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Corpus Christi Primary School
The Northern Road, Cranebrook

Proposed Residential Subdivision

Flora & Fauna Assessment Report

21st December 2012

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CORPUS CHRISTI PRIMARY SCHOOL
THE NORTHERN ROAD, CRANEBROOK

PROPOSED RESIDENTIAL SUBDIVISION

FLORA & FAUNA ASSESSMENT REPORT

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PART A INTRODUCTION & INFORMATION BASE

1 INTRODUCTION

1.1 Background

The subject site is the existing Corpus Christi Primary School, which is known formally as Lot 912 in DP 836642 The Northern Road, Cranebrook (Figure 1). The subject site is located approximately 50 kilometres to the northwest of the Sydney Central Business District (CBD), within the Penrith City Council Local Government Area (LGA).

The site is bound by residential development to the north and south, The Northern Road to the east and Andromeda Drive to the west. The primary school is accessed off Andromeda Drive at its western boundary, with a large carpark and the school buildings and associated features in the western 'half' portion of the site. The eastern 'half' of the subject site comprises a predominantly cleared grassed area, with some degraded native vegetation at its peripheries (Figure 2).

The eastern portion of the subject site had been used in the past as a temporary location for the Xavier Secondary College while a new College was under construction. The demountable buildings associated with this activity were decommissioned approximately five years ago, when the Xavier Secondary College was relocated to the new facility.

The principal author of this *Report* is the previous owner and director of Gunninah Environmental Consultants and was the director of Environmental Insites. In both roles, Dominic Fanning was involved in the preparation of flora and fauna assessments for works on the site, including for those associated with the temporary secondary college facility.

The previous investigations on the subject site at Cranebrook detected the presence of three threatened plants (a number of specimens of the *Dillwynia tenuifolia* and *Grevillea juniperina* subsp. *juniperina*, as well as a few specimens of *Pultenaea parviflora*) and an "*endangered ecological community*" known as the Shale Gravel Transition Forest (SGTF) community.

The subject site is zoned *R(2) – Low Density Residential* pursuant to the Penrith *Local Environmental Plan – Planning Proposal 2012* (Penrith City Council 2012), and the proposed residential development of the subject site is consistent with the existing and the proposed future urban landscape of this part of Cranebrook. It is noted that the recent zoning of the land for residential purposes was made by Council, and approved by the Department of Planning & Infrastructure (DPI).

1.2 Definitions

Definitions used in this *Report* include:

- "*subject site*" The Corpus Christi Primary School (Lot 912 in DP 836642) The Northern Road, Cranebrook (Figure 1)
- "*study area*" the "*subject site*" and areas directly or indirectly associated with it
- "*locality*" an area 10km around the "*subject site*"

1.3 Proposed Development

The proposal (Figure 5) is for the staged subdivision of the subject site involving:

- Stage 1 subdivision of the subject site into two large lots; and
- Stage 2 further subdivision of the eastern portion of the subject site into 22 lots for future residential development purposes and 2 reserves.

The proposal includes connection of each site to services, and the construction of the new road and cul-de sac. Whilst no dwellings are proposed, this assessment considers the ultimate impact of future residential development across the site.

The majority of the eastern portion of the subject site (the 'development area') is intended for residential development, with the exception of the northwestern corner and a narrow band along the eastern boundary which are to be retained for biodiversity conservation purposes. It is a basis of this assessment that the project would also involve the salvage and relocation of essentially all vegetation within the subdivision area to the *Reserve Area*.

It is also an assumption of this *Assessment Report* that the mitigation measures proposed, involving the salvage and relocation of vegetation to the proposed *Reserve Area*, will be fully implemented as part of the subdivision, road and services works.

1.4 Scope and Aims of this Report

The aims of this *Flora & Fauna Assessment Report* with respect to the subject site at The Northern Road, Cranebrook are:

- to undertake a survey to identify the biota present and/or likely to occur;
- 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); and
  - the *Threatened Species Conservation Act 1995* (TSC Act).

Consideration of the *Environmental 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

A number of previous ecological studies (Gunninah 1998a, 1999, 2000a, 2000b) have been referred to in the preparation of this *Report*. Site work undertaken on the subject site during those previous studies involved:

- five days of survey work in June 1998;
- a site inspection and search for threatened species in September 1998;
- a detailed vegetation survey in October 1999; and
- targeted surveys for relevant threatened biota (including the Cumberland plain Woodland, Cumberland Plain Land Snail, Green and Golden Bell Frog, *Pultenaea parviflora*, *Pimelea spicata*, *Dillwynia tenuifolia*, *Micromyrtus minutiflora* and *Acacia pubescens*) in 1998 and 1999.

Other 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 site (*eg* at the ADI site);
- inspection of the OEH[1] Atlas of NSW Wildlife records for the locality (Appendix B);
- inspection of the NPWS (2002) vegetation mapping of the locality (Figure 3); and
- the general published literature on threatened biota (see *Bibliography*).

A supplementary site survey was undertaken on the 27th of August 2012 to provide specific data and observations for this *Report*. The site work involved:

- the collection of a 'Random Meander' (*sensu* Cropper 1993) flora species list;
- the collection of an opportunistic fauna species list;
- targeted searches for the threatened species which had previously been recorded on the site, including;
  - the Cumberland Plain Land Snail, which is listed as a "*vulnerable*" species in the *Threatened Species Conservation Act 1995* (TSC Act);
  - Juniper-leaved Grevillea - a threatened *'vulnerable'* plant listed in the TSC Act; and
  - *Dillwynia tenuifolia*, which is also a threatened plant listed as "*vulnerable*" in the TSC Act.

Weather conditions on the 27th of August were clear and warm with a light northeasterly wind. Whilst no rain fell during the survey, there had been some rain prior to the survey (on the 24th of August) improving conditions for detection of the Cumberland Plain Land Snail.

[1] The OEH (Office of Environment & Heritage) incorporates most of the former DEC, DECC, DECCW and National Parks & Wildlife Service (NPWS).

3 The EXISTING ENVIRONMENT

3.1 The Locality

The subject site is located within a low-density residential precinct in the far west of the Sydney metropolitan area (Figure 1). Accordingly, the land in the vicinity of the subject site comprises a mixture of cleared and developed land, as well as partly cleared and fully vegetated land.

The subject site itself is situated within a residential precinct and, consequently, areas of vegetation in the direct vicinity are scattered and patchy, including:

- a narrow band of vegetation along The Northern Road, which is within the road reserve and is likely to require clearing to facilitate its future upgrade;
- a small band of vegetation within an original large-lot residential subdivision which abuts the northern boundary of the subject site in its northeastern corner; and
- patches and scatters of vegetation within similar large-lot residential areas to the east of The Northern Road.

There are substantial areas of 'relatively' intact native forest and woodland vegetation in the wider vicinity. These include *Priority Conservation Lands* (PCLs) identified in the *Cumberland Plain Recovery Plan* (see Chapter 4.5.2) which are located further to the north, northeast and southeast of the subject site (Figure 1).

The vegetation on the site and nearby has been mapped by the NPWS 2002 (Figure 3) as:

- Shale Gravel Transition Forest;
- Cooks River Castlereagh Ironbark Forest;
- Shale Hills Woodland; and
- Shale Plains Woodland.

The majority of the vegetation in the direct vicinity of the subject site (*ie* within the residential area) is mapped by NPWS (Figure 4) as having a <10% cover, and much of the vegetation has been reduced to scattered individual trees in backyards, small areas of public open space and on road verges. The NPWS 2002 mapping, however, is not accurate (see Figures 1 and 3).

Despite the high level of disturbance, and given the location and circumstances of the vegetation present across the study area, that vegetation could (in part at least) constitute one or other of the Cooks River Castlereagh Ironbark Forest (CRCIF), Shale Gravel Transition Forest (SGTF) and/or Cumberland Plain Woodland (CPW), which are all "*endangered ecological communities*" (EECs) listed in the TSC Act and/or EPBC Act. The latter is listed as a "*critically endangered ecological community*" (CEEC) in the TSC Act, and the SGTF and CPW are also listed as a CEEC in the EPBC Act.

3.2 The Subject Site

As mentioned above, the subject site contains the school buildings and associated features in its western portion, with the eastern portion being substantially cleared with narrow patches of degraded vegetation (Figure 2). The site is relatively flat with a gentle west-facing slope towards the school.

The subject site, although largely cleared and developed (Figure 2) is mapped by NPWS 2002 (Figure 3) as containing:

- 'Cooks River Castlereagh Ironbark Forest' with an urbanised <10% cover - around the school buildings in the western portion of the site;
- 'Shale/Gravel Transition Forest' with a <10% cover - in the central western portion of the subject site, as well as a narrow band of >10% cover - in the central eastern portion; and
- 'Shale Plains Woodland' with a >10% cover - in the eastern portion of the subject site.

As noted above, these vegetation communities could (in some circumstances) constitute "*endangered ecological communities*" (EECs) or "*critically endangered ecological communities*" (CEECs) known as Cooks River Castlereagh Ironbark Forest (CRCIF), Shale/Gravel Transition Forest (SGTF) and/or Cumberland Plain Woodland (CPW).

There are no other outstanding natural features (such as creeks, caves or rock outcrops) evident on the subject site (Appendix A).

4 FLORA and VEGETATION

4.1 Existing vegetation

The western portion of the site is characterised by the Corpus Christi Primary School, including carparking, buildings, paved and grassed areas. Whilst the NPWS maps two vegetation communities across this portion of the site (Figure 3) there are in fact only a few scattered trees in this area (Figure 2), which arguably do not constitute an 'ecological community' in this form.

The eastern portion of the site (which is proposed for residential subdivision and open space) was previously the temporary location of the Xavier College, and is now characterised by a cleared open area of exotic lawn grasses, with a narrow band of native vegetation along its peripheries, slightly more substantial along the northern boundary (Figure 2).

Based on the previous tree data and the recent site inspection, the vegetation and scattered trees in the eastern part of the subject site are dominated by a canopy of Broad-leaved Ironbark, with a substantial mid-storey of *Melaleuca decora*.

Other tree species observed during the recent site inspection include Rough-barked Apple (in the road reserve), Forest Oak, Green Wattle and Prickly-leaved Paperbark (Appendix D). The understory generally comprises scattered specimens of *Dillywnia sieberi*, Blackthorn, Gorse Bitter Pea, Berry Saltbush and Dogwood.

The groundcover within the 'wooded' is relatively sparse, with a substantial amount of leaf litter accumulation beneath the canopy of Ironbarks. Native groundcover specimens were scattered or present only in small patches and included herbs (such as Kidney Weed, Slender Tick-trefoil and White Root), grasses (such as Wiregrass, Wiry Panic and Weeping Grass) and other graminoids (such as Spiny-headed Mat-Rush, *Lomandra filiformis* and *Lepidosperma laterale*).

4.2 Flora Species

Random Meander and systematic botanical surveys conducted as part of this investigation have recorded a total of 58 plant species from within the subject site and adjoining road reserve (Appendix D). Of these, a total of 39 native species were recorded, along with 19 exotic species. A few of the exotic species including Mother of Millions and Wandering Jew are also listed as noxious species in NSW.

4.3 Threatened Species

The recent site inspection mapped 39 specimens of the threatened *Dillwynia tenuifolia*, and 54 specimens of the Juniper-leaved Grevillea *Grevillea juniperina* subsp. *juniperina* across the subject site and adjoining road reserve at Cranebrook. *Dillwynia tenuifolia* and Juniper-leaved Grevillea are both listed as "*vulnerable*" species on the TSC Act.

The specimens of *D. tenuifolia* are located along the northern boundary within areas of protection fencing, which was a management measure in association with the temporary Xavier Secondary College.

The specimens of Juniper-leaved Grevillea are mainly located also within the fenced areas, with a few scattered specimens outside these areas. There is also a substantial patch of Juniper-leaved Grevillea within The Northern Road reserve, just outside the northeastern boundary of the site. A number of the Grevillea in the fenced area in the southeastern corner of the subject site were dead or in poor health (Figure 4).

No other "*threatened species*" of flora were recorded on the subject site during the recent site inspection, and no specimens of *Pultenaea prunifolia* (of which there were originally only two remaining) were located.

Given the intensity of past and present surveys, as well as 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 using fertilisers, irrigation and weed control), no suitable habitat for any additional threatened plant species is present.

4.4 Threatened Populations

No "*endangered populations*" of any flora species listed on the TSC Act have been recorded from the subject site, and there are none that have been detected in the vicinity (Appendix B).

4.5 Endangered Ecological communities

As noted above, the vegetation communities mapped by NPWS as present on the subject site could constitute EECs known as Shale Gravel Transition Forest (SGTF), Cooks River Castlereagh Ironbark Forest (CRCIF) and Cumberland Plain Woodland (CPW).

The native plants surveyed during the recent site inspection include a number of species which are listed as 'charactenstic' of the SGTF, CRCIF and CPW communities (Appendix D). The following should be noted with regard to these species and EECs:

- a total of 20 species typical of CRIF EEC are present, with 18 SGTF species and only 15 CPW species;
- 7 of the 20 species of CRCIF are exclusive to that community (*ie* not 'characteristic' of CRCIF or CPW), with only one species exclusive to the CRCIF and CPW communities;
- several canopy and mid-canopy species of the CRCIF were present (including Broad-leaved Ironbark, Grey Box, Rough-barked Apple, Turpentine, Prickly-leaved Paperbark and *Melaleuca decora*);
- the only canopy species typical of the CPW community is the Grey Box, which is present in extremely small numbers;
- the Broad-leaved Ironbark, Grey Box and *M. decora* are typical of the SGTF EEC;
- the list of 'characteristic species' for CPW is considerably larger than the list of characteristic species of the other communities, and yet the number of species present on the subject site is less than for the other EECs; and
- the list of 'characteristic species' for CRCIF is slightly larger than the list of characteristic species of SGTF.

The current floristic analysis suggests that the vegetation present on the subject site more closely correlates to the Cooks River Castlereagh Ironbark Forest (CRCIF), but also fits relatively well into the description of the Shale Gravel Transition Forest (SGTF). Given the high level of disturbance within and surrounding the remaining vegetation, as well as the similarities between SGTF and CRCIF, it is difficult to determine between the two communities. It is possible that the vegetation present on the site may have once represented an eco-tone between the CRCIF and SGTF communities.

It is noted that both the CRCIF and SGTF are listed as "*endangered ecological communities*" in the TSC Act, but the SGTF has also been listed as "*critically endangered*" in the EPBC Act.

On the basis of the floristic data detailed above, the vegetation on the subject site and adjoining it is considered to constitute a degraded example of the CRCIF community. However, given its condition and circumstances, and the objectives outlined in the *Cumberland Plain Recovery Plan*, the authors are of the opinion that the vegetation on the subject site does not constitute a significant stand of the CRCIF **community**.

Nevertheless, an assessment of the relevance or otherwise of the vegetation on the subject site to the survival of the CRCIF community has been provided in the *Section 5A Assessment of Significance* attached to this *Report*.

5 FAUNA and FAUNA HABITATS

5.1 Fauna Habitats

The subject site at Cranebrook is located in a relatively densely populated part of Sydney, which is largely urban and which has had a long history of agricultural activity. The subject site is largely cleared, but contains a narrow band of native vegetation along its northern boundary, which extends approximately 50m to the northeast into the adjoining large-lot residential property and along the road reserve for The Northern Road.

The subject site provides only extremely limited 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 recent site inspection during September 2012, attest to this observation. Only four native birds were observed - common in urban and peri-urban environments. During the recent site inspection, a dead shell of the Cumberland Plain Land Snail was recorded along the road reserve, but no live snails were found, and no snails or shells were recorded within the subject site itself. In addition, only dead shells have been recorded on the site in the past (Gunninah 2001).

There are no hollow-bearing trees on the subject site at Cranebrook. Habitat features such as hollow logs or notable woodland debris are also absent.

The degraded and sparse understorey vegetation (native and exotic) across the subject site provides little habitat and shelter, and is mainly suitable only for small reptiles such as skinks. This lack of shelter indicates that native terrestrial mammals are not likely to be present. In addition, a domestic cat was observed during the site inspection, which is likely to deter and limit the presence of native terrestrial animals.

There are no other habitat features or resources present which are of any significance for any native fauna, threatened or otherwise. The nature, condition and context of the subject site 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 site during 2012 identified a fauna assemblage of 5 native species (4 birds and 1 snail) and 2 introduced/domestic species (Appendix E).

Doubtless, a number of additional urban-tolerant and peri-urban fauna species would be likely to utilise the subject site, on occasions at least. In particular, an array of native bird species would likely to utilise plants on the subject site when flowering, and it is also likely that some microchiropteran bats would fly over the site for foraging purposes. There are, however, no significant natural features which would contribute to the survival of local populations of native biota.

No amphibian species were recorded during the survey period and none are likely to occur. The subject site does not provide any habitat for the Green & Golden Bell Frog, which is the only threatened amphibian known in the locality (Appendix B).

No reptiles have been observed using the subject site, and only common urban and peri-urban reptile species (such as the Common Blue-tongue Lizard and Garden Sun-skink) are likely to occur. There are no threatened reptile species known to the locality (Appendix B).

Four native bird species have been recorded in the subject site (Appendix E), all of which occur commonly in urban and peri-urban environments. Whilst the subject site could theoretically be utilised on a temporary basis by individuals of some of the more wide-ranging threatened bird species known to occur in the locality, the modified and disturbed nature of the vegetation present indicates that the subject site would not be important for any of these species.

Nine threatened mammals have been recorded within the locality (4 microchiropteran bats, the Grey-headed Flying Fox and 4 non-flying mammals), the majority of which are forest-dependent. These species are highly unlikely to occur other than possibly as occasional foraging individuals.

Given the large area of the subject site, it is theoretically possible that individuals of the more mobile wide-ranging and habitat generalist species (such as the Grey-headed Flying Fox) could utilise the subject site 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.

During targeted searches for the Cumberland Plain Land Snail on the 27th of August 2012, only one individual dead shell was located within The Northern Road reserve outside the southeastern boundary of the subject site. The past records of the species on the site were also dead shells, and no live specimens have ever been found on the site.

5.3 Threatened Species

One threatened species, the Cumberland Plain Land Snail was recorded during the recent site survey at Cranebrook, being a single dead shell within The Northern Road reserve, outside the southeastern boundary of the subject site. The past and present records of dead shells on the subject site and adjoining areas indicate that there is no extant population within the subject site.

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 a temporary basis, the subject site could not constitute a significant area of habitat for even individuals of these species - due to its small size, disturbed nature and the nature of the locality.

Nevertheless, a generic *Assessment of Significance* pursuant to Section 5A of the EP&A Act for threatened fauna (including consideration of the Cumberland Plain Land Snail) is provided in Chapter 6.3 of this *Report*.

6 GENERAL IMPACT ASSESSMENT and DEVELOPMENT CONSTRAINTS

Whilst the proposed development at Cranebrook (as noted above) will require the removal of native trees 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 include:

- the small area of vegetation within the subject site (approximately 0.6 hectare), as well as the small size of the whole patch (approximately 1ha);
- the narrow, contorted shape of the patch (Figure 4), which exposes the vegetation to very significant 'edge effects';
- the highly modified and artificial nature of the overwhelming majority of the site;
- the lack of connectivity of vegetation on the site to larger areas of vegetation on lands to the east and northeast (see Figure 1); and
- the lack of special resources or habitat features of particular significance for any native fauna, including in particular for threatened species.

Given the marginal likely relevance of the subject site for additional threatened species which could potentially occur, beyond the recorded species (as discussed in Chapters 4 and 5), detailed *Assessments of Significance* for an array of potential species, pursuant to Section 5A of the EP&A Act, are not considered necessary. Nevertheless, a generic *Section 5A Assessment of Significance* for threatened species is provided in Chapter 6.3 of this *Report*. Detailed *Section 5A Assessments of Significance* for the Cooks River Castlereagh Ironbark Forest (CRCIF) and the two threatened plants are provided in Appendix F.

The proposed residential development of the subject site at Cranebrook is consistent with the recent and ongoing expansion of residential development areas in this part of Sydney. Even if retained (other than the Reserve associated with the school), it is extremely likely that the vegetation on the subject site would only continue to degrade, particularly given its size, its narrow shape and the nature of surrounding development. Following the future expansion of The Northern Road, the patch of vegetation (part of which is on the subject site) will be reduced to less than one hectare.

Non-development of the subject site would achieve little (if anything) in biodiversity conservation terms, as the vegetation present (consisting of a highly disturbed narrow band of CRCIF vegetation) is not regarded as of particular conservation value or relevance.

7 SECTION 79C of the EP&A ACT

The subject site at Cranebrook has long been highly modified, and does not constitute a significant element of the *'natural environment'*. Whilst there is a narrow band of CRCIF vegetation as well as two **threatened plant species on the subject site, the long-term prognosis for this vegetation is very low, given**:

- the small area of vegetation within the subject site;
- the shape of the patch, which exposes the vegetation to very significant 'edge effects';
- the highly modified and artificial nature of the overwhelming majority of the site;
- the lack of connectivity of vegetation on the site to larger areas of vegetation; and
- the lack of special resources or habitat features of particular significance for any native fauna, including in particular for threatened species.

Notwithstanding the loss of some of the vegetation present, the proposed residential development of the site would not impose an unreasonable or substantial adverse impact upon the *'natural environment'* in general, given:

- the disturbed nature of the vegetation present;
- the minimal conservation significance or value of the vegetation identified for removal;
- the very small area involved, and its patchy nature;
- the narrowness of the stands of vegetation; and
- the very poor prognosis even if retained in general access parks and/or backyards, given the residential nature of the vicinity.

An additional consideration is the context of the subject site, and the known or likely future development of other lands at this location. The site is bound by residential development, the school and The Northern Road, which involve activities which are not conducive to the survival or flourishing of small narrow patches of vegetation.

Additionally, the removal of vegetation from the proposed lot areas will be mitigated by the salvage of CRCIF vegetation and the translocation of the threatened plants at the subdivision stage. The proposed development involves the establishment of two reserves which are to retain existing vegetation:

- an eastern reserve approximately 10m wide along The Northern Road – possibly to be added to The Northern Road reserve; and
- a larger reserve at the western end – which is to be incorporated into the Corpus Christi Primary School land, **to be used to educate students about bush regeneration and as a buffer to the residential development**.

The salvaged plant materials will be utilised in these reserves.

Given those circumstances, 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 site (*eg* individuals of some threatened mammals, particularly microchiropteran bats, or threatened birds, as well the Cumberland Plain Land Snail).

The CRCIF community, as well as the Juniper-leaved Grevillea and *Dillwynia tenuifolia*, are considered in detailed *Section 5A Assessments of Significance* in Appendix F of this *Report*.

8.2 The Seven Factors of Section 5A

Factor a Threatened Species – Risk of Extinction

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

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 site on occasions. The subject site itself does not provide particularly suitable habitat for any such species.

A single dead shell of the Cumberland Plain Land Snail was the only record of this species in the vicinity of the subject site (along The Northern Road), and detailed searches for the Snail were unable to locate any further evidence of the species within the subject site. It is most likely that there is no live population of the Snail on the subject site at Cranebrook, as the understory is only of marginal habitat value (at best) for the species, and there is no suitable shelter (rocks or logs) and no preferred food resource (rotting logs or other decaying vegetation).

It is not likely that a "*viable local population*" of any of the species considered above would be dependent on the subject site, either in isolation or as a significant element in a broader area of habitat.

Two species of threatened flora have been detected within the vegetation on the subject site, and are assessed in detailed *Section 5A Assessments of Significance* in Appendix F. No other threatened flora species were recorded on the subject site during the site inspection and, given the highly disturbed nature of the site, none are likely to be present. Consequently, the removal of vegetation from the subject site 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).

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 site 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.

The CRCIF vegetation on the subject site and the land adjoining the northern and eastern boundaries is highly degraded and isolated. Given those circumstances, the removal of some of the vegetation from the subject site would not impose a "*significant effect*" upon the CRCIF community at this location, or generally.

Nevertheless this community is considered in a detailed *Section 5A Assessment of Significance* in Appendix F of this *Report*.

Factor d Impacts on Habitat for Threatened Biota

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

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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.

Given the circumstances described above, and given the nature and condition of the subject site, 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 site; and
  - the lack of significant or relevant resources;
- 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 site 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 site does not represent listed "*critical habitat*" for any threatened biota.

Factor f Recovery Plans and Threat Abatement Plans

The *Cumberland Plain Recovery Plan* is discussed in detail in Chapter 4.5 of this *Report*. The subject site is not identified as an area of *Priority Conservation Land* (PCL) pursuant to that *Recovery Plan*, and the proposed development does not contravene the objectives of the *Cumberland Plain Recovery Plan*. The vegetation on the site is small in extent, patchy, degraded, narrow and surrounded by residential development. Its long-term prognosis is extremely poor.

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

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 site are the "*clearing of native vegetation*".

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

- it is to be noted that the "*vegetation*" present is highly degraded and isolated; and
- the loss of small patches of degraded vegetation along the northern boundary (the only element of "*native vegetation*" to be removed) is not considered of significance with respect

to threatened biota which could potentially occur on the site (see Factor a and Factor d above).

Given those considerations, the minor imposition of or exacerbation of "*key threatening processes*", as required for the development of the subject site for residential 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 be "*likely*" to impose a "*significant effect*" upon any of the additional threatened biota that could occur on the site.

8.3 Conclusions

Given the considerations outlined above, the proposed development on the subject site at Cranebrook 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.

As discussed in considerable detail above, the CRCIF community present on the subject site at Cranebrook is small, patchy, isolated and degraded, and does not represent a special or important example of that vegetation. Given those circumstances, as well as the proposed salvage and re-use of plant material, and the rehabilitation of vegetation in the two reserves, there will be no adverse impact (or "*significant effect*") imposed upon the CRCIF community (see detailed assessment in Appendix F).

The two threatened plant species recorded on the site are not "*likely*" to be subjected to a "*significant effect*", as documented in Appendix F.

Even if some additional threatened biota do use the subject site, 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 additional species, would be dependent or reliant solely (or to any relevant extent) on that portion of the subject site proposed for development activities.

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

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.

That portion of the subject site at Cranebrook which is proposed for development activities with respect to the residential subdivision proposal is of no relevance with respect to any biota listed in the EPBC Act, or any other MNES. There is no record of any listed threatened biota or migratory species on the subject site, and any that could conceivably be present are confined to possible occasional individuals of highly mobile fauna species.

There is no likelihood that a "*significant impact*" would be imposed upon any MNES as a result of the proposed residential development on the subject site at Cranebrook. 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 site at Cranebrook as proposed, appropriate impact amelioration and environmental management measures would be anticipated (as is standard practice) for implementation as part of any future development of the site.

Specific measures in this regard which either have been incorporated into the residential 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;
- the use of appropriate plant species in the landscaping of roads and public areas to enhance the adjoining vegetation and to avoid invasive species; and
- the preparation of a *Vegetation Management Plan* (VMP) which will:
    - detail the methods for the salvage, relocation and establishment of native plant material from the development site to the *Reserve Areas*, prior to any construction works for the subdivision;
    - detail the methods to be adopted with respect to the salvage, propagation and/or translocation of specimens of *Dillwynia tenuifolia* and *Grevillea juniperina* subsp. *juniperina*;
    - document the rehabilitation measures to be implemented within the *Reserve Areas*; and
    - provide for monitoring and reporting of rehabilitation activities.

GLOSSARY

DA	A *Development Application* prepared pursuant to the EP&A Act.
DEC	Department of Environment & Conservation.
DECC	Department of Environment & Climate Change.
DECCW	Department of Environment, Climate Change & Water.
Endangered Ecological Community	"*an ecological community specified in Part 3 of Schedule 1*" of the TSC Act.
Endangered Population	"*a population specified in Part 2 of Schedule 1*" of the TSC Act.
EP&A Act	*Environmental Planning & Assessment Act 1979*.
EPBC Act	Environment Protection & Biodiversity Conservation Act 1999.
Key Threatening Process	"*a threatening process specified in Schedule 3*" of the TSC Act.
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	"*the development, activity or action proposed*" (DGRs).
Recovery Plan	"*a plan prepared and approved under Part 4*" of the TSC Act.
Region	"*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).
SIS	*Species Impact Statement* prepared pursuant to Sections 109, 110 and 111 of the TSC Act.
Threatened Species	"*a species specified in Part 1 or 4 of Schedule 1, Part 1 of Schedule 1A or Part 1 of Schedule 2*" of the TSC Act.
Threatened Ecological Community	"*an ecological community specified in Part 3 of Schedule 1, Part 2 of Schedule 1A or Part 2 of Schedule 2*"
Threatening Process	"*a process that threatens, or may have the capability to threaten, the survival or evolutionary development of species, populations or ecological communities*" (TSC Act).
TSC Act	*Threatened Species Conservation Act 1995*.

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Appendix A
Photographs of the subject site at Cranebrook

21st December 2012

Appendix A Photographs taken of the subject site on the 27th of August 2012

Photo 1 Facing east from the western boundary of the subject site, showing the exotic grassed area and the vegetation lining the southern and northern boundaries

Photo 2 Facing north along the western boundary of the subject site, showing the scattered trees and managed understorey

Appendix A Photographs taken of the subject site on the 27th of August 2012

Photo 3 A small patch of maintained native vegetation in the grassed area on the subject site at Cranebrook

Photo 4 A stand of Black Wattles above a highly disturbed groundcover in the southeastern corner of the subject site

Photo 5 Some dieback within the stand of Black Wattles in the southeastern corner of the subject site

Photo 6 The *Grevillea juniperina* experiencing severe dieback in the southeastern corner of the subject site

Photo 7 Garden escapes entering the vegetation along the northern boundary of the subject site at Cranebrook

Appendix A Photographs taken of the subject site on the 27th of August 2012

Photo 8 The location of the few remaining *Dillwynia tenuifolia*, within the fenced area along the northern boundary of the subject site

Photo 9 The *Dillwynia tenuifolia* under threat by invasion of African Love Grass along the northern boundary of the subject site

Photo 10 The *Dillwynia tenuifolia* currently in flower along the northern boundary of the subject site

Photo 11 The band of vegetation within the road reserve along The Northern Road. Note the distance of the vegetation to the east of The Northern Road

Photo 12 The Cumberland Plain Land Snail shell found in the road reserve along The Northern Road

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Appendix B
OEH Wildlife Atlas Search

21st December 2012

KEY	
Status	The "*threatened species*" listing in the *Threatened Species Conservation Act 1995*
V	Species listed as "*vulnerable*"
E1	Species listed as "*endangered*"
E4A	Species listed as "*critically endangered*"
Records	The number of records of the relevant "*threatened species*" listed in the search area
Relevance	The potential relevance that the "*threatened species*" might have to the subject site.
H	Considered by SLR Ecology to have a "*high*" potential relevance to the subject site
M	Considered by SLR Ecology to have a "*moderate*" potential relevance to the site
L	Considered by SLR Ecology to have a "*low*" potential relevance to the subject site
N	Considered by SLR Ecology to have "*no*" potential relevance to the subject site

NOTES

The table below is based on data obtained from the recently reformed *Atlas of NSW Wildlife* website http://www.bionet.nsw.gov.au/, and the following notes accompany this dataset:

- Data from the BioNet Atlas of NSW Wildlife website, which holds records from a number of custodians. The data are only indicative and cannot be considered a comprehensive inventory, and may contain errors and omissions.
- Species listed under the Sensitive Species Data Policy may have their locations denatured (^ rounded to 0.1°; ^^ rounded to 0.01°).
- Copyright the State of NSW through the Office of Environment and Heritage.
- Search criteria: Public Report of all Valid Records of Threatened (listed on TSC Act 1995) Animals and Plants in selected area [North: -33.65 West: 150.66 East: 150.76 South: -33.76] returned a total of 459 records of 204 species.
- Report generated on 24/08/2012 5:40 PM
- Note – the species listed in the table below have been modified to include only those species with actual known records in the vicinity.

Status	Scientific Name	Common Name	Records	Relevance
	PLANTS			
	Fabaceae – Faboideae			
V	*Dillwynia tenuifolia*	-	59	H
E1	*Pultenaea parviflora*	-	32	L/N
	Fabaceae – Mimosoideae			
E1	*Acacia bynoeana*	Bynoe's Wattle	23	N
	Myrtaceae			
E1	*Micromyrtus minutiflora*	-	28	N
	Orchidaceae			
E1	*^Pterostylis saxicola*	Sydney Plains Greenhood	1	N
	Proteaceae			
V	*Grevillea juniperina* subsp. *juniperina*	Juniper-leaved Grevillea	32	H
E1	*Persoonia nutans*	Nodding Geebung	126	N
	Thymelaeaceae			
E1	*Pimelea spicata*	Spiked Rice-flower	4	N
	AMPHIBIAN			
	Hylidae			
E1	*Litoria aurea*	Green & Golden Bell Frog	3	N
	AVES			
	Anatidae			
V	*Stictonetta naevosa*	Freckled Duck	2	N

Status	Scientific Name	Common Name	Records	Relevance
	Ciconiidae			
E1	*Ephippiorhynchus asiaticus*	Black-necked Stork	1	N
	Accipitridae			
V	*Hieraaetus morphnoides*	Little Eagle	2	N
V	^^*Lophoictinia isura*	Square-tailed Kite	3	N
	Cacatuidae			
V	^^*Callocephalon fimbriatum*	Gang-gang Cockatoo	2	N
V	^*Calyptorhynchus lathami*	Glossy Black-Cockatoo	2	N
	Psittacidae			
V	*Glossopsitta pusilla*	Little Lorikeet	3	N
E1	^^*Lathamus discolor*	Swift Parrot	15	N
V	^^*Neophema pulchella*	Turquoise Parrot	2	N
	Tytonidae			
V	^^*Tyto tenebricosa*	Sooty Owl	1	N
	Acanthizidae			
V	*Pyrrholaemus saggitatus*	Speckled Warbler	3	N
	Meliphagidae			
E4A	*Anthochaera phrygia*	Regent Honeyeater	12	N
V	*Grantiella picta*	Painted Honeyeater	1	N
V	*Melithreptis gularis gularis*	Black-chinned Honeyeater	3	N
	Neosittidae			
V	*Daphoenositta chrysoptera*	Varied Sittella	11	N
	Petroicidae			
V	*Petroica boodang*	Scarlet Robin	7	N
V	*Petroica phoenicea*	Flame Robin	2	N
	Petroica rodinogaster	Pink Robin	1	N
	MAMMALS			
	Dasyuridae			
V	*Dasyurus maculatus*	Tiger Quoll	1	N
	Phascolarctidae			
V	*Phascolarctos cinereus*	Koala	1	N
	Petauridae			
V	*Petaurus australis*	Yellow-bellied Glider	1	N
V	*Petaurus norfolcensis*	Squirrel Glider	2	N
	Pteropodidae			
V	*Pteropus poliocephalus*	Grey-headed Flying Fox	13	L/N
	Molossidae			
V	*Mormopterus norfolkensis*	Eastern Freetail Bat	8	L
	Vespertilionidae			
V	*Miniopterus schreibersii oceanensis*	Eastern Bent-wing Bat	13	L
V	*Myotis macropus*	Southern Myotis	4	N
V	*Scoteanax rueppellii*	Greater Broad-nosed Bat	3	L
	GASTROPODS			
	Camaenidae			
E1	*Meridolum corneovirens*	Cumberland Plain Snail	15	L

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Appendix D
Flora species list on the subject site at Cranebrook

21st December 2012

Appendix D Flora Species List surveyed from the subject site on the 27th of August 2012

KEY	
Symbol	**Description**
Status	
*	Exotic species
**	Noxious species
SGTF	Species is listed as "*characteristic*" within the Final Determination (Scientific Committee 2012) for the Shale Gravel Transition Forest, which is listed as: • an "*endangered ecological community*" (EEC) on the *Threatened Species Conservation Act 1995* (TSC Act); and • a "*critically endangered ecological community*" (CEEC) on the *Environmental Protection of Biodiversity Conservation Act 1999* (EPBC Act).
CRCIF	Species is listed as "*characteristic*" within the Final Determination for the Cooks River/Castlereagh Ironbark Forest, which is listed as an EEC on the TSC Act.
CPW	Species is listed as "*characteristic*" within the Final Determination for the Cumberland Plain Woodland, which is listed as a CEEC on the TSC Act and EPBC Act.

Status	Species name	Common name
	Acanthaceae	
SGTF, CPW	*Brunoniella australis*	Blue Trumpet
	Apocynaceae	
*	*Araujia sericifera*	Moth Vine
	Asparagaceae	
*	*Asparagus aethiopicus*	Asparagus 'Fern'
*	*Asparagus asparagoides*	Bridal Creeper
	Asteraceae	
*	*Bidens pilosa*	Cobblers Peg
	Cotula australis	Carrot Weed
*	*Gamochaeta purpurea*	Purple Cudweed
*	*Hypochaeris radicata*	Catsear
CRCIF	*Ozothamnus diosmifolius*	White Dogwood
*	*Sonchus oleracheus*	Common Sowthistle
*	*Taraxacum officinale*	Dandelion
SGTF, CPW, CRCIF	*Vernonia cinerea* var. *cinerea*	-
	Cactaceae	
*	*Hylocereus undatus*	Dragon Fruit
*	*Opuntia* sp.	Prickly Pear
	Casuarinaceae	
	Allocasuarina torulsa	Forest Oak
	Chenopodiaceae	
CPW	*Einadia hastata*	Berry Saltbush
CPW, CRCIF	*Einadia nutans* subsp. *linifolia*	-
	Commelinaceae	
**	*Tradescantia fluminensis*	Wandering Jew
	Convolvulaceae	
SGTF, CPW	*Dichondra repens*	Kidney Weed
	Crassulaceae	
**	*Bryophyllum delagoense*	Mother-of-millions
	Cyperaceae	
SGTF, CRCIF	*Lepidosperma laterale*	-

Appendix D Flora Species List surveyed from the subject site on the 27th of August 2012

Status	Species name	Common name
	Fabaceae – Faboideae	
SGTF, CPW	*Daviesia ulicifolia*	Gorse Bitter Pea
SGTF, CPW	*Desmodium varians*	Slender Tick-trefoil
CPW, CRCIF	*Dillwynia sieberi*	-
V	*Dillwynia tenuifolia*	-
SGTF, CPW	*Hardenbergia violaceae*	False Sarsparilla
*	*Medicago lupulina*	Black Medic
*	*Trifolium repens*	White Clover
*	*Vicia sativa* subsp. *nigra*	Narrow-leaved Vetch
	Fabaceae – Mimosoideae	
	Acacia decurrens	Black Wattle
SGTF	*Acacia parramattensis*	Green Wattle
	Lauraceae	
CRCIF	*Cassytha sp.*	-
	Lobeliaceae	
SGTF, CPW, CRCIF	*Pratia purpurascens*	White-root
	Lomandraceae	
SGTF, CPW	*Lomandra filiformis*	
CRCIF	*Lomandra longifolia*	Mat Rush
	Myrtaceae	
CRCIF	*Angophora floribunda*	Rough-barked Apple
SGTF, CRCIF	*Eucalyptus fibrosa*	Broad-leaved Ironbark
SGTF, CPW, CRCIF	*Eucalyptus mollucana*	Grey Box
SGTF, CRCIF	*Melaleuca decora*	-
CRCIF	*Melaleuca nodosa*	Prickly-leaved Paperbark
CRCIF	*Syncarpia glomulifera*	Turpentine
	Pittosporaceae	
SGTF, CPW, CRCIF	*Bursaria spinosa*	Blackthorn
	Plantaginaceae	
*	*Plantago lanceolata*	Lamb's Tongue
	Poaceae	
	Aristida sp.	A Wiregrass
+	*Cynodon dactylon*	Common Couch
	Echinopogon sp.	Hedgehog Grass
*	*Ehrharta erecta*	Panic Veldt Grass
*	*Eragrostis curvula*	African Love Grass
SGTF, CRCIF	*Entolasia stricta*	Wiry Panic
SGTF, CPW, CRCIF	*Microlaena stipoides* var. *stipoides*	Weeping Grass
	Poa affinis	-
*	*Setaria pumila*	Pale Pigeon Grass
	Polygonaceae	
	Rumex brownie	Swamp Dock
	Proteaceae	
V	*Grevillea juniperina* subsp. *juniperina*	Juniper-leaved Grevillea
	Pteridaceae	
SGTF, CPW, CRCIF	*Cheilanthes sieberi* subsp. *sieberi*	Poison Rock Fern
	Rubiaceae	
SGTF, CRCIF	*Pomax umbellata*	-

Appendix D Flora Species List surveyed from the subject site on the 27th of August 2012

Status	Species name	Common name
CRCIF	**Santalaceae** *Exocarpos cupressiformis*	Native Cherry
	Sapindaceae *Dodonaeae triqueta*	Large-leaf Hop-bush

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Appendix E
Fauna species list on the subject site at Cranebrook

21st December 2012

Appendix E Fauna species list surveyed from the subject site on the 27th of August 2012

KEY	
Symbol	**Description**
*	Exotic species
**	Noxious species
Vu	Species listed as *vulnerable*" in the TSC Act
En	Species listed as "*endangered*" in the TSC Act

Status	Species name	Common name
AVES		
	Columbidae	
	Ocyphaps lophotes	Crested Pigeon
	Streptopelia chinensis	Spotted Dove
	Meliphagidae	
	Manorina melanocephala	Noisy Miner
	Rhipiduridae	
	Rhipidura leucophrys	Willie Wagtail
	Sturnidae	
*	*Acridotheres tristis*	Indian Myna
MAMMALS		
	Felidae	
*	*Felis* sp.	Domestic Cat
GASTROPOD		
	Camaenidae	
En	*Meridolum corneovirens*	Cumberland Plain Land Snail

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Appendix F
Section 5A Assessment of Significance

21st December 2012

CORPUS CHRISTI PRIMARY SCHOOL
THE NORTHERN ROAD, CRANEBROOK

PROPOSED RESIDENTIAL SUBDIVISION

FLORA & FAUNA ASSESSMENT REPORT

SECTION 5A ASSESSMENT of SIGNIFICANCE

21st December 2012

1 INTRODUCTION

The *NSW Threatened Species Conservation Act 1995* (TSC Act) has modified the *NSW 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*". Section 5A details seven factors which "*must be taken into account*", *as relevant*, by a consent or determining authority in administering Sections 78A, 79B, 79C, 111 and 112 of the EP&A Act.

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.

2 FACTORS for CONSIDERATION

There are seven factors which "*must be taken into account*", where relevant, pursuant to Section 5A of the EP&A Act (as amended in 2005).

(a) in the case of threatened species, whether the action proposed is likely to have an adverse effect on the life cycle of the species such as that a viable local population of the species is likely to be placed at risk of extinction.

(b) in the case of an endangered population, whether the action proposed is likely to have an adverse effect on the life cycle of the species that constitutes the endangered population such that a viable local population of the species is likely to be placed at risk of extinction.

(c) in the case of an endangered ecological community or critically endangered ecological community, whether the action proposed:

  (i) is likely to have an adverse effect on the extent of the ecological community such that its local occurrence is likely to be placed at risk of extinction, or

  (ii) is likely to substantially and adversely modify the composition of the ecological community such that its local occurrence is likely to be placed at risk of extinction.

(d) in relation to the habitat of a threatened species, population or ecological community:

  (i) the extent to which habitat is likely to be removed or modified as a result of the action proposed, and

  (ii) whether an area of habitat is likely to become fragmented or isolated from other areas of habitat as a result of the proposed action, and

  (iii) the importance of the habitat to be removed, modified, fragmented or isolated to the long-term survival of the species, population or ecological community in the locality.

(e) whether the action proposed is likely to have an adverse effect on critical habitat (either directly or indirectly).

(f) whether the action proposed is consistent with the objectives or actions of a recovery plan or threat abatement plan.

(g) whether the action proposed constitutes or is part of a key threatening process or is likely to result in the operation of, or increase the impact of, a key threatening process.

3 NOT the 7 PART TEST

Section 5A of the EP&A Act is often (erroneously) referred to as the "*seven part test*".

However, there is no such thing as the "*seven part test*".

In this regard:

1. there is **nothing** currently listed on the TSC Act, nor can there **ever** be anything so listed, to which all of the seven factors contained in Section 5A apply. At the very **most**, only five of the factors can apply to anything listed (now or ever) on the TSC Act, and in most instances only three or four apply;
2. Section 5A is **not** a "*test*" (DECC 2007) – "*The assessment of significance should* **not** *be considered a 'pass or fail'* **test** *but a system allowing applicants/proponents to undertake a* **qualitative analysis** *of the likely impacts*" (emphases added);
3. the 7 factors (**not** "*parts*") of Section 5A "*must be* **taken into account**" (emphasis added) in coming to a conclusion with respect to the likelihood or otherwise of a "*significant effect*" being imposed. The seven factors are **not** the fundamental question of Section 5A of the EP&A Act; and
4. further, the seven factors are **not** the only consideration in answering the fundamental question of Section 5A (*ie* whether there is "*likely to be a significant effect*" on threatened biota or their habitats). Other relevant matters also need to be considered.

Given the considerations outlined above, if Section 5A is to be represented (or misrepresented) by some other term, it should be either:

- the "*3, 4 or 5 part test*" (in respect of Point 1 above); OR
- the "*3, 4 or 5 part assessment*" (in respect of Points 1 and 2 above); OR
- the "*3, 4 or 5 factors assessment of likely significance*" (in respect of Points 1, 2 and 3 above); OR
- the "*3, 4 or 5 factors plus other relevant matters assessment of likely significance*" (in respect of Points 1-4 above).

4 ASSESSMENTS of SIGNIFICANCE

4.1 Relevant Biota

The relevant threatened biota to be affected by the proposed activities on the subject site at Cranebrook include:

- the Cooks River Castlereagh Ironbark Forest (CRCIF) community which is listed as an "*endangered ecological community*" (EEC) in the TSC Act;
- *Dillwynia tenuifolia*, a threatened plant listed as "*vulnerable*" on the TSC Act; and
- the Juniper-leaved Grevillea *Grevillea juniperina* subsp. *juniperina*, a threatened plant listed as "*vulnerable*" on the TSC Act.

Whilst a number of other threatened species are likely to utilise the subject site on occasions at least (either as individuals, vagrants or on seasonal basis), it is not considered likely that the subject site *per se* would support a "*viable local population*" of any such species. This consideration applies equally to the Cumberland Plain Land Snail (of which one dead shell has only been recorded adjacent to the site) as to other threatened biota that could occur. These species have been considered within a generic *Section 5A Assessment of Significance* within Chapter 6 of the main *Report*.

The following *Section 5A Assessments of Significance* provides an analysis of those relevant threatened biota detected on the subject site at Cranebrook (as listed above).

4.2 Definitions Used in This Report

The definitions of areas relevant to this *Report*, and to the assessment of potential or real impacts arising from the proposed development, are:

"*subject site*"	The Corpus Christi Primary School on The Northern Road at Cranebrook
"*study area*"	the "*subject site*" and any areas directly or indirectly associated with that land
"*locality*"	an area of 10km radius around the "*subject site*".

Local Occurrence

The DECC *Assessment Guidelines* (2007) define the "*local occurrence*" of an "*endangered ecological community*" as:

- "*the ecological community that occurs within the study area. However, the local occurrence may include adjacent areas if the ecological community on the study area forms part of a larger contiguous area of that ecological community and the movement of individuals and exchange of genetic material across the boundary of the study area can be clearly demonstrated*".

With respect to the subject site at The Northern Road, Cranebrook, the vegetation on the subject site is contiguous with vegetation on adjoining land to the immediate northeast and a small area of vegetation to the immediate west (on the Corpus Christi Primary School). There is also a patch of CRCIF in parkland to the southeast.

Notwithstanding to the presence of some small breaks in the tree canopy in the immediate and general vicinity, there can be no doubt that there would be the "*exchange of genetic material across the boundary of the study area*" and throughout those near contiguous stands of native vegetation by virtue of the movement of pollinators (bees, butterflies and birds), including across roads or other small gaps and vegetation. It is also likely that pollen and seeds of a number of native plants would be blown across those gaps during periods of high wind, thus further ensuring the "*exchange of genetic material*".

Given those circumstances, the "*local occurrence*" of the CRCIF vegetation is as described in Factor (c), below.

Risk of Extinction

It is to be noted that Factors a, b and c of Section 5A of the EP&A Act address the issue of whether the relevant biota "*is likely to be placed at risk of **extinction***" (emphasis added).

The DECC *Assessment Guidelines* define the "*risk of extinction*" as:

- "*the likelihood that the local population will become extinct over a short-term or in the long-term as a result of direct or indirect impacts on the viability of that population*".

In considering the likelihood of a "*significant effect*" to be imposed as a result of any proposed development, therefore, it is necessary to consider whether that activity renders the relevant biota "*likely*" to be completely obliterated or rendered totally unviable on a "*local*" scale.

In this regard, it is not sufficient that a proposal be likely to adversely affect such biota in an adverse way, or even that there be some notable reduction in population or the distribution or abundance of relevant resources. Rather, it must be "***likely***" that the "*local occurrence*" of an "*endangered ecological community*" be rendered incapable of surviving in the locality.

4.3 Cooks River Castlereagh Ironbark Forest

Factor (a) Threatened Species and the Risk of Extinction

A "*threatened species*" is defined in the TSC Act as "*a species specified in Part 1 or 4 of schedule 1 or in schedule 2*" of the Act. The Cooks River Castlereagh Ironbark Forest (CRCIF) community is not a "*threatened species*".

Factor (b) Endangered Populations and the Risk of Extinction

The TSC Act defines an "*endangered population*" as "*a population specified in Part 2 of schedule 1*" of the Act. The CRCIF community is not an "*endangered population*".

Factor (c) Endangered Ecological Communities and the Risk of Extinction

The "*local occurrence*" of the CRCIF vegetation includes the degraded patches of CRCIF on the subject site at Cranebrook, as well as CRCIF trees and vegetation on adjoining lands to the northeast, east, and southeast (see Figure 1).

The patch of CRCIF vegetation on the subject site is highly degraded and modified, and is likely to continue to degrade as a consequence of its size, shape and context, and ongoing activities. It has an extremely poor prognosis in terms of biodiversity conservation values.

The area of CRCIF vegetation within the subject site, which is proposed for removal for the residential subdivision and development, is:

- very small (less than 1ha) in size;
- highly degraded and modified as a result of long-term disturbance from surrounding and on-site land uses; and
- substantially modified from its original condition.

Given those circumstances, and given the condition, size and context of the CRCIF vegetation on the subject site at Cranebrook:

- the loss of that area of the CRCIF vegetation from the subject site itself is not considered of significance with respect to the survival of CRCIF in general, either in the locality or in the region;
- the remaining areas of CRCIF vegetation in the vicinity, as well as the vegetation within the proposed reserves on the subject site, would prevent the "*local occurrence*" of the highly degraded CRCIF vegetation at this location being "*placed at risk of **extinction***" (emphasis added); and
- the removal of vegetation from the subject site would not "*substantially and adversely modify the composition of the ecological community*" on the site itself. Further, any such loss would not be "*such that its local occurrence is likely to be placed at risk of **extinction***" (emphasis added).

Given those considerations, and given the highly degraded and depauperate nature of the vegetation at this location, it is concluded that, with respect to the proposed development of the subject site at Cranebrook:

- the "*local occurrence*" of the CRCIF community would not be "*placed at risk of extinction*" as a result of the proposal; and
- the loss of CRCIF vegetation from the subject site would not constitute a "*significant effect*" with respect to the CRCIF community.

Factor (d) Habitat Removal, Modification, Fragmentation, Isolation and Importance

The area of CRCIF vegetation on the subject site at Cranebrook which is to be removed for development purposes is extremely degraded and modified, and is not regarded as significance or value with respect to the conservation of CRCIF, either in the immediate locality or in the general vicinity.

With respect to the relevant considerations contained in Factor (d) of Section 5A of the EP&A Act;

- the area of CRCIF vegetation on the subject site to be "*removed or modified as a result of the proposed action*" is small and is of no particular significance with respect to the survival of CRCIF vegetation in the locality – Factor (d)(i);
- the CRCIF vegetation present on the subject is already highly "*fragmented*" and "*isolated*", and contributes little to the survival of CRCIF vegetation in the locality – Factor (d)(ii); and
- the area of highly modified and degraded CRCIF vegetation, and its habitat at this location, is not regarded of importance or value with respect to the "*long-term survival*" of the CRCIF community "*in the locality*", given the considerations outlined above – Factor (d)(iii).

Factor (e) Critical Habitat – Direct and Indirect Effects

The TSC Act 1995 defines "*critical habitat*" as "*habitat declared to be critical habitat under Part 3*" of the Act. At the time of this *Report*, no "*critical habitat*" for the CRCIF community had been declared.

Factor (f) Recovery Plans and Threat Abatement Plans

There are currently no relevant *Threat Abatement Plans* with respect to the CRCIF community.

Whilst there is no *Threat Abatement Plan* of relevance, an approved *Recovery Plan* for Cumberland Plain vegetation has been prepared by the then DECCW. The *Cumberland Plain Recovery Plan* contains *inter alia* a number of "*proposed recovery objectives, actions and performance criteria*" which are intended "*to provide for the long-term survival and protection of the threatened biodiversity of the Cumberland Plain*". Whilst many of the proposed "*recovery actions*" are predominantly to be implemented by the OEH, the DPI and/or local Councils, there are "*recovery actions*" which may be implemented by individual landowners.

The proposed development of the subject site at Cranebrook does not contravene the proposed "*recovery objectives*", "*recovery actions*" or "*key performance targets*" which are outlined in the *Cumberland Plain Recovery Plan*. The subject site is not an identified "*Priority Conservation Area*" (as discussed in detail in the accompanying *Flora & Fauna Assessment Report*) and is of no relevance to the survival of the CRCIF community, at any scale.

Factor (g) Key Threatening Processes

Several of the "*key threatening processes*" (KTPs) listed on Schedule 3 of the TSC Act are of relevance or potential relevance to the CRCIF community in respect of the proposed development, particularly the "*clearing of native vegetation*".

However, the area of CRCIF vegetation to be removed from the subject site at The Northern Road, Cranebrook is highly degraded, and constitutes only a small proportion of the "*local occurrence*" of that community. The long-term prognosis for that patch of vegetation is extremely poor, given its size and shape, and the existing high levels of disturbance and modification arising from existing and future residential development of the land.

Given those circumstances, and given the nature and condition of the vegetation present on the subject site, the likely contribution of the proposed development to the "*key threatening process*" listed as the "*clearing of native vegetation*" is regarded as of little significance or relevance. Whilst the proposal will involve the removal of a small area of native vegetation from the "*local occurrence*", that vegetation is in such condition and has such a poor long-term prognosis that the proposal does not constitute a significant exacerbation of the "*clearing of native vegetation*" KTP.

A number of other "*key threatening processes*" are of relevance to the CRCIF community, including invasion by a number of weed species, changes in fire regimes and stormwater discharge regimes, and the removal of dead wood and dead trees.

The proposed development of the subject site at Cranebrook would not impose or exacerbate any of those other "*key threatening processes*". Further, the proposed reservation CRCIF vegetation on the Corpus Christi Primary School would be the subject of a *Vegetation Management Plan* (VMP) designed *inter alia* to avoid any exacerbation of those KTPs.

It is not likely that the proposed development of the subject site would result in either the imposition of or the exacerbation of any "*key threatening processes*" to the extent that the "*local occurrence*" of the CRCIF community would be placed "*at risk of extinction*".

CONCLUSIONS

The relevant factors which must be considered pursuant to Section 5A of the EP&A Act in the determination of "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*" are discussed above with regard to the CRCIF community and the proposed development on the subject site at Cranebrook.

The proposed development of the subject site at Cranebrook is not considered "*likely*" to impose a "*significant effect*" upon the CRCIF community given:

- the small area of that vegetation proposed for removal relative to the extent of the "*local occurrence*";
- its highly degraded, modified and disturbed condition; and
- its extremely poor prognosis given likely ongoing activities, and the proximity of new urban development.

The vegetation present on the subject site at Cranebrook does not constitute a significant example of the CRCIF community. The loss of that patch would not significantly affect the survival of that community, and would not place the "*local occurrence*" of the CRCIF community "*at risk of **extinction***" (emphasis added).

A *Species Impact Statement* (SIS) is not required for the proposed development at Cranebrook with respect to the CRCIF community.

4.4 *Dillwynia tenuifolia*

Factor (a) Threatened Species and the Risk of Extinction

A "*threatened species*" is defined in the TSC Act as "*a species specified in Part 1 or 4 of Schedule 1 or in Schedule 2*" of the Act. *Dillwynia tenuifolia* is listed as a "*threatened species*" in the TSC Act, at the lower level of concern (*vulnerable* rather than *endangered*).

A total of 39 individuals of *Dillwynia tenuifolia* were recorded on the subject site during the 2012 investigation, of which one is located in the proposed *Reserve Area*. However, a number of weeds were also observed smothering some specimens of *D. tenuifolia* (in particular African Love Grass).

Given the nature and context of the vegetation on the subject site, there is a very poor long-term prognosis for the remaining *Dillwynia tenuifolia*. These specimens are considered of only very limited value to the conservation of the species, given their isolation and the circumstances of the subject site.

It should be noted that there were originally at least 101 individuals of *D. tenuifolia* on the subject site (Gunninah 1998). As indicated in the SLR Ecology 2012 *Report*, the remaining specimens are confined to two patches in the northwestern part of the site. It would appear that the long-term viability of the "*local population*" is marginal at best, certainly in the absence of a significant management effort and regime.

It is a recommendation of the SLR Ecology 2012 *Report* that those specimens of *D.tenuifolia* located outside the proposed *Reserve Area* be translocated into the *Reserve Area* and/or that propagation by seed or other method being pursued, in consultation with the Mount Annan Botanical Gardens.

Factor (b) Endangered Populations and the Risk of Extinction

An "*endangered population*" is defined in the TSC Act as "*a population specified in Part 2 of Schedule 1*".

There is no "*endangered population*" of *Dillwynia tenuifolia*.

Factor (c) Endangered Ecological Communities and the Risk of Extinction

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

The species *Dillwynia tenuifolia* is not an "*endangered ecological community*".

Factor (d) Habitat Removal, Modification, Fragmentation, Isolation and Importance

The proposed activity on the subject site includes the relocation of 38 specimens of *Dillwynia tenuifolia* to the vegetation within the proposed *Reserve Area* along the western edge of the subject site, which is to be managed by Corpus Christi Primary School pursuant to a dedicated *Vegetation Management*

Plan (VMP). Given the existing isolated nature of these specimens, there will be no further isolation of populations in the vicinity.

As noted above, and in the main SLR Ecology 2012 *Report* regarding the subject site, the "*local population*" of *Dillwynia tenuifolia* present on the subject site is confined to two small patches in the northwestern part of the site. There is limited potential habitat for the species along the northern boundary and at the Northern Road frontage, as well as a larger patch in the western part of the subject site (which is proposed as a *Conservation Reserve*). One of the individuals is located in that proposed *Conservation Area*.

With respect to the matters raised in Factor (d) of Section 5A of the EP&A Act, and with respect to the "*population*" of *D.tenuifolia* on the subject site at Cranebrook:

- whilst an area of potentially suitable habitat is to be removed (along the northern boundary), the western *Conservation Area* is proposed to be rehabilitated *inter alia* for *D. tenuifolia*. In reference to the broader "*extent*" of habitat for *D. tenuifolia* (*ie* "*in the locality*"), the area of known habitat for the species which is to be "*removed or modified as a result of the action proposed*" is extremely small – Factor (d)(i);
- vegetation on the subject site, and known or potential habitat for *D. tenuifolia* is already highly isolated from other areas of known or potential habitat for this species. Given the intensity of surrounding residential development and urban roads, the "*proposed action*" will not result in relevant habitat for the species becoming further "*fragmented or isolated from other areas of habitat*" – Factor (d)(ii); and
- the habitat which is to be affected by the proposed development of the subject site at Cranebrook is not regarded as of "*important .. to the long-term survival of the species .. in the locality*". Given its isolation and small size, as well as its precarious circumstances, it is not likely that the small number of plants of *D. tenuifolia* on the subject site at Cranebrook would contribute in any meaningful way to the survival of the species "*in the locality*" – Factor (d)(iii).

Factor (e) Critical Habitat – Direct and Indirect Effects

The TSC Act 1995 defines "*critical habitat*" as "*habitat declared to be critical habitat under Part 3*" of the Act.

At the time of this *Report*, no "*critical habitat*" for *Dillwynia tenuifolia* had been declared.

Factor (f) Recovery Plans and Threat Abatement Plans

There is no relevant *Recovery Plan* for *Dillwynia tenuifolia* or its habitat in place at the time of this *Report*. Similarly, there are no *Threat Abatement Plans* in place for any "*key threatening process"* of relevance to this species.

Factor (g) Key Threatening Processes

The only potentially relevant "*key threatening process"* listed on the TSC Act likely to be of relevance to *Dillwynia tenuifolia* in respect of the proposed development is the "*clearing of native vegetation*".

The action of clearing native vegetation from the subject site for the development as currently proposed would involve the removal of known habitat for and most of the "*local population*" of *D. tenuifolia* in the northern part of the subject site. As noted above, however, there are serious doubts as to the viability of that "*local population*" in the long-term, and the "*clearing of native vegetation*" from the subject site would not result in a "*significant effect*" being imposed upon the species as a whole either in the "*locality*" or in western Sydney.

Notwithstanding the loss of much of the "*local population*" (unless the plants are translocated and/or otherwise propagated), the "*clearing of native vegetation*" as proposed is not considered to be a process which would threaten the species or result in a "*significant effect*" on the species at this general location.

CONCLUSIONS

The relevant factors which must be considered in Section 5A of the EP&A Act in the determination of "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*" are discussed above with regard to *Dillwynia tenuifolia*.

On the basis of the assessment provided above, it is considered that the proposed development of the subject site at Cranebrook is not "*likely*" to involve the imposition of "*a significant effect*" on *D. tenuifolia* or its habitat, notwithstanding the loss of habitat for and most specimens (unless salvaged and/or translocated).

A *Species Impact Statement* is not required for the proposed development with respect to *Dillwynia tenuifolia*.

4.5 *Grevillea juniperina* subsp. *juniperina*

Factor (a) Threatened Species and the Risk of Extinction

A "*threatened species*" is defined in the TSC Act as "*a species specified in Part 1 or 4 of Schedule 1 or in Schedule 2*" of the Act. *Grevillea juniperina* subsp. *juniperina* is listed as a "*threatened species*" (vulnerable) in the TSC Act.

A total of 54 individuals of *Grevillea juniperina* subsp. *juniperina* were recorded on the subject site and in the adjoining road reserve. The specimens located in the southeastern corner of the subject site, and a few along the road reserve, were dead or in poor health.

The stand of *G. juniperina* in the northwestern corner of the subject site, and the second stand in the northeastern corner (partly on The Old Northern Road easement) will both be retained as part of the development proposal. Conversely, the small stand of *G. juniperina* to the east of the proposed access road, and the very small stand of dead or specimens in poor health in the southeastern part of the land, would be removed by the proposed development.

It would not be reasonable to regard each of those individual stands as a separate "*local population*" of *G. juniperina*, because of their proximity. It is certain that cross-pollination and fertilisation would be occurring between these small stands of plants, as a result of the activities of insects and/or birds.

Given the retention of two of the four small stands of *G. juniperina* in reserves on the subject site and The Northern Road reserve, it is not "*likely*" that a "*viable local population*" of this species will be "*placed at risk of extinction*".

Factor (b) Endangered Populations and the Risk of Extinction

An "*endangered population*" is defined in the TSC Act as "*a population specified in Part 2 of Schedule 1*".

There is no "*endangered population*" of *Grevillea juniperina* subsp. *juniperina*.

Factor (c) Endangered Ecological Communities and the Risk of Extinction

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

The plant *Grevillea juniperina* subsp. *juniperina* is not an "*endangered ecological community*".

Factor (d) Habitat Removal, Modification, Fragmentation, Isolation and Importance

As discussed above, and in the main SLR Ecology 2012 *Report*, habitat for *G. juniperina* is located at the eastern and western ends of the subject site, as well as along the northern boundary. Four small sub-populations of the "*local population*" are to be removed for the development as currently proposed, and much of the habitat along the northern boundary will also be removed.

However, known and potential habitat for *G. juniperina* is to be retained in the proposed reserves at the eastern and western extremities of the development area. As also noted in the SLR Ecology 2012 *Report*, *G. juniperina* is a highly resilient species which appears highly tolerant to disturbance and modification (as demonstrated by its frequent occurrence along roads and tracks).

With respect to the matters raised in Factor (d) of Section 5A of the EP&A Act, in respect of *G. juniperina* on the subject site at Cranebrook:

- the extent of known or suitable habitat for *G. juniperina* which is to be removed (along the northern boundary of the subject site) is insignificant with respect to the broader extent of habitat for the species "*in the locality*". In respect of the survival either of the "*local population*" or of *G. juniperina* in the broader context, the area of known or potential habitat for the species which is to be removed or modified as a result of the action proposed is extremely small, and not of significance – Factor (d)(i);
- as discussed elsewhere, the subject site is isolated by surrounding residential and urban development and infrastructure, and has no direct connectivity to large areas of native vegetation of any significance. Whilst the development as currently proposed would interpose residential development between two patches or sub-populations of *G. juniperina* (at the eastern and western ends of the subject site), that circumstance is not considered a significant increase in fragmentation of habitat for this species, given the urban circumstances of the site – Factor (d)(ii); and
- the habitat which is to be affected by the proposed development of the subject site at Cranebrook is not regarded as of "*importance .. to the long-term survival of the species .. in the locality*" – Factor (d)(iii).

Factor (e) Critical Habitat – Direct and Indirect Effects

The TSC Act 1995 defines "*critical habitat*" as "*habitat declared to be critical habitat under Part 3*" of the Act.

At the time of this *Report*, no "*critical habitat*" for *Grevillea juniperina* subsp. *juniperina* had been declared.

Factor (f) Recovery Plans and Threat Abatement Plans

There is no relevant *Recovery Plan* for *Grevillea juniperina* subsp. *juniperina* or its habitat in place at the time of this *Report*. Similarly, there are no *Threat Abatement Plans* in place for any "*key threatening process*" of relevance to this species.

Factor (g) Key Threatening Processes

The only potentially relevant "*key threatening process*" listed in the TSC Act likely to be of relevance to *G. juniperina* in respect of the proposed development is the "*clearing of native vegetation*".

The action of clearing native vegetation from the subject site for the development as currently proposed would involve the removal of a small area of known habitat for *G. juniperina* in the northern part of the subject site. As noted above, however, that species is highly resilient and disturbance-tolerant, and the "*clearing of native vegetation*" from the subject site would not result in a "*significant effect*" being imposed upon the species as a whole either in the "*locality*" or in western Sydney.

Notwithstanding the loss of much of the "*local population*" (unless the plants are translocated and/or otherwise propagated), the "*clearing of native vegetation*" as proposed is not considered to be a process which would threaten the species or result in a "*significant effect*" on the species at this general location.

CONCLUSIONS

The relevant factors which must be considered in Section 5A of the EP&A Act in the determination of "*whether there is likely to be a significant effect on threatened species, populations or ecological communities, or their habitats*" are discussed above with regard to *Grevillea juniperina* subsp. *juniperina*.

On the basis of the assessment provided above, the proposed development of the subject site at Cranebrook is not "*likely*" to involve the imposition of "*a significant effect*" on *Grevillea juniperina* subsp. *juniperina* or its habitat.

A *Species Impact Statement* is not required for the proposed development with respect to *Grevillea juniperina* subsp. *juniperina*.