Riverside at Tea Gardens Concept Plan Preliminary Environmental Assessment

August 2010
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4.1 ECOLOGY

4.1.1 Overview

The site has been subject to numerous flora and fauna studies. Several vegetation mapping studies have been conducted across the subject land and surrounds, including broad scale mapping across the Great Lakes LGA as well as fine scale mapping of the subject land. Detailed vegetation mapping was undertaken by Conacher Environmental Group (Conacher) in 2007. Fauna surveys have been conducted on the subject land over the past two decades, most recently in 2007 and 2008 by Conacher. Cumberland Ecology (2010a) recently conducted additional vegetation surveys to revise and update the vegetation mapping prepared by Conacher. Cumberland Ecology also recently undertook an Ecological Assessment of the proposed development (2010b).

4.1.2 Vegetation Communities, Fauna Habitat and Movement Corridors

Vegetation Communities

Additional vegetation surveys and mapping undertaken by Cumberland Ecology were conducted from 14 to 16 December 2009, 13 to 15 January 2010 and 10 February 2010 in accordance with the standards provided in the (then) DEC Threatened Biodiversity Survey and Assessment Guidelines for Development and Activities (Working Draft) (DEC (NSW), 2004) and BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECC, 2009). Habitat assessments were undertaken in accordance with the methodology within the BioBanking Assessment Methodology and Credit Calculator Operational Manual (DECC, 2009).

The mapping identified that the vegetation on the site includes a mosaic of woodland, forest, scrub, heath, grassland and wetland with the mosaic reflecting topography, drainage and land use. The vegetation was categorised into three broad native vegetation groups and one exotic vegetation group, with each vegetation group containing a suite of vegetation communities (16 in total) that are readily distinguishable by the dominant canopy species present:

- Dry forest / woodland:
- Eucalyptus pilularis Open Forest;
- Corymbia maculata – Eucalyptus paniculata Open Forest;
- Eucalyptus umbra Open Forest;
- Eucalyptus microcorys Open Forest; and
- Eucalyptus signata Woodland.
- Wet forest / woodland / scrub / heath:
- Corymbia gummifera Open Forest;
- Angophora costata – Eucalyptus resinifera Woodland;
- Eucalyptus robusta Woodland/Open Forest;
- Wet Heath;

• Casuarina glauca – Melaleuca Regrowth Forest;
• Melaleuca quinquinervia Forest; and
• Melaleuca ericifolia Scrub.
• Wetland communities:
• Casuarina glauca Forest;
• Baumea juncea Rushland;
• Juncus kraussii Saltmarsh; and
• Avicennia marina Mangroves.
• Exotic Communities:
• Pine Forest;
• Exotic Grassland/Pasture; and
• Disturbed Estuarine Vegetation.

Several of the vegetation communities recorded corresponds to the following endangered ecological communities (EECs) listed under the TSC Act:

• Coastal Saltmarsh in the NSW North Coast, Sydney Basin and South East Corner bioregions;
• Swamp Sclerophyll Forest on coastal floodplains of the NSW North Coast, Sydney Basin and South East Corner bioregions ; and
• Swamp Oak Floodplain Forest of the NSW North Coast, Sydney Basin and South East Corner bioregions.

Cumberland Ecology concluded that a high proportion of the site contains native vegetation that will require offsetting (2010a).

Fauna Habitat

Vegetation within the site provides potential habitat for a range of native vertebrate fauna species, including amphibians, birds, terrestrial and arboreal mammals, bats and reptiles. Key habitat features recorded by Cumberland Ecology (2010b) include:

• wetland and riparian environments which provide habitat for wetland birds, frogs and reptiles;
• ground cover, leaf litter and fallen timber suitable as shelter for small terrestrial fauna species;
• tree hollows suitable as shelter and nesting habitat for a range of hollow dependant fauna;
• Koala feed tree species; and
• blossom-producing trees suitable for foraging for a range of nectivorous species.

Wildlife Corridors

The site has been mapped as forming part of a regional corridor and as a key habitat area. The site forms part of the Nerong - Pindimar regional corridor, which provides a link between Nerong Waterholes and Kirks Knoll. The regional corridor extends from the west to north east and covers the central and northern thirds of the site. Detailed examination of the vegetation and landscape of the site indicates several potential local movement corridors for wildlife (Cumberland Ecology, 2010b).

4.1.3 FAUNA OBSERVED OR LIKELY TO OCCUR

Fauna surveys of the site have resulted in the detection of over 200 vertebrate species, including 20 amphibian, 125 bird, 43 mammal and 15 reptile species. A number of threatened fauna species listed under the TSC Act and EPBC Act are known to occur within the locality. The following threatened fauna have been recorded on the site:

• Wallum Froglet (Crinnia tinnula);

• Varied Sitella (Daphoenositta chrysoptera);
• Little Lorikeet (GlossOpsitta pusilla);
• Black Bittern (Ixobrychus flavicollis);
• Osprey (Pandion haliaetus);
• Barking Owl (Ninox connivens);
• Squirrel Glider (Petaurus norfolcensis);
• Koala (Phascolarctos cinereus);
• Grey-headed Flying-fox (Pteropus poliocephalus);
• Common Blossom-bat (Syconycteris australis);
• Little Bentwing-bat (Miniopterus australis);
• Eastern Bentwing-bat (Miniopterus screibersii oceanensis);
• Eastern Freetail-bat (Mormopterus norfolkensis); and
• Greater Broad-nosed Bat (Scoteanax rueppellii).

All these species are listed as Vulnerable under the TSC Act.

The Koala also forms part of an endangered population in the Hawks Nest and Tea Gardens area.

The Grey-headed Flying-fox is also listed as Vulnerable under the EPBC Act (Cumberland Ecology, 2010b).

4.1.4 Threatened Species

Over 500 flora species have been recorded on the site, approximately 85% of which are native. No threatened flora species have been detected within the site (Cumberland Ecology, 2010b).

4.1.5 Summary of Potential Impacts

The primary impact resulting from the proposed development is vegetation clearance. The total development footprint is approximately 222.5ha, of which 132.1ha comprises open space and 90.4ha comprises built upon area. Approximately 65.64ha of the vegetation to be removed from the development footprint is comprised of Swamp Sclerophyll Floodplain Forest EEC. The following key threatening processes are applicable to the development:
• clearing of native vegetation;
• loss of hollow-bearing trees;
• removal of dead wood and dead trees; and
• alteration to the natural flow regimes of rivers and streams and their floodplains and wetlands.

The Riverside at Tea Gardens development will reduce the widths of potential local movement corridors for wildlife, constituting dispersal, foraging and nesting habitat for a range of fauna groups, particularly birds and small medium sized mammals.

An Ecological Site Management Strategy has been developed for the site to mitigate the impacts of Riverside at Tea Gardens on biodiversity.

An Integrated Water Management Plan has also been developed for the site to mitigate the impacts of Riverside at Tea Gardens on hydrological regimes.

Additionally, a biodiversity offset area is proposed adjoining the Myall National Park approximately 2 km north east of the site (refer to Figure 1.2).

4.1.6 Proposed Assessment Methodology

The site has been subject to numerous flora and fauna studies, including recent vegetation mapping undertaken by Cumberland Ecology (2010a). The results of previous surveys will be detailed in the Environmental Assessment, together with the recent Ecological Assessment Report prepared by Cumberland Ecology (2010b).

refer to Figure 1.2 next page....

The Offset proposed to maintain and improve the Riverside community.

(Offset blue line and Riverside red line) Picture as marked up from Document