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The Horsley Drive Business Park
Smithfield

Proposed Industrial Development

Ecological Issues & Assessment Report

6th June 2012

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The HORSLEY DRIVE BUSINESS PARK
SMITHFIELD

PROPOSED INDUSTRIAL DEVELOPMENT

ECOLOGICAL ISSUES & ASSESSMENT REPORT

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**The HORSLEY DRIVE BUSINESS PARK
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PART A	INTRODUCTION & INFORMATION BASE
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1 INTRODUCTION

1.1 Background

The subject land comprises approximately 21 hectares of abandoned rural land to the northwest of the intersection of The Horsley Drive and Cowpasture Road, at Smithfield (Figures 1 and 2). The land is part of the Western Sydney Parklands, and is administered by the Western Sydney Parklands Trust (Figure 3). The subject land is located approximately 30 kilometres to the northwest of the Sydney Central Business District (CBD), within the Fairfield City Council *Local Government Area* (LGA).

The subject land is roughly rectangular in shape (Figure 2), and is adjoined by:

- similarly abandoned rural land to the north;
- Cowpasture Road along its eastern boundary;
- The Horsley Drive along its southern boundary; and
- the Sydney Water Pipeline along its western boundary.

The subject land is highly disturbed and comprises a number of large rural lots, with some previously subdivided smaller lots along The Horsley Drive:

- Part Lots 23 and 24, as well as Lots 25, 28B, 30, 30A, 30B, 32 and 32A in DP 13961;
- Lots 1-5 in DP 1098128;
- Lot 100 in DP 879680;
- Lot C in DP 103755;
- Lot 10 in DP 879209; and
- Lot 1 in DP 1036933.

Most of the subject land has long been cleared for agricultural and other purposes, and is in a highly modified and generally degraded condition. There are two existing dwellings, one along the southern boundary in its centre and the other along the eastern boundary just north of the roundabout along Cowpasture Road.

The subject land is part of the Western Sydney Regional Parklands, and is not zoned in the Fairfield *Local Environment Plan* (LEP). Rather, the land is subject to *State Environmental Planning Policy (Western Sydney Parklands) 2009*, which identifies the land as 'unzoned'.

1.2 The Western Sydney Parklands

The subject land is part of the Western Sydney Parklands, which incorporates plans for a variety of land uses in a narrow band of land along the M7 Motorway, from Woodcroft in the north to Leppington in the south (Figure 3). The Western Sydney Parklands covers a total area of 5,280 hectares, making it the largest urban parkland system in Australia. The *Western Sydney Parklands Plan of Management 2020* (the PoM) has been prepared by the Western Sydney Parklands Trust to guide the management and development of the Parklands.

The PoM divides the Parklands into 16 *Management Precincts*, and the subject land is located in the southeastern corner of Precinct 9 (Horsley Park). The Horsley Park Precinct is intended for development as predominately an urban farming precinct, with a bushland corridor (involving regeneration of native woodland) along Eastern Creek, near its western boundary.

The *Plan of Management* (PoM) for the Parklands identifies a number of gazetted *Conservation Areas* (Figure 3), including:

- Nurragingy Reserve - to the north of the M4 Motorway;
- Prospect Reservoir Nature Reserve - to the northeast of the subject land;
- Western Sydney Regional Park - to the southwest of the subject land;
- Kemps Creek Nature Reserve - to the west of the M7 Motorway; and
- various smaller reserves scattered throughout lands in the southern tip of the Parklands.

These *Conservation Areas* are to be connected by bush regeneration works in a “*bushland corridor*” identified in the PoM. The Western Sydney Parklands Trust has identified 2,006 hectares of the Parkland which are to be dedicated for natural and cultural heritage conservation purposes. The subject land has not been identified for either of these ‘conservation’ or ‘corridor’ land uses.

1.3 Proposed Development

The proposed development is for an eco-business park (referred to as The Horsley Drive Business Park), including the subdivision and subsequent development of the subject site into 11 large lots. The proposed development will be undertaken in three stages, and will include the construction of an access road off the western side of the existing roundabout on Cowpasture Road, as well as a small ‘on site detention’ (OSD) basin in the southeastern corner of the site (Figure 4), and a larger detention basin in the northeastern corner (the location of which is to be indicated on the *Final Plans* submitted with the final application package).

The majority of the subject land is intended for industrial development, which would entail the future construction of buildings and associated infrastructure. The proposal would also involve the removal of essentially all vegetation within that area, although a few trees on lot boundaries or on road verges could, in some instances, be retained.

The PoM also identifies the leasing of up to 2% of the Parklands area for business purposes, in order to generate income to manage and/or rehabilitate the remainder of the land. Consequently, the proposed eco-business park is consistent with the aims and objectives of the Western Sydney Parklands PoM.

The proposal is identified as *State Significant Development* (SSD), and is consequently the subject of *Director-General's Requirements* (DGRs) provided by the Department of Planning & Infrastructure (DoPI), on the 17th of February 2012.

1.4 Definitions

Definitions used in this *Report* (Figure 2) include:

- *subject land* 18 rural lots along The Horsley Drive and Cowpasture Road at Smithfield (including Part Lots 23 and 24, as well as Lots 25, 28B, 30, 30A, 30B, 32 and 32A in DP 13961; Lots 1-5 in DP 1098128; Lot 100 in DP 879680; Lot C in DP 103755; Lot 10 in DP 879209; and Lot 1 in DP 1036933.)
- *subject site* that portion of the “*subject land*” which is proposed for development purposes (Figure 4 and *Final Plans* submitted with the application package)
- *study area* The Western Sydney Regional Parklands, in Western Sydney (Figure 3)
- *locality* an area of 10km radius around the “*subject land*”

1.5 Scope and Aims of this Report

The *Director-General's Requirements* (DGRs) for the proposed development of the subject land at Smithfield requests the following information with regard to addressing flora and fauna impacts:

- “Undertake a fauna and flora survey of the site in accordance with *OEH Threatened Species Survey and Assessment Guidelines*”;
- “Address impacts on flora and fauna, including threatened species, populations and endangered ecological communities and their habitats and steps taken to mitigate any identified impacts to protect the environment”; and
- “Any impacts on threatened species, populations and endangered ecological communities that cannot be avoided or mitigated must be adequately offset in accordance with *OEH Principles for the Use of Biodiversity Offsets in NSW*”.

The aims of this *Ecological Issues & Assessment Report* with respect to the subject land at The Horsley Drive, Smithfield are:

- to satisfy the DGRs with respect to flora and fauna issues (see above);
- to undertake a survey to identify the flora and fauna species present and/or likely to occur on the land;
- to assess the likely impacts of the proposed future development of the land on the natural environment in general and on threatened biota in particular; and
- to undertake a detailed assessment of likely impacts pursuant to:
 - the *Environmental Planning & Assessment Act 1979* (EP&A Act);
 - the *Threatened Species Conservation Act 1995* (TSC Act); and
 - the *State Environmental Planning Policy (Western Sydney Parklands) 2009*.

Consideration of the *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act 1999) is also provided. It should be noted, however, that the EPBC Act is not a matter to be determined by a consent authority in determining a *Development Application* (DA) pursuant to NSW planning legislation.

2 INFORMATION BASE

Existing information regarding relevant threatened and other native biota was also obtained from:

- previous investigations undertaken by Gunninah Environmental Consultants and Environmental InSites on lands in the vicinity of the subject land (eg at Council's SRC Recycling Plant in Wetherill Park - SLR Ecology 2012);
- inspection of the OEH¹ Atlas of NSW Wildlife records for the locality (Appendix B);
- inspection of the NPWS (2002) vegetation mapping of the locality (Figure 5); and
- the general published literature on threatened biota (see *Bibliography*).

A site inspection was undertaken on the 4th of April 2012 by two SLR ecologists to provide specific observations for this *Report*. In particular, each patch of native vegetation was inspected, involving targeted surveys for threatened species and their habitats, as well as a detailed review of the vegetation mapping which had been undertaken previously (NPWS 2002).

Given the nature of vegetation on the subject land, quadrat sampling was not considered appropriate or necessary for this survey. Sampling of the native vegetation was undertaken using the 'Random Meander' technique (*sensu* Cropper 1993), with directed walked surveys through patches of relevant vegetation.

¹ The OEH (Office of Environment & Heritage), which is part of the Department of Premier & Cabinet, and which incorporates most of the former DECCW and includes the National Parks & Wildlife Service (NPWS).

3 EXISTING ENVIRONMENT

The subject land is located within an old rural-agricultural and rural-residential area in western Sydney, much of which has been developed into new industrial and residential suburbs, such as Wetherill Park industrial precinct to the east and Bossley Park to the southeast (Figure 1). Accordingly, much of the land at this location is already largely cleared, either as a result of the past agricultural and rural-residential land uses or for the present residential and industrial developments.

The vegetation (*albeit* scattered and highly disturbed and, in some instances, no longer present at all) on the site and in the vicinity of the subject land had been mapped by the NPWS (2002) as:

- Shale Hills Woodland;
- Shale Plains Woodland;
- Shale Sandstone Transition Forest;
- Turpentine-Ironbark Forest (including marginal); and
- Alluvial Woodland along the rivers, creeks and streams (Figure 5).

The majority of this vegetation is mapped by the NPWS as having a <10% cover, and being small patches of degraded vegetation. Given the location and circumstances of the vegetation present across the study area, some small patches of that vegetation could (in part at least) constitute Cumberland Plain Woodland, Swamp Oak Floodplain Forest and/or River-flat Eucalypt Forest (see Chapter 4.4), which are all “*threatened ecological communities*” listed in the TSC Act and/or EPBC Act.

As discussed above, the subject land is unkempt and degraded farming land, which has been totally cleared in the past and contains large areas of noxious exotic weeds. The southern part of the subject land is somewhat elevated and xeric in nature, with two rural dwellings and surrounding paddocks of overgrown lawn and pasture grasses. Whilst there are a few scattered native trees and small patches of regrowth native trees across this part of the site, the majority of the land is dominated by unkempt paddocks of Couch with scattered African Olive and other exotic paddock trees.

The northern part of the subject land is low-lying in nature, with four small farm dams and various drainage swales and overland flow paths, most of which are heavily infested by Blackberry. Whilst Blackberry, Couch and other exotic weeds cover the vast majority of this part of the site, there are a few small and isolated patches which contain disturbed native vegetation.

There are no outstanding natural features on the subject land (Appendix A).

4 FLORA and VEGETATION

4.1 Existing vegetation

The NPWS have identified the majority of the subject land as containing 'no native vegetation', and this is confirmed by aerial photography and site inspection. The only native vegetation mapped by the NPWS within the subject land is a small patch of Shale Hills Woodland with less than 10% cover near the northern boundary. This vegetation patch could constitute the Cumberland Plain Woodland (CPW) which is a "*critically endangered ecological community*" listed in the TSC Act and EPBC Act.

The subject site is dominated by derelict rural land which has been used over a long period for small-scale agricultural and rural residential purposes. The whole of the subject land is highly modified and degraded, with southern half containing a slope of exotic pasture grassland, whilst the northern half of the site is lower and flatter land with overland flow paths and small dams, and large areas smothered by the noxious Blackberry weed.

The exotic pasture grassland is dominated by Couch in most places, although there are a few patches (mainly on hilltops), which are dominated Canary Grass and Fennel. Other regularly recorded widespread weeds include Purple Top, Pampas Grass, Morning Glory, Cobblers Peg, Spear Thistle, Fireweed, Dandelion and Small St John's Wort (Appendix D).

Scattered exotic trees through the exotic grassland include the noxious Coral Tree, African Olive and Privet, as well as old landscape garden specimens of Silky Oak, Canary Island Date Palm, Oleander, Loquat, Mexican Cypress, Oak, Bamboo and fruit trees. There are also a few isolated native tree specimens, and small copses, including occasional regrowth Forest Red Gum, Grey Box, Parramatta Wattle and Blackthorn.

The low-lying areas contain scattered individuals and large dense patches of the noxious Blackberry. A few patches of trees and/or scattered individual specimens were observed within the Blackberry in areas, including patches of exotic African Olive and Lantana, as well as occasional native Fig, Sweet Pittosporum, Hickory Wattle, Spotted Gum, Grey Box and Forest Red Gum.

Two of the four dams were smothered to their banks by Blackberry thickets, making them inaccessible. Other weeds in and around the dams included the Water Hyacinth (which dominates the open water across the dams), Willow and Giant Reed (Appendix D).

The only areas of native vegetation (aside from the scattered individuals mentioned above) on the subject land (Figure 6) include:

- a patch of regrowth mixed eucalypt woodland, with a Blackthorn understorey, in the northern centre of the site; and
- a patch of Grey Box woodland along the eastern boundary of the site.

4.1.1 Regrowth Mixed Eucalypt Woodland

This patch of vegetation generally comprises a canopy of regrowth eucalypts from 2 to 15 metres in height (and approx 10-40cm DBH) and is dominated by a few larger specimens of Forest Red Gum and Spotted Gum (particularly in the eastern side of this patch), with smaller saplings of Rough-barked Apple and Narrow-leaved Ironbark (mainly in the western side of the patch).

There is a scatter of Blackthorn in the understorey, but no other native understorey species were observed. It is noted that access was limited to this patch of vegetation given the heavy thickets of surrounding Blackberry.

Some species characteristic of the “*critically endangered ecological community*” (CEEC) known as Cumberland Plain Woodland (CPW), which is listed in the TSC Act and EPBC Act, were amongst the trees present (see discussion in Chapter 4.4).

4.1.2 Grey Box Woodland

This vegetation is present along the eastern boundary of the subject land, and includes a number of semi-mature Grey Box trees, with a mostly exotic understorey, but some open areas containing an unusually high diversity of native groundcover specimens (for this site).

The eastern boundary of this patch of vegetation includes a steep bund off Cowpasture Road, dominated by thickets of Lantana, Privet and African Olive, which seem to protect the small patches of native groundcover vegetation along the western boundary of this patch of vegetation.

Native specimens included a few scattered Hickory Wattle and Blackthorn in the understorey, a few clumps of Kangaroo Grass, a patch of Weeping Grass, and scattered specimens of Climbing Saltbush, *Glycine clandestina* and Kidney Weed.

Some of these species are characteristic of the “*critically endangered ecological community*” (CEEC) known as Cumberland Plain Woodland (CPW), which is listed in the TSC Act and EPBC Act (see discussion in Chapter 4.4).

4.2 Flora Species

Random Meander and systematic botanical surveys conducted as part of this investigation have recorded a total of 66 plant species from within the subject land (Appendix D).

Of these, a total of 23 native species were recorded, along with 43 exotic species. A number of the native species, however, are either horticultural native specimens (such as the Silky Oak) or are considered to be introduced native weeds (such as Couch).

4.3 Threatened Biota

A search of the NPWS Wildlife Atlas for “*threatened species*” indicates that there are 17 species of flora which have been detected in the locality (Appendix B). The subject site could theoretically provide some potential habitat for two of these, the Downy Wattle *Acacia pubescens* and the Spiked Rice-flower *Pimelea spicata*.

The Downy Wattle occurs on alluviums, shales and at the intergrade between shales and sandstones. The soils in these locations are characteristically gravelly soils, often with ironstone. The species occurs 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 (NPWS 2003). The species is spreading shrub 1-4m high, easily identified by its brilliant yellow flowers,

bipinnate leaves and conspicuously hairy branchlets. The species is not likely to have been overlooked during the recent surveys of the subject site and is not present on the site.

In Western Sydney, the Spiked-rice Flower occurs on an undulating topography of substrates derived from Wianamatta Shale in areas of Cumberland Plain Woodland, typically characterised by Grey Box *Eucalyptus moluccana*, Forest Red Gum *E. tereticornis*, Narrow-leaved Ironbark *E. crebra*, Blackthorn *Bursaria spinosa* and Kangaroo Grass *Themeda Australis* (NPWS 2004).

The Spiked Rice-flower is a somewhat cryptic small shrub with smooth hairless stems and opposite narrow-elliptic to elliptic leaves 5–20mm long. The species is best identified by its white/pink flowers which occur sporadically throughout the year. Potentially suitable habitat for this species occurs within the tiny patch of native understorey within the Grey Box Woodland along the eastern boundary of the subject site. Some time was spent surveying the flora within this small patch and the Spiked Rice-flower was not detected, nor was any non-flowering species of similar appearance.

Despite dedicated searches of the limited areas of native vegetation on the subject land at Smithfield, and of the land generally, no “*threatened species*” of flora were recorded during the recent site inspection. Given the highly disturbed nature and artificial condition of the vegetation across the subject site and in its vicinity, and the long history of management (doubtless *inter alia* using fertilisers, irrigation and weed control), no suitable habitat for any such species is present.

No “*endangered populations*” of any flora species listed in the TSC Act were recorded on the subject land. *Marsdenia viridiflora* subsp. *viridiflora* and *Pomaderris prunifolia* were detected in the vicinity (Appendix B), but there is no suitable habitat for either of these species on the subject land.

The ‘Shale Plains Woodland’ community mapped by NPWS as being present on the subject land constitutes a “*critically endangered ecological communities*” (as listed in the TSC Act and EPBC Act) known as Cumberland Plain Woodland (CPW).

Ground-truthing of the NPWS (2002) vegetation mapping (which is an intrinsic and acknowledged limitation of that vegetation mapping) has determined that two small patches of vegetation on the subject land exhibit some characteristics of the CPW community.

4.4 Cumberland Plain Woodland

The vegetation on the subject land contains 16 vascular plant species that are listed as “*characteristic species*” in the *Final Determination* for the Cumberland Plain Woodland (CPW) community. However, the following observations are of particular relevance with respect to the nature of these records:

- most of the trees and shrubs are isolated specimens scattered across the heavily weed infested “*subject land*”;
- native groundcover specimens are not ‘dominant’ across the “*subject land*”, and have been replaced by turf (Common Couch) and/or pasture grasses and weeds in the past; and
- the native understorey and groundcover specimens are restricted to the two small patches of woodland, and there are only a few scattered specimens of any such species across the bulk of the “*subject land*” (Appendix A); and

The following points from the *Final Determination* are relevant in determining the presence or otherwise of CPW on the subject land:

- “Cumberland Plain Woodland is characterised by the assemblage of species listed in paragraph 3 [of the Final Determination] and typically comprises an open tree canopy, a near-continuous groundcover **dominated** by grasses and herbs, sometimes with layers of shrubs and/or small trees”;
- “small trees or saplings **may dominate** the community in relatively high densities after partial or total clearing, and the groundcover may be relatively sparse, especially where densities of trees or shrubs are high”;
- “Shrubs are typically scattered in the understorey but **may be absent** or locally dense as a result of clearing activity or changes in grazing or fire regimes ... *Bursaria spinosa* (Blackthorn) is usually dominant”;
- “The ground cover is **dominated by a diverse range of grasses** including *Aristida ramosa* (Purple Wiregrass), *A. vagans* (Threeawn Speargrass), *Cymbopogon refractus* (Barbed Wire Grass), *Dichelachne micrantha* (Plumegrass), *Echinopogon caespitosus* (Forest Hedgehog Grass), *Eragrostis leptostachya* (Paddock Lovegrass), *Microlaena stipoides* (Weeping Grass), *Paspalidium distans* and *Themeda australis* (Kangaroo Grass), and with graminoids *Carex inversa* (Knob Sedge), *Cyperus gracilis*, *Lomandra filiformis* subsp. *filiformis* (Wattle Mat-rush) and *L. multiflorus* subsp. *multiflorus* (Many-flowered Mat-rush)”; and
- “The **ground cover also includes a diversity of forbs** such as *Asperula conferta* (Common Woodruff), *Brunoniella australis* (Blue Trumpet), *Desmodium varians* (Slender Tick Trefoil), *Dianella longifolia* (Blue Flax Lily), *Dichondra repens* (Kidney Weed), *Opercularia diphylla*, *Oxalis perennans* and *Wahlenbergia gracilis* (Australian Bluebell), as well as scramblers, *Glycine* spp. and *Hardenbergia violacea* (Native Sarsaparilla) and the fern *Cheilanthes sieberi* (Poison Rock Fern)”.

Based on the above considerations, it is concluded that the vegetation on the “*subject land*” does not constitute the CPW community, because:

- whilst:
 - there is a canopy of “*scattered trees*”, which are “*characteristic*” of the CPW community in two small patches; and
 - there is a small patch groundcover which “*is dominated by native grasses*” and also “*includes a diversity of forbs*” at one location; and
 - are “*small trees or saplings*” and “*Bursaria spinosa*” which “*dominate*” the canopy and understorey of a small patch of vegetation in the central northern portion of the site; but
 - critically, the groundcover is not a “*near-continuous groundcover dominated by [native] grasses and herbs*” and is not “**dominated by a diverse range of [native] grasses**”;

Given the scarcity of native groundcover species (with only very small patches of native grasses or forbs), and the dominance of introduced pasture species and weeds in the groundcover layer, none of the vegetation present on the subject land at Smithfield is regarded as an example of the Cumberland Plain Woodland (CPW) community.

In this regard:

- the vegetation present does not satisfy the criteria identified for the “*critically endangered ecological community*” (CEEC) listed in the EPBC Act (because of the very small size of the patches and the very low diversity abundance of native understorey species); and
- the small patches of woodland present on the subject land do not contain a groundcover which is “**dominated** by the first range of [native] grasses” and does not include “a **diversity** of [native] forbs”, as required by the *Final Determination* for the CPW community as a CEEC in the TSC Act.

Whilst the very tiny patches of vegetation which are characterised by native groundcovers (as discussed above) could theoretically constitute the CPW community, these patches measure only a few square metres in area. They are surrounded by land which is dominated by introduced plant species and noxious weeds, and cannot be regarded as a functioning native community. Thus, even if those small patches were deemed to constitute the CPW CEEC, they cannot be regarded as a viable “*local occurrence*” of that community, and are of no conservation or biodiversity value.

5 FAUNA and FAUNA HABITATS

5.1 Fauna Habitats

The subject land at Smithfield is located in an increasingly densely populated part of Sydney which is largely urban and which has had a long history of intensive agricultural activity. The subject land is a series of large, derelict and heavily weed-infested open paddocks, with very few areas of partial or quasim native vegetation. The few small patches of degraded native woodland, and the occasional scattered eucalypts present on the subject land, are surrounded by dense thickets of Blackberry and Couch.

The subject land provides only very limited (and often artificial) habitat opportunities for native fauna, threatened or otherwise, and is unlikely to be utilised by any fauna groups other than highly mobile species and/or habitat generalists (such as some bats and birds). The fauna species observed during the site inspection on the 4th of April 2012 (Appendix E) attest to this observation. Only 12 native species (8 birds, 2 amphibians and 2 reptiles) were observed on the site, all of which are relatively common to abundant in urban and peri-urban environments.

There are very few mature trees on the subject land and only one (a dying Spotted Gum along the eastern boundary) appears to have a few small tree-hollows. Even if there were any hollow-bearing trees on the subject land (which is highly unlikely), they would only provide habitat for a very limited range of highly mobile fauna species, such as birds and bats.

Only two common frogs, the Common Eastern Froglet and Striped Marsh Frog, were recorded in parts of the drainage flow paths in the northwestern portion of the site. Given the dense thickets of Couch and Blackberry across this area, there is no particularly suitable habitat for the Green & Golden Bell Frog. In addition, the small dams in the northwestern portion of the site contained swarms of the Plague Minnow *Gambusia holbrookii*, a small exotic fish that consumes frog tadpoles and eggs. It is not likely that any frogs would be present in these dams.

There are no other habitat features or resources present which are of any particular significance for any native fauna, threatened or otherwise. The nature, condition and context of the subject land render it of value only for abundant, widespread, cosmopolitan and adaptable species of native fauna, and of little or no relevance for any threatened species.

5.2 Fauna Species

Field investigations within the subject land on the 4th of April 2012 identified a fauna assemblage of 12 native species (8 birds, 2 amphibians and 2 reptiles) and 5 introduced species (Appendix E). Doubtless, an array of additional cosmopolitan urban and peri-urban fauna species would occur on the site on occasions or on a seasonal basis, but most such occurrences would be only of occasional individuals on a rare or transient basis, or using the land as a small part of a much broader swathe of habitat.

Two amphibian species (Appendix E), which are common in urban and peri-urban environments, were recorded during the survey period. The subject land does not provide habitat for the Green & Golden Bell Frog or the other threatened amphibians known in the locality (the Giant Burrowing Frog and the Red-crowned Toadlet). The dams through the land are infested with the Plague Minnow *Gambusia affinis*, which can have an adverse impact on amphibian assemblages in general, and which have been

implicated in the decline of some species (including the Green & Golden Bell Frog, of which there are historical records in the locality).

Only two reptiles (the Water Skink *Eulamprus quoyi* and Garden Skink *Lampropholis delicata*) were observed on the subject land during the survey period. Other reptile species which are common in urban and peri-urban environments (such as the Common Blue-tongue Lizard, Red-bellied Black Snake and Garden Sun-skink) could also utilise the subject land, at least on occasions. Only one threatened reptile species (Rosenberg's Monitor *Varanus rosenbergi*), has been recorded in the locality, but the subject land does not provide any suitable habitat for this species.

Eight native bird species were recorded on or over the subject land (Appendix E), all of which (with the exception of the Little Eagle) occur commonly in urban and/or peri-urban environments. Whilst the subject land could theoretically be utilised on a temporary or seasonal basis by individuals of some of the more wide-ranging threatened bird species known to occur in the locality, the highly modified and disturbed nature and the small extent of the relevant vegetation present indicates that the subject land would not be important for any of these species.

No native mammal species were recorded on the land or on adjoining properties through direct observations (Appendix E). Eleven threatened mammals have been recorded within the locality (8 bats and 3 non-flying mammals), the majority of which are forest-dependent. These species are highly unlikely to occur other than possibly as occasional foraging individuals.

Of the threatened flying mammals known to occur within the locality, it is theoretically possible that individuals of the more mobile wide-ranging and habitat generalist species (such as the Grey-headed Flying Fox, Common Bent-wing Bat and Yellow-bellied Sheath-tail Bat) could utilise the subject land on an infrequent basis. Notwithstanding this possibility, however, the disturbed nature, small size and lack of high quality habitat on and/or within the general vicinity of the land indicates that it is highly unlikely to be important for any of these species.

The subject land does not provide any particularly suitable habitat for the Cumberland Plain Land Snail, and no specimens of this threatened Snail were recorded on the land.

5.3 Threatened Species

No threatened species were recorded on the subject land during the site inspection at Smithfield, although an individual of the 'vulnerable' Little Eagle was sighted soaring over the land. Further, given the highly disturbed nature of the subject land and the general locality, it is highly unlikely that any such species would occur on a frequent or regular basis.

Whilst it is theoretically possible that individuals of some highly mobile threatened birds and mammals (particularly those tolerant of urban and peri-urban environments) could occur on the land on a temporary basis, the subject land would not constitute a significant area of habitat for even individuals of these species due to its small size, disturbed nature and the general nature of the locality.

A generic *Assessment of Significance* pursuant to Section 5A of the EP&A Act for threatened fauna is provided in Chapter 6.3 of this *Report*, notwithstanding the lack of evidence for any such species and the poor quality and condition of the site. A dedicated *Section 5A Assessment of Significance* for the Little Eagle is contained in Appendix F.

6 GENERAL IMPACT ASSESSMENT and DEVELOPMENT CONSTRAINTS

Whilst the proposed development (as noted above) will require the removal of a few native trees and patches of native vegetation from the subject site, there are a number of relevant considerations in assessing the potential or likely impacts of the proposal. Relevant matters in this assessment with respect to the subject land include:

- there are very few native trees present, and most of the native trees to be removed from the subject site are regrowth and/or are in poor health;
- there is essentially no native understorey or groundcover vegetation (with the exception of a few scattered specimens and a few comparatively miniscule patches);
- the highly modified and artificial nature of the overwhelming majority of the subject land; and
- the lack of resources or habitat features of particular significance for any native biota, including in particular for threatened species.

Given the lack of relevance of the subject land for those threatened species which could potentially occur (as discussed in Chapters 4 and 5), detailed *Assessments of Significance* pursuant to Section 5A of the EP&A Act are not necessary. Nevertheless, a generic *Section 5A Assessment of Significance* for threatened species is provided in Chapter 6.3 of this *Report*, and a detailed *Section 5A Assessment of Significance* has been prepared (for precautionary purposes) for the Little Eagle and the Cumberland Plain Woodland (CPW) community.

The proposed development of the subject land at Smithfield is consistent with the objectives of the *Western Sydney Parklands Plan of Management* (the PoM), which include *inter alia*:

- enhancement of biodiversity conservation within relevant parts of the 5,280 hectares of the Western Sydney Parklands;
- improvements in public access and recreation facilities; and
- development of “*new business opportunities to support the management and further development of the Parklands*”.

The PoM also identifies a series of outcomes intended for 2020, including *inter alia*, and relevantly, “*Lease up to 2 percent of the Parklands over a number of sites for business uses to generate income to manage the Parklands*”. The proposed development of the subject land will contribute to that outcome using a portion of the Parklands that is both currently highly degraded and immediately adjacent to existing industrial development in Smithfield.

Non-development of the subject land would achieve nothing in biodiversity conservation terms, as the vegetation present (consisting overwhelmingly of thickets of noxious and exotic weeds, with very little native canopy or understorey) is not of conservation value or relevance in its current condition. Further, there is no native vegetation of any value in the immediate vicinity to which the site would be contacted. Development of the subject land will facilitate biodiversity conservation outcomes elsewhere (at more appropriate locations) in the Western Sydney Parklands.

7 SECTION 79C of the EP&A ACT

The subject land (which is the site of the proposed industrial park) has long been highly modified, and does not constitute a significant element of the “*natural environment*”. The subject land is almost entirely blanketed by dense thickets of noxious and exotic environmental weeds. The only native vegetation present across the site includes:

- a few scattered eucalypts and shrubs (which are barely surviving) within the thickets of weeds;
- a very narrow band of Cumbungi, Water Primrose and sedges lining two of the small dams along the northern boundary;
- a patch of regrowth eucalypts with a Blackthorn and weedy understorey; and
- a copse of Grey Box along the eastern boundary of the site which contains a miniscule patch of scattered shrubs, native grasses and herbs.

This vegetation in its current state does not constitute a special, notable or important element of the “*natural environment*”, and its retention and/or protection is not warranted.

With respect to ecological and biodiversity conservation issues, there are no native biota that would be reliant on or dependent on the vegetation present on the subject land. Notwithstanding the loss of some of the native trees, shrubs and grasses present (which, in any case, have a poor long-term prognosis), the proposed development of the land would not impose an unreasonable or substantial adverse impact upon the “*natural environment*” in general, given the disturbed nature and lack of conservation significance of that vegetation identified for removal.

An additional consideration is the existing context of the subject land, and the known or likely future development and conservation goals of other lands at this location, and within the entire Western Sydney Parklands. Given the extent of conservation activities being undertaken by the Trust in the Parklands, and the location of the subject land, as well as its small size and existing condition, the proposed development is considered to be an appropriate use of the land which will benefit the “*natural environment*” by providing funds to be used *inter alia* for biodiversity conservation projects within the Parklands.

As a consequence of the considerations outlined above, the proposed development does not constitute an activity which could be regarded as unacceptable or unreasonable in terms of Section 79C of the EP&A Act.

8 SECTION 5A of the EP&A ACT

8.1 The Statutory Regime

The *Threatened Species Conservation Act 1995* (TSC Act) has modified the *Environmental Planning & Assessment Act 1979* (EP&A Act) by, *inter alia*, including a requirement to determine "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*". The relevant factors of Section 5A of the EP&A Act "*must be taken into account*" by a consent or determining authority when considering a *Development Application*, and in administering Sections 78A, 79B, 79C, 111 and 112 of the EP&A Act, as relevant.

In addition to the seven factors which "*must be taken into account*" (where relevant) pursuant to Section 5A(2) of the EP&A Act (see below), Section 5A(1)(b) of the EP&A Act requires that "*any [relevant] assessment guidelines*" promulgated by the relevant authorities (particularly in this instance the OEH) also "*must be taken into account in deciding whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*".

In undertaking the formal *Section 5A Assessments of Significance* documented below, the authors have "*taken into account*" the *Threatened Species Assessment Guidelines: the Assessment of Significance* prepared by the then Department of Environment & Climate Change (now OEH), dated August 2007.

The *Assessment of Significance* provided below, prepared pursuant to Section 5A of the EP&A Act, deals with those threatened biota which could theoretically or potentially occur on the subject land (eg individuals of some threatened mammals, particularly microchiropteran bats, or threatened birds). A dedicated *Section 5A Assessment of Significance* for the Little Eagle and the CPW community is provided in Appendix F.

8.2 The Seven Factors of Section 5A

Factor a Threatened Species – Risk of Extinction

It is not likely that the subject land itself would support or be crucial to the survival of a "*viable local population*" of any of the "*threatened species*" which could potentially occur on the land.

With respect to threatened fauna, it is likely only that individuals of a few wide-ranging threatened species (such as microchiropteran bats or birds) would or may utilise the subject land on occasions. It is not likely that a "*viable local population*" of any such species could be dependent on the subject land, either in isolation or as a significant element in a broader area of habitat.

No threatened flora species were recorded on the subject land during the site inspection and, given the highly disturbed nature of the site, none could conceivably be present. Consequently, the removal of vegetation from the subject land could not be regarded as significant in terms of the "*life cycle*" of any of those possible threatened biota.

Given the considerations discussed above, there is no likelihood of a “*viable local population*” of any “*threatened species*” being “*placed at risk of extinction*”² (emphasis added) as a consequence of development of the land for industrial purposes.

Factor b Endangered Populations – Risk of Extinction

The TSC Act defines an “*endangered population*” as “*a population specified in Part 2 of Schedule 1*” of the Act.

There is no “*endangered population*” of any species likely to occur or be present on the subject land or in the locality.

Factor c Endangered Ecological Communities – Risk of Extinction

The TSC Act defines an “*endangered ecological community*” as “*a community specified in Part 3 of Schedule 1*” of the Act.

A scattered canopy of eucalypts typical of the Cumberland Plain Woodland (CPW) community is present within the parts of the subject land which are to be subdivided. As discussed in detail in Chapter 4.3 of this *Report*, however, this community is not considered to be present within those parts of the subject land that are to be developed, given the lack of a native mid-storey and, the extremely limited proportion of native species in the understorey/groundcover layers.

Nevertheless, a *Section 5A Assessments of Significance* for CPW has been prepared (Appendix F) for precautionary purposes. That *Assessment* concludes that a “*significant effect*” is not likely to be imposed upon the CPW community by the “*action proposed*”.

There is no other relevant “*endangered ecological community*” which needs further consideration in terms of Section 5A of the EP&A Act.

Factor d Impacts on Habitat for Threatened Biota

As noted above, the subject land does not contain significant or important habitat or resources for any of the threatened biota which could potentially occur on the land, as a consequence of the highly modified nature of the site, its context, its location and its size.

Those threatened species which could potentially occur on the subject land are likely to be widely distributed in the general locality and/or are wide-ranging and highly mobile. Those parts of the subject land proposed for development activities do not constitute significant, critical or important habitat for any possible threatened biota.

As noted above, the only areas of native vegetation on the subject land include the scatter of regrowth eucalypts, the narrow band of reeds surrounding the dams and the two small patches of native eucalypts with some degraded and relatively miniscule portions of native understorey and groundcover.

² The term “*extinction*” is significant. It means the destruction of or the obliteration of a “*viable local population*” – its cessation to exist. It does not mean merely some reduction in the population or in the extent of its distribution, or some reduction in the extent of relevant habitat.

The scattered tree canopy over thickets of exotic and noxious weeds which characterises the “*subject land*”, as well as the two small patches of highly degraded native woodland, are not considered an example of the CPW community. Even if they were CPW, their removal would be of no concern in biodiversity conservation terms.

Given the circumstances described above, and given the nature and condition of the subject land, as well as its context and size, “*the action proposed*”:

- is not likely to result in the removal or modification of significant areas of potential habitat for any threatened biota (“*threatened species, endangered populations, or ecological communities*”). The area to be affected by the proposal is not of any particular relevance or significance for any threatened biota, and constitutes only a very small proportion of potentially suitable habitat for any such biota in the locality – Factor (d)(i);
- is not likely to result in any habitat for threatened biota becoming “*fragmented or isolated from other areas of habitat*” – Factor (d)(ii), given:
 - the extent and distribution of potential habitat in the locality;
 - the context and location of the land;
 - the lack of significant or relevant resources; and
 - the degraded nature of the land;
- is not likely to result in any disturbance to important or significant habitat for any threatened biota, even if any such biota are present. Those portions of the subject land proposed to be developed cannot reasonably be regarded as of importance with respect to “*the long-term survival*” of any threatened biota “*in the locality*” – Factor (d)(iii).

Factor e Critical Habitat

The TSC Act defines “*critical habitat*” as “*habitat declared to be critical habitat under Part 3*” of the Act.

The subject land does not represent listed “*critical habitat*” for any threatened biota.

Factor f Recovery Plans and Threat Abatement Plans

There are no relevant *Recovery Plans* or *Threat Abatement Plans* which relate to any of the biota or of potential relevance to the subject land at Kellyville.

Factor g Key Threatening Processes

The only “*key threatening processes*” listed in the TSC Act which could be of even potential relevance to the proposed development on the subject land are the “*clearing of native vegetation*”, “*the loss of hollow-bearing trees*” and the “*loss of dead wood and dead trees*”.

With respect to the “*clearing of native vegetation*”, however:

- it is to be noted that the “*vegetation*” present consists only of isolated canopy trees, with a few small patches of native understorey, which arguably does not constitute “*native vegetation*”;
- the loss of the tree canopy and the miniscule patches of understorey plants (the only element of “*native vegetation*” present) is not considered of significance with respect to

threatened fauna species which could potentially occur on the land (see Factor a and Factor d above); and

- the CPW community is not considered to be present on the subject land.

With respect to the “*loss of hollow-bearing trees*” and “*loss of dead wood and dead trees*”:

- no significant, or even relevant, adverse effect on any threatened species is likely to occur as a result of the removal of “*hollow-bearing trees*” and/or “*dead wood and dead trees*” from the land, given the extent of suitable resources in the locality and given the high mobility of the species potentially involved; and
- the potentially relevant threatened biota are not likely to be dependent upon the subject land in isolation.

Given those considerations, the minor imposition of or exacerbation of “*key threatening processes*”, as required for the development of the subject land for industrial purposes as proposed, is not of significance with respect to any threatened biota. Importantly, the imposition of those “*key threatening processes*” as a result of the “*action proposed*” is not such as to impose a “*significant effect*” upon any threatened biota.

8.3 Conclusions

Given the considerations outlined above, the proposed development on the subject land at Smithfield is not “*likely*” to impose a “*significant effect*” upon any “*threatened species, populations or ecological communities, or their habitats*”, pursuant to Section 5A of the EP&A Act.

Even if some threatened biota do use the subject land, it is not likely that the vegetation present would support a “*viable local population*” of any such biota in isolation. It is not likely that any such “*population*”, nor indeed any individuals of any such species, would be dependent or reliant solely (or to any relevant extent) on that portion of the subject land proposed for development activities.

As discussed in considerable detail above, the CPW community is not present on the subject land at Smithfield because of the highly degraded nature of the vegetation which is present. Given those circumstances, there will be no adverse impact (or “*significant effect*”) imposed upon the CPW community (which does not exist on the “*subject land*”).

The ‘precautionary’ *Section 5A Assessments of Significance* prepared with respect to the CPW community (Appendix F) has concluded that even if some vegetation on the subject land did constitute the CPW community, the proposal would not result in a “*significant effect*” on that CEEC. Similarly, there is not “*likely*” to be a “*significant effect*” on the Little Eagle as a result of the proposed development.

There is no requirement for the preparation of a *Species Impact Statement (SIS)* for the proposed development at Smithfield.

9 APPLICATION of the EPBC ACT

The *Environment Protection & Biodiversity Conservation Act 1999* (EPBC Act) requires consideration of the potential for a “*significant impact*” to be imposed by an activity on a *Matter of National Environmental Significance* (MNES).

In the event that such an “*impact*” is “*likely*” to be imposed, the activity proposed must be referred to the Commonwealth for determination as to whether it constitutes a “*controlled action*”. Where a development activity does constitute a “*controlled action*”, an approval from the Commonwealth Minister of the Environment is required.

The subject land at Smithfield is of no relevance with respect to any threatened or migratory biota listed in the EPBC Act, or any other MNES.

With respect to threatened species listed in the EPBC Act (Appendix C), the highly degraded and modified land at Smithfield cannot be regarded as of likely significance or value. The vegetation present, and the other resources present (eg the small farm dams), are of essentially no significance for any threatened species which are likely to be present. It cannot be considered likely that even an individual of any such species would be reliant upon those resources for their survival at this location.

Further, given the very highly disturbed and long-modified nature and condition of the subject land, it cannot be considered likely that populations of any potentially relevant threatened biota (listed in the EPBC Act) would be present or reliant upon the subject land at Smithfield. No evidence for any such biota was obtained during the field investigation of the subject land, and no such biota are anticipated on the land (other than possible vagrant or occasional individuals of a few highly mobile species).

With respect to migratory (or allegedly migratory) species, the subject land at Smithfield *per se*, or in isolation, is not considered of particular significance, value or relevance. Doubtless, individuals of some cosmopolitan and abundant ‘migratory’ species (such as the Masked Lapwing and the Cattle Egret) could utilise the site on a regular basis. Individuals of a number of other ‘migratory’ species could utilise the grasslands and/or ponds on the subject land, on occasions at least.

However, the subject land at Smithfield cannot reasonably be regarded as of significance or particular value for any such species. Although it is doubtless possible for individuals and/or breeding pairs of species such as the Masked Lapwing to utilise the subject land, such species are cosmopolitan, abundant and highly urban-tolerant. The loss of habitat by development of the subject land could not conceivably be regarded as of significance with respect to any such biota.

There will be no “*significant impact*” imposed upon any MNES as a result of the proposed industrial development of the subject land at The Horsley Drive, Smithfield. There is, consequently, no requirement for any “*referral*” of the proposal to the Commonwealth pursuant to the EPBC Act.

It should be noted that matters with respect to the EPBC Act are not relevant to the determination of a *Development Application* by a consent authority pursuant to the EP&A Act.

10 IMPACT AMELIORATION and ENVIRONMENTAL MANAGEMENT MEASURES

Notwithstanding the minor impacts on the “*natural environment*” which would ensue from development of the subject land at Smithfield as proposed, appropriate impact amelioration and environmental management measures would be anticipated (as a standard practice) for implementation as part of any future development of the land.

Specific measures in this regard which either have been incorporated into the development design or which should be included as *Conditions of Consent* should include:

- the management of stormwater discharge volumes and water quality from the development area, both during construction activities and following completion and occupation of the site, according to current ‘best practice’ and ‘Water Sensitive Urban Design’ principles;
- the use of sediment fences and other appropriate control measures during construction activities to avoid erosion and sediment discharge or the discharge of other pollutants or contaminants;
- the implementation of a management regime during the construction process to ensure that no other wastes (including building rubble, garbage, contaminants, fuels, oils, paints or other chemicals) are discharged from the construction area, and that all such wastes and contaminants are contained within the construction footprint, and are appropriately managed; and
- the use of appropriate plant species in the landscaping of roads and public areas to avoid invasive species in the adjoining landscape.

GLOSSARY

DA	<i>A Development Application prepared pursuant to the EP&A Act.</i>
DEC	Department of Environment & Conservation.
DECC	Department of Environment & Climate Change.
DECCW	Department of Environment, Climate Change & Water.
Endangered Ecological Community	<i>“an ecological community specified in Part 3 of Schedule 1” of the TSC Act.</i>
Endangered Population	<i>“a population specified in Part 2 of Schedule 1” of the TSC Act.</i>
EP&A Act	<i>Environmental Planning & Assessment Act 1979.</i>
EPBC Act	Environment Protection & Biodiversity Conservation Act 1999.
Key Threatening Process	<i>“a threatening process specified in Schedule 3” of the TSC Act.</i>
NPWS	NSW National Parks & Wildlife Service.
OEH	Office of the Environment & Heritage, which is part of the Department of Premier & Cabinet, and which incorporates most of the DECCW.
Proposal	<i>“the development, activity or action proposed” (DGRs).</i>
Recovery Plan	<i>“a plan prepared and approved under Part 4” of the TSC Act.</i>
Region	<i>“a bioregion defined in a national system of bioregionalisation that is determined (by the Director-General by order published in the Gazette) to be appropriate for those purposes” (TSC Act).</i>
SIS	<i>Species Impact Statement prepared pursuant to Sections 109, 110 and 111 of the TSC Act.</i>
Threatening Process	<i>“a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities” (TSC Act).</i>
Threatened Species	<i>“a species specified in Part 1 or 4 of Schedule 1 or in Schedule 2” of the TSC Act.</i>
TSC Act	<i>Threatened Species Conservation Act 1995.</i>

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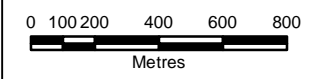
Figure 1

Location of the subject land at The Horsley Drive, Smithfield



LEGEND

Subject Land



NOTES

1. Aerial imagery courtesy of Nearmap 5/02/2012
2. Subject Land boundary based on DCDB © LPMA 2012
3. All features are approximate only and subject to detailed survey

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Project No: **610.11314**

Scale 1:23,618 @ A3	Date 18-Apr-2012
Drafted Sara Haddady	Approved Sepehr Sobhani

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Figure 2

Details of the subject land at The Horsley Drive, Smithfield



LEGEND

- Subject Land
- Subject Site
- Transmission Line Easement
- Cadastre

NOTES

1. Aerial imagery courtesy of Nearmap 5/02/2012
2. Subject Land boundary based on DCDB © LPMA 2012
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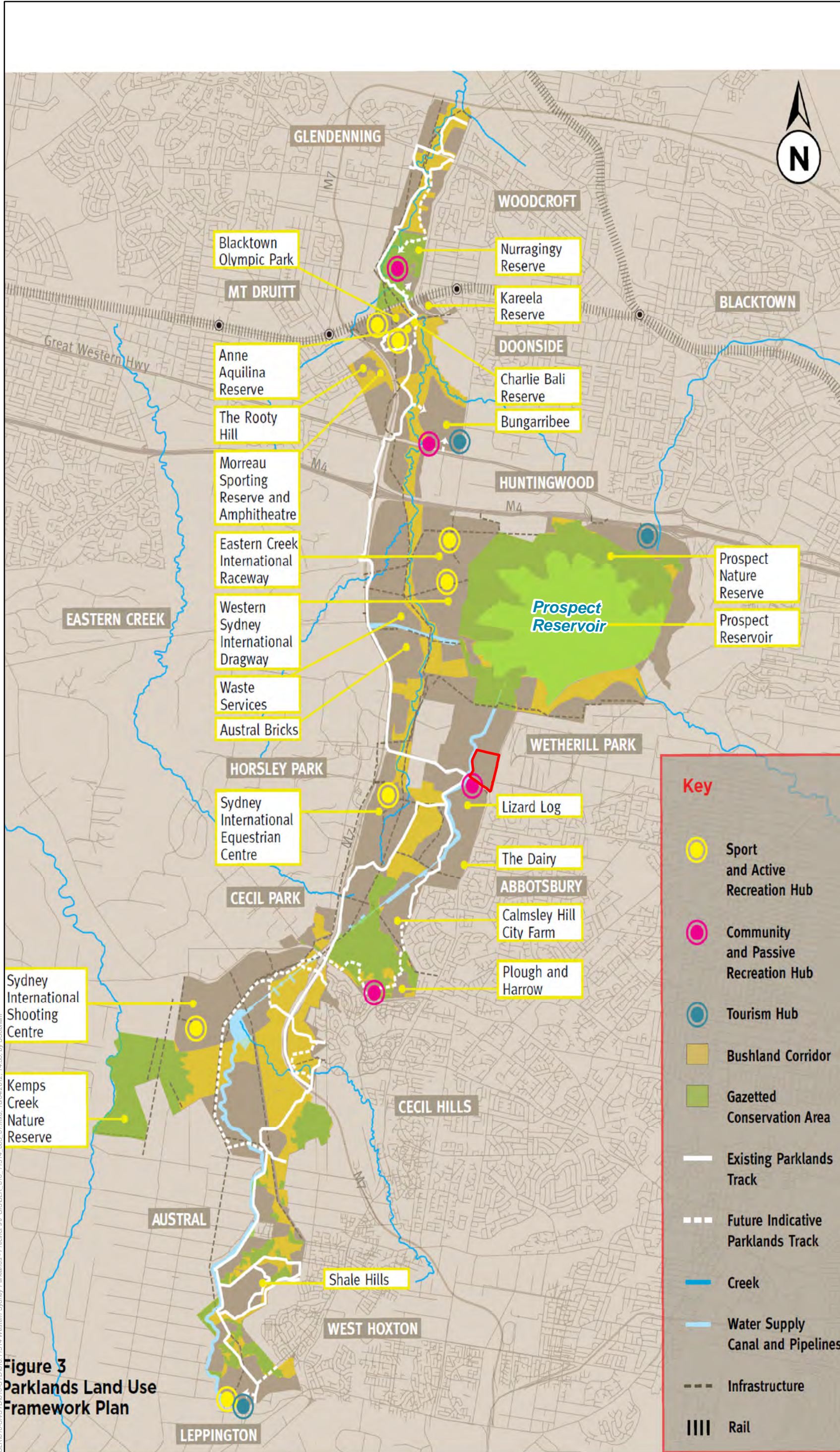
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Figure 3

Land use map of the Western Sydney Parklands and the subject land



LEGEND

Subject Land

Key

- Sport and Active Recreation Hub
- Community and Passive Recreation Hub
- Tourism Hub
- Bushland Corridor
- Gazetted Conservation Area
- Existing Parklands Track
- Future Indicative Parklands Track
- Creek
- Water Supply Canal and Pipelines
- Infrastructure
- Rail

NOTES

1. Subject Land boundary based on DCDB © LPMA 2012
2. Land Use Map courtesy Western Sydney Parklands Trust (Western Sydney Parklands Plan of Management 2020)
3. All features are approximate only and subject to detailed survey

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Figure 3
Parklands Land Use
Framework Plan

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Figure 4

The proposed development of the subject land at The Horsley Drive, Smithfield



LEGEND

- Subject Land
- Subject Site

NOTES

1. Aerial imagery courtesy of Nearmap 5/02/2012
2. Subject Land boundary based on DCDB © LPMA 2012
3. Concept Plan courtesy of ConceptArchitecture Pty Ltd (Ref: HY-HW-PP-004, 20.12.2011).
4. All features are approximate only and subject to detailed survey

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Scale 1:2,800 @ A3 Date 18-Apr-2012

Drafted Sara Haddady Approved Sepehr Sobhani

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Figure 5

Vegetation mapping by NPWS (2002) of the subject land at The Horsley Drive, Smithfield



LEGEND

Subject Land
 [Red outline]

Subject Site
 [Yellow outline]

NPWS Vegetation

Greater than 10% cover

- Turpentine-Ironbark Forest [Red diagonal hatching]
- Turpentine-Ironbark Margin Forest [Orange diagonal hatching]
- Alluvial Woodland [Pink diagonal hatching]
- Shale Hills Woodland [Light blue diagonal hatching]
- Shale Plains Woodland [Blue diagonal hatching]

Less than 10% cover

- Turpentine-Ironbark Forest [Light green diagonal hatching]
- Turpentine-Ironbark Margin Forest [Light blue diagonal hatching]
- Shale Sandstone Transition Forest [Yellow diagonal hatching]
- Alluvial Woodland [Purple diagonal hatching]
- Shale Hills Woodland [Yellow diagonal hatching]
- Shale Plains Woodland [Red diagonal hatching]

Less than 10% cover and urbanised

- Turpentine-Ironbark Forest [Light blue diagonal hatching]
- Shale Sandstone Transition Forest [Light pink diagonal hatching]
- Turpentine-Ironbark Margin Forest [Light blue diagonal hatching]
- Shale Plains Woodland [Yellow diagonal hatching]

NOTES

1. Aerial imagery courtesy of Nearmap 5/02/2012
2. Subject Land boundary based on DCDB © LPMA 2012
3. Vegetation mapping © NPWS 2002 (Cumberland Plain Vegetation mapping project)
4. All features are approximate only and subject to detailed survey

0 25 50 100 150 200
 Metres

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Project Name:
 Horsley Drive Business Park, Smithfield

Prepared for:
 Western Sydney Parklands Trust

Project No: **610.11314**

Scale 1:6,000 @ A3 Date 18-Apr-2012

Drafted Sara Haddady Approved Sepehr Sobhani

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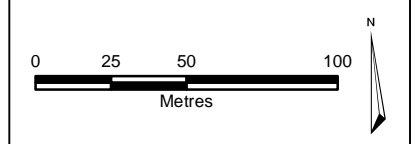
Figure 6

Vegetation mapping by SLR Ecology of the subject land at Smithfield



LEGEND

	Subject Land
	Subject Site
	Cadastre
	Grey box woodland
	Native dam reeds
	Regrowth mixed eucalypt woodland
	Scattered native trees with no native understorey



- NOTES**
1. Aerial imagery courtesy of Nearmap 5/02/2012
 2. Subject Land boundary based on DCDB © LPMA 2012
 3. Vegetation mapped by SLR Ecology 4th April 2012
 4. All features are approximate only and subject to detailed survey

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global environmental solutions

The Horsley Drive Business Park
Smithfield

Proposed Industrial Development

Ecological Issues & Assessment Report

Appendix A
Photographs of the Subject Land

6th June 2012



Photo 1 Photo taken from the northeastern corner of the subject land, showing the disturbed nature of the vegetation. Note the regrowth Forest Red Gum and weedy understorey.



Photo 2 Photo taken from the northeastern corner of the subject land, facing southwest along the transmission line, showing the disturbed nature of the land at this location.



Photo 3 The small dam in the northeastern corner of the subject land, showing the Cumbungi lining the water's edge and the Waterlily and Azolla smothering the water surface.



Photo 4 Ripples in the water surface from the dense Plague Minnow in the dam.



Photo 5 The scattered patch of Forest Red Gum and Cabbage Gum with no native understorey along the northern boundary of the subject land at Smithfield.



Photo 6 The exotic grassland and Blackberry thicket, with a few emerging specimens of Sweet Pittosporum and Privet, in the central northern portion of the site.



Photo 7 Exotic landscape species and disturbed grassland surrounding the dam in the northwestern corner of the site.



Photo 8 Spotted Gum and Forest Red Gum in the northern central part of the site.



Photo 9 Exotic understorey of the Forest Red Gum patch along the northern boundary.



Photo 10 Waterlilies dominating the dam in the northwestern corner, with Pine Trees along the property boundary.



Photo 11 Patch of Forest Red Gum with Blackthorn and regrowth eucalypts in the northern central part of the site.