

ArupSustainability

Appendix J

Ecological Assessment

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26 March 2008

Mr Stuart Hodgson
Associate
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Dear Stuart,

Re: Eveleigh Footbridge Ecological Study

ArupSustainability (Arup) engaged ENSR Australia Pty Ltd (HLA ENSR) to undertake an environmental assessment of the construction of a footbridge at Eveleigh, NSW. The purpose of the study is to undertake a desktop review of threatened species and ecological communities in the area of the proposed development to satisfy Part 3A of the NSW *Environmental Planning and Assessment Act 1979*.

Online searches of the Commonwealth Protected Matters Database and the Atlas of NSW Wildlife Database were conducted in order to identify the threatened species and communities within 5 km of the site with the potential to be impacted by the development. Information about the proposed impacts were sourced from Arup in the form of photographs, drawings and maps. An arborist assessment report was provided by Arup. A site investigation was not made.

The Site

The pedestrian footbridge will traverse the railway tracks south of Redfern Station at Eveleigh, NSW (the Site). According to photographs of the Site supplied by Arup, the site of impact is landscaped, disturbed and heavily modified, with little native vegetation. There are mature non-native trees in the vicinity of the site, exotic grasses and impermeable surfaces (such as paving and asphalt). There are no watercourses or drainage depressions at the Site.

Threatened Species

According to the Atlas of NSW Wildlife, there are 30 fauna species (Table 1) and 45 flora species (Table 2) listed under the *Threatened Species Conservation Act 1995* recorded within a 5km radius of the Site. Some of these records are historical, in that the species has not been recorded in the area since 1980.

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A search of the Commonwealth Protected Matters Database revealed that there are 37 threatened species as listed under the *Environment Protection and Biodiversity Conservation Act 1999* within a 5 km radius of the Site, including birds, frogs, mammals, ray-finned fishes, reptiles, sharks, and plants. Table 3 lists the non-marine species that potentially occur on the Site.

Table 1: Threatened fauna species (under the Threatened Species Conservation Act) recorded within 5 km of the Site

Species	Status (NSW)	Habitat requirements
<i>Litoria aurea</i> , Green and Golden Bell Frog	Endangered	Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha spp.</i>) or spikerushes (<i>Eleocharis spp.</i>). Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>), have a grassy area nearby and diurnal sheltering sites available. Some sites, particularly in the Greater Sydney region occur in highly disturbed areas.
<i>Pseudophryne australis</i> , Red-crowned Toadlet	Vulnerable	Occurs in open forests, mostly on Hawkesbury and Narrabeen Sandstones. Inhabits periodically wet drainage lines below sandstone ridges that often have shale lenses or cappings. Shelters under rocks and amongst masses of dense vegetation or thick piles of leaf litter.
<i>Anseranas semipalmata</i> , Magpie Goose	Vulnerable	Mainly found in shallow wetlands (less than 1 m deep) with dense growth of rushes or sedges. Equally at home in aquatic or terrestrial habitats; often seen walking and grazing on land; feeds on grasses, bulbs and rhizomes.
<i>Botaurus poiciloptilus</i> , Australasian Bittern	Vulnerable	Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes (<i>Typha spp.</i>) and spikerushes (<i>Eleocharis spp.</i>). Hides during the day amongst dense reeds or rushes and feed mainly at night on frogs, fish, yabbies, spiders, insects and snails.
<i>Burhinus grallarius</i> , Bush Stone-curlew	Endangered	Inhabits open forests and woodlands with a sparse grassy groundlayer and fallen timber. Largely nocturnal, being especially active on moonlit nights. Feed on insects and small vertebrates, such as frogs, lizards and snakes.
<i>Charadrius mongolus</i> , Lesser Sand-plover	Vulnerable	Almost entirely coastal in NSW, favouring the beaches of sheltered bays, harbours and estuaries with large intertidal sandflats or mudflats; occasionally occurs on sandy beaches, coral reefs and rock platforms.

Species	Status (NSW)	Habitat requirements
<i>Ptilinopus superbus</i> , Superb Fruit-Dove	Vulnerable	<p>Inhabits rainforest and similar closed forests where it forages high in the canopy, eating the fruits of many tree species such as figs and palms. It may also forage in eucalypt or acacia woodland where there are fruit-bearing trees.</p> <p>Part of the population is migratory or nomadic. There are records of single birds flying into lighted windows and lighthouses, indicating that birds travel at night. At least some of the population, particularly young birds, moves south through Sydney, especially in autumn.</p>
<i>Stagonopleura guttata</i> , Diamond Firetail	Vulnerable	<p>Found in grassy eucalypt woodlands, including Box-Gum Woodlands and Snow Gum <i>Eucalyptus pauciflora</i> Woodlands.</p> <p>Also occurs in open forest, mallee, Natural Temperate Grassland, and in secondary grassland derived from other communities.</p> <p>Often found in riparian areas (rivers and creeks), and sometimes in lightly wooded farmland.</p> <p>Feeds exclusively on the ground, on ripe and partly-ripe grass and herb seeds and green leaves, and on insects (especially in the breeding season).</p>
<i>Haematopus longirostris</i> , Pied Oystercatcher	Vulnerable	<p>Favours intertidal flats of inlets and bays, open beaches and sandbanks.</p> <p>Forages on exposed sand, mud and rock at low tide, for molluscs, worms, crabs and small fish. The chisel-like bill is used to pry open or break into shells of oysters and other shellfish.</p> <p>Nests mostly on coastal or estuarine beaches although occasionally they use saltmarsh or grassy areas. Nests are shallow scrapes in sand above the high tide mark, often amongst seaweed, shells and small stones.</p>
<i>Sterna albifrons</i> , Little Tern	Endangered	<p>Almost exclusively coastal, preferring sheltered environments; however may occur several kilometres from the sea in harbours, inlets and rivers (with occasional offshore islands or coral cay records).</p> <p>Nests in small, scattered colonies in low dunes or on sandy beaches just above high tide mark near estuary mouths or adjacent to coastal lakes and islands.</p>
<i>Xanthomyza phrygia</i> , Regent Honeyeater	Endangered	<p>The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.</p>

Species	Status (NSW)	Habitat requirements
<i>Lathamus discolor</i> , Swift Parrot	Endangered	<p>Migrates to the Australian south-east mainland between March and October.</p> <p>On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations.</p> <p>Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i>, Spotted Gum <i>Corymbia maculata</i>, Red Bloodwood <i>C. gummifera</i>, Mugga Ironbark <i>E. sideroxylon</i>, and White Box <i>E. albens</i>.</p>
<i>Neophema pulchella</i> , Turquoise Parrot	Vulnerable	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.
<i>Xenus cinereus</i> , Terek Sandpiper	Vulnerable	Lives on the edges of eucalypt woodland adjoining clearings, timbered ridges and creeks in farmland.
<i>Ninox strenua</i> , Powerful Owl	Vulnerable	<p>The Powerful Owl inhabits a range of vegetation types, from woodland and open sclerophyll forest to tall open wet forest and rainforest.</p> <p>The Powerful Owl requires large tracts of forest or woodland habitat but can occur in fragmented landscapes as well. The species breeds and hunts in open or closed sclerophyll forest or woodlands and occasionally hunts in open habitats. It roosts by day in dense vegetation comprising species such as Turpentine <i>Syncarpia glomulifera</i>, Black She-oak <i>Allocasuarina littoralis</i>, Blackwood <i>Acacia melanoxylon</i>, Rough-barked Apple <i>Angorophora floribunda</i>, Cherry Ballart <i>Exocarpus cupressiformis</i> and a number of eucalypt species.</p>
<i>Pteropus poliocephalus</i> Grey-headed Flying-fox	Vulnerable	<p>Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.</p> <p>Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.</p>
<i>Miniopterus schreibersii oceanensis</i> Eastern Bentwing-bat	Vulnerable	<p>Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings and other man-made structures.</p> <p>Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young.</p> <p>Maternity caves have very specific temperature and humidity regimes.</p> <p>At other times of the year, populations disperse within about 300 km range of maternity caves.</p> <p>Cold caves are used for hibernation in southern Australia.</p>

Table 2: Threatened flora species (under the Threatened Species Conservation Act) recorded within 5 km of the Site

Species	Status (NSW)	Habitat requirements
<i>Acacia gordonii</i>	Endangered	Grows in dry sclerophyll forest and heathlands amongst or within rock platforms on sandstone outcrops. Has not been recorded in the area since 1980.
<i>Acacia terminalis</i> subsp. <i>Terminalis</i> , Sunshine Wattle	Endangered	Coastal scrub and dry sclerophyll woodland on sandy soils. Habitat is generally sparse and scattered. Most areas of habitat or potential habitat are small and isolated. Most sites are highly modified or disturbed due to surrounding urban development.
<i>Darwinia biflora</i>	Vulnerable	Occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. Associated overstorey species include <i>Eucalyptus haemastoma</i> , <i>Corymbia gummifera</i> and/or <i>E. squamosa</i> . The vegetation structure is usually woodland, open forest or scrub-heath.
<i>Eucalyptus nicholii</i> , Narrow-leaved Black Peppermint	Vulnerable	Grows in dry grassy woodland, on shallow and infertile soils, mainly on granite. According to the Aborigicultural Assessment, there are four trees growing in the area (presumed planted) (Landscape Matrix 2008); however, the trees are not impacted by the development.
<i>Eucalyptus pulverulenta</i> , Silver-leafed Gum	Vulnerable	Grows in shallow soils as an understorey plant in open forest, typically dominated by Brittle Gum (<i>Eucalyptus mannifera</i>), Red Stringybark (<i>E. macrorhynca</i>), Broad-leaved Peppermint (<i>E. dives</i>), Silvertop Ash (<i>E. sieberi</i>) and Apple Box (<i>E. bridgesiana</i>). Has not been recorded in the area since 1980.
<i>Eucalyptus scoparia</i> , Wallangarra White Gum	Endangered	Found in open eucalypt forest and woodland on well-drained granite hilltops, slopes and rocky outcrops. According to the Aborigicultural Assessment, there are three trees growing in the area (presumed planted) (Landscape Matrix 2008); however, the trees are not impacted by the development.
<i>Melaleuca deanei</i> , Deane's Paperbark	Vulnerable	The species grows in heath on sandstone. Has not been recorded in the area since 1980.
<i>Syzygium paniculatum</i> , Magenta Lilly Pilly	Vulnerable	On the central coast Magenta Lilly Pilly occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities.
<i>Caladenia tessellate</i> , Thick Lip Spider Orchid	Endangered	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Has not been recorded in the area since 1980.

Species	Status (NSW)	Habitat requirements
<i>Thesium australe</i> , Austral Toadflax	Vulnerable	Occurs in grassland or grassy woodland. Often found in damp sites in association with Kangaroo Grass (<i>Themeda australis</i>). Has not been recorded in the area since 1980.

Table 3: Threatened species (under the EPBC Act) recorded within 5 km of the Site

Species	Status (Commonwealth)	Habitat requirements
<i>Lathamus discolor</i> , Swift Parrot	Endangered	Migrates to the Australian south-east mainland between March and October. On the mainland they occur in areas where eucalypts are flowering profusely or where there are abundant lerp (from sap-sucking bugs) infestations. Favoured feed trees include winter flowering species such as Swamp Mahogany <i>Eucalyptus robusta</i> , Spotted Gum <i>Corymbia maculata</i> , Red Bloodwood <i>C. gummifera</i> , Mugga Ironbark <i>E. sideroxylon</i> , and White Box <i>E. albens</i> .
<i>Neophema chrysogaster</i> , Orange-bellied Parrot	Critically Endangered	Eucalypt forest, salt marshes, coastal dunes, pastures, shrublands, estuaries, beaches, usually 10 km from the coast. Infrequent visitor of the Sydney area.
<i>Rostratula australis</i> , Australian Painted Snipe	Vulnerable	Requires shallow inland wetlands, either freshwater or brackish, that are either permanently or temporarily filled.
<i>Xanthomyza phrygia</i> , Regent Honeyeater	Endangered	The species inhabits dry open forest and woodland, particularly Box-Ironbark woodland, and riparian forests of River Sheoak. Regent Honeyeaters inhabit woodlands that support a significantly high abundance and species richness of bird species. These woodlands have significantly large numbers of mature trees, high canopy cover and abundance of mistletoes.
<i>Heleioporus australiacus</i> , Giant Burrowing Frog	Vulnerable	This species inhabits sandstone heathland, dry, and also wet sclerophyll forest from north of Sydney to eastern Victoria.

Species	Status (Commonwealth)	Habitat requirements
<i>Litoria aurea</i> , Green and Golden Bell Frog	Vulnerable	<p>Inhabits marshes, dams and stream-sides, particularly those containing bullrushes (<i>Typha spp.</i>) or spikerushes (<i>Eleocharis spp.</i>).</p> <p>Optimum habitat includes water-bodies that are unshaded, free of predatory fish such as Plague Minnow (<i>Gambusia holbrooki</i>), have a grassy area nearby and diurnal sheltering sites available.</p> <p>Some sites, particularly in the Greater Sydney region occur in highly disturbed areas.</p>
<i>Chalinolobus dwyeri</i> , Large-eared Pied Bat, Large Pied Bat	Vulnerable	<p>Roosts in caves (near their entrances), crevices in cliffs, old mine workings and in the disused, bottle-shaped mud nests of the Fairy Martin (<i>Hirundo ariel</i>), frequenting low to mid-elevation dry open forest and woodland close to these features. Females have been recorded raising young in maternity roosts (c. 20-40 females) from November through to January in roof domes in sandstone caves. They remain loyal to the same cave over many years.</p> <p>Found in well-timbered areas containing gullies.</p>
<i>Dasyurus maculatus maculatus</i> (SE mainland population), Spot-tailed Quoll	Endangered	<p>Recorded across a range of habitat types, including rainforest, open forest, woodland, coastal heath and inland riparian forest, from the sub-alpine zone to the coastline.</p> <p>Individual animals use hollow-bearing trees, fallen logs, small caves, rock crevices, boulder fields and rocky-cliff faces as den sites</p>
<i>Petrogale penicillata</i> , Brush-tailed Rock-wallaby	Vulnerable	<p>Shelter or bask during the day in rock crevices, caves and overhangs and are most active at night.</p>
<i>Potorous tridactylus tridactylus</i> , Long-nosed Potoroo (SE mainland)	Vulnerable	<p>Inhabits coastal heaths and dry and wet sclerophyll forests. Dense understorey with occasional open areas is an essential part of habitat, and may consist of grass-trees, sedges, ferns or heath, or of low shrubs of tea-trees or melaleucas. A sandy loam soil is also a common feature.</p>
<i>Pteropus poliocephalus</i> , Grey-headed Flying-fox	Vulnerable	<p>Occur in subtropical and temperate rainforests, tall sclerophyll forests and woodlands, heaths and swamps as well as urban gardens and cultivated fruit crops.</p> <p>Roosting camps are generally located within 20 km of a regular food source and are commonly found in gullies, close to water, in vegetation with a dense canopy.</p>

Species	Status (Commonwealth)	Habitat requirements
<i>Hoplocephalus bungaroides</i> , Broad-headed Snake	Vulnerable	Shelters in rock crevices and under flat sandstone rocks on exposed cliff edges during autumn, winter and spring. Moves from the sandstone rocks to shelters in hollows in large trees within 200 m of escarpments in summer. Feeds mostly on geckos and small skinks; will also eat frogs and small mammals occasionally.
<i>Acacia terminalis</i> subsp. <i>Terminalis</i> , Sunshine Wattle	Endangered	Coastal scrub and dry sclerophyll woodland on sandy soils. Habitat is generally sparse and scattered. Most areas of habitat or potential habitat are small and isolated. Most sites are highly modified or disturbed due to surrounding urban development.
<i>Allocasuarina portuensis</i>	Endangered	The original known habitat of the Neilsen Park She-oak is at Nielsen Park, in Woollahra local government area. There are no plants left at the original site where it was discovered. However, propagation material has been planted successfully at a number of locations at Nielsen Park and other locations in the local area, e.g. Gap Bluff, Hermit Point and Vaucluse House.
<i>Caladenia tessellate</i> , Thick-lipped Spider-orchid	Vulnerable	Generally found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Has not been recorded in the area since 1980.
<i>Cryptostylis hunteriana</i> , Leafless Tongue-orchid	Vulnerable	Does not appear to have well defined habitat preferences and is known from a range of communities, including swamp-heath and woodland. The larger populations typically occur in woodland dominated by Scribbly Gum (<i>Eucalyptus sclerophylla</i>), Silvertop Ash (<i>E. sieberi</i>), Red Bloodwood (<i>Corymbia gummifera</i>) and Black Sheoak (<i>Allocasuarina littoralis</i>); appears to prefer open areas in the understorey of this community and is often found in association with the Large Tongue Orchid (<i>C. subulata</i>) and the Tartan Tongue Orchid (<i>C. erecta</i>).
<i>Thesium australe</i> , Austral Toadflax, Toadflax	Vulnerable	Occurs in grassland or grassy woodland. Often found in damp sites in association with Kangaroo Grass (<i>Themeda australis</i>). Has not been recorded in the area since 1980.

Endangered Ecological Communities

One Endangered Ecological Community (listed under the EPBC Act) occurs within a 5 km radius of the Site: Eastern Suburbs Banksia Scrub of the Sydney Region. According to mapping of the known distribution of the community (see <http://www.environment.gov.au/biodiversity/threatened/communities/maps/eastern-sydney-banksia.html>), the community does not occur at the Site.

Assessment of Significance

Based on photographs of the Site provided by Arup, which show a disturbed and heavily modified urban environment, it is not likely that the Site supports any of the listed threatened species identified as being in the vicinity of the Site by the desktop study, because suitable habitat for these species is not present.

Yours sincerely,

ENSR Australia Pty Ltd (HLA ENSR)

Rochelle Lawson
Associate Ecologist

Peter Wright
Principal, Environmental Services

Enclosures:
cc:

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References used:

Landscape Matrix Pty Ltd, 2008. *Aboriginal Assessment and Development Impact Report – Former Eveleigh Rail Workshop Lands.*