

LEGEND

- Site Boundary
- Existing Major Contour (10m Interval)
- Existing Minor Contour (2m Interval)
- - - Development Precinct Boundary
- + + + Existing Heritage Railway Tracks
- Proposed F3 motorway RTA Extension
- ▨ Proposed RTA Land
- Existing Transgrid Easement
- Existing Energy Australia Easement
- ⊕ ⊖ Existing Dual Power Pole Position (Monteath, 2008)
- Existing Electricity Transmission Lines (Monteath, 2008)
- Existing Creek Line
- ▨ Blue Gum Hills Regional Park
- ▨ Coal & Allied Conservation Area
- Proposed Land Uses**
- ▨ Proposed Village Centre Mixed Use / Retail (incl Community Facilities)
- ▨ Proposed Minmi High Street Mixed Use / Retail
- ▨ Proposed Minmi Township Mixed Use / Retail
- ▨ Proposed Independent Living Units
- ▨ Proposed Residential (includes Local Roads)
- ▨ Proposed Water Reservoir Lot
- ▨ Existing School Extension
- ▨ Proposed School
- ▨ Proposed Landscape Road Corridor
- Existing Mining Shafts**
- ⊗ Shaft Locations (Located)
- ⊗ Wallsend Borehole Colliery (WBC) Entry Location
- ⊗ Shaft Locations (Uncertain)
- Open Space**
- ▨ Proposed Sport and Recreation
- ▨ Neighbourhood Parks
- ▨ Drainage Corridors
- ▨ Passive Open Space
- ▨ Link Road Edge
- ▨ Feature Parks
- ▨ Detention Basins, Existing & Proposed Lakes
- ▨ High Risk Pothole
- ▨ Low Risk Pothole
- ↔ Pedestrian Link between sporting fields.
- Vegetation Management**
- ▨ APZ - RPS Nov 2010
- ▨ Indicative Extent of Retained Vegetation within Allotment
- ▨ Indicative Extent of Retained Vegetation Managed as an APZ
- ▨ Area within lot where slope could be absorbed
- - - Fire Access Trail and Walking Track
- Major Roads**
- F3 - Sydney-Newcastle Freeway
- - - Newcastle Link Road
- - - Collector / Spine
- - - Road Bus Route on Local Road
- - - Esplanade Road to Regional Park
- - - Indicative Local Access Road Connections
- - - Potential Local Road Connection to east if required

Note
All dimensions and areas are approximate only, and are subject to survey and Council approval.
Dimensions have been rounded to the nearest 0.1 metres.
The boundaries shown on this plan should not be used for final detailed engineers design.

<p>REVISION C: 25/11/2010 Add small section of residential to site D: 28/01/2011 Adjust size of village centre parcels.</p>	<p>Level Datum Origin</p>	<p>Date 28-01-2011 Comp By: JLS/CWC DWG Name: 24311-15L.dwg Local Authority NEWCASTLE/LAKE MACQUARIE Locality MINMI Job Reference 24311</p>	<p>CLIENT COAL & ALLIED</p> <p>INDICATIVE LAYOUT PLAN</p>	<p>PROJECT PROPOSED SUBDIVISION</p> <p>Plan Ref 24311-35</p>	<p>Rev D</p>
<p>Scale 1:5000 Sheet A0</p>		<p>Scale 1:5000</p>		<p>RPS RPS Australia East Pty Ltd ACN 145 292 782 423 Ann Street PO Box 1059 Furness Valley QLD 4806 T +61 7 3237 8888 F +61 7 3237 8833 W rpsgroup.com.au</p>	

Plan of: Environmental Offset Land

Location: Minmi and Stockrington

Council: Cessnock, Newcastle and Lake Macquarie

Projection: MGA Z56

Contour Interval: N/A

Source: N/A

Date: 2 Feb 2011

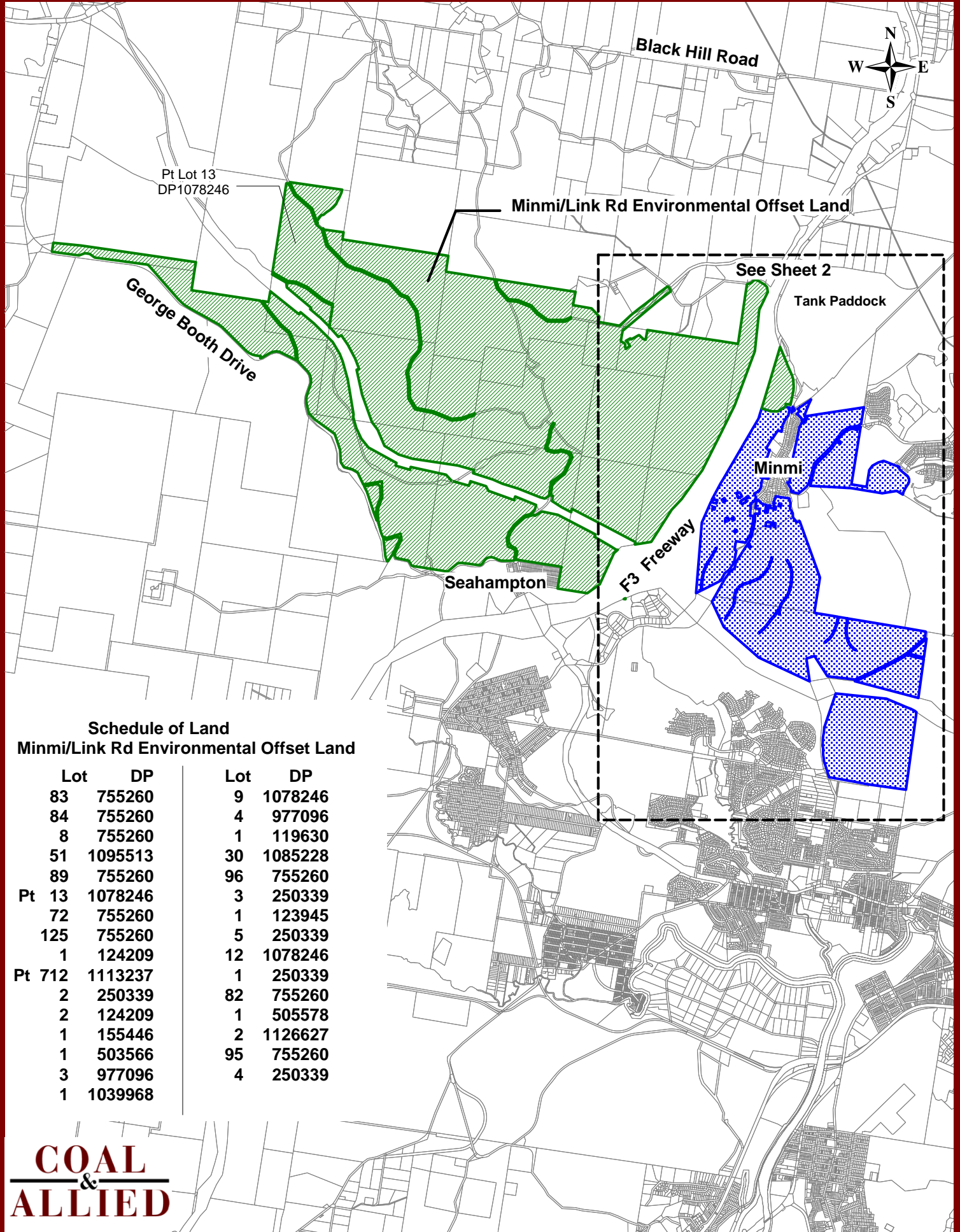
Plan By: G.C.R.

Version: 1

Project: Minmi/Link Rd

Layout: Transfer Plan

Sheet: 1 of 2



**Schedule of Land
Minmi/Link Rd Environmental Offset Land**

Lot	DP	Lot	DP
83	755260	9	1078246
84	755260	4	977096
8	755260	1	119630
51	1095513	30	1085228
89	755260	96	755260
Pt 13	1078246	3	250339
72	755260	1	123945
125	755260	5	250339
1	124209	12	1078246
Pt 712	1113237	1	250339
2	250339	82	755260
2	124209	1	505578
1	155446	2	1126627
1	503566	95	755260
3	977096	4	250339
1	1039968		



1.4 Scope of the Study

This EAR is intended to investigate the potential ecological impacts of the development proposal as required by the Part 3A DGEAR's. The primary impacts are likely to be associated with the removal of vegetation both in terms of direct impacts upon native stands of vegetation and to a lesser extent, upon habitat for native fauna within and directly adjacent to the Development Estates.

At the State level, the proposal is to be assessed pursuant to Part 3A of the EPA Act. To this end, in August 2010, the DGEAR's were issued for the site (Appendix 1).

To ensure completeness, ecological fieldwork and assessment has covered the full extent of the Coal & Allied surplus lands, including all Development and Conservation Estates. This EAR should be read in conjunction with the Northern Estates Conservation Estates Ecological Inventory (Refer to Appendix 2) since the proposed protection of the Conservation Estates forms an integral component of the proposal, aiming to offset any potential ecological impacts associated with the Development Estate.

The 'Key' Assessment requirements for investigations required under the DGEAR's are:

- Assess the impacts of the proposal on existing native flora and fauna. The assessment must be conducted in accordance with the draft Guidelines for Threatened Species Assessment (DEC July 2005) and include a field study.
- Demonstrate that biodiversity impacts can be appropriately offset in accordance with the NSW Government's policy for 'improvement or maintenance' of biodiversity values.
- Describe the actions that would be taken to avoid or mitigate impacts on biodiversity, threatened species and their habitat. This should include identification of opportunities to maintain local biodiversity corridors, through consultation with DECCW, to ensure to ongoing viability of threatened species.
- Assess the impact of the proposal on existing reserves in the locality including Blue Gum Hills Regional Park, Pambalong Nature Reserve, and Hunter Wetlands National Park. Identify options to mitigate and manage impacts on reserves, in particular edge effects on Blue Gum Hills Regional Park. Identify access arrangements between the proposed development and the Blue Gums Hills Regional Park in consultation with DECCW. This assessment should be carried out in accordance with Guidelines for Developments Adjoining Land and Water Managed by DECCW (DECCW 2010).
- Provide an assessment of the cumulative impacts on biodiversity of the proposed development, and other development proposed in the area.

1.5 Definitions

The definitions given below are relevant to the Director-General's requirements:

'development' has the same meaning as in the NSW *Environmental Planning and Assessment Act 1979*.

'activity' has the same meaning as in the NSW *Environmental Planning and Assessment Act 1979*.

'proposal' is the development, activity or action proposed. Other terminology used for the 'proposal' includes the **'current proposal'** or **'development proposal'**.

The **'Site'** refers to the entire land holding, inclusive of development and conservation areas.

The **'Development Estate'** refers to the area(s) scheduled for development.

The **'Conservation Estates'** refers to the area(s) scheduled for dedication to the NSW Government. Other terminology used for the 'Conservation Estates' includes the **'Offset Lands'** or **'Dedication Lands'**.

Due to the size and separation of land holdings proposed for development and conservation, they have been broken down into two distinct geographical components. As such the sites have been condensed into the **'Southern Lands'** and **'Northern Lands'**.

All other definitions are the same as those contained in the NSW *TSC Act*.

1.6 EPBC Act 1999

In November 2008 the proposal for a residential subdivision at Minmi/Link Road was referred to the Federal Department of the Environment, Water, Heritage and the Arts in accordance with provisions of the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act).

This assessment has been prepared in accordance with the application made to the Federal Minister for the Environment for determination.

- To ensure consistency the threatened species, populations and ecological communities assessed within the EPBC Act Referral have been assessed herewith within Table 6-1.
- The development and conservation outcomes sought under this proposal remain consistent with those sought under the EPBC Act Referral. Refer to table 5-1.
- The habitat outcomes proposed within the EPBC Act Referral remain consistent. Refer to Table 5-2.

- The dedication of conservation Estates to the NSW Government, management under the provision of a Statement of Interim Management Intent (SIMI) and ongoing management as part of NSW NPWS Estate remain consistent.
- On 23 December the Federal Department notified Coal & Allied that it had decided the proposed action was not considered a controlled action and as such did not require assessment and approval by the Minister for the Environment, Heritage and the Arts before it could proceed.

1.7 Qualifications & Licensing

Qualifications

The principal author of this report was Matthew Doherty BLMC of RPS, with additional input from Craig Anderson BAppSc (EAM), Deborah Landenberger BSc (Hons), Allan Richardson BEnvSc (Hons), Sam Bishop BEnvSc, Alex Saddington BAppSc, Shaun Corry Dip Cons & Lnd Mgt, Anna McConville BEnvSc; and Toby Lambert BEnvSc. The academic qualifications and professional experience of all RPS ecologists involved in the project are documented in Appendix 6.

Licensing

Research was conducted under the following licences:

- NSW National Parks and Wildlife Service Scientific Investigation Licence S10300 (Valid 30 November 2011);
 - Animal Research Authority (Trim File No: 01/1142) issued by NSW Agriculture (Valid 12 March 2011);
 - Animal Care and Ethics Committee Certificate of Approval (Trim File No: 01/1142) issued by NSW Agriculture (Valid 12 March 2013); and
- Certificate of Accreditation of a Corporation as an Animal Research Establishment (Trim File No: 01/1522 & Ref No: AW2001/014) issued by NSW Agriculture (Valid 22 May 2011).

1.8 Sub-consultants, Personal Communications & Observations

Sub-consultants

RPS used the following organisations during this study where appropriate input was required.

Plant Species Identification: Royal Botanic Gardens
National Herbarium of NSW
The Domain
Mrs Macquaries Road
SYDNEY NSW 2000
Ph (02) 9231 8111

Microchiropteran Bat Analysis: Maria Adams
4110 Nelson Bay Road
ANNA BAY NSW 2316
Ph: (02) 4982 2350
E: mariaadams@aapt.net.au

Personal Observations

Relevant observations made by the authors or other RPS ecologists outside of the project or other published studies have been included within this report as ‘personal observations’ (pers. obs.).

Agency/ Group/ Organisation Consultation

The following agencies were consulted during the preparation of this EAR. (Note this list is not comprehensive). For a full account of the consultation undertaken during the project process, refer to the consultation section included within the wider EA submission.

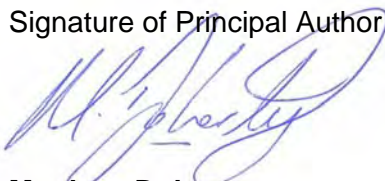
DECCW (Lucas Grenadier)	NPWS (Tom Bagnat)
Hunter-Central Rivers CMA	LMCC (Robbie Economos-Shaw)
Lake Macquarie Coastal and Wetlands Alliance	Green Corridor Coalition (Brian Purdue)
URGE (Peter Morris)	The Newcastle Wilderness Society
Hunter Environment Lobby	Department of Primary Industries

1.9 Certification

As the principal author, I, Matthew Doherty make the following certification:

- The results presented in the report are, in the opinion of the principal author and certifier, a true and accurate account of the species recorded, or considered likely to occur within the site;
- All research workers have complied with relevant laws and codes relating to the conduct of flora and fauna research, including the *Animal Research Act 1995*, *National Parks and Wildlife Act 1974* and the *Australian Code of Practice for the Care and Use of Animals for Scientific Purposes*.

Signature of Principal Author and Certifier:



Matthew Doherty
Manager - Ecology & GIS
RPS
January 2011

2 Literature Review

A review of existing literature relevant to the project was undertaken in an effort to glean as much information as possible on the existing environment and ensure a holistic approach to ecological assessment. Notably several specific investigations into the existing environment within the vicinity of the Development Estate have been undertaken in recent times. An account of the information considered is listed below.

Note the following list is not considered comprehensive. Additional references can be viewed within Section 10 of this report.

Ecological Surveys

- EcoBiological (2006) *Abel Underground Mine – Part 3A Assessment, Appendix J Flora and Fauna Lists and Descriptions*. An unpublished report prepared for Donaldson Coal Pty Ltd.
- Harper Somers O'Sullivan (2005) *Phase One Vegetation Assessment Report, over Various Land Holdings in the Lower Hunter/Central Coast, NSW*. A report Prepared for Coal & Allied.
- RPS Harper Somers O'Sullivan (2007a) *Ecological Constraints Investigations Phase 1, Over Various Land Holdings in the Lower Hunter/Central Coast NSW*. A report prepared for Coal & Allied.
- RPS Harper Somers O'Sullivan (2007b) *Ecological Constraints Investigations Phase 1, Over Various Land Holdings in the Lower Hunter/Central Coast NSW – Addendum Report*. A report prepared for Coal & Allied.
- RPS (2010) *Ecological Assessment Report, Northern Lands Black Hill*. A report prepared for Coal & Allied.
- Umwelt Environmental Consultants (2003) *Minmi corridors Assessment – Maintaining and Enhancing Natural and Cultural Heritage Values*. An unpublished report prepared for Newcastle City Council, August 2003.
- WBM Oceanics Australia (2001) *Review of Rezoning Proposal for the Tank Paddock, Lenaghans Drive, Minmi*. An unpublished report prepared for Newcastle City Council, December 2001.

Scientific Papers

- Barrett, G.W., Ford, H.A. and Recher, H.F. (1994). Conservation of woodland birds in a fragmented rural landscape. *Pacific Conservation Biology* 1, 245-256.
- Bell S.A.J. (2001) Notes on the Distribution and Conservation status of some restricted plant species from sandstone environments of the upper Hunter Valley, New South Wales *Cunninghamia* **7(1)** 77-88.
- Driscoll C. (2003) The pollination Ecology of *Tetradthea juncea* (Tremandraceae): Finding the Pollinators. *Cunninghamia* **8(1)** 133-140.
- Payne R.J. (1993) Predication of the Habitat for *Tetradthea juncea* in the Lake

Munmorah Area near Wyong NSW. *Cunninghamia* **3(1)** 147-154.

- Phillips, S., and Callaghan, J. (2000) The tree species preferences of Koalas (*Phascolarctos cinereus*) inhabiting forest and woodland communities on Quaternary deposits in the Port Stephens area, New South Wales. *Wildlife Research* 27(1): 1-10.
- Phillips, S., Callaghan, J. and Thompson, V. (2000) The tree species preferences of Koalas (*Phascolarctos cinereus*) in the Campbelltown area south-west of Sydney, New South Wales. *Wildlife Research* 27(1): 509-516.
- Kavanagh, R. (2002). Comparative Diets of the *Powerful Owl (Ninox strenua)*, *Sooty Owl (Tyto tenebricosa)* and *Masked Owl (Tyto novaehollandiae)* in South-eastern Australia. In: Newton, I., Kavanagh, R., Olsen, J. and Taylor, I. (eds) (2002). *Ecology and Conservation of Owls*, pp 175-188.
- Quin, D.G. (1995). Population Ecology of the Squirrel Glider (*Petaurus norfolcensis*) and the Sugar Glider (*P. breviceps*) (Marsupialia : Petauridae) at Limeburners Creek, on the Central North Coast of New South Wales. In: *Australian Wildlife Research* 22: pp 471-505.
- Wells R.W. (2007) A Review of Threatened Species Considerations for the Proposed Rezoning of Lot 2 DP 534168 and Lot 11 DP 1044935 Minmi Road, Fletcher, New South Wales for Northwest Residential Pty Ltd. *Australian Biodiversity Record* **(10)**: 1-72.

Vegetation Mapping Projects

- Bell, S.A.J. (1998) *Lake Macquarie State Recreation Area, Pulbah Island Nature Reserve (NR) and Tingira Heights NR Vegetation Survey – A Fire Management Document, Volumes 1 and 2*. Unpublished Report prepared for NSW National Parks and Wildlife Service, Hunter District by Eastcoast Flora Survey.
- Department of Environment and Conservation (2006) *Pambalong Nature Reserve Plan of Management*.
- Lower Hunter and Central coast Regional Environmental Management Strategy (LHCCREMS) (2000). Updated by House (2003). *Lower Hunter and Central Coast Extant Vegetation*. Draft Report.

Threatened Species Management Plans

- Payne R. J. (2000) *Lake Macquarie Tetratheca juncea Conservation Management Plan*, Robert Payne Ecological Surveys and Management. An unpublished Report Prepared for Lake Macquarie City Council.
- Payne R.J. (2001) *Addendum to the Final November 2000 Tetratheca juncea Conservation Management Plan*. Robert Payne Ecological Surveys and Management and Lake Macquarie City Council.

Fauna Surveys / Reports

- Eby, P. (2001). *Surveys for roost sites/camps for the Grey-headed Flying Fox* (excel file). Surveys commissioned by the Northern Directorate of NPWS.