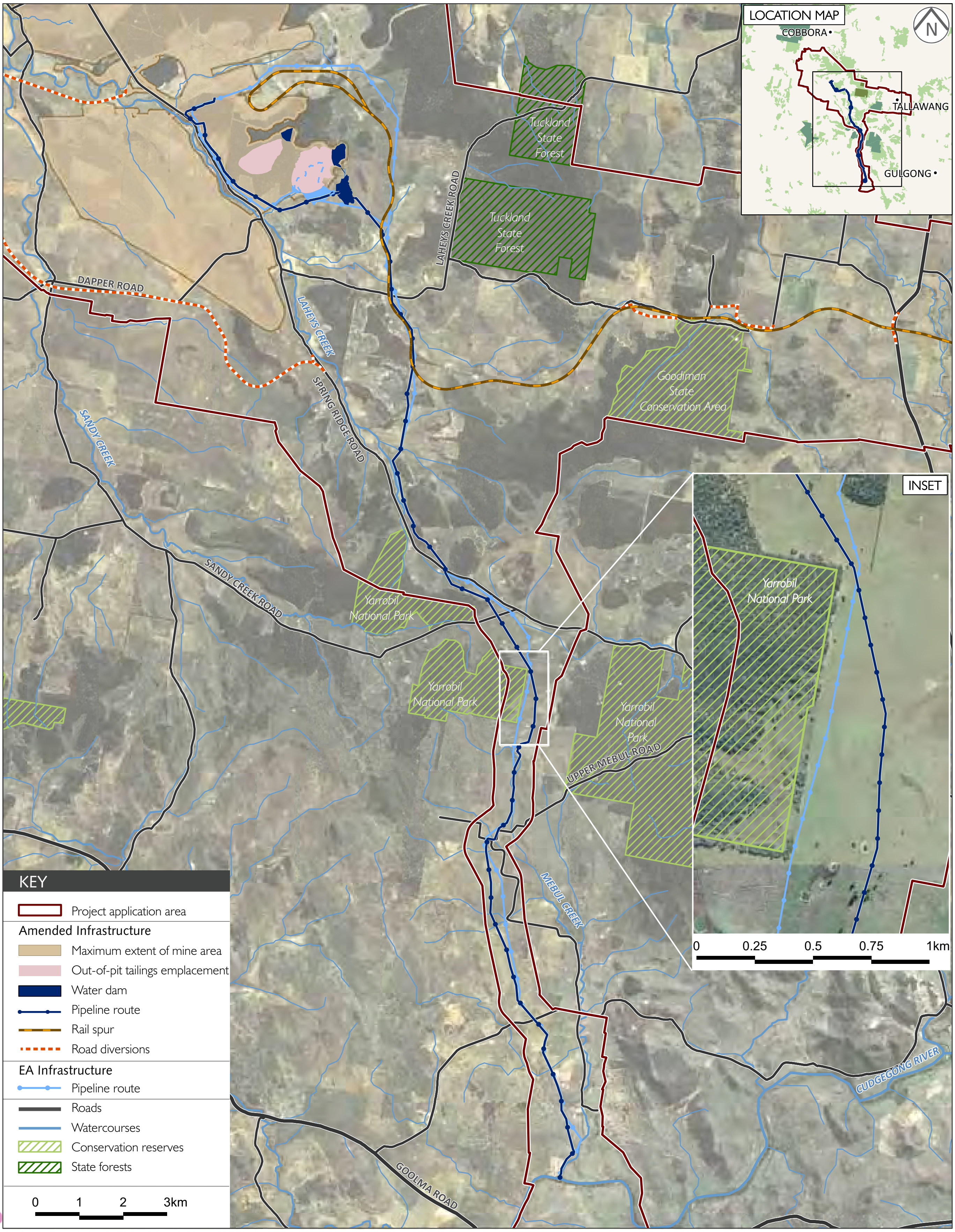
Woolandra West Dam is about half-way along Blackheath Creek and about 4 km from its confluence with Laheys Creek (see Figure 3.2). This is an existing dam with a capacity of about 1.5 GL. It is proposed to retain this dam as a construction water supply, although constructing a spillway will decrease the water level. This will provide a safe working area to construct the balloon loop. Any water remaining in the dam when construction is complete will be fully drained; a bypass structure will be installed to allow all water flowing from Blackheath Creek upstream of the dam to discharge to Laheys Creek.

Some sedimentation and mine water dams within the disturbance footprint have been relocated as a result of the changes to the Project layout. These are illustrated in Figure 3.2. The water management systems for Years 1, 4, 12, 16 and 20 are provided in Figures 4.1 to 4.5 of the 'Water balance and surface water management system' (Appendix E) of Appendix F 'Surface water assessment'.

As for the out-of-pit tailings emplacements, it is now proposed to construct mine water dams with low permeability floor and walls to minimise potential seepage to groundwater.

3.4.2 Water pipelines

The water pipeline route has been refined to generally provide a greater buffer (40 to 400 m) to the western boundary of Yarrobil National Park and to further avoid patches of vegetation. Along the 26 km long water supply pipeline, the maximum lateral change is 350 m (Figure 3.13).



EMM
Cobbora Holding Company Pty Limited

Pipeline Route

Cobbora Coal Project - Preferred Project Report and Response to Submissions

Figure 3.13

3.4.3 Water balance

The Project water balance has been refined to incorporate changes, particularly the improved tailings management strategy and raw water dam configuration that reduces evaporative losses (see Appendix F).

3.5 Out-of-pit waste rock emplacements

The main EA describes three out-of-pit waste rock emplacements — Area A and C out-of-pit (AC-OOP), Area B out-of-pit east (B-OOP E) and Area B out-of-pit west (B-OOP W) (Section 3.5.5 and Figure 3.1).

The B-OOP E waste rock emplacement footprint and height were modified so the out-of-pit tailings emplacement could be developed. The waste rock emplacement will be constructed on three sides of the out-of-pit west tailings emplacement (Figure 3.2). The maximum height of the waste rock emplacement will increase from 430 m to 450 m (above sea level). It is proposed to add an additional area (about 18 ha) to the south-east of the emplacement (Figure 3.2) and outside of the footprint assessed in this report. The footprint of this area will be included in ongoing offset area calculations and all other aspects will be managed as described in the EA and this report.

It is not proposed to change AC-OOP or B-OOP W.

3.6 Rail spur

The layout of the rail spur is shown in Figure 3.12 of the main EA. The alignment has been refined to reduce the cuttings depth and embankment heights, which will reduce its overall footprint, improve the efficiency of train operations and decrease fuel use. Along the 28-km long rail spur, the maximum lateral change is 250 m (Figure 3.14).

As well as rail bridges over Laheys Creek Road and Tallawang Creek, a new bridge will be required over Brooklyn Road on the east side of Goodiman State Conservation Area (SCA).

Geotechnical assessments along the rail spur route have shown that some blasting with a maximum instantaneous charge of 500 kg will be required during the construction of the rail spur.

3.7 Coal handling and preparation plant

The CHPP layout has been modified to provide a more efficient working arrangement. The CHPP and associated infrastructure will remain outside of the nearby drainage line (Blackheath Creek) and will be above the 1 in 100 year flood level. The main EA shows the run-of-mine (ROM) pad on the south side of Blackheath Creek about 550 m from Laheys Creek (Figure 3.15 of the main EA). It is now proposed that the ROM pad will be north of Blackheaths Creek about 1,200 m from Laheys Creek. In this position, it will be in mining areas A and C (Figure 3.2) reducing the haul distances and greenhouse gas emissions and it will be further from Laheys Creek, which allows associated sedimentation dams to be above the 1 in 100 year flood level. Out-of-pit waste rock emplacement AC-OOP will be built up around the west, north and east sides of the ROM pad.

3.8 Buildings and structures

The buildings and structures that will be built generally within the MIA are described in the main EA (Section 3.12).

The MIA has been reduced from 37.2 ha to 33.5 ha (Figure 3.2). This avoids areas in the south, but moves the northern boundary of the MIA about 70 m north. The locations of sedimentation dams associated with the MIA reflect these changes.

The explosives magazine will be over 1,000 m, and the refuelling/fuel storage will still be over 50 m, from the nearest publicly accessible area — the mine access road running off the Spring Ridge Road diversion. Therefore, the hazard assessment for these Project components is unchanged from that given in the EA (Appendix U).

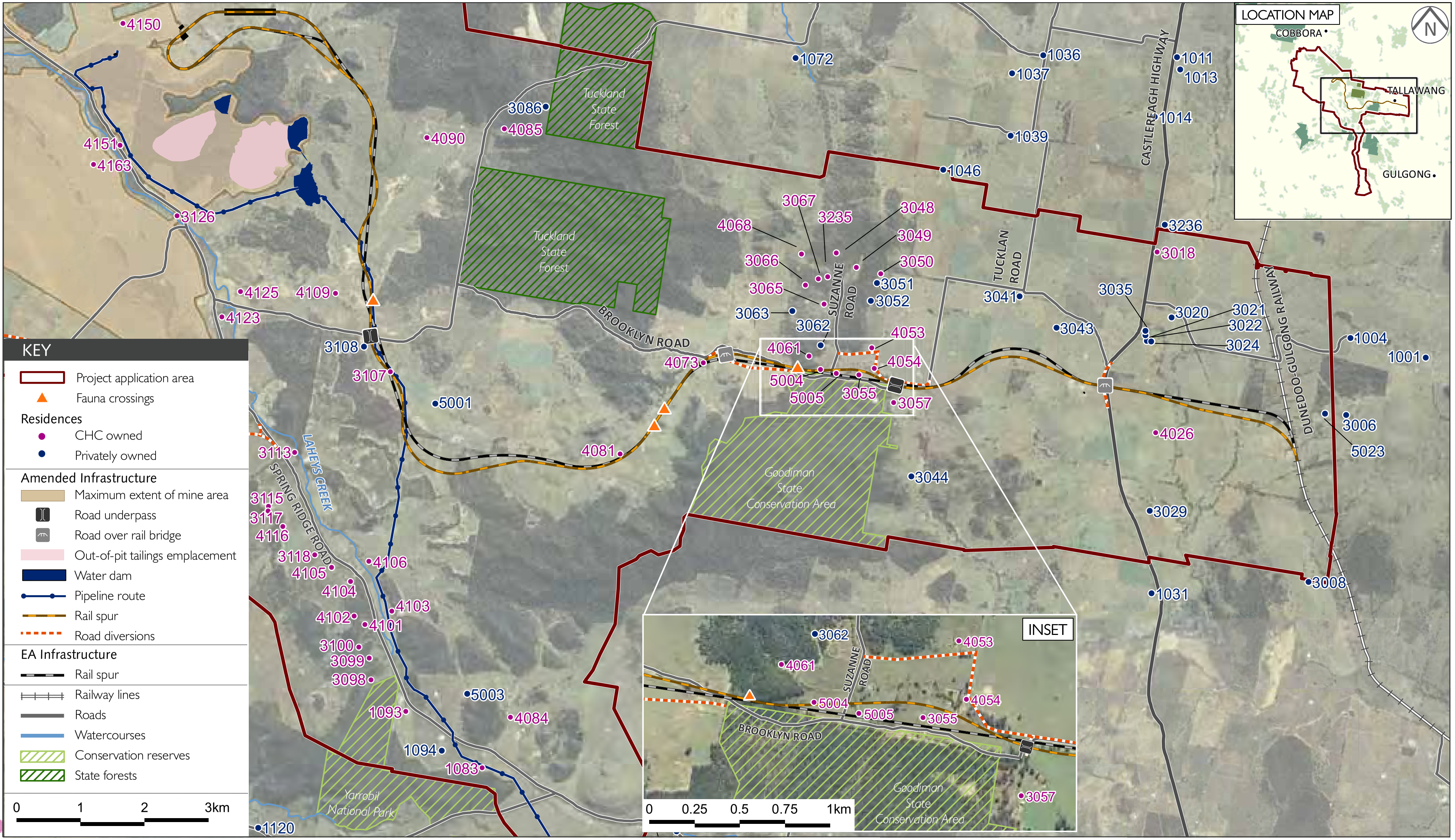
The dangerous goods depot, where ammonium nitrate will be stored, has moved to be about 500 m from the mine access road. The dangerous goods depot was assessed in Appendix U as being within the 'overpressure effects potentially hazardous region' for Class 1.1 explosives in *Hazardous and offensive development application guidelines: applying SEPP 33* (DP&I 2011). This is still the case and safeguard various measures, such as bunds, will be investigated during detailed design, with any necessary measures being incorporated.

The CHPP area will also include the following additional buildings: workshop, maintenance yard, offices, laboratory and stores.

3.9 Roads

3.9.1 Castlereagh Highway

The rail spur will pass through a cutting under the Castlereagh Highway (ie a road over rail bridge). Road work will be required when constructing the cutting. The main EA (Section 3.18.4) proposes temporary roadwork speed restrictions (80 km/h) along about 1 km of the highway for about six months during construction. Following further consultation with Roads and Maritime Services (RMS), it is now proposed to construct a permanent realignment to the west of the highway to allow continued travel at 100 km/h. The realignment will improve the curve geometry of the highway (Figure 3.15) and will be opened when the old section of the highway is closed. Constructing the permanent realignment will avoid the need for reduced speeds for six months.



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Rail Spur

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Figure 3.14

3.9.2 Local roads

3.9.3 Spring Ridge Road and Dapper Road

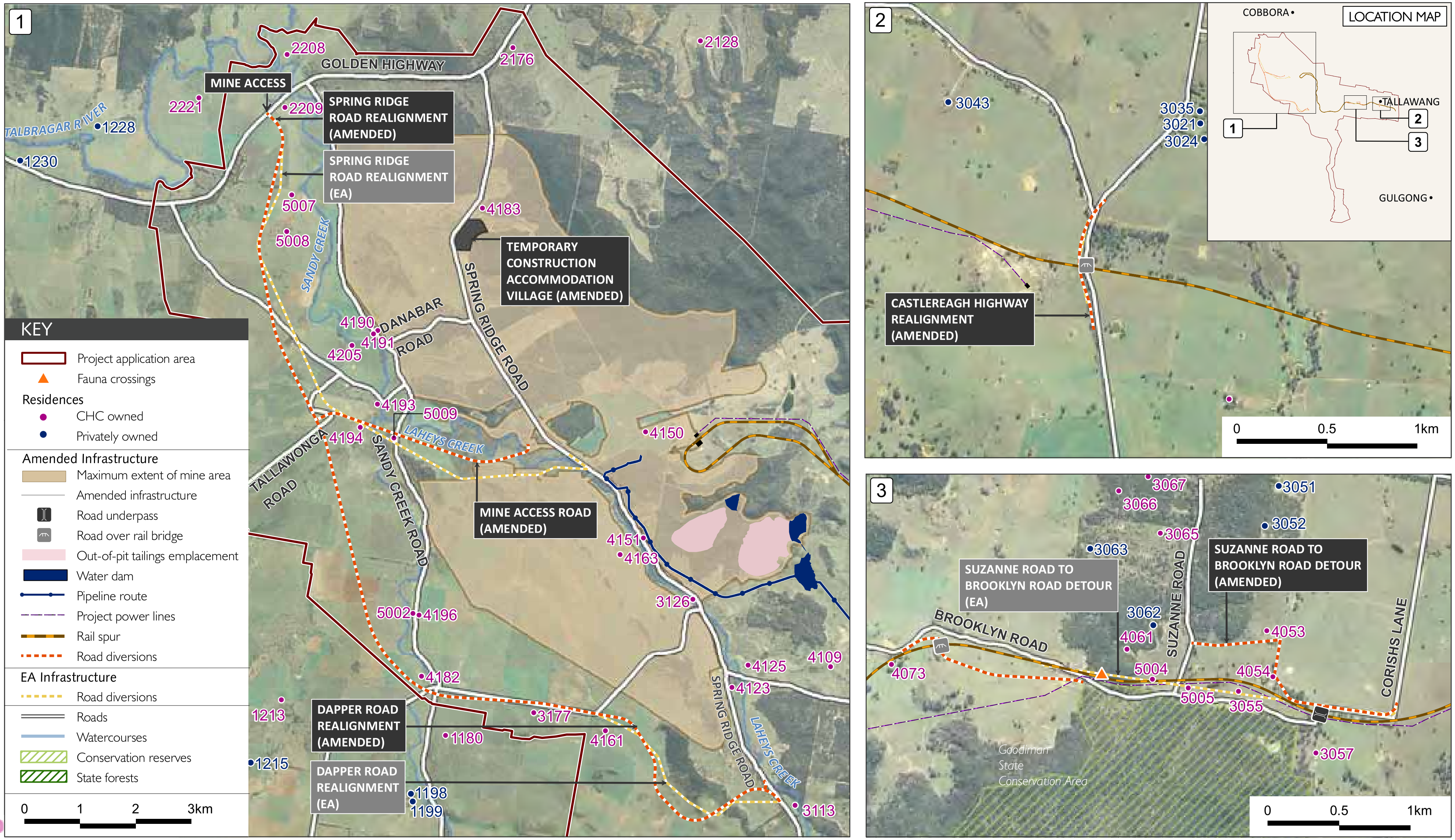
The main EA proposes closing the northern end of Spring Ridge Road towards the end of construction and replacing it with the Spring Ridge Road diversion (Section 3.11.3). Traffic using this road would rejoin the existing Spring Ridge Road immediately south of the MIA. The EA also proposes diverting the eastern end of Dapper Road after about Year 8 with a road of a similar standard to the existing road (ie an unsealed road).

It is now proposed to join the Spring Ridge Road and Dapper Road diversions (Figure 3.15) during the construction phase to provide an entirely sealed diversion road to allow a speed limit of 100 km/h. This longer diversion will generally follow the same route as the Spring Ridge Road diversion between the Golden Highway and Tallawonga Road. It will then continue south across CHC-owned agricultural land before joining an upgraded section of Sandy Creek Road. On reaching the western end of Dapper Road, it will generally follow the route of the previously proposed Dapper Road diversion to join Spring Ridge Road south of mining area B. The amended Spring Ridge Road diversion will be 19 km long.

The combined diversion will divert public traffic around the entire mine site providing better site security and reducing the visual impact of the mine from public roads.

3.9.4 Mine access road

The mine access road (formerly part of the Spring Ridge Road diversion) will be up to 400 m further north in parts. This is because the road does not need to be aligned to allow a high speed intersection with the existing Spring Ridge Road. The road will be about 4 km long from the Spring Ridge Road diversion to the entrance to the MIA. Access to the MIA will be from the existing Spring Ridge Road before the Spring Ridge Road diversion is completed.



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Road Diversions

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Figure 3.15

3.9.5 Brooklyn Road and Suzanne Road

It is proposed to refine the diversion of Brooklyn Road in the area of Suzanne Road as a result of the modified rail spur route (Figure 3.15). Through traffic travelling east from Corishs Lane to Brooklyn Road and beyond will pass under the rail spur through an underpass on the west side of Goodiman SCA. This will join the existing Brooklyn Road running on the north of, and in parts through, Goodiman SCA. A new section of road and a road over rail bridge will take Brooklyn Road over the rail spur and back onto its exiting alignment.

The underpass on the west side of Goodiman SCA will have a clearance of 5.5 m and will allow heavy equipment (eg a grader on a low loader). It will maintain access to a private residence (3044) to the east of Goodiman SCA and to the conservation area.

Traffic travelling to Suzanne Road from Corishs Lane will use a new section of road on the north side of the rail spur. The existing intersection of Suzanne Road and Brooklyn Road will be removed and traffic travelling to Suzanne Road from the west along Brooklyn Road will need to use the rail underpass to meet up with this new road.

3.9.6 Haul roads

The main EA (Figures 3.3 to 3.8) shows the southern end of the main haul road from mining area C curving to the west to join a haul road that follows the current alignment of Spring Ridge Road. It is now proposed to realign the final 500 m of this haul road to run directly south from mining area C to join the haul road from Mining area B. This will move the road away from an area of remnant vegetation and an area of greater Aboriginal heritage sensitivity but will cross the Blackheath Creek drainage line. The ROM pad will be accessed from these haul roads.

3.10 Construction

3.10.1 Construction fleet and activities

Further information on the construction fleet and activities has been incorporated into the construction noise and vibration assessment (Chapter 15).

3.10.2 Construction accommodation village

The footprint of the construction accommodation village is shown in the main EA (Figure 1.2). It is proposed to modify this footprint so that it extends further to the south (Figure 3.16) but it will remain within the larger footprint of the mine and will be removed following Project construction.

It is also proposed to construct a 22 kV powerline from the village to the Essential Energy Dubbo — Dunedoo power line that runs along the Golden Highway. The powerline to the village will be mostly within the mine disturbance area but will run from the northern boundary of the disturbance area to the Golden Highway across CHC-owned agricultural land. Some vegetation may have to be moved on the south side of the highway.

Construction Accommodation Village

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Figure 3.16