



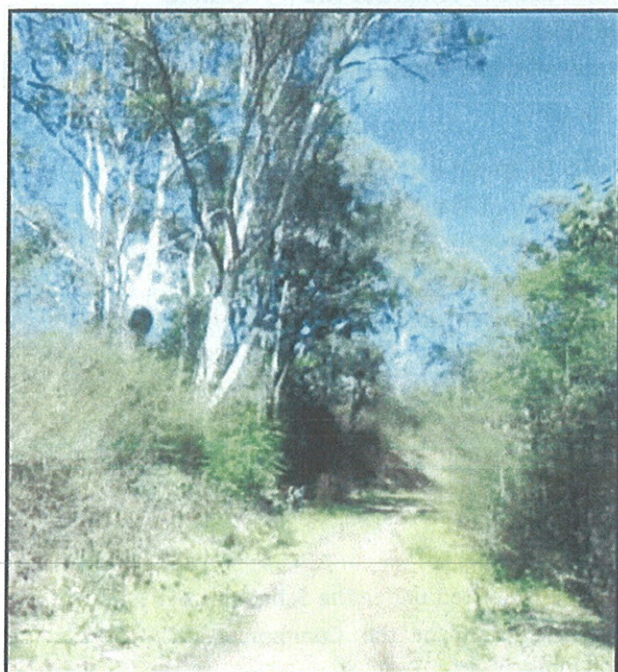
*Preliminary  
Flora and Fauna  
Survey & Ecological  
Assessment:  
Lots 104 & 105 in  
DP1051618  
1442 / 1442A  
Kurmond Road,  
Kurmond*

5 December 2013

*Prepared for  
Falson & Associates  
on behalf of  
Messrs. Mathias, Galea  
& Mahboub*

*Prepared by  
UBM Ecological  
Consultants Pty Ltd*

UBM Ecological Consultants P/L  
'St Clements'  
1238 Bells Line of Road  
Kurrajong Heights  
Tel/Fax:(02) 4567 7979  
ubmc@urbanbushland.com.au  
www.urbanbushland.com.au





## Executive Summary

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### Background

UBM Ecological Consultants has been commissioned by project managers Falson & Associates on behalf of the Proponents Messrs. Mathias, Galea and Mahboub to undertake Preliminary Ecological Investigations in support of a proposed rural residential subdivision on Lots 104 and 105 in DP 1051618; located at #1442/1442A Kurmond Road, Kurmond.

The current report comprises a review and revision of an earlier report prepared by T.H. Hawkeswood (January 2013) and has been prepared at the request of Glen Falson of Falson & Associates and following discussions with Hawkesbury City Council. The (revised) Ecological Studies Report will be submitted to HCC accompanied by a Development Application in the near future.

The **Subject Property** is a rural residential property of 11.5 ha in size and comprises two (2) separate allotments. It is located on the northern fringe of Kurmond Village close to Bells Line of Road and adjoins Kurmond Primary School to the south-west. Other rural residential properties are located to the north, east and west.

The current **Proposal** is to subdivide existing Lots 104 and 105 to create a 15-Lot rural residential subdivision; with Lots ranging in size from 0.4 ha to 2.25 ha. The draft Planning Proposal prepared by Falson & Associates (October 2013) responds to *Council's Residential Lands Strategy* (2011) which identifies areas/localities suitable for urban expansion, with lot sizes ranging from traditional small residential lots to larger peripheral lots in transitional areas between urban development and surrounding rural areas.

The objective of the current Report is to provide information on the ecological resources of the Subject Property and to determine the likelihood of any threatened ecological communities, species or populations occurring on site. The presence of any threatened entity may present a constraint to the Proposal.

This Report has been prepared to consider those threatened entities listed under the Schedules of the NSW *Threatened Species Conservation Act 1995* ('TSC Act') and/or the Commonwealth *Environmental Protection & Biodiversity Conservation Act 1999* ('EPBC Act').

### Results:

**Flora:** No (0) flora species or populations listed under the *TSC Act* or *EPBC Act* were recorded for the current Study Area; therefore no impact to any threatened species is envisaged, and therefore no Assessment of Significance (Seven-part Test) for flora issues has been recommended.

### Plant Communities:

Four (4) plant communities: were recorded: three (3) were naturally occurring (or native) communities and the fourth was an introduced grassland established as grazing pasture. These communities are described as:

- Forest Red Gum-Narrow-leaved Ironbark Woodland (=Cumberland Shale Plains Woodland with elements of Moist Shale Woodland);



- Forest Red Gum-Cabbage Gum Woodland (=Cumberland Shale Sandstone Transition Forest);
- Riparian Vegetation; and
- Exotic Grassland (pasture).

Cumberland Shale Plains Woodland is part of the Cumberland Plain Woodland Complex which is listed as 'critically endangered' under both the NSW *Threatened Species Conservation Act* and Commonwealth *Environment Protection & Biodiversity Conservation Act*.

Moist Shale Woodland is listed under the NSW legislation as 'endangered', while Shale Sandstone Transition Forest is listed under both NSW and Commonwealth legislation as 'endangered'. Stands of SSTF are mapped separately, and occur some distance away from the Subject Property (see *Figure 2.3*).

The Cumberland Shale Plains Woodland with elements of Moist Shale Woodland is found on the upper slopes of the Property off Kurmond Road and in the broad gully on the eastern boundary. This area is not proposed for development, although it is possible that part of this bushland may be cleared or modified to create an Asset Protection Zone for bushfire safety purposes.

Given the requirements of the bushfire legislation, some parts of the Cumberland Shale Plains Woodland/Moist Shale Woodland community will need to be cleared or modified. Given its status as under the legislation, a Seven-part Test under Part 5A of the *Environment Planning & Assessment Act* will need to be undertaken as part of a subsequent Development Application should the Planning Proposal ultimately be approved.

Cumberland Shale Sandstone Transition Forest occurs along Howes Creek, which is downslope (north) and outside the proposed development area. Under the precautionary principle a Seven-part Test of Significance will need to be undertaken as part of a subsequent Development Application should the Planning Proposal ultimately be approved.

**Fauna:** Three (3) habitat types were identified on the Property: Woodland (value moderate), open grassland (value low) and aquatic (value high).

By the completion of the current field survey (November 2013), 35 bird species were detected within, adjacent to, or flying over the Study Area; the latter identified by their distinctive calls as well as observation (*Appendix 4*). Three (3) native reptiles were observed within the Study Area. Three (3) introduced mammals were also identified. Horses have been grazed on the Property and there is evidence of this being on-going.

Seven (7) species of microchiropteran bats were identified with varying degrees of confidence (see *Appendix 4*). Four (4) of these species are listed as 'threatened'; the Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Eastern Freetail Bat (*Mormopterus norfolkensis*) and Greater Broad-nosed Bat (*Scoteanax rueppellii*).

No other threatened fauna species were identified during the current field investigations.

Considering the findings of the current field investigations and given that some other threatened species are known to occur in the Region, a Seven-part Test of Significance under part 5A of the



EP&A Act should be undertaken for each of the following species to assess the impacts of the proposed development at 1442/1442A Kurmond Road:

- Powerful Owl (*Ninox strenua*)
- Square-tailed Kite (*Lophoictinia isura*)
- Varied Sittella (*Daphoenositta chrysoptera*)
- Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Eastern Freetail-bat (*Mormopterus norfolkensis*) and Greater Broad-nosed Bat (*Scoteanax rueppellii*)
- Grey-headed Flying-fox (*Pteropus poliocephalus*)

Each assessment will consider the requirements for land clearing based on the Plan of Proposed Rural Subdivision and APZ requirements. As per flora issues, these Assessment will be undertaken upon completion of the final concept plan and approval of the Planning Proposal.

#### Recommendations:

In considering the potential ecological impacts of the proposed rural residential subdivision at 1442/1442A Kurmond Road Kurmond, UBM recommends that:

- Given the requirements of the threatened species legislation, a number of Seven-part Tests under Part 5A of the *Environment Planning & Assessment Act* will be required as part of any subsequent Development Application should the Planning Proposal ultimately be approved. These Assessments will be required for both flora and fauna issues (see above).
- Depending on the outcome of the Seven-part Tests undertaken any Proposal which requires the clearance or modification of an endangered plant community may trigger a Species Impact Statement. The determination of 'significance' will depend largely on how much bushland is to be removed or modified.
- Clearing or modification of bushland to create an Asset Protection Zone between the hazard (bushland) and the development should conform to the requirements of *Planning for Bushfire Protection* (Rural Fire Service 2006), as set out in the Bushfire Assessment Report (T. O'Toole 2013).
- Wherever possible, all healthy mature native trees should be retained and protected during construction. Trees should be protected with tree guards during construction works. Remnant native trees could then be incorporated into the landscape design for the development.
- Future landscaping should endeavour to use a majority of locally indigenous species and be representative of the original plant communities, here CSPW/MSW. This will retain local landscape character and benefit local wildlife. In particular, native trees with rough, fissured or stringybark which are known to be utilised by microbats should be retained or replaced wherever possible.
- A soil and water management plan should be developed to ensure that runoff from the subdivision does not impact on the riparian bushland on Howes Creek. A grassed buffer zone between the lowest building allotment and the creek is highly recommended. The Office of Water recommends a minimum of 40 metres width.



- There is the potential that the removal of woody weed thickets and some native understorey species (e.g. shrubs) to create the Asset Protection Zone will destabilise the soils and encourage soil erosion. In order to avoid this, native ground covers and small shrubs (<30% coverage) should be retained or planted.

By adopting the recommendations identified in this Report, the impacts of the development on the native bushland, flora or fauna species or populations occurring within the Subject Property and Locality generally will be minimised.

**Front Cover:**

*Photo 1 – Bell Miner observed on the Subject Property at Kurmond*

*Photo 2 – Stand of Cumberland Shale Plains Woodland near Kurmond Road*

*Photo 3 – View north to Howes Creek and Kurrajong Hills*



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## Certification

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I, Judith Rawling Managing Director of UBM Ecological Consultants Pty Ltd hereby state that the Flora and Fauna Survey and Ecological Investigations undertaken for the Subject Property, being the Lots 104 and 105 in DP1051618 at #1442/1442A Kurmond Road, Kurmond has been prepared in consideration of the schedules and requirements of the *NSW Threatened Species Conservation Act 1995* and *Commonwealth Environment Protection and Biodiversity Conservation Act 1999*.

Survey methods conform to the '*Threatened Species and Regional Biodiversity Survey and Assessment Guidelines*' (DECC 2007).

The UBM Ecological Consultants project team charged with preparing this Report were:

- Judith Rawling (BA, DipEd, DipEnvStud, MEnvSt)
- Rebecca Carman (BSc, MPhil, PGDipWldMgt)
- David Thomas Consultant Botanist

## Disclaimer

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The preparation of this Report has been in accordance with the brief provided by the Client and has relied upon the data and results collected at or under the times and conditions specified in the Report. All findings, conclusions or recommendations contained within the Report are based only on the aforementioned circumstances.

The Report has been prepared for use by the Client, and no responsibility for its use by other parties is accepted by UBM Ecological Consultants Pty Ltd.

### Judith Rawling

Managing Director UBM Ecological Consultants  
Member AIB, MESA, MEIANZ, Member Executive Council ECA (NSW)

5 December 2013

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## Definition of Terms

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**Council/HCC**– here, Hawkesbury City Council

**CPW** – Cumberland Plain Woodland; listed as a ‘critically endangered ecological community’ under the NSW *Threatened Species Conservation Act 1995* and (with) Shale-Gravel Transition Forest under the Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*.

**CSPW** – Cumberland Shale Plains Woodland (per Tozer 2006/2010) – a component of the above-named CPW ecological community

**CSHW** - Cumberland Shale Hills Woodland (per Tozer 2006/2010) – a component of the above-named CPW ecological community

**Ecological Community** – an assemblage of species with 6 types of properties, composition; structure; habitat; distribution; interactions between their component species, and ecological processes and function (Keith 2009); and occupying a particular area at a particular time.

**CEEC** – Critically Endangered Ecological Community – as determined by the NSW Scientific Committee and described as–a community facing an extremely high risk of extinction in the immediate future, as listed under State and/or Commonwealth threatened species legislation

**EEC** – Endangered Ecological Community – as determined by the NSW Scientific Committee and described as–a community facing a risk of extinction in the immediate future, as listed under State and/or Commonwealth threatened species legislation

**DECCW** – NSW Department of Environment, Climate Change and Water (now the Office of Environment & Heritage under the Department of Premier and Cabinet)

**Direct Impacts** are those that directly affect the habitat and individuals. They include, but are not limited to, death through predation, trampling, poisoning of the animal/plant itself and the removal of suitable habitat.

**Indirect Impacts** occur when project-related activities affect species, populations or ecological communities in a manner other than direct loss. Indirect impacts can include loss of individuals through starvation, exposure, predation by domestic and/or feral animals, loss of breeding opportunities, loss of shade/shelter, deleterious hydrological changes, increased soil salinity, erosion, inhibition of nitrogen fixation, weed invasion, fertiliser drift, or increased human activity within or directly adjacent to sensitive habitat areas.

**EPBC Act** – Commonwealth *Environment Protection & Biodiversity Conservation Act 1999*

**Habitat** – an area or areas occupied, or periodically or occasionally occupied by a species, population or ecological community, and including any biotic or abiotic components present.

**LGA** – Local Government Area, here Hawkesbury

**Locality** – generally, an area within 1-2 kilometres of the Study Area



**MSW** – Moist Shale Woodland, an endangered ecological community under the NSW *TSC Act* and together with Western Sydney Dry Rainforest is listed under the Commonwealth *EPBC Act*.

**Noxious Weed** – a species gazetted for the Hawkesbury County Council Control Area (which includes Hawkesbury LGA) under the *Noxious Weeds Act 1995* (amended 2000)

**NPWS** – National Parks & Wildlife Unit of the Office of Environment & Heritage

**OEH** – Office of Environment & Heritage under the NSW Department of Premier and Cabinet (formerly DECCW)

**RFS** – NSW Rural Fire Service

**SCIVI** – *Southeast NSW Native Vegetation Classification and Mapping*, by Tozer *et al.* 2010 for former NSW Department of Environment and Climate Change (DECCW)<sup>1</sup>.

**SSTF** – Shale Sandstone Transition Forest, a plant community listed as ‘endangered’ under the NSW *TSC Act* and the Commonwealth *EPBC Act*.

**Study Area** - means all land likely to be affected under the Proposal, either directly or indirectly.

**Subject Property** – means the land proposed for residential subdivision,-Lots 104 and 105 in DP1051618 at #1442 /1442A Kurmond Road, Kurmond

**TSC Act** – NSW *Threatened Species Conservation Act 1995*

**UBM** – UBM Ecological Consultants Pty Ltd: formerly trading as Urban Bushland Management Consultants (‘UBMC’)

**Vegetation Community** – described as an assemblage of native flora species known to occur in association with each other as a result of topography, soil landscape and rainfall.

**WoNS** – Weed of National Significance (Commonwealth Listing)

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<sup>1</sup> **Reference:** Tozer, M.G., Turner, K., Simpson, C., Keith, D.A., Beukers, P., MacKenzie, B., Tindall, D. & Pennay, C. (2010). Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tableland, in *Cunninghamia* 11 (3)



## 1 INTRODUCTION

### 1.1 Background Information

UBM Ecological Consultants has been commissioned by project managers Falson & Associates on behalf of the Proponents Messrs. Mathias, Galea and Mahboub to undertake Preliminary Ecological Investigations in support of a proposed rural residential subdivision on Lots 104 and 105 in DP 1051618; located at #1442/1442A Kurmond Road, Kurmond.

The current Report comprises a review and revision of an earlier flora and fauna report prepared by T.H. Hawkeswood (January 2013) and has been prepared at the request of Glen Falson of Falson & Associates following his discussions with Hawkesbury City Council ('HCC'). The (revised) Ecological Studies Report will be submitted to HCC accompanied by a Development Application in the near future.

The **Subject Property** is a rural residential property of 11.5 ha in size and comprises two (2) separate allotments. It is located on the northern fringe of Kurmond Village close to Bells Line of Road and adjoins Kurmond Primary School to the south-west. Other rural residential properties are located on all other boundaries.

The current **Proposal** is to subdivide existing Lots 104 and 105 to create a 15-Lot rural residential subdivision; with Lots ranging in size from 0.4 ha to 2.25 ha. The draft Planning Proposal prepared by Falson & Associates (October 2013) responds to Council's *Residential Lands Strategy* (2011) which identifies areas/localities suitable for urban expansion; with lot sizes ranging from traditional small residential lots to larger peripheral lots in transitional areas between urban development and surrounding rural areas.

The Subject Property is former agricultural land used first for orcharding and latterly for stock grazing. Similar residential properties on acreage are found throughout the Kurmond/Kurrajong areas. Significant stands of native bushland also occur in the Locality, especially along local drainage lines and permanent creeks.

The Subject Property retains stands of native vegetation (bushland) with a highly modified understorey. Stands of bushland occur on the upper slopes fronting Kurmond Road; in the deep gully which runs along the Property's eastern boundary, and along Howes Creek, a tributary of the Hawkesbury River which traverses the Property close to its northern boundary (see aerial photograph *Figure 2.2*).

The Subject Property is within an area mapped as Category 1 bushfire prone land (Hawkesbury City Council Bushfire Prone Lands Map). Consequently a *Bushfire Assessment Report* has been prepared (T. O'Toole December 2013). This Report is pending.

The objective of the current Report is to provide up provide accurate information on the ecological resources of the Subject Property and to determine the likelihood of any threatened ecological communities, species or populations occurring on the site, these potentially providing some



constraint to the subdivision proposal.

This Report has been prepared to consider those threatened entities listed under the Schedules of the NSW *Threatened Species Conservation Act 1995* ('TSC Act') and/or the Commonwealth *Environmental Protection & Biodiversity Conservation Act 1999* ('EPBC Act').

The ecological resources of the area proposed for development (the building footprints on 15 Lots), the remnant vegetation, and land elsewhere on the Subject Property has been assessed by the current Report – this area is described as '**the Study Area**'.

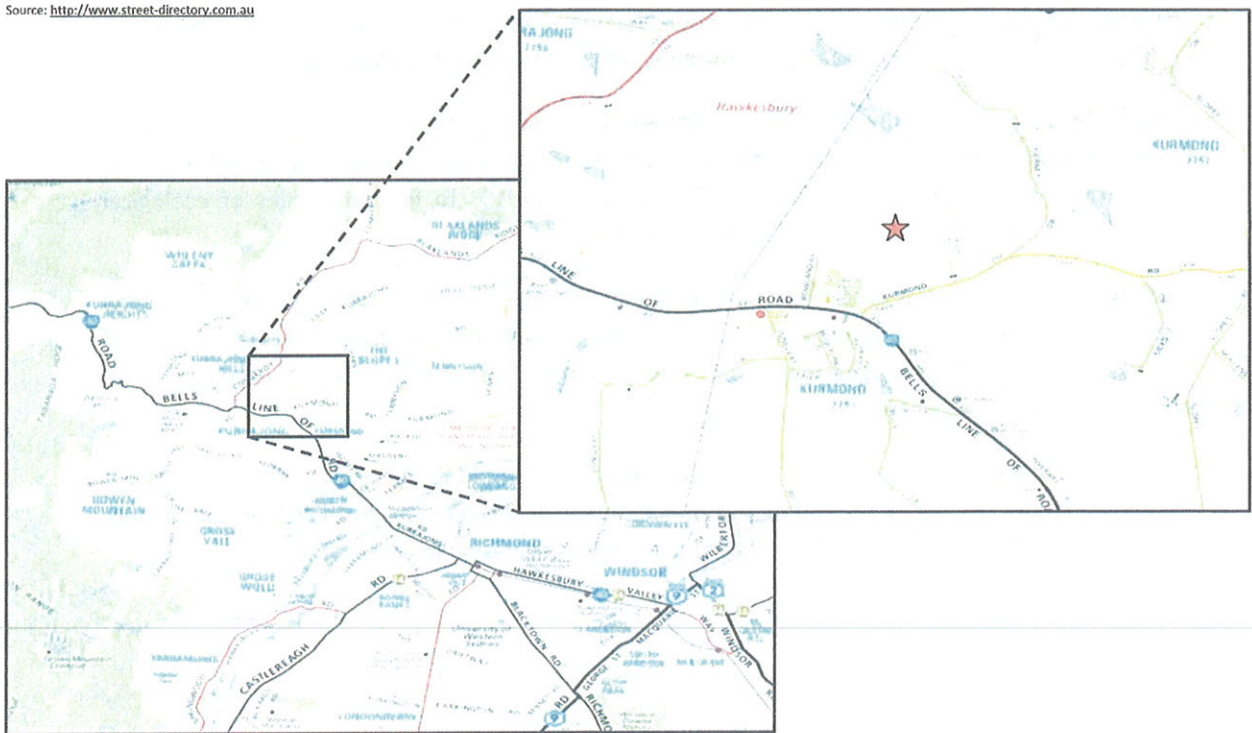
The local positioning of the Subject Property is shown on *Figure 1.1*.

The plan of proposed rural subdivision is shown on *Figure 1.2*.



Figure 1.1: Local Positioning of the Subject Property

Source: <http://www.street-directory.com.au>





## 1.2 Report Purpose and Objectives

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This Report reviews the findings of the flora and fauna report prepared by T.H. Hawkeswood (January 2103). It has been prepared at the request of Glen Falson of Falson & Associates following discussion with Hawkesbury City Council.

The objectives of the current Report are to provide accurate up-to-date information about the ecological resources of the Subject Property and to identify any species, populations or ecological communities listed under the legislation (*TSC Act/EPBC Act*) which might occur on site.

The presence of any threatened entity may provide some level of constraint for the proposed residential subdivision, and if any such entities are present the direct and indirect impacts of the proposed development must be assessed under Section 5(a) of the *Environmental Planning & Assessment Act 1979* ('*EP&A Act*') – this commonly referred to as the **Seven-part Test**.

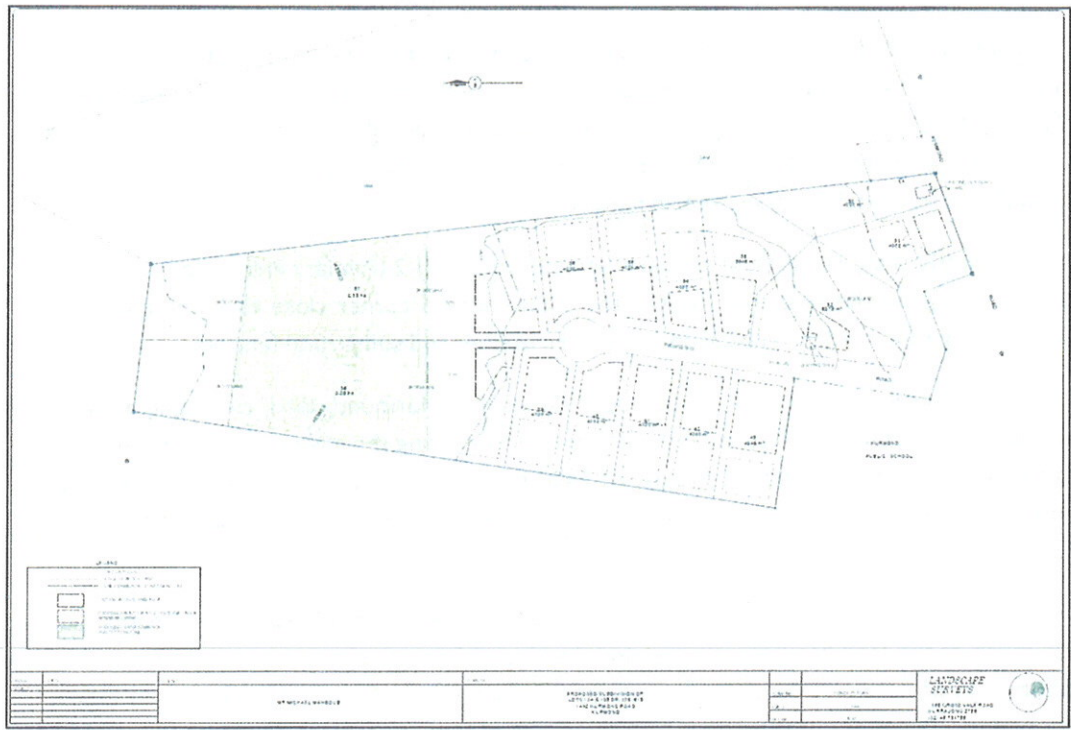
For any threatened entity present which is deemed to be of 'National Significance' the impacts of the Proposal must be reviewed under the Commonwealth **Significant Assessment Guidelines**. The role of the Preliminary Ecological Investigations (this Report) is to flag any issues of ecological significance to be addressed in the subdivision design.

**NOTE:** the current Report is described as a 'Preliminary' Ecological Report. Although every effort has been made to address all ecological issues and to identify any constraints to the proposed development, it is acknowledged that if the concept plan of proposed subdivision is changed, the Report will need to be revised.

Similarly, if after assessment of the Development Application, HCC requires specific recommendations for the conservation and management of the remnant bushland on the Subject Property, this will have to be considered under a separate vegetation management plan.



Figure 1.2: Concept Plan of Proposed Rural Subdivision





## 2 SITE DESCRIPTION

*This chapter provides a brief description of the physical and biological environments for the Subject Property at #1442/1442A at Kurmond. This information has been gathered from a range of sources, including previous surveys and investigations, information held by City Council, the client, and the author's local knowledge.*

### 2.1 Location and Setting

The Subject Property at #1442/1442A Kurmond Road is located close to the small village of Kurmond, which is on Bells Line of Road about 85 km north-west of Sydney CBD.

Nearby settlements include Kurrajong and Kurrajong Hills. Situated in an area characterised by large rural properties on acreage, land in the Locality has been identified in the *Hawkesbury Residential Lands Strategy (2011)* as having the potential for increased residential density. Local land uses include new and existing rural residential properties, hobby farming and horse grazing; while previous land uses were mainly agricultural in nature.

The Subject Property is a rural residential dual-allotment zoned RU-2 (Primary Production). There is an existing dwelling on the Property, located the south-eastern corner close to Kurmond Road. There is an existing rural shed, stockpiled construction material, and some rural fencing.

A stand of native bushland is located on the upper slopes near Kurmond Road, extending west to east across the upper slopes and into the deep gully which runs along the eastern property boundary and into the neighbouring property at Dayspring, 1420 Kurmond Road. A broad stand of riparian bushland extends close to the northern boundary - the Howes Creek Riparian Corridor (see *Figure 2.2 and Plates*).

Most local properties have retained native trees and some support small bushland remnants, but otherwise much of the land has been cleared and developed for agriculture or equine culture. On the northern side of Kurmond Road, adjoining properties back onto bushland along Howes Creek. There are extensive areas of bushland on the northern side of Howes Creek, in Kurrajong Hills and on the Escarpment. The nearby Kurrajong Hills area is known to support a population of the endangered Koala (*Phascolarctos cinereus*).

The vegetation on the Subject Property is mapped as Category 1 Bushfire Prone Land (HCC Bushfire Prone Lands Map), which means that any development must consider the bushfire risk and plan accordingly. A *Bushfire Assessment Report* has been prepared (T. O'Toole, revision pending).





## 2.2 Site Definition

Site Definition for the Subject Property is provided in *Table 2.1*.

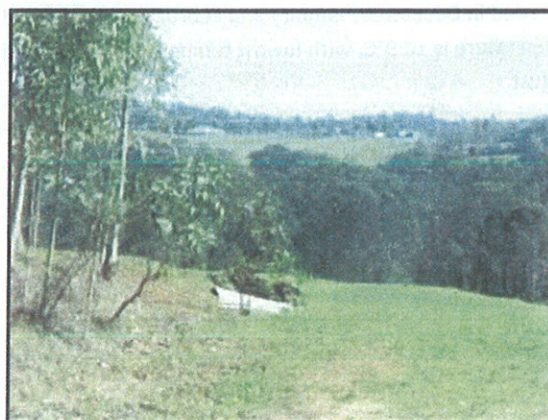
**Table 2.1: Site Definition**

<b>TITLE INFORMATION</b>	Lots 104 and 105 in DP1051618
<b>LOCATION</b>	#1442/1442A Kurmond Road, Kurmond
<b>TOTAL AREA</b>	11.05 ha (comprising 2 allotments)
<b>TOPOGRAPHIC MAP</b>	Kurrajong 9030-4N: 1 25 000
<b>GRID REFERENCE</b>	33°32'48.11S, 150°41'45.77"E (centroid).
<b>OWNERSHIP</b>	Messrs. Mathias, Galea and Mahboub
<b>LOCAL GOVERNMENT AREA</b>	Hawkesbury
<b>ZONING (Hawkesbury LEP 2012)</b>	RU-2 Primary Production
<b>CURRENT LAND USE</b>	Rural residential (former grazing land)
<b>PROPOSED DEVELOPMENT</b>	Proposed 15-Lot subdivision

**PLATE: View of bushland in upper gully, with shed LHS**



**PLATE: View to Howes Creek from paddock: tree regeneration to LHS**





## 2.3 Physical Environment

The physical characteristics of the Study Area and local environs are summarised in *Table 2.2*.

**Table 2.2: Physical Features of the Study Area & Environs**

FEATURE	DESCRIPTION
<b>Soil Landscape Unit</b>	<p>The Subject Property is dominated by the <b>Luddenham (lu) Soil Landscape Unit (SLU)</b> (see <i>Figure 2.1</i>).</p> <p>The Luddenham SLU is underlain by the Wianamatta Group Ashfield Shale and Bringelly Shale formations. Ashfield Shale consists of laminate and dark grey shale, while Bringelly Shale consists of shale, calcareous claystone and laminate.</p>
<b>Geology &amp; Soils</b>	<p>Luddenham soils are moderately deep (50-150cm), hard-setting yellow podzolics and yellow soloths.</p> <p><u>Limitations</u> include high soil erosion hazard; localised impermeable highly plastic subsoil which is moderately reactive when the vegetation cover is removed (Bannerman &amp; Hazelton 1989).</p>
<b>Topography</b>	<p>Topography is typical of the Cumberland Lowlands physiographic unit, with low rolling to steep low hills. Local relief is generally 50-120m, with slopes 5-20% (Bannerman &amp; Hazelton 1989).</p> <p>The Subject Property slopes from the ridge on Kurmond Road, north to Howes Creek, and rises again on the northern side of the Creek. The land varies in height from ~125 metres ADH along the Kurmond Road frontage to ~80 metres at Howes Creek, then rising to the rear of the site to ~105 metres ADH (Falson &amp; Associates 2013).</p>
<b>Local Hydrology</b>	<p>A permanent watercourse Howes Creek runs close to the northern property boundary. Howes Creek flows into the Hawkesbury River at Sackville</p> <p>There are no dams on the property although a large dam is located on the adjacent property to the east. A number of ephemeral drainage swales traverse the paddocks. Runoff from the ridgeline flows north-east into a deep gully which empties into next door's farm dam (see <i>Figure 2.2</i>).</p>
<b>Climatic Details</b>	<p>The mean daily maximum temperature is 23.7°C, with highest temperatures recorded in December, January and February. The mean daily minimum temperature is 10.9°C, with lowest temperatures recorded in June, July and August.</p> <p>Mean annual rainfall is 810.3 mm; with January, February and March recording the highest mean levels (Bureau of Meteorology 2009, Richmond RAAF #067033).</p>



Figure 2.1: Soil Landscapes (Hazelton & Tille 1990)

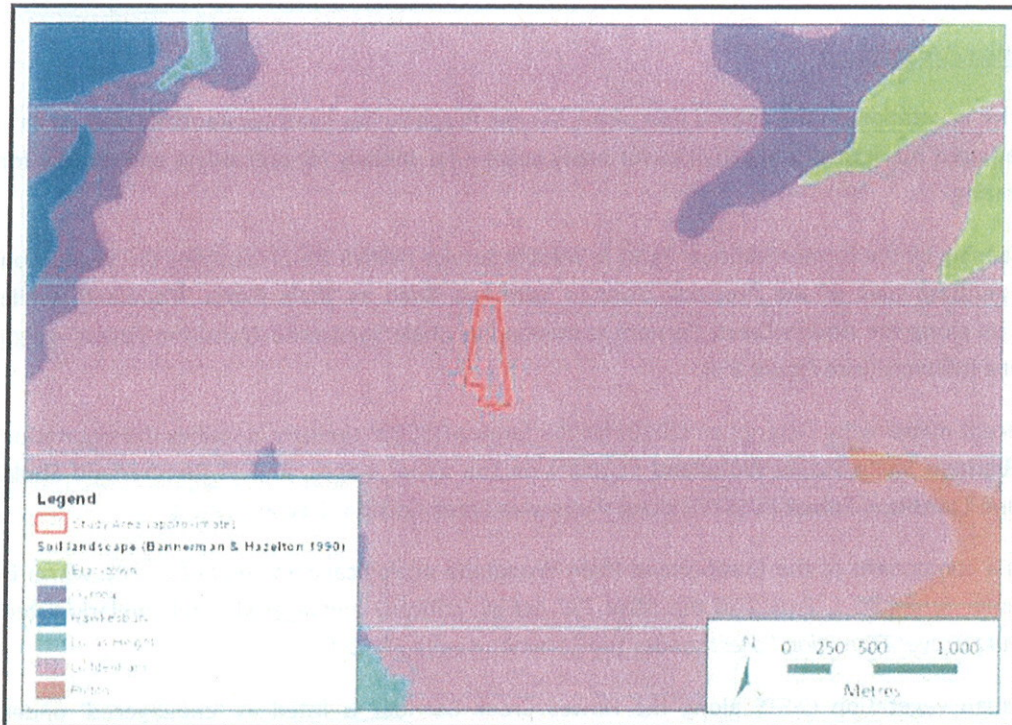


Figure 2.2: Subject Property with extent of surrounding bushland: Howes Creek to north.





## 2.4 Biological Environment

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### Vegetation Communities

The native vegetation on the central part of the Subject Property has been substantially cleared as it has been used for agricultural activities for many years – i.e. initially for orcharding and latterly for stock grazing.

Early mapping by the former National Parks & Wildlife Service (NPWS 2002) identifies the vegetation in the southern part of the Property close to Kurmond Road as Shale Plains Woodland, while vegetation along the Howes Creek Corridor is mapped as Shale Sandstone Transition Forest – high sandstone influence (see *Figure 2.3*)

More recent mapping by Tozer *et al.* (2010) for the former-DECCW similarly identifies the vegetation as **Cumberland Shale Plains Woodland** ('CSPW') on the upper slopes, and as **Cumberland Shale Sandstone Transition Forest** ('CSSTF') along the Howes Creek Corridor (see *Figure 2.4*<sup>2</sup>).

CSPW is a component of the **Cumberland Plain Woodland** ecological community ('CPW'), which is listed under Schedule 1, Part 2 of the NSW *TSC Act* as 'critically endangered', and similarly listed (with *Shale Gravel Transition Forest*) under the Commonwealth *EPBC Act*.

The riparian vegetation CSSTF along the Howes Creek Corridor is listed as 'endangered' under Schedule 1, Part 1 of the *TSC Act*. CSSTF is similarly listed under the Commonwealth *EPBC Act*.

Ground-truthing has been undertaken as part of the current survey in order to determine the accuracy of this vegetation mapping, and to ascertain if the vegetation in the Study Area conforms to the descriptions offered by DECCW (2009) and Tozer *et al.* (2010).

**NOTE:** early mapping by the former-NPWS (2002) did not generally consider existing land uses and (as is the case in the current Study Area) mapped remnant native trees over urban development, pasture or exotic gardens as 'native vegetation' or 'bushland'. DECCW/OEH adopts a similar methodology. In contrast, Tozer *et al.* (2010) only identifies native vegetation with a significant understorey component as 'bushland', thereby eliminating land which has now been cleared in the understorey and developed for other land uses.

These discrepancies in community nomenclature are somewhat confusing for the layman and rest in the interpretation of field data by different botanists. However, it is important to understand that vegetation mapping is likely to have been based largely on aerial photography and geology maps with limited ground-truthing.

See *Section 3.2.4* for survey results. A description of the two (2) extant plant communities; CSPW and CSSTF have been included as *Appendix 1A and 1B*. The final determination for Moist Shale Woodland has not been included at this point.

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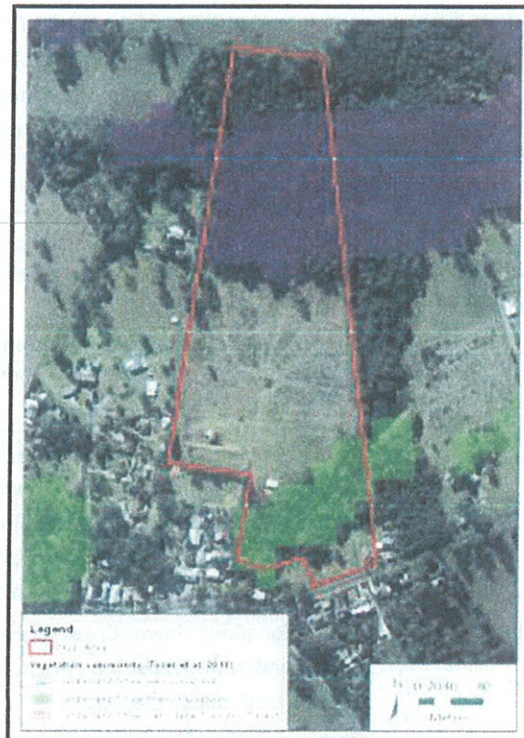
<sup>2</sup> Note that Tozer uses the prefix 'Cumberland' for communities on the Cumberland Plain



Figure 2.3: Native Vegetation Communities Mapped by NPWS (2002)



Figure 2.4: Native Vegetation Communities Mapped for DECCW (Tozer et al. 2010)





## 2.5 Legislative & Planning Context

Comments and assessments within this Report are based on the requirements of the *Environmental Planning and Assessment Act 1979* – with consideration given to the principals of Ecologically Sustainable Development, *NSW TSC Act*, and Commonwealth *EPBC Act*.

Table 2.3 provides a summary of policies, local planning and legislative requirements applicable to the Subject Property and the current Planning Proposal.

**Table 2.3: Summary of Local Planning Policies & Legislative Requirements**

GOVERNMENT LEVEL	RELEVANT POLICY/ LEGISLATION	RELEVANCE TO STUDY AREA
LOCAL	<i>Hawkesbury Local Environmental Plan 2012</i>	Zoned RU-2 Primary Production which allows for lots of not less than 10 ha in size. The LEP allows for development provided that this does not have an adverse effect on water catchments; including surface and groundwater quality and flows, land surface conditions, and important ecosystems such as streams and wetlands.
	<i>Hawkesbury Residential Lands Strategy 2011</i>	Guides future residential development within the LGA with the aim of accommodating between 5,000 – 6,000 new dwellings by 2031. The Strategy identifies existing centres with the potential to accommodate ~600 of the total 5,000-6,000 new dwellings proposed. It provides for the residual dwellings to be established on 'greenfield' sites and/or as developments around the periphery of existing towns and villages.
STATE	<i>SREP 20 - Hawkesbury-Nepean River</i>	Clause 6 of SREP 20 outlines relevant flora and fauna policies. In general, these policies aim to manage flora and fauna communities so that the diversity of species and genetics within the Hawkesbury-Nepean Catchment is conserved and enhanced. The proposed development will comply with SREP-20 by retaining the <i>in situ</i> native trees and riparian bushland along Howes Creek.
	<i>Threatened Species Conservation Act 1995</i>	A stand of <b>Cumberland Shale Plains Woodland</b> (a component of the 'critically endangered' Cumberland Plain Woodland) occurs in the southern part of the Property, close to Kurmond Road. Elements of a second listed community also occurs – the 'endangered' <b>Moist Shale Woodland</b> Vegetation along Howes Creek to the north is mapped as <b>Shale-Sandstone Transition Forest</b> , a community listed as 'endangered' under the <i>Act</i> . Flora species – no listed flora species were recorded. During the current field investigations four (4) species listed



as ‘vulnerable’ under the Act were identified in the Subject Property: Eastern Bentwing Bat (*Miniopterus schreibersii oceanensis*), Eastern False Pipistrelle (*Falsistrellus tasmaniensis*), Eastern Freetail-bat (*Mormopterus norfolkensis*) and Greater Broad-nosed Bat (*Scoteanax rueppellii*). There is suitable habitat available to support a number of other threatened species (Table 4.2).

<i>State Environmental Planning Policy No 19 – Bushland in Urban Area</i>	The Subject Property is privately owned, and there is no community land located in close proximity, therefore the requirements of SEPP-19 will not apply.
<i>Noxious Weeds Act 1993 (Amended 2005)</i>	<p>At least seven (7) noxious weed species listed for the Hawkesbury River County Council Local Control Area (‘HRCC’) occur within the Subject Property (see Table 3.2)</p> <p>The landowner has a legal responsibility to control noxious plants and to prevent their spread to adjoining land.</p> <p>HRCC is charged with enforcement of the Act on private property, while the Council also has a legal responsibility to control noxious weeds on their own land and to prevent weed spread to adjoining properties.</p>
<i>Rural Fires Act 1997 / Amendment Act 2002</i>	<p>Hawkesbury City Council Land Information Service Map (Bushfire) indicates that the Study Area is classified as <b>Bushfire Prone Land: Vegetation Category 1</b> (O’Toole 2013)</p> <p>The fire history of this area suggests that grass fires pose a considerable risk to life and property.</p>
<b>COMMONWEALTH</b> <i>Environment Protection and Biodiversity Conservation Act 1999</i>	<p>A stand of <b>Cumberland Shale Plains Woodland</b> (a component of the ‘critically endangered’ Cumberland Plain Woodland) occurs in the southern part of the Property, close to Kurmond Road.</p> <p>Flora – no listed flora species occur</p> <p>Fauna species – no listed fauna species were recorded.</p>

Other relevant NSW State government legislation may include:

- *Environment Planning & Assessment Act 1779;*
- *Crown Lands Act 1989;*
- *Rural Fires Act 1997*
- *National Parks and Wildlife Act 1974;*
- *Soil Conservation Act 1938;*
- *Rural Lands Protection Act 1998;*
- *Pesticides Act 1999;*
- *Occupational Health & Safety Act 1983;*
- *Waste Minimisation and Management Act 1995;*
- *Protection of the Environment Administration Act 1991; and*
- *Protection of the Environment Operations Act 1997.*



## 3 FLORA ASSESSMENT

The flora assessment was undertaken to determine the ecological communities occurring within and adjacent to the Study Area and to describe the current status of the indigenous vascular vegetation present. The conservation value of the vegetation in the National, State and regional context has been considered in relation to vegetation community types and flora species present.

### 3.1 Methods

#### 3.1.1 Literature Review

During the preparation of this Report, relevant databases and other studies were accessed, including previous studies and investigations for the Locality.

The main documents referenced were:

- Vegetation Mapping of the Cumberland Plain (NPWS 2020);
- *Native vegetation of southeast NSW: a revised classification and map for the coast and eastern tablelands* (Tozer, et al. for DECCW 2006/2010); and
- *Draft Statement in Support of Rezoning (Planning Proposal): rural subdivision 1442.1442A Kurmond Road Kurmond* (Falson & Associates 2013).

In addition, the NPWS *Atlas of New South Wales Wildlife Database* (DECCW 2012; search area 10 km x 10 km centred on the Subject Property – 33°32'48.11S, 150°41'45.77"E) was accessed to identify previous recordings of flora species of conservation significance within the Region.

#### 3.1.2 Flora Field Survey

Field investigations were undertaken by Botanist David Thomas on 25 November 2103. Approximately three (3) person hours were spent on site. A further three (3) hours was spent in laboratory time. This survey followed an initial site inspection carried out by Restoration Ecologist Judith Rawling on 20 November (total flora survey effort = ~7 hours).

The vegetation within the Subject Property was first assessed on foot using the 'Random Meander' method as described by Cropper (1993).

A targeted search was then undertaken for all threatened species listed under the Schedules of the NSW *TSC Act* and/or the Commonwealth *EPBC Act* which have been identified as occurring, or potentially occurring, in the Locality and Region (see *Table 3.1*).

The Study Area was surveyed using a general random meander, this method covering the whole Study Area. Where access was available, random meander was supplemented by several extended linear transects. Additional notes were taken in adjoining areas, as appropriate. Care was taken to survey all microhabitats within the proposed development site and on immediately adjoining land. Details of the site and its vegetation were recorded, including species present and their proportions, vegetation structure, soil and geology, drainage and condition of site and native vegetation.





Plant nomenclature accords with Harden 1990-93. The plant community was initially described based on the dominant trees and structure.

The conservation significance of the plant community and species was based on the NSW *TSC Act* and Commonwealth *EPBC Act*. Regional and local conservation value was assessed using DECCW/OEH (2009), Briggs & Leigh (1995) and local knowledge.

#### Limitations

The field survey was undertaken in late spring (November 2013) when many of the native species were in flower. Despite the recent drought conditions, recent rains had promoted regrowth of some of the affected ground covers.

The diversity of the species recorded during the current survey is expected to be influenced by seasonal factors, with some species likely to be inconspicuous or absent from the above ground population during particular times of the year. This is particularly true of terrestrial orchids, which can persist for extended periods as dormant underground tubers. However, given the substantially cleared nature of much of the Study Area and its long time use for agriculture, for the purposes of these preliminary investigations survey effort was considered to be adequate.

## 3.2 Results

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### 3.2.1 Flora Species

A total of 108 flora species was recorded for the Study Area, which included bushland on the upper slopes, in the gully, and along part of Howes Creek. Of this number, 74 species recorded (~42%) are locally indigenous (native) species, while the remainder (34) were either weeds or horticultural introductions (see *Appendix 3* for a list of flora species recorded).

**NOTE** that the flora list presented in *Appendix 3* is not meant to be a list of all species occurring in the Study Area, and generally excludes agricultural or horticultural cultivars. This list represents only those species identified while searching for rare or threatened flora (as determined under the Schedules of the *TSC* and *EPBC Acts*). Given its previous agricultural land uses it can be expected that many of the understorey (ground stratum) species are introductions although some native grasses and flowering forbs were seen to occur; mainly growing underneath the large trees and shrubs in areas where the slasher has been excluded.

### 3.2.2 Threatened Species

A database search (OEH 2013) provided a list of eight (8) flora species with records occurring in the Study Region (i.e. within a 10 km radius) and listed under the NSW *TSC Act 1995* and/or Commonwealth *EPBC Act 1999*. This list is provided in *Table 3.1*.

**Table 3.1: Threatened Flora Table**

E/E1 = Endangered, V = Vulnerable

\*Within a 10km x 10km area centred on the Subject Property (OEH 2013)

SCIENTIFIC NAME	COMMON NAME	LEGAL STATUS		RECORDS*	LIKLIHOOD OF OCCURRENCE IN STUDY AREA
		TSC ACT	EPBC ACT		
<i>Cynanchum elegans</i>	White-flowered Wax Plant	E1	E	2	Suitable habitat
<i>Tetradthea glandulosa</i>		V	V	2	No suitable habitat
<i>Leucopogon fletcheri</i> <i>subsp. fletcheri</i>		E1	-	2	No suitable habitat
<i>Dillwynia tenuifolia</i>		V	-	1	No suitable habitat
<i>Grammitis stenophylla</i>	Narrow-leaf Finger Fern	E1	-	5	No suitable habitat
<i>Syzygium paniculatum</i>	Magenta Lilly Pilly	E1	V	2	No suitable habitat
<i>Zieria involucreta</i>		E1	V	3	Habitat unlikely to be suitable as the species occurs on sandstone-derived soils
<i>Pimelea spicata</i>	Spiked Rice-flower	E1	E	1	Habitat potentially suitable

**NOTE:** previously DECCW/OEH listed all threatened species which had the *potential* to occur in an area, but this has been changed and Table 3.1 lists *only* those species which have actually been recorded within a 10 x 10 km radius of the Study Area.

Despite targeted searches, no (0) flora species or populations listed under the NSW *TSC Act* or Commonwealth *EPBC Act* (per Table 3.1) were recorded in the Study Area.

Habitat for all listed species except for *Cynanchum elegans* (White-flowered Wax Plant) was considered to be unsuitable as the result of habitat alteration for farming in existing open areas and dense shading by woody weeds in bushland.

Based on NPWS (1997) one (1) species (*Ehretia acuminata* – Koda) recorded during the current survey is likely to be “regionally significant”.

### 3.2.3 Introduced Species

Many of the understorey species recorded were introduced horticultural species or weeds (34 units or 30%). Seven (7) species are declared as ‘noxious weeds’ gazetted for HRCC (*Noxious Weeds Act 1993 [amended 2005]*). These were woody weeds such as *Ligustrum lucidum* and *L. sinense* (Privets), *Lantana camara* (Lantana), *Olea europaea* subsp. *africana*, (African Olive), *Lycium ferocissimum* (African Boxthorn), and *Rubus fruticosus* (Blackberry). Other noxious species are likely to occur but were not recorded during the preliminary survey. Two (2) herbs *Asparagus asparagoides* (Bridal Veil Creeper) and *A. aethiopicus* (Asparagus ‘fern’) occur in small numbers but are also likely to occur elsewhere in sheltered locations (see Table 3.2).

**Table 3.2: Noxious Weed Species recorded for the Subject Property**

FAMILY	BOTANICAL NAME	COMMON NAME	NOXIOUS WEED CLASS
Asparagaceae	<i>Asparagus asparagoides</i>	Bridal Veil Creeper	Class 4, WoNS
Oleaceae	<i>Ligustrum lucidum</i>	Large-leaf Privet	Class 4
Oleaceae	<i>Ligustrum sinense</i>	Small-leaf Privet	Class 4
Oleaceae	<i>Olea europaea subsp cuspidata</i>	African Olive	Class 4
Rosaceae	<i>Rubus fruticosus</i>	Blackberry	Class 4, WoNS
Solanaceae	<i>Lycium ferocissimum</i>	Africa Boxthorn	Class 4
Verbenaceae	<i>Lantana camara</i>	Lantana	Class 4, WoNS

**Actions Required For Noxious Weed Classes**

1 The plant must be eradicated from the land and the land must be kept free of the plant

2 The plant must be eradicated from the land and the land must be kept free of the plant

The plant must be fully and continuously suppressed and destroyed

The growth and spread of the plant must be controlled according to the measures specified in a management plan\* published by the local control authority and the plant may not be sold, propagated or knowingly distributed

The requirements in the Noxious Weeds Act 1993 (as amended 2005) for a notifiable weed must be complied with

**3.2.4 Vegetation Communities**

Four (4) plant communities: were recorded: three (3) were naturally occurring (or native) communities and the fourth was an introduced (or exotic) grassland established as grazing pasture.

These are described as:

- Forest Red Gum-Narrow-leaved Ironbark Woodland (=Cumberland Shale Plains Woodland/Moist Shale Woodland);
- Forest Red Gum-Cabbage Gum Woodland (=Cumberland Shale Sandstone Transition Forest);
- Riparian Vegetation; and
- Exotic Grassland (pasture).

A brief description of site floristic and structure observed for each plant community follows.

**Table 3.3: Typical floristics & structure of Forest Red Gum-Ironbark Woodland**

STRATA	MAIN SPECIES	HEIGHT RANGE	PROJECTIVE FOLIAGE COVER
Canopy trees	<i>Eucalyptus tereticornis</i> , <i>Eucalyptus crebra</i>	15-25 metres	15%
Small Trees	<i>Acacia parramattensis</i> , <i>Alphitonia excelsa</i> , <i>Acacia implexa</i> .	5-12 m	10%
Shrubs	<i>Ligustrum sinense*</i> , <i>Lantana camara*</i>	0.3-4 m	40%
Ground Cover	<i>Microlaena stipoides</i> , <i>Carex longebrachiata</i> = introduced species	0-0.3 m	30-70%

**Table 3.4: Typical floristics & structure of Forest Red Gum-Cabbage Gum Woodland**



STRATA	MAIN SPECIES	HEIGHT RANGE	PROJECTIVE FOLIAGE COVER
Canopy trees	<i>Eucalyptus amplifolia</i> , <i>Eucalyptus tereticornis</i>	15-25 metres	15%
Small Trees	<i>Acacia parramattensis</i> , <i>Alphitonia excelsa</i> , <i>Acacia implexa</i> .	5-12 m	5%
Shrubs	<i>Bursaria spinosa</i> , <i>Lantana camara</i> *	0.3-4 m	70%
Ground Cover	<i>Microlaena stipoides</i> , <i>Carex longibrachiata</i>	0-0.3 m	30-70%

\*= introduced species

Table 3.5: Typical floristics &amp; structure of Riparian Zone Woodland

STRATA	MAIN SPECIES	HEIGHT RANGE	PROJECTIVE FOLIAGE COVER
Canopy trees	<i>Eucalyptus amplifolia</i> , <i>Eucalyptus tereticornis</i>	15-25 metres	5%
Small Trees	<i>Backhousia myrtifolia</i>	5-10 m	70%
Shrubs	<i>Ligustrum sinense</i> *, <i>Lantana camara</i> *	0.3-4 m	20%
Ground Cover	<i>Doodia aspera</i> , <i>Pellaea falcata</i>	0-0.3 m	10-30%

\*= introduced species

Table 3.6: Typical floristics &amp; structure of Exotic Grassland (pasture)

STRATA	MAIN SPECIES	HEIGHT RANGE	PROJECTIVE FOLIAGE COVER
Canopy trees	absent		
Small Trees	Largely absent		
Shrubs	Largely absent		
Ground Cover	<i>Paspalum dilatatum</i> *, <i>Cynodon dactylon</i> *, <i>Microlaena stipoides</i>	0-0.3 m	70%

\*= introduced species

### 3.3 Condition of Vegetation

The code used to assess the Condition of Vegetation assumes four (4) structural strata: tall tree (canopy), small tree, shrub and ground cover. The % of exotics is estimated for each stratum and entered with a slash / between.

If a stratum is absent, this is shown by an "a" in the relevant place. Where there are a few individuals present, but less than the 5% considered necessary to form a structural stratum, "a" might be used with the % of these species that are exotic (e.g. a-80), in the relevant place. An example would be 0/a/a-20/60%.

The Condition of Bushland Weed Code for the Subject Property at Kurmond is as follows:



- Forest Red Gum-Narrow-leaved Ironbark Woodland – 0/1/95/15%;
- Forest Red Gum-Cabbage Gum Woodland – 0/0/2/2%;
- Riparian Vegetation – o/o/50/5%; and
- Exotic Grassland – a/a/a/80.

A colour-coded Condition of Bushland Map can now be prepared using the above-listed weed codes. This may be appropriate to the forthcoming Ecological Surveys Report and/or any Vegetation Management Plan required.

### 3.4 Conservation Significance

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#### 3.4.1 Plant Communities

**Forest Red Gum-Narrow-leaved Ironbark Woodland** – a variant of **Cumberland Shale Plain Woodland** (part of CPW complex)

- Mapped as Cumberland Shale Plain Woodland (a CEEC), but mesic species in sheltered gully locations includes species listed for the related EEC **Moist Shale Woodland**.
- Could be a viable plant community if woody weed thickets in the understorey were removed (Lantana, Blackberry & Privets)
- *Moderate conservation value* owing to extent of weed thickets, existing isolation from other bushland, and probable impact from proposed development (mostly due to bushfire hazard control).

**Forest Red Gum-Cabbage Gum Woodland** – variant of **(Cumberland) Shale Sandstone Transition Forest**

- Found on the lower gully and slopes and extending into the riparian vegetation.
- Contains some species characteristic of the EEC **Moist Shale Woodland**<sup>3</sup> (as above)
- *High conservation significance*.
- Relatively large patch of bushland in good condition. Likely to retain existing connectivity to other bushland along the Howes Creek riparian zone.

**Riparian Vegetation** – riparian component of **(Cumberland) Shale Sandstone Transition Forest**

- Contains some species characteristic of the EEC Moist Shale Woodland (as above)
- *High conservation significance* – as for previous community

**Exotic Grassland** – retired grazing pasture

- *No special conservation significance*.
- Minor areas of native grass *Microlaena stipoides* in pasture– relic of original plant community

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▪ <sup>3</sup> EEC MSW variant appears restricted to the local area.



### 3.4.2 Plant Species

No (0) threatened flora species listed under the NSW *TSC Act* or Commonwealth *EPBC Act* were recorded in the Subject Property or Study Area. One (1) species recorded (*Ehretia acuminata* – Koda) is considered to be 'locally significant' (UBBS 1997).

## 3.5 Flora Assessments of Significance

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The NSW *TSC Act* aims to conserve threatened species, populations, ecological communities and their habitats; to promote their recovery; and manage the processes that threaten or endanger them. Threatened species are listed under Schedules 1 and 2 of the Act, while communities considered 'at risk of extinction' are listed as 'Endangered Ecological Communities' ('EECs') under Part 3, Schedule 1.

Under the terms of the legislation, Local Government must assess the impacts of any proposed activity which might adversely impact on the EEC or any threatened species or populations, and where these are likely to occur, must identify strategies to minimise any such impacts. Further, development on adjoining land may also have a significant impact on the bushland's natural values, so that such activities must be carefully assessed by the Consent Authority (here HCC) prior to development consent being granted.

Under Section 5A of the *EP&A Act*, any development activity impacting on a species, population or ecological community listed under the *TSC Act* requires the application of an "Assessment of Significance". As well, listings under the Commonwealth *EPBC Act* require are subject to a similar Assessment process.

An Assessment of Significance (commonly called 'the Seven-part Test') is designed to determine "whether there is likely to be a significant effect on threatened species, populations, ecological communities or their habitats" (as listed on the Schedules of the NSW *TSC Act*), and consequently, to determine whether a Species Impact Statement is required. As the remnant vegetation on site does not meet the diagnostic criteria for SSTF established under the *EPBC Act*, an assessment under the Commonwealth guidelines has not been undertaken.

In order to determine whether further studies are required, a search of the relevant ecological databases is required in order to identify those ecological communities, threatened species or populations known for the Locality and Region. This is followed by a comprehensive site survey to determine the presence, or potential presence of any threatened entities.

The field investigations undertaken provide the required ecological studies. Results of those investigations are presented in *Section 3.2* (flora) and *Section 4.3* (fauna) of this Report. The recommendation on whether or not to apply the Seven-part Test has been made with respect to the outcomes of these investigations.



### 3.6 Assessments of Significance for Flora Issues

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#### Commonwealth Legislative Considerations

The need to conduct an Assessment of Significance for **Cumberland Shale Plains Woodland** (a component of the Cumberland Plain Woodland Complex) has been considered in accordance with the *Significant Impact Guidelines* (Department of the Environment & Heritage 2006). The Cumberland Plain Woodland is listed under the *EPBC Act* as 'a Critically Endangered Ecological Community' ('CEEC') and appears under the Schedules of the *Act* as *Cumberland Shale Plains Woodland and Shale Gravel Transition Forest*.

For consideration under the *EPBC Act*, the listing criteria require the stand (or patch) of CPW to have connectivity to other large patches of native vegetation in the landscape AND to be greater or smaller than 0.5 ha in size, AND have a perennial understorey vegetation of at least 30% native species.

A stand of remnant CSPW with elements of another EEC Moist Shale Woodland occurs in the southern sector of the Subject Property. The remnant is about 15,734 sq metres (~1.6 ha) in size. It adjoins a smaller stand of CSPW on the adjoining property to the east ('Dayspring' @ #1420 Kurmond Road); with another smaller patch located to the west in the grounds of Kurmond Public School (see *Figure 2.2*).

Although the size of the CSPW remnant is >0.5 ha and it is connected to bushland on the neighbouring property, the % cover of understorey species is less than 30%, this having been substantially replaced by introduced species/weeds.

The proposed rural subdivision locates the building footprints in open grassland outside the boundaries of the CSPW remnant (see *Figure 1.2*). However, if clearing or modification of the bushland to create Asset Protection Zones is required, then some impacts will occur. It is anticipated that any such modification will be restricted to clearing woody weed thickets in the understorey and that native trees and large shrubs will be left *in situ*.

Therefore, giving consideration to the *EPBC Act Listing Advice* (available at [www.environment.com.au](http://www.environment.com.au)) it is considered that the stand of CSPW in the Subject Property does not meeting the listing criteria and that an Assessment under the *EPBC Act* will not be required.

#### NSW State Legislative Considerations –Seven-part Test for Cumberland Plain Woodland

An Assessment of Significance ('Seven-part Test') under Section 5A of the *Environmental Planning and Assessment Act 1979* is designed to determine "whether there is likely to be a significant effect on threatened species, populations, ecological communities or their habitats" (as listed on the Schedules of the *NSW TSC Act*), and consequently, to determine whether a Species Impact Statement is required (see a description for Cumberland Shale Plains Woodland ('CSPW') in *Appendix 1*).

An Assessment of Significance has been recommended in relation to the potential impacts of the proposed rural subdivision on rural residential land zoned RU-2 under Hawkesbury LEP 2012.



A stand of remnant CSPW occurs on the slopes in the southern sector of the Subject Property. The remnant is about 15,734 sq metres (~1.6 ha) in size. It adjoins a smaller stand of CSPW on the adjoining property to the east ('Dayspring' @ #1420 Kurmond Road), with another smaller patch to the west in the grounds of Kurmond Public School (see *Figure 2.2*).

As CSPW (per Tozer *et al.* 2010) is listed under the *TSC Act* as part of the Cumberland Plain Woodland Complex, a Seven-part Test will be required to assess the impact of the Proposal on the CEEC CPSW. This Assessment will be undertaken as part of a subsequent Development Application should the Planning Proposal be ultimately approved.

Similarly, under the precautionary principle, a Seven-part Test will also be required to assess the impacts of the Proposal on the EEC SSTF which occurs along Howes Creek.

These Assessments will be undertaken as part of a subsequent Development Application should the Planning Proposal be ultimately approved.