26 – Ecology (Flora & Fauna)

26

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15 August 2017

Michael Abbott
Senior Project Manager
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Sydney NSW 2000
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Dear Michael,

Re: Waitara Public School Flora and Fauna Assessment

Niche Environment and Heritage (Niche) was commissioned by GHD to assess potential impacts to biodiversity associated with the proposed works at Waitara Public School (Figure 1). The works would involve upgrades to the existing buildings, and construction of new school buildings and facilities within the Waitara Public School boundary. As a result, the works would require the removal of 23 trees, including 15 native trees (including eucalypts and planted non-endemic species) and eight non-native species (Birds Tree Consultancy 2017).

The development at Waitara Public School infrastructure constitutes a State Significant Development (SSD). Secretary Environmental Assessment Requirements (SEARs) have been obtained for the proposal which states that the biodiversity impact assessment must be completed in accordance with the Framework for Biodiversity Assessment (FBA).

This ecological impact assessment has therefore been prepared to satisfy approval requirements under the FBA, and the C*ommonwealth Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act).

Study area description

Waitara Public School is located in the suburb of Waitara NSW, in the Hornsby Local Government Area within the Sydney Metropolitan Catchment.

Waitara Public School largely consists of school buildings, playground and associated infrastructure, with scattered trees and garden beds occurring throughout. A small patch of native bushland (<0.3 ha) occurs toward the north-east boundary of Waitara Pubic School and is currently managed as a bush regeneration site.

Given prior historic clearing for the school's facilities, no expansive patches of vegetation occur within the vicinity of the school, and the immediate surrounding urban area. The closest large patch of native bushland occurs at Ku-ring-gai Chase National Park, located approximately two kilometres to the north-east of Waitara Public School.

The study area occurs within the north-western part of the school boundary. This area consists of existing school buildings, a concrete playground, scattered trees which are used for shade in the playground, and a mixture of mature eucalypts and planted trees and shrubs which predominately occur along the school's boundary (Figure 2 and Figure 4).

The proposal will result in the felling of 15 native trees. It will also require the removal of eight non-native species, which occur predominately within the development area at the north-west end of the study area (Birds Tree Consultancy 2017).

No watercourses, rocky outcrops or other significant habitat features occur within the study area.

Description of works

The Waitara public School development will include the construction and operation of:

- 37 new homebases and core facilities to cater for 1000 students
- demolition and removal of some existing buildings
- cutting and removal of 23 trees, 15 native and eight non-native trees.

The site plan detailing the site layout, including a plan which shows the trees that are to be retained and removed, is provided in Figure 4.

Field Assessments

Luke Baker (Senior Ecologist and Accredited BioBanking Assessor) from Niche Environment and Heritage completed a field survey of the study area on the 2nd of August 2017. The field survey involved traversing the entire study area, searches for threatened species, noting the species of flora to be impacted, noting vegetation characteristic across the site and detailing threatened fauna habitats within the study area.

No BioBanking plots were completed given the nature of the impacts – trees to be removed within a garden bed or amongst a concrete playground.

A habitat assessment was also conducted within the study area. Habitat characteristics and parameters that were assessed included:

- physical aspects of the site such as climate (desktop), geology, soils, slope, elevation, drainage and aspect
- floristic composition, structure and age
- vegetation condition
- composition of ground layer (bare earth, litter etc.)
- presence and relative abundance of key habitat features (e.g. tree hollows, large logs, exfoliating rock, flowering resources, aquatic features).

Targeted fauna survey methods, including trapping, targeted amphibian survey and bat detector/harp trapping surveys were not considered necessary given that habitat for such species was not present in the study area.

Approach to this assessment

The proposal is regarded as an SSD and thus the FBA needs to be applied to the biodiversity assessment. The FBA dictates a specific reporting structure to address impacts to biodiversity. However, the impacts associated with the current proposal are relatively minor in nature, and do not involve removal of native Plant Community Types (PCTs), important fauna habitat nor any impact to threatened biodiversity as listed under the TSC Act or EPBC Act. As such, Niche has documented the findings, results and impacts throughout this document, that conclude that offsetting under the FBA is not required.

Native vegetation

The field survey confirmed that the vegetation that may be impacted by the proposal consists of 23 trees, including 15 native trees (including both eucalypts and planted non-endemic species) and eight non-indigenous species. A detailed vegetation map has been provided in Figure 3, showing the location of the vegetation. Photographs of the vegetation that may be removed are provided in Appendix 2.

The trees to be impacted are predominantly planted and have historically been lopped or trimmed by an arborist. Figure 4 details the location of the trees to be removed as identified in the Birds Tree Consultancy (2017) report.

Table 1: Trees to be removed

Tree	No. of trees	Native?
Angophora costata	2	Yes
Callistemon viminalis	7	Yes
Camellia japonica	2	No
Cedrus deodara	1	No
Ceratopetalum gummiferum	1	Yes
Cinnamomum camphora	1	No
Cupaniopsis anacardioides	1	No
Cupressus spp	1	No
Dead tree	1	No
Elaeocarpus reticularis	2	Yes
Lagunaria patersonii	1	No
Lophostemon confertus	2	Yes
Pittosporum undulatum	1	Yes

The native trees that are to be impacted do not align to a native Plant Community Type (PCT) as per the OEH PCT database based on the following:

- the native trees are mainly planted
- the trees are relatively isolated from other areas of native vegetation
- the vegetation overall does not contain a natural native understorey, ground cover etc.
- the vegetation does not have any resilience
- all vegetation is located within planting/gardens beds
- some of the trees occur within concrete areas.

It should be noted that during the survey, a patch of the vegetation community Sydney Turpentine-Ironbark Forest (STIF), which is listed as a Threatened Ecological Community (TEC) under both the TSC Act and EPBC Act, was recorded outside of the study area, toward the north-east corner of this school. This community has been identified as an area of focus for rehabilitation by Hornsby shire Council, and would not be impacted by the proposal.

It could be argued that the mature trees to be removed are likely remnants of the TEC. However, as explained above, aligning the trees to a native vegetation community would be a rather difficult considering the poor condition of the vegetation.

This assessment therefore concludes that no native PCT would be impacted by the proposal and therefore impacts to native vegetation does not need to be considered further.

Threatened Ecological Communities

As discussed above, there is a small patch of vegetation to the north-east of the school boundary that is consistent with that of Sydney Turpentine-Ironbark Forest. This patch of bushland would not be impacted by the proposal. As such, this assessment concludes that no TEC would be impacted by the proposal and therefore does not need to be considered further.

Threatened flora

A total of 42 threatened flora have previously been recorded or have been considered having potential habitat within a 10 km radius of the study area (subject flora). Records have been derived from both the Atlas of NSW Wildlife and the EPBC Act Protected Matters Search tool. Tables identifying the habitat requirements for each of the threatened flora have been provided in Appendix 1.

The field survey involved a traverse of the entire area of impact for the proposed work, and no threatened flora were recorded.

Given the area of impact is predominantly large eucalypts and planted shrubs/ground cover, it is highly unlikely that any threatened flora would remain undetected during the survey, and thus are unlikely to be present within the study area. Furthermore, the majority of the area to be disturbed has been previously cleared, within a garden bed, or concrete playground, and therefore consists of low to no resilience.

This assessment therefore concludes that no threatened flora listed under the TSC Act or EPBC Act are likely to be impacted by the proposal.

Fauna habitat

The study area generally lacked a range of habitat features important to fauna due to previous clearing of the mid-story and understory species within the school grounds (area of impact).

The survey identified a single tree hollow in a large *Angophora costata* which is to be retained (Plate 4). This was the only tree that was identified to contain any hollows. None of the trees to be removed were observed to contain a hollow.

As a result of many of the eucalypts being located within garden beds, concreted areas or maintained lawn, no logs or large quantities of leaf litter were recorded within the area of impact.

The proposal would therefore not impact upon any limiting fauna habitat.

Fauna habitat corridors/connectivity

The study area occurs within suburban setting with isolated scattered trees which do not provide any obvious connectivity. These trees may provide some opportunistic foraging habitat for fauna, however they are unlikely to be easily accessed by many fauna species due to the isolation of these trees and lack of understory vegetation.

Given the isolation of trees and lack of understory vegetation these trees could not be considered a habitat corridor and the removal of these trees would not significantly impact connectivity or fauna mobility.

Threatened fauna

A total of 69 threatened flora have previously been recorded or have been considered to have potential habitat within a 10 km radius of the study area (subject fauna). Records have been derived from both the Atlas of NSW Wildlife and the EPBC Act Protected Matters Search tool.

Developments can impact upon fauna in a number of ways. The significance of an impact would be large if any of the following situations occur:

- death or injury of individuals
- loss or disturbance of limiting foraging resources
- loss or disturbance of limiting breeding resources.

Limiting resources are those that are of particular importance for the survival of a species.

After an analysis of the habitat requirements for each of the threatened subject fauna, no threatened fauna species are likely to have limiting resources present within the study area.

Whilst it is possible that some threatened birds or Microchiropteran bats may fly over or into the study area on occasion, the removal of sporadically situated and non hollow-bearing trees within disturbed areas containing no understory is highly unlikely to impact upon any limiting foraging resources for such species.

No core or potential habitat defined under the *State Environmental Planning Policy 44 – Koala Habitat Protection* (SEPP 44) will be impacted by the proposed activity.

This assessment therefore concludes that no threatened fauna listed under the TSC Act, and EPBC Act are likely to be impacted by the proposal.

Avoidance, Minimisation, Mitigation

The project has been designed to minimise the development footprint and retain as many existing trees as possible. This is demonstrated through the retention of 26 existing trees bordering the development footprint, in particular, the large hollow-bearing *Angophora costata* to the north of the study area (Birds Tree Consultancy 2017). Furthermore, the patch of Sydney Turpentine Ironbark Forest to the north-east of Waitara Public School would not be impacted by the proposal.

Recommendations

It is recommended that the following measures are undertaken to ensure no long term negative impacts occur to any threatened biodiversity:

- Trees to be retained should be appropriately demarcated.
- All works are to stay away from the patch of Sydney Turpentine Ironbark Forest which is located to the north-east of Waitara Public School.
- In the unlikely event that nests or fauna are located in the trees to be removed, the nests or fauna are to be removed by a suitably qualified fauna ecologist prior to clearing. The fauna or nest are to be taken to the nearest veterinarian experienced in native fauna handling, or carefully re-located to the patch of Sydney Turpentine Ironbark Forest which is located to the north-east of Waitara Public School.
- Sufficient sedimentation works and barriers are to be placed around the disturbance areas to ensure no indirect water flow, erosion or sedimentation leaves the site.
- Any soil disturbance or vegetation clearing, other than that described in this assessment, will require further assessment.

Conclusions

This report assesses the terrestrial ecology impacts associated with the proposal, in accordance with the requirements of the EP&A, TSC and EPBC Acts.

The proposal would result in the removal of a number of native and exotic trees and shrubs within maintained garden beds. While STIF has been recorded nearby, these isolated trees and shrubs lack a native understory layer, have no resilience and are located within maintained garden beds or surrounded by concrete. Due to the highly disturbed nature of this vegetation is not considered to align to a vegetation community nor a TEC.

No threatened flora were recorded within the study area. The proposal was determined unlikely to impact any threatened flora or their habitats.

No threatened fauna were recorded during the current survey. This assessment concludes that the proposal is unlikely to impact on any limiting habitat for the subject threatened fauna species.

A number of recommendations have been made to minimise the potential impact of the proposal on native flora and fauna occurring in the study area.

I trust that this advice is sufficient for your purposes. Should you require any further information please do not hesitate to contact me.

Yours sincerely,

Luke Baker
Senior Ecologist and Accredited BioBanking Assessor
Niche Environment and Heritage

References

Birds Tree Consultancy (2017) Arboriculture Development Impact Assessment Report - Waitara Public School, Prepared for GHD.

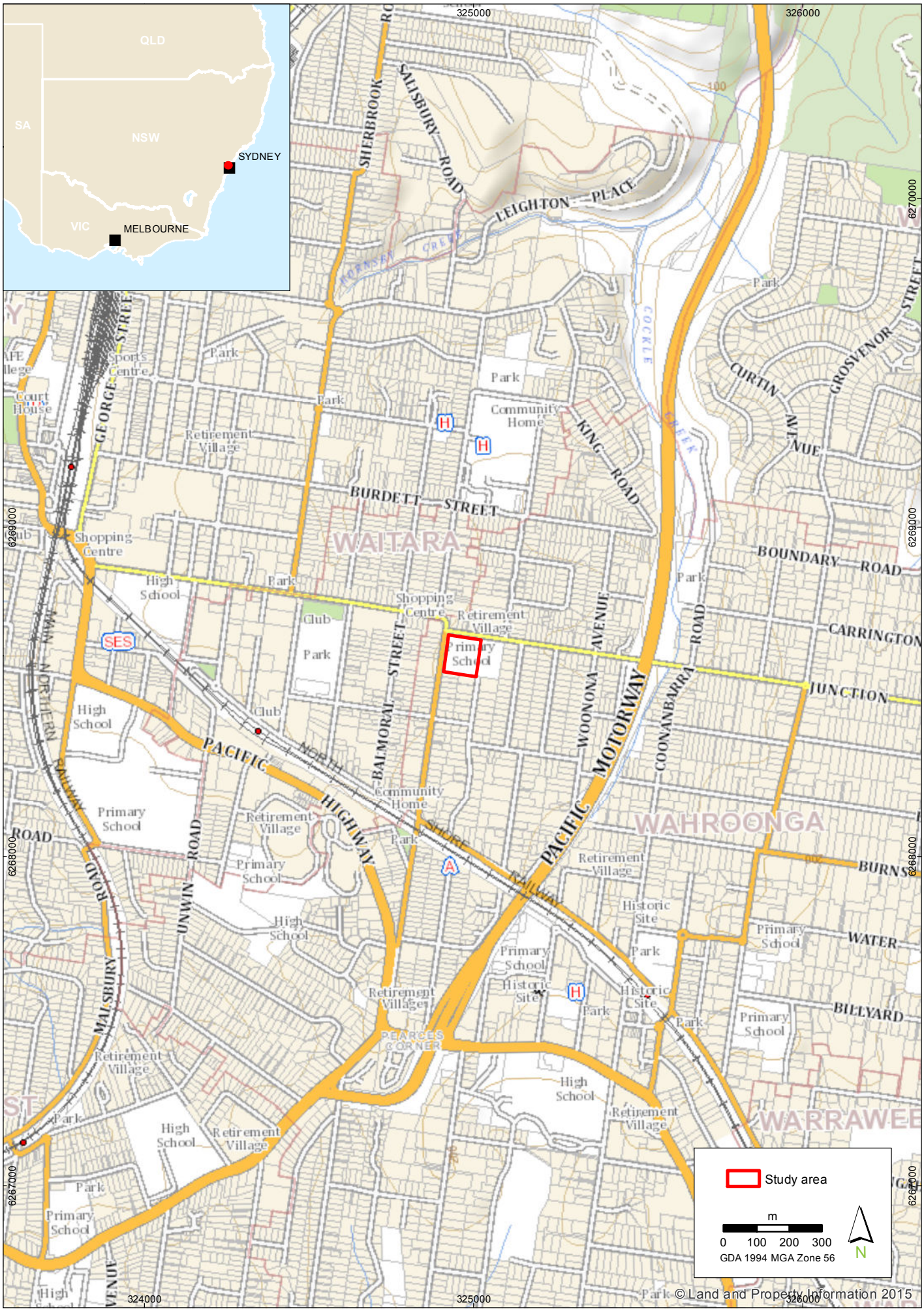
DEC (2005) Threatened Species Profiles Database, OEH. Also provides access to threatened species final determinations by the NSW Scientific Committee.

DECC (2007) Threatened Species Assessment Guidelines: The Assessment of Significance. Department of Environment and Climate Change.

OEH (2012) Atlas of NSW Wildlife (accessed August 2017), NSW Office of Environment and Heritage (OEH), Goulburn Street, Sydney.

SEWPaC (2012) SPRAT Database and Protected Matters Search Tool (accessed August 2017), http://www.environment.gov.au/, Commonwealth Department of Sustainability, Environment, Water, Population and Communities. Provides access to threatened species profiles, recovery plans and final determinations by the Commonwealth Scientific Committee.

Figures



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Location map

Waitara Public School Flora and Fauna Assessment

FIGURE 1

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Study area

Waitara Public School Flora and Fauna Assessment

FIGURE 2

Imagery: (c) LPI 2014-01-06

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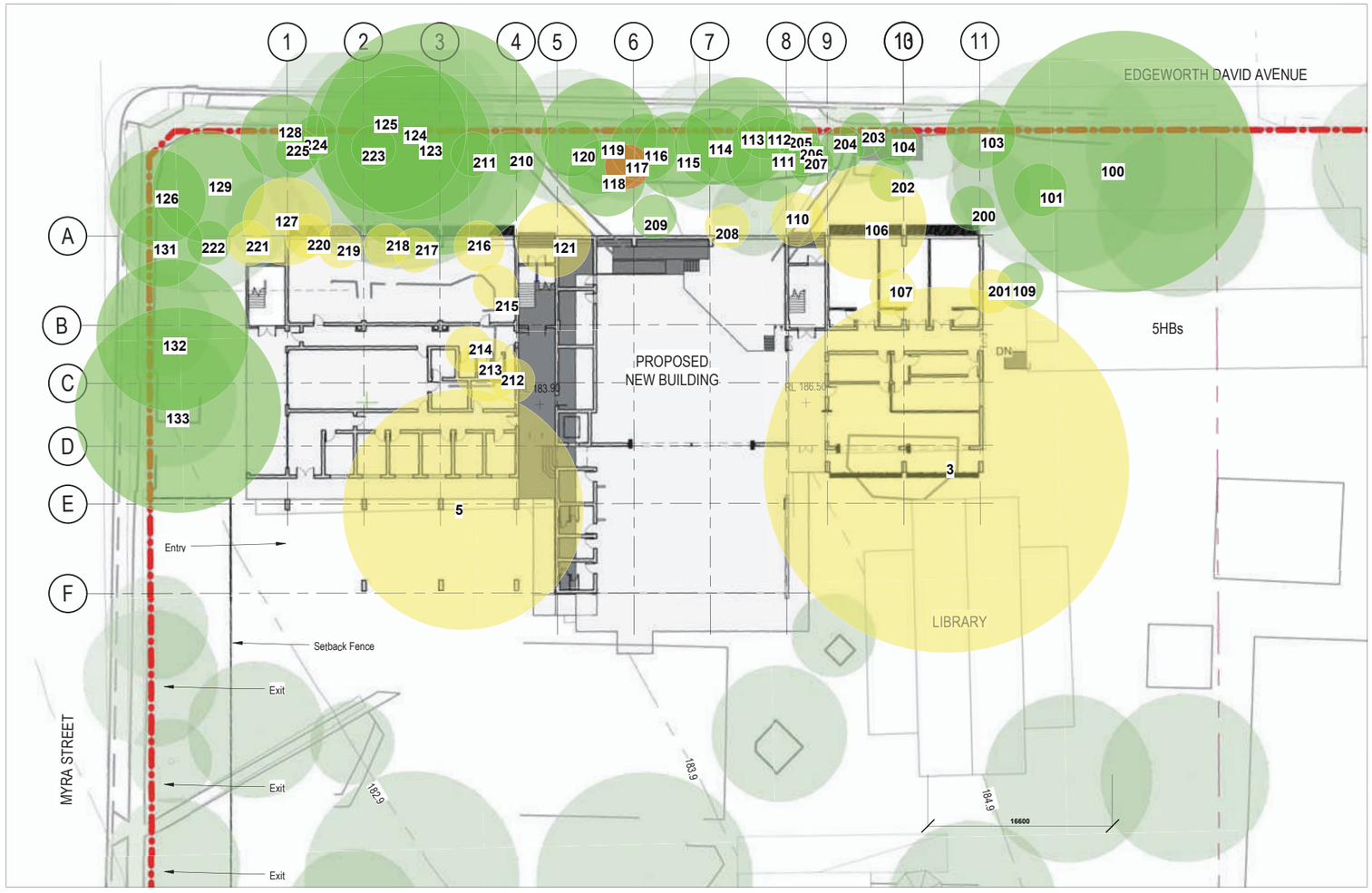
Vegetation mapping

Waitara Public School Flora and Fauna Assessment

FIGURE 3

Imagery: (c) LPI 2014-01-06

Figure 4. Site diagram showing trees to be removed and retained (Birds Tree Consulting 2017)



Legend

- Tree to be Retained and Protected
- Tree not viable to be retained due to proposed development
- Tree to be Removed
- Tree Protection Zone (TPZ) in accordance with AS4970-2009

Birds Tree Consultancy
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www.birdstrees.com.au

Project: Waitara Public School
Client: GHD
DWG: A01
Plan: Tree Location Plan
Date: 14 August 2017 Scale : Not to Scale

Appendix 1 – Likelihood of occurrence

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Amphibians					
Heleioporus australiacus	Giant Burrowing Frog	V	V	The Giant Burrowing Frog has been recorded breeding in a range of water bodies associated with sandy environments of the coast and adjacent ranges from the Sydney Basin south the eastern Victoria. It breeds in hanging swamps, perennial non-flooding creeks and occasionally permanent pools, but permanent water must be present to allow its large tadpoles time to reach metamorphosis.	None
Litoria aurea	Green and Golden Bell Frog	E	V	Inhabits a very wide range of water bodies including marshes, dams and streams, particularly those containing emergent vegetation such as bullrushes or spikerushes. It also inhabits numerous types of man-made water bodies including quarries and sand extraction sites. Optimum habitat includes water-bodies that are un-shaded, free of predatory fish such as Plague Minnow, have a grassy area nearby and diurnal sheltering sites available.	None
Litoria littlejohni	Littlejohn's Tree Frog	V	V	Occurs in wet and dry sclerophyll forests and heathland associated with sandstone outcrops between 280 and 1000 m on the eastern slopes of the Great Dividing Range from the Central Coast down into Victoria. Individuals have been collected from a wide range of water bodies that includes semi-permanent dams, permanent ponds, temporary pools and permanent streams, with calling occurring from fringing vegetation or on the banks. Individuals have been observed sheltering under rocks on high exposed ridges during summer and within deep leaf litter adjacent to the breeding site. Calling occurs in all months of the year, often in association with heavy rains. The tadpoles are distinctive, being large and very dark in colouration.	None
Mixophyes balbus	Stuttering Frog	E	V	Associated with streams in dry sclerophyll and wet sclerophyll forests and rainforests of more upland areas of the Great Dividing Range of NSW and down into Victoria. Breeding occurs along forest streams with permanent water where eggs are deposited within nests excavated in riffle zones by the females and the tadpoles swim free into the stream when large enough to do so. Outside of breeding, individuals range widely across the forest floor and can be found hundreds of metres from water.	None
Pseudophryne australis	Red-crowned Toadlet	V	-	Occurs on wetter ridge tops and upper slopes of sandstone formations on which the predominant vegetation is dry open forests and heaths. This species typically breeds within small ephemeral creeks that feed into larger semi-perennial streams. After rain	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
				these creeks are characterised by a series of shallow pools lined by dense grasses, ferns and low shrubs and usually contain leaf litter for shelter. Eggs are terrestrial and laid under litter, vegetation or rocks where the tadpoles inside will reach a relatively late stage of development before waiting for flooding waters before hatching will occur.	
Birds					
Anthochaera phrygia	Regent Honeyeater	CE	CE	The Regent Honeyeater mainly inhabits temperate woodlands and open forests of the inland slopes of south-east Australia. Birds are also found in drier coastal woodlands and forests in some years. There are only three known key breeding regions remaining: north-east Victoria (Chiltern-Albury), and in NSW at Capertee Valley and the Bundarra-Barraba region. In NSW the distribution is very patchy and mainly confined to the two main breeding areas and surrounding fragmented woodlands. In some years flocks converge on flowering coastal woodlands and forests.	None
Apus pacificus	Fork-tailed Swift	-	M	The Fork-tailed Swift is almost exclusively aerial, flying from less than one metre to at least 300 metres above ground and probably much higher.	None
Artamus cyanopterus cyanopterus	Dusky Woodswallow	V	-	Often reported in woodlands and dry open sclerophyll forests, usually dominated by eucalypts, including mallee associations. It has also been recorded in shrublands and heathlands and various modified habitats, including regenerating forests; very occasionally in moist forests or rainforests.	Low
Botaurus poiciloptilus	Australasian Bittern	E	E	The Australasian Bittern is widespread but uncommon over south-eastern Australia. In NSW they may be found over most of the state except for the far north-west. Favours permanent freshwater wetlands with tall, dense vegetation, particularly bullrushes and spikerushes.	None
Calidris canutus	Red Knot	-	M, E	Usually found foraging in soft substrate near the edge of the water on intertidal mudflats. Also have been recorded at nearby lakes, sewage ponds and floodwaters. Roosts on sandy beaches, spits and islands. Northern hemisphere breeding.	None
Calidris ferruginea	Curlew Sandpiper	E	CE, M	It occurs along the entire coast of NSW, particularly in the Hunter Estuary, and sometimes in freshwater wetlands in the Murray-Darling Basin. It generally occupies littoral and estuarine habitats, and in New South Wales is mainly found in intertidal mudflats of sheltered coasts. It also occurs in non-tidal swamps, lakes and lagoons on the coast and sometimes the inland. Northern hemisphere breeding.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Callocephalon fimbriatum	Gang-gang Cockatoo	V	-	In summer, occupies tall montane forests and woodlands, particularly in heavily timbered and mature wet sclerophyll forests. Also occur in subalpine snow gum woodland and occasionally in temperate or regenerating forest. In winter, occurs at lower altitudes in drier, more open eucalypt forests and woodlands, particularly in box-ironbark assemblages, or in dry forest in coastal areas. It requires tree hollows in which to breed.	None
Callocephalon fimbriatum	Gang-gang Cockatoo population in the Hornsby and Ku-ring-gai local government areas	EP	-	The population is believed to be largely confined to an area bounded by Thornleigh and Wahroonga in the north, Epping and North Epping in the south, Beecroft and Cheltenham in the west and Turramurra/South Turramurra to the east. Usually frequents forested areas with old growth attributes required for nesting and roosting purposes.	None
Calyptorhynchus lathami	Glossy Black-Cockatoo	V	-	Inhabits forest with low nutrients, characteristically with key *Allocasuarina* spp. Tends to prefer drier forest types with a middle stratum of Allocasuarina below Eucalyptus or Angophora. Often confined to remnant patches in hills and gullies. Breed in hollows stumps or limbs, either living or dead. Endangered population in the Riverina.	None
Cuculus optatus, Cuculus saturatus	Oriental Cuckoo	-	M, MA	Mainly inhabits coniferous, deciduous and mixed forests. Breeds in northern hemisphere. Brood parasite, laying eggs in nests of other birds.	None
Daphoenositta chrysoptera	Varied Sittella	V	-	Inhabits wide variety of dry eucalypt forests and woodlands, usually with either shrubby under storey or grassy ground cover or both, in all climatic zones of Australia. Usually in areas with rough-barked trees, such as stringybarks or ironbarks, but also in paperbarks or mature eucalypts with hollows.	None
Dasyornis brachypterus	Eastern Bristlebird	E	E	Found in coastal woodlands, dense scrub and heathlands, particularly where it borders taller woodlands.	None
Diomedea antipodensis	Antipodean Albatross	V	V, M, MA	The species ranges across the southern Pacific Ocean, east to the coast of Chile and west to eastern Australia. The Antipodean Albatross breeds biennially in colonies on ridges, slopes and plateaus of isolated subantarctic islands, usually in vegetation such as grass tussocks. This species regularly occurs in small numbers off the NSW south coast from Green Cape to Newcastle during winter where they feed on cuttlefish.	None
Diomedea exulans	Wandering Albatross	E	V, M, MA	The Wandering Albatross is marine, pelagic and aerial. The Wandering Albatross visits Australian waters from Fremantle, Western Australia to northern New South Wales between June and September each year.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Falco hypoleucos	Grey Falcon	E	-	Usually restricted to shrubland, grassland and wooded watercourses of arid and semi-arid regions, although it is occasionally found in open woodlands near the coast. Also occurs near wetlands where surface water attracts prey.	None
Glossopsitta pusilla	Little Lorikeet	V	-	Distributed in forests and woodlands from the coast to the western slopes of the Great Dividing Range in NSW, extending westwards to the vicinity of Albury, Parkes, Dubbo and Narrabri. Mostly occur in dry, open eucalypt forests and woodlands. They feed primarily on nectar and pollen in the tree canopy. Nest hollows are located at heights of between 2 m and 15 m, mostly in living, smooth-barked eucalypts. Most breeding records come from the western slopes.	None
Grantiella picta	Painted Honeyeater	V	V	The Painted Honeyeater is nomadic and occurs at low densities throughout its range. The greatest concentrations of the bird and almost all breeding occurs on the inland slopes of the Great Dividing Range in NSW, Victoria and southern Queensland. During the winter it is more likely to be found in the north of its distribution. Inhabits boree, brigalow and box-gum woodlands and box-ironbark forests.	None
Haematopus fuliginosus	Sooty Oystercatcher	V	-	In NSW the Sooty Oystercatcher occupies rocky headlands, reefs and offshore islands along the entire coast, apparently as a single continuous population.	None
Haematopus longirostris	Pied Oystercatcher	E	-	The Pied Oystercatcher inhabits marine littoral habitats, including islands. It occupies muddy, sandy, stony or rocky estuaries, inlets and beaches, particularly intertidal mudflats and sandbanks in large marine bays.	None
Haliaeetus leucogaster	White-bellied Sea-Eagle	V	MA	Inhabits coastal and near coastal areas, building large stick nests, and feeding mostly on marine and estuarine fish and aquatic fauna.	None
Hieraaetus morphnoides	Little Eagle	V	-	Most abundant in lightly timbered areas with open areas nearby. Often recorded foraging in grasslands, crops, treeless dune fields, and recently logged areas. May nest in farmland, woodland and forest in tall trees.	None
Hirundapus caudacutus	White-throated Needletail	-	M, MA	An aerial species found in feeding concentrations over cities, hilltops and timbered ranges.	None
Ixobrychus flavicollis	Black Bittern	V	-	Usually found on coastal plains below 200 m. Often found along timbered watercourses, in wetlands with fringing trees and shrub vegetation. The sites where they occur are characterized by dense waterside vegetation.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Lathamus discolor	Swift Parrot	E	CE	The Swift Parrot occurs in woodlands and forests of NSW from May to August, where it feeds on eucalypt nectar, pollen and associated insects. The Swift Parrot is dependent on flowering resources across a wide range of habitats in its wintering grounds in NSW. This species is migratory, breeding in Tasmania and also nomadic, moving about in response to changing food availability.	None
Lophoictinia isura	Square-tailed Kite	V	-	Typically inhabits coastal forested and wooded lands of tropical and temperate Australia. In NSW it is often associated with ridge and gully forests dominated by *Eucalyptus longifolia, Corymbia maculata, E. elata* or *E. smithii*. Individuals appear to occupy large hunting ranges of more than 100 km^2. They require large living trees for breeding, particularly near water with surrounding woodland -forest close by for foraging habitat. Nest sites are generally located along or near watercourses, in a tree fork or on large horizontal limbs.	None
Macronectes giganteus	Southern Giant Petrel	E	E	The Southern Giant Petrel has a circumpolar pelagic range from Antarctica to approximately 20 S and is a common visitor off the coast of NSW. Over summer, the species nests in small colonies amongst open vegetation on antarctic and subantarctic islands, including Macquarie and Heard Islands and in Australian Antarctic territory.	None
Monarcha melanopsis	Black-faced Monarch	-	M	Found along the coast of eastern Australia, becoming less common further south. Inhabits rainforests, eucalypt woodlands, coastal scrub and damp gullies. It may be found in more open woodland when migrating.	None
Monarcha trivirgatus	Spectacled Monarch	-	M	Coastal north-eastern and eastern Australia, including coastal islands, from Cape York, Queensland to Port Stephens, New South Wales. Prefers thick understorey in rainforests, wet gullies and waterside vegetation, as well as mangroves.	None
Motacilla flava	Yellow Wagtail	-	M	Breeds in temperate Europe and Asia. The Yellow Wagtail is a regular wet season visitor to northern Australia. Increasing records in NSW suggest this species is an occasional but regular summer visitor to the Hunter River region. The species is considered a vagrant to Victoria, South Australia and southern Western Australia. Habitat requirements for the Yellow Wagtail are highly variable, but typically include open grassy flats near water. Habitats include open areas with low vegetation such as grasslands, airstrips, pastures, sports fields; damp open areas such as muddy or grassy edges of wetlands, rivers, irrigated farmland, dams, waterholes; sewage farms, sometimes utilise tidal mudflats and edges of mangroves.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Myiagra cyanoleuca	Satin Flycatcher	-	M	The Satin Flycatcher is found along the east coast of Australia from far northern Queensland to Tasmania, including south-eastern South Australia. Found in tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests.	None
Ninox connivens	Barking Owl	V	-	Generally found in open forests, woodlands, swamp woodlands and dense scrub. Can also be found in the foothills and timber along watercourses in otherwise open country.	None
Ninox strenua	Powerful Owl	V	-	Occupies wet and dry eucalypt forests and rainforests. Can occupy both un-logged and lightly logged forests as well as undisturbed forests where it usually roosts on the limbs of dense trees in gully areas. It is most commonly recorded within turpentine tall open forests and black she-oak within open forests. Large mature trees with hollows at least 0.5 m deep are required for nesting. Tree hollows are particularly important for the Powerful Owl because a large proportion of the diet is made up of hollow-dependent arboreal marsupials. Nest trees for this species are usually emergent with a diameter at breast height of at least 100 cm.	None
Numenius madagascariensis	Eastern Curlew	-	CE, M	A primarily coastal distribution. Found in all states, particularly the north, east, and south-east regions including Tasmania. Rarely recorded inland. Mainly forages on soft sheltered intertidal sand flats or mudflats, open and without vegetation or cover.	None
Petroica boodang	Scarlet Robin	V	-	The Scarlet Robin is found from SE Queensland to SE South Australia and also in Tasmania and SW Western Australia. In NSW, it occurs from the coast to the inland slopes. The Scarlet Robin lives in dry eucalypt forests and woodlands. The understorey is usually open and grassy with few scattered shrubs.	None
Polytelis swainsonii	Superb Parrot	V	V	The Superb Parrot is found throughout eastern inland NSW. On the South-western Slopes their core breeding area is roughly bounded by Cowra and Yass in the east, and Grenfell, Cootamundra and Coolac in the west. Birds breeding in this region are mainly absent during winter, when they migrate north to the region of the upper Namoi and Gwydir Rivers. Inhabits box-gum, box-cypress-pine and boree woodlands and river red gum forest.	None
Ptilinopus superbus	Superb Fruit-dove	V	-	The Superb Fruit-dove occurs principally from north-eastern in Queensland to north-eastern NSW. It is much less common further south, where it is largely confined to pockets of suitable habitat as far south as Moruya. There are records of vagrants as far south as eastern Victoria and Tasmania. 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.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Rhipidura rufifrons	Rufous Fantail	-	M	Found along the east coast of Australia from far northern Queensland to Tasmania, including south-eastern South Australia. Inhabits tall forests, preferring wetter habitats such as heavily forested gullies, but not rainforests.	None
Rostratula australis	Australian Painted Snipe	E	E, MA	In NSW, this species has been recorded at the Paroo wetlands, Lake Cowell, Macquarie Marshes and Hexham Swamp. Most common in the Murray-Darling Basin. Prefers fringes of swamps, dams and nearby marshy areas where there is a cover of grasses, lignum, low scrub or open timber. Nests on the ground amongst tall vegetation, such as grasses, tussocks or reeds.	None
Thalassarche cauta (sensu stricto), Thalassarche cauta cauta	Shy Albatross, Tasmanian Shy Albatross	V	V, M, MA	The Shy Albatross is a marine species occurring in subantarctic and subtropical waters, reaching the tropics in the cool Humboldt Current off South America.	None
Thalassarche melanophris	Black-browed Albatross	V	V, M, MA	The Black-browed Albatross has a circumpolar range over the southern oceans, and are seen off the southern Australian coast mainly during winter. Inhabits antarctic, subantarctic, subtropical marine and coastal waters over upwellings and boundaries of currents.	None
Tyto novaehollandiae	Masked Owl	V	-	Inhabits a diverse range of wooded habitat that provide tall or dense mature trees with hollows suitable for nesting and roosting. Mostly recorded in open forest and woodlands adjacent to cleared lands. Nest in hollows, in trunks and in near vertical spouts or large trees, usually living but sometimes dead. Nest hollows are usually located within dense forests or woodlands. Masked owls prey upon hollow-dependent arboreal marsupials, but terrestrial mammals make up the largest proportion of the diet.	None
Tyto tenebricosa	Sooty Owl	V	-	Often found in tall old-growth forests, including temperate and subtropical rainforests. In NSW mostly found on escarpments with a mean altitude less than 500 m. Nests and roosts in hollows of tall emergent trees, mainly eucalypts often located in gullies. Nests have been located in trees 125 to 161 cm in diameter.	None
Invertebrates					
Pommerhelix duralensis	Dural Woodland Snail	-	E	The species is a shale-influenced habitat specialist, which occurs in low densities along the northwest fringes of the Cumberland Plain on shale-sandstone transitional landscapes.	None
Mammals					

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Cercartetus nanus	Eastern Pygmy-possum	V	-	Inhabits rainforest through to sclerophyll forest and tree heath. Banksias and myrtaceous shrubs and trees are a favoured food source. Will often nest in tree hollows, but can also construct its own nest. Because of its small size it is able to utilise a range of hollow sizes including very small hollows. Individuals will use a number of different hollows and an individual has been recorded using up to 9 nest sites within a 0.5 ha area over a 5 month period.	None
Chalinolobus dwyeri	Large-eared Pied Bat	V	V	Located in a variety of drier habitats, including the dry sclerophyll forests and woodlands to the east and west of the Great Dividing Range. Can also be found on the edges of rainforests and in wet sclerophyll forests. This species roosts in caves and mines in groups of between 3 and 37 individuals.	None
Dasyurus maculatus maculatus	Spotted-tailed Quoll	V	E	Spotted-tailed Quoll are found on the east coast of NSW, Tasmania, eastern Victoria and north-eastern Queensland. Only in Tasmania is it still considered common. 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.	None
Falsistrellus tasmaniensis	Eastern False Pipistrelle	V	-	Inhabit sclerophyll forests, preferring wet habitats where trees are more than 20 m high. Two observations have been made of roosts in stem holes of living eucalypts. There is debate about whether or not this species moves to lower altitudes during winter, or whether they remain sedentary but enter torpor. This species also appears to be highly mobile and records showing movements of up to 12 km between roosting and foraging sites.	None
Isoodon obesulus obesulus	Southern Brown Bandicoot (eastern)	E	E	Prefers sandy soils with scrubby vegetation and-or areas with low ground cover that are burn from time to time. A mosaic of post fire vegetation is important for this species.	None
Miniopterus australis	Little Bentwing-bat	V	-	Coastal north-eastern NSW and eastern Queensland. Little Bentwing-bat is an insectivorous bat that roost in caves, in old mines, in tunnels, under bridges, or in similar structures. They breed in large aggregations in a small number of known caves and may travel 100s km from feeding home ranges to breeding sites. Little Bentwing-bat has a preference for moist eucalypt forest, rainforest or dense coastal banksia scrub where it forages below the canopy for insects.	None
Miniopterus schreibersii oceanensis	Eastern Bentwing-bat	V	-	Eastern Bentwing-bats occur along the east and north-west coasts of Australia. Caves are the primary roosting habitat, but also use derelict mines, storm-water tunnels, buildings	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
				and other man-made structures. Form discrete populations centred on a maternity cave that is used annually in spring and summer for the birth and rearing of young.	
Mormopterus norfolkensis	Eastern Freetail-bat	V	-	Most records are from dry eucalypt forests and woodlands to the east of the Great Dividing Range. Appears to roost in trees, but little is known of this species' habits.	None
Petauroides volans	Greater Glider	-	V	The greater glider is restricted to eastern Australia, occurring from the Windsor Tableland in north Queensland through to central Victoria. It is typically found in highest abundance in taller, montane, moist eucalypt forests with relatively old trees and abundant hollows.	None
Petrogale penicillata	Brush-tailed Rock-wallaby	E	V	Found in rocky areas in a wide variety of habitats including rainforest gullies, wet and dry sclerophyll forest, open woodland and rocky outcrops in semi-arid country. Commonly sites have a northerly aspect with numerous ledges, caves and crevices.	None
Phascolarctos cinereus	Koala	V	V	Inhabits eucalypt forests and woodlands. The suitability of these forests for habitation depends on the size and species of trees present, soil nutrients, climate and rainfall.	None
Pseudomys novaehollandiae	New Holland Mouse	-	V	The New Holland Mouse currently has a disjunct, fragmented distribution across Tasmania, Victoria, New South Wales and Queensland. Across the species' range the New Holland Mouse is known to inhabit open heathlands, open woodlands with a heathland understorey, and vegetated sand dunes.	None
Pteropus poliocephalus	Grey-headed Flying-fox	V	V	This species is a canopy-feeding frugivore and nectarivore of rainforests, open forests, woodlands, melaleuca swamps and banksia woodlands. Bats commute daily to foraging areas, usually within 15 km of the day roost although some individuals may travel up to 70 km.	None
Saccolaimus flaviventris	Yellow-bellied Sheathtail-bat	V	-	Roosts singly or in groups of up to six, in tree hollows and buildings; in treeless areas they are known to utilise mammal burrows. When foraging for insects, flies high and fast over the forest canopy, but lower in more open country. Forages in most habitats across its very wide range, with and without trees; appears to defend an aerial territory.	None
Scoteanax rueppellii	Greater Broad-nosed Bat	V	-	Prefer moist gullies in mature coastal forests and rainforests, between the Great Dividing Range and the coast. They are only found at low altitudes below 500 m. In dense environments they utilise natural and human-made opening in the forest for flight paths. Creeks and small rivers are favoured foraging habitat. This species roosts in hollow tree trunks and branches.	None
Reptiles					

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Hoplocephalus bungaroides	Broad-headed Snake	E	V	Occurs almost exclusively in association with communities occurring on Triassic sandstone within the Sydney Basin. Typically found among exposed sandstone outcrops with vegetation types ranging from woodland to heath. Within these habitats they spend most of the year sheltering in and under rock crevices and exfoliating rock. However, some individuals will migrate to tree hollows to find shelter during hotter parts of summer.	None
Varanus rosenbergi	Rosenberg's Goanna	V	-	This species is a Hawkesbury-Narrabeen sandstone outcrop specialist. Occurs in coastal heaths, humid woodlands and both wet and dry sclerophyll forests.	None
Flora					
Acacia bynoeana	Bynoe's Wattle	E	V	Grows mainly in heath and dry sclerophyll forest in sandy soils. Mainly south of Dora Creek-Morisset area to Berrima and the Illawarra region, west to the Blue Mountains, also recorded from near Kurri Kurri in the Hunter Valley and from Morton National Park.	None
Acacia gordonii		E	E	Restricted to the north-west of Sydney, with a disjunct distribution occurring in the lower Blue Mountains in the west, and in the Maroota-Glenorie area in the east. Grows in dry sclerophyll forest and heathlands amongst or within rock platforms on sandstone outcrops.	None
Acacia pubescens	Downy Wattle	V	V	Concentrated around the Bankstown-Fairfield-Rookwood area and the Pitt Town area, with outliers occurring at Barden Ridge, Oakdale and Mountain Lagoon. Occurs on alluviums, shales and at the intergrade between shales and sandstones. The soils are characteristically gravely soils, often with ironstone. Grows in open woodland and forest, in a variety of plant communities, including Cooks River-Castlereagh Ironbark forest, Shale-Gravel Transition forest and Cumberland Plain woodland.	None
Allocasuarina glareicola		E	E	Primarily restricted to the Richmond (NW Cumberland Plain) district, but with an outlier population found at Voyager Point, Liverpool. Grows in Castlereagh woodland on lateritic soil. Found in open woodland with Parramatta Red Gum, Broad-leaved Ironbark, Narrow-leaved Apple, Scribbly Gum and Paperbarks.	None
Asterolasia elegans		E	E	Occurs north of Sydney, in the Baulkham Hills, Hawkesbury and Hornsby local government areas. Also likely to occur in the western part of Gosford local government area. Known from only seven populations, only one of which is wholly within a conservation reserve. Occurs on Hawkesbury sandstone in sheltered forests on mid- to lower slopes and valleys, e.g. in or adjacent to gullies which support sheltered forest.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Caladenia tessellata	Thick-lip Spider Orchid	E	V	The Tessellated Spider Orchid is found in grassy sclerophyll woodland on clay loam or sandy soils, though the population near Braidwood is in low woodland with stony soil. Known from the Sydney area (old records), Wyong, Ulladulla and Braidwood in NSW. Populations in Kiama and Queanbeyan are presumed extinct.	None
Callistemon linearifolius	Netted Bottle Brush	V	-	Recorded from the Georges River to Hawkesbury River in the Sydney area, and north to the Nelson Bay area of NSW. Recorded in 2000 at Coalcliff in the northern Illawarra. For the Sydney area, recent records are limited to the Hornsby Plateau area near the Hawkesbury River. Grows in dry sclerophyll forest on the coast and adjacent ranges.	None
Cryptostylis hunteriana	Leafless Tongue-orchid	V	V	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, Silvertop Ash, Red Bloodwood and Black She-oak and appears to prefer open areas in the understorey of this community.	None
Darwinia biflora		V	V	Recorded in Ku-ring-gai, Hornsby, Baulkham Hills and Ryde local government areas. The northern, southern, eastern and western limits of the range are at Maroota, North Ryde, Cowan and Kellyville, respectively. Occurs on the edges of weathered shale-capped ridges, where these intergrade with Hawkesbury Sandstone. The vegetation structure is usually woodland, open forest or scrub-heath.	None
Darwinia peduncularis		V	-	Occurs as local disjunct populations in coastal NSW with a couple of isolated populations in the Blue Mountains. It has been recorded from Brooklyn, Berowra, Galston Gorge, Hornsby, Bargo River, Glen Davis, Mount Boonbourwa and Kings Tableland. Usually grows on or near rocky outcrops on sandy, well drained, low nutrient soil over sandstone.	None
Deyeuxia appressa		E	E	A highly restricted NSW endemic known only from two pre-1942 records in the Sydney area (Herne Bay, Saltpan Creek, off the Georges River, south of Bankstown and Killara, near Hornsby). Almost nothing is known about the species' habitat and ecology. Flowers spring to summer and is mesophilic (grows in moist conditions).	None
Epacris purpurascens var. purpurascens		V	-	Recorded from Gosford in the north, to Narrabeen in the east, Silverdale in the west and Avon Dam vicinity in the South. Found in a range of habitat types, most of which have a strong shale soil influence.	None
Eucalyptus camfieldii	Heart-leaved Stringybark	V	V	Restricted distribution in a narrow band with the most northerly records in the Raymond Terrace Area south to Waterfall. Poor coastal country in shallow sandy soils overlying Hawkesbury sandstone. Coastal heath mostly on exposed sandy ridges. Occurs mostly in	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
				small scattered stands near the boundary of tall coastal heaths and low open woodland of the slightly more fertile inland areas.	
Eucalyptus nicholii	Narrow-leaved Black Peppermint	V	V	Typically grows in dry grassy woodland, on shallow soils of slopes and ridges. Found primarily on infertile soils derived from granite or metasedimentary rock. Seedling recruitment is common, even in disturbed soils, if protected from grazing and fire.	None
Galium australe		E	-	Widespread in Victoria and is also found in South Australia and Tasmania. Once regarded as presumed extinct in NSW, this species is now known from the Towamba Valley near Bega, Lake Yarrunga near Kangaroo Valley, Cullendulla Creek Nature Reserve near Batemans Bay, Conjola National Park, Swan Lake near Swanhaven, and the Big Hole in Deua National Park. Grows in moist gullies of tall forest, Eucalyptus tereticornis forest, coastal Banksia shrubland, and Allocasuarina nana heathland. In other States the species is found in a range of near-coastal habitats, including sand dunes, sand spits, shrubland and woodland.	None
Genoplesium baueri	Bauer's Midge Orchid	E	E	Grows in dry sclerophyll forest and moss gardens over sandstone. Flowers February to March. Has been recorded between Ulladulla and Port Stephens. Currently the species is known from just over 200 plants across 13 sites. The species has been recorded in Berowra Valley Regional Park, Royal National Park and Lane Cove National Park and may also occur in the Woronora, O'Hares, Metropolitan and Warragamba Catchments.	None
Genoplesium plumosum	Tallong Midge Orchid	CE	E	Occurs exclusively in heathland, generally dominated by Violet Kunzea, Common Fringe-mytre and Parrot-peas. Grows on very shallow soils or within mosses on sandstone conglomerate shelves. Plants exists only as a dormant tuber for much of the year, with leaves or fruiting stems dying back in winter. Reproduces by seed and has no mechanism for vegetative reproduction.	None
Grammitis stenophylla	Narrow-leaf Finger Fern	E	-	Moist places, usually near streams, on rocks or in trees, in rainforest and moist eucalypt forest.	None
Grevillea caleyi	Caley's Grevillea	E	E	Restricted to an 8 km square area around Terrey Hills, approximately 20 km north of Sydney. Occurs in three major areas of suitable habitat, namely Belrose, Ingleside and Terrey Hills-Duffys forest within the Ku-ring-gai, Pittwater and Warringah Local Government Areas. All sites occur on the ridgetop between elevations of 170 to 240 metres, in association with laterite soils and a vegetation community of open forest,	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
				generally dominated by Silvertop Ash and Red Bloodwood. Commonly found in the endangered Duffys forest ecological community.	
Grevillea shiressii	*Grevillea shiressii*	V	V	Grows along creek banks in wet sclerophyll forest with a moist understorey in alluvial sandy or loamy soils.	None
Haloragis exalata subsp. exalata	Square Raspwort	V	V	Occurs in 4 widely scattered localities in eastern NSW. It is disjunctly distributed in the central coast, south coast and north-western slopes botanical subdivisions of NSW. The species appears to require protected and shaded damp situations in riparian habitats.	None
Haloragodendron lucasii		E	E	Occurs on Hawkesbury Sandstone in moist sandy loam soil. The species prefers sheltered aspects and inhabits gentle slopes below cliff lines near creeks in low open woodland or open forest. Its distribution is correlated with high soil moisture and phosphorus levels.	None
Hibbertia spanantha	Julian's Hibbertia	CE	CE	Endemic to NSW where it is restricted to three locations. Grows in forest with canopy species including blackbutt, red mahogany, red bloodwood and smooth-barked apple. The understorey is open with species of Poaceae, Orchidaceae, Fabaceae and Liliaceae.	None
Hibbertia superans	*Hibbertia superans*	E	-	Flowering time is July to December. The species occurs on sandstone ridgetops often near the shale-sandstone boundary. Occurs in both open woodland and heathland, and appears to prefer open disturbed areas, such as tracksides.	None
Kunzea rupestris	*Kunzea rupestris*	V	V	Grows in shallow depressions on large flat sandstone rock outcrops. Characteristically found in short to tall shrubland or heathland.	None
Lasiopetalum joyceae		V	V	Grows in heath on sandstone.	None
Leptospermum deanei	Deane’s Tea-tree	V	V	Woodland on lower hill slopes or near creeks. Sandy alluvial soil or sand over sandstone. Occurs in riparian scrub, woodland and open forest.	None
Melaleuca biconvexa	Biconvex Paperbark	V	V	Grows in damp places, often near streams or low-lying areas on alluvial soils of low slopes or sheltered aspects. Scattered and dispersed populations found in the Jervis Bay area in the south and the Gosford-Wyong area in the north.	None
Melaleuca deanei	Deane's Melaleuca	V	V	Grows in wet heath on sandstone in coastal districts from Berowra to Nowra.	None
Pelargonium sp. Striatellum	Omeo's Stork's-bill	E	E	Flowering occurs from October to March. Occurs in habitat usually located just above the high water level of irregularly inundated or ephemeral lakes. During dry periods, the species is known to colonise exposed lake beds. The species is known to form clonal colonies by rhizomatous propagation.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Persoonia hirsuta	Hairy Geebung	E	E	Distributed from Singleton in the north, along the east coast to Bargo in the south and the Blue Mountains to the west. A large area of occurrence, but occurs in small populations, increasing the species' fragmentation in the landscape. Found in sandy soils in dry sclerophyll open forest, woodland and heath on sandstone. Usually present as isolated individuals or very small populations. Probably killed by fire (as other *Persoonia* spp. are) but will regenerate from seed.	None
Persoonia mollis subsp. maxima	*Persoonia mollis subsp. maxima*	E	E	Occurs in sheltered aspects of deep gullies or on the steep upper hillsides of narrow gullies on Hawkesbury Sandstone. These habitats support relatively moist, tall forest vegetation communities, often with warm temperate rainforest influences. Flowers are likely to be pollinated predominantly by native bees. Self-pollination is usually unsuccessful.	None
Persoonia nutans	Nodding Geebung	E	E	Confined to aeolian and alluvial sediments and occurs in a range of sclerophyll forest and woodland vegetation communities, with the majority of individuals occurring within Agnes Banks woodland or Castlereagh Scribbly Gum woodland. Restricted to the Cumberland Plain in western Sydney, between Richmond in the north and Macquarie Fields in the south.	None
Pimelea curviflora var. curviflora		V	V	Confined to the coastal area of Sydney between northern Sydney in the south and Maroota in the north-west. Former range extended south to the Parramatta River and Port Jackson region including Five Dock, Bellevue Hill and Manly. Occurs on shale-lateritic soils over sandstone and shale-sandstone transition soils on ridgetops and upper slopes amongst woodlands.	None
Pimelea spicata	Spiked Rice-flower	E	E	Once widespread on the Cumberland Plain, the Spiked Rice-flower occurs in two disjunct areas; the Cumberland Plain (Narellan, Marayong, Prospect Reservoir areas) and the Illawarra (Landsdowne to Shellharbour to northern Kiama). In both the Cumberland Plain and Illawarra environments this species is found on well-structured clay soils. On the inland Cumberland Plain sites it is associated with grey box and Ironbark. In the coastal Illawarra it occurs commonly in Coast Banksia open woodland with a better developed shrub and grass understorey.	None
Prostanthera marifolia		CE	CE	Occurs in localised patches in or in close proximity to the endangered Duffys forest ecological community. Located on deeply weathered clay-loam soils associated with ironstone and scattered shale lenses, a soil type which only occurs on ridge tops and has been extensively urbanised.	None

Scientific name	Common name	TSC Act	EPBC Act	Habitat	Likelihood of occurrence
Pterostylis nigricans		V	-	Coastal heathland with heath banksia, and lower-growing heath with lichen-encrusted and relatively undisturbed soil surfaces, on sandy soils.	None
Pterostylis saxicola	Sydney Plains Greenhood	E	E	Restricted to western Sydney between Freemans Reach in the north and Picton in the south. Most commonly found growing in small pockets of shallow soil in depressions on sandstone rock shelves above cliff lines. The vegetation communities above the shelves where *Pterostylis saxicola* occurs are sclerophyll forest or woodland on shale-sandstone transition soils or shale soils.	None
Syzygium paniculatum	Magenta Lilly Pilly	E	V	Found only in NSW, in a narrow, linear coastal strip from Bulahdelah to Conjola State forest. On the south coast the species occurs on grey soils over sandstone, restricted mainly to remnant stands of littoral rainforest. On the central coast it occurs on gravels, sands, silts and clays in riverside gallery rainforests and remnant littoral rainforest communities	None
Tetratheca glandulosa	Tetratheca glandulosa	V	-	Associated with shale-sandstone transition habitat where shale-cappings occur over sandstone, with associated soil landscapes such as Lucas Heights, Gymea, Lambert and Faulconbridge. Topographically, the plant occupies ridgetops, upper-slopes and to a lesser extent mid-slope sandstone benches. Soils are generally shallow, consisting of a yellow, clayey-sandy loam. Stony lateritic fragments are also common in the soil profile on many of these ridgetops. Vegetation structure varies from heaths and scrub to woodlands-open woodlands, and open forest.	None
Thesium australe	Austral Toadflax	V	V	Grows in very small populations scattered across eastern NSW, along the coast, and from the Northern to Southern Tablelands. It is also found in Tasmania and Queensland and in eastern Asia. Occurs in grassland or grassy woodland. Grows on kangaroo grass tussocks but has also been recorded within the exotic Coolatai grass.	None
Triplarina imbricata	Creek Triplarina	E	E	Found only in a few locations in the ranges south-west of Glenreagh and near Tabulam in north-east NSW. Along watercourses in low open forest with water gum.	None

Appendix 2 – Site photographs

Plate 1. Large *Angophora costata* (to be retained) and typical garden bed vegetation to be removed

Plate 2. Planted native vegetation in a garden bed on the western boundary fence of the study area

Plate 3. Planted native vegetation with in a garden bed and mown lawn on the western boundary fence of the study area

Plate 4. Large hollow-bearing *Angophora costata* on the northern boundary fence to be retained

Plate 5. Large Brush Box within the concreted area towards the centre of the development site