Waratah Coal

Galilee Coal Project (northern export facility) - Review of Environmental Factors - Rail Alignment Options at the Mine

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EXECUTIVE SUMMARY

Waratah Coal is proposing to develop a rail line connecting the Galilee Coal Project (northern export facility) in the Alpha region to a coal terminal located at the Port of Abbott Point. E3 Consult was engaged to identify potential environmental issues associated with three rail alignment options located between Kilometre Point (KP) 468 and KP 410. The purpose of this report was to provide a high level desktop assessment and comparison of potential environmental impacts associated with three rail alignments termed Option 1, Option 2 and Option 3.

The scope of the Review of Environmental Factors required E3 Consult to:

- Describe the existing environment of the rail corridor alignments, including a 500 m buffer either side of the centerline;
- Search State and Commonwealth databases for the presence of threatened species, communities, or ecosystems that may occur within, or be threatened by activities associated with, the rail corridor;
- Conduct a review of published scientific or environmental data from the area of the rail corridor;
- Identify data gaps and statutory triggers that may require further consideration by the Project planners;
- Identify other environmental issues that may need to be considered due to the requirements of the Project's terms of reference (ToR).

Prior to this report a comprehensive assessment had been conducted of Option 1 and the results were presented in Waratah Coal's Environmental Impact Statement.

Desktop assessment undertaken for this report established that environmental constraints associated with the following aspects were similar for each of the three rail alignments:

- Land (including soils, topography and geography) and land use;
- Terrestrial and aquatic ecology;
- Groundwater and surface water resources;
- Waste management issues;
- Traffic and transport; and
- Indigenous and non indigenous cultural heritage.

Based on these findings, these aspects are not considered differentiators for determining a preferred rail alignment, although ease/cost of construction on alignments with more or less undulating land may be a factor. Actual environmental management to avoid or address impacts are likely to be different in detail rather than scope based on alignment choice.

The impact of rail construction and operation for each alignment on noise, air quality, and visual amenity receptors will need to be reassessed. . The following aspects may be potential differentiators:

- A different suite of homesteads (visual receptors) are likely to be affected by the new alignment options. The density of homesteads is low in the area, but the impact of rail construction and operation on visual amenity will need to be assessed.
- A different suite of sensitive receptors for air quality are likely to be affected by the new alignment options. An assessment of greenhouse gas emissions suggests that there will only be marginal differences depending on alignment option, i.e. increased load on undulating land may increase emissions over a flatter alignment.
- Noise and vibration assessments concluded that receptors potentially impacted by Option 2 and 3 alignments remain relatively constant across all three alignments however the degree to which they are impacted is currently unknown.

This report recommends that further and targeted field survey is required to differentiate alignments or, in the case that a project decision dictates that an alignment is chosen, to gain a greater understanding of potential impacts associated with project activities.

1 Introduction

E3 Consult was engaged by Waratah Coal to identify potential environmental opportunities and constraints associated with three rail alignment options located between Kilometre Point (KP) 468 and KP 410 on their proposed rail line connecting the Galilee Coal (northern export facility) (the Project) located in the Alpha region in Central Queensland with the Port of Abbot Point.

2 Purpose and scope

The purpose of this report is to provide a high level desktop assessment and comparison of potential environmental impacts associated with three proposed rail alignments. This is in support of the Project's Environmental Impact Statement (EIS). For the purpose of this report, these three options are termed Option 1, Option 2 and Option 3. All three options are all situated within ten kilometres of each other and their location is mapped in Figure 1.

This assessment highlights issues that may be avoided or mitigated through early project design, or that may trigger a statutory response.

The scope of this report is to:

- Describe the existing environment of the rail corridor alignments, including a 500 m buffer either side of the centerline;
- Search State and Commonwealth databases for the presence of threatened species, communities, or ecosystems that may occur within, or be threatened by activities associated with, the rail corridor;
- Conduct a review of published scientific or environmental data from the area of the rail corridor;

- Identify data gaps and statutory triggers that may require further consideration by the Project planners;
- Identify other environmental issues that may need to be considered due to the requirements of the Project's terms of reference (ToR).

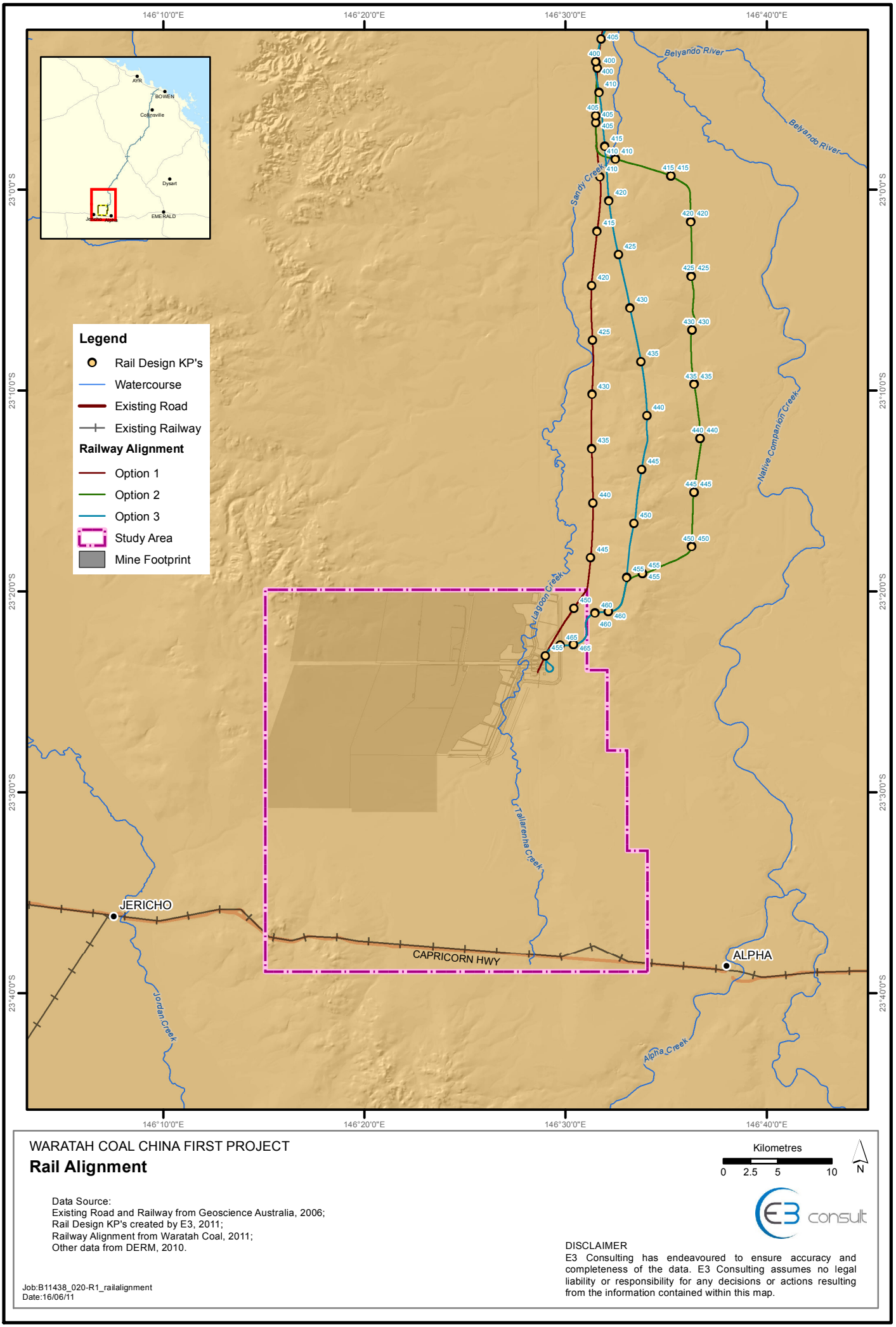
Option 1 was subjected to a rigorous assessment under the EIS which included a suite of targeted field studies. The results of these studies are detailed in the original Waratah Coal EIS. Options 2 and 3 are located within 10 Kilometres (km) of Option 1. Where appropriate, data collected during field assessments for Option 1 are considered to apply to the other two options, unless otherwise stated.

3 Description of Proposed Rail Alignments

Option 1 is the most westerly of the proposed rail alignments and follows a predominately northern orientation as it exits the Mine tenement. The land has predominately flat topography over the 40 kilometre alignment. In contrast, Option 2 exits the mine on an easterly heading, crossing undulating terrain before heading north and ultimately rejoining with Option 1 at kilometre point (KP) 410. One benefit associated with this alignment is that it reduces the easement required across Exploration Permit for Coal (EPC) 1210 which is owned by other interests.

Option 3 mirrors Option 1 running within five kilometres and approximately parallel to Option 1's alignment (refer Figure 1).

Figure 1: Preferred rail alignments; Option 1, Option 2 and Option 3



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Rail Alignment

Kilometres
0 2.5 5 10
N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_020-R1_railalignment
Date:16/06/11

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3.1 Climate and Climate Change Adaptation

3.1.1 Climate

The ToR for the Project required Waratah Coal to undertake a climate and climate change adaption assessment related to the construction and ultimate operation of the rail alignment. The assessment undertaken reviewed the following:

- the existing physical climatic descriptions of the Option 1 rail alignment sourced from local Bureau of Meteorology sites and
- undertake a preliminary risk assessment to assess and analyse potential risks and impacts relating to the rail alignment associated with climate change.

The physical climatic characteristics associated with Option 1 were consistent with a tropical climate, with hot and wet summers and cool dry winters. Assessment of climatic extremes identified that the areas surrounding Option 1 has experienced events such as flooding, tropical cyclones and droughts.

Option 1, Option 2 and Option 3 are all located within ten kilometers of each other. Given the close proximity of all three sites, it is unlikely that climatic factors associated with these alignments would differ significantly from those identified in Waratah's original EIS.

3.1.2 Climate Change Adaptation

Climate change risk assessments were undertaken using projection scenarios developed by the Garnaut Review, the United Nations Intergovernmental Panel on Climate Change (IPCC) and Waratah Coal's internal project Climate Change Risk Assessment process.

For the rail operations, the risk assessment identified that the projected increase in the number of extreme fire risk days posed a high risk to the environment. During the 2009 / 2010 fire season several large wild fires started as a result of sparks generated by rail wagons landing in dry vegetation. It was considered that with increased temperature and winds it resulted in extreme fire risk conditions. Projected increases in temperature and wind speed in isolation posed a medium risk; however, the combination of both resulted in the higher ranking for increases in extreme fire risk days.

There is the potential for increased erosion rates with projected temperatures predicted to rise and precipitation levels predicted to decline, as a result of reduced vegetation cover within the rail corridor. Whilst it was agreed that maintenance works will be required to manage this should it eventuate, it was assessed that this will likely result in only minor instances of environmental damage that is easily rectified.

For the remainder of the projections the risks were assessed as being medium to low. The key factors for this were:

- the base design parameters for flooding were established at 1 in 100 year events;

- only a small workforce exists for the operation of the rail and aside from a small maintenance team, this workforce is predominantly based at the mine in office accommodation; changes in temperature, wind speed, precipitation and humidity were not expected to impact the materials used in the operation of the infrastructure and rolling stock; and
- the design of the rail infrastructure and the materials used for the rail were suitable to mitigate high or extreme impacts associated with storms and / or cyclones.

Given that the Option 2 and Option 3 rail alignments are located within ten kilometers of Option 1, it is unlikely that the current climate or any factors associated with future climate change for these alignments would differ significantly from the Option 1 alignment. Therefore it is unlikely that further assessment will be required if the Option 2 and 3 rail alignments are carried forward as preferred options.

3.2 Land

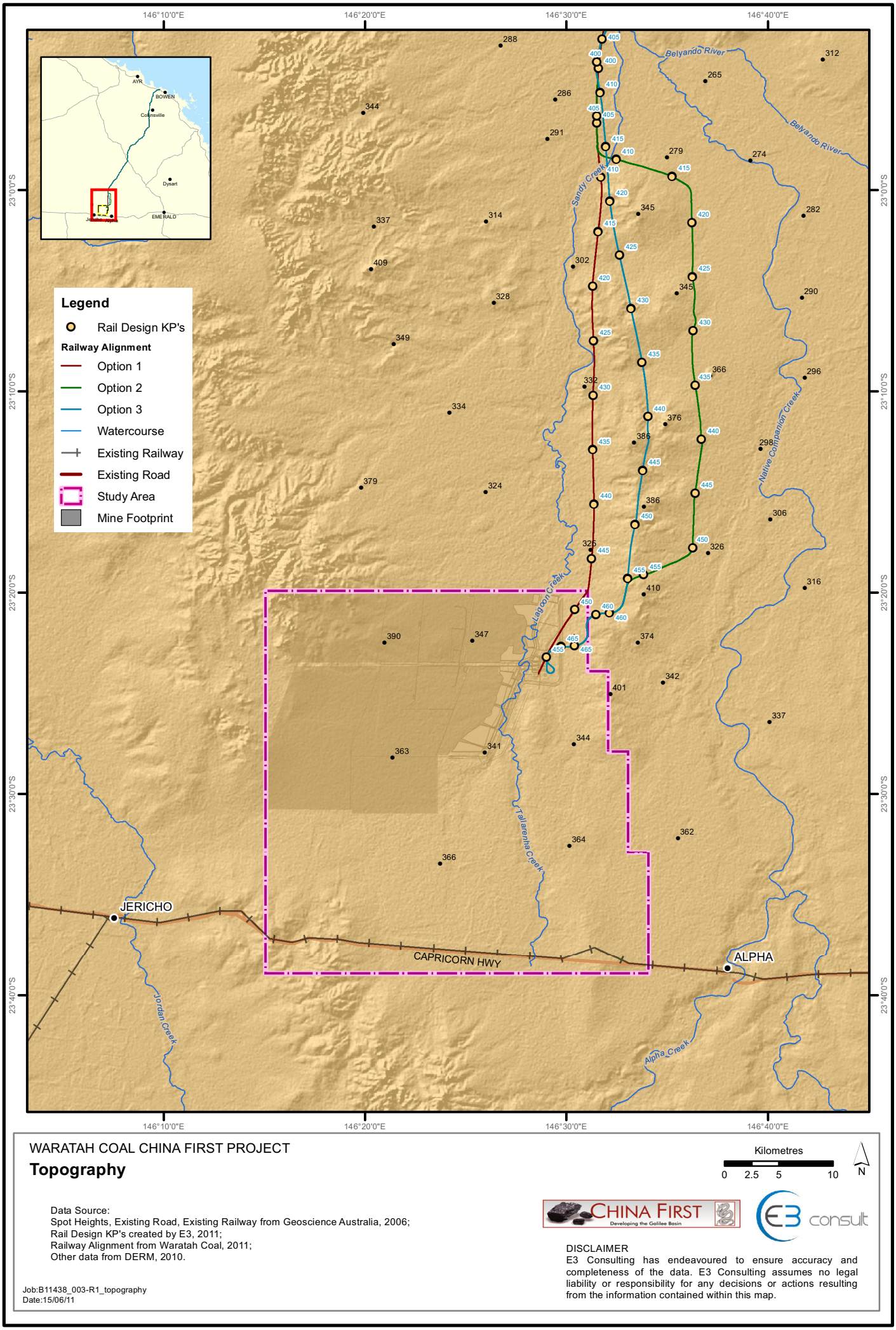
The ToR for the Project required Waratah Coal to undertake an assessment of existing environment and potential impacts caused by the project associated with topography, soils, geology and landforms.

3.2.1 Topography

The Option 1 alignment traverses a generally low undulating topography as it exits north of the mine. The Option 3 alignment covers similar terrain, crossing more closely to the westward edge of an undulating ridge (Figure 2). In contrast, Option 2 heads east from the tenement and climbs over the ridge (refer Figure 2). Once across this feature, the alignment travels north skirting the eastward side of the ridge and across gently undulating plains.

The low undulating nature of the landscape (0-3°) across all alignments indicates that land slipping is unlikely to be an issue, and therefore no action is required under SPP1/03. However, where alignment Options 2 and 3 impact areas of relatively steeper terrain, erosion of soils through water movement within and outside of defined channels (following heavy rainfall), and associated with alignment construction, may still occur.

Figure 2: Topography



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Topography

Kilometres
0 2.5 5 10
N

Data Source:
Spot Heights, Existing Road, Existing Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_003-R1_topography
Date:15/06/11

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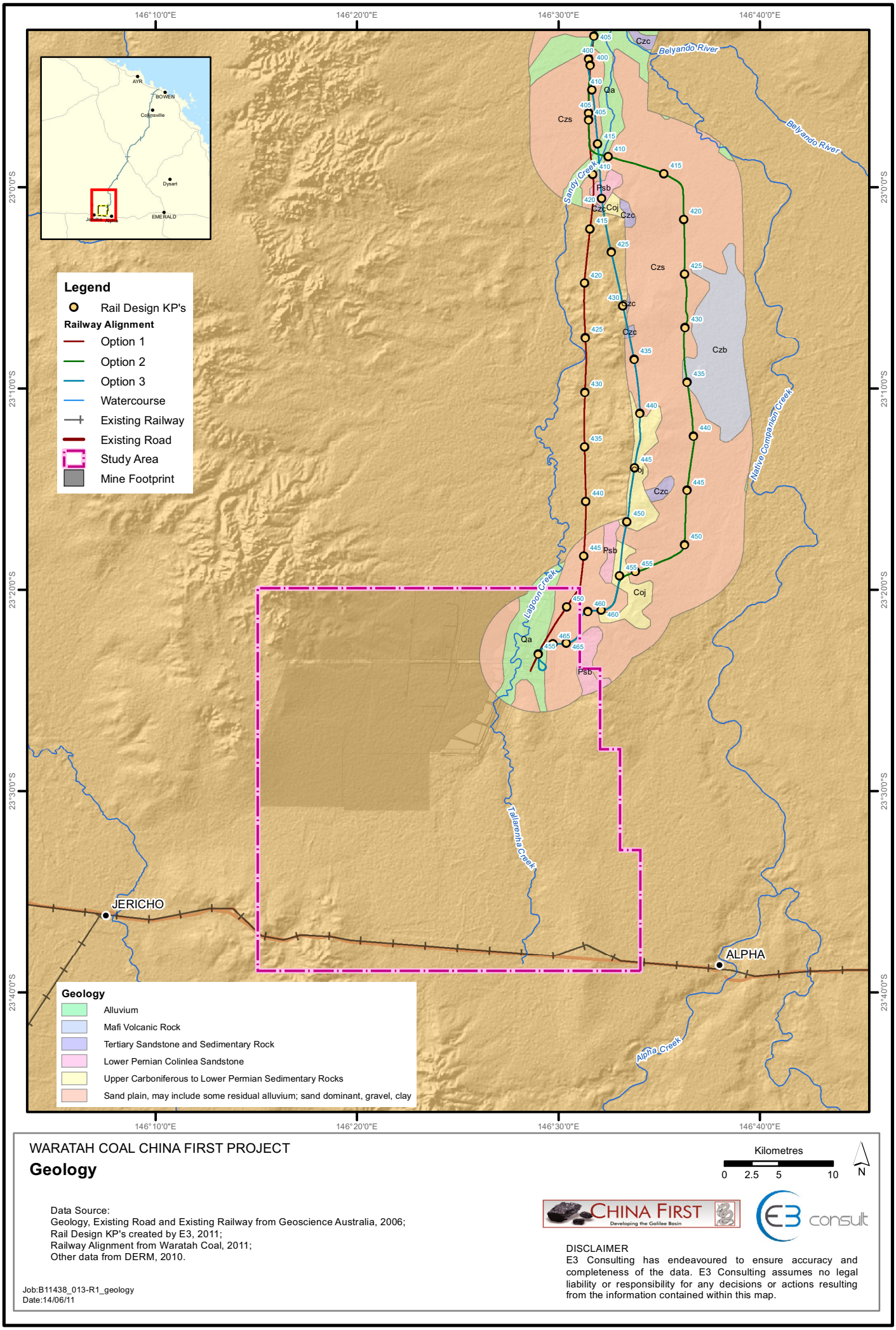
3.2.2 Geology

Desktop assessments identified that each alignment traverses similar geological structures (Figure 3) including:

- Undifferentiated consolidated Cainozoic sedimentary rocks; sandstone, limestone, conglomerate, siltstone; commonly ferruginised, silicified or poorly consolidated
- Channel and flood plain alluvium; gravel, sand, silt, clay
- Sand plain, may include some residual alluvium; sand dominant, gravel and clay.

Given the similarity of geological features across alignments, geological features appear not to be a differentiator for determining the preferred alignment.

Figure 3: Geology



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Geology

Kilometres
0 2.5 5 10
N

Data Source:
Geology, Existing Road and Existing Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_013-R1_geology
Date:14/06/11

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3.2.3 Soils

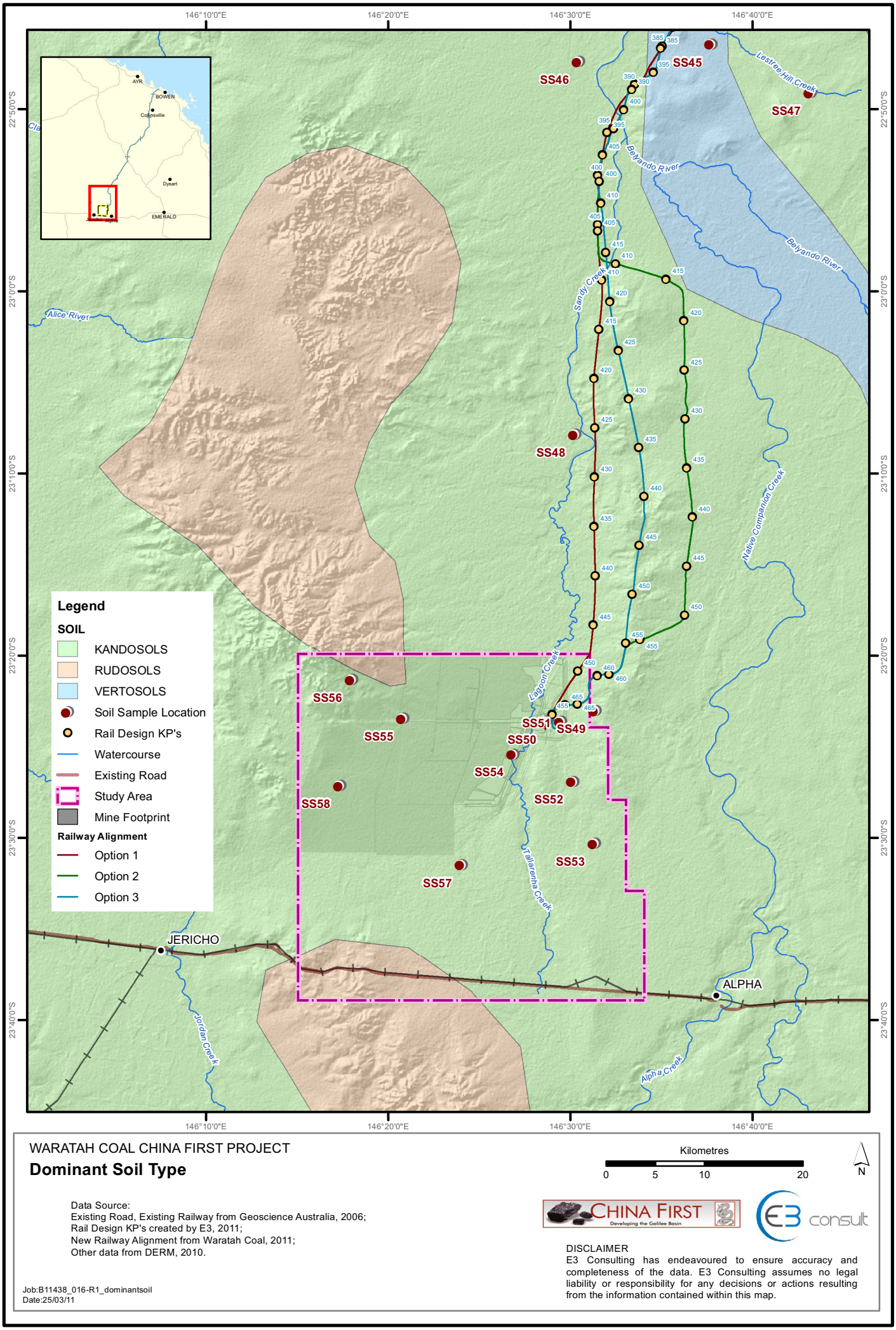
Desktop review suggests that soils are homogenous within the broader study area, and are predominantly neutral, low salinity, kandasols (refer Figure 4). Kandosols are characteristically sandy or loamy red and yellow earths with some areas of sandy surfaced duplex soils, associated with deep red sands that form low dunes. Salinity may be an issue if vegetation is cleared. Sodicity, as indicated by ESP, is generally low in these soil types. Soils type therefore is not a differentiator of the proposed rail alignments.

Regardless of alignment, there is a low possibility that potential acid sulphate soils (PASS) may occur within close proximity to past and current creek and stream channels at and below 5m AHD contour along the rail alignments. Further review should be undertaken when detailed design is finalised. Again, soil properties are not a differentiator of the proposed rail alignments.

Land mapped as Good Quality Agricultural Land (GQAL) is intersected by all rail alignment options (refer Figure 5). All three options are broadly located on land mapped as Class C (2) GQAL (only suitable for grazing or native pasture) with discrete patches of Class C (1 – 3) good quality agricultural land (GQAL) intersected by each alignment. In the event that Option 2 or 3 become preferred alignments, further assessment should be undertaken to determine the extent of GQAL and to inform final design to minimise impacts where GQAL is confirmed.

Given the agricultural activities which have historically occurred in the broader area, there may be discrete areas of contaminated land associated with agricultural chemicals, cattle dips or other activities. Desktop assessment has not identified any areas of significant contamination due to agricultural activities. When alignment design is finalised, further assessment should be undertaken regardless of which option is selected.

Figure 4: Dominant Soils



WARATAH COAL CHINA FIRST PROJECT

Dominant Soil Type

Kilometres
0 5 10 20

N

Data Source:
Existing Road, Existing Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
New Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_016-R1_dominantsoil
Date:25/03/11

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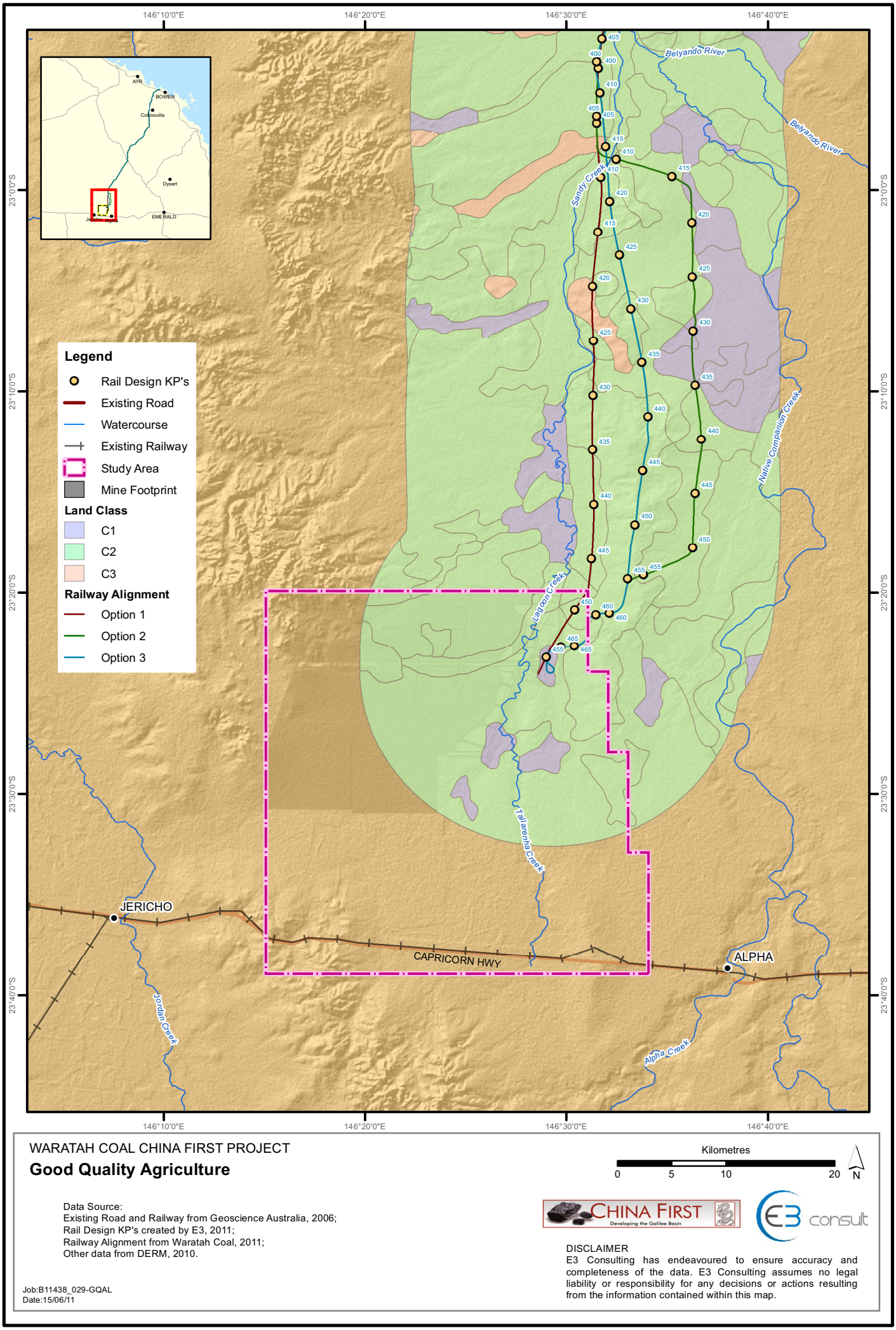
Figure 5: GQAL



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Good Quality Agriculture

Kilometres

0 5 10 20

N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_029-GQAL
Date:15/06/11

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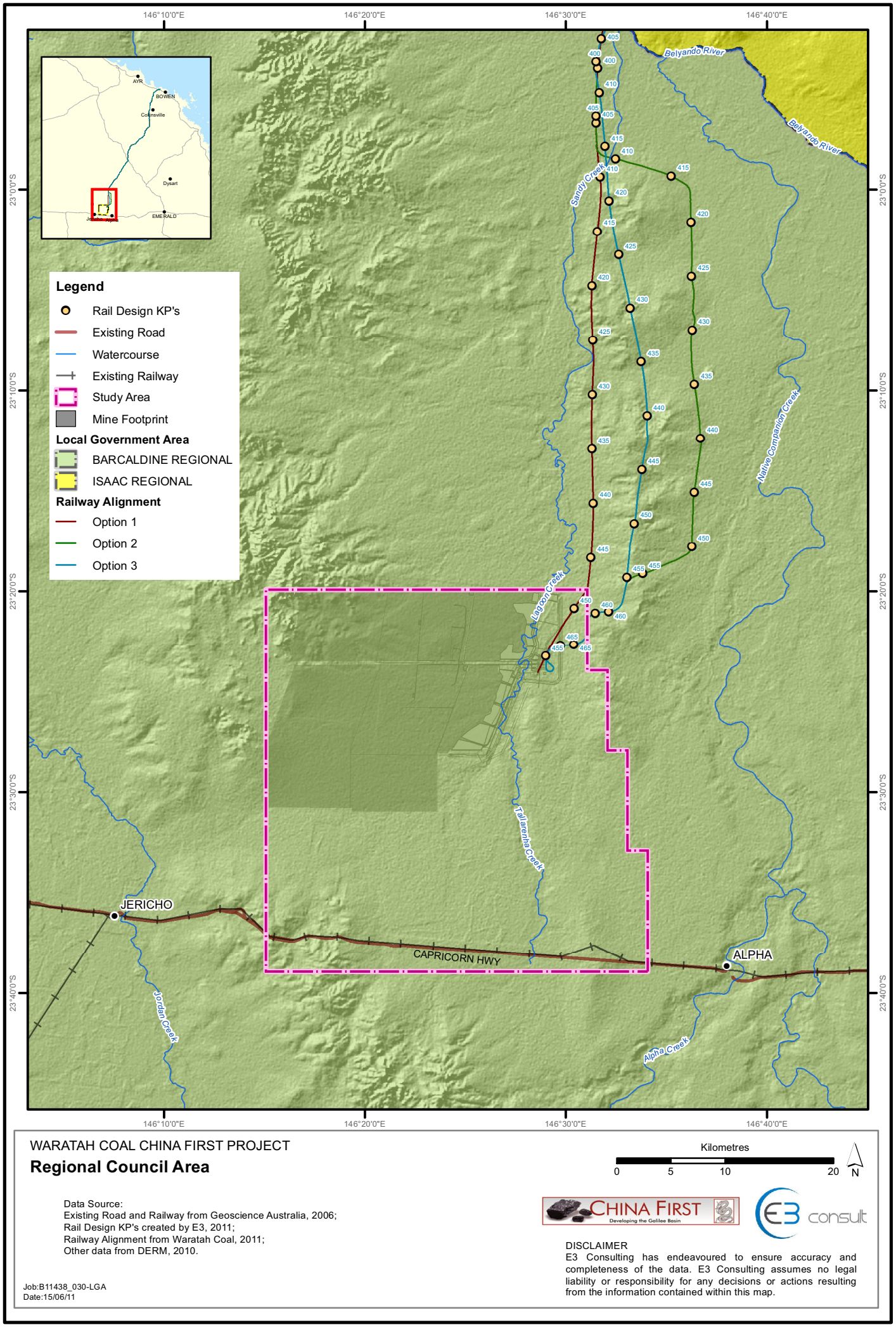
3.3 Land Use and Planning

The ToR for Project required Waratah Coal to describe and assess land use, tenure and infrastructure located within and near the rail alignment footprint.

3.3.1 Regional setting

All three alignment options are located entirely within the Barcaldine Local Government Area (refer **Figure 6**).

Figure 6: Regional council boundaries



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Regional Council Area

Kilometres

0 5 10 20

N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_030-LGA
Date:15/06/11

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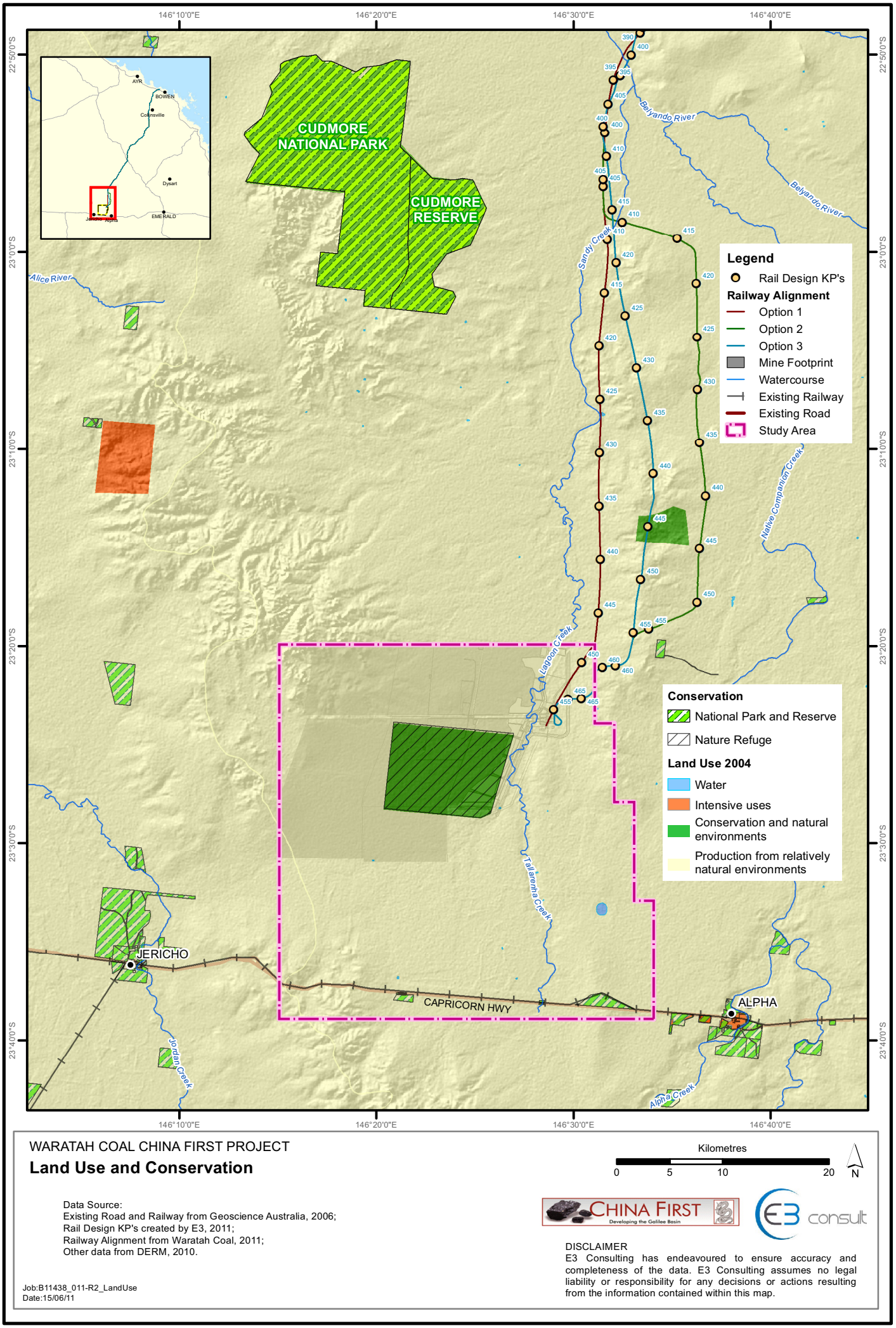
3.3.2 Existing land use

All three rail alignment options transect an area described as *production from relatively natural environments* (Figure 7). This land use class describes areas which characteristically have relatively low levels of land or water degradation. However, in many cases, this land has limited capability for intensive primary production uses due mainly to the low rainfall.

Based on current alignments, one (1) conservation area is identified as encroached on or likely to be directly impacted by rail alignment (Option 3) at KP445, note, Option 3 is not the preferred rail alignment (see Figure 7).

However, discussions with the Department of Environment & Resource Management (DERM) have confirmed that there is nothing on title to indicate that this site is a current Nature Reserve. Part of this lot appeared previously as Burtle Nature Refuge (executed in 2001, expired and revoked in 2006). As the date of the land use data is 2004 it may reflect the sites status as at that time, this matter will be resolved with DERM during the supplementary EIS should Option 3 become the preferred rail alignment.

Figure 7: Rail corridor land use and conservation



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Land Use and Conservation

Kilometres
0 5 10 20
N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_011-R2_LandUse
Date:15/06/11

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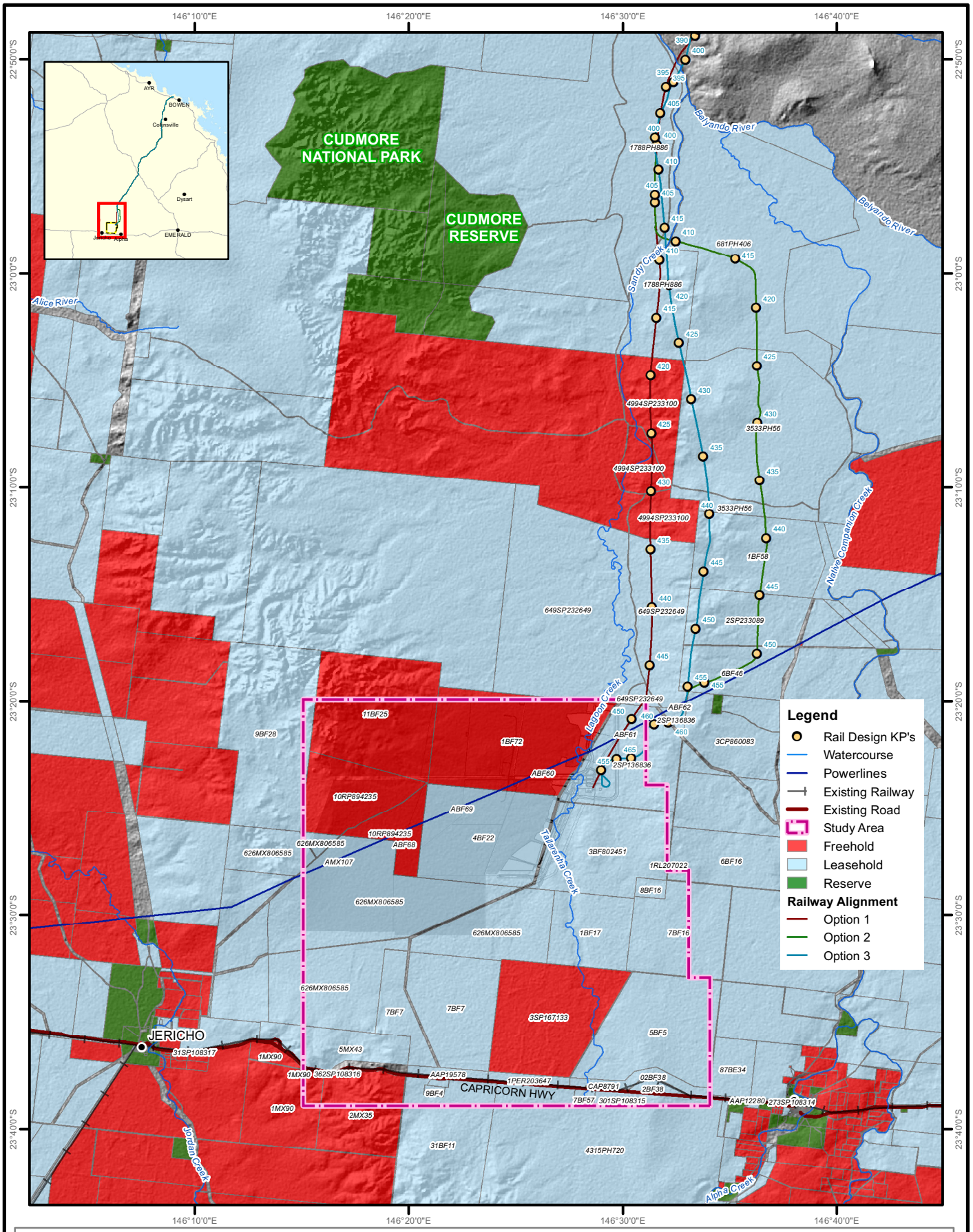
3.3.3 Land Tenure

All option alignments intersect with leasehold land (refer **Figure 8**). Much of this leasehold land is subject to Exploration Permits for Coal (EPC) and Mining Leases (ML) held by other mining enterprises. A discrete area of freehold land is intersected between KP 415-435 of the Option 1 alignment. No protected areas are identified as occurring near any of the option alignments.

Figure 8: Rail corridor land tenure



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Land Tenure

Kilometres

0 5 10 20

N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_031-R1_landtenure
Date:16/06/11

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3.4 Landscape and Visual Amenity

A landscape and visual amenity assessment of the potential visual effects associated with the construction and operation of the rail alignment associated with Option 1 was undertaken in accordance with the ToR. This assessment reviewed on and off-site visual amenity issues relating to the visibility of the rail alignment and operational activities such as transport movement that may have significant visual impacts if not managed properly.

In accessing the Option 1 alignment, it was determined that two homesteads, located at KP433 and KP447 will experience significantly high visual disruption (see Figure 9). A number of houses located with the broader area are also likely to have direct visual impact from the rail alignment during the night, as train lighting will potentially be the only lights in the surrounding night landscape. However this light will be moving and visible only for brief periods reducing the impact.

The Homestead located at KP447 will be impacted regardless of which option is ultimately chosen, the extent to which the Homestead at KP 433 and any other Homesteads which are located near Options 2 and 3 (Figure 9) are impacted will likely require further assessment during final design.

Figure 9: Proposed rail alignments proximity to homesteads

3.5 Terrestrial Ecology

Desktop and field studies were undertaken over the Option 1 alignment and were used to identify, describe and assess key terrestrial flora and fauna values of the study area and potential impacts associated with the construction and operation of the rail corridor.

Findings of these surveys suggested that Option 1 is located within vegetation mapped as Regional Ecosystem (*Least Concern*) under the Vegetation Management Act (1994) (refer Figure 10). Mapping and database searches undertaken for this assessment also shows that:

- A broad suite of Federal and State listed and common flora and fauna species were recorded in EPBC and EP Act searches (Appendix 1 and 3);
- No DERM listed endangered plants are mapped as occurring within the Option 1 alignment footprint (Appendix 1);
- No endangered fauna are mapped as occurring in the Option 1 alignment footprint;
-
- No DERM declared Environmentally Sensitive Areas are located the Option 1 alignment footprint; and
- Option 1 alignment is located within the Desert Uplands Bioregion, this area identified as Regionally Significant.

The Option 3 alignment shares a similar route and likely similar impacts to those associated with Option 1 (refer Figure 1).

In contrast, the Option 2 alignment potentially impacts two threatened ecological communities, namely the EPBC Act listed Brigalow (*Acacia harpophylla* dominant and co-dominant) and Weeping Myall (*A. pendula* dominant and co-dominant) Woodlands. Protection of remnant vegetation and facilitation of regeneration are key recovery and threat abatement actions required for these communities. If Option 2 continues to final design, a targeted field assessment will need to be undertaken to confirm the mapped presence of woodlands and a detailed management and offset strategy may need to be undertaken.

Mapping and database searches undertaken for this assessment also shows that:

- A broad suite of Federal and State listed and common flora and fauna species were recorded in EPBC and EP Act searches (Appendix 2 and 4);
- No DERM listed endangered fauna have been mapped as occurring within the Option 2 alignment(Appendix 4);
- No DERM declared Environmentally Sensitive Areas are located the Option 3 alignment footprint; and
- The Option 2 alignment is located within the Desert Uplands Bioregion which is identified as Regionally Significant. .

A broad assessment of EPBC Act Protected Matters Searches demonstrates that there are likely to be negligible differences in impacts to potentially occurring communities and flora species between Options 1 and 2 (refer Table 1). These are:

- While both alignments have the potential to impact Weeping Myall Woodlands, Option 2 has the added potential to impact the Threatened Ecological Community - Brigalow *(Acacia harpophylla dominant and co-dominant)*; and
- While both alignments have the potential to impact similar flora and fauna, Option 2 has the added potential to impact the Vulnerable flora species – *Acacia ramiflora.*

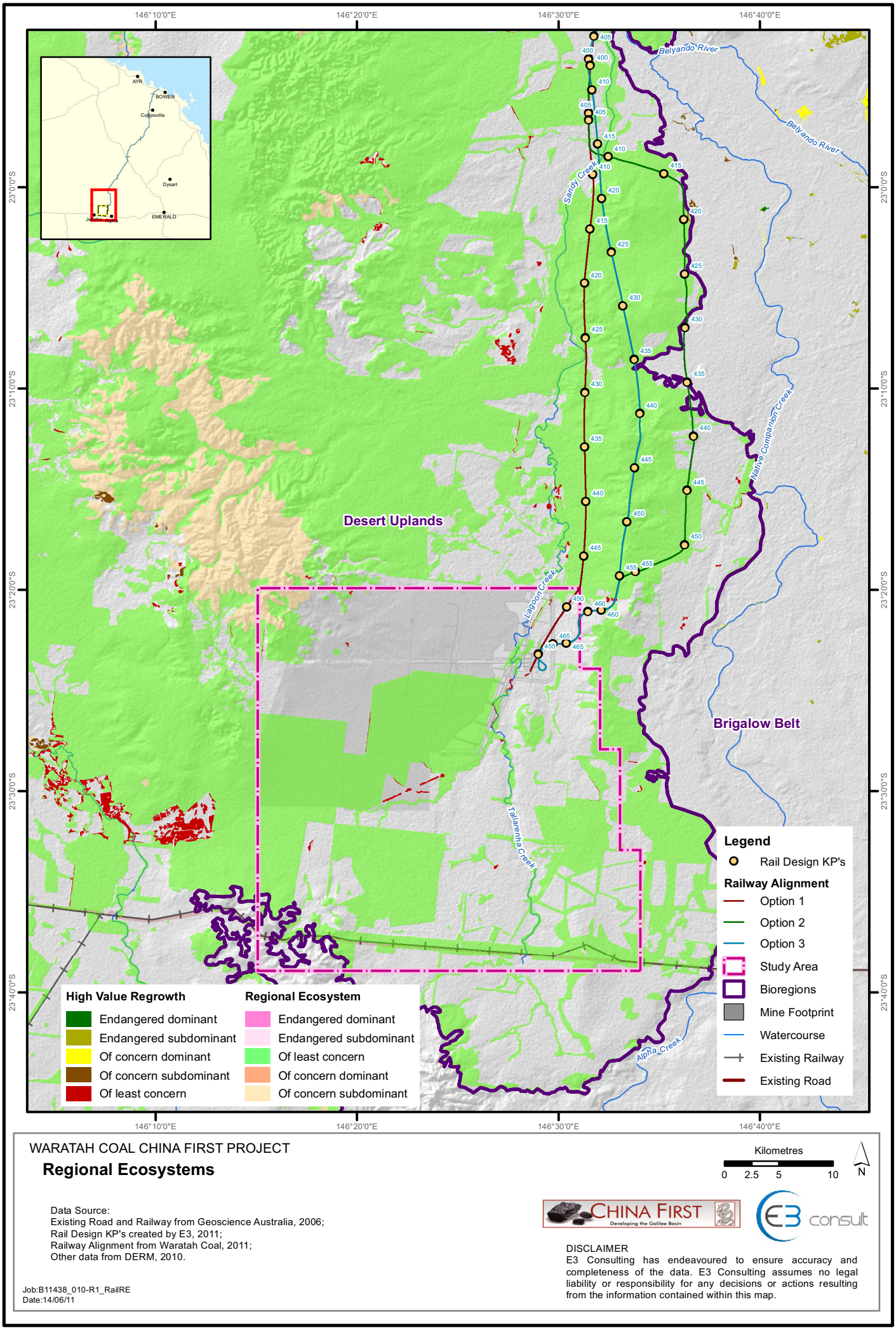
In the case that the Option 2 alignment is preferred, ground-truthing of this alignment to identify the presence or absence of threatened communities and flora and fauna species should be undertaken.

Table 1: Comparision of EPBC and EP Act findings between Options 1 and 2 rail alignment. Differences are highlighted in coloured.

Aspect	Option 1	Option 2	Options Difference
EPBC – 5km buffer zone			
Matters of National Environmental Significance			
World Heritage Properties	None	None	No difference
National Heritage Places	None	None	No difference
Wetlands of International Significance (Ramsar wetlands)	None	None	No difference
Great Barrier Reef Marine Park	None	None	No difference
Commonwealth Marine Areas	None	None	No difference
Threatened Ecological Communities	1	2	Option 2 – potential incidence of Weeping Myall Woodlands
Threatened Species	6	7	Minor difference
Migratory Species	10	10	No difference
Other Matters Protected by the EPBC Act			
Commonwealth Lands	None	None	No difference
Listed Marine Species	8	8	No difference
Commonwealth Heritage Places	None	None	No difference
Whales and Other Cetaceans	None	None	No difference
Critical Habitats	None	None	No difference
Commonwealth Reserves	None	None	No difference
Place on the RNE	None	None	No difference

State and Territory Reserves	1	1	No difference
Regional Forest Agreements	None	None	No difference
Nationally Important Wetlands	None	None	No difference
Invasive species			
Pest flora and fauna	11	11	No difference

Figure 10: Regional Ecosystems



WARATAH COAL CHINA FIRST PROJECT

Regional Ecosystems

Kilometres
0 2.5 5 10
N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_010-R1_RailRE
Date:14/06/11

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3.6 Aquatic Ecology

The ToR for the Project required Waratah Coal to undertake an assessment of existing aquatic flora and fauna occurring in the areas affected by the project should be described, noting the patterns and distribution in the waterways, with reference to EPBC Act and state listed fauna and flora. Due to the close proximity of Option 1, Option 2 and Option 3 aquatic ecology values and constraints are expected to be similar. All three proposed alignments are located in the Belyando Catchment and share similar surrounding land use, namely cattle grazing on natural vegetation. Field surveys of the Option 1 alignment identified that generally the vegetation within the catchment and rail footprint itself is characterised as being in a degraded condition having been cleared and blade ploughed for grazing land.

Further, desktop review and field surveys for the Option 1 alignment did not identify any state or federally listed threatened species. Signal scores calculated during field assessment indicate mild to moderate pollution of the waterways within the catchment.

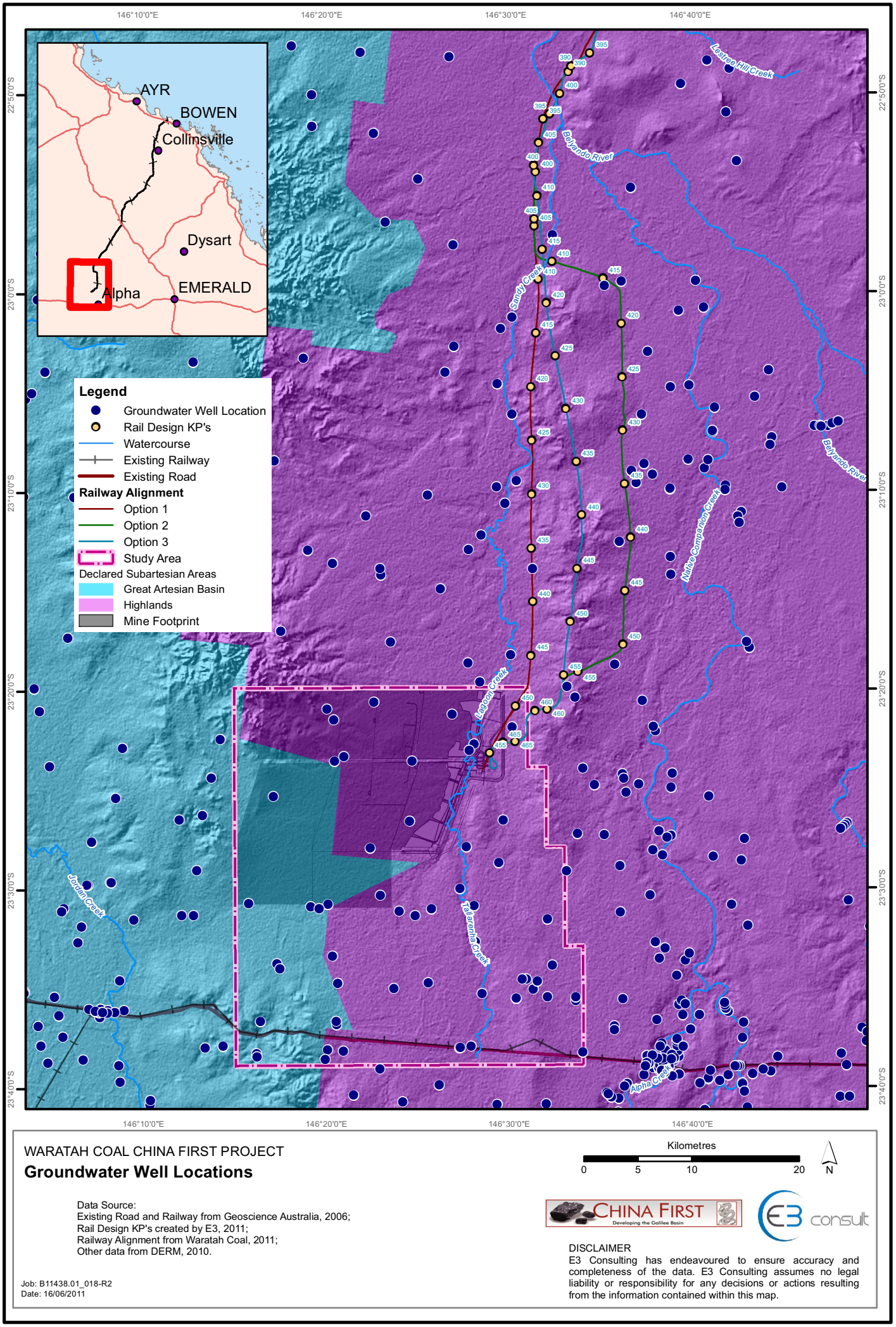
Whilst the aquatic ecology is assumed to be similar in all three alignments further assessment including field investigations will be required to be undertaken if Option 2 or Option 3 were to proceed.

3.7 Groundwater Resources

The Project ToR requires an assessment of the quality, quantity and the local and regional significance of artesian and non-artesian groundwater resources within the project area. The report has been structured to address the three major structural components of the project separately; mine site, rail corridor and onshore coal infrastructure at Abbot Point. The technical report identified the existing environmental values of groundwater within the project area, assesses potential impacts resulting from the Project and suggests management measures to mitigate potential impacts.

Option 1, Option 2 and Option 3 share the same groundwater resource, the Central Highlands Declared Sub artesian Area (refer Figure 11). It is unlikely that the construction and operations of these three proposed railway options will impact this water body however further assessment will be undertaken both prior and during the construction period. An assessment of the need for changes in construction methodology is likely to be required particularly if the Option 3 alignment requires significant cut and fill volumes or requires blasting to be undertaken.

Figure 11: DERM registered groundwater bores



WARATAH COAL CHINA FIRST PROJECT

Groundwater Well Locations

Kilometres

0 5 10 20

N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job: B11438.01_018-R2
Date: 16/06/2011

DISCLAIMER
E3 Consulting has endeavoured to ensure accuracy and completeness of the data. E3 Consulting assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

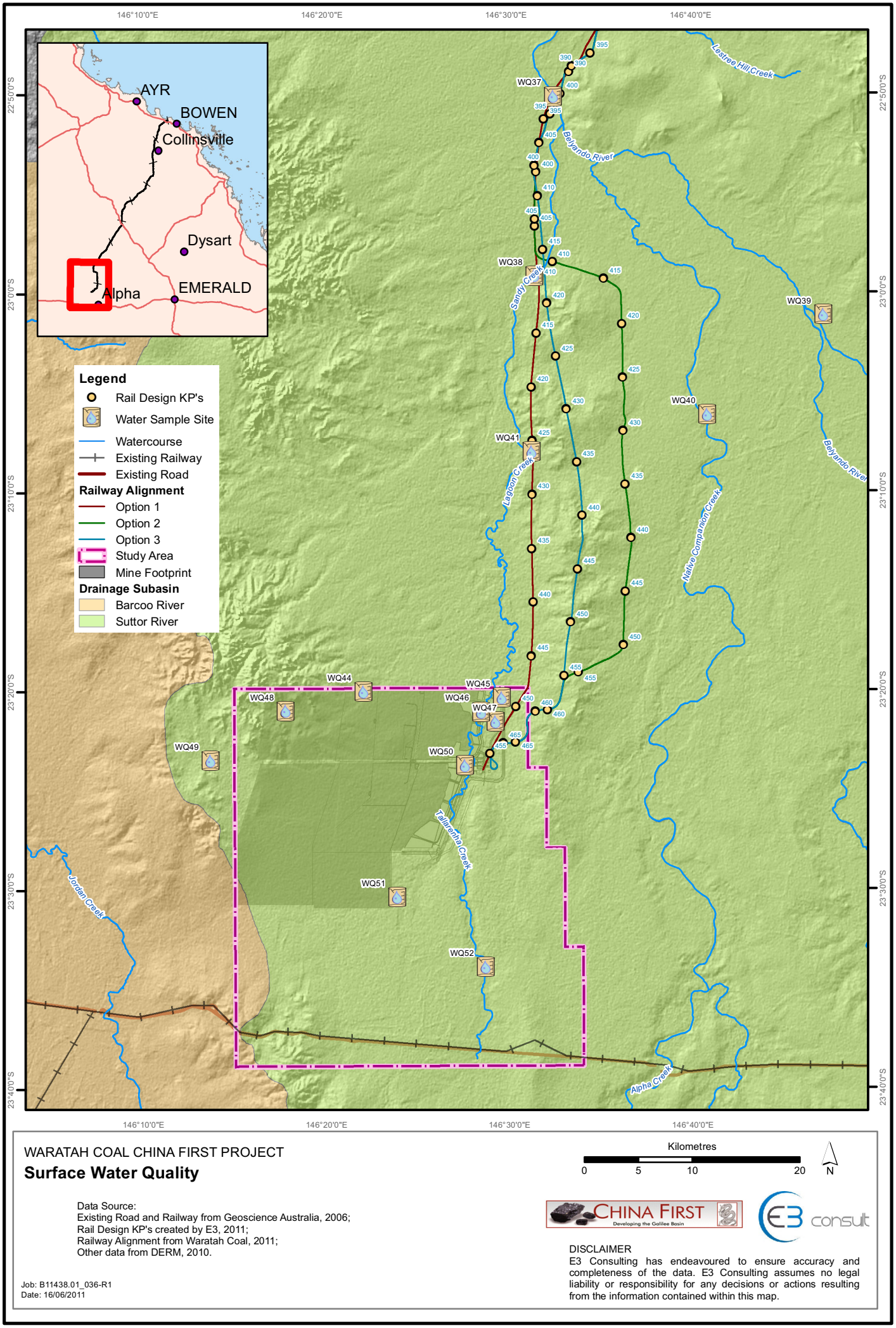
3.8 Surface Water Resources

The ToR for the Project required Waratah Coal to undertake an assessment of water resources could potentially be affected by the project.

Surface water sampling for the Option 1 alignment (refer Figure 12) assessed a number of sites potentially affected by Option 2 and Option 3 alignments. Broadly, baseline results from the Belyando catchment show that the streams are generally of reasonable quality with readings outside of expected ranges explainable by the surrounding land uses and ephemeral nature. The physio chemical properties are comparable to Queensland Water Quality Guidelines (2009) for slightly to moderately disturbed upland streams in the central coast region and historical results from the DERM Violet Grove monitoring station.

Given the broad area assessed during Option 1 field surveys, further water quality surveys may not be required if Option 2 and 3 alignments are carried forward to detailed design. The requirement of further field assessments should be determined once the design alignment has been confirmed and construction requirements for this alignment are better understood.

Figure 12: Water quality sampling sites



WARATAH COAL CHINA FIRST PROJECT

Surface Water Quality

Kilometres

0 5 10 20

N

Data Source:
Existing Road and Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job: B11438.01_036-R1
Date: 16/06/2011

CHINA FIRST Developing the Galilee Basin

E3 consult

DISCLAIMER
E3 Consulting has endeavoured to ensure accuracy and completeness of the data. E3 Consulting assumes no legal liability or responsibility for any decisions or actions resulting from the information contained within this map.

3.9 Air Quality and Green House Gases

Air Quality

The ToR for the Project required Waratah Coal to undertake an assessment of existing air quality in context of EV's as defined by the EP Act and EPP Air. Monitoring baseline results for ambient air quality in terms of PM and consideration in mitigating these issues.

Background air quality conditions and dust impacts during the operational phase of the project were assessed for representative portions of rail Option 1, in terms of ground-level concentrations of PM_{10}, $PM_{2.5}$ and TSP as well as dust deposition. Results from the atmospheric dispersion modelling indicate that the dust impacts drop very quickly with the distance from the rail.

In the event of Option 2 or Option 3 becoming preferred, it is likely that emission levels would remain relatively similar as only the rail alignment would change and all operational activities would essential remain the same. Impacts on sensitive receptors however may change, with the potential for new receptors to be impacted. Further air quality modelling should be conducted by Waratah Coal and impact-appropriate management measures put in place if one of the two options alternative options were to proceed.

Greenhouse Gases

The ToR for the Project required Waratah Coal to undertake an assessment of existing environment and potential impacts caused by the project associated with provisions to an inventory of projected annual emissions for each relevant greenhouse gas, with total emissions expressed in 'CO_2 equivalent' terms. Using NGER's factors to sources emission estimates and propose abatement measures in conjunction with an EMP for the EIS.

It is expected that during operation, rail Option 1 will produce 430,702 t $CO_{2\text{-}e}$ per annum. Emission inventory Scope 2 emissions will account for 34% of total emissions for the rail, and have been estimated using the emission factor for electricity purchased from the Queensland grid. The remaining 64% are scope 1 emissions directly associated with diesel consumption in the locomotives.

On face value, Scope 1 and 2 emissions are likely to be slightly higher for Options 2 and 3 because of the undulating topography. However, where undulating topography is encountered engineering design requirements are likely to require any steep gradients are reduced (for example through cutting or filling). Where this occurs, emissions are likely to be reduced to near those of Option 1. A review of potential impacts to emissions should be undertaken during detailed the design phase to quantify likely changes in emissions where Options 2 and 3 are carried forward.

3.10 Noise and Vibration

The ToR for the Projectrequired Waratah Coal to undertake an assessment of existing environment and potential impacts caused by the project associated with describe the existing environmental values that may be affected by noise and vibration from project activities.

Option 1 has been assessed against sensitive receptors and baseline ambient noise levels. The assessment quantifies the potential change in noise and vibration environments as a result of the construction and operation of the rail and associated infrastructure. Assessment outcomes for the Option 1 alignment demonstrated that predicted noise emissions easily complied with QR's *Code of Practice – Railway Noise Management.*

Given the location changes associated with the Option 2 and 3 alignments, impacts potential sensitive receptors cannot be quantified. Where Option 2 or 3 are carried forward to detailed design, a reassessment of impacts to sensitive receptors should be undertaken.

Similarly, vibration impacts associated with the Option 1 alignment were assessed and described as not significantly impacting sensitive receptors. A reassessment of these outcomes should be undertaken where Option 2 or 3 are carried forward to detailed design.

3.11 Waste

The ToR for the Projectrequired Waratah Coal to undertake an assessment of existing environment and potential impacts caused by the project associated with technical provisions to waste generation, treatment, minimisation and management. All sources of waste to be generated during the construction, operational and decommissioning stages of the project should be identified and described.

The existing waste production and management within the Option 1 study area is characterised by agricultural land use (predominantly cattle production). Given the scale of the Project and the activities associated with the construction, operation and decommissioning phases, waste generation and diversity will increase compared to the existing land use.

The volume of waste produced could vary between Option 1, Option 2 and Option 3 due changes in topography. This will primarily be due to the amount of land required for cut and fill. If options 2 and 3 were to precede an assessment of waste produce both during and after construction will need to be undertaken.

3.12 Traffic and Transport

The ToR for the Projectrequired Waratah Coal to undertake an assessment of existing environment and potential impacts caused by the project associated with transport infrastructure to be presented as separate sub-sections of the EIS, for each project-

The current EIS assessed impacts to traffic and transport associated with the Option 1 alignment. This assessment found that the construction of the railway has the potential to impact the local road environment. Such impacts are expected to be temporary, generally limited to the three year construction period and managed through the implementation of appropriate mitigation works. Generally the additional construction traffic can be adequately accommodated in the existing state controlled road network at an acceptable level of service. However, there is likely to be some disruption to traffic where the railway crosses local roads resulting in road closures. There may also be pavement impacts along heavy haul routes, particularly those accessing quarries. Once the railway is operational, there are no envisaged changes to the existing road patterns within the surrounding region.

If carried forward to detailed design, impacts associated with Option 2 and 3 are expected to be similar to those assessed in Option 1. However, a detailed review of this alignment should be undertaken to identify impacts associated with changes to terrain, minor roads and stock routes.

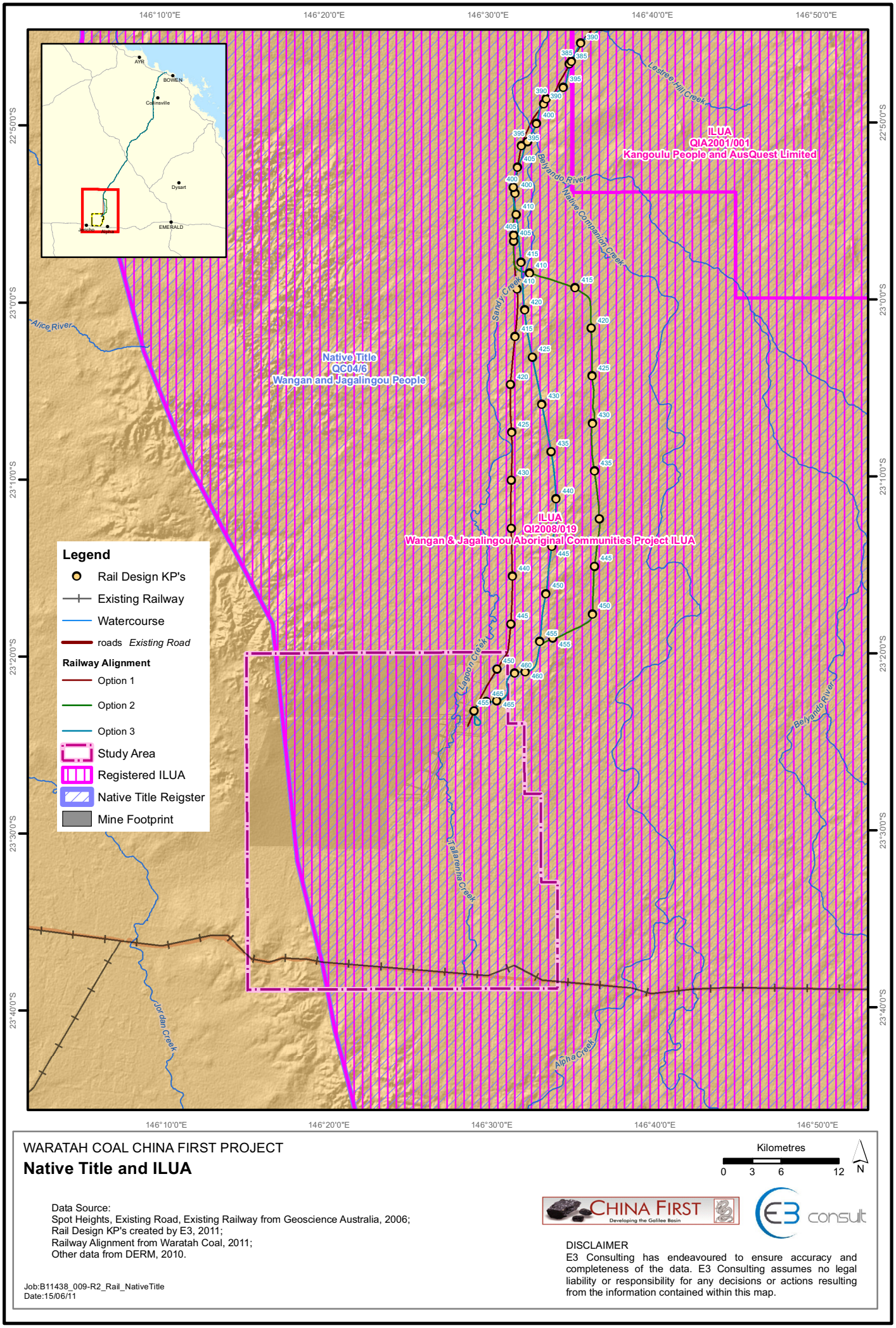
3.13 Indigenous Cultural Heritage

The ToR for the Projectrequired Waratah Coal to undertake an assessment of existing Indigenous cultural heritage values that may be affected by the project. An Indigenous cultural heritage survey (as part of the Cultural Heritage Management Plan (CHMP) process or otherwise) should be undertaken for significant Indigenous objects and significant Indigenous areas.

As Figure 13 shows, regardless of option, all alignments are wholly located within the RNTCs of the Wangan and Jagalingou People. Alignments are located within the ILUAs (Indigenous Land Use Agreement) associated with the Wangan and Jagalingou Aboriginal Communities Project ILUA and the Kangoulou People and AusQuest Limited ILUA.

Based on desktop assessments undertaken on the Option 2 and 3 rail alignments, neither of these options poses significant changes outside that identified for Option 1.

Figure 13: Rail corridor – Native title and ILUA



WARATAH COAL CHINA FIRST PROJECT

Native Title and ILUA

Kilometres
0 3 6 12
N

Data Source:
Spot Heights, Existing Road, Existing Railway from Geoscience Australia, 2006;
Rail Design KP's created by E3, 2011;
Railway Alignment from Waratah Coal, 2011;
Other data from DERM, 2010.

Job:B11438_009-R2_Rail_NativeTitle
Date:15/06/11

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3.14 Non-Indigenous Cultural Heritage

The ToR for the Project required Waratah Coal to undertake an assessment of existing environment values and potential impacts caused by the project for non-Indigenous cultural heritage.

Potential impacts to non-indigenous cultural heritage associated with the Option 1 alignment have been reviewed via publically available database and field works. Overall, this assessment identified minimal impact on places of non-indigenous cultural heritage significance. Desktop assessment of Option 2 and 3 rail alignments have not identified any known areas of non-indigenous cultural heritage significance however, where Option 2 or 3 are taken through to detailed design, these options require further assessment..

3.15 Social Impacts

The ToR for the Project required Waratah Coal to undertake a Social Impact Assessment (SIA) in consultation with the DIP Social Impact Unit. Matters to be considered include the social and cultural area, community engagement, a social baseline study, a workforce profile, potential impacts and mitigation measures and management strategies.

The assessment of social impact provided for the original alignment is unlikely to change significantly as a consequence of the new optional alignments for the project. Further assessment of potential localised impact may however be necessary particularly where agricultural operations are affected by new rail alignments. .

3.16 Economics

The ToR for the Project required Waratah Coal to undertake an assessment describes the existing economy in which the project is located and the economies materially impacted by the project.

The economic assessment for the original rail corridor is unlikely to change on the basis of the new optional alignments for the project. There may be minor changes required if the land holder's enterprise is materially different from that of the preferred alignment A minor reassessment of economic impact may be required during detailed design.

4 Conclusion

E3 Consulting was engaged by Waratah Coal to undertake a high level of desktop assessment and comparison of potential environmental impacts associated with the three proposed rail alignments Option 1, Option 2 and Option 3.

This report found constraints associated the land, land use, terrestrial and aquatic ecology, groundwater and surface water resources, waste, traffic and transport, indigenous and non indigenous cultural heritage were essentially the same or very similar for all three proposed alignments due to the close proximity between each of the alignments. Landscape and visual amenity assessments recognised that receptors (homesteads) to be impacted and the degree to which the homesteads are impacted could greatly vary between alignments. Air quality and greenhouse gas emission assessments determined that that emission levels would remain relatively similar it all three alignments as all operational activities would essential remain the same however it was further added that there impacts on sensitive receptors may change, with the potential for new receptors to be impacted. Assessments of noise and vibration concluded that the receptors potentially impacted are fairly similar throughout all three alignments however the degree to which they are impacted is currently unknown.

It was noted throughout this report that if Option 2 or 3 were to proceed that further assessments will need to be undertaken.

5 LIMITATIONS

This report has been prepared for the sole purpose of providing a high level desktop assessment and comparison of potential environmental impacts associated with three proposed rail alignments and has been conducted in accordance with generally accepted consulting practice. No other warranty or guarantee, expressed or implied is made as to the advice indicated in this report.

This report should not be used for any other purpose without our prior written consent. Accordingly, neither E3 nor any member or employee of E3 accepts responsibility or liability in any way whatsoever for the use of this report for any purpose other than that for which it has been prepared.

This report should not be released to any other party, in whole or in part, without the express written consent of E3. E3 accepts no liability or responsibility whatsoever for or in respect of any use or reliance upon this report by any third party.

E3 has relied upon and presumed accurate information provided by Waratah Coal and/or any third party (or absence thereof) in making the assumptions made in this report. Nothing in this report should be taken to imply that E3 has verified or audited any of the information supplied to us other than as expressly stated in this report. We have assumed this information to be both adequate and accurate for the purposes of this report.

Where findings, observations and conclusions are based solely upon information provided by Waratah Coal and/or a third party and E3 do not accept, to the maximum extent permitted by law, any liability for any losses, claims, costs, expenses, damages (whether in statute, in contract or tort for negligence or otherwise) suffered or incurred by Waratah Coal Pty Ltd or any third party as a result of or in connection with E3's reliance on any such the information to the extent that such information is false, misleading or incomplete and E3 give no warranty or guarantee, express or implied as to such findings, observations and conclusions.

If further information becomes available, or additional assumptions need to be made, E3 reserves its right to amend any statements or opinions made in this report.

6 REFERENCES

The Coordinator-General. (August 2009). *Terms of reference for an environmental impact statement - Galilee Coal Project (northern export facility)*.

Queensland Rail. (2007) *QR Code of Practice for Railway Noise Management*.

Waratah Coal. (2010). Waratah Coal - Galilee Coal Project (northern export facility) Environmental Impact Statement and appended Technical Reports.

Waratah Coal - Galilee Coal Project (northern export facility) - Review of Environmental Factors - Rail Alignment Options at the Mine

Appendix A – EPBC Protected Matters Search - Rail Alignment Option 1

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

EPBC Act Protected Matters Report: Coordinates

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

Information on the coverage of this report and qualifications on data supporting this report are contained in the caveat at the end of the report.

Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

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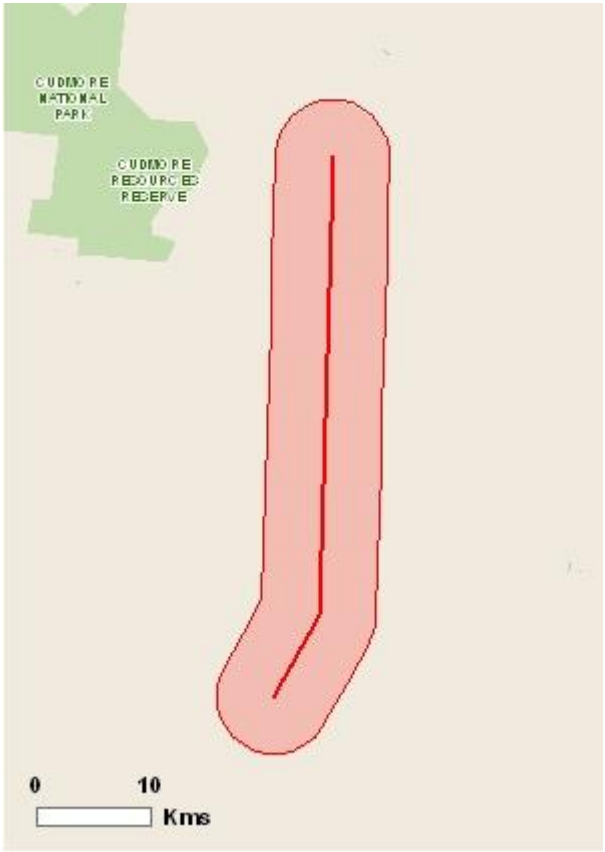

This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 5.0Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance (Ramsar Wetlands):	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communitites:	1
Threatened Species:	6
Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	8
Whales and Other Cetaceans:	None

Critical Habitats:	None
Commonwealth Reserves:	None

Report Summary for Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	None
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	11
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Weeping Myall Woodlands	Endangered	Community may occur within area

Threatened Species [Resource Information]

Name	Status	Type of Presence
BIRDS		
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Vulnerable	Species or species habitat may occur within area
REPTILES		
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area
Paradelma orientalis Brigalow Scaly-foot [59134]	Vulnerable	Species or species habitat likely to occur within area

Migratory Species [Resource Information]

Name	Status	Type of Presence

Migratory Marine Birds	
Apus pacificus	
Fork-tailed Swift [678]	Species or species habitat may occur within area
Ardea alba	
Great Egret, White Egret [59541]	Species or species habitat may occur within area
Ardea ibis	
Cattle Egret [59542]	Species or species habitat may occur within area
Migratory Terrestrial Species	
Haliaeetus leucogaster	
White-bellied Sea-Eagle [943]	Species or species habitat likely to occur within area
Hirundapus caudacutus	
White-throated Needletail [682]	Species or species habitat may occur within area
Merops ornatus	
Rainbow Bee-eater [670]	Species or species habitat may occur within area
Migratory Wetlands Species	
Ardea alba	
Great Egret, White Egret [59541]	Species or species habitat may occur within area
Ardea ibis	
Cattle Egret [59542]	Species or species habitat may occur within area
Gallinago hardwickii	
Latham's Snipe, Japanese Snipe [863]	Species or species habitat may occur within area
Rostratula benghalensis s. lat.	
Painted Snipe [889]	Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		**[Resource Information]**
Name	Status	Type of Presence
Birds		
Apus pacificus		
Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba		
Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis		
Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii		
Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster		
White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		
White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus		
Rainbow Bee-eater [670]		Species or species habitat may occur within area
Rostratula benghalensis s. lat.		
Painted Snipe [889]		Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Bimblebox, QLD

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Frogs		
Bufo marinus		
Cane Toad [1772]		Species or species habitat likely to occur within area
Mammals		
Capra hircus		
Goat [2]		Species or species habitat may occur within area
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa		
Pig [6]		Species or species habitat may occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat may occur within area
Plants		
Cryptostegia grandiflora		
Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis		
Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat may occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat may occur within area
Parkinsonia aculeata		
Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]		Species or species habitat may occur within area
Parthenium hysterophorus		
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]		Species or species habitat may occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:
- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:
- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:
- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-23.39583 146.47861,-23.33139 146.51417,-22.96778 146.525

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria

-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

Appendix B – EPBC Protected Matters Search - Rail Alignment Option 2

Australian Government
Department of Sustainability, Environment, Water, Population and Communities

EPBC Act Protected Matters Report: Coordinates

This report provides general guidance on matters of national environmental significance and other matters protected by the EPBC Act in the area you have selected.

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Information about the EPBC Act including significance guidelines, forms and application process details can be found at http://www.environment.gov.au/epbc/assessmentsapprovals/index.html

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This map may contain data which are ©Commonwealth of Australia (Geoscience Australia), ©PSMA 2010

Coordinates
Buffer: 5.0Km

Summary

Matters of National Environmental Significance

This part of the report summarises the matters of national environmental significance that may occur in, or may relate to, the area you nominated. Further information is available in the detail part of the report, which can be accessed by scrolling or following the links below. If you are proposing to undertake an activity that may have a significant impact on one or more matters of national environmental significance then you should consider the Administrative Guidelines on Significance - see http://www.environment.gov.au/epbc/assessmentsapprovals/guidelines/index.html.

World Heritage Properties:	None
National Heritage Places:	None
Wetlands of International Significance (Ramsar Wetlands):	None
Great Barrier Reef Marine Park:	None
Commonwealth Marine Areas:	None
Threatened Ecological Communitites:	2
Threatened Species:	7
Migratory Species:	10

Other Matters Protected by the EPBC Act

This part of the report summarises other matters protected under the Act that may relate to the area you nominated. Approval may be required for a proposed activity that significantly affects the environment on Commonwealth land, when the action is outside the Commonwealth land, or the environment anywhere when the action is taken on Commonwealth land. Approval may also be required for the Commonwealth or Commonwealth agencies proposing to take an action that is likely to have a significant impact on the environment anywhere.

The EPBC Act protects the environment on Commonwealth land, the environment from the actions taken on Commonwealth land, and the environment from actions taken by Commonwealth agencies. As heritage values of a place are part of the 'environment', these aspects of the EPBC Act protect the Commonwealth Heritage values of a Commonwealth Heritage place and the heritage values of a place on the Register of the National Estate. Information on the new heritage laws can be found at http://www.environment.gov.au/heritage/index.html

Please note that the current dataset on Commonwealth land is not complete. Further information on Commonwealth land would need to be obtained from relevant sources including Commonwealth agencies, local agencies, and land tenure maps.

A permit may be required for activities in or on a Commonwealth area that may affect a member of a listed threatened species or ecological community, a member of a listed migratory species, whales and other cetaceans, or a member of a listed marine species. Information on EPBC Act permit requirements and application forms can be found at http://www.environment.gov.au/epbc/permits/index.html.

Commonwealth Lands:	None
Commonwealth Heritage Places:	None
Listed Marine Species:	8
Whales and Other Cetaceans:	None

Critical Habitats:	None
Commonwealth Reserves:	None

Report Summary for Extra Information

This part of the report provides information that may also be relevant to the area you have nominated.

Place on the RNE:	None
State and Territory Reserves:	1
Regional Forest Agreements:	None
Invasive Species:	11
Nationally Important Wetlands:	None

Details

Matters of National Environmental Significance

Threatened Ecological Communities [Resource Information]

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

Name	Status	Type of Presence
Brigalow (Acacia harpophylla dominant and co-dominant)	Endangered	Community likely to occur within area
Weeping Myall Woodlands	Endangered	Community likely to occur within area

Threatened Species [Resource Information]

Name	Status	Type of Presence
BIRDS		
Geophaps scripta scripta Squatter Pigeon (southern) [64440]	Vulnerable	Species or species habitat likely to occur within area
Neochmia ruficauda ruficauda Star Finch (eastern), Star Finch (southern) [26027]	Endangered	Species or species habitat likely to occur within area
Poephila cincta cincta Black-throated Finch (southern) [64447]	Endangered	Species or species habitat likely to occur within area
Rostratula australis Australian Painted Snipe [77037]	Vulnerable	Species or species habitat may occur within area
PLANTS		
Acacia ramiflora [7242]	Vulnerable	Species or species habitat may occur within area
REPTILES		
Furina dunmalli Dunmall's Snake [59254]	Vulnerable	Species or species habitat may occur within area

Paradelma orientalis Brigalow Scaly-foot [59134]	Vulnerable	Species or species habitat likely to occur within area

Migratory Species		**[Resource Information]**
Name	Status	Type of Presence
Migratory Marine Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Migratory Terrestrial Species		
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus White-throated Needletail [682]		Species or species habitat may occur within area
Merops ornatus Rainbow Bee-eater [670]		Species or species habitat may occur within area
Migratory Wetlands Species		
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Rostratula benghalensis s. lat. Painted Snipe [889]		Species or species habitat may occur within area

Other Matters Protected by the EPBC Act

Listed Marine Species		**[Resource Information]**
Name	Status	Type of Presence
Birds		
Apus pacificus Fork-tailed Swift [678]		Species or species habitat may occur within area
Ardea alba Great Egret, White Egret [59541]		Species or species habitat may occur within area
Ardea ibis Cattle Egret [59542]		Species or species habitat may occur within area
Gallinago hardwickii Latham's Snipe, Japanese Snipe [863]		Species or species habitat may occur within area
Haliaeetus leucogaster White-bellied Sea-Eagle [943]		Species or species habitat likely to occur within area
Hirundapus caudacutus		

White-throated Needletail [682]	Species or species habitat may occur within area
Merops ornatus	
Rainbow Bee-eater [670]	Species or species habitat may occur within area
Rostratula benghalensis s. lat.	
Painted Snipe [889]	Species or species habitat may occur within area

Extra Information

State and Territory Reserves [Resource Information]

Bimblebox, QLD

Invasive Species [Resource Information]

Weeds reported here are the 20 species of national significance (WoNS), along with other introduced plants that are considered by the States and Territories to pose a particularly significant threat to biodiversity. The following feral animals are reported: Goat, Red Fox, Cat, Rabbit, Pig, Water Buffalo and Cane Toad. Maps from Landscape Health Project, National Land and Water Resouces Audit, 2001.

Name	Status	Type of Presence
Frogs		
Bufo marinus		
Cane Toad [1772]		Species or species habitat likely to occur within area
Mammals		
Capra hircus		
Goat [2]		Species or species habitat may occur within area
Felis catus		
Cat, House Cat, Domestic Cat [19]		Species or species habitat likely to occur within area
Oryctolagus cuniculus		
Rabbit, European Rabbit [128]		Species or species habitat likely to occur within area
Sus scrofa		
Pig [6]		Species or species habitat may occur within area
Vulpes vulpes		
Red Fox, Fox [18]		Species or species habitat may occur within area
Plants		
Cryptostegia grandiflora		
Rubber Vine, Rubbervine, India Rubber Vine, India Rubbervine, Palay Rubbervine, Purple Allamanda [18913]		Species or species habitat likely to occur within area
Hymenachne amplexicaulis		
Hymenachne, Olive Hymenachne, Water Stargrass, West Indian Grass, West Indian Marsh Grass [31754]		Species or species habitat may occur within area
Lantana camara		
Lantana, Common Lantana, Kamara Lantana, Large-leaf Lantana, Pink Flowered Lantana, Red Flowered Lantana, Red-Flowered Sage, White Sage, Wild Sage [10892]		Species or species habitat may occur within area
Parkinsonia aculeata		

Parkinsonia, Jerusalem Thorn, Jelly Bean Tree, Horse Bean [12301]	Species or species habitat may occur within area
Parthenium hysterophorus	
Parthenium Weed, Bitter Weed, Carrot Grass, False Ragweed [19566]	Species or species habitat likely to occur within area

Caveat

The information presented in this report has been provided by a range of data sources as acknowledged at the end of the report.

This report is designed to assist in identifying the locations of places which may be relevant in determining obligations under the Environment Protection and Biodiversity Conservation Act 1999. It holds mapped locations of World Heritage and Register of National Estate properties, Wetlands of International Importance, Commonwealth and State/Territory reserves, listed threatened, migratory and marine species and listed threatened ecological communities. Mapping of Commonwealth land is not complete at this stage. Maps have been collated from a range of sources at various resolutions.

Not all species listed under the EPBC Act have been mapped (see below) and therefore a report is a general guide only. Where available data supports mapping, the type of presence that can be determined from the data is indicated in general terms. People using this information in making a referral may need to consider the qualifications below and may need to seek and consider other information sources.

For threatened ecological communities where the distribution is well known, maps are derived from recovery plans, State vegetation maps, remote sensing imagery and other sources. Where threatened ecological community distributions are less well known, existing vegetation maps and point location data are used to produce indicative distribution maps.

For species where the distributions are well known, maps are digitised from sources such as recovery plans and detailed habitat studies. Where appropriate, core breeding, foraging and roosting areas are indicated under 'type of presence'. For species whose distributions are less well known, point locations are collated from government wildlife authorities, museums, and non-government organisations; bioclimatic distribution models are generated and these validated by experts. In some cases, the distribution maps are based solely on expert knowledge.

Only selected species covered by the following provisions of the EPBC Act have been mapped:

- migratory and
- marine

The following species and ecological communities have not been mapped and do not appear in reports produced from this database:

- threatened species listed as extinct or considered as vagrants
- some species and ecological communities that have only recently been listed
- some terrestrial species that overfly the Commonwealth marine area
- migratory species that are very widespread, vagrant, or only occur in small numbers.

The following groups have been mapped, but may not cover the complete distribution of the species:

- non-threatened seabirds which have only been mapped for recorded breeding sites;
- seals which have only been mapped for breeding sites near the Australian continent.

Such breeding sites may be important for the protection of the Commonwealth Marine environment.

Coordinates

-22.96778 146.52522,-22.99944 146.60167,-23.29972 146.60167,-23.38417 146.48472

Acknowledgements

This database has been compiled from a range of data sources. The department acknowledges the following custodians who have contributed valuable data and advice:

-Department of Environment, Climate Change and Water, New South Wales
-Department of Sustainability and Environment, Victoria
-Department of Primary Industries, Parks, Water and Environment, Tasmania
-Department of Environment and Natural Resources, South Australia
-Parks and Wildlife Service NT, NT Dept of Natural Resources, Environment and the Arts
-Environmental and Resource Management, Queensland
-Department of Environment and Conservation, Western Australia
-Department of the Environment, Climate Change, Energy and Water
-Birds Australia
-Australian Bird and Bat Banding Scheme
-Australian National Wildlife Collection
-Natural history museums of Australia
-Museum Victoria
-Australian Museum
-SA Museum
-Queensland Museum
-Online Zoological Collections of Australian Museums
-Queensland Herbarium
-National Herbarium of NSW
-Royal Botanic Gardens and National Herbarium of Victoria
-Tasmanian Herbarium
-State Herbarium of South Australia
-Northern Territory Herbarium
-Western Australian Herbarium
-Australian National Herbarium, Atherton and Canberra
-University of New England
-Ocean Biogeographic Information System
-Australian Government, Department of Defence
-State Forests of NSW
-Other groups and individuals

The Department is extremely grateful to the many organisations and individuals who provided expert advice and information on numerous draft distributions.

Please feel free to provide feedback via the Contact Us page.

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Waratah Coal - Galilee Coal Project (northern export facility) - Review of Environmental Factors - Rail Alignment Options at the Mine

Appendix C – Wildlife Online Search - Rail Alignment Option 1

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Defined Area
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 23.3958 to 22.9678
Longitude: 146.4786 to 146.525
Email: dward@e3consult.com.au
Date submitted: Tuesday 07 Jun 2011 16:38:43
Date extracted: Tuesday 07 Jun 2011 16:46:02

The number of records retrieved = 126

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		1
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		1
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		3
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		1
animals	birds	Anatidae	*Aythya australis*	hardhead		C		1
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		1
animals	birds	Artamidae	*Artamus cinereus*	black-faced woodswallow		C		1
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		2
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		3
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		1
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		1
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		1
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		1
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		2
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		2
animals	birds	Meliphagidae	*Lichenostomus penicillatus*	white-plumed honeyeater		C		1
animals	birds	Meliphagidae	*Lichenostomus virescens*	singing honeyeater		C		1
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		2
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		2
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		1
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		1
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		3
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		1
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		1
animals	mammals	Felidae	*Felis catus*	cat	Y			2
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		1
animals	mammals	Macropodidae	*Macropus giganteus*	eastern grey kangaroo		C		1
animals	mammals	Macropodidae	*Lagorchestes conspicillatus*	spectacled hare-wallaby		C		1
animals	mammals	Macropodidae	*Macropus robustus*	common wallaroo		C		1
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		3
animals	mammals	Suidae	*Sus scrofa*	pig	Y			1
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		C		1
animals	reptiles	Agamidae	*Pogona barbata*	bearded dragon		C		1
animals	reptiles	Boidae	*Aspidites melanocephalus*	black-headed python		C		1
plants	higher dicots	Acanthaceae	*Rostellularia adscendens*			C		1
plants	higher dicots	Acanthaceae	*Dipteracanthus australasicus*			C		1
plants	higher dicots	Apocynaceae	*Carissa ovata*	currantbush		C		2
plants	higher dicots	Apocynaceae	*Carissa lanceolata*			C		3

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Asteraceae	*Vittadinia pustulata*			C		1/1
plants	higher dicots	Bignoniaceae	*Pandorea pandorana*	wonga vine		C		1
plants	higher dicots	Byttneriaceae	*Waltheria indica*			C		2
plants	higher dicots	Cactaceae	*Opuntia tomentosa*	velvety tree pear	Y			2
plants	higher dicots	Caesalpiniaceae	*Lysiphyllum carronii*	ebony tree		C		1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		1
plants	higher dicots	Casuarinaceae	*Allocasuarina luehmannii*	bull oak		C		2/1
plants	higher dicots	Chenopodiaceae	*Sclerolaena convexula*			C		1
plants	higher dicots	Erythroxylaceae	*Erythroxylum australe*	cocaine tree		C		2
plants	higher dicots	Fabaceae	*Glycine*			C		1
plants	higher dicots	Fabaceae	*Leptosema chapmanii*			C		1/1
plants	higher dicots	Goodeniaceae	*Goodenia*			C		1
plants	higher dicots	Goodeniaceae	*Scaevola spinescens*	prickly fan flower		C		1
plants	higher dicots	Loranthaceae	*Amyema*			C		1
plants	higher dicots	Malvaceae	*Sida*			C		1
plants	higher dicots	Malvaceae	*Malva*			C		1
plants	higher dicots	Malvaceae	*Sida hackettiana*			C		1
plants	higher dicots	Malvaceae	*Hibiscus sturtii*			C		1
plants	higher dicots	Mimosaceae	*Acacia excelsa*			C		3
plants	higher dicots	Mimosaceae	*Acacia shirleyi*	lancewood		C		1
plants	higher dicots	Mimosaceae	*Acacia sericophylla*			C		1
plants	higher dicots	Mimosaceae	*Archidendropsis basaltica*	red lancewood		C		1
plants	higher dicots	Mimosaceae	*Acacia harpophylla*	brigalow		C		3
plants	higher dicots	Mimosaceae	*Acacia salicina*	doolan		C		1
plants	higher dicots	Mimosaceae	*Acacia oswaldii*	miljee		C		1
plants	higher dicots	Myoporaceae	*Eremophila deserti*			C		1
plants	higher dicots	Myoporaceae	*Eremophila longifolia*	berrigan		C		1
plants	higher dicots	Myoporaceae	*Eremophila mitchellii*			C		4
plants	higher dicots	Myrtaceae	*Corymbia plena*			C		2
plants	higher dicots	Myrtaceae	*Eucalyptus melanophloia*			C		5
plants	higher dicots	Myrtaceae	*Melaleuca tamariscina*			C		1
plants	higher dicots	Myrtaceae	*Corymbia clarksoniana*			C		1/1
plants	higher dicots	Myrtaceae	*Corymbia papuana*	ghost gum		C		3
plants	higher dicots	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		1
plants	higher dicots	Myrtaceae	*Eucalyptus populnea*	poplar box		C		4
plants	higher dicots	Picrodendraceae	*Petalostigma pubescens*	quinine tree		C		3
plants	higher dicots	Pittosporaceae	*Bursaria incana*			C		1
plants	higher dicots	Proteaceae	*Grevillea striata*	beefwood		C		4
plants	higher dicots	Proteaceae	*Grevillea parallela*			C		2
plants	higher dicots	Rhamnaceae	*Ventilago viminalis*	supplejack		C		1
plants	higher dicots	Rubiaceae	*Psydrax oleifolia*			C		2
plants	higher dicots	Rutaceae	*Geijera parviflora*	wilga		C		1
plants	higher dicots	Rutaceae	*Flindersia dissosperma*			C		1
plants	higher dicots	Sapindaceae	*Atalaya hemiglauca*			C		1
plants	higher dicots	Sapindaceae	*Alectryon oleifolius*			C		1
plants	higher dicots	Sparrmanniaceae	*Grewia latifolia*	dysentery plant		C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Sterculiaceae	*Brachychiton populneus subsp. trilobus*			C		1
plants	higher dicots	Verbenaceae	*Lantana camara*		Y			1/1
plants	higher dicots	Violaceae	*Hybanthus stellarioides*			C		1
plants	monocots	Cyperaceae	*Cyperus*			C		1
plants	monocots	Cyperaceae	*Cyperus fulvus*			C		1/1
plants	monocots	Cyperaceae	*Bulbostylis barbata*			C		1/1
plants	monocots	Cyperaceae	*Schoenoplectus dissachanthus*			C		1/1
plants	monocots	Cyperaceae	*Cyperus exaltatus*	tall flatsedge		C		1
plants	monocots	Laxmanniaceae	*Lomandra*			C		1
plants	monocots	Poaceae	*Aristida*			C		2
plants	monocots	Poaceae	*Eragrostis*			C		2
plants	monocots	Poaceae	*Triodia pungens*			C		4
plants	monocots	Poaceae	*Chloris truncata*			C		1
plants	monocots	Poaceae	*Themeda triandra*	kangaroo grass		C		2
plants	monocots	Poaceae	*Triraphis mollis*	purple plumegrass		C		1/1
plants	monocots	Poaceae	*Chrysopogon fallax*			C		2
plants	monocots	Poaceae	*Eriachne aristidea*			C		1/1
plants	monocots	Poaceae	*Eriachne mucronata*			C		2
plants	monocots	Poaceae	*Pennisetum ciliare*			C		1
plants	monocots	Poaceae	*Enneapogon gracilis*	slender nineawn		C		1
plants	monocots	Poaceae	*Enteropogon ramosus*			C		2
plants	monocots	Poaceae	*Eragrostis speciosa*			C		1
plants	monocots	Poaceae	*Digitaria longiflora*			C		1/1
plants	monocots	Poaceae	*Eragrostis lacunaria*	purple lovegrass		C		1
plants	monocots	Poaceae	*Tripogon loliiformis*	five minute grass		C		1
plants	monocots	Poaceae	*Aristida biglandulosa*			C		1
plants	monocots	Poaceae	*Aristida jerichoensis*			C		2
plants	monocots	Poaceae	*Cymbopogon bombycinus*	silky oilgrass		C		1
plants	monocots	Poaceae	*Digitaria breviglumis*			C		1/1
plants	monocots	Poaceae	*Heteropogon contortus*	black speargrass		C		2
plants	monocots	Poaceae	*Aristida inaequiglumis*			C		1
plants	monocots	Poaceae	*Bothriochloa ewartiana*	desert bluegrass		C		1
plants	monocots	Poaceae	*Urochloa gilesii var. gilesii*			C		1/1
plants	monocots	Poaceae	*Aristida holathera var. holathera*			C		1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.

Waratah Coal - Galilee Coal Project (northern export facility) - Review of Environmental Factors - Rail Alignment Options at the Mine

Appendix D – Wildlife Online Search - Rail Alignment Option 2

Queensland Government

Wildlife Online Extract

Search Criteria: Species List for a Defined Area
Species: All
Type: All
Status: All
Records: All
Date: All
Latitude: 23.3842 to 22.9678
Longitude: 146.4847 to 146.525
Email: dward@e3consult.com.au
Date submitted: Tuesday 07 Jun 2011 16:40:34
Date extracted: Tuesday 07 Jun 2011 16:46:09

The number of records retrieved = 114

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
animals	birds	Accipitridae	*Milvus migrans*	black kite		C		1
animals	birds	Accipitridae	*Accipiter fasciatus*	brown goshawk		C		1
animals	birds	Accipitridae	*Haliastur sphenurus*	whistling kite		C		3
animals	birds	Anatidae	*Anas gracilis*	grey teal		C		1
animals	birds	Anatidae	*Aythya australis*	hardhead		C		1
animals	birds	Anatidae	*Anas superciliosa*	Pacific black duck		C		1
animals	birds	Ardeidae	*Ardea pacifica*	white-necked heron		C		1
animals	birds	Ardeidae	*Ardea intermedia*	intermediate egret		C		1
animals	birds	Artamidae	*Artamus cinereus*	black-faced woodswallow		C		1
animals	birds	Climacteridae	*Climacteris picumnus*	brown treecreeper		C		1
animals	birds	Columbidae	*Ocyphaps lophotes*	crested pigeon		C		1
animals	birds	Corcoracidae	*Struthidea cinerea*	apostlebird		C		1
animals	birds	Corvidae	*Corvus orru*	Torresian crow		C		2
animals	birds	Estrildidae	*Taeniopygia guttata*	zebra finch		C		3
animals	birds	Estrildidae	*Lonchura castaneothorax*	chestnut-breasted mannikin		C		1
animals	birds	Estrildidae	*Taeniopygia bichenovii*	double-barred finch		C		1
animals	birds	Gruidae	*Grus rubicunda*	brolga		C		1
animals	birds	Megaluridae	*Cincloramphus mathewsi*	rufous songlark		C		1
animals	birds	Meliphagidae	*Manorina flavigula*	yellow-throated miner		C		1
animals	birds	Meliphagidae	*Lichenostomus virescens*	singing honeyeater		C		1
animals	birds	Meliphagidae	*Lichenostomus penicillatus*	white-plumed honeyeater		C		1
animals	birds	Meliphagidae	*Philemon citreogularis*	little friarbird		C		2
animals	birds	Meliphagidae	*Philemon corniculatus*	noisy friarbird		C		2
animals	birds	Monarchidae	*Grallina cyanoleuca*	magpie-lark		C		2
animals	birds	Pardalotidae	*Pardalotus striatus*	striated pardalote		C		2
animals	birds	Petroicidae	*Microeca fascinans*	jacky winter		C		1
animals	birds	Phalacrocoracidae	*Phalacrocorax carbo*	great cormorant		C		1
animals	birds	Phalacrocoracidae	*Microcarbo melanoleucos*	little pied cormorant		C		1
animals	birds	Pomatostomidae	*Pomatostomus temporalis*	grey-crowned babbler		C		3
animals	birds	Psittacidae	*Trichoglossus chlorolepidotus*	scaly-breasted lorikeet		C		1
animals	birds	Psittacidae	*Trichoglossus haematodus moluccanus*	rainbow lorikeet		C		1
animals	mammals	Felidae	*Felis catus*	cat	Y			1
animals	mammals	Leporidae	*Oryctolagus cuniculus*	rabbit	Y			1
animals	mammals	Macropodidae	*Wallabia bicolor*	swamp wallaby		C		1
animals	mammals	Macropodidae	*Lagorchestes conspicillatus*	spectacled hare-wallaby		C		1
animals	mammals	Macropodidae	*Macropus robustus*	common wallaroo		C		1
animals	mammals	Potoroidae	*Aepyprymnus rufescens*	rufous bettong		C		3
animals	mammals	Suidae	*Sus scrofa*	pig	Y			1
animals	mammals	Tachyglossidae	*Tachyglossus aculeatus*	short-beaked echidna		C		1
animals	reptiles	Boidae	*Aspidites melanocephalus*	black-headed python		C		1
plants	higher dicots	Acanthaceae	*Dipteracanthus australasicus*			C		1
plants	higher dicots	Acanthaceae	*Rostellularia adscendens*			C		1
plants	higher dicots	Apocynaceae	*Carissa ovata*	currantbush		C		2
plants	higher dicots	Apocynaceae	*Carissa lanceolata*			C		3
plants	higher dicots	Bignoniaceae	*Pandorea pandorana*	wonga vine		C		1
plants	higher dicots	Byttneriaceae	*Waltheria indica*			C		2

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	higher dicots	Cactaceae	*Opuntia tomentosa*	velvety tree pear	Y			2
plants	higher dicots	Caesalpiniaceae	*Lysiphyllum carronii*	ebony tree		C		1
plants	higher dicots	Capparaceae	*Capparis lasiantha*	nipan		C		1
plants	higher dicots	Casuarinaceae	*Allocasuarina luehmannii*	bull oak		C		2/1
plants	higher dicots	Chenopodiaceae	*Sclerolaena convexula*			C		1
plants	higher dicots	Erythroxylaceae	*Erythroxylum australe*	cocaine tree		C		2
plants	higher dicots	Fabaceae	*Glycine*			C		1
plants	higher dicots	Goodeniaceae	*Goodenia*			C		1
plants	higher dicots	Goodeniaceae	*Scaevola spinescens*	prickly fan flower		C		1
plants	higher dicots	Loranthaceae	*Amyema*			C		1
plants	higher dicots	Malvaceae	*Sida*			C		1
plants	higher dicots	Malvaceae	*Sida hackettiana*			C		1
plants	higher dicots	Malvaceae	*Hibiscus sturtii*			C		1
plants	higher dicots	Malvaceae	*Malva*			C		1
plants	higher dicots	Mimosaceae	*Acacia excelsa*			C		3
plants	higher dicots	Mimosaceae	*Archidendropsis basaltica*	red lancewood		C		1
plants	higher dicots	Mimosaceae	*Acacia oswaldii*	miljee		C		1
plants	higher dicots	Mimosaceae	*Acacia shirleyi*	lancewood		C		1
plants	higher dicots	Mimosaceae	*Acacia harpophylla*	brigalow		C		3
plants	higher dicots	Mimosaceae	*Acacia sericophylla*			C		1
plants	higher dicots	Mimosaceae	*Acacia salicina*	doolan		C		1
plants	higher dicots	Myoporaceae	*Eremophila deserti*			C		1
plants	higher dicots	Myoporaceae	*Eremophila longifolia*	berrigan		C		1
plants	higher dicots	Myoporaceae	*Eremophila mitchellii*			C		4
plants	higher dicots	Myrtaceae	*Corymbia plena*			C		2
plants	higher dicots	Myrtaceae	*Eucalyptus populnea*	poplar box		C		4
plants	higher dicots	Myrtaceae	*Corymbia papuana*	ghost gum		C		3
plants	higher dicots	Myrtaceae	*Corymbia tessellaris*	Moreton Bay ash		C		1
plants	higher dicots	Myrtaceae	*Melaleuca tamariscina*			C		1
plants	higher dicots	Myrtaceae	*Eucalyptus melanophloia*			C		5
plants	higher dicots	Myrtaceae	*Corymbia clarksoniana*			C		1/1
plants	higher dicots	Picrodendraceae	*Petalostigma pubescens*	quinine tree		C		3
plants	higher dicots	Pittosporaceae	*Bursaria incana*			C		1
plants	higher dicots	Proteaceae	*Grevillea striata*	beefwood		C		4
plants	higher dicots	Proteaceae	*Grevillea parallela*			C		2
plants	higher dicots	Rhamnaceae	*Ventilago viminalis*	supplejack		C		1
plants	higher dicots	Rubiaceae	*Psydrax oleifolia*			C		2
plants	higher dicots	Rutaceae	*Geijera parviflora*	wilga		C		1
plants	higher dicots	Rutaceae	*Flindersia dissosperma*			C		1
plants	higher dicots	Sapindaceae	*Atalaya hemiglauca*			C		1
plants	higher dicots	Sapindaceae	*Alectryon oleifolius*			C		1
plants	higher dicots	Sparrmanniaceae	*Grewia latifolia*	dysentery plant		C		1
plants	higher dicots	Sterculiaceae	*Brachychiton populneus subsp. trilobus*			C		1
plants	higher dicots	Verbenaceae	*Lantana camara*		Y			1/1
plants	higher dicots	Violaceae	*Hybanthus stellarioides*			C		1
plants	monocots	Cyperaceae	*Cyperus*			C		1

Kingdom	Class	Family	Scientific Name	Common Name	I	Q	A	Records
plants	monocots	Cyperaceae	*Cyperus exaltatus*	tall flatsedge		C		1
plants	monocots	Laxmanniaceae	*Lomandra*			C		1
plants	monocots	Poaceae	*Aristida*			C		2
plants	monocots	Poaceae	*Eragrostis*			C		2
plants	monocots	Poaceae	*Triodia pungens*			C		4
plants	monocots	Poaceae	*Chloris truncata*			C		1
plants	monocots	Poaceae	*Themeda triandra*	kangaroo grass		C		2
plants	monocots	Poaceae	*Chrysopogon fallax*			C		2
plants	monocots	Poaceae	*Eriachne mucronata*			C		2
plants	monocots	Poaceae	*Pennisetum ciliare*			C		1
plants	monocots	Poaceae	*Enneapogon gracilis*	slender nineawn		C		1
plants	monocots	Poaceae	*Enteropogon ramosus*			C		2
plants	monocots	Poaceae	*Eragrostis speciosa*			C		1
plants	monocots	Poaceae	*Eragrostis lacunaria*	purple lovegrass		C		1
plants	monocots	Poaceae	*Tripogon loliiformis*	five minute grass		C		1
plants	monocots	Poaceae	*Aristida biglandulosa*			C		1
plants	monocots	Poaceae	*Aristida jerichoensis*			C		2
plants	monocots	Poaceae	*Cymbopogon bombycinus*	silky oilgrass		C		1
plants	monocots	Poaceae	*Heteropogon contortus*	black speargrass		C		2
plants	monocots	Poaceae	*Aristida inaequiglumis*			C		1
plants	monocots	Poaceae	*Bothriochloa ewartiana*	desert bluegrass		C		1
plants	monocots	Poaceae	*Aristida holathera var. holathera*			C		1

CODES

I - Y indicates that the taxon is introduced to Queensland and has naturalised.

Q - Indicates the Queensland conservation status of each taxon under the *Nature Conservation Act 1992.* The codes are Extinct in the Wild (PE), Endangered (E), Vulnerable (V), Near Threatened (NT), Least Concern (C) or Not Protected ( ).

A - Indicates the Australian conservation status of each taxon under the *Environment Protection and Biodiversity Conservation Act 1999.* The values of EPBC are Conservation Dependent (CD), Critically Endangered (CE), Endangered (E), Extinct (EX), Extinct in the Wild (XW) and Vulnerable (V).

Records – The first number indicates the total number of records of the taxon for the record option selected (i.e. All, Confirmed or Specimens).
This number is output as 99999 if it equals or exceeds this value. The second number located after the / indicates the number of specimen records for the taxon.
This number is output as 999 if it equals or exceeds this value.