

ATTACHMENT A
DATABASE RESULTS

Table A1
Threatened Flora and Fauna Species from Kooragang Island

Scientific Name	Common Name	Conservation Status ¹		Species Records				Potential Habitat in the Modification Area
		TSC Act	EPBC Act	OEH BioNet/ Atlas of NSW Wildlife ²	Australian Museum ³	Birds Australia ⁴	Ecological Assessment for PWCS T4 Project ⁵	
FLORA								
SCROPHULARIACEAE								
<i>Euphrasia arguta</i>	-	CE	CE	●	-	-	●	No likely potential habitat.
ZANNICHELLIACEAE								
<i>Zannichellia palustris</i>	-	E	-	●	-	-	●	Potential habitat is present in freshwater wetlands and saltmarsh.
FAUNA								
Amphibians								
HYLIDAE								
<i>Litoria aurea</i>	Green and Golden Bell Frog	E	V	●	-	-	●	Habitat is present in freshwater wetlands and saltmarsh.
Birds								
ANSERANATIDAE								
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	●	-	●	●	Habitat is present in freshwater wetlands and surrounding areas of permanent water (e.g. Deep Pond).
ANATIDAE								
<i>Stictonetta naevosa</i>	Freckled Duck	V	-	●	-	●	●	No likely potential habitat.
<i>Oxyura australis</i>	Blue-billed Duck	V	-	-	-	●	●	No likely potential habitat.
PROCELLARIIDAE								
<i>Pterodroma solandri</i>	Providence Petrel	V	-	-	-	-	●	No likely potential habitat.
CICONIIDAE								
<i>Ephippiorhynchus asiaticus</i>	Black-necked Stork	E	-	●	-	●	●	Limited. Habitat is present in freshwater wetlands and surrounding areas of permanent water. Limited foraging habitat on saltmarsh.

Table A1 (Continued)
Threatened Flora and Fauna Species from Kooragang Island

Scientific Name	Common Name	Conservation Status ¹		Species Records				Potential Habitat in the Modification Area
				OEH BioNet/ Atlas of NSW Wildlife ²	Australian Museum ³	Birds Australia ⁴	Ecological Assessment for PWCS T4 Project ⁵	
ARDEIDAE								
<i>Botaurus poiciloptilus</i>	Australasian Bittern	E	E	●	-	●	●	Limited. Habitat is present in freshwater wetlands and surrounding areas of permanent water.
<i>Ixobrychus flavicollis</i>	Black Bittern	V	-	●	-	●	-	Limited. Habitat is present in freshwater wetlands and surrounding areas of permanent water.
ACCIPITRIDAE								
<i>Pandion cristatus</i>	Eastern Osprey	V	--	●	-	●	●	No likely potential habitat.
<i>Lophoictinia isura</i>	Square-tailed Kite	V	-	-	-	-	●	No likely potential habitat.
<i>Circus assimilis</i>	Spotted Harrier	V	-	●	-	●	●	No likely potential habitat.
<i>Hieraaetus morphnoides</i>	Little Eagle	V	-	●	-	●	●	No likely potential habitat.
TURNICIDAE								
<i>Turnix maculosus</i>	Red-backed Button-quail	V	-	-	-	-	●	No likely potential habitat.
BURHINIDAE								
<i>Burhinus grallarius</i>	Bush Stone-curlew	E	-	-	-	-	●	No likely potential habitat.
HAEMATOPODIDAE								
<i>Haematopus longirostris</i>	Pied Oystercatcher	E	-	-	-	●	-	No likely potential habitat.
<i>Haematopus fuliginosus</i>	Sooty Oystercatcher	V	-	-	-	●	●	No likely potential habitat.

Table A1 (Continued)
Threatened Flora and Fauna Species from Kooragang Island

Scientific Name	Common Name	Conservation Status ¹		Species Records				Potential Habitat in the Modification Area
				OEH BioNet/ Atlas of NSW Wildlife ²	Australian Museum ³	Birds Australia ⁴	Ecological Assessment for PWCS T4 Project ⁵	
CHARADRIIDAE								
<i>Charadrius mongolus</i>	Lesser Sand-plover	V	-	●	-	●	●	Limited foraging habitat.
<i>Charadrius leschenaultii</i>	Greater Sand Plover	V	-	●	-	-	●	Limited foraging habitat.
JACANIDAE								
<i>Irediparra gallinacea</i>	Comb-crested Jacana	V	-	●	●		●	Limited. Habitat is present in freshwater wetlands.
ROSTRATULIDAE								
<i>Rostratula australis</i>	Australian Painted Snipe	E	V	●	-	●	-	Limited foraging habitat.
SCOLOPACIDAE								
<i>Limosa limosa</i>	Black-tailed Godwit	V	-	●	●	●	●	Limited foraging habitat.
<i>Xenus cinereus</i>	Terek Sandpiper	V	-	●	●	●	●	Limited potential habitat in saltmarsh.
<i>Calidris tenuirostris</i>	Great Knot	V	-	●	-	●	●	Limited foraging habitat in freshwater wetlands and saltmarsh.
<i>Calidris ferruginea</i>	Curlew Sandpiper	E	-	●	●	●	●	Limited foraging habitat.
<i>Limicola falcinellus</i>	Broad-billed Sandpiper	V	-	●	-	●	●	Habitat present in saltmarsh.
LARIDAE								
<i>Sternula albifrons</i>	Little Tern	E	-	●	-	●	●	No likely potential habitat.

Table A1 (Continued)
Threatened Flora and Fauna Species from Kooragang Island

Scientific Name	Common Name	Conservation Status ¹		Species Records				Potential Habitat in the Modification Area
				OEH BioNet/ Atlas of NSW Wildlife ²	Australian Museum ³	Birds Australia ⁴	Ecological Assessment for PWCS T4 Project ⁵	
PSITTACIDAE								
<i>Calyptorhynchus lathami</i>	Glossy Black-Cockatoo	V	-	-	-	-	●	No likely potential habitat.
STRIGIDAE								
<i>Ninox strenua</i>	Powerful Owl	V	-	●	-	-	●	Limited foraging habitat.
TYTONIDAE								
<i>Tyto novaehollandiae</i>	Masked Owl	V	-	-	-	●	-	Limited foraging habitat.
<i>Tyto longimembris</i>	Eastern Grass Owl	V	-	-	-	●	-	Limited foraging habitat.
MELIPHAGIDAE								
<i>Epthianura albifrons</i>	White-fronted Chat	V	-	●	●	●	●	No likely potential habitat.
ESTRILDIDAE								
<i>Stagonopleura guttata</i>	Diamond Firetail	V	-	●	-	-	●	No likely potential habitat.
Mammals								
PTEROPODIDAE								
<i>Pteropus poliocephalus</i>	Grey-headed Flying-fox	V	V	●	-	-	●	Limited habitat in mangrove habitat.
EMBALLONURIDAE								
<i>Saccolaimus flaviventris</i>	Yellow-bellied Sheath-tail-bat	V	-	-	-	-	●	Limited foraging habitat.
MOLOSSIDAE								
<i>Mormopterus norfolkensis</i>	Eastern Freetail-bat	V	-	●	-	-	●	Limited foraging habitat.

Table A1 (Continued)
Threatened Flora and Fauna Species from Kooragang Island

Scientific Name	Common Name	Conservation Status ¹	Species Records				Potential Habitat in the Modification Area	
			OEH BioNet/ Atlas of NSW Wildlife ²	Australian Museum ³	Birds Australia ⁴	Ecological Assessment for PWCS T4 Project ⁵		
VESPERTILIONIDAE								
<i>Falsistrellus tasmaniensis</i>	Eastern False Pipistrelle	V	-	●	-	-	●	Limited foraging habitat.
<i>Miniopterus australis</i>	Little Bentwing-bat	V	-	●	-	-	●	Limited foraging habitat.
<i>Miniopterus schreibersii oceanensis</i>	Eastern Bentwing-bat	V	-	●	-	-	●	Limited foraging habitat.
<i>Myotis macropus</i>	Southern Myotis	V	-	●	-	-	●	Limited foraging habitat.
<i>Scoteanax rueppellii</i>	Greater Broad-nosed Bat	V	-	-	-	-	●	Limited foraging habitat.

¹ Conservation status under NSW *Threatened Species Conservation Act, 1995* and Commonwealth *Environment Protection and Biodiversity Conservation Act, 1999* (current as at 25 May 2012).

V – Vulnerable; E – Endangered, CE – Critically Endangered.

² Office of Environment and Heritage (2012) *BioNet/Atlas of NSW Wildlife Records for the Search Area: N: -32.82, S: -32.92, W: 151.68, E: 151.78*. Date Received: 25 May 2012.

³ Australian Museum (2012) *Database Records for the Search Area: -32.9563, 151.6151; -32.7760, 151.6179; -32.7782, 151.8314; -32.9585, 151.8290*. Date Received: 30 May 2012.

⁴ Birds Australia (2012) *Database Records for the Search Area: -32.9563, 151.6151; -32.7760, 151.6179; -32.7782, 151.8314; -32.9585, 151.8290*. Date Received: 24 May 2012.

⁵ Umwelt (Australia) Pty Ltd (2012) *Ecological Assessment for Port Waratah Coal Services (PWCS) Proposed Terminal 4 (T4) Project, Port of Newcastle NSW*.

ATTACHMENT B
BIRD MONITORING RESULTS

**Table B-1
Bird Species Recorded at Deep Pond**

Scientific Name	Common Name	Conservation Status under the TSC Act ¹	Monitoring Programs		
			16/01/2010 to 16/12/2010	1/01/2009 to 19/12/2009	19/01/2008 to 10/01/2009
PHASIANIDAE					
<i>Coturnix ypsilophora</i>	Brown Quail	-	-	●	-
ANSERANATIDAE					
<i>Anseranas semipalmata</i>	Magpie Goose	V	-	●	●
ANATIDAE					
<i>Cygnus atratus</i>	Black Swan	-	●	●	●
<i>Malacorhynchus membranaceus</i>	Pink-eared Duck	-	-	●	●
<i>Anas superciliosa</i>	Pacific Black Duck	-	●	●	●
<i>Anas rhynchotis</i>	Australasian Shoveler	-	●	●	●
<i>Anas gracilis</i>	Grey Teal	-	●	●	●
<i>Anas castanea</i>	Chestnut Teal	-	●	●	●
<i>Aythya australis</i>	Hardhead	-	●	●	●
<i>Biziura lobata</i>	Musk Duck	-	●	●	●
PODICIPEDIDAE					
<i>Tachybaptus novaehollandiae</i>	Australasian Grebe	-	●	●	●
<i>Poliiocephalus poliocephalus</i>	Hoary-headed Grebe	-	●	●	●
THRESKIORNITHIDAE					
<i>Threskiornis molucca</i>	Australian White Ibis	-	●	●	●
<i>Platalea regia</i>	Royal Spoonbill	-	●	●	●
ARDEIDAE					
<i>Bubulcus ibis</i>	Cattle Egret	-	●	-	-
<i>Ardea alba</i>	Great Egret	-	●	●	●
<i>Ardea intermedia</i>	Intermediate Egret	-	●	●	●
<i>Egretta novaehollandiae</i>	White-faced Heron	-	●	●	●
<i>Egretta garzetta</i>	Little Egret	-	●	●	
PELECANIDAE					
<i>Pelecanus conspicillatus</i>	Australian Pelican	-	●	●	●

Table B-1 (Continued)
Bird Species Recorded at Deep Pond

Scientific Name	Common Name	Conservation Status under the TSC Act ¹	Monitoring Programs		
			16/01/2010 to 16/12/2010	1/01/2009 to 19/12/2009	19/01/2008 to 10/01/2009
PHALACROCORACIDAE					
<i>Microcarbo melanoleucos</i>	Little Pied Cormorant	-	●	●	●
<i>Phalacrocorax sulcirostris</i>	Little Black Cormorant	-	●	●	●
<i>Phalacrocorax varius</i>	Pied Cormorant	-	-	-	●
<i>Phalacrocorax carbo</i>	Great Cormorant	-	●	●	●
ANHINGIDAE					
<i>Anhinga novaehollandiae</i>	Australasian Darter	-	●	●	●
FALCONIDAE					
<i>Falco cenchroides</i>	Australian Kestrel	-	-	●	●
<i>Falco longipennis</i>	Australian Hobby	-	●	-	-
<i>Falco berigora</i>	Brown Falcon	-	-	●	-
ACCIPITRIDAE					
<i>Elanus axillaris</i>	Black-shouldered Kite	-	●	-	●
<i>Haliastur sphenurus</i>	Whistling Kite	-	●	●	●
<i>Haliaeetus leucogaster</i>	White-bellied Sea-Eagle	-	●	●	●
<i>Circus approximans</i>	Swamp Harrier	-	●	●	●
<i>Circus assimilis</i>	Spotted Harrier	V	-	●	●
<i>Accipter fasciatus</i>	Brown Goshawk	-	●	-	●
<i>Accipiter cirrocephalus</i>	Collared Sparrowhawk	-	●	-	-
RALLIDAE					
<i>Gallirallus philippensis</i>	Buff-banded Rail	-	●	●	-
<i>Lewinia pectoralis</i>	Lewin's Rail	-	●	-	-
<i>Porzana pusilla</i>	Baillon's Crake	-	-	●	-
<i>Porzana fluminea</i>	Australian Crake	-	-	●	-
<i>Porphyrio porphyrio</i>	Purple Swamphen	-	●	●	●
<i>Gallinula tenebrosa</i>	Dusky Moorhen	-	●	●	●
<i>Fulica atra</i>	Eurasian Coot	-	-	●	●

Table B-1 (Continued)
Bird Species Recorded at Deep Pond

Scientific Name	Common Name	Conservation Status under the TSC Act ¹	Monitoring Programs		
			16/01/2010 to 16/12/2010	1/01/2009 to 19/12/2009	19/01/2008 to 10/01/2009
RECURVIROSTRIDAE					
<i>Himantopus himantopus</i>	Black-winged Stilt	-	●	●	●
<i>Recurvirostra novaehollandiae</i>	Red-necked Avocet	-	●	●	-
CHARADRIIDAE					
<i>Vanellus miles</i>	Masked Lapwing	-	●	●	●
<i>Erythronyx cinctus</i>	Red-kneed Dotterel	-	-	●	-
<i>Charadrius ruficapillus</i>	Red-capped Plover	-	●	-	-
<i>Charadrius bicinctus</i>	Double-banded Plover	-	●	-	-
<i>Euseyonis melanops</i>	Black-fronted Dotterel	-	●	●	●
SCOLOPACIDAE					
<i>Limosa limosa</i>	Black-tailed Godwit	V	●	-	-
<i>Limosa lapponica</i>	Bar-tailed Godwit	-	●	-	-
<i>Tringa stagnatilis</i>	Marsh Sandpiper	-	●	●	-
<i>Tringa nebularia</i>	Common Greenshank	-	●	-	-
<i>Caladris ruficollis</i>	Red-necked Stint	-	●	-	-
<i>Calidris acuminata</i>	Sharp-tailed Sandpiper	-	●	●	-
LARIDAE					
<i>Chroicocephalus novaehollandiae</i>	Silver Gull	-	●	●	●
<i>Sterna nilotica</i>	Gull-billed Tern	-	●	-	-
<i>Hydroprogne caspia</i>	Caspian Tern	-	●	-	●
<i>Chlidonias hybridus</i>	Whiskered Tern	-	-	●	-
CUCULIDAE					
<i>Chrysococcyx basalus</i>	Horsfield's Bronze-Cuckoo	-	-	●	-
MALURIDAE					
<i>Malurus cyaneus</i>	Superb Fairy-wren	-	-	●	-
MELIPHAGIDAE					
<i>Epthianura albiglans</i>	White-fronted Chat	V	●	●	-

Table B-1 (Continued)
Bird Species Recorded at Deep Pond

Scientific Name	Common Name	Conservation Status under the TSC Act ¹	Monitoring Programs		
			16/01/2010 to 16/12/2010	1/01/2009 to 19/12/2009	19/01/2008 to 10/01/2009
PHALACROCORACIDAE					
CORVIDAE					
<i>Corvus coronoides</i>	Australian Raven	-	-	●	-
HIRUNDINIDAE					
<i>Hirundo neoxena</i>	Welcome Swallow	-	-	-	●
SYLVIIDAE					
<i>Acrocephalus stentoreus</i>	Australian Reed-Warbler	-	●	●	●
<i>Megalurus timoriensis</i>	Tawny Grassbird	-	●	●	●
<i>Megalurus gramineus</i>	Little Grassbird	-	●	●	●
<i>Cisticola exilis</i>	Golden-headed Cisticola	-	●	●	●
MOTACILLIDAE					
<i>Anthus australis</i>	Australasian Pipit	-	-	●	●
ESTRILDIDAE					
<i>Lonchura castaneothorax</i>	Chestnut-breasted Mannikin	-	●	-	●
FRINGILLIDAE					
<i>Carduelis carduelis</i> *	European Goldfinch*	-	-	-	●

¹ Conservation status under NSW Threatened Species Conservation Act, 1995 and Commonwealth Environment Protection and Biodiversity Conservation Act, 1999 (current as at 25 May 2012).

V – Vulnerable; E – Endangered, CE – Critically Endangered.

Notes:

- Nomenclature consistent with CSIRO (2006) *CSIRO List of Australian Vertebrates A Reference with Conservation Status*.

* Introduced species.

ATTACHMENT C

PEER REVIEW LETTER FROM DR ARTHUR WHITE

(a suitably qualified ecologist approved by the Director-General)



Mail Address: 69 Bestic St. Rockdale NSW 2216 A.C.N. 065 241 732
e-mail: 1arthur@tpg.com.au A.B.N. 32 065 241 732

1 June 2012

Newcastle Coal Infrastructure Group
C/- Resource Strategies Pty Ltd
P.O. Box 1842
Milton QLD 4064

Attention: Mr Phil Reid

**NCIG COAL EXPORT TERMINAL RAIL FLYOVER MODIFICATION
THREATENED SPECIES ASSESSMENT REVIEW**

Dear Mr Reid,

As requested, I have reviewed the threatened species assessment that has been prepared as part of the Newcastle Coal Infrastructure Group (NCIG) Coal Export Terminal Rail Flyover Modification Environmental Assessment (EA). I have and continue to be personally involved with ongoing works and activities for projects on Kooragang Island in my role as qualified ecologist approved by the Director-General, in accordance with Condition 2.19 of Project Approval (06_0009).

I consider the assessment to be adequate and concur with the findings and proposed mitigation and compensatory measures. I agree that the biodiversity values in the region are likely to be maintained considering:

- the small scale of land disturbance required the Rail Flyover Modification (2.6 hectares [ha]);
- the proportion of proposed land disturbance which is already disturbed (42 percent [%] or 1.1 ha);
- the additional Endangered Ecological Communities (EECs) proposed to be removed for the Rail Flyover Modification are only small incremental disturbances (<3%) additional to the area of EECs already approved for clearance;

- the Rail Flyover Modification area is a linear disturbance located adjacent to the existing rail (infrastructure would therefore be streamlined);
- the works would not significantly impact any threatened species, populations, or ecological communities, or their habitats, listed under the *Threatened Species Conservation Act 1995*;
- the works would be undertaken in accordance with a number of approved environmental management plans, including controls for weeds, animal pests, lighting, etc.
- NCIG would establish additional compensatory habitat for the Green and Golden Bell Frog in accordance with the existing NCIG *Compensatory Habitat and Ecological Monitoring Program*; and
- NCIG would undertake the works in accordance with the modified conditions of approval.

Further, I am of the opinion that the Rail Flyover Modification is unlikely to have a significant effect on any threatened species or their habitats.

Yours faithfully

A handwritten signature in cursive script that reads "Arthur White". The signature is written in black ink and is positioned below the typed name.

Dr Arthur White

APPENDIX E
CONSTRUCTION FILL TRANSPORT ASSESSMENT
[GTA Consultants, 2012]

Our Ref: 12S1311000

27 April 2012

Newcastle Coal Infrastructure Group
C/- Resource Strategies Pty Ltd
PO Box 1842
MILTON QLD 4064

Attention: Mr Phil Reid

Dear Phil,

RE: NEWCASTLE COAL INFRASTRUCTURE GROUP

RAIL FLYOVER MODIFICATION CONSTRUCTION FILL TRANSPORT ASSESSMENT

As requested by the Newcastle Coal Infrastructure Group (NCIG), GTA Consultants has undertaken an assessment of the potential road network implications associated with the transport of clean fill by road to the Newcastle Coal Export Terminal (CET) site on Kooragang Island in Newcastle, New South Wales.

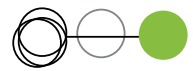
NCIG is proposing to construct a rail flyover for the NCIG Northern Rail Spur (the "Rail Flyover Modification"). This will require approximately 360,000 tonnes (t) of clean fill material, to be transported to the CET site from nearby quarries. The purpose of this road transport assessment is to consider the implications of road haulage of fill to the CET site with regard to the approved traffic and transport management measures for construction activities.

The proposed works associated with the construction of the rail flyover will follow on from the Stage 2AA construction activities on the CET site which are nearing completion, as well as the Stage 2F construction activities which will be completed prior to the commencement of the rail flyover construction.

As will be described further in this assessment, the proposed rail flyover construction works will generate significantly less heavy vehicle movements to and from the site compared with the current Stage 2AA works.

Notwithstanding the above, the road transport assessment presented in this report has been undertaken to consider updated information relating to existing background (i.e. non CET site) traffic flows on the surrounding road network.

The findings of the road transport assessment for the transport of fill during the construction of the rail flyover are provided in this report.



1. Background

Project Approval (o6_0009) for the NCIG CET was granted by the Minister for Planning on 13 April 2007. The Environment Assessment (EA) for the CET included a Road Transport Assessment¹ which considered the traffic implications of both construction and operation of the proposal.

In accordance with Condition 2.47, Schedule 2 of Project Approval (o6_009) a Construction Traffic Management Protocol² (CTMP) report was prepared for the NCIG CET, and has subsequently been updated for Stage 2F construction activities³.

The Stage 2F CTMP establishes the protocols for managing traffic during construction activities and includes:

- Details of anticipated construction traffic generation
- Site access intersection treatments
- Road improvements.

The CTMP will be updated where necessary to describe the management of rail flyover construction traffic movements.

It is noted that at the time of the CET project approval, it was anticipated that fill for the CET could be required from a different source than from the dredging and remediation of the south arm of the Hunter River which was to be the subject of a separate development approval.

These filling arrangements were reflected in Condition 2.47, Schedule 2 of Project Approval (o6_0009) which reads:

"Unless otherwise agreed by the Director General, the Proponent shall only source clean materials for use in fill/preloading activities from the development the subject of development consent DA-134-3-2003-1 (dredging and remediation of the South Arm of the Hunter River). Where the Proponent seeks the agreement of the Director-General to use fill/pre-load materials from a different source, the Director-General may require submission of additional information to demonstrate how the impacts from heavy vehicle movements will be adequately and appropriately mitigated and managed."

The Director-General of the Department of Planning (now the Department of Planning and Infrastructure) has approved NCIG to transport fill material from external sources to the CET for Stage 2AA works, in accordance with Condition 2.47 of the Project Approval.

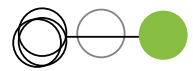
As with the Stage 2AA requirements, NCIG is proposing to source fill for the rail flyover works from external sources. This road transport assessment has been prepared to demonstrate how the impacts from heavy vehicle movements will be adequately and appropriately mitigated and managed and thereby address the requirements of Condition 2.47.

The Stage 2F CTMP for the CET will be updated where necessary to reflect the changes to construction vehicle movements associated with the rail flyover construction traffic movements.

¹ Newcastle Coal Export Terminal Road Transport Assessment (May 2006) prepared by Masson Wilson Twiney Pty Ltd

² Newcastle Coal Export Terminal Construction Traffic Management Protocol (June 2007) prepared by Connell Hatch

³ Newcastle Coal Export Terminal Construction Traffic Management Protocol (March 2012) prepared by NCIG



2. Overview of Proposed Rail Flyover Works

The Rail Flyover Modification includes the following components:

- grade separation of the inbound track for the NCIG Northern Rail Spur (also referred as the 'high capacity optional inlet rail spur and rail sidings');
- minor realignment of the inbound (western) track of the Kooragang Island Main Line; and
- minor realignment of the outbound (eastern) track of the Kooragang Island Main Line.

The location of these works is shown in Attachment A.

As described above, approximately 360,000t of fill material is required for the construction of the rail flyover and associated rail alignments.

Proposed Sources of Fill

The construction works will involve the transport of fill material to the construction site from quarries in the Lochinvar area, namely:

- Quarry Products Newcastle
- Gosforth Quarries
- Brandy Hill Quarry.

The location of the sources of fill and the associate transport routes to and from the CET are shown in Attachment B. These are the same quarries that fill material for Stage 2AA is currently sourced from.

The relevant EPLs for each quarry permits the following extraction rates:

- Brandy Hill Quarry: up to 2,000,000t of material per annum
- Gosforth Quarries: up to 100,000t of material per annum
- Quarry Products Newcastle: up to 2,000,000t of material per annum.

Truck Volume Generation

Fill will be transported to the construction site over a period of approximately 18 months.

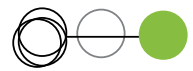
The estimated volume of trucks to be generated by the importation of fill over the 18 month period is shown in Table 1.

Table 1: Estimated Fill Quantity and Truck Volumes

Period	Number of Truck Deliveries (per day)	Fleet
6 months (July to December 2012)	32	8 trucks, 4 deliveries each
6 months (January to June 2013)	48	12 trucks, 4 deliveries each
6 months (July to December 2013)	32	8 trucks, 4 deliveries each

Notes: Estimated number of truck movements based on 28t/ truck

It is proposed that fill will be imported to site between 7:00 am and 6:00 pm Monday to Friday and between 7.00am and 1.00pm on Saturdays. Fill will not be transported to the CET on Sundays or public holidays.



Proposed Transport Routes

As shown in Attachment B the proposed transport route for fill would be via the New England Highway, Pacific Highway, Industrial Drive, Tourle Street Bridge and Cormorant Road.

Access to the NCIG CET site will be via the prescribed transport route as presented in CET Road Transport Assessment⁴ report of the NCIG Environmental Assessment (EA).

Under the approved route trucks will access the rail flyover construction site using the existing access point immediately to the north of the Tourle Street Bridge (Delta Access Road). This would be via left turn northbound movements only. Trucks will leave the site by left turn onto Cormorant Road from Delta Access Road and performing a U-turn at the roundabout to return to the New England Highway.

The primary entry to the rail flyover construction site will be via Delta Access Road, however during exceptional circumstances, when access via Delta Access Road is restricted, trucks may enter and leave the site (left turn in, left turn out) via Pacific National Road. This potential route would be expected to only carry a small percentage of the overall traffic volume for the project.

Cumulative CET Site Traffic Generation

During the rail flyover construction works all other works will be completed and Stage 2F of the CET will be operating with a capacity of 66 Mtpa. No other significant construction works would be underway during the rail flyover works.

The EA Road Transport Assessment assessed a number of traffic generation scenarios.

Relevantly, Scenario 2 included:

- background traffic with growth to 2007
- traffic from approved developments
- CET construction traffic for Stage 1.

Scenario 2 has been updated to include the following additional traffic generation sources:

- Updated background local road network traffic survey data (October 2011)
- Operational traffic for CET Stage 2F
- Fill traffic for the rail flyover construction.

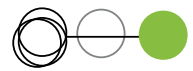
The estimated daily flows for traffic generated by the CET during the rail flyover fill works is summarised in Table 2. These updated site generated traffic flows have been used in the intersection operation assessment presented in this report (see Section 3).

Table 2: CET Stage 2F Daily Traffic Generation During Rail Flyover Fill Works

Activity	Truck Movements (veh/day)	Car Movements (veh/day)
Stage 2F Operation ¹	10	80
Rail Flyover Fill Works (peak fill period)	96	0
Total	106	80

Notes: Sourced from EA Road Transport Assessment (2007)

⁴ Newcastle Coal Export Terminal Road Transport Assessment (May 2006) prepared by Masson Wilson Twiney Pty Ltd



The generation of approximately 106 truck movements per day by the CET will be a significant reduction of existing (Stage 2AA) filling works which are about to be completed.

Table 3 provides a summary of the estimated reduction in truck movements during the proposed rail flyover construction works.

Table 3: Comparison of CET Stage 2F and Stage 2AA Truck Movements During Fill Works

Activity	Stage 2AA Construction Truck Movements (veh/ day)	Stage 2F Operation with Rail Flyover Construction Truck Movements (veh/day)
Operation ¹	10	10
Fill Works (peak fill period)	240	96
Total	250	106

Notes: ¹ Sourced from EA Road Transport Assessment (2007)

Table 3 indicates that truck movements to and from the CET will be reduced by nearly 60% compared with the peak filling period that occurred satisfactorily during Stage 2AA.

Construction of the proposed Port Waratah Coal Services T₄ expansion is not anticipated to be underway when the rail flyover would be constructed. As such, potential cumulative impacts from the construction of T₄ have not been considered in this assessment.

The recent (2011) background traffic data will include the Stage 2AA construction and operational traffic sources and the fill material being transported for Stage 2AA. These sources will not be contributing to traffic volumes during the construction of the rail flyover.

Therefore the assessment of the Rail Flyover presented in this report has considered the following:

- The 2011 background data minus the predicted Stage 2AA construction and operation movements and the Stage 2AA fill transport movements (Stage 2AA construction, operation and fill transport will be complete).
- The predicted Stage 2F operation traffic (Stage 2F construction will be complete).
- The predicted rail flyover fill transport movements.

3. Assessment of Road Network Impacts

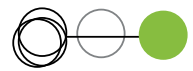
Regional Road Network Implications

As fill material will be sourced from existing approved and operational quarries, it is considered that there will be no net change to traffic flows on the regional road network as this material has approval to be transported on the regional road network whether or not the rail flyover is being constructed.

Each of the quarries from which material will be sourced has an operation EPL which prescribes the amount of material that can be extracted and transported from the quarry per annum and associated transport conditions. It is understood that the proposed transport of fill to the CET would be consistent with the conditions of the relevant EPLs for each quarry.

Local Site Access Implications

Based on the above, it is considered that the road transport implications of the rail flyover filling works will be limited to the local access arrangements on Kooragang Island.



It is noted that the measures prescribed in the CTMP would be applied to rail flyover works as they were to the previous construction activities.

The intersection operation analysis undertaken as part of the EA Road Transport Assessment has been reassessed using the estimated traffic flows to be generated by the rail flyover construction activities as described above (as a worst-case scenario) and recent surveyed traffic flows (October 2011) of the existing network operation as presented in the *T4 Project, Port Waratah Coal Services Limited Environmental Impact Assessment, Traffic Assessment* prepared by EMGA Mitchell McLennan (February 2012).

It is noted that the surveys of existing base traffic flows undertaken as part of the T4 Project assessment included traffic generation associated with Stage 2AA filling works. As such the base traffic conditions will see a reduction in traffic flows on completion of Stage 2AA works.

The intersections that have been reassessed are:

- Cormorant Road / Teal Street (Roundabout)
- Cormorant Road / Egret Street (Priority)
- Cormorant Road / Wharf Road (Priority)
- Cormorant Road / Pacific National Access Road (Priority).

The results of the analysis are presented in Table 4.

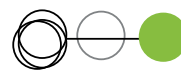
The results presented in Table 4 indicate that each of the local site access route intersections would operate with the same or improved operating conditions during the filling works for the rail flyover compared with existing (2011) conditions.

The reduction of traffic generation by the NCIG site associated with the ceasing of Stage 2AA construction works and ceasing of Stage 2F construction works (at the commencement of Rail Flyover construction works would generally improve existing traffic conditions on the local road network as represented in the T4 Project Assessment.

Therefore it is considered that the measures prescribed in the CTMP are appropriate for application to the rail flyover works and would satisfactorily mitigate / manage the potential traffic implications during these works.

4. Conclusions

The findings of this assessment have concluded that the additional traffic movements associated with the transport of fill to the CET during construction of the rail flyover can be adequately and appropriately mitigated and managed in accordance with the CTMP.



If you have any queries regarding the above or require further information, please do not hesitate to contact the undersigned.

Yours sincerely

GTA CONSULTANTS

Jason Rudd
Associate Director

Table 4 – Intersection Operation – Existing (2011) and During Rail Flyover Filling Works

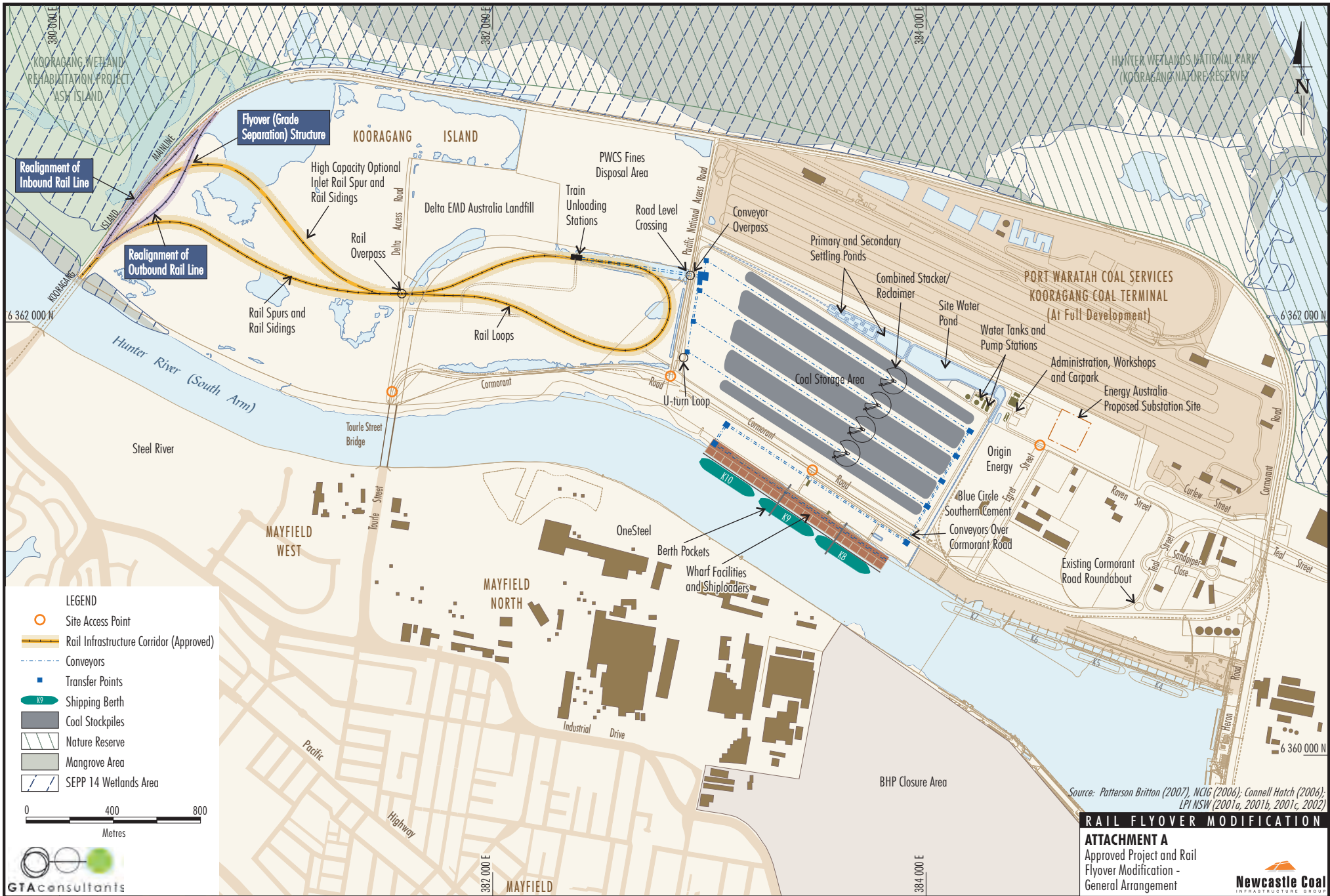
Intersection	Control	Operational Performance					
		2011 Traffic Conditions		With CET Stage 2F Operations + Rail Flyover Works			
		Weekday AM Peak	Weekday PM Peak	Weekday AM Peak Hour		Weekday PM Peak Hour	
		Level of Service	Level of Service	Average Delay Worst Affected Movement (seconds)	Level of Service	Average Delay Worst Affected Movement (seconds)	Level of Service
Cormorant Road / Teal Street	Roundabout	B	B	25	B	19	B
Cormorant Road/ Egret Street	Priority (Egret Left in Left out)	E	F	69	E ^{1.}	96	F ^{1.}
Cormorant Road/ Wharf Access	Priority	F	F	31	C	39	C
Cormorant Road/ Pacific National Access Road	Priority	C	F	25	B	84	F ^{2.}
Cormorant Road / Tourle Street / Delta Access Road	Priority (Delta Access Left in / Left Out)	D	F	29	D	96	F ^{3.}

Notes:

- [1] 1. This LoS applies to right turn from Cormorant Road to Egret St. 95th percentile queues do not exceed turn lane capacity during AM or PM peaks.
 [2] 2.This LoS applies to right turn from Cormorant Road to Pacific National Access Road. 95th percentile queues do not exceed turn lane capacity during AM or PM peaks.
 [3] 3.This LoS applies to left turn from the Delta Access Road to Cormorant Road. 95th percentile queues do not exceed turn lane capacity during AM or PM peaks.

Attachment A

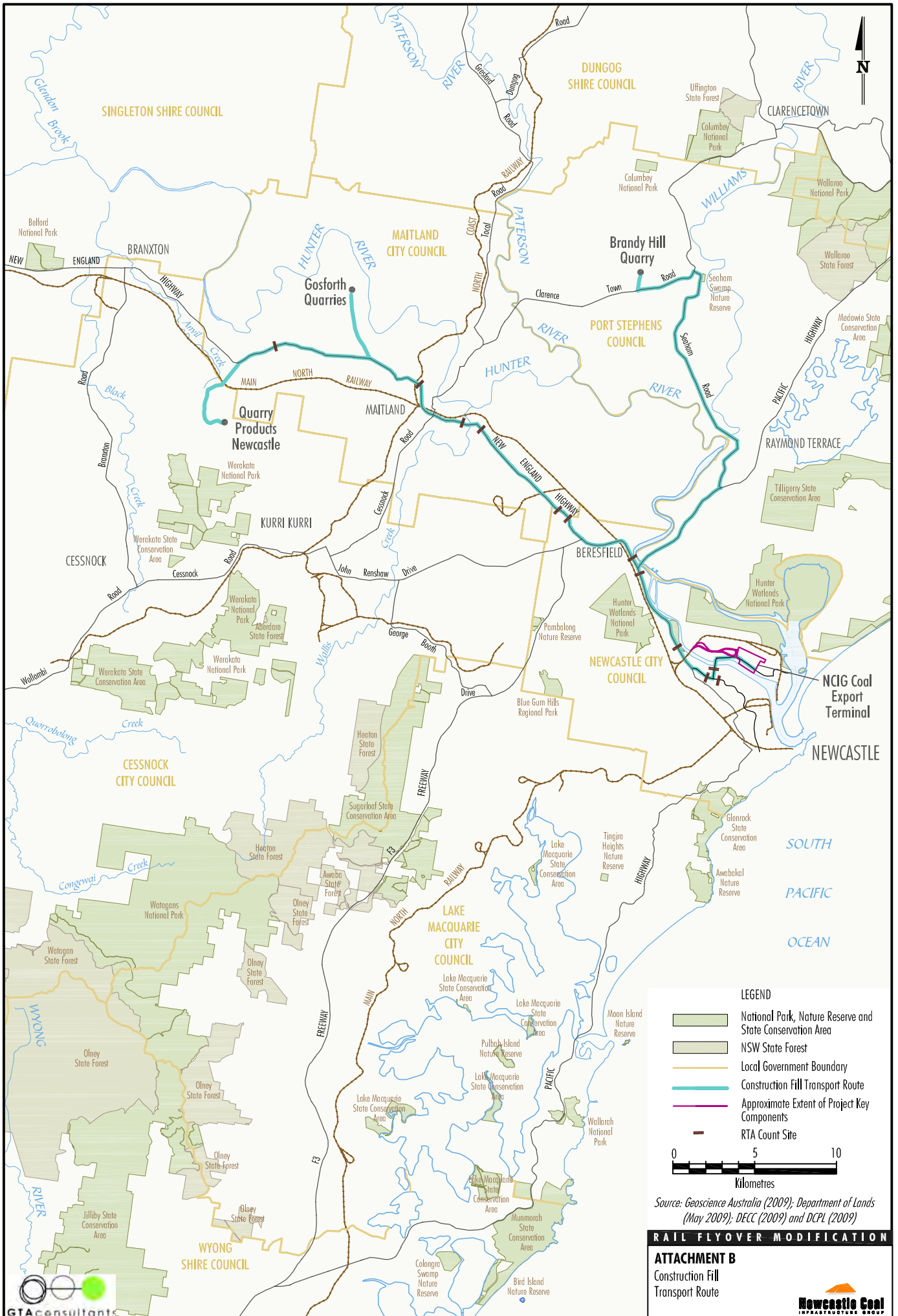
LOCATION OF PROPOSED RAIL FLYOVER WORKS



Source: Patterson Britton (2007), NCIG (2006), Connell Hatch (2006), LPI NSW (2001a, 2001b, 2001c, 2002)

Attachment B

PROPOSED TRANSPORT ROUTES



LEGEND

- National Park, Nature Reserve and State Conservation Area
- NSW State Forest
- Local Government Boundary
- Construction Fill Transport Route
- Approximate Extent of Project Key Components
- RTA Count Site

0 5 10
Kilometres

Source: Geoscience Australia (2009); Department of Lands (May 2009); DECC (2009) and DCPL (2009)

RAIL FLYOVER MODIFICATION

ATTACHMENT B
Construction Fill
Transport Route

