
**FLORA AND VEGETATION SURVEY OF
THE PROPOSED CLEARING AREA FOR
RED HILL QUARRY - HANSON**

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March 2007



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1. SUMMARY

Mattiske Consulting Pty Ltd was commissioned in 2006 by Hanson Construction Materials Pty Ltd (Hanson) to define the botanical values and the condition of the vegetation of the proposed clearing site in Hanson Red Hill Quarry, Toodyay Rd, Red Hill (Lot 11). The project area was surveyed over three months in April, October and December 2006. Initially a small section was surveyed just north of the current Red Hill operations and then a wider area was surveyed in October and December 2006. Consequently the sampling was spread over several seasons.

A total of 320 taxa (species, subspecies and varieties) from 53 families, 147 genera and 292 species were recorded at the proposed clearing site (Appendix B). Of the 23 introduced (weed) taxa recorded during the survey, none are listed by the Department of Agriculture (2007) as a Declared Plant or a Pest Plant. A range of species have also been planted in the rehabilitation areas.

There was a substantial overlap of the species with nearby major studies by E. M. Mattiske and Associates (1991) in John Forrest National Park and by Paul Armstrong and Associates (1993) for the Shire of Kalamunda reserves. Approximately 50% and 60% respectively of the taxon recorded in the Red Hill Quarry Project Area were also recorded in the John Forrest National Park and Darling Range (Shire of Kalamunda) reserves.

The review of the Department of Environment and Conservation databases highlighted a range of potential rare and priority flora species that may occur in the area. This review indicated a total of ten Rare, three Priority 1, six Priority 2, twenty-nine Priority 3 and nineteen Priority 4 flora species that may be in the area near the Red Hill Quarry Project Area. Of these species listed, the following species have been recorded historically in or near the Project Area - *Halgania corymbosa* (P3), *Darwinia pimelioides* (P4), *Calothamnus rupestris* (P4) and *Templetonia drummondii* (P4). Many of the other species occur on the fringes of the Swan Coastal Plain and in the western fringes of the Darling Ranges. Of the potential species highlighted in the database review, five are endangered and four are vulnerable pursuant to s179 of the Commonwealth Environment Protection and Biodiversity Conservation Act (1999).

No Declared Rare species pursuant to Subsection 2 of Section 23F of the Wildlife Conservation Act (1950) and listed by the Department of Environment and Conservation (2007a) were located during the survey.

No endangered or vulnerable taxa, pursuant to s179 of the Environment Protection and Biodiversity Conservation Act (1999) were located during the survey. Three priority species were recorded during the survey. None of the Priority flora species are restricted to the Project Area. *Acacia oncinophylla* subsp. *oncinophylla*, *Halgania corymbosa* and *Calothamnus rupestris* have all been recorded in other areas within the northern Jarrah forest. This interpretation is supported by the Florabase datasets managed by the Department of Environment and Conservation (2007a). All three Priority species recorded also occur outside the proposed clearing areas within the Project Area.

The survey area crosses three vegetation complexes as defined in 1:250 000 mapping by Mattiske and Havel (1998). The Darling Scarp vegetation complex is restricted to the western fringes of the Darling Ranges and is less well represented in the conservation estate (with 7.86% represented in the formal and informal reserves, based on data in the Forest Management Plan, Conservation Commission 2004). The Helena 2 vegetation complex is restricted to the deeply incised valley systems on the western fringes of the Darling Ranges and is relatively well represented in the conservation estate (with 29.93% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004). The Dwellingup 2 vegetation complex occurs on the upper lateritic hills and ranges and is relatively well represented in the conservation estate (with 23.05% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

At a local scale of mapping, nine site-vegetation types were defined and mapped. All site-vegetation types have been recorded in the northern Jarrah forest previously and many are represented in the adjacent Darling Range Regional Park and John Forrest National Park (south of the Project Area) (E.M. Mattiske and Associates 1991 and Heddle *et al.* 1980b).

The condition of the vegetation varies from modified (some rehabilitation areas) to excellent. No plant communities listed as threatened under the Environment Protection Biodiversity Conservation Act (1999) were located within the survey area. No plant communities listed as threatened ecological communities by the Department of Environment and Conservation (2007d) were located within the survey area.

2. INTRODUCTION

Mattiske Consulting Pty Ltd was commissioned in 2006 by Hanson to define the botanical values and the condition of the vegetation of the proposed clearing site in Hanson Red Hill Quarry, Toodyay Rd, Red Hill. The project area was surveyed over three months in April, October and December 2006. Initially a small section was surveyed just north of the current Red Hill operations and then a wider area was surveyed in October and December 2006. Consequently the sampling was spread over several seasons.

2.1 Climate

The climate is dry Mediterranean, with winter rainfall of approximately 600 - 700 mm and 5-6 dry months per year (Beard 1990). Rainfall may be greater as the survey area occurs within 13 km of the Darling Scarp, where uplift from the scarp can increase rainfall (Gentili, 1989).

In the vegetation-mapping project for the Regional Forest Agreement, Havel and Mattiske investigated the relationships between the climate zones in the southwest forest region and the resulting vegetation. This concept of climatic zones in relation to vegetation was later developed further by Havel as part of his Ph.D. thesis (Havel 2000). These studies led to the definition of a series of climatic zones and the vegetation within the survey area occurs in the "semiarid" zone as developed by Mattiske and Havel (1998) and as defined by Havel (2000).

2.2 Landform and Soils

The survey area occurs on the lateritic capped Archaean granite and metamorphic rocks of the Darling Plateau.

Churchward and McArthur (1980) undertook a study of the landforms and soils of the Darling System. The following landforms and soil units are represented in the survey area:

Table 1: Landforms and Soils in the Project Area (from Churchward and McArthur 1980)

Landform Type	Description
DS	Darling Scarp Very steep slopes with shallow red and yellow earths and much rock outcrop.
D	Dwellingup Gently undulating landscape with duricrust on ridges; sands and gravels in shallow depressions.
H	Helena Very deeply incised valleys with steep rocky slopes and some shallow red or yellow earths.

2.3 Regional and Local Vegetation

The survey area occurs in the Darling Botanical District of the South-western Botanical Province as recognized by Diels (1906) and later developed by Gardner (1942) and Beard (1979, 1980). Previous workers have stressed the significance of the climate, landforms and soils in determining the distribution of plant communities in this area (Diels 1906; Williams 1932, 1942; Speck 1952, 1958; Lange 1960; Churchill 1961, 1968; Smith 1974; Seddon 1972; Havel 1968, 1975a, 1975b; Heddle *et al.* 1980a; Beard 1981, Matiske and Havel 1998, Havel 2000).

In vegetation mapping it is necessary to define and map the plant communities into groups with common characteristics in structure and floristics. This grouping and classification has been achieved by:

- . Havel on the Swan Coastal Plain (1968) and in the Northern Jarrah Forest (1975a, 1975b),
- . Beard (1979) in the Pinjarra area (1:250,000),
- . Heddle *et al.* (1980a) in the System 6 area; Perth, Pinjarra and Collie areas (1:250,000), and
- . Matiske and Havel (1998) in the vegetation mapping for the Regional Forest Agreement.

The classification system of Heddle *et al.* (1980a), and as recently updated by Matiske and Havel (1998) for the Regional Forest Agreement vegetation mapping, utilised the concept of vegetation complexes, emphasized the relationships between the underlying landforms, soils and the plant communities. This latter system incorporated linkages with the previous work by Havel (1975a and b) and extensive vegetation mapping on specific areas throughout the northern and central Jarrah forest by Matiske.

The survey area crosses three vegetation complexes as defined in 1:250 000 mapping by Matiske and Havel (1998) (Table 2). This Darling Scarp vegetation complex is restricted to the western fringes of the Darling Ranges and is less well represented in the conservation estate (with 7.86% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004). The Helena 2 vegetation complex is restricted to the deeply incised valley systems on the western fringes of the Darling Ranges and is relatively well represented in the conservation estate (with 29.93% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004). The Dwellingup 2 vegetation complex occurs on the upper lateritic hills and ranges and is relatively well represented in the conservation estate (with 23.05% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

The site-vegetation types defined by Havel (1975a, 1975b) for the northern Jarrah forest, covered the variation of plant communities on this section of the Darling Range. Although the plant communities in this area form a continuum, it is possible to classify the site-vegetation types by incorporating site descriptions (e.g. soils, topography, slope, aspect, soil moisture regimes), floristic information and structural information.

In the last twenty years, subsequent studies by Matiske and Havel in the northern Jarrah forest have recognised a series of new vegetation types not covered previously by Havel (1975a, 1975b). These include variations on the previously defined site vegetation types (e.g. MG, CG) as well as site-vegetation types, which were not covered by Havel.

Table 2: Representation of Vegetation Complexes Expected to Occur in the Project Area (based on Mattiske and Havel , 1998 and Conservation Commission of Western Australia 2004)

Note: ^ - Areas presented are based on data supplied by the Department of Environment and Conservation from the Forest Management Plan as published by the Conservation Commission 2004

Vegetation Complex	Description	Pre-European area (ha) ^	Extant area (ha) ^	Representation in Formal and Informal Reserves (ha) ^
DS	<p>Darling Scarp (DS)</p> <p>Mosaic of open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> – <i>Corymbia calophylla</i>, with some admixtures with <i>Eucalyptus laeliae</i> in the north (subhumid zone), and <i>Corymbia haematoxylon</i> in the south (humid zone) on deeper soils adjacent to outcrops, woodland of <i>Eucalyptus wandoo</i> (subhumid and semiarid zones), low woodland of <i>Allocasuarina huegeliana</i> on shallow soils over granite outcrops, closed heath of Myrtaceae – Proteaceae species and lithic complex on near granite outcrops in all climate zones.</p>	29108.23	9866.38	2284.49
D2	<p>Dwellingup 2 (D2)</p> <p>Open forest of <i>Eucalyptus marginata</i> subsp. <i>marginata</i> – <i>Corymbia calophylla</i> on lateritic uplands in subhumid and semiarid zones.</p>	86085.9	73526.1	19831.8
He2	<p>Helena 2 (He2)</p> <p>Mosaic of open forest of <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> – <i>Corymbia calophylla</i> and woodland of <i>Eucalyptus wandoo</i> with some <i>Eucalyptus accedens</i> and <i>Eucalyptus rudis</i> on the deeper soils ranging to closed heaths and lithic complex on shallow soils associated with granite on steep slopes of valleys in semiarid and arid zones.</p>	16341.03	11816.55	4891.1

2.4 Rare and Priority Flora

Species of flora and fauna are defined as Rare or Priority conservation status where their populations are restricted geographically or threatened by local processes. The Department of Environment and Conservation recognises these threats of extinction and consequently applies regulations towards population and species protection.

Rare Flora species are gazetted under subsection 2 of section 23F of the Wildlife Conservation Act (1950) and therefore it is an offence to “take” or damage rare flora without Ministerial approval. Section 23F of the Wildlife Conservation Act (1950) defines “to take” as “... to gather, pick, cut, pull up, destroy, dig up, remove or injure the flora to cause or permit the same to be done by any means.

Priority Flora are under consideration for declaration as 'rare flora', but are in urgent need of further survey (Priority One to Three) or require monitoring every 5-10 years (Priority Four). Table 2 presents the definitions of Declared Rare and the four Priority ratings under the Wildlife Conservation Act (1950) as extracted from Department of Environment and Conservation (2007a).

Table 3: Definition of Rare and Priority Flora Species (Department of Environment and Conservation, 2007a)

Conservation Code	Category
R	<p>Declared Rare Flora – Extant Taxa</p> <p>“Taxa which have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection and have been gazetted as such.”</p>
P1	<p>Priority One – Poorly Known Taxa</p> <p>“Taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.”</p>
P2	<p>Priority Two – Poorly Known Taxa</p> <p>“Taxa which are known from one or a few (generally <5) populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but urgently need further survey.”</p>
P3	<p>Priority Three – Poorly Known Taxa</p> <p>“Taxa which are known from several populations, and the taxa are not believed to be under immediate threat (i.e. not currently endangered), either due to the number of known populations (generally >5), or known populations being large, and either widespread or protected. Such taxa are under consideration for declaration as 'rare flora' but need further survey.”</p>
P4	<p>Priority Four – Rare Taxa</p> <p>“Taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5-10 years.”</p>

Listed threatened species are a matter of national environmental significance under the Environment Protection and Biodiversity Conservation Act (1999). A person must not take an action that has, will have, or is likely to have a significant impact on a listed threatened species or ecological community, without approval from the Commonwealth Minister for the Environment and Water Resources. Table 4 presents the definitions of the categories of threatened species under the EPBC Act (1999).

Table 4: Categories of Threatened Flora Species (Environment Protection and Biodiversity Conservation Act, 1999)

Category Code	Category
Ex	<p>Extinct</p> <p>A native species is eligible to be included in the <i>extinct</i> category at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.</p>
ExW	<p>Extinct in the Wild</p> <p>A native species is eligible to be included in the <i>extinct in the wild</i> category at a particular time if, at that time (a) it is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or (b) it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.</p>
CE	<p>Critically Endangered</p> <p>A native species is eligible to be included in the <i>critically endangered</i> category at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.</p>
E	<p>Endangered</p> <p>A native species is eligible to be included in the <i>endangered</i> category at a particular time if, at that time (a) it is not critically endangered; and (b) it is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.</p>
V	<p>Vulnerable</p> <p>A native species is eligible to be included in the <i>vulnerable</i> category at a particular time if, at that time (a) it is not critically endangered or endangered; and (b) it is facing a high risk of extinction in the wild in the medium term future, as determined in accordance with the prescribed criteria.</p>
CD	<p>Conservation Dependent</p> <p>A native species is eligible to be included in the <i>conservation dependent</i> category at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.</p>

3. OBJECTIVES

The objectives were to survey and assess the botanical values and the condition of the vegetation of the proposed clearing area in Red Hill Quarry, Red Hill in accordance with current state and federal legislation, and to report on the resultant findings.

4. METHODS

The survey was undertaken in accordance with EPA Guidance Statement No 51 and the following methods were used in the assessment.

4.1 Flora

Over April, October and December 2006 a team of botanists and biologists from Mattiske Consulting Pty Ltd completed 20.5 field days completing a total of 102 sites. The survey area was traversed on foot. For each survey site, the flora was systematically recorded and collections of plant specimens were made where further identification was required.

All plant specimens collected during the field survey were handled and identified in accordance with the requirements of the Western Australian State Herbarium. Where necessary, specimens were compared with pressed specimens housed at the Western Australian State Herbarium, and plant taxonomists with specialist skills were consulted. Nomenclature of recorded species follows that recommended by the Western Australian Herbarium, Department of Environment and Conservation (2007b and 2007c).

4.2 Vegetation Mapping

The plant communities occurring within the survey area were described in detail and their distribution mapped using aerial photographs. The survey area recordings were undertaken at 102 sites; with regular notes between recordings on any additional species and also boundary changes. At each site the tree species were recorded in a 20 metre radius area and the understorey species were recorded in a 5 metre radius from the central point of the site. Therefore the minimum radius of 5m from the central point is equivalent to the 10m x 10m quadrats as used in the regional floristic studies. The use of standard data collection forms ensured the data was collected in a systematic format. At each site the following records were made: topography, percentage litter cover, soil type, percentage bare ground, outcropping rocks and their type, pebble type and size and number of years since fire. For each species recorded, the average height and percentage foliage cover of species both alive and dead was noted.

5. RESULTS

5.1 Flora

A total of 320 taxa (species, subspecies and varieties) from 53 families, 147 genera and 292 species were recorded at the proposed clearing site (Appendix B). Twenty-six percent of these species occur in more than ten percent of the sites (Appendix E).

Of the 23 introduced (weed) taxa recorded during the survey, none are listed by the Department of Agriculture (2007) as a Declared Plant or a Pest Plant. A range of species have also been planted in the rehabilitation areas. These introduced species are listed in Appendix B and by site-vegetation types in Appendix C. Of the introduced species, *Briza maxima* is the most common introduced species. The majority of the more aggressive weeds occur within disturbed areas, either on road verges or on the fringes of Susannah Brook. The species that will require monitoring on the site include *Gladiolus caryophyllaceus*, *Moraea flaccida*, *Watsonia meriana* and *Watsonia meriana* var. *bulbillifera*.

5.2 Potential Rare and Priority Flora

The review of the Department of Environment and Conservation databases highlighted a range of potential rare and priority flora species that may occur in the area. This review indicated a total of eleven Rare, three Priority 1, six Priority 2, twenty-nine Priority 3 and nineteen Priority 4 flora species that may be in the area near the Red Hill Project Area (Appendix A). Of these species listed, the following species have been recorded historically in or near the Project Area (Figure 4) - *Halgania corymbosa* (P3), *Darwinia pimelioides* (P4), *Calothamnus rupestris* (P4) and *Templetonia drummondii* (P4). Many of the other species occur on the fringes of the Swan Coastal Plain and in the western fringes of the Darling Ranges. Of the potential species highlighted in the database review, six are endangered and four are vulnerable pursuant to s179 of the Environment Protection and Biodiversity Conservation Act (1999).

5.3 Recorded Rare and Priority Flora

No Declared Rare species pursuant to Subsection 2 of Section 23F of the Wildlife Conservation Act (1950) and listed by the Department of Environment and Conservation (2007a) were located during the survey.

Three priority species were recorded during the survey (Table 4).

The Priority 3 species *Acacia oncinophylla* subsp. *oncinophylla* (MIMOSACEAE) was found at nine sites (Table 4, Figure 4) and five site-vegetation types. This taxa has 35 records at the State Herbarium, ranging from Mogumber in the North to Serpentine in the South, along the Darling Range. This species is recorded as occurring in granitic soils in heath and open woodland (Maslin, 2001). Collections in the survey area reflected previous collections in the State Herbarium.

The Priority 3 species, *Halgania corymbosa* (BORAGINACEAE) was found at one site (Table 4, Figure 4). It is known from 15 records from the State Herbarium. The records stretch from Millendon in the north west to Gidgegannup in the north east, to Gosnells in the south west, and Karnet to the south east (Department of Environment and Conservation 2007a). The collection in the survey area is not reflected by many previous collections in the State Herbarium.

The Priority 4 species, *Calothamnus rupestris* (MYRTACEAE) was located at 27 sites throughout the survey area (Table 4) in 6 site-vegetation types and the rehabilitation areas. This species is known from 46 records at the State Herbarium and is relatively widespread on granitic soils on the Darling Scarp and the northern Jarrah forest (Department of Environment and Conservation 2007a). This species has been used extensively in rehabilitation areas near the Darling Scarp and in gravel pits within the northern Jarrah forest.

Table 4: Location of Priority Species in the Survey Area at Red Hill Quarry (GDA94 50J)

Species	Easting (mE)	Northing (mN)	Site vegetation types	Regional distribution*
<i>Acacia oncinophylla</i> subsp. <i>oncinophylla</i> (P3)	413067 412227 412370 412202 412195 413177 412304 412683 411844	6478989 6479041 6479614 6479600 6479515 6478572 6479395 6479228 6478501	CG, G1, G2, GM, MG (mainly in G1)	South West: Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain
<i>Halgania corymbosa</i> (P3)	412900	6478713	MG	South West: Jarrah Forest and Swan Coastal Plain
<i>Calothamnus rupestris</i> (P4)	412812 412269 412227 412370 412195 412537 412558 412736 413177 412344 412486 412228 412202 412304 412416 412264 412853 412424 412822 412683 412579 412492 412519 412594 412758 412271 412707	6479398 6478954 6479041 6479614 6479515 6479396 6479464 6479372 6478572 6479230 6479198 6479279 6479398 6479395 6478204 6478662 6478615 6478303 6479209 6479228 6479200 6478402 6478504 6478490 6477826 6479592 6478452	CG, G1, G2, GM, MG, R and Rehabilitated Areas (mainly in G1 and GM)	South West: Avon Wheatbelt, Jarrah Forest and Swan Coastal Plain

* As described by Florabase and based on Thackway and Creswell (1995) biogeographic regions.

5.4 EPBC Act listed species

The eleven EPBC Act listed threatened flora species, pursuant to s179 of the Environment Protection and Biodiversity Conservation Act (1999), have not been recorded in previous flora surveys conducted over parts of Lot 11 (Dames and Moore 1990, Mattiske 2006) or the more recent survey of the proposed development area (Mattiske 2007).

- . *Acacia aphylla* is known from 35 records, mainly in the northern Jarrah Forest on the fringes of Helena Valley, Mundaring Weir and Clackline. There is a high probability that this species may occur in the project area, although as this species is very distinctive if it had been present the species would have been located.
- . *Anthocercis gracilis* is known from 28 records, mainly in the northern Jarrah Forest on fringes of Helena Valley, Mundaring Weir and in John Forrest National Park. There is a high probability that this species may occur in the project area, although as this species is very distinctive if it had been present the species would have been located. It should be noted that on other sites species from this genera often occur in higher numbers following a fire.
- . *Caladenia huegelii* is known from 30 records, mainly on the Swan Coastal Plain, predominantly on sandy dunes. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.
- . *Calytrix breviseta* subsp. *breviseta* is known from 10 records, mainly in heaths on palusplain, on the Swan Coastal Plain. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.
- . *Eleocharis keigheryi* is known from 31 records, mainly on wet claypans on the Swan Coastal Plain. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.
- . *Caladenia* sp. Jarrah Forest (S. D. Hopper 3990) is not recognized as a taxon at the State level and therefore this taxon has been removed from the listings at the State and Federal levels.
- . *Grevillea curviloba* subsp. *curviloba* is known from 12 records, on sandplain, wet flats and palusplain on the Swan Coastal Plain. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.
- . *Grevillea curviloba* subsp. *incurve* is known from 39 records, on ironstone areas and wetlands, near Muchea. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.
- . *Grevillea flexuosa* is known from 43 records, mainly in gravelly and outcrop areas supporting Wandoo, in northern Jarrah Forest. There is a high probability that this species may occur in the project area, although as this species is very distinctive if it had been present the species would have been located.
- . *Hydatella dioica* is known from 7 records, mainly on water-logged flats, near Ellenrock and Midland on the Swan Coastal Plain. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.

Thelymitra stellata is known from 15 records on sandy, clay and gravelly soils, extending from Arthur River in the Wheatbelt to the Swan Coastal Plain. There is a low probability that this species occurs in the project area as the project area is located on the Darling Plateau and does not support the habitats this species is known to prefer.

5.5 Vegetation

At the completion of mapping in December nine site-vegetation types (Figure 3) were defined. The community types are listed below and are a combination of Havel's (1975a and 1975b) site-vegetation types.

- G1- Mosaic of Lithic Complex on exposed granites to patches of Open to Closed Heath of Proteaceae - Myrtaceae species, including *Hakea incrassata*, *Hakea stenocarpa*, *Dryandra armata* var. *armata*, *Hakea undulata*, *Allocasuarina humilis* and *Hypocalymma angustifolium* on exposed granites. This site-vegetation type supported some 159 taxa, which in part reflects the diversity of local site conditions which range from exposed granite to shallow granite outcrops. This site-vegetation type is common in the northern Jarrah forest on the main monadnocks and is well represented in the conservation estate within the Cooke vegetation complex as defined by Mattiske and Havel (1998). 34.8% of the Cooke vegetation complex is represented in formal and informal reserves (Conservation Commission 2004). This site-vegetation type is equivalent to the "G" site-vegetation type as defined by Havel (1975b) and is locally present in the nearby John Forrest National Park and in the adjacent Darling Range Regional Park.
- G2 - Open Woodland of *Allocasuarina huegeliana* over patches of Lithic Complex and Open Heath of Proteaceae - Myrtaceae species on exposed granites. This site-vegetation type supported some 76 taxa, which in part reflects the smaller spatial extent of this community within the Project Area and the diversity of local site conditions which range from exposed granite to shallow granite outcrops. This site-vegetation type occurs mainly on the fringes of the northern Jarrah forest on the Darling Scarp and northwards through the Julimar area and then on the eastern sections of the Jarrah forest on shallow granite outcrop areas. This community also extends into the Wheatbelt. As these outcrops restrict agricultural activities, this site-vegetation type is relatively well-represented in the Darling Scarp and Yalanbee complexes and to a lesser extent the Cooke complex as defined by Mattiske and Havel (1998). The vegetation complexes vary in their representation within the south-west forest region (Darling Scarp - 7.8%, Yalanbee 5 - 29.6%, Yalanbee 6 - 22.9% and Cooke - 34.8%), Conservation Commission 2004. This site-vegetation type is equivalent to a variant of the "G" site-vegetation type as defined by Havel (1975b) and is locally present in the nearby John Forrest National Park and in the adjacent Darling Range Regional Park.
- GM - Open to Closed Heath of Proteaceae - Myrtaceae species, including *Hakea incrassata*, *Hakea stenocarpa*, *Dryandra armata* var. *armata*, *Hakea undulata*, *Melaleuca trichophylla*, *Allocasuarina humilis* and *Hypocalymma angustifolium* over granite outcropping. This site-vegetation type supported some 140 taxa, which in part reflects the diversity of local site conditions which range from exposed granite to shallow granite outcrops. This site-vegetation type occurs mainly on the fringes of the northern Jarrah forest on the Darling Scarp and northwards through the Julimar area and then on the eastern sections of the Jarrah forest within the woodlands on shallow granite outcrop areas. This community also extends into the Wheatbelt. As these outcrops restrict agricultural activities, this site-vegetation type is relatively well-represented in the Darling Scarp and Yalanbee complexes and to a lesser extent the Cooke complex as defined by Mattiske and Havel (1998). The vegetation complexes vary in their representation within the south-west forest region (Darling Scarp - 7.8%, Yalanbee 5 - 29.6%, Yalanbee 6 - 22.9% and Cooke - 34.8%), Conservation Commission 2004. This site-vegetation type is equivalent to a variant of the "G" and "M" site-vegetation types as defined by Havel (1975a and 1975b) and is locally present in the nearby John Forrest National Park and in the adjacent Darling Range Regional Park.

- CG - Open Woodland of *Eucalyptus rudis* – *Eucalyptus wandoo* – *Corymbia calophylla* over *Trymalium floribundum* subsp. *floribundum*, *Darwinia citriodora* over sedges on creeklines. This site-vegetation type supported some 76 taxa, which in part reflects the narrow extent of this creekline community and the diversity of local site conditions which range from exposed granite to eroded soils within the valley system. This site-vegetation type occurs mainly in the valley floors of the deeply incised Helena valley systems in the northern section of the Jarrah forest. This site-vegetation type is relatively well-represented in the Helena 2 complex as defined by Mattiske and Havel (1998). The vegetation complex is well-represented in the conservation estate (Helena 2 - 29.9%), Conservation Commission 2004. This site-vegetation type is equivalent to a variant of the “C” and “G” site-vegetation types as defined by Havel (1975a and 1975b) and is locally present in the nearby John Forrest National Park and in the adjacent Darling Range Regional Park.
- M - Open Woodland of *Eucalyptus wandoo* - *Eucalyptus accedens* – *Corymbia calophylla* over low understorey, including *Hibbertia hypericoides*, *Bossiaea eriocarpa*, and *Phyllanthus calycinus* on clay-loams. This site-vegetation type supported some 48 taxa, which in part reflects the extent of this community within the Project Area and the diversity of local site conditions which range from dolerite dykes (with associated clays) and clay loams. This site-vegetation type occurs mainly in the northern Jarrah forest on the Darling Scarp and northwards through the Julimar area and then on the eastern sections of the Jarrah forest within the woodlands on clay-loams and sandy-loams. This community also extends into the Wheatbelt. This site-vegetation type is relatively well-represented in the Darling Scarp and Yalanbee complexes as defined by Mattiske and Havel (1998). The vegetation complexes vary in their representation within the south-west forest region (Darling Scarp - 7.8%, Yalanbee 5 - 29.6% and Yalanbee 6 - 22.9%), Conservation Commission 2004. This site-vegetation type is equivalent to “M” site-vegetation type as defined by Havel (1975a) and is locally present in the nearby John Forrest National Park, in the Julimar conservation areas and in the adjacent Darling Range Regional Park.
- MG - Open Woodland of *Eucalyptus wandoo* and *Eucalyptus accedens* with dense understorey, including *Hakea incrassata*, *Allocasuarina humilis*, *Hakea undulata* and *Hakea trifurcata* on clay-loams over shallow granite. This site-vegetation type supported some 165 taxa, which reflects the diversity of local site conditions which range from dolerite dykes (with associated clays) and clay loams with some localized granite outcropping. This site-vegetation type occurs mainly in the northern Jarrah forest on the Darling Scarp and northwards through the Julimar area and then on the eastern sections of the Jarrah forest within the woodlands on clay-loams and sandy-loams. This community also extends into the Wheatbelt. This site-vegetation type differs from the “M” type in the dominance of the shrub species from the Proteaceae and Myrtaceae families in the understorey. This site-vegetation type is relatively well-represented in the Darling Scarp and Yalanbee complexes as defined by Mattiske and Havel (1998). The vegetation complexes vary in their representation within the south-west forest region (Darling Scarp - 7.8%, Yalanbee 5 - 29.6% and Yalanbee 6 - 22.9%), Conservation Commission 2004. This site-vegetation type is equivalent to variants of the “M” and “G” site-vegetation types as defined by Havel (1975a and 1975b) and is locally present in the nearby John Forrest National Park, in the Julimar conservation areas and in the adjacent Darling Range Regional Park.
- R - Woodland to Open Woodland of *Eucalyptus marginata* - *Corymbia calophylla* over dense understorey including *Hakea incrassata*, *Allocasuarina humilis*, *Hakea undulata* and *Hakea trifurcata* on sandy-gravels over shallow granite. This site-vegetation type supported some 165 taxa, which reflects the diversity of local site conditions which range from sandy gravels to localized shallow granite outcropping. This site-vegetation type occurs mainly in the northern Jarrah forest on the shallow soils associated with the fringes of granite outcrops associated with the Darling Scarp and Cooke vegetation complexes. This site-vegetation type is relatively well-represented in the Darling Scarp and Cooke complexes as defined by Mattiske and Havel (1998). The vegetation complexes vary in their representation within the south-west forest region (Darling Scarp - 7.8% and Cooke - 34.8%), Conservation Commission 2004. This site-vegetation type is equivalent to the “R” site-vegetation type as defined by Havel (1975a and

1975b) and is locally present in the nearby John Forrest National Park and the adjacent Darling Range Regional Park.

- P - Open Forest of *Allocasuarina fraseriana* – *Eucalyptus marginata* – *Corymbia calophylla* over low understorey, including *Grevillea wilsonii*, *Hibbertia hypericoides* and *Hakea lissocarpa* on sandy-gravels. This site-vegetation types supported some 55 taxa, which reflects the lower spatial extend of this community within the Project Area and the lack of diversity in the site conditions. This site-vegetation type occurs mainly in the northern Jarrah forest on the sandy-gravelly soils associated with the Dwellingup 1 and Dwellingup 2 vegetation complexes. This site-vegetation type is relatively well-represented in the Dwellingup units, although the floristic composition varies from north to south and east to west. The vegetation complexes vary in their representation within the south-west forest region (Dwellingup 1 - 14.7% and Dwellingup 2 - 23.0%), Conservation Commission 2004. This site-vegetation type is equivalent to the “P” site-vegetation type as defined by Havel (1975a and 1975b) and is locally present in the nearby State Forests, John Forrest National Park and the adjacent Darling Range Regional Park.
- S - Open Forest of *Eucalyptus marginata* – *Corymbia calophylla* over low understorey, including *Grevillea wilsonii*, *Hibbertia hypericoides* and *Hakea lissocarpa* on sandy-gravels. This site-vegetation type supported some 107 taxa, which reflects the spatial extend of this community within the Project Area and the lack of diversity in the site conditions. This site-vegetation type occurs mainly in the northern Jarrah forest on the gravelly soils associated with the Dwellingup 1 and 2 vegetation complexes. This site-vegetation type is relatively well-represented in the Dwellingup units. The vegetation complexes vary in their representation within the south-west forest region (Dwellingup 1 - 14.7% and Dwellingup 2 - 23.0%), Conservation Commission 2004. This site-vegetation type is equivalent to the “S” site-vegetation type as defined by Havel (1975a and 1975b) and is locally present in the nearby State Forests, John Forrest National Park and the adjacent Darling Range Regional Park.
- REH - Rehabilitated areas, including previously cleared and disturbed areas.
- D - Disturbed and cleared areas.

5.6 Vegetation Condition

Based on the condition scale developed by Keighery (1994), the condition of the vegetation varies from degraded to excellent. The degraded areas have resulted from clearing, track establishment, human activities along Susannah Brook, and weed infestations along Susannah Brook from catchment areas. Dieback of the vegetation was localized and was mainly associated with drought conditions resulting from shallow soils and the lack of soil moisture. This pattern of decline is particularly evident on the shallow soils of the Darling Scarp and is related to the series of lower rainfall events.

5.7 Review of Significance of Vegetation

No plant communities listed as threatened under the Environment Protection Biodiversity Conservation Act (1999) were located within the survey area. No plant communities listed as threatened ecological communities by the Department of Environment and Conservation (2007d) were located within the survey area.

At a regional scale the vegetation in the survey area overlaps with three vegetation complexes as defined in 1:250 000 mapping by Matiske and Havel (1998). The Darling Scarp vegetation complex is restricted to the western fringes of the Darling Ranges and is less well represented in the conservation estate (with 7.86% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004). The majority (64.4%) of the Darling Scarp vegetation complex is in private holdings.

The Helena 2 vegetation complex is restricted to the deeply incised valley systems on the western fringes of the Darling Ranges and is relatively well represented in the conservation estate (with 29.93% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

The Dwellingup 2 vegetation complex occurs on the upper lateritic hills and ranges and is relatively well represented in the conservation estate (with 23.05% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

6. DISCUSSION

The survey work was undertaken over several seasons and therefore it was possible to cover a range of the flora species in the Project Area. It is intended to undertake additional studies in 2007 in the winter and spring months to expand the current coverage of the flora.

A total of 320 taxa (species, subspecies and varieties) from 53 families, 147 genera and 292 species were recorded at the proposed clearing site (Appendix B). This compares well with the range of species that have been recorded in the wider Jarrah forest and also the southwest forest region (Department of Environment and Conservation 2007a).

The surveys undertaken previously in John Forrest National Park (south of the Red Hill Quarry site) provide the closest comprehensive comparison (Mattiske Consulting Pty Ltd 1991). More recent studies by Armstrong (1993) for the Shire of Kalamunda were reviewed; however some differences were noted in the way the data was collected (Appendix D). The list in Appendix D compares the species from the respective survey areas. There was a substantial overlap of the species with nearby major studies by Mattiske Consulting Pty Ltd (1991) in John Forrest National Park and by Armstrong (1993) for the Shire of Kalamunda reserves. Approximately 50% and 60% respectively of the taxon recorded in the Red Hill Quarry Project Area were also recorded in the John Forrest National Park and Darling Range (Shire of Kalamunda) reserves. Of these taxa in common, some were introduced species (11 in common with Red Hill and John Forrest National Park and 14 in common with Red Hill and Darling Range reserves of Shire of Kalamunda).

Of the 23 introduced (weed) taxa recorded during the survey, none are listed by the Department of Agriculture and Food (2007) as a Declared Plant or a Pest Plant. The majority of the introduced species are restricted to either Susannah Brook or the disturbed sites within the Project Area. Active weed management would assist in reducing further infestations or spread of the introduced species. The majority of the more aggressive weeds occur within disturbed areas, either on road verges or on the fringes of Susannah Brook. The species that will require management and monitoring on the site include *Gladiolus caryophyllaceus*, *Moraea flaccida*, *Watsonia meriana* and *Watsonia meriana* var. *bulbillifera*.

To assist in the management of the rehabilitation areas, only local native species should be used in future seeding and plantings at the site.

No Declared Rare species pursuant to Subsection 2 of Section 23F of the Wildlife Conservation Act (1950) and listed by the Department of Environment and Conservation (2007a) were located during the survey. No Endangered or Vulnerable taxa, pursuant to s179 of the Environment Protection and Biodiversity Conservation Act (1999) were located during the survey. Therefore, based on the comprehensive field investigations undertaken to date in the project area and the known locations of threatened flora, no known occurrences of threatened flora will be directly disturbed by the proposal. However, it is possible that some new occurrences of threatened flora may be recorded within the disturbance area in future flora surveys; although, based on current surveys and known extent of these species on shallow granitic and clay-loam soils, it may be considered unlikely that any significant populations of threatened flora occur and the conservation status of such species would not be compromised. Further, it is known that similar habitats occur in the adjacent Darling Range Regional Park which is not going to be disturbed and in John Forrest National Park to the south of the project area.

Three priority species were recorded during the survey. None of the Priority flora species are restricted to the Project Area. *Acacia oncinophylla* subsp. *oncinophylla*, *Halgania corymbosa* and *Calothamnus rupestris* have all been recorded in other areas within the northern Jarrah forest. This interpretation is supported by the Florabase datasets managed by the Department of Environment and Conservation (2007a). All three Priority species recorded also occur outside the proposed clearing areas within the Project Area.

At a regional scale the vegetation in the survey area overlaps with three vegetation complexes as defined in 1:250 000 mapping by Mattiske and Havel (1998). The Darling Scarp vegetation complex is restricted to the western fringes of the Darling Ranges and is less well represented in the conservation estate (with 7.86% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

The Helena 2 vegetation complex is restricted to the deeply incised valley systems on the western fringes of the Darling Ranges and is relatively well represented in the conservation estate (with 29.93% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

The Dwellingup 2 vegetation complex occurs on the upper lateritic hills and ranges and is relatively well represented in the conservation estate (with 23.05% represented in the formal and informal reserves, based on data in the Forest Management Plan (Conservation Commission 2004).

At a local scale of mapping, nine site-vegetation types were defined and mapped. All site-vegetation types have been recorded in the northern Jarrah forest previously and many are represented in the adjacent Darling Range Regional Park and John Forrest National Park (south of the Project Area) (Mattiske Consulting Pty Ltd 1991 and Heddle *et al.* 1980b).

At this juncture the key management issues appear to be related to the need to protect those areas that are not going to be disturbed, restricting activities to the essential operational areas and addressing the rehabilitation of degraded environments (both as a result of the direct clearing for quarrying activities and also the adjacent degraded environments on the fringes of tracks and in Susannah Brook).

Recommendations

The following management needs should be implemented to minimize the impacts of the proposed operations on the flora and vegetation values.

- active weed management on the degraded environments (including Susannah Brook)
- integration of management of degraded environments with catchment management groups.
- continued use of local native species in rehabilitation, utilising seed collected onsite where practicable
- vegetation clearing should be kept to the minimum necessary for safe construction and operation of the project
- continue monitoring for diseases and pests.

7. LIST OF PERSONNEL

The following personnel were involved in this project:

Principle Ecologist - Dr E.M. Mattiske

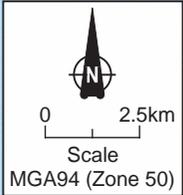
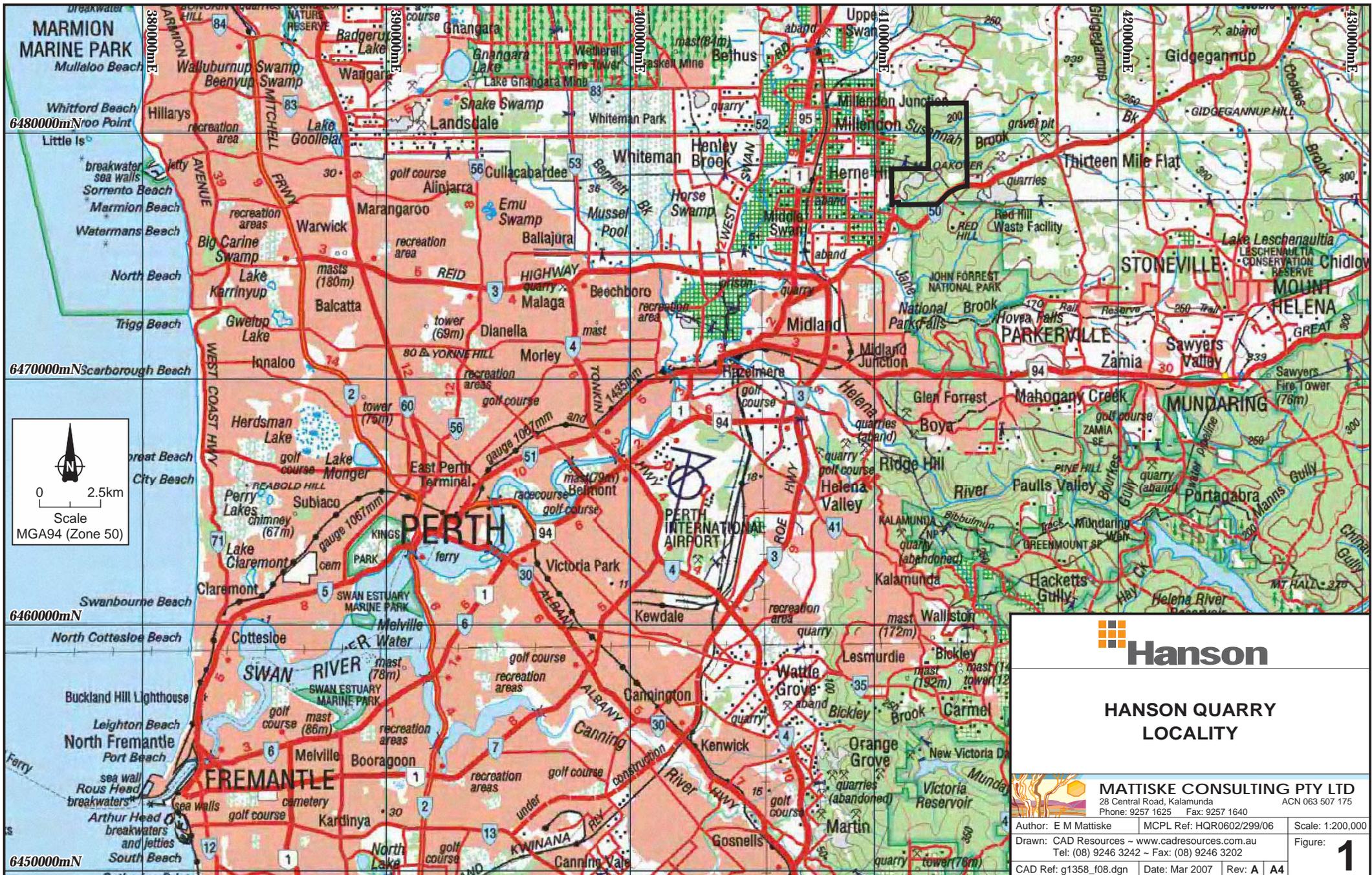
Botanists - Mr. M. Boardman
Ms F. Chandler
Dr. C. Hancock
Mrs B. Koch
Mr. S. Reiffer
Ms S. Robinson
Mr. B. Sadlo
Ms B. Taylor

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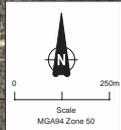
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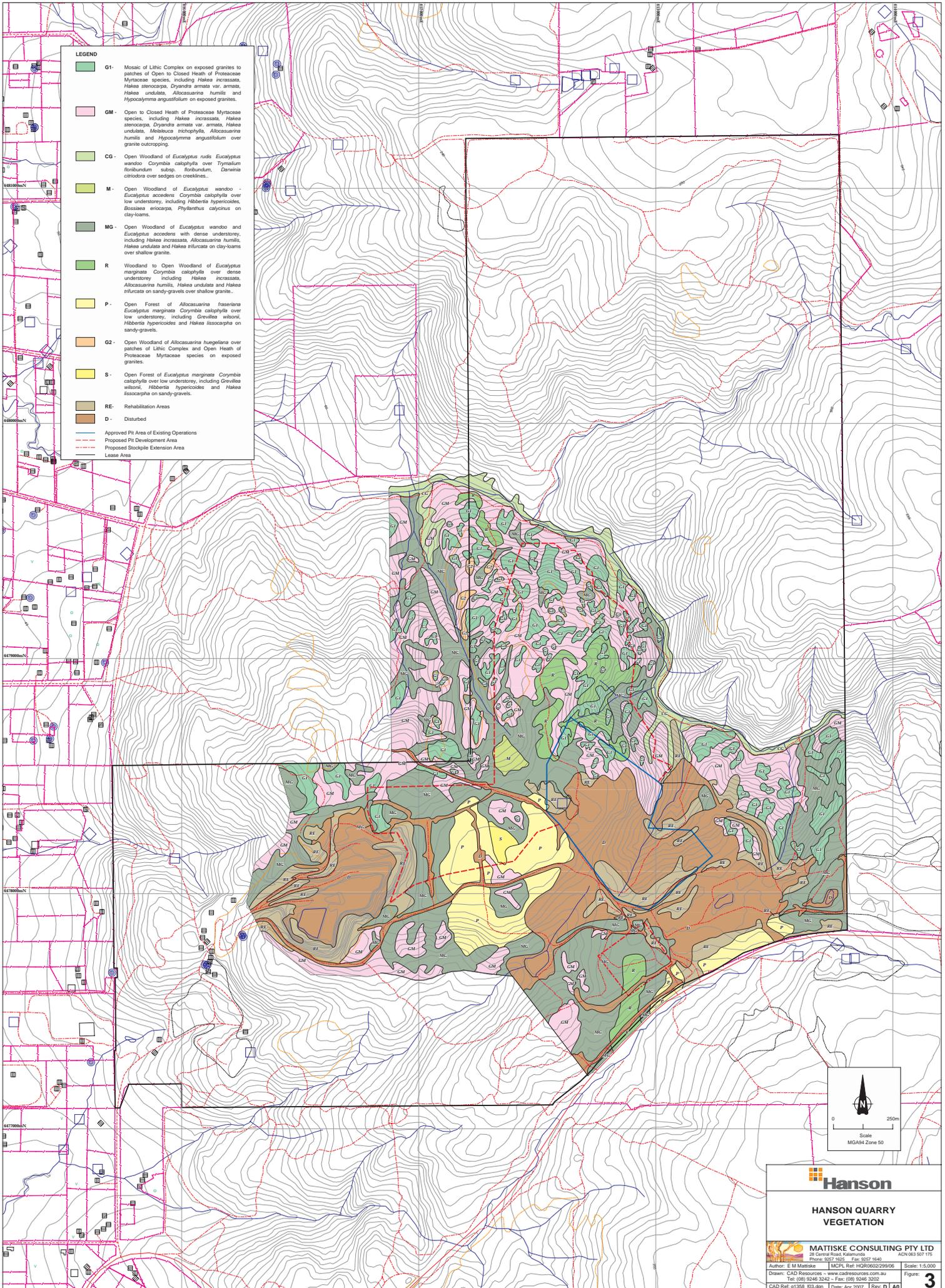

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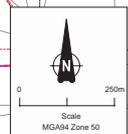
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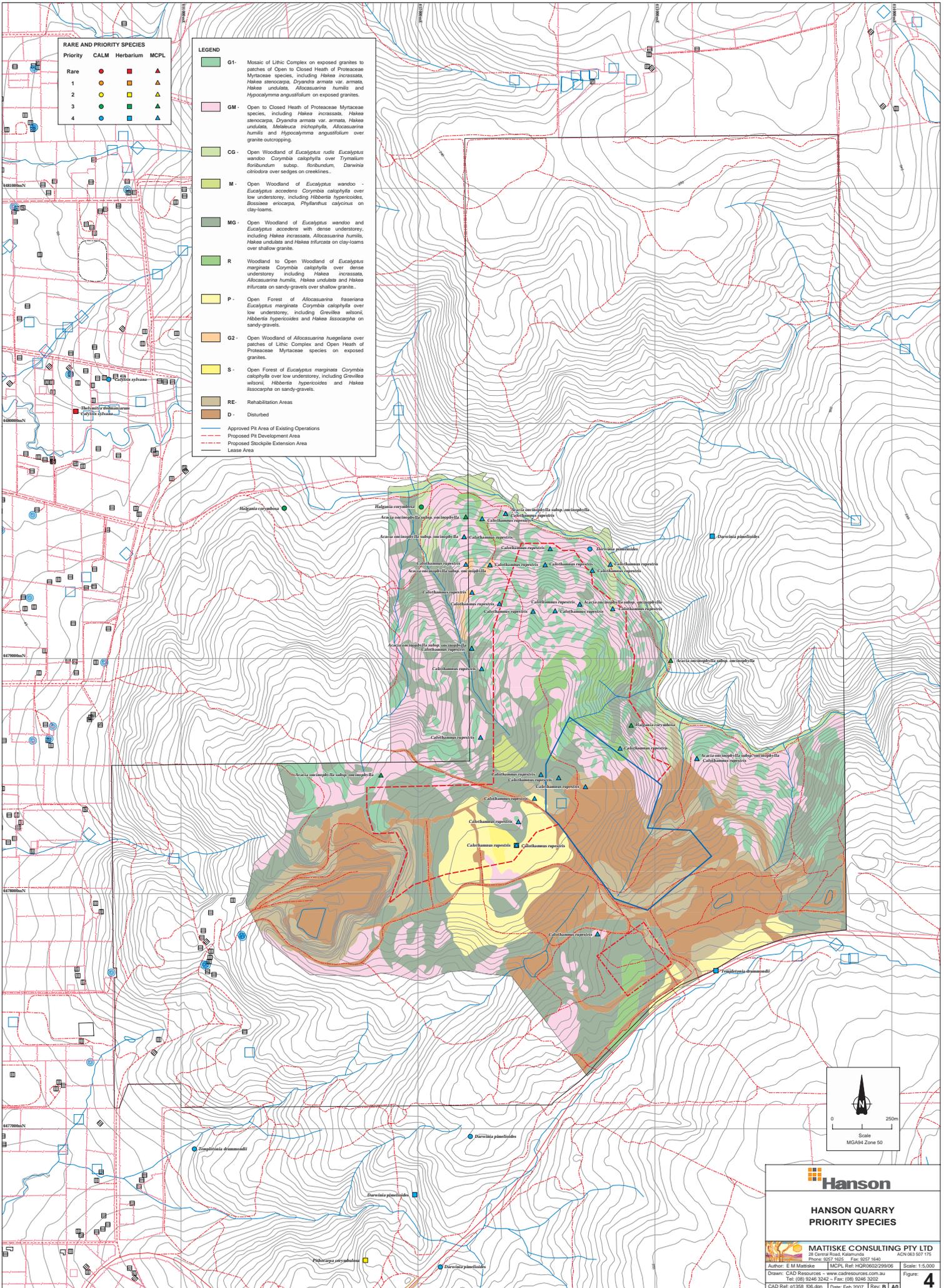


LEGEND	
G1	Mosaic of Lithic Complex on exposed granites to patches of Open to Closed Heath of Proteaceae Myrtaceae species, including <i>Hakea incrassata</i> , <i>Hakea teretifolia</i> , <i>Dryandra armata</i> var. <i>armata</i> , <i>Hakea undulata</i> , <i>Allocasuarina humilis</i> and <i>Hypocalymma angustifolium</i> on exposed granites.
GM	Open to Closed Heath of Proteaceae Myrtaceae species, including <i>Hakea incrassata</i> , <i>Hakea teretifolia</i> , <i>Dryandra armata</i> var. <i>armata</i> , <i>Hakea undulata</i> , <i>Melaleuca trichophylla</i> , <i>Allocasuarina humilis</i> and <i>Hypocalymma angustifolium</i> over granite outcroppings.
CG	Open Woodland of <i>Eucalyptus rudis</i> <i>Eucalyptus wandoo</i> <i>Corymbia calophylla</i> over <i>Trymetium floribundum</i> subsp. <i>floribundum</i> , <i>Darwinia citriodora</i> over sedges on creeklines.
M	Open Woodland of <i>Eucalyptus wandoo</i> - <i>Eucalyptus accedens</i> <i>Corymbia calophylla</i> over low understorey, including <i>Hibbertia hypericoides</i> , <i>Bosstea eriocarpa</i> , <i>Phyllanthus calycinus</i> on clay-loams.
MG	Open Woodland of <i>Eucalyptus wandoo</i> and <i>Eucalyptus accedens</i> with dense understorey, including <i>Hakea incrassata</i> , <i>Allocasuarina humilis</i> , <i>Hakea undulata</i> and <i>Hakea trifurcata</i> on clay-loams over shallow granites.
R	Woodland to Open Woodland of <i>Eucalyptus marginata</i> <i>Corymbia calophylla</i> over dense understorey including <i>Hakea incrassata</i> , <i>Allocasuarina humilis</i> , <i>Hakea undulata</i> and <i>Hakea trifurcata</i> on sandy-gravels over shallow granites.
P	Open Forest of <i>Allocasuarina fraseriana</i> <i>Eucalyptus marginata</i> <i>Corymbia calophylla</i> over low understorey, including <i>Grevillea wilsonii</i> , <i>Hibbertia hypericoides</i> and <i>Hakea fasciculata</i> on sandy-gravels.
G2	Open Woodland of <i>Allocasuarina huegeliana</i> over patches of Lithic Complex and Open Heath of Proteaceae Myrtaceae species on exposed granites.
S	Open Forest of <i>Eucalyptus marginata</i> <i>Corymbia calophylla</i> over low understorey, including <i>Grevillea wilsonii</i> , <i>Hibbertia hypericoides</i> and <i>Hakea fasciculata</i> on sandy-gravels.
RE	Rehabilitation Areas
D	Disturbed
Approved Pit Area of Existing Operations	
Proposed Pit Development Area	
Proposed Stockpile Extension Area	
Lease Area	



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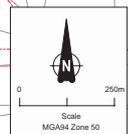


RARE AND PRIORITY SPECIES

Priority	CALM	Herbarium	MCPL
Rare	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

LEGEND

- G1- Mosaic of Lithic Complex on exposed granites to patches of Open to Closed Heath of Proteaceae Myrtaceae species, including *Hakea incrassata*, *Hakea stenocarpa*, *Dryandra armata* var. *armata*, *Hakea undulata*, *Allocasuarina humilis* and *Hypocalymma angustifolium* on exposed granites.
 - GM- Open to Closed Heath of Proteaceae Myrtaceae species, including *Hakea incrassata*, *Hakea stenocarpa*, *Dryandra armata* var. *armata*, *Hakea undulata*, *Melicope intricatophylla*, *Allocasuarina humilis* and *Hypocalymma angustifolium* over granite outcropping.
 - CG- Open Woodland of *Eucalyptus rudis* *Eucalyptus wandoo* *Corymba calophylla* over *Trymallium floribundum* subsp. *floribundum*, *Dawsonia citricolora* over sedges on creeklines.
 - M- Open Woodland of *Eucalyptus wandoo* - *Eucalyptus accedens* *Corymba calophylla* over low understorey, including *Hibbertia hypericoides*, *Boscia eropaea*, *Phyllanthus calycis* on clay-loams.
 - MG- Open Woodland of *Eucalyptus wandoo* and *Eucalyptus accedens* with dense understorey, including *Hakea incrassata*, *Allocasuarina humilis*, *Hakea undulata* and *Hakea trifurcata* on clay-loams over shallow granite.
 - R- Woodland to Open Woodland of *Eucalyptus marginata* *Corymba calophylla* over dense understorey including *Hakea incrassata*, *Allocasuarina humilis*, *Hakea undulata* and *Hakea trifurcata* on sandy-gravels over shallow granite.
 - P- Open Forest of *Allocasuarina fraseriana* *Eucalyptus marginata* *Corymba calophylla* over low understorey, including *Grevillea wilsonii*, *Hibbertia hypericoides* and *Hakea issocarpa* on sandy-gravels.
 - G2- Open Woodland of *Allocasuarina fraseriana* over patches of Lithic Complex and Open Heath of Proteaceae Myrtaceae species on exposed granites.
 - S- Open Forest of *Eucalyptus marginata* *Corymba calophylla* over low understorey, including *Grevillea wilsonii*, *Hibbertia hypericoides* and *Hakea issocarpa* on sandy-gravels.
 - RE- Rehabilitation Areas
 - D- Disturbed
- - - - - Approved Pit Area of Existing Operations
 - - - - - Proposed Pit Development Area
 - - - - - Proposed Stockpile Extension Area
 - - - - - Lease Area



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PRIORITY SPECIES

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APPENDIX A: POTENTIAL RARE AND PRIORITY FLORA IN HANSON PROJECT AREA

(as extracted from databases managed by the Department of Environment and Conservation, DEC, 2007a)

Note - SCC - State Conservation Code (DEC 2007a); FCC - Federal Conservation Code

Taxon	SCC	FCC
<i>Acacia aphylla</i>	R	V
<i>Acacia drummondii</i> subsp. <i>affinis</i>	P3	
<i>Acacia oncinophylla</i> subsp. <i>oncinophylla</i>	P3	
<i>Acacia ridleyana</i>	P3	
<i>Adenanthos cygnorum</i> subsp. <i>chamaephyton</i>	P3	
<i>Anthocercis gracilis</i>	R	V
<i>Anthotium junciforme</i>	P4	
<i>Aotus cordifolia</i>	P3	
<i>Banksia micrantha</i>	P3	
<i>Byblis gigantea</i>	P2	
<i>Caladenia arrecta</i>	P4	
<i>Caladenia huegelii</i>	R	E
<i>Calothammus rupestris</i>	P4	
<i>Calytrix breviseta</i> subsp. <i>breviseta</i>	R	E
<i>Calytrix sylvana</i>	P4	
<i>Carex tereticaulis</i>	P1	
<i>Cyanicula ixiooides</i> subsp. <i>ixiooides</i>	P4	
<i>Cyathochaeta teretifolia</i>	P3	
<i>Darwinia pimelioides</i>	P4	
<i>Diplolaena andrewsii</i>	P2	
<i>Drosera occidentalis</i> subsp. <i>occidentalis</i>	P4	
<i>Eleocharis keigheryi</i>	R	V
<i>Eryngium pinnatifidum</i> subsp. <i>palustre</i>	P3	
<i>Eryngium subdecumbens</i>	P3	
<i>Goodenia filiformis</i>	P3	
<i>Grevillea curviloba</i> subsp. <i>curviloba</i>	R	E
<i>Grevillea curviloba</i> subsp. <i>incurva</i>	R	E
<i>Grevillea flexuosa</i>	R	V
<i>Grevillea pimeleoides</i>	P4	
<i>Haemodorum loratum</i>	P3	
<i>Halgania corymbosa</i>	P3	
<i>Haloragis tenuifolia</i>	P3	
<i>Hemigenia rigida</i>	P1	
<i>Hydatella dioica</i>	R	E
<i>Hydrocotyle lemnoides</i>	P4	
<i>Hydrocotyle striata</i>	P1	
<i>Hypolaena robusta</i>	P4	
<i>Isopogon drummondii</i>	P3	
<i>Jacksonia sericea</i>	P4	
<i>Lasiopetalum bracteatum</i>	P4	
<i>Lepidosperma pruinosum</i>	P3	
<i>Lepyrodia heleocharoides</i>	P3	
<i>Myriocephalus appendiculatus</i>	P3	
<i>Myriophyllum echinatum</i>	P3	
<i>Persoonia sulcata</i>	P4	
<i>Phlebocarya pilosissima</i> subsp. <i>pilosissima</i>	P3	
<i>Phyllangium palustre</i>	P2	
<i>Pimelea rara</i>	P4	
<i>Pithocarpa corymbulosa</i>	P2	
<i>Rhodanthe pyrethrum</i>	P3	

APPENDIX A: POTENTIAL RARE AND PRIORITY FLORA IN HANSON PROJECT AREA

(as extracted from databases managed by the Department of Environment and Conservation, DEC, 2007a)

Note - SCC - State Conservation Code (DEC 2007a); FCC - Federal Conservation Code

Taxon	SCC	FCC
<i>Schoenus capillifolius</i>	P2	
<i>Schoenus</i> sp. Bullsbrook (J.J. Alford 915)	P2	
<i>Schoenus</i> sp. Waroona (G.J. Keighery 12235)	P3	
<i>Senecio leucoglossus</i>	P4	
<i>Stachystemon axillaris</i>	P4	
<i>Stylidium longitubum</i>	P3	
<i>Stylidium trudgenii</i>	P3	
<i>Templetonia drummondii</i>	P4	
<i>Tetratheca pilifera</i>	P3	
<i>Tetratheca similis</i>	P3	
<i>Tetratheca</i> sp. Granite (S. Patrick SP1224)	P3	
<i>Thelymitra dedmaniarum</i>	R	
<i>Thysanotus anceps</i>	P3	
<i>Thysanotus glaucus</i>	P4	
<i>Thysanotus isantherus</i>	P3	
<i>Verticordia lindleyi</i> subsp. <i>lindleyi</i>	P4	
<i>Verticordia serrata</i> var. <i>linearis</i>	P3	

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
ADIANTACEAE	<i>Cheilanthes austrotenuifolia</i> <i>Cheilanthes distans</i>
ZAMIACEAE	<i>Macrozamia fraseri</i> <i>Macrozamia riedlei</i>
POACEAE	* <i>Aira caryophyllea</i> * <i>Aira cupaniana</i> <i>Austrodanthonia acerosa</i> <i>Austrodanthonia</i> sp. <i>Austrostipa campylachne</i> <i>Austrostipa elegantissima</i> <i>Austrostipa</i> sp. * <i>Avena barbata</i> * <i>Avena</i> sp. * <i>Brachypodium distachyon</i> * <i>Briza maxima</i> * <i>Briza minor</i> * ? <i>Bromus</i> sp. * <i>Ehrharta longiflora</i> <i>Eriachne ovata</i> <i>Neurachne alopecuroidea</i> * <i>Pentaschistis airoides</i> <i>Poa drummondiana</i> <i>Themeda triandra</i> * <i>Vulpia myuros</i>
CYPERACEAE	<i>Cyathochaeta avenacea</i> <i>Gahmia aristata</i> <i>Juncus pallidus</i> <i>Lepidosperma drummondii</i> <i>Lepidosperma leptostachyum</i> <i>Lepidosperma longitudinale</i> <i>Lepidosperma pubisquamatum</i> <i>Lepidosperma squamatum</i> <i>Lepidosperma</i> sp. <i>Mesomelaena tetragona</i> <i>Schoenus ?brevisetis</i> <i>Schoenus ?pleiostemoneus</i> <i>Schoenus subfascicularis</i> <i>Schoenus</i> sp. smooth culms (K.R. Newbey 7823) <i>Tetraria capillaris</i> <i>Tetraria octandra</i>
RESTIONACEAE	<i>Desmocladius asper</i> <i>Desmocladius fasciculatus</i> <i>Desmocladius flexuosus</i> <i>Hypolaena exsulca</i> <i>Lepidobolus preissianus</i> subsp. <i>preissianus</i> <i>Loxocarya cinerea</i>

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
DASYPOGONACEAE	<i>Chamaexeros serra</i> <i>Kingia australis</i> <i>Lomandra hermaphrodita</i> <i>Lomandra nigricans</i> <i>Lomandra sericea</i> <i>Lomandra sonderi</i>
XANTHORRHOEACEAE	<i>Xanthorrhoea gracilis</i> <i>Xanthorrhoea preissii</i>
PHORMIACEAE	<i>Dianella revoluta</i> <i>Dianella revoluta</i> var. <i>divaricata</i> <i>Stypandra glauca</i>
ANTHERICACEAE	<i>Agrostocrinum scabrum</i> <i>Agrostocrinum scabrum</i> subsp. <i>scabrum</i> <i>Caesia micrantha</i> <i>Laxmannia squarrosa</i> <i>Thysanotus dichotomus</i> <i>Thysanotus manglesianus</i> <i>Thysanotus multiflorus</i> <i>Thysanotus sparteus</i> <i>Tricoryne elatior</i>
COLCHICACEAE	<i>Burchardia congesta</i>
BORYACEAE	<i>Borya sphaerocephala</i>
HAEMODORACEAE	<i>Conostylis androstemma</i> <i>Conostylis setigera</i> <i>Conostylis setigera</i> subsp. <i>setigera</i> <i>Conostylis setosa</i> <i>Haemodorum laxum</i> <i>Haemodorum paniculatum</i> <i>Haemodorum</i> sp.
DIOSCOREACEAE	<i>Dioscorea hastifolia</i>
IRIDACEAE	* <i>Gladiolus caryophyllaceus</i> * <i>Moraea flaccida</i> <i>Orthrosanthus laxus</i> <i>Orthrosanthus laxus</i> var. <i>laxus</i> <i>Patersonia juncea</i> <i>Patersonia occidentalis</i> <i>Patersonia rudis</i> * <i>Watsonia meriana</i> * <i>Watsonia meriana</i> var. <i>bulbillifera</i>
ORCHIDACEAE	<i>Caladenia flava</i> * <i>Disa bracteata</i> <i>Elythranthera brunonis</i> <i>Thelymitra crinita</i> <i>Thelymitra macrophylla</i>

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
CASUARINACEAE	<i>Allocasuarina fraseriana</i> <i>Allocasuarina huegeliana</i> <i>Allocasuarina humilis</i>
PROTEACEAE	<i>Adenanthos barbiger</i> <i>Adenanthos barbiger</i> subsp. <i>barbiger</i> (ms) <i>Banksia grandis</i> <i>Conospermum huegelii</i> <i>Dryandra armata</i> <i>Dryandra armata</i> var. <i>armata</i> <i>Dryandra bipinnatifida</i> <i>Dryandra bipinnatifida</i> subsp. <i>bipinnatifida</i> <i>Dryandra fraseri</i> var. <i>fraseri</i> <i>Dryandra lindleyana</i> <i>Dryandra lindleyana</i> var. <i>lindleyana</i> <i>Dryandra sessilis</i> <i>Dryandra sessilis</i> var. <i>sessilis</i> <i>Dryandra squarrosa</i> <i>Dryandra squarrosa</i> subsp. <i>squarrosa</i> <i>Grevillea bipinnatifida</i> <i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i> <i>Grevillea endlicheriana</i> <i>Grevillea manglesii</i> subsp. <i>manglesii</i> <i>Grevillea synapheae</i> <i>Grevillea synapheae</i> subsp. <i>synapheae</i> <i>Grevillea wilsonii</i> <i>Hakea amplexicaulis</i> <i>Hakea ?auriculata</i> <i>Hakea cristata</i> <i>Hakea cyclocarpa</i> <i>Hakea erinacea</i> <i>Hakea incrassata</i> <i>Hakea lissocarpha</i> <i>Hakea petiolaris</i> subsp. <i>petiolaris</i> <i>Hakea ruscifolia</i> <i>Hakea stenocarpa</i> <i>Hakea trifurcata</i> <i>Hakea undulata</i> <i>Isopogon asper</i> <i>Isopogon divergens</i> <i>Isopogon dubius</i> <i>Persoonia angustiflora</i> <i>Persoonia quinquenervis</i> <i>Petrophile biloba</i> <i>Petrophile linearis</i> <i>Petrophile squamata</i> subsp. <i>squamata</i> <i>Petrophile striata</i> <i>Synaphea acutiloba</i> <i>Synaphea pinnata</i>
SANTALACEAE	<i>Santalum acuminatum</i>
LORANTHACEAE	<i>Nuytsia floribunda</i>

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
POLYGONACEAE	<i>Muehlenbeckia adpressa</i> <i>Persicaria</i> sp.
AMARANTHACEAE	<i>Ptilotus declinatus</i> <i>Ptilotus drummondii</i> var. <i>drummondii</i> <i>Ptilotus manglesii</i>
PORTULACACEAE	<i>Calandrinia calyprata</i>
LAURACEAE	<i>Cassytha glabella</i> <i>Cassytha glabella</i> forma <i>glabella</i> <i>Cassytha pomiformis</i> <i>Cassytha racemosa</i>
DROSERACEAE	<i>Drosera</i> ? <i>microphylla</i> <i>Drosera platystigma</i> <i>Drosera stolonifera</i> <i>Drosera</i> sp. (climbing)
PITTOSPORACEAE	<i>Billardiera fraseri</i> <i>Marianthus coeruleopunctatus</i>
MIMOSACEAE	<i>Acacia applanata</i> <i>Acacia barbinervis</i> <i>Acacia barbinervis</i> subsp. <i>barbinervis</i> <i>Acacia celastrifolia</i> <i>Acacia drummondii</i> subsp. <i>drummondii</i> <i>Acacia extensa</i> <i>Acacia iteaphylla</i> (planted) <i>Acacia lasiocarpa</i> var. <i>sedifolia</i> <i>Acacia nervosa</i> <i>Acacia oncinophylla</i> subsp. <i>oncinophylla</i> (P3) <i>Acacia preissiana</i> <i>Acacia pulchella</i> <i>Acacia pulchella</i> var. <i>glaberrima</i> <i>Acacia pulchella</i> var. <i>pulchella</i> <i>Acacia saligna</i>
CAESALPINIACEAE	<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>
PAPILIONACEAE	<i>Bossiaea eriocarpa</i> <i>Bossiaea ornata</i> <i>Daviesia decurrens</i> <i>Daviesia</i> ? <i>hakeoides</i> <i>Daviesia horrida</i> <i>Daviesia incrassata</i> <i>Daviesia polyphylla</i> <i>Daviesia preissii</i> <i>Gastrolobium dilatatum</i> <i>Gastrolobium epacridoides</i> <i>Gastrolobium spathulatum</i> <i>Gastrolobium villosum</i> <i>Gompholobium marginatum</i> <i>Gompholobium polymorphum</i> <i>Gompholobium preissii</i>

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
PAPILIONACEAE (Continued)	<i>Gompholobium shuttleworthii</i> <i>Hovea chorizemifolia</i> <i>Hovea pungens</i> <i>Hovea trisperma</i> <i>Jacksonia alata</i> <i>Jacksonia angulata</i> <i>Jacksonia restioides</i> <i>Sphaerolobium linophyllum</i> <i>Viminaria juncea</i>
OXALIDACEAE	* <i>Oxalis</i> sp.
RUTACEAE	<i>Boronia cymosa</i> <i>Boronia ovata</i> <i>Philotheca spicata</i>
TREMANDRACEAE	<i>Tetratheca hirsuta</i> <i>Tetratheca nuda</i>
POLYGALACEAE	<i>Comesperma calymega</i> <i>Comesperma ciliatum</i>
EUPHORBIACEAE	<i>Phyllanthus calycinus</i> <i>Poranthera microphylla</i>
STACKHOUSIACEAE	<i>Stackhousia monogyna</i> <i>Tripterococcus brunonis</i>
SAPINDACEAE	<i>Diplopeltis huegelii</i> <i>Diplopeltis huegelii</i> subsp. <i>lehmannii</i>
RHAMNACEAE	<i>Cryptandra pungens</i> <i>Trymalium floribundum</i> <i>Trymalium floribundum</i> subsp. <i>floribundum</i> <i>Trymalium ledifolium</i> <i>Trymalium ledifolium</i> var. <i>ledifolium</i>
STERCULIACEAE	<i>Guichenotia sarotes</i> <i>Lasiopetalum floribundum</i> <i>Thomasia foliosa</i> <i>Thomasia glutinosa</i> var. <i>glutinosa</i> <i>Thomasia glutinosa</i> var. <i>latifolia</i>
DILLENIACEAE	<i>Hibbertia commutata</i> <i>Hibbertia diamesogenos</i> (ms) <i>Hibbertia huegelii</i> <i>Hibbertia hypericoides</i> <i>Hibbertia pachyrrhiza</i> <i>Hobbertia spicata</i> <i>Hibbertia spicata</i> subsp. <i>spicata</i> <i>Hibbertia subvaginata</i>

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
THYMELAEACEAE	<i>Pimelea ciliata</i> <i>Pimelea ciliata</i> subsp. <i>ciliata</i> <i>Pimelea imbricata</i> var. <i>piliger</i> <i>Pimelea suaveolens</i> <i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>
MYRTACEAE	<i>Astartea scoparia</i> <i>Baeckea camphorosmae</i> <i>Baeckea crispiflora</i> var. <i>tenuior</i> <i>Beaufortia macrostemon</i> <i>Beaufortia purpurea</i> <i>Calothamnus quadrifidus</i> <i>Calothamnus rupestris</i> (P4) <i>Calothamnus sanguineus</i> <i>Calytrix glutinosa</i> <i>Calytrix variabilis</i> <i>Corymbia calophylla</i> <i>Darwinia citriodora</i> <i>Darwinia pinifolia</i> <i>Eucalyptus accedens</i> <i>Eucalyptus marginata</i> <i>Eucalyptus marginata</i> subsp. <i>marginata</i> <i>Eucalyptus marginata</i> subsp. <i>thalassica</i> <i>Eucalyptus microcorys</i> (planted) <i>Eucalyptus rudis</i> <i>Eucalyptus rudis</i> subsp. <i>rudis</i> <i>Eucalyptus wandoo</i> <i>Eucalyptus wandoo</i> subsp. <i>wandoo</i> <i>Hypocalymma angustifolium</i> <i>Hypocalymma robustum</i> <i>Leptospermum erubescens</i> <i>Melaleuca incana</i> subsp. <i>incana</i> <i>Melaleuca nesophila</i> (planted) <i>Melaleuca parviceps</i> <i>Melaleuca radula</i> <i>Melaleuca trichophylla</i> <i>Verticordia acerosa</i> var. <i>acerosa</i> <i>Verticordia huegelii</i> var. <i>huegelii</i> <i>Verticordia pennigera</i> <i>Verticordia plumosa</i> var. <i>plumosa</i>
HALORAGACEAE	<i>Gonocarpus cordiger</i>
APIACEAE	<i>Pentapeltis peltigera</i> <i>Trachymene coerulea</i> subsp. <i>coerulea</i> <i>Trachymene pilosa</i> <i>?Xanthosia atkinsoniana</i> <i>Xanthosia ciliata</i> <i>Xanthosia candida</i>

**APPENDIX B: SUMMARY OF VASCULAR PLANT SPECIES RECORDED IN THE
PROPOSED CLEARING SITE, RED HILL QUARRY, 2006**

Note: *denotes introduced (weed) taxa

Family	Species
EPACRIDACEAE	<i>Andersonia ?involucrata</i> <i>Astroloma ciliatum</i> <i>Astroloma pallidum</i> <i>Leucopogon capitellatus</i> <i>Leucopogon pulchellus</i> <i>Styphelia tenuiflora</i>
PRIMULACEAE	* <i>Anagallis arvensis</i> * <i>Anagallis arvensis</i> var. <i>caerulea</i>
CONVOLVULACEAE	<i>Convolvulus remotus</i>
BORAGINACEAE	<i>Halgania corymbosa</i> (P3)
LAMIACEAE	<i>Hemigenia incana</i>
SCROPHULARIACEAE	* <i>Bartsia trixago</i> * <i>Parentucellia latifolia</i>
RUBIACEAE	<i>Opercularia echinocephala</i>
LOBELIACEAE	<i>Lobelia rhombifolia</i> ? <i>Lobelia</i> sp.
GOODENIACEAE	<i>Dampiera linearis</i> <i>Goodenia coerulea</i> <i>Goodenia fasciculata</i> <i>Lechenaultia biloba</i> <i>Scaevola calliptera</i> <i>Scaevola pilosa</i>
STYLIDIACEAE	<i>Levenhookia pusilla</i> <i>Levenhookia stipitata</i> <i>Stylidium affine</i> <i>Stylidium amoenum</i> <i>Stylidium brunonianum</i> <i>Stylidium bulbiferum</i> <i>Stylidium calcaratum</i> <i>Stylidium dichotomum</i> <i>Stylidium eriopodum</i> <i>Stylidium hispidum</i> <i>Stylidium piliferum</i> <i>Stylidium pycnostachyum</i>
ASTERACEAE	<i>Brachyscome iberidifolia</i> <i>Craspedia variabilis</i> * <i>Dittrichia graveolens</i> <i>Hyalosperma cotula</i> * <i>Hypochoeris glabra</i> <i>Lagenophora huegelii</i> <i>Podolepis lessonii</i> <i>Pterochaeta paniculata</i> <i>Siloxerus humifusus</i> * <i>Sonchus oleraceus</i> <i>Trichocline spathulata</i> * <i>Ursinia anthemoides</i>

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)

REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH
	CG	G1	G2	GM	M	MG	P	R	S	
<i>Acacia applanata</i>						X		X		X
<i>Acacia barbinervis</i> subsp. <i>barbinervis</i>			X			X		X	X	
<i>Acacia celastrifolia</i>									X	
<i>Acacia cyclops</i>										X
<i>Acacia drummondii</i> subsp. <i>drummondii</i>		X			X			X		
<i>Acacia extensa</i>			X							
PI <i>Acacia iteaphylla</i> (planted)										X
<i>Acacia lasiocarpa</i> var. <i>sedifolia</i>	X			X	X			X		
<i>Acacia nervosa</i>						X				
<i>Acacia oncinophylla</i> subsp. <i>oncinophylla</i> (P3)	X	X	X	X		X				
<i>Acacia preissiana</i>								X		
<i>Acacia pulchella</i>	X	X	X	X		X		X		X
<i>Acacia pulchella</i> var. <i>glaberrima</i>	X					X				
<i>Acacia pulchella</i> var. <i>pulchella</i>							X		X	
<i>Acacia saligna</i>	X	X	X	X		X	X			
<i>Adenanthos barbiger</i>								X	X	X
<i>Adenanthos barbiger</i> subsp. <i>barbiger</i> (ms)								X	X	X
<i>Agrostocrinum scabrum</i> subsp. <i>scabrum</i>		X		X				X		
* <i>Aira caryophyllea</i>	X	X		X				X		
* <i>Aira cupaniana</i>									X	
<i>Allocasuarina fraseriana</i>				X		X	X		X	
<i>Allocasuarina huegeliana</i>		X	X			X		X		
<i>Allocasuarina humilis</i>		X	X	X		X		X		
* <i>Anagallis arvensis</i> var. <i>caerulea</i>		X	X	X		X				
<i>Andersonia ?involucrata</i>				X						X
<i>Astartea scoparia</i>	X									
<i>Astroloma ciliatum</i>						X		X		
<i>Astroloma pallidum</i>		X		X		X		X		
<i>Austrodanthonia acerosa</i>		X					X		X	
<i>Austrodanthonia</i> sp.				X		X		X		
<i>Austrostipa campylachne</i>		X		X		X			X	
<i>Austrostipa elegantissima</i>				X						
<i>Austrostipa</i> sp.				X		X		X		
* <i>Avena barbata</i>	X									
* <i>Avena</i> sp.								X		
<i>Baeckea camphorosmae</i>		X		X		X		X	X	X
<i>Baeckea crispiflora</i> var. <i>tenuior</i>									X	
<i>Banksia grandis</i>		X				X				
* <i>Bartsia trixago</i>		X								
<i>Beaufortia macrostemon</i>								X	X	
<i>Beaufortia purpurea</i>						X				X
<i>Billardiera ?fraseri</i>								X		
<i>Boronia cymosa</i>		X								
<i>Boronia ovata</i>				X		X	X	X	X	
<i>Borya sphaerocephala</i>		X	X	X		X		X		
<i>Bossiaea eriocarpa</i>	X	X	X	X	X	X	X	X	X	
<i>Bossiaea ornata</i>					X	X		X	X	X

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)
 REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH	
	CG	G1	G2	GM	M	MG	P	R	S		
* <i>Brachypodium distachyon</i>	X										
<i>Brachyscome iberidifolia</i>		X									
* <i>Briza maxima</i>								X			X
* <i>Briza maxima</i>	X	X	X	X	X	X		X			X
* <i>Briza minor</i>		X									X
* <i>Bromus</i> sp.					X			X			X
<i>Burchardia congesta</i>	X	X				X		X			
<i>Caesia micrantha</i>				X		X					
<i>Caladenia flava</i>				X							
<i>Calandrinia calypttrata</i>		X									
<i>Calothamnus quadrifidus</i>	X	X	X	X		X		X	X		
<i>Calothamnus rupestris</i> (P4)	X	X	X	X		X		X			X
<i>Calothamnus sanguineus</i>	X	X		X		X		X			
<i>Calytrix glutinosa</i>		X	X	X		X					
<i>Calytrix variabilis</i>		X					X	X	X		
<i>Cassutha glabella</i> forma <i>glabella</i>	X										
<i>Cassutha pomiformis</i>		X		X	X	X		X	X		X
<i>Cassutha racemosa</i>		X				X		X			
<i>Chamaexeros serra</i>				X		X					
<i>Cheilanthes austrotenuifolia</i>	X	X	X	X		X		X			
<i>Cheilanthes distans</i>		X	X								
<i>Comesperma calymega</i>		X					X				X
<i>Comesperma ciliatum</i>		X		X				X			
<i>Conospermum huegelii</i>		X									X
<i>Conostylis androstemma</i>		X				X					
<i>Conostylis setigera</i> subsp. <i>setigera</i>		X									
<i>Conostylis setosa</i>		X		X	X	X	X	X	X		
<i>Convolvulus remotus</i>				X							
<i>Corymbia calophylla</i>	X	X	X	X	X	X	X	X	X	X	X
<i>Craspedia variabilis</i>								X			
<i>Cryptandra pungens</i>		X									
<i>Cyathochaeta avenacea</i>										X	
<i>Dampiera linearis</i>						X					
<i>Darwinia citriodora</i>	X	X	X	X		X		X			
? <i>Darwinia pinifolia</i>							X				
<i>Darwinia pinifolia</i>		X		X				X			
<i>Daviesia ?hakeoides</i>				X							
<i>Daviesia decurrens</i>						X		X			
<i>Daviesia horrida</i>				X		X		X			
<i>Daviesia incrassata</i>								X			
<i>Daviesia polyphylla</i>						X					
<i>Daviesia preissii</i>						X		X	X		X
<i>Desmocladius asper</i>	X	X		X		X					
<i>Desmocladius fasciculatus</i>						X	X	X	X		X
<i>Desmocladius flexuosus</i>		X	X	X		X		X			
<i>Dianella revoluta</i>						X			X		
<i>Dianella revoluta</i> var. <i>divaricata</i>						X			X		

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)
 REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH	
	CG	G1	G2	GM	M	MG	P	R	S		
<i>Dioscorea hastifolia</i>		X		X							
<i>Diplopeltis huegelii</i> subsp. <i>lehmanii</i>	X	X		X				X			
* <i>Disa bracteata</i>		X									
* <i>Dittrichia graveolens</i>				X							
<i>Drosera ?microphylla</i>				X	X						
<i>Drosera platystigma</i>		X					X				
<i>Drosera</i> sp. (climbing)			X					X			
<i>Drosera stolonifera</i>		X		X	X	X		X			
<i>Dryandra armata</i> var. <i>armata</i>		X	X	X		X		X			X
<i>Dryandra bipinnatifida</i>					X	X	X	X	X		
<i>Dryandra bipinnatifida</i> subsp. <i>bipinnatifida</i>					X	X	X	X	X		
<i>Dryandra fraseri</i> var. <i>fraseri</i>		X	X	X							
<i>Dryandra lindleyana</i>	X	X	X	X	X	X	X	X	X	X	X
<i>Dryandra lindleyana</i> var. <i>lindleyana</i>	X	X	X	X	X	X	X	X	X	X	X
<i>Dryandra sessilis</i>		X	X	X		X	X	X	X	X	X
<i>Dryandra sessilis</i> var. <i>sessilis</i>		X	X	X		X	X	X	X	X	X
<i>Dryandra squarrosa</i> subsp. <i>squarrosa</i>		X		X	X						
* <i>Ehrharta longiflora</i>	X										
<i>Elythranthera brunonis</i>		X									
<i>Eriachne ovata</i>	X										
<i>Eucalyptus accedens</i>		X	X	X	X	X				X	
<i>Eucalyptus marginata</i>				X	X	X	X	X	X	X	
<i>Eucalyptus marginata</i> subsp. <i>marginata</i>						X	X	X	X	X	
<i>Eucalyptus marginata</i> subsp. <i>thalassica</i>			X			X		X			
PI <i>Eucalyptus microcorys</i> (planted)											X
<i>Eucalyptus rudis</i>	X		X								
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	X		X								
<i>Eucalyptus wandoo</i>	X		X	X	X	X		X	X	X	X
<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	X		X	X	X	X		X	X	X	X
<i>Gahnia aristata</i>				X		X			X		
<i>Gastrolobium dilatatum</i>				X		X		X	X		
<i>Gastrolobium epacridoides</i>								X			
<i>Gastrolobium spathulatum</i>			X			X		X			
<i>Gastrolobium villosum</i>	X										X
* <i>Gladiolus caryophyllaceus</i>		X		X		X					
<i>Gompholobium marginatum</i>		X	X	X		X		X			
<i>Gompholobium polymorphum</i>								X			X
<i>Gompholobium preissii</i>						X			X		
<i>Gompholobium shuttleworthii</i>				X							
<i>Gonocarpus cordiger</i>				X		X		X			X
<i>Goodenia ?coerulea</i>						X		X	X		
<i>Goodenia fasciculata</i>	X										
<i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>	X	X	X	X		X					
<i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>						X					
<i>Grevillea endlicheriana</i>	X	X	X	X		X					
<i>Grevillea manglesii</i> subsp. <i>manglesii</i>	X	X	X								
<i>Grevillea synapheae</i>			X	X		X	X	X	X	X	X

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)
 REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH
	CG	G1	G2	GM	M	MG	P	R	S	
<i>Grevillea synapheae</i> subsp. <i>synapheae</i>			X	X		X	X	X	X	X
<i>Grevillea wilsonii</i>						X	X	X	X	
<i>Guichenotia sarotes</i>				X						
<i>Haemodorum laxum</i>	X	X					X		X	
<i>Haemodorum paniculatum</i>						X			X	
<i>Haemodorum</i> sp.						X			X	
<i>Hakea ?auriculata</i>				X				X		
<i>Hakea amplexicaulis</i>						X		X	X	X
<i>Hakea cristata</i>	X	X	X	X		X		X	X	X
<i>Hakea cyclocarpa</i>						X	X	X	X	
<i>Hakea erinacea</i>		X	X	X		X		X	X	X
<i>Hakea incrassata</i>		X		X		X		X		
<i>Hakea lissocarpha</i>	X			X	X	X	X	X	X	
<i>Hakea petiolaris</i> subsp. <i>petiolaris</i>	X	X	X	X						
<i>Hakea ruscifolia</i>						X		X	X	
<i>Hakea stenocarpa</i>		X		X		X		X	X	
<i>Hakea trifurcata</i>	X	X		X	X	X	X	X	X	X
<i>Hakea undulata</i>	X	X		X		X		X	X	X
<i>Halgania corymbosa</i> (P3)						X				
<i>Hemigenia incana</i>		X						X	X	
<i>Hibbertia commutata</i>		X	X	X	X	X	X	X	X	
<i>Hibbertia diamesogenos</i> (ms)				X						
<i>Hibbertia huegelii</i>							X		X	
<i>Hibbertia hypericoides</i>	X	X	X	X	X	X	X	X	X	X
<i>Hibbertia pachyrrhiza</i>						X		X	X	X
<i>Hibbertia spicata</i> subsp. <i>spicata</i>		X		X				X		
<i>Hibbertia subvaginata</i>	X	X	X	X	X	X		X	X	X
<i>Hovea chorizemifolia</i>					X	X		X	X	
<i>Hovea pungens</i>		X	X	X		X		X		
<i>Hovea trisperma</i>		X			X	X	X		X	
<i>Hyalosperma cotula</i>	X	X		X						
<i>Hypocalymma angustifolium</i>		X	X	X		X		X		X
<i>Hypocalymma robustum</i>						X		X	X	
* <i>Hypochoeris glabra</i>		X		X					X	
<i>Hypolaena exsulca</i>	X									
<i>Isopogon asper</i>			X	X		X		X	X	
<i>Isopogon divergens</i>		X	X							
<i>Isopogon dubius</i>						X				
<i>Jacksonia alata</i>		X								
<i>Jacksonia angulata</i>		X								
<i>Jacksonia restioides</i>		X		X		X		X		
<i>Juncus pallidus</i>	X									
<i>Kingia australis</i>		X						X		
<i>Labiichea lanceolata</i> subsp. <i>lanceolata</i>	X	X	X			X		X		
<i>Lagenophora huegelii</i>				X	X		X		X	
<i>Lasiopetalum floribundum</i>										X
<i>Laxmannia squarrosa</i>		X		X			X	X	X	

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)

REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH
	CG	G1	G2	GM	M	MG	P	R	S	
<i>Lechenaultia biloba</i>		X		X				X		
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>		X								
<i>Lepidosperma drummondii</i>		X								
<i>Lepidosperma leptostachyum</i>		X		X	X	X		X	X	
<i>Lepidosperma longitudinale</i>	X									
<i>Lepidosperma pubisquamatum</i>	X	X	X	X		X	X	X	X	
<i>Lepidosperma</i> sp.		X								
<i>Lepidosperma squamatum</i>		X				X		X	X	X
<i>Leptospermum erubescens</i>		X	X	X		X	X	X		
<i>Leucopogon capitellatus</i>								X		
<i>Leucopogon pulchellus</i>		X	X	X		X		X	X	X
<i>Levenhookia pusilla</i>		X							X	
<i>Levenhookia stipitata</i>		X					X		X	
<i>Lobelia rhombifolia</i>									X	
? <i>Lobelia</i> sp.	X									
<i>Lomandra hermaphrodita</i>							X	X	X	
<i>Lomandra nigricans</i>							X			
<i>Lomandra sericea</i>						X	X	X	X	
<i>Lomandra sonderi</i>		X								
<i>Loxocarya cinerea</i>		X								
<i>Macrozamia fraseri</i>		X	X			X		X		
<i>Macrozamia riedlei</i>	X	X		X	X	X		X	X	X
<i>Marianthus coeruleopunctatus</i>	X									
<i>Melaleuca incana</i> subsp. <i>incana</i>						X				
PI <i>Melaleuca nesophila</i> (planted)										X
<i>Melaleuca parviceps</i>		X	X	X		X		X		X
<i>Melaleuca radula</i>	X	X	X	X	X	X		X		
<i>Melaleuca trichophylla</i>				X		X		X		
<i>Mesomelaena tetragona</i>									X	
* <i>Moraea flaccida</i>		X								
<i>Muehlenbeckia adpressa</i>	X	X								
<i>Neurachne alopecuroidea</i>	X	X	X	X		X	X	X	X	
<i>Nuytsia floribunda</i>		X				X		X		X
<i>Opercularia echinocephala</i>									X	
<i>Orthrosanthus laxis</i>					X	X		X	X	
<i>Orthrosanthus laxis</i> var. <i>laxis</i>					X	X		X	X	
* <i>Oxalis</i> sp.	X				X					
* <i>Parentucellia latifolia</i>		X		X						
<i>Patersonia juncea</i>						X		X		
<i>Patersonia occidentalis</i>								X		
<i>Patersonia rudis</i>							X			
<i>Pentapeltis peltigera</i>						X		X	X	X
* <i>Pentaschistis airoides</i>		X		X						
<i>Persicaria</i> sp.	X									
<i>Persoonia angustiflora</i>						X			X	
<i>Persoonia quinquenervis</i>		X		X				X	X	
<i>Petrophile biloba</i>	X	X	X	X		X		X		X

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)

REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH	
	CG	G1	G2	GM	M	MG	P	R	S		
<i>Petrophile linearis</i>		X		X							
<i>Petrophile squamata</i> subsp. <i>squamata</i>		X	X	X				X			
<i>Petrophile striata</i>	X	X		X	X	X	X	X	X		
<i>Philothea spicata</i>								X	X		
<i>Phyllanthus calycinus</i>	X	X		X	X	X		X	X		X
<i>Pimelea ciliata</i>		X	X	X		X		X			
<i>Pimelea ciliata</i> subsp. <i>ciliata</i>		X	X	X		X		X			
<i>Pimelea imbricata</i> var. <i>piligera</i>	X	X	X	X				X			
<i>Pimelea suaveolens</i>				X		X	X	X	X		
<i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>				X		X	X	X	X		
<i>Poa drummondiana</i>					X	X		X	X		
<i>Podolepis lessonii</i>	X	X	X								
<i>Poranthera microphylla</i>									X		
<i>Pterochaeta paniculata</i>		X		X		X	X		X		X
<i>Ptilotus declinatus</i>		X									
<i>Ptilotus drummondii</i> var. <i>drummondii</i>		X									X
<i>Ptilotus manglesii</i>					X	X	X	X	X		
<i>Santalum acuminatum</i>		X		X		X					
<i>Scaevola calliptera</i>						X		X	X		
<i>Scaevola pilosa</i>				X	X						
<i>Schoenus ?brevisetis</i>				X							
<i>Schoenus ?pleiostemoneus</i>								X			
<i>Schoenus</i> sp. smooth culms (K.R. Newbey 7823)		X	X								
<i>Schoenus subfascicularis</i>						X					
<i>Siloxerus humifusus</i>		X									
* <i>Sonchus oleraceus</i>	X										
<i>Sphaerolobium linophyllum</i>		X									
<i>Stackhousia monogyna</i>		X	X								
<i>Stylidium affine</i>	X	X		X	X	X		X	X		
<i>Stylidium amoenum</i>		X				X	X	X	X		X
<i>Stylidium brunonianum</i>		X	X	X		X		X			X
<i>Stylidium bulbiferum</i>	X	X	X	X	X	X		X			
<i>Stylidium calcaratum</i>		X		X				X			
<i>Stylidium dichotomum</i>		X		X							
<i>Stylidium eriopodum</i>		X		X		X					X
<i>Stylidium hispidum</i>		X			X	X	X	X	X		
<i>Stylidium piliferum</i>									X		
<i>Stylidium pycnostachyum</i>				X							
<i>Stypandra glauca</i>		X				X		X			
<i>Styphelia tenuiflora</i>						X	X	X	X		X
<i>Synaphea acutiloba</i>		X		X		X					
<i>Synaphea pinnata</i>						X					
<i>Tetragia capillaris</i>						X	X	X	X		
<i>Tetragia octandra</i>	X					X	X	X	X		
<i>Tetragia hirsuta</i>		X	X					X			
<i>Tetragia nuda</i>				X		X		X			
<i>Thelymitra crinita</i>		X		X							

APPENDIX C: SUMMARY OF PLANT SPECIES BY SITE-VEGETATION TYPE, HANSON, 2006

Note : * - denotes introduced species; P1, P2, P3 and P4 denote - Priority Flora Species (DEC, 2007a)

REH - denotes rehabilitation areas.

Taxa	Site-vegetation Types									REH	
	CG	G1	G2	GM	M	MG	P	R	S		
<i>Thelymitra macrophylla</i>	X					X					
<i>Themeda triandra</i>				X							
<i>Thomasia foliosa</i>	X			X	X	X					
<i>Thomasia glutinosa</i> var. <i>glutinosa</i>						X		X			
<i>Thomasia glutinosa</i> var. <i>latifolia</i>						X		X			X
<i>Thysanotus dichotomus</i>	X	X									
<i>Thysanotus manglesianus</i>				X				X			
<i>Thysanotus multiflorus</i>	X	X						X			
<i>Thysanotus sparteus</i>						X		X	X	X	X
<i>Trachymene coerulea</i> subsp. <i>coerulea</i>						X		X			
<i>Trachymene pilosa</i>		X		X				X			
<i>Trichocline spathulata</i>					X	X		X			
<i>Tricoryne elatior</i>		X		X		X	X				
<i>Tripterococcus brunonis</i>		X	X	X	X	X		X			X
<i>Trymalium floribundum</i>	X			X				X			
<i>Trymalium floribundum</i> subsp. <i>floribundum</i>	X			X				X			
<i>Trymalium ledifolium</i>	X	X	X	X	X	X		X			
<i>Trymalium ledifolium</i> var. <i>ledifolium</i>	X	X	X	X	X	X		X			
* <i>Ursinia anthemoides</i>		X	X	X					X		
<i>Verticordia acerosa</i> var. <i>acerosa</i>		X	X	X		X		X			X
<i>Verticordia huegelii</i> var. <i>huegelii</i>		X	X								
<i>Verticordia pennigera</i>		X		X		X		X			
<i>Verticordia plumosa</i> var. <i>plumosa</i>		X									
<i>Viminaria juncea</i>	X					X					
* <i>Vulpia myuros</i>		X									
* <i>Watsonia meriana</i> var. <i>bulbillifera</i>	X	X									
<i>Xanthorrhoea gracilis</i>		X				X		X	X	X	X
<i>Xanthorrhoea preissii</i>	X	X	X	X	X	X	X	X	X	X	X
? <i>Xanthosia atkinsoniana</i>		X		X							
<i>Xanthosia candida</i>		X	X			X	X	X	X		
<i>Xanthosia ciliata</i>								X			X

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Acacia alata</i>	x		
<i>Acacia applanata</i>		x	
<i>Acacia baileyana</i>	x		
<i>Acacia barbinervis</i>	x	x	x
<i>Acacia barbinervis</i> subsp. <i>barbinervis</i>		x	
<i>Acacia celastrifolia</i>		x	
<i>Acacia cyclops</i>	x		
<i>Acacia decurrens</i>	x		
<i>Acacia drummondii</i>	x		
<i>Acacia drummondii</i> subsp. <i>drummondii</i>		x	
<i>Acacia extensa</i>	x	x	x
PL <i>Acacia iteaphylla</i> (planted)	x	x	
<i>Acacia lasiocarpa</i> var. <i>sedifolia</i>		x	
<i>Acacia longifolia</i>	x		
<i>Acacia nervosa</i>	x	x	x
<i>Acacia oncinophylla</i>	x		
<i>Acacia oncinophylla</i> subsp. <i>ocninophylla</i> (P3)		x	
PL <i>Acacia podalyriifolia</i>	x		
<i>Acacia preissiana</i>	x	x	
<i>Acacia pulchella</i>	x	x	x
<i>Acacia pulchella</i> var. <i>glaberrima</i>		x	
<i>Acacia pulchella</i> var. <i>pulchella</i>		x	x
<i>Acacia pycnantha</i>	x		x
<i>Acacia saligna</i>	x	x	x
<i>Acacia sessilis</i>	x		
<i>Acacia teretifolia</i>	x		
<i>Acacia willdenowiana</i>	x		x
* <i>Acaena echinata</i>			x
<i>Actinotus glomeratus</i>	x		
<i>Actinotus leucocephalus</i>	x		
<i>Adenanthos barbiger</i>	x	x	x
<i>Adenanthos barbiger</i> subsp. <i>barbiger</i> (ms)	x	x	x
<i>Adenanthos cygnorum</i>	x		
<i>Adiantum aethiopicum</i>	x		
* <i>Agapanthus</i> sp.	x		
* <i>Agave americana</i>	x		
PL <i>Agonis flexuosa</i>	x		
<i>Agrostocrinum scabrum</i>	x	x	x
<i>Agrostocrinum scabrum</i> subsp. <i>scabrum</i>		x	
* <i>Aira caryophyllea</i>	x	x	x
* <i>Aira cupaniana</i>		x	x
* <i>Allium orientale</i>	x		
* <i>Allium triquetrum</i>	x		
<i>Allocasuarina fraseriana</i>	x	x	x
<i>Allocasuarina huegeliana</i>		x	
<i>Allocasuarina humilis</i>	x	x	x
PL <i>Allocasuarina</i> sp. (non local)	x		
<i>Alternanthera nodiflora</i>	x		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
	Shire of Kalamunda		
<i>Amperea ericoides</i>	x		
<i>Amphipogon amphipogonoides</i>	x		
<i>Amphipogon debilis</i>	x		
<i>Amphipogon laguroides</i>	x		
<i>Amphipogon turbinatus</i>	x		
<i>Amyema miquelii</i>	x		
<i>Amyema preissii</i>	x		
* <i>Anagallis arvensis</i>	x	x	x
* <i>Anagallis arvensis</i> var. <i>caerulea</i>		x	x
<i>Andersonia ?involucrata</i>		x	
<i>Andersonia aristata</i>	x		
<i>Andersonia heterophylla</i>	x		
<i>Andersonia lehmanniana</i>			x
PL <i>Anigozanthos flavidus</i>	x		
<i>Anigozanthos humilis</i>	x		
<i>Anigozanthos manglesii</i>	x		x
<i>Anigozanthos viridis</i>	x		
<i>Aotus cordifolia</i> (P3)	x		
<i>Aphelia brizula</i>	x		x
* <i>Arctotheca calendula</i>	x		x
<i>Arnocrinum preissii</i>	x		
* <i>Arundo donax</i>	x		
* <i>Asparagus asparagoides</i>	x		
<i>Astartea scoparia</i>	x	x	x
<i>Astroloma ciliatum</i>	x	x	x
<i>Astroloma foliosum</i>	x		
<i>Astroloma pallidum</i>	x	x	x
<i>Arthropodium capillipes</i>			x
<i>Austrodanthonia acerosa</i>		x	
<i>Austrodanthonia</i> sp.		x	x
<i>Austrostipa campylachne</i>		x	
<i>Austrostipa compressa</i>	x		
<i>Austrostipa elegantissima</i>	x	x	
<i>Austrostipa semibarbata</i>	x		
<i>Austrostipa</i> sp.		x	x
* <i>Avena barbata</i>		x	
* <i>Avena fatua</i>	x		x
* <i>Avena</i> sp.		x	
* <i>Babiana</i> sp.	x		
<i>Baeckea camphorosmae</i>	x	x	x
<i>Baeckea crispiflora</i>	x		
<i>Baeckea crispiflora</i> var. <i>tenuior</i>		x	
<i>Baeckea</i> sp. Darling Range (R.J. Cranfield 1673)	x		
<i>Banksia attenuata</i>	x		
<i>Banksia grandis</i>	x	x	x
<i>Banksia incana</i>	x		
<i>Banksia menziesii</i>	x		
* <i>Bartsia trixago</i>	x	x	

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
	Shire of Kalamunda		
<i>Baumea articulata</i>	x		
<i>Baumea riparia</i>	x		
<i>Beaufortia macrostemon</i>	x	x	
<i>Beaufortia purpurea</i>		x	
<i>Beaufortia squarrosa</i>	x		
<i>Billardiera fraseri</i>	x	x	
<i>Billardiera heterophylla</i>	x		
<i>Blancoa canescens</i>	x		
<i>Boronia crenulata</i>	x		
<i>Boronia cymosa</i>		x	x
<i>Boronia ovata</i>	x	x	x
<i>Boronia ramosa</i>	x		
<i>Boronia tenuis</i>	x		
<i>Borya sphaerocephala</i>	x	x	x
<i>Bossiaea aquifolium</i>	x		
<i>Bossiaea eriocarpa</i>	x	x	x
<i>Bossiaea ornata</i>	x	x	x
PL <i>Brachychiton</i> sp.	x		
PL <i>Brachypodium distachyon</i>	x	x	
<i>Brachyscome iberidifolia</i>		x	x
* <i>Briza maxima</i>	x		x
* <i>Briza minor</i>	x	x	
* <i>Bromus</i> ?sp.		x	
* <i>Bromus hordeaceus</i>	x		
<i>Burchardia congesta</i>	x	x	x
<i>Caesia micrantha</i>		x	x
<i>Caesia occidentalis</i>	x		
<i>Caesia parviflora</i>			x
<i>Caladenia flava</i>		x	x
<i>Caladenia longicauda</i>	x		
<i>Calandrinia calyptrata</i>		x	
<i>Calectasia narragara</i>	x		
PL <i>Callistemon</i> sp. (non local)	x		
<i>Callitris preissii</i>	x		
<i>Calothamnus quadrifidus</i>	x	x	x
<i>Calothamnus rupestris</i> (P4)	x	x	
<i>Calothamnus sanguineus</i>	x	x	x
<i>Calytrix angulata</i>	x		
<i>Calytrix aurea</i>	x		
<i>Calytrix depressa</i>	x		
<i>Calytrix flavescens</i>	x		
<i>Calytrix fraseri</i>	x		
<i>Calytrix glutinosa</i>	x	x	
<i>Calytrix variabilis</i>	x	x	x
* <i>Canna x orchiodes</i>	x		
<i>Carex inversa</i>	x		
<i>Cassytha glabella</i>	x	x	
<i>Cassytha glabella</i> forma <i>glabella</i>		x	

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Cassytha pomiformis</i>	x	x	
<i>Cassytha racemosa</i>	x	x	x
<i>Caustis dioica</i>	x		
* <i>Centaurium erythraea</i>	x		
* <i>Centranthus</i> sp.	x		
<i>Centrolepis aristata</i>	x		x
* <i>Cerastium glomeratum</i>	x		
* <i>Chamaecytisus palmensis</i>	x		
<i>Chamaescilla corymbosa</i>	x		x
<i>Chamaescilla versicolor</i>			x
<i>Chamaexeros serra</i>		x	x
PL <i>Chamelaucium uncinatum</i>	x		
<i>Cheilanthes austrotenuifolia</i>	x	x	x
<i>Cheilanthes distans</i>		x	
<i>Chorizandra enodis</i>	x		x
<i>Chorizema dicksonii</i>	x		x
<i>Chorizema ilicifolium</i>	x		x
* <i>Cicendia filiformis</i>			
PL <i>Citrus limon</i>	x		
<i>Clematis aristata</i> var. <i>occidentalis</i>	x		
<i>Colocasia esculenta</i>	x		
<i>Comesperma calymega</i>	x	x	
<i>Comesperma ciliatum</i>	x	x	
<i>Comesperma confertum</i>	x		
<i>Comesperma polygaloides</i>			x
<i>Comesperma virgatum</i>	x		x
<i>Conospermum capitatum</i>	x		
<i>Conospermum huegelii</i>	x	x	
<i>Conospermum triplinervium</i>	x		
<i>Conostephium pendulum</i>	x		
<i>Conostylis aculeata</i>	x		
<i>Conostylis androstemma</i>	x	x	x
<i>Conostylis candicans</i>	x		
<i>Conostylis caricina</i>	x		
<i>Conostylis juncea</i>	x		
<i>Conostylis serrulata</i>			x
<i>Conostylis setigera</i>	x	x	x
<i>Conostylis setigera</i> subsp. <i>setigera</i>		x	
<i>Conostylis setosa</i>	x	x	x
<i>Conothamnus trinervis</i>	x		
<i>Convolvulus remotus</i>		x	
* <i>Conyza</i> sp.	x		
* <i>Cortaderia seloana</i>	x		
<i>Corymbia calophylla</i>	x	x	
* <i>Cotoneaster</i> sp.	x		
<i>Craspedia variabilis</i>		x	x
<i>Crassula exserta</i>			x
<i>Cristonia biloba</i>	x		x

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Cryptandra arbutiflora</i>	x		x
<i>Cryptandra pungens</i>		x	
* <i>Cyathea cooperi</i>	x		
<i>Cyathochaeta avenacea</i>	x	x	x
* <i>Cynodon dactylon</i>	x		
* <i>Cyperus congestus</i>	x		
<i>Cyperus polystachyos</i>	x		
<i>Cytogonidium leptocarpoides</i>	x		
<i>Dampiera alata</i>	x		x
<i>Dampiera linearis</i>	x	x	x
<i>Darwinia citriodora</i>	x	x	x
<i>Darwinia pinifolia</i>		x	
<i>Darwinia thymoides</i>	x		x
<i>Dasyogon bromeliifolius</i>	x		
<i>Daviesia cordata</i>	x		x
<i>Daviesia decurrens</i>	x	x	x
<i>Daviesia divaricata</i>	x		
<i>Daviesia ?hakeoides</i>		x	x
<i>Daviesia horrida</i>	x	x	x
<i>Daviesia incrassata</i>		x	
<i>Daviesia longifolia</i>	x		
<i>Daviesia nudiflora</i>	x		
<i>Daviesia physodes</i>	x		
<i>Daviesia polyphylla</i>		x	
<i>Daviesia preissii</i>	x	x	x
<i>Daviesia rhombifolia</i>	x		
<i>Daviesia triflora</i>	x		
<i>Desmocladius asper</i>		x	
<i>Desmocladius fasciculatus</i>	x	x	x
<i>Desmocladius flexuosus</i>	x	x	x
<i>Dianella revoluta</i>	x	x	x
<i>Dianella revoluta</i> var. <i>divaricata</i>		x	
<i>Dichopogon capillipes</i>	x		x
<i>Dioscorea hastifolia</i>	x	x	x
<i>Dillwynia laxiflora</i>			x
PL <i>Diosma</i> sp.	x		
<i>Diplopeltis huegelii</i>	x	x	x
<i>Diplopeltis huegelii</i> subsp. <i>lehmanii</i>		x	
* <i>Dipogon lignosus</i>	x		
* <i>Disa bracteata</i>	x	x	
* <i>Dittrichia graveolens</i>	x	x	x
<i>Diuris longifolia</i>	x		
<i>Dodonaea ericoides</i>	x		
<i>Drosera bulbosa</i>	x		
<i>Drosera erythrorhiza</i>	x		x
<i>Drosera gigantea</i>	x		
<i>Drosera glanduligera</i>	x		x
<i>Drosera leucoblasta</i>	x		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Drosera macrantha</i>			x
<i>Drosera menziesii</i>	x		x
<i>Drosera ? microphylla</i>		x	
<i>Drosera pallida</i>			x
<i>Drosera platystigma</i>	x	x	x
<i>Drosera stolonifera</i>	x	x	x
<i>Drosera</i> sp. (climbing)		x	x
<i>Dryandra armata</i>	x	x	x
<i>Dryandra armata</i> var. <i>armata</i>		x	x
<i>Dryandra bipinnatifida</i>	x	x	x
<i>Dryandra bipinnatifida</i> subsp. <i>bipinnatifida</i>		x	x
<i>Dryandra fraseri</i> var. <i>fraseri</i>		x	
<i>Dryandra lindleyana</i>		x	x
<i>Dryandra lindleyana</i> var. <i>lindleyana</i>	x	x	x
<i>Dryandra sessilis</i>	x	x	x
<i>Dryandra sessilis</i> var. <i>sessilis</i>		x	x
<i>Dryandra</i> sp. aff. <i>pteridifolia</i>	x		
<i>Dryandra squarrosa</i>	x	x	
<i>Dryandra squarrosa</i> subsp. <i>squarrosa</i>	x	x	
* <i>Echium plantagineum</i>	x		
* <i>Ehrharta calycina</i>	x		x
* <i>Ehrharta longiflora</i>	x	x	
<i>Elythranthera brunonis</i>	x	x	
<i>Elythranthera emarginata</i>	x		
* <i>Eragrostis curvula</i>	x		
<i>Eremaea fimbriata</i>	x		
<i>Eremaea pauciflora</i>	x		
<i>Eriachne ovata</i>		x	
* <i>Eriobotrya japonica</i>	x		
<i>Eriochilus dilatatus</i>			x
* <i>Erodium botrys</i>	x		
* <i>Erythrina</i> sp.	x		
<i>Eucalyptus accedens</i>		x	
<i>Eucalyptus marginata</i>	x	x	
<i>Eucalyptus marginata</i> subsp. <i>marginata</i>	x	x	
<i>Eucalyptus marginata</i> subsp. <i>thalassica</i>		x	
PL <i>Eucalyptus microcorys</i> (planted)		x	
<i>Eucalyptus patens</i>	x		
<i>Eucalyptus rudis</i>	x	x	
<i>Eucalyptus rudis</i> subsp. <i>rudis</i>	x	x	
<i>Eucalyptus</i> sp.	x		
<i>Eucalyptus todtiana</i>	x		
<i>Eucalyptus wandoo</i>	x	x	
<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	x	x	
<i>Euchilopsis linearis</i>	x		
* <i>Euphorbia peplus</i>	x		
<i>Eutaxia virgata</i>	x		
* <i>Ficus carica</i>	x		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
* <i>Freesia alba x leichtlinii</i>	X		
* <i>Fumaria muralis</i>	X		
<i>Gahnia aristata</i>		X	
<i>Gahnia trifida</i>	X		
<i>Gastrolobium acutum</i>	X		
<i>Gastrolobium calycinum</i>			X
<i>Gastrolobium capitatum</i>	X		X
<i>Gastrolobium dilatatum</i>		X	X
<i>Gastrolobium epacridoides</i>		X	
<i>Gastrolobium oxylobioides</i>	X		
<i>Gastrolobium spathulatum</i>	X	X	X
<i>Gastrolobium spinosum</i>	X		
<i>Gastrolobium villosum</i>		X	X
* <i>Gazania</i> sp.	X		
* <i>Genista linifolia</i>	X		
* <i>Genista monspessulana</i>	X		
* <i>Geranium molle</i>	X		
* <i>Gladiolus caryophyllaceus</i>	X	X	X
* <i>Gladiolus undulatus</i>	X		
<i>Glischrocaryon aureum</i>	X		
* <i>Gomphocarpus fruticosus</i>	X		
<i>Gompholobium aristatum</i>	X		
<i>Gompholobium confertum</i>	X		
<i>Gompholobium knightianum</i>	X		X
<i>Gompholobium marginatum</i>	X	X	X
<i>Gompholobium polymorphum</i>	X	X	X
<i>Gompholobium preissii</i>	X	X	X
<i>Gompholobium scabrum</i>	X		
<i>Gompholobium shuttleworthii</i>	X	X	
<i>Gompholobium tomentosum</i>	X		
<i>Gonocarpus cordiger</i>	X	X	X
<i>Goodenia coerulea</i>	X	X	
<i>Goodenia fasciculata</i>	X	X	X
<i>Goodenia filiformis</i>	X		
<i>Goodenia incana</i>	X		
<i>Grevillea bipinnatifida</i>	X	X	X
<i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>		X	X
<i>Grevillea biternata</i>	X		
<i>Grevillea crithmifolia</i>	X		
<i>Grevillea endlicheriana</i>	X	X	X
<i>Grevillea manglesii</i> subsp. <i>manglesii</i>	X	X	
<i>Grevillea pilulifera</i>	X		X
<i>Grevillea quercifolia</i>	X		
* <i>Grevillea</i> sp. (non local)	X		
<i>Grevillea synapheae</i>	X	X	X
<i>Grevillea synapheae</i> subsp. <i>synapheae</i>		X	X
<i>Grevillea thelemanniana</i>	X		
<i>Grevillea wilsonii</i>	X	X	X

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Guichenotia sarotes</i>		x	
<i>Haemodorum brevisepalum</i>	x		
<i>Haemodorum laxum</i>	x	x	x
<i>Haemodorum loratum</i>	x		
<i>Haemodorum paniculatum</i>	x	x	
<i>Haemodorum simplex</i>	x		x
<i>Haemodorum simulans</i>	x		
<i>Haemodorum</i> sp.		x	
<i>Haemodorum spicatum</i>	x		
<i>Hakea ?auriculata</i>		x	
<i>Hakea amplexicaulis</i>	x	x	x
<i>Hakea auriculata</i>	x		
<i>Hakea ceratophylla</i>	x		
<i>Hakea conchifolia</i>	x		
<i>Hakea cristata</i>	x	x	x
<i>Hakea cyclocarpa</i>	x	x	x
<i>Hakea erinacea</i>	x	x	x
<i>Hakea incrassata</i>	x	x	x
<i>Hakea lissocarpa</i>	x	x	x
<i>Hakea petiolaris</i> subsp. <i>petiolaris</i>		x	
<i>Hakea prostrata</i>	x		
<i>Hakea ruscifolia</i>	x	x	x
<i>Hakea</i> sp. (non local)	x		
<i>Hakea stenocarpa</i>	x	x	x
<i>Hakea sulcata</i>	x		
<i>Hakea trifurcata</i>	x	x	x
<i>Hakea undulata</i>	x	x	x
<i>Hakea varia</i>	x		
<i>Halgania corymbosa</i> (P3)		x	
<i>Hardenbergia comptoniana</i>	x		
<i>Helichrysum macranthum</i>	x		
<i>Hemiandra pungens</i>	x		
<i>Hemigenia incana</i>	x	x	
<i>Hemigenia sericea</i>	x		
<i>Hibbertia acerosa</i>	x		
<i>Hibbertia amplexicaulis</i>	x		
<i>Hibbertia commutata</i>	x	x	x
<i>Hibbertia diamesogenos</i> (ms)		x	
<i>Hibbertia glomerata</i>	x		
<i>Hibbertia huegelii</i>	x	x	x
<i>Hibbertia hypericoides</i>	x	x	x
<i>Hibbertia nymphaea</i>	x		
<i>Hibbertia ovata</i>			x
<i>Hibbertia pachyrrhiza</i>	x	x	
<i>Hibbertia spicata</i>	x	x	
<i>Hibbertia spicata</i> subsp. <i>spicata</i>		x	
<i>Hibbertia subvaginata</i>	x	x	x
<i>Hovea chorizemifolia</i>	x	x	x

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Hovea pungens</i>	X	X	
<i>Hovea trisperma</i>	X	X	X
<i>Hyalosperma cotula</i>		X	
<i>Hybanthus calycinus</i>	X		
<i>Hybanthus debilissimus</i>			X
<i>Hybanthus floribundus</i>	X		
<i>Hydrocotyle ?alata</i>			X
<i>Hypocalymma angustifolium</i>	X	X	X
<i>Hypocalymma robustum</i>	X	X	X
* <i>Hypochaeris glabra</i>	X	X	X
<i>Hypolaena exsulca</i>		X	
<i>Hypoxis occidentalis</i> var. <i>quadriloba</i>			X
* <i>Ipomoea cairica</i>	X		
* <i>Ipomoea indica</i>	X		
* <i>Iris</i> sp.	X		
* <i>Isolepis marginata</i>			X
<i>Isopogon asper</i>	X	X	X
<i>Isopogon divergens</i>		X	
<i>Isopogon drummondii</i>	X		
<i>Isopogon dubius</i>	X	X	X
<i>Isopogon sphaerocephalus</i>	X		X
<i>Isotoma hypocrateriformis</i>	X		
<i>Isotropis cuneifolia</i>	X		
* <i>Ixia polystachya</i>	X		
* <i>Jacaranda</i> sp.	X		
<i>Jacksonia alata</i>	X	X	X
<i>Jacksonia angulata</i>		X	
<i>Jacksonia floribunda</i>	X		
<i>Jacksonia furcellata</i>	X		
<i>Jacksonia lehmannii</i>	X		
<i>Jacksonia restioides</i>	X	X	
<i>Jacksonia sternbergiana</i>	X		
<i>Johnsonia pubescens</i>	X		
* <i>Juncus bufonius</i>	X		
<i>Juncus caespiticius</i>	X		
<i>Juncus holoschoenus</i>	X		
* <i>Juncus microcephalus</i>	X		
<i>Juncus pallidus</i>	X	X	
<i>Juncus planifolius</i>	X		
<i>Juncus subsecundus</i>	X		
<i>Kennedia coccinea</i>	X		X
<i>Kennedia prostrata</i>	X		X
<i>Kennedia stirlingii</i>	X		
* <i>Kickxia elatine</i>	X		
<i>Kingia australis</i>	X	X	
<i>Kunzea micrantha</i>	X		
<i>Kunzea recurva</i>	X		
<i>Kunzea</i> sp.	X		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>		x	
<i>Labichea punctata</i>	x		x
<i>Lagenophora huegelii</i>	x	x	x
<i>Lambertia multiflora</i>	x		
* <i>Lantana camara</i>	x		
<i>Lasiopetalum bracteatum</i>	x		
<i>Lasiopetalum floribundum</i>		x	
* <i>Lathyrus tingitanus</i>	x		
* <i>Lavandula dentata</i>	x		
* <i>Lavandula stoechas</i>	x		
<i>Lawrencella rosea</i>			x
<i>Laxmannia sessiliflora</i>	x		
<i>Laxmannia squarrosa</i>	x	x	x
<i>Lechenaultia biloba</i>	x	x	x
<i>Lechenaultia expansa</i>	x		
<i>Lepidobolus preissianus</i> subsp. <i>preissianus</i>		x	
<i>Lepidosperma angustatum</i>	x		x
<i>Lepidosperma drummondii</i>	x	x	
<i>Lepidosperma gracile</i>			x
<i>Lepidosperma leptostachyum</i>	x	x	
<i>Lepidosperma longitudinale</i>		x	x
<i>Lepidosperma pubisquamium</i>		x	
<i>Lepidosperma scabrum</i>	x		
<i>Lepidosperma tenue</i>			x
<i>Lepidosperma</i> sp.		x	x
<i>Lepidosperma squamatium</i>		x	x
<i>Lepidosperma tetraquetrum</i>	x		x
<i>Lepidosperma tuberculatum</i>			x
<i>Leptomeria cunninghamii</i>	x		x
<i>Leptospermum erubescens</i>	x	x	
<i>Leptospermum laevigatum</i>	x		
<i>Lepyrodia glauca</i>	x		
<i>Leucopogon capitellatus</i>		x	x
<i>Leucopogon conostephioides</i>			x
<i>Leucopogon nutans</i>			x
<i>Leucopogon pulchellus</i>	x	x	x
<i>Leucopogon propinquus</i>			x
<i>Leucopogon verticillatus</i>	x		
<i>Levenhookia pusilla</i>	x	x	x
<i>Levenhookia stipitata</i>	x	x	
* <i>Lilium</i> sp.	x		
* <i>Linum trigynum</i>	x		
<i>Lobelia alata</i>	x		
<i>Lobelia rhombifolia</i>		x	
<i>Lobelia rhytidosperma</i>	x		
? <i>Lobelia</i> sp.		x	
<i>Lolium rigidum</i>	x		
<i>Lomandra hermaphrodita</i>	x	x	x

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Lomandra integra</i>			x
<i>Lomandra nigricans</i>		x	x
<i>Lomandra pauciflora</i>			x
<i>Lomandra preissii</i>	x		
<i>Lomandra purpurea</i>	x		x
<i>Lomandra sericea</i>	x	x	x
<i>Lomandra sonderi</i>		x	x
<i>Lomandra spartea</i>	x		x
* <i>Lonicera</i> sp.	x		
<i>Lophostemon</i> sp.	x		
<i>Loxocarya cinerea</i>		x	x
<i>Loxocarya striata</i>	x		
<i>Ludwigia</i> sp.	x		
* <i>Lupinus</i> sp.	x		
<i>Lyginia barbata</i>	x		
<i>Lysinema ciliatum</i>	x		
* <i>Lythrum hyssopifolia</i>	x		
<i>Macarthuria australis</i>	x		
<i>Macrozamia fraseri</i>		x	
<i>Macrozamia riedlei</i>	x	x	x
<i>Maianthus bicolor</i> var. <i>bicolor</i>			x
<i>Marianthus coeruleopunctatus</i>		x	
<i>Marianthus drummondianus</i>	x		
<i>Meeboldina cana</i>	x		
<i>Meeboldina coangustata</i>	x		x
<i>Melaleuca incana</i>	x		
<i>Melaleuca incana</i> subsp. <i>incana</i>		x	
<i>Melaleuca lateritia</i>	x		
PL <i>Melaleuca nesophila</i> (planted)		x	
<i>Melaleuca parviceps</i>		x	x
<i>Melaleuca pauciflora</i>	x		
<i>Melaleuca preissiana</i>	x		
<i>Melaleuca radula</i>	x	x	x
<i>Melaleuca raphiophylla</i>	x		
<i>Melaleuca seriata</i>	x		
<i>Melaleuca trichophylla</i>		x	x
<i>Melaleuca uncinata</i>	x		
<i>Melaleuca</i> sp.	x		
<i>Melia azedarach</i>	x		
* <i>Melinis repens</i>	x		
* <i>Mentha x piperita</i>	x		
<i>Mesomelaena graciliceps</i>			x
<i>Mesomelaena pseudostygia</i>	x		
<i>Mesomelaena tetragona</i>	x	x	x
<i>Microtis atrata</i>	x		
<i>Microtis media</i>	x		
<i>Mirbelia dilatata</i>	x		
<i>Mirbelia spinosa</i>	x		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
	Shire of Kalamunda		
<i>Monotaxis grandiflora</i>	X		
* <i>Monstera deliciosa</i>	X		
* <i>Moraea flaccida</i>		X	
* <i>Moraea lewisiae</i>	X		
* <i>Moraea miniata</i>	X		
* <i>Morus</i> sp.	X		
<i>Muehlenbeckia adpressa</i>	X	X	
<i>Neurachne alopecuroidea</i>	X	X	X
<i>Nuytsia floribunda</i>	X	X	
* <i>Oenothera glazioviana</i>	X		
<i>Olex scalariformis</i> (P3)	X		
* <i>Olea europaea</i>	X		
* <i>Oleander</i> sp.			X
<i>Olearia elaeophila</i>	X		
<i>Olearia paucidentata</i>	X		X
<i>Opercularia apiciflora</i>	X		
<i>Opercularia echinocephala</i>	X	X	X
<i>Opercularia hispidula</i>	X		X
<i>Opercularia vaginata</i>	X		X
<i>Ophioglossum lusitanicum</i>	X		
* <i>Opuntia stricta</i>	X		
* <i>Orobanche minor</i>	X		
<i>Orthrosanthus laxus</i>	X	X	X
<i>Orthrosanthus laxus</i> var. <i>laxus</i>		X	X
* <i>Oxalis caprina</i>	X		
* <i>Oxalis corymbosa</i>	X		
* <i>Oxalis glabra</i>	X		
<i>Oxalis perennans</i>	X		
* <i>Oxalis pes-caprae</i>	X		
* <i>Oxalis purpurea</i>	X		
* <i>Oxalis</i> sp.		X	
<i>Paraserianthes lophantha</i>	X		
* <i>Parentucellia latifolia</i>		X	X
* <i>Parentucellia viscosa</i>	X		
* <i>Paspalum dilatatum</i>	X		
* <i>Paspalum distichum</i>	X		
* <i>Paspalum urvillei</i>	X		
<i>Patersonia babianoides</i>	X		X
<i>Patersonia juncea</i>	X	X	
<i>Patersonia occidentalis</i>	X	X	X
<i>Patersonia pygmaea</i>	X		X
<i>Patersonia rudis</i>	X	X	
<i>Patersonia umbrosa</i>	X		
* <i>Pelargonium capitatum</i>	X		
* <i>Pennisetum clandestinum</i>	X		
* <i>Pennisetum macrourum</i>	X		
<i>Pentapeltis peltigera</i>	X	X	X
* <i>Pentaschistis airoides</i>	X	X	

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Matiske Consulting	John Forrest Matiske Consulting
<i>Pericalymma ellipticum</i>	x		
* <i>Persicaria</i> sp.		x	
<i>Persoonia angustiflora</i>	x	x	
<i>Persoonia elliptica</i>	x		
<i>Persoonia longifolia</i>	x		
<i>Persoonia quinquenervis</i>		x	
<i>Persoonia saccata</i>	x		
<i>Petrophile biloba</i>	x	x	x
<i>Petrophile linearis</i>	x	x	
<i>Petrophile macrostachya</i>	x		
<i>Petrophile media</i>	x		
<i>Petrophile seminuda</i>	x		x
<i>Petrophile squamata</i> subsp. <i>squamata</i>		x	
<i>Petrophile striata</i>	x	x	x
* <i>Petrorrhagia dubia</i>	x		
<i>Philothea spicata</i>	x	x	x
<i>Phlebocarya ciliata</i>	x		
<i>Phlebocarya filifolia</i>	x		
<i>Phyllanthus calycinus</i>	x	x	x
* <i>Physalis peruviana</i>	x		
<i>Pimelea angustifolia</i>	x		
<i>Pimelea argentea</i>	x		
<i>Pimelea ciliata</i>	x	x	x
<i>Pimelea ciliata</i> subsp. <i>ciliata</i>		x	x
<i>Pimelea imbricata</i>	x		
<i>Pimelea imbricata</i> var. <i>piligera</i>		x	x
<i>Pimelea lehmanniana</i>	x		
<i>Pimelea preissii</i>	x		
<i>Pimelea rosea</i>	x		
<i>Pimelea spectabilis</i>	x		
<i>Pimelea suaveolens</i>	x	x	x
<i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>		x	
<i>Pimelea sylvestris</i>	x		
* <i>Pinus</i> sp.	x		
<i>Pithocarpa pulchella</i>	x		
<i>Pittosporum</i> sp.	x		
<i>Pityrodia bartlingii</i>	x		
* <i>Plantago lanceolata</i>	x		
<i>Platysace compressa</i>	x		x
<i>Platysace juncea</i>	x		
<i>Platytheca galioides</i>	x		
<i>Pleurosorus rutifolius</i>	x		
<i>Poa drummondiana</i>		x	
* <i>Podalyria sericea</i>	x		
<i>Podolepis lessonii</i>		x	x
* <i>Polygala myrtifolia</i>	x		
* <i>Polygala virgata</i>	x		
* <i>Populus</i> sp.	x		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Poranthera microphylla</i>		x	
* <i>Portulacaria afra</i>	x		
<i>Prasophyllum giganteum</i>	x		
<i>Prasophyllum parvifolium</i>	x		
<i>Prasophyllum</i> sp.			x
PL <i>Prunus</i> sp.	x		
<i>Pteridium esculentum</i>	x		
<i>Pterochaeta paniculata</i>	x	x	
<i>Pterostylis barbata</i>			x
<i>Pterostylis pyramidalis</i>			x
<i>Pterostylis recurva</i>	x		
<i>Pterostylis vittata</i>			x
<i>Ptilotus declinatus</i>	x	x	
<i>Ptilotus drummondii</i>	x		
<i>Ptilotus drummondii</i> var. <i>drummondii</i>		x	
<i>Ptilotus esquamatus</i>	x		
<i>Ptilotus manglesii</i>	x	x	
<i>Ptilotus polystachyus</i>	x		
<i>Pultenaea ericifolia</i>	x		
<i>Pyrorchis nigricans</i>	x		x
<i>Quinetia urvillei</i>			x
<i>Ranunculus colonorum</i>	x		
* <i>Raphanus raphanistrum</i>	x		
<i>Regelia ciliata</i>	x		
* <i>Ricinus communis</i>	x		
* <i>Romulea rosea</i>	x		x
* <i>Rosa</i> sp.	x		
* <i>Rubus laudatus</i>	x		
<i>Rulingia cygnorum</i>	x		
* <i>Rumex crispus</i>	x		
* <i>Salix babylonica</i>	x		
<i>Santalum acuminatum</i>	x	x	x
<i>Scaevola calliptera</i>		x	
<i>Scaevola canescens</i>	x		
<i>Scaevola glandulifera</i>	x		
<i>Scaevola paludosa</i>	x		
<i>Scaevola pilosa</i>	x	x	
<i>Scaevola platyphylla</i>	x		x
<i>Scaevola striata</i>			x
* <i>Schefflera actinophylla</i>	x		
* <i>Schinus</i> sp.	x		
<i>Schoenus ?brevisetis</i>		x	
<i>Schoenus ?pleiostomoneus</i>		x	
<i>Schoenus benthamii</i>	x		
<i>Schoenus globifer</i>	x		
<i>Schoenus grammatophyllus</i>	x		
<i>Schoenus ?latitans</i>			x
<i>Schoenus</i> sp. smooth culms (K.R. Newbey 7823)		x	

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Schoenus subfascicularis</i>		x	
<i>Scholtzia involucrata</i>	x		
<i>Senecio hispidulus</i>	x		
* <i>Silene gallica</i>	x		
<i>Siloxerus humifusus</i>		x	
* <i>Solanum nigrum</i>	x		
* <i>Sonchus asper</i>	x		
* <i>Sonchus oleraceus</i>	x	x	
<i>Sowerbaea laxiflora</i>			x
* <i>Sparaxis</i> sp.	x		
* <i>Spartium junceum</i>	x		
<i>Sphaerolobium linophyllum</i>		x	
<i>Sphaerolobium macranthum</i>	x		
<i>Sphaerolobium medium</i>	x		
<i>Spiculaea ciliata</i>	x		
* <i>Stachys arvensis</i>	x		
<i>Stachystemon vermicularis</i>	x		
<i>Stackhousia monogyne</i>	x	x	x
<i>Stenanthemum humile</i>	x		
<i>Stenanthemum tridentatum</i>	x		
* <i>Stenotaphrum secundatum</i>	x		
<i>Stirlingia latifolia</i>	x		
<i>Stylidium affine</i>	x	x	x
<i>Stylidium amoenum</i>	x	x	x
<i>Stylidium breviscapum</i>	x		
<i>Stylidium brunonianum</i>	x	x	x
<i>Stylidium bulbiferum</i>	x	x	x
<i>Stylidium calcaratatum</i>	x	x	x
<i>Stylidium carnosum</i>	x		x
<i>Stylidium ciliatum</i>	x		
<i>Stylidium dichotomum</i>	x	x	
<i>Stylidium diuroides</i>	x		
<i>Stylidium divaricatum</i>	x		
<i>Stylidium eriopodium</i>		x	
<i>Stylidium hispidum</i>	x	x	x
<i>Stylidium junceum</i>	x		x
<i>Stylidium lineatum</i>			x
<i>Stylidium piliferum</i>	x	x	x
<i>Stylidium pubigerum</i>	x		
<i>Stylidium pycnostachyum</i>		x	x
<i>Stylidium repens</i>	x		x
<i>Stylidium ?rupestris</i>			x
<i>Stylidium schoenoides</i>	x		x
<i>Stypantra glauca</i>	x	x	x
<i>Stypantra imbricata</i>			x
<i>Styphelia tenuiflora</i>	x	x	x
<i>Synaphea acutiloba</i>	x	x	
<i>Synaphea petiolaris</i>	x		x

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range Reserves Shire of Kalamunda	Hanson Mattiske Consulting	John Forrest Mattiske Consulting
<i>Synaphea pinnata</i>		x	x
<i>Synaphea spinulosa</i>	x		
<i>Taxandria linearifolia</i>	x		x
<i>Templetonia drummondii</i> (P4)	x		x
<i>Tetragia capillaris</i>		x	x
<i>Tetragia octandra</i>	x	x	x
<i>Tetragia laevis</i>	x		x
<i>Tetragia hirsuta</i>	x	x	x
<i>Tetragia nuda</i>	x	x	
<i>Thelymitra antennifera</i>	x		
<i>Thelymitra benthamiana</i>	x		
<i>Thelymitra crinita</i>	x	x	
<i>Thelymitra macrophylla</i>	x	x	
<i>Thelymitra</i> sp.			x
<i>Themeda triandra</i>	x	x	
<i>Thomasia foliosa</i>	x	x	x
<i>Thomasia glutinosa</i> var. <i>glutinosa</i>		x	
<i>Thomasia glutinosa</i> var. <i>latifolia</i>		x	
<i>Thomasia grandiflora</i>	x		
<i>Thomasia macrocarpa</i>	x		
<i>Thunbergia alata</i>	x		
<i>Thysanotus anceps</i>	x		
<i>Thysanotus dichotomus</i>	x	x	
<i>Thysanotus manglesianus</i>		x	
<i>Thysanotus multiflorus</i>	x	x	x
<i>Thysanotus patersonii</i>	x		x
<i>Thysanotus sparteus</i>	x	x	x
<i>Thysanotus thyrsoideus</i>	x		
<i>Trachymene coerulea</i> subsp. <i>coerulea</i>		x	
<i>Trachymene pilosa</i>	x	x	x
<i>Tremulina tremula</i>	x		
* <i>Tribolium uniolae</i>	x		
<i>Tribonanthes australis</i>	x		
<i>Tribonanthes longipetala</i>	x		x
<i>Trichocline spathulata</i>	x	x	x
<i>Tricoryne elatior</i>	x	x	x
* <i>Trifolium angustifolium</i>	x		
* <i>Trifolium arvense</i>	x		
* <i>Trifolium campestre</i>	x		
* <i>Trifolium cernuum</i>	x		
* <i>Trifolium hirtum</i>	x		
<i>Tripterococcus brunonis</i>	x	x	x
* <i>Tropaeolum majus</i>	x		
<i>Trymalium floribundum</i>	x	x	x
<i>Trymalium floribundum</i> subsp. <i>floribundum</i>		x	
<i>Trymalium ledifolium</i>	x	x	x
<i>Trymalium ledifolium</i> var. <i>ledifolium</i>		x	
* <i>Typha orientalis</i>	x		

APPENDIX D: COMPARISON OF SPECIES ON THE DARLING SCARP NEAR RED HILL

Taxa	Darling Range	Hanson	John Forrest
	Reserves Shire of Kalamunda	Mattiske Consulting	Mattiske Consulting
* <i>Ursinia anthemoides</i>	x	x	x
<i>Velleia ?trinervis</i>			x
* <i>Vellereophyton dealbatum</i>	x		
<i>Verticordia acerosa</i>	x		
<i>Verticordia acerosa</i> var. <i>acerosa</i>		x	
<i>Verticordia densiflora</i>	x		
<i>Verticordia huegelii</i>	x		x
<i>Verticordia huegelii</i> var. <i>huegelii</i>		x	
<i>Verticordia lindleyi</i>	x		
<i>Verticordia pennigera</i>		x	x
<i>Verticordia plumosa</i> var. <i>plumosa</i>		x	x
* <i>Vicia sativa</i>	x		
<i>Viminaria juncea</i>	x	x	x
* <i>Vinca major</i>	x		
* <i>Viola</i> sp.	x		
* <i>Vulpia myuros</i>		x	x
* <i>Wahlenbergia capensis</i>	x		
<i>Waitzia suaveolens</i>	x		
* <i>Watsonia meriana</i>	x	x	
* <i>Watsonia meriana</i> var. <i>bulbillifera</i>	x	x	
<i>Xanthorrhoea acanthostachya</i>	x		
<i>Xanthorrhoea gracilis</i>	x	x	x
<i>Xanthorrhoea preissii</i>	x	x	x
? <i>Xanthosia atkinsoniana</i>		x	
<i>Xanthosia atkinsoniana</i>	x	x	
<i>Xanthosia candida</i>	x	x	x
<i>Xanthosia ciliata</i>	x	x	
<i>Xanthosia fruticulosa</i>	x		
<i>Xanthosia huegelii</i>	x		x
<i>Xylomelum occidentale</i>	x		
* <i>Yacca</i> sp.	x		
* <i>Zantedeschia aethiopica</i>	x		
* <i>Zingiber</i> sp.	x		

APPENDIX E: SUMMARY OF MOST COMMON VASCULAR PLANT SPECIES, HANSON, 2006

Taxon	% Recording Sites
<i>Xanthorrhoea preissii</i>	78
<i>Corymbia calophylla</i>	74
<i>Hibbertia hypericoides</i>	69
<i>Dryandra lindleyana</i> var. <i>lindleyana</i>	51
<i>Hakea erinacea</i>	40
<i>Hibbertia commutata</i>	40
<i>Melaleuca radula</i>	38
<i>Acacia pulchella</i>	37
<i>Hibbertia subvaginata</i>	35
<i>Bossiaea eriocarpa</i>	34
<i>Hakea undulata</i>	34
<i>Leucopogon pulchellus</i>	34
<i>Macrozamia riedlei</i>	32
<i>Calothammus quadrifidus</i>	31
<i>Petrophile striata</i>	30
<i>Stylidium bulbiferum</i>	29
<i>Baeckea camphorosmae</i>	28
<i>Borya sphaerocephala</i>	28
<i>Phyllanthus calycinus</i>	27
<i>Tripterococcus brunonis</i>	27
<i>Calothammus rupestris</i> (P4)	26
<i>Darwinia citriodora</i>	26
<i>Eucalyptus wandoo</i> subsp. <i>wandoo</i>	26
<i>Melaleuca parviceps</i>	26
<i>Gompholobium marginatum</i>	25
<i>Lepidosperma pubisquameum</i>	25
<i>Petrophile biloba</i>	25
<i>Pimelea imbricata</i> var. <i>piligera</i>	25
<i>Calothammus sanguineus</i>	24
<i>Trymalium ledifolium</i> var. <i>ledifolium</i>	24
<i>Boronia ovata</i>	23
<i>Cheilanthes austrotenuifolia</i>	23
<i>Gastrolobium dilatatum</i>	22
<i>Hakea trifurcata</i>	22
<i>Stylidium amoenum</i>	22
<i>Conostylis setosa</i>	21
<i>Hakea cristata</i>	21
<i>Allocasuarina humilis</i>	20
<i>Grevillea bipinnatifida</i> subsp. <i>bipinnatifida</i>	20
<i>Hakea lissocarpha</i>	20
<i>Isopogon asper</i>	20
<i>Stylidium brunonianum</i>	20
<i>Verticordia acerosa</i> var. <i>acerosa</i>	20
<i>Hypocalymma angustifolium</i>	19
<i>Lepidosperma leptostachyum</i>	19
<i>Pimelea suaveolens</i> subsp. <i>suaveolens</i>	19
<i>Cassytha pomiformis</i>	18
<i>Calytrix glutinosa</i>	17
<i>Laxmannia squarrosa</i>	17
<i>Dryandra armata</i> var. <i>armata</i>	16
<i>Dryandra bipinnatifida</i> subsp. <i>bipinnatifida</i>	16

APPENDIX E: SUMMARY OF MOST COMMON VASCULAR PLANT SPECIES, HANSON, 2006

Taxon	% Recording Sites
<i>Hakea stenocarpa</i>	15
<i>Neurachne alopecuroidea</i>	15
<i>Eucalyptus marginata</i>	14
<i>Grevillea endlicheriana</i>	14
<i>Hovea pungens</i>	14
<i>Lomandra sericea</i>	14
<i>Stylidium affine</i>	14
<i>Desmocladius flexuosus</i>	13
<i>Drosera stolonifera</i>	13
<i>Eucalyptus wandoo</i>	13
<i>Hakea amplexicaulis</i>	13
<i>Hibbertia pachyrrhiza</i>	13
<i>Labichea lanceolata</i> subsp. <i>lanceolata</i>	13
<i>Stylidium hispidum</i>	13
<i>Styphelia tenuiflora</i>	13
<i>Thomasia foliosa</i>	13
<i>Trymalium ledifolium</i>	13
<i>Dryandra sessilis</i> var. <i>sessilis</i>	12
<i>Grevillea synaphea</i> subsp. <i>synaphea</i>	12
<i>Leptospermum erubescens</i>	12
<i>Petrophile squamata</i> subsp. <i>squamata</i>	12
<i>Desmocladius fasciculatus</i>	11
<i>Dryandra lindleyana</i>	11
<i>Lepidosperma squamatum</i>	11
<i>Pentapeltis peltigera</i>	11
<i>Xanthosia candida</i>	11
<i>Bossiaea ornata</i>	10
<i>Dryandra fraseri</i> var. <i>fraseri</i>	10
<i>Eucalyptus accedens</i>	10
<i>Hakea cyclocarpa</i>	10
<i>Nuytsia floribunda</i>	10
<i>Verticordia huegelii</i> var. <i>huegelii</i>	10