MAC'S REEF ROAD WASTE TRANSFER STATION
SURVEY FOR OCCURRENCE OF NATIVE ORCHID SPECIES.

Report prepared
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Introduction

Two earlier flora and fauna surveys were undertaken of the Mac's Reef Road waste disposal site and the planned waste transfer development site on the 26th August 2009 and the 7th February 2011. At the request (15.11.2011) of Mr Steve McCall Principal, Environmental Property Services, Office of Environment and Heritage, six additional site visits were made to the planned waste transfer station site in November and December 2011, and January 2012, to specifically ascertain the presence / possible presence at the site of any native orchids and any other threatened native flora species listed for the local region.

During November and December 2011 a total of 182mm of rain fell in the Bywong / Macs Reef area and it was expected that if any orchids were present within the waste transfer station site they would have been evident (flowering) during this time as a response to the rainfall events. The majority of the twenty species of orchid known to occur in the region are also spring and summer (August /September to late January) flowering species and if present would be readily noted. No orchids were recorded in the earlier surveys (August 2009 and February 2011) but these were carried out in predominately non-flowering periods.

Site location

The planned waste transfer station site is adjacent to Mac's Reef Road (fig 1) and within the existing waste disposal (tip) area (fig 2 & 3). It is to be located on a flat to low slope area on the northern boundary of the existing tip area (fig 4).

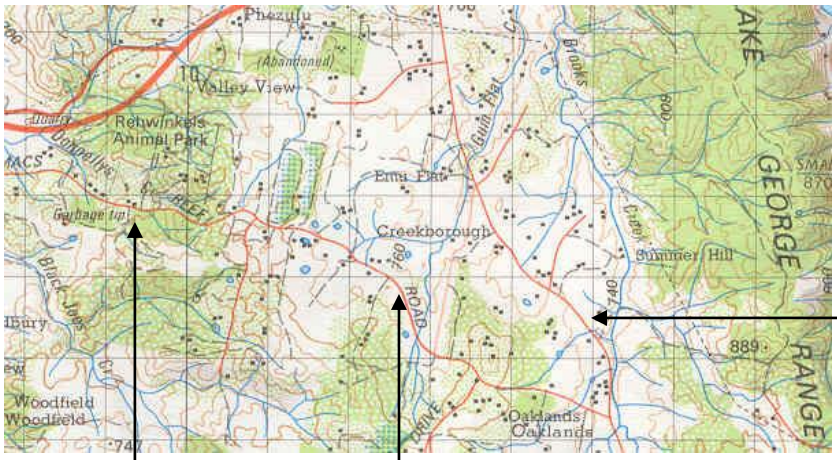

Figure 1 Location of planned waste transfer station

Figure 2. Aerial view of Mac's Reef Tip and planned waste transfer site

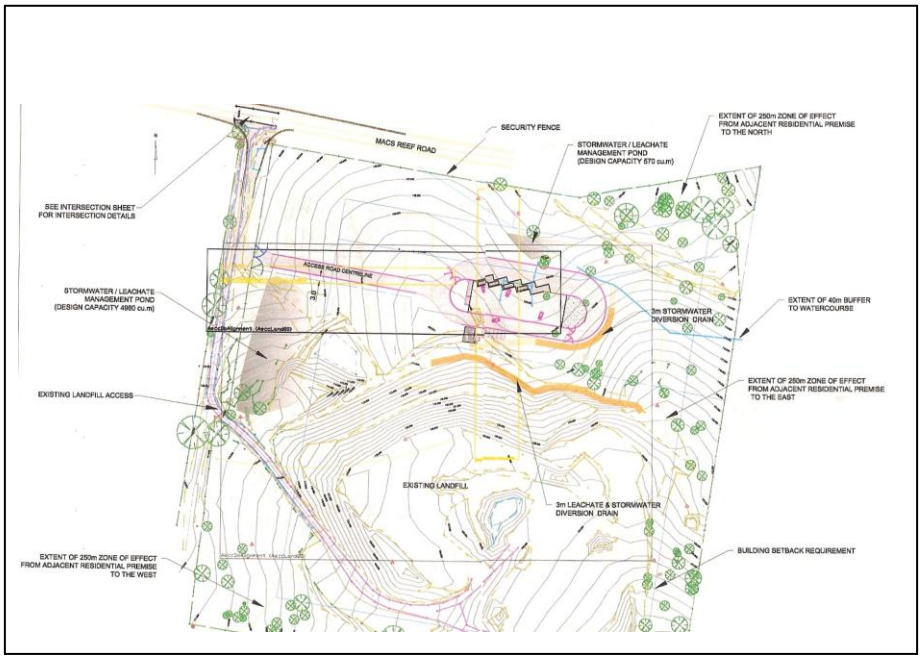

Figure 3. Survey plan of existing tip area and planned waste transfer station.

Vegetation of the site

The vegetation of the planned waste transfer site is that of dry sclerophyll woodland Dominated by Brittle Gum *Eucalyptus mannifera* with sub-dominant Broad-leaved Peppermint *E.dives* and Red Stringybark *E.macrorhynca* (fig 4). A very sparse shrub understorey exists while the herbaceous ground cover is dominated by sparse Poa

Tussock *Poa sieberiana* with very few flowering intertussock herbs species. Very little ground litter cover exists with little potential habitat or conditions suitable for the growth of orchids and other succulent herbs.

Figure 4. Open dry sclerophyll woodland on the site of the planned waste transfer station

Orchid species surveyed.

Many species of native orchid potentially could grow in the dry sclerophyll woodland on and around the tip site and waste transfer station but it was considered that the following species had the highest probability of occurrence. *Eriochilus cucullatus, Microtis unifolia, Paracaleana minor, Glossodia major, Microtis unifolia* and *Prasophyllum brevilabre* are the most widespread and were considered the most likely species to be observed over the two months of the field survey.

While recognising that these species were the most likely to occur on and around the waste transfer site it was also recognised that native orchid taxonomy has changed the botanical names of many species over the recent past. Several species listed below may be well known by earlier other names eg *Stegostyla, Arachnorchis* and *Petalochilus* species were all previously in the genus *Caladenia.*

Many orchid species are also very variable in form and difficult to identify accurately, eg the widespread *Eriochilus cucullatus* and *Microtis unifolia,* while the latter is very closely related to *Microtis rara* and *M.parviflora*. *Diuris punctata* is closely related to *Diuris cuneata* and *D. Alba* all of which occur on the Tablelands.

Species	Flower Colour	Flowering time
Acianthus fornicatus	Purple	Winter
Calocchilus robertsonii	Green mauve	Spring
Chiloglottis trilabra	Green	Summer autumn
Cyanicula caerula	Purple	Winter Spring
Diplodium truncatum	Green white	Summer winter
Diuris punctata	Mauve	Spring

Diuris sulphurea	Cream	Spring Summer
Diuris chryseopsis	*Cream*	Spring
Eriochilus cucullatus	Pink	Summer autumn
Glossodia major	Pink mauve	Spring
Hymenochilus muticus	Green	Spring
Myrmechila trapeziformis	Pink	Spring
Microtis unifolia	Green	Spring summer
Oligochaetochilus aciculiformis	Green	Spring
Paracaleana minor	Green	Spring summer
Petalochilus carneus	Pink white	Spring
Prasophyllum brevilabre	White purple	Spring summer
Simpliglottis valida	Green purple	Spring summer
Stegostyla cucullata	White pink	Spring
Caladenia tessellata *	Yellow	Spring summer
Diuris aequalis *	Yellow	Spring summer

Diuris aqualis and *Caladenia tessellata* are both endemic to south eastern NSW and are listed as threatened under the NSW Threatened species Conservation Act. The habitat at the waste transfer site was recognised as not suitable for the growth of these two species and hence were predicted not to occur at the site.

Assessment of Significance

In assessing the impacts of the development of the waste transfer station site (construction) and the wider landfill site (restoration), the significance of any impacts were made within the following criteria:

1. The extent of fragmentation of any native vegetation
2. Extent of degradation of native vegetation on the site
3. Extent of destruction / removal of habitat
4. Degree of reduction in species population numbers
5. Destruction / loss of any threatened species
6. Presence of any threatened, rare or locally important species
7. Existing and potential threatening processes (pre and post development)
8. Existence of an endangered ecological community (EEC).

The *Eucalyptus mannifera* dry sclerophyll woodland is not a listed endangered ecological community (EEC) and that existing on the site of the proposed waste transfer station is in a degraded state with a very sparse understorey shrub layer and a sparse herbaceous groundstorey, dominated by Poa Tussock with few flowering species. The ground litter accumulation and cover is low (poor) providing little potential habitat for small mammals and terrestrial orchids that grow in and have some dependence on decomposing litter (organic matter).

The development of the site will require the removal of a number of trees that will result in a minor fragmentation of the woodland vegetation on the site but this will not contribute to a significant fragmentation of the woodland across its wider range across the Tablelands.

The removal of the trees will result in the destruction of a small amount of woodland habitat but as few species of fauna / avifauna and herbaceous native plants have been recorded on the site in the past, the loss of habitat will be minor, particularly as extensive tracts of the woodland occur adjacent to; in the near vicinity and across the local region. These extensive areas of the *E.mannifera* woodland still provide adequate and suitable habitat for all flora and fauna species that inhabit and / or frequent such woodland.

No threatened or locally rare or important species have been located on, or are known for the site of the waste transfer station, so no significant impact on a threatened species will occur. Similarly no locally important native plant species including native orchids have been recorded for the site. No listed threatening processes are currently operative on or around the waste transfer site but the existing landfill effluent / seepage control and storage structures are adjacent to the waste transfer station site. The improvement of these as part of the development and the landfill restoration works will alleviate any potential impact of them on the future regeneration of native plant species.

The operation of the waste transfer station will result in numerous vehicle movements and subsequent noise and dust pollution but these impacts should be less than currently exist with operation of the landfill tip. They will not have any significant impact on the woodland vegetation around the site but may have a minor impact in terms of the natural regeneration of native plants. It will be minor as few understorey shrubs currently exist in the woodland areas and only a very sparse herbaceous vegetation exists.

Summary

An intensive search for native orchids on the planned waste transfer station over a two-month period (late November 2011 to mid January 2012) failed to locate any orchids. Only *Glossodia major* was located in the north east corner of the landfill site, distant from the waste transfer site but indicating that habitat conditions for one or more species eg *Microtis unifolia* still exist at the landfill and waste transfer station sites.

As much of the site has been previously disturbed during past development and operation of the landfill tip (fig.5) and the vegetation of the site is in a degraded state, little habitat suitable for the growth of the majority of those species predicted to occur, now exists **(**fig. 6).

The site has not been subject to fire for many years; hence species such as *Prasophyllum brevilabre*, if they occurred in the past, have predictably died out as they have some dependence on fire and regenerate best after fire events. Fire and weather conditions also have an indirect effect in terms of potential orchid occurrence as they influence the occurrence and distribution of orchid pollinators, particularly wasps and bees. Over the past decade the prolonged drought and dusty conditions and now two wet spring and summer seasons, have no doubt had an impact on pollinator population and consequently some potential orchid occurrences.

No orchid species were located / observed on the waste transfer station site hence no species, particularly locally significant species and threatened species will be impacted by the development of the site.

Figure 5. Unplanned drainage line and sediment fan near to the waste transfer site

Figure 6. Large catch drain constructed to divert runoff between the landfill area and the waste transfer station site.

References.

Jones, D. (2008) Field Guide to the orchids of the Australian Capital Territory. National Parks Association of the ACT.

Jones, D. (1993) Native Orchids of Australia Reed Books Australia.

Wood, B and D. (2011) Flowers of the ACT and Region. A field guide. Wood's Books Canberra.