FLORA STUDY OF A SECTION OF THE LAND OWNED BY HANSON CONSTRUCTION MATERIALS PTY LTD AT THE FORMER EASTERN CREEK QUARRY SITE

1 BACKGROUND

This flora study was commissioned by Planning Workshop Australia on behalf of Hanson Construction Materials Pty Ltd to determine the nature and condition of the vegetation on a section of the lands owned by Hanson Construction Materials Pty Ltd near Eastern Creek.

The area that is the subject of this study is the southern part of the property owned by Hanson Construction Materials Pty Ltd adjacent to the former Eastern Creek Quarry.

The land in its entirety is comprised of Lot 11 DP558723, Lot 1 DP400697 and Lot 2 DP262213

The study area is associated with a drainage line this is an upper tributary of Ropes Creek. The drainage line originates on land to the south of the Hanson property and passes through the Hanson land for a short distance as shown in Figure 1.

The land has been subject to a Concept Stormwater Study [Martens, 2006] that recommends the re-routing of an additional minor drainage depression that enters the Hanson property from the east and flows via a channel into one of the sedimentation ponds on the site.

The Martens report recommends that the flows in this depression be re-routed along parts of the eastern and southern boundaries of the property and the then discharged into the upper tributary of Ropes Creek.

2 PREVIOUS BOTANICAL INVESTIGATIONS

Prior to undertaking the field survey five main references were consulted. These are discussed in the following two subsections.

2.1 Natural Vegetation of the Penrith 1 100 000 Map Sheet

Benson [1992] mapped the remnant native vegetation of the Penrith 1: 100 000 map sheet area.

The study area is mapped as being cleared country with the note that small areas of native vegetation, that were too small to show on a map of this scale, may exist.

2.2 Western Sydney Biodiversity Study

In 1997 the National Parks and Wildlife Service published details of the Western Sydney Urban Bushland Biodiversity Survey. Of particular relevance to the study area is the Flora Appendix 2 [James, 1997].

Contained in this publication is a discussion of the remnant native vegetation of the Blacktown Local Government Area [LGA]. Of the remnant native vegetation communities that have been identified in the Blacktown LGA, the community at the study area is most likely a form of River-flat Forest – Community 9f of Benson [1992]

James [1997] lists a number of significant sites of remnant native bushland in the Blacktown LGA but the present study area is not included.

2.3 Western Sydney Employment Hub Proposed Erskine Park Link Road Network Environmental Assessment

The Western Sydney Employment Hub Proposed Erskine Park Link Road Network Environmental Assessment was prepared for the NSW Roads and Traffic Authority by National Environmental Consulting Services [NECS, 2008].

The NECS Environmental Assessment relies on data produced by Maunsell [2007] that identifies the environmental constraints within the area where the proposed link road network would be constructed. The area covered by the Maunsell study includes the Hanson property.

Maunsell [2007] identifies two endangered ecological communities that are present in area covered by the study. These are:

- Cumberland Plain Woodland, and
- River Flat Eucalypt Forest.

Figure 5.1 of the Maunsell study report identifies the drainage line that flows through the south eastern portion of the Hanson property as supporting River Flat Eucalypt Forest.

2.4 Native Vegetation of the Cumberland Plain Mapping Program

The map of the native vegetation of the Cumberland Plain within the Blacktown LGA [National Parks and Wildlife Service, 2000a] appears to depict the vegetation of the drainage line running through the Hanson property as **Cumberland Plain Woodland TX** – vegetation with <10% crown cover , used for agriculture with no major urban development.

The vegetation community associated with the drainage depression that enters the Hanson property from the east, and its associated channel appears to have been mapped as **Sydney Coastal River Flat Forest C** – vegetation dominated y non-eucalypts.

The interpretation guidelines related to the Cumberland Plain mapping program [National Parks and Wildlife Service, 2000b] indicate that the Sydney Coastal River Flat Forest is equivalent to the River Flat Forest of Benson [1992]

2.5 Survey of the Native Vegetation of the Cumberland Palin [Tozer, 2003]

Tozer [2003] describes the vegetation community along the narrow drainage line that is the subject of this study as Sydney Coastal River-flat Forest [Alluvial Woodland] and notes that the community is dominated by *Eucalyptus amplifolia* and *Eucalyptus tereticornis* with *Angophora floribunda* occurring less often.

It is of relevance to note that Tozer notes that small trees are often present and that *Casuarina glauca* is a species that occurs lees frequently in this small tree layer.

3 THE PRESENT STUDY

3.1 Introduction

The study area was inspected on 2nd June, 2008. As the major section of the area comprises a drainage line and its surrounds, the inspection was undertaken on foot.

3.2 Vegetation Community Present

The field study showed that there was only one remnant vegetation community present at the site. This was a Swamp Oak [*Casuarina glauca*] – Forest Red Gum [*Eucalyptus tereticornis*] community.

This community is associated with the drainage line that passes through the south-west corner of the Hanson property. Parts of the community support a dense growth of Swamp Oak spaced one to two metres apart on average with a scattered occurrence of Forest Red Gum [including possible hybrids].

Some small open areas exist and these are associated with a dam and an area that has been used as a soil borrow pit in the past. There appear to have been artificial channel works constructed in the past to accommodate overflow from the Hanson detention basins to the north of the actual natural flow line.

The drainage channel itself contained free water and supported a dense growth of Sharp Rush [*Juncus acutus**] along with some plants of Cumbungi [*Typha* sp.] and Umbrella Sedge [*Cyperus eragrostis**]

Native shrub species were absent at the study area although a group of Native Blackthorns [*Bursaria spinosa*] were noted to the east.

The main shrub species are African Boxthorn* [*Lycium ferocissimum*] that occurs as scattered plants and in dense clumps, Swan Plant* [*Gomphocarpus fruticosus*] and Briar Rose* [*Rosa rubiginosa]* [a form].

Two introduced vines were common. These were Moth Plant* [*Araujia sericiflora*] and Baby Smilax* [*Asparagus asparagoides*].

Ground cover species that were recorded were dominated by introduced plants, including a wide selection of weed species. There were few native ground cover species present.

The ground cover species recorded are listed in **Table 1**. An asterisk after the name denotes an introduced species.

To the north of the area that was the subject of this study, and associated with the drainage depression that enters the Hanson property from the east [and its associated channel, the community is similar but contains less eucalypts.

Table 1

Ground Cover Species Recorded

*Anagallis arvensis** [Scarlet Pimpernell]
*Aster novi-belgii** [Michaelmas Daisy]
*Aster subulatus** [Bushy Starwort]
Atriplex sp. [possibly Atriplex semibaccata or hybrid]
*Bidens pilosa** [Cobblers Pegs]
Bothriochloa macra [Red Grass]
*Chloris gayana** [Rhodes Grass]
Chloris ventricosa [Tall Chloris]
*Cirsium vulgare** [Spear Thistle]
Conyza sp.* [Fleabane]
*Cortaderia selloana** [Pampas Grass]
*Cynodon dactylon** [Couch Grass]
*Cyperus eragrostis** [Umbrella Sedge]
Dichondra sp. A [Kidney Weed]
*Ehrharta erecta** [Panic Veldtgrass]
Eragrostis trachycarpa [Lovegrass]
Eriochloa pseudoacrotricha [Early Spring Grass]
Glycine clandestina [Silky Glycine]
*Gnaphalium americanum** [Cudweed]
*Lotus suaveolens** [Hairy Birdsfoot Trefoil]
*Meliotus indicus** [Hexham Scent]
Microlaena stipoides [Weeping Grass]
*Paspalum dilatatum** [Paspalum]
*Pennisetum clandestinum** [Kikuyu Grass]
Phalaris sp.* [probably *Phalaris canariensis** [Canary Grass]]
*Plantago lanceolata** [Ribwort]
Ranunculus sp. [possibly *Ranunculus lappaceus*]
*Reseda luteola** [Wild Mignonette]
*Rumex crispus** [Curled Dock]
*Senecio madagascariensis** [Fireweed]

Table 1 [cont]

Ground Cover Species Recorded

*Senecio pterophorus**
Senecio quadridentatus [Cotton Fireweed]
*Setaria gracilis** [Slender Pigeon Grass]
*Sida rhombifolia** [Paddy's Lucerne]
*Solanum nigrum** [Black Nightshade]
*Solanum pseudocapsicum** [Madiera Winter Cherry]
Solanum sp.
*Sonchus oleraceus** [Common Sowthistle]
*Taraxicum officinale** [Dandelion]
*Verbena bonariensis** [Wild Stattice]
*Vicia sativa** [Common Vetch]

4 THREATENED SPECIES / COMMUNITIES ISSUES

4.1 Threatened Flora Species

4.1.1 Records of Previous Collections

Prior to inspecting the study area, details of past collections of threatened flora species within the general vicinity of the study area was obtained from the Department of Environment and Climate Change's 'Atlas of NSW Wildlife' database. [date of search 30th May, 2008]

The search area was fixed as a 10km X 10km square surrounding the study area

The search revealed that there are 3078 records of 47 species listed as threatened under the NSW Threatened Species Conservation Act [TSC Act] have been recorded in the vicinity of the study area in the past.

These species are listed in **Table 2** along with a note on their presence / absence in the study area itself.

Inspection of the 'Atlas of NSW Wildlife' data indicates that there are no records of threatened flora species from the study area.

It should be noted also that Figure 5.1 in the Maunsell [2007] report does not show any occurrences of threatened flora species on or near the Hanson property

Table 2

Threatened Flora Species Recorded from the Vicinity of the Study Area

SPECIES	STATUS [TSC Act]	PRESENCE / ABSENCE
Acacia bynoeana	endangered	**absent**
Acacia gordonii	endangered	**absent**
Acacia pubescens	vulnerable	**absent**
Acrophyllum australe	vulnerable	**absent**
Allocasuarina glareicola	endangered	**absent**
Ancistrachne maidenii	vulnerable	**absent**
Caesia parviflora var. *minor*	endangered	**absent**
Cynanchum elegans	endangered	**absent**
Darwinia biflora	vulnerable	**absent**
Dillwynia tenuifolia	vulnerable	**absent**
Diuris aequalis	endangered	**absent**
Epacris purpurascens var. *purpurascens*	vulnerable	**absent**
Epacris sparsa	vulnerable	**absent**
Eucalyptus benthamii	vulnerable	**absent**
Eucalyptus nicholii	vulnerable	**absent**
Eucalyptus scoparia	endangered	**absent**
Eucalyptus sp. Cattai	endangered	**absent**
Grammitis stenophylla	endangered	**absent**
Grevillea juniperina subsp. juniperina	vulnerable	**absent**
Grevillea parviflora subsp. parviflora	vulnerable	**absent**
Grevillea parviflora subsp. supplicans	endangered	**absent**
Hibbertia superans	endangered	**absent**
Hypsela sessiliflora	endangered	**absent**
Kunzea rupestris	vulnerable	**absent**
Lasiopetalum joyceae	vulnerable	**absent**
Leucopogon exolasius	vulnerable	**absent**
Leucopogon fletcheri subsp. fletcheri	endangered	**absent**
Melaleuca deanei	vulnerable	**absent**
Micromyrtus blakelyi	vulnerable	**absent**
Micromyrtus minutiflora	endangered	**absent**
Olearia cordata	vulnerable	**absent**
Persoonia acerosa	vulnerable	**absent**
Persoonia hirsute	endangered	**absent**
Persoonia mollis subsp. *maxima*	endangered	**absent**
Persoonia nutans	endangered	**absent**
Pimelea curviflora var. *curviflora*	vulnerable	**absent**
Pimelea spicata	endangered	**absent**
Pterostylis saxicola	endangered	**absent**
Pultenaea parviflora	endangered	**absent**
Pultenaea pedunculata	endangered	**absent**
Syzygium paniculatum	vulnerable	**absent**
Tetratheca glandulosa	vulnerable	**absent**

Table 2 [cont]

Threatened Flora Species Recorded from the Vicinity of the Study Area

SPECIES	STATUS [TSC Act]	PRESENCE / ABSENCE
Velleia perfoliata	vulnerable	**absent**
Zieria involucrate	endangered	**absent**

4.1.2 Result of Present Field Study

After a thorough field study of the Hanson site, none of the threatened flora species listed in **Table 2** was recorded.

4.2 Endangered Flora Populations

4.2.1 Listing of Populations Occurring / Likely to Occur in the Study Area

The 'Atlas of NSW Wildlife' data records the following endangered flora populations as occurring or likely to occur in the search area.

- Tadgell's Bluebell in the local government areas of Auburn, Bankstown, Baulkham Hills, Canterbury, Hornsby, Parramatta and Strathfield
- *Dillwynia tenuifolia* Sieber ex D.C. in the Baulkham Hills local government area
- *Marsdenia viridiflora* R. Br. subsp. *viridiflora* population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas
- *Pultenaea villifera* Sieber ex DC. population in the Blue Mountains local government area
- *Dillwynia tenuifolia*, Kemps Creek
- *Keraudrenia corrolata* var. *denticulata* in the Hawkesbury Local Government Area
- *Marsdenia viridiflora* R. Br. subsp. *viridiflora* population in the Bankstown, Blacktown, Camden, Campbelltown, Fairfield, Holroyd, Liverpool and Penrith local government areas
- *Pomaderris prunifolia* in the Parramatta, Auburn, Strathfield and Bankstown Local Government Areas

4.2.2 Assessment of Occurrence of Endangered Flora Populations

Following the field survey at the study area it has been determined that none of these endangered flora populations occur at the site.

4.3 Critically Endangered Ecological Communities

4.3.1 Listing of Critically Endangered Ecological Communities Occurring / Likely to Occur in the Study Area

The 'Atlas of NSW Wildlife' data records the following critically endangered ecological community as occurring, or likely to occur, in the search area.

- Blue Gum High Forest in the Sydney Basin Bioregion

4.3.2 Assessment of Occurrence of Critically Endangered Ecological Communities

Following the field survey at the study area it has been determined that this endangered ecological community does not occur at the site.

4.4 Endangered Ecological Communities

4.4.1 Listing of Endangered Ecological Communities Occurring / Likely to Occur in the Study Area

The 'Atlas of NSW Wildlife' data records the following endangered flora populations as occurring or likely to occur in the search area.

Many of the predicted communities are highly unlikely to occur within the study area. Those that were most likely to be present are discussed in detail in **Table 3**.

Table 3

Endangered Ecological Communities Occurring / Likely to Occur at the Study Area

Endangered Ecological Community	Assessment of Occurrence / Absence
Hunter Valley Weeping Myall Woodland of the Sydney Basin Bioregion	absent
Swamp Oak Floodplain Forest of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	this community rarely occurs at elevations >10m ASL; the community is known from Blacktown LGA but contains no eucalypts; the community at the study area contains Forest Red Gum trees; it is concluded that this community is not present at the site [Scientific Committee [2005a]
Littoral Rainforest in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	absent

Table 3 [cont]

Endangered Ecological Communities Occurring / Likely to Occur at the Study Area

Endangered Ecological Community	Assessment of Occurrence / Absence
Montane Peatlands and Swamps of the New England Tableland, NSW North Coast, Sydney Basin, South East Corner, South Eastern Highlands and Australian Alps bioregions	absent
Newnes Plateau Shrub Swamp in the Sydney Basin Bioregion	absent
Warkworth Sands Woodland of the Sydney Basin Bioregion	absent
Kurnell Dune Forest in the Sutherland Shire and City of Rockdale	absent
Lowland Rainforest in the NSW North Coast and Sydney Basin Bioregions	absent
Freshwater Wetlands on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	absent
Robertson Rainforest in the Sydney Basin Bioregion	absent
Moist Shale Woodland in the Sydney Basin Bioregion	absent
Sydney Freshwater Wetlands in the Sydney Basin Bioregion	absent
Melaleuca armillaris Tall Shrubland in the Sydney Basin Bioregion	absent
Sun Valley Cabbage Gum Forest in the Sydney Basin Bioregion	absent
Themeda grassland on seacliffs and coastal headlands in the NSW North Coast, Sydney Basin and South East Corner Bioregions	absent
Southern Highlands Shale Woodlands in the Sydney Basin Bioregion	absent
Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	this community is characterised by an open to dense cover of eucalypts and paperbarks; it is not recorded from the Blacktown LGA; it is concluded that this community is not present at the site [NSW Scientific Committee, 2005b]
Eastern Suburbs Banksia Scrub in the Sydney Basin Bioregion	absent
Shale/Sandstone Transition Forest	absent
Illawarra Subtropical Rainforest in the Sydney Basin Bioregion	absent

Table 3 [cont]

Endangered Ecological Communities Occurring / Likely to Occur at the Study Area

Endangered Ecological Community	Assessment of Occurrence / Absence
Western Sydney Dry Rainforest in the Sydney Basin Bioregion	absent
Agnes Banks Woodland in the Sydney Basin Bioregion	absent
Quorrobolong Scribbly Gum Woodland in the Sydney Basin Bioregion	absent
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	absent
Sydney Coastal River-Flat Forest	absent
White Box Yellow Box Blakely's Red Gum Woodland	absent
Lower Hunter Spotted Gum - Ironbark Forest in the Sydney basin Bioregion	absent
Castlereagh Swamp Woodland Community	absent
Kurri Sand Swamp Woodland in the Sydney Basin Bioregion	absent
Milton Ulladulla Subtropical Rainforest in the Sydney Basin Bioregion	absent
River-Flat Eucalypt Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	possible occurrence; Swamp Oak is the dominant tree species rather than the eucalypts that characterise this community [NSW Scientific Committee, 2005c] – **see separate discussion below**
Duffys Forest Ecological Community in the Sydney Basin Bioregion	absent
Coastal Saltmarsh in the New South Wales North Coast, Sydney Basin and South East Corner Bioregions	absent
Cooks River/Castlereagh Ironbark Forest in the Sydney Basin Bioregion	absent
Bangalay Sand Forest of the Sydney Basin and South East Corner bioregions	absent
Elderslie Banksia Scrub Forest	absent
Robertson Basalt Tall Open-forest in the Sydney Basin Bioregion	absent
Sydney Turpentine-Ironbark Forest	absent
O'Hares Creek Shale Forest	absent
Shale gravel Transition Forest in the Sydney Basin Bioregion	absent
Sutherland Shire Littoral Rainforest	absent

Table 3 [cont]

Endangered Ecological Communities Occurring / Likely to Occur at the Study Area

Endangered Ecological Community	Assessment of Occurrence / Absence
Mount Gibraltar Forest in the Sydney Basin Bioregion	absent
Hunter Lowland Redgum Forest in the Sydney Basin and New South Wales North Coast Bioregions	absent
Cumberland Plain Woodland	possible occurrence but Swamp Oak is the dominant tree species; it is concluded that this community is not present at the site [NSW Scientific Committee, 1997]
Blue Mountains Shale Cap Forest in the Sydney Basin Bioregion	absent

4.4.2 Identity of the Community Present at the Study Area

The vegetation community at the study area is delineated on maps provided by National Parks and Wildlife Service [2000a], Tozer [2003] and Maunsell [2007] as River-flat Eucalypt Forest on Coastal Floodplains [Scientific Committee 2005c].

After reading the Scientific Committee's description of this in its final Determination to list the community [Scientific Committee 2005c, I am of the opinion that the community is not a remnant of this endangered ecological community but a community dominated by Swamp Oak that does not appear to be listed on the Schedules of the Threatened Species Conservation Act.

I base my opinion on the following evidence.

The Final Determination by the Scientific Committee states that:

[Para 1] – the community ***'is associated with silts, clay loams, and sandy loams on periodically inundated alluvial flats, , drainage lines and river terraces associated with coastal floodplains. Floodplains are level landform patterns on which there may be active erosion and aggradation by channelled and overbank stream flow with an average recurrence interval of 100 years or less*** ….. and ***'generally occurs below 50m elevation, but may occur on localised river flats up to 250m above sea level..***'

> **Comment** - it should be note that the drainage line associated with the community is located well away from any conventional flood plain at an elevation ASL of somewhere between 60 and 80m. The area is associated with a drainage line – albeit minor.

[Para 3] – the community has been recorded within the Blacktown LGA.

[Para 4] – the community ***'has a tall open tree layer of eucalypts, which may exceed 40m in height, but can be considerably shorter in regrowth stands or under conditions of lower site quality. While the composition of the tree stratum varies considerably, the most widespread and abundant dominant trees include Eucalyptus tereticornis [Forest Red Gum], E. amplifolia [Cabbage Gum], Angophora floribunda [Rough-barked Apple], and A. velutina [Broad-leaved Apple]. Eucalyptus baueriana [Blue Box], E. botryoides [Bangalay] and E. elata [River Peppermint] may be common south from Sydney, E ovata [Swamp Gum] occurs on the far south coast, E saligna [Sydney Blue Gum] and E. grandis [Flooded Gum] may occur north of Sydney, while E. benthamii is restricted to the Hawkesbury floodplain. Other eucalypts including Eucalyptus longifolia [Woollybutt], E moluccana [Grey Box] and E. viminalis [Ribbon Gum] may be present in low abundance or dominant in limited areas of the distribution. A layer of small trees may be present including Melaleuca decora, M. stypheloides [Prickly-leaved Teatree], Backhousia myrtifolia [Grey Myrtle], Melia azedarach [White Cedar], Casuarina cunninghaminan subsp. cunninghmiana [River Oak] and C. glauca [Swamp Oak]…***'

> **Comment** – the dominant tree is *Casuarina glauca* not one or more of the nominated eucalypts; consequently the community does not fit the Scientific Committee's description

[Para 6] – ***'the combination of features that distinguish the River-flat Eucalypt Forest on Coastal Floodplains from other endangered communities on coastal floodplains include: its dominance by either a mixed eucalypt canopy or by a single species of eucalypt belonging to either the genus Angophora or the sections Exsertaria or Transversaria of the genus Eucalyptus [Hill 2002]; the relatively low abundance or sub-dominance of Casuarina or Melaleuca species; the relatively low abundance of Eucalyptus robusta; and the prominent ground cover of soft-leaved forbs and grasses. It generally occupies central parts of floodplains and raised levees; habitats where flooding is periodic and soils are rich in silt, without deep humic horizons and show little or no influence of saline groundwater***.'

> **Comment** – the distinguishing features listed above indicate that the community at the study area is not River-flat Eucalypt Forest on Coastal Floodplains because of the dominance of *Casuarina glauca* and the lack of a true floodplain situation [as described above] at the site**.**

4.5 Occurrence of Critical Habitat

No critical habitat occurs at the site

5 CONDITION, OR HEALTH, OF THE VEGETATION WITHIN THE STUDY AREA

5.1 Condition of the Remnant Tree and Shrub Vegetation

The dominant tree species are native [Swamp Oak and Forest Red Gum] and the former is present as a large number of individual plants. The Forest Red Gums are very much in the minority and occur as scattered trees and saplings.

No native shrub species were recorded. The shrub layer was occupied by introduced African Boxthorn*, Briar Rose* and Swan Plant* and two introduced vines - Moth Plant* and Baby Smilax*.

The presence of these species is an indication of the poor health or condition of the community

5.2 Condition of the Ground Cover

During the field survey some **forty two** ground cover plants were recorded. Of these, only **eight** [and **possibly nine**] were native species.

Not only was there a dearth of native ground cover species present but they were present in very small numbers and were difficult to locate.

In contrast, the introduced weed species comprised almost 100% of the ground cover

It is worth noting that the Scientific Committee's Final Determination in relation to the River-flat Eucalypt Forest on Coastal Floodplains notes that this community has a ***prominent ground cover of soft-leaved forbs and grasses.*** The community at the Hanson property is far removed from this situation.

5.3 Extent of Disturbance by On-Site Earthworks

The study area has been disturbed in the past by earthworks associated with the construction and maintenance of detention basins and channels that direct, store and discharge water from the site.

There are soil stockpiles and an excavation within the study area.

5.4 Extent of Disturbance in the Landscape Surrounding the Study Area

From an inspection of the aerial photographs of the general locality it is evident that the amount of remnant vegetation is gradually being diminished as a consequence of urban development to the east and south of the Hanson property.

The airphotos indicate that earthworks – presumably including some clearing have occurred on the drainage line in question immediately downstream of the Hanson property.

Other relatively large segments of the remnant native vegetation that have been mapped as the endangered Cumberland Plain Woodland by Maunsell [2007] have also disappeared to make way for development.

There is also a lack of proper connectivity with Ropes Creek and, should the proposed road network be constructed in the area this situation will be further exacerbated by the extension of Archbold Road

In the broader locality context, it would appear that the remnant vegetation of the precinct is gradually being reduced in value and isolated from contiguous areas by roads and building construction. This further reduces the habitat value of the remnant on the Hanson property.

6 CONCLUSION

The present flora study of the Hanson property has revealed that:

- There are no records of threatened flora species being found at the site in the past;
- There a re no records of threatened flora populations occurring at the site in the past;
- There is no critical habitat present at the site;
- No threatened flora species were recorded at the site during the field survey
- The vegetation community at the site has been mapped in a number of publications as the endangered River-flat Eucalypt Forest on Coastal Floodplains ecological community [or its equivalent];
- After detailed consideration of the NSW Scientific Committee's Determination in relation to this community and those relating to three other endangered ecological communities that are associated with floodplains it has been determined that the community present at the study area is not an endangered ecological community
- The vegetation community present at the site is a highly degraded one in which the shrub and ground cover layers are highly invaded by introduced weed species and the native small tree, shrub and ground cover species that would have been present in the pristine state have largely disappeared.
- The remnant is located in a landscape where corridor linkages are poor and urban development is encroaching.

7 REFERENCES

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