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# **REMNANT VEGETATION on the ALLUVIAL SOILS of the EASTERN SIDE of the SWAN COASTAL PLAIN**

## **APPENDICES 1 TO 3**

Prepared by

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## APPENDIX 1

### Location Descriptions

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Remnant Vegetation of the Alluvial Soils of the Eastern Side of the Swan Coastal Plain

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## Table 1: Guide to the Location Descriptions

The Location Descriptions are of the following format

a) **Number of Location and description geographic location.** For example  
**Location 1** - Wetlands to the east of Forrestdale Lake. Location Map 11 and Vegetation Map Area 20, p 99.

b) **A symbolized guide (Table 1) to the vegetation associations at the Location and the condition of the vegetation.** For example

**Yeg: b LW, mb W, mi Lht & WM (mi Ht, me Ht, S & H)**

**Cond: Very Good to Good**

c) **General Comments**

A general description of the vegetation at the Location and comments on adjacent vegetation. Areas quoted are approximate from aerial photographs. For example  
 GENERAL COMMENTS (Location 1)

A mosaic of associations are present at this location. etc

d) **Description of the individual sites** at each Location, the Site or 'Site' (descriptions of the general area, not area of 10 m x 10 m).

Each site description includes:

- **a vegetation description (Table 1)**

- a listing of the species considered of most interest at the site, with the following notations to indicate species of significance

**±** Weed

**1#** New record in the Perth Region

**2#** Outside recorded range (Marchant et al, 1989)

**3#** Declared Rare Flora, Priority Species (Atkins 1991) or species of particular interest.

**4#** Confined to the Scarp and eastern side Plain (Table 4)

**5#** Confined to the eastern side of the Swan Coastal Plain in Perth Region and occurring in other regions (Table 5)

**6#** Confined to the eastern side of the Swan Coastal Plain (Table 6)

**+** Voucher collected

- **condition assessment (Table 2).**

- **description of physical attributes, including**

**Soil** - observed soils and mapped soils (From Van Gool 1990, Wells & Hesp 1981, King & Wells 1990, Churchward & McArthur 1980 and McArthur 1987. Symbols for mapped soils preceded by a ? indicate that the area was not mapped and an extrapolation was made from the adjacent mapped soils or the boundaries were diffuse.)

**Drainage** - poor, moderate or well drained and presence and approx. depth of free water

**Aspect** - N, NE, E, SE, S, SW, W, & NW; steepness slope

Degraded Locations are described only with symbolic (For Example Location 6) and both symbolic and word descriptions (For Example Location 12).



Table 2

Key to Soil Notation: Churchward &amp; McArthur 1980 and McArthur 1987.

## SWAN COASTAL PLAIN

## Ridge Hill Shelf



FORRESTFIELD: Lateritised foothills of the Darling Scarp dominated by gravelly and sandy soils.

## Fluvatile Deposits



COONAMBIDGEE: Gently sloping fringe to the Dandaragan Plateau; deep grey sands.



GUILDFORD: Flat plain with medium textured deposits; yellow duplex soils.



SWAN: Alluvial terraces with red earths and duplex soils.



DARDANUP: Alluvial fans with dark brown loamy soils.



ABBA: Poorly drained plain with medium textured deposits; yellow duplex soils and some shallow sands over bog iron ore.



SERPENTINE RIVER: Poorly drained plain with fine textured alluvial soils.



BEERMULLAH: Poorly drained plain; saline and solonchic soils, bog iron ore and some shallow sands over bog iron ore.



BOOTINE: Poorly drained plain; large permanent lakes with intervening red and brown sandy benches; also some solonchic soils, bog iron ore and marl.



YANGA: Poorly drained plain with grey sandy benches and intervening swamps; also areas of bog iron ore, marl or solonchic soils.



MUNGALA: Plains dominated by shallow black clays on marl; some red and brown sandy rises and occasional bog iron ore.



CANNINGTON: Poorly drained plains with calcareous substrate; yellow duplex soils with minor areas of red and black clays over limestone.



MOORE: Sandy terraces and slopes of the Moore River as it traverses the Coastal Plain and adjacent Dandaragan Plateau.

## Aeolian Deposits



BASSENDAN: Sand plains with low dunes and occasional swamps; iron or humus podzols; areas of complex steep dunes shown by B(d).



SOUTHERN RIVER: Sandplain with low dunes and many intervening swamps; iron and humus podzols, peats, and clays.

## DANDARAGAN PLATEAU

## Scarps



REAGAN: Gently sloping scarp dominated by yellow or grey sands; some duricrust and gravels.



GINGIN: Gently sloping irregular scarp, mainly red sandy soils with associated small areas of red duplex soils and shallow black clays.

# Table 3

## Key to Soil Notation: King & Wells 1990.

### DANDARAGAN PLATEAU

Reagan: Gentle to moderately inclined, low relief slopes forming the western edge of the Dandaragan Plateau. Sandy soils formed from weathering of the sedimentary rocks, and remnant lateritic spurs dominate the area.

- Re1 Gentle slopes with deep, rapidly drained loose brownish or pale sands with a sandy fabric.
- Re2 Gentle slopes with deep, well drained brownish or earthy sands situated below Re1.
- Re3 Gentle slopes and spurs with shallow gravelly sands and few areas of lateritic outcrop.
- Re4 Very gently inclined footslopes with deep rapidly drained grey siliceous or bleached sands.
- Re5 Level to very gently inclined swampy drainage lines with poorly drained grey siliceous and pale yellow-brown sands.
- Re6 Very gently inclined footslope seepage areas with imperfectly drained grey siliceous sands or pale yellow-brown sands.
- Re7 Level to very gently inclined outwash fans with deep, well drained grey siliceous sands or bleached sands overlying clay at depths greater than 1m.
- Re8 Moderately steep to steep scarp hillslopes with imperfectly drained yellow duplex and less commonly yellow gradational soils associated with localized areas of siltstone. Minor (few) rock outcrops occur.
- Re9 Gentle to moderately inclined footslopes associated with siltstone areas, with soils similar to Re8.

### SWAN COASTAL PLAIN

Forrestfield: A series of lateritized low relief spurs forming the foothills of the Darling Scarp. They are composed of fossil shoreline bench sediments. Holocene colluvium and narrow bands of alluvial deposits.

- F1 Very gently to gently inclined footslopes with deep rapidly drained siliceous yellow brown sands, and pale or bleached sands with yellow-brown subsoil.
- F2 Very gently to gently inclined footslopes with well drained gravelly yellow or brown duplex soils with sandy topsoil.
- F3 Very gently to gently inclined footslopes with well drained gravelly yellow or red duplex soils with sandy loam to loam topsoil.
- F4 Gently to moderately inclined breakaway slopes separating Forrestfield from the Swan alluvial terraces. Soils are imperfectly drained yellow or grey gradational earths.
- F5 Very gently to gently inclined incised drainage channels with poorly drained gravelly yellow or brown duplex soils.
- F6 Very gently to gently inclined crests and knolls with common lateritic outcrop. Soils are shallow moderately well drained gravelly brownish or earthy sands.
- F7 Level to very gently inclined alluvial fans with variable imperfectly drained soils comprising layers of sand, sandy loam, clay, grit and weathered granitic detritus.
- F8 Moderately inclined footslope areas with moderately well drained gravelly duplex soils similar to those of unit F3.
- F9 Very gently inclined seepage areas and non-incised drainage channels with poorly drained bleached grey sands over an iron organic hardpan.
- F10 Level to very gently inclined alluvial fans with variable poorly drained soils.

Guildford: Broad level to very gently inclined plain located west of the foothills. The dominant soils are imperfectly to poorly drained, and are formed from unconsolidated riverine material of Pleistocene age.

- Gf1 Plain with moderately well drained yellow duplex or gradational soils with sand to sandy loam topsoil.
- Gf2 Plain with imperfectly drained yellow duplex soils with sand to sandy loam topsoil.
- Gf3 Plain with poorly drained mottled yellow earths with loamy topsoil.
- Gf4 Alluvial fans with variable imperfectly drained soils similar to unit F7.
- Gf5 Incised drainage channels with poorly drained gradational mottled yellow earths.
- Gf6 Seasonally inundated swamps with very poorly drained uniform non-cracking clays.
- Gf7 Minor rises with deep rapidly drained brownish, siliceous or bleached aeolian sands.
- Gf8 Plain and broad depressions with poorly drained uniform non-cracking clays.
- Gf9 Minor sandy rises (aeolian deposits) with moderately deep well drained sands overlying gravelly mottled clay.

# Table 4

Key to Soil Notation: Yan Gool 1990.

Ridge Hill Shelf (Foothills): - Lateritized, low relief, foothills of the Darling Scarp comprising fossil shoreline bench sediments, Holocene and narrow bands of alluvial deposits. Slopes are very gently to gently inclined and soils are moderately well to well drained.

Note that the bracketed slopes in the descriptions indicate a more specific range applicable to this survey

- F1c Gently inclined slopes (5 to 8%) with well drained deep uniform yellowish brown sands which are generally free of laterite or gravel
- F2 Very gently to gently inclined lower slopes (1 to 5%) with:
- a. shallow to moderately deep, very gravelly acidic yellow duplex soils and common laterite
  - b. moderately deep to deep, gravelly acidic yellow duplex soils and rare laterite
  - c. soils similar to F1c
- F3 Very gently inclined (1 to 3%) lower slopes with deep, imperfectly drained yellow and, less commonly, acidic grey duplex soils
- F4 Incised stream channels with deep acidic yellow duplex soils and sandy alluvial gradational brown earths
- F5 Poorly defined stream channels on lowest slopes and with soils similar to F4.

Pinjerra Plain: - Broad low relief plain west of the foothills, comprising predominantly Pleistocene fluvial sediments and some Holocene alluvium associated with major current drainage systems. Major soils are naturally poorly drained and many swamps occur.

- P1 Flat to very gently undulating plain with deep acidic mottled yellow duplex (or "effective duplex") soils comprising:
- a. shallow pale sand to sandy loam over clay; imperfect to poorly drained and generally not susceptible to salinity
  - b. moderately deep pale sand to sandy loam over clay; imperfectly drained and moderately susceptible to salinity in limited areas
  - c. deep pale brown to yellowish sand to sandy loam over clay; imperfectly drained and moderately susceptible to salinity in limited areas
  - d. as for P1a, but moderately susceptible to salinity
  - e. shallow pale sand to sandy loam over very gravelly clay; moderately well drained
- P2 Flat to very gently undulating plain with deep alkaline mottled yellow duplex soils which generally consist of shallow pale sand to sandy loam over clay.
- P2a As for P2, but there is a silcrete hardpan at 50 to 100cm depth generally on top of an (olive-grey) clay
- P3 Flat to very gently undulating plain with deep, imperfect to poorly drained acidic gradational yellow or grey-brown earths and mottled yellow duplex soils, with loam to clay loam surfaces
- P4 Poorly drained flats, sometimes with gilgai microrelief and with moderately deep to deep black, olive grey and some yellowish brown cracking clays and less commonly non cracking friable clays with generally acidic subsoils.
- P4a Sandy margins of the plain adjacent to dune systems where soils have a very shallow grey sand veneer over deep, black or grey cracking clays
- P5 Poorly drained flats, commonly with gilgai microrelief and with deep grey to olive brown cracking clays with alkaline subsoils.

- P6 Very gently undulating alluvial terraces and low rises contiguous with the plain, with deep moderately well to well drained soils. These are:
- a. associated with major current river systems and larger streams, and have acidic red and yellow duplex soils, less commonly gradational red and yellow earths
  - b. associated with prior stream deposits upon plain, and have uniform brownish sands
  - c. alluvial fans with uniform friable brown loams, or well structured gradational brown earths.
- P7 Seasonally inundated swamps and depressions with very poorly drained variable acidic mottled yellow and grey duplex soils
- P8 Broad poorly drained flats and poorly defined stream channels with moderately deep to deep sands, over mottled clays; acidic or less commonly alkaline grey and yellow duplex soils to uniform bleached or pale brown sands over clay
- P9 Shallowly incised stream channels of minor creeks and rivers with deep acidic mottled yellow duplex soils
- P10 Gently undulating to flat terraces adjacent to major rivers, but below the general level of the plain, with deep well drained uniform brownish sands or loams subject to periodic flooding
- P11 Shallow brown loamy soils or less commonly, very shallow sands over ironstone pavement which is a clear barrier to drainage
- P11a Shallow sand to sandy loam over lateritic material; imperfect to moderately well drained

Bassendean Dune and Sandplain System: - Very low relief, leached, grey siliceous Pleistocene sand dunes, intervening sandy and clayey swamps and gently undulating plains. These occur immediately west of, and partly overlap, the Pinjerra Plain. Topography becomes more subdued from west to east.

- B1 Extremely low to very low relief dunes, undulating sandplain and discrete sand rises with deep bleached grey sands sometimes with a pale yellow B horizon or a weak iron-organic hardpan at depths generally greater than 2 metres; banksia dominant
- B1a As for B1, but with a more intensely coloured yellow B horizon occurring within 1 metre of the surface; marri and jarrah dominant (reedgum rises)
- B2 Flat to very gently undulating sandplain with well to moderately well drained deep bleached grey sands with a pale yellow B horizon or a weak iron organic hardpan at 1-2 metres
- B2a As for B2, but with a more intensely coloured yellow B horizon usually well within 1 metre of the surface
- B3 Closed depressions and poorly defined stream channels with moderately deep, poorly to very poorly drained bleached sands with an iron-organic pan, or clay at generally less than 1 metre depth; surfaces are dark grey sand or sandy loam
- B4 Broad poorly drained sandplain with deep grey siliceous sands or bleached sands, underlain at depths generally greater than 1.5 metres by clay or less frequently a strong iron-organic pan
- B5 Shallowly incised stream channels of minor creeks and rivers with soils similar to B4 (and B6)
- B6 Sand plain similar to B4 with imperfectly drained soils

Table 5

## Key to Soil Notation: Wells &amp; Hesp 1981.

RIDGE HILL SHELF (FOOTHILLS) — Lateritised, low relief, foothills of the Darling Scarp comprising fossil shoreline bench sediments, Holocene colluvium and narrow bands of alluvial deposits. Slopes are very gently to gently inclined (1-10%) and soils are moderately well to well drained.

- F1 Gently inclined slopes ( $\approx$  5-10%) with:
  - (a) shallow to moderately deep, very gravelly acid yellow duplex soils and common laterite.
  - (b) moderately deep to deep, gravelly acid yellow duplex soils and rare laterite.
  - (c) deep uniform yellowish brown sand, generally laterite and gravel free.
- F2 Very gently to gently inclined slopes (2-5%) with a, b, c as above.
- F3 Very gently inclined (1-3%) lower slopes with deep yellow and less commonly gley, acid duplex soils.
- F4 Incised stream channels within gentle footslopes with deep acid yellow duplex soils and sandy alluvial gradational brown earths.
- F5 Ill-defined stream channels on lowest slopes and soils similar to F4.

PINJARRA PLAIN — Broad low relief plain west of the Foothills, on predominantly Pleistocene fluvial sediments and some Holocene alluvium associated with major active drainage systems. Major soils are naturally poorly drained and many swamps occur.

- P1 Gently undulating plain with deep acid mottled yellow duplex soils having sand to sandy loam surfaces and generally:
  - (a) shallow topsoil over clay subsoil.
  - (b) moderately deep topsoil over clay subsoil.
- P2 Gently undulating plain with deep alkaline mottled yellow duplex soils.
- P3 Gently undulating plain with deep gradational yellow or grey-brown earths, and acid mottled yellow duplex soils, with loam to clay loam surfaces.
- P4 Poorly drained flats, sometimes with gilgai microrelief and with moderately deep to deep black and grey cracking clays, less commonly non-cracking friable clays with acid subsoils.
- P5 Poorly drained flats, commonly with gilgai microrelief and with deep grey to olive brown cracking clays with alkaline calcareous subsoils.
- P6 Gently undulating alluvial terraces and low rises contiguous with the plain, with deep moderately well to well drained soils. These are:
  - (a) associated with major active river systems, and have acid red and yellow duplex soils, less commonly gradational red and yellow earths.
  - (b) associated with prior stream deposits upon plain, and have uniform brownish sands.
- P7 Seasonally inundated swamps and depressions with poorly drained variable acid mottled yellow and gley duplex soils.
- P8 Broad imperfectly to poorly drained flats and ill-defined stream channels with moderately deep to deep sands over mottled clays; acid gley and yellow duplex soils to uniform bleached pale brown sands over clay.
- P9 Generally shallowly incised stream channels of minor creeks and rivers with deep acid mottled yellow duplex soils.
- P10 Gently undulating to flat terraces adjacent to major rivers but below the general level of the plain, with deep well drained uniform brownish sands or loams subject to periodic flooding.

BASSEINDEAN DUNE AND PLAIN SYSTEM — Very low relief, leached, grey siliceous Pleistocene sand dunes, intervening sandy and clayey swamps and gently undulating plains; occurring immediately west of, and partly overlying, the Pinjarra Plain. Topography becomes more subdued from west to east.

- B1 Very low relief dunes and areas of undulating sand plain of deep bleached grey sands with either a pale yellow B horizon or an iron-organic hardpan at depths generally greater than 2 m.
- B2 Sand plain of deep well drained bleached grey sand with an iron-organic hardpan or less commonly a pale yellow B horizon, generally at 1-2 m depth.
- B3 Broad depressions and ill-defined stream channels with moderately deep, poorly drained bleached sands with an iron-organic pan at generally less than 1 m depth; surfaces are dark grey sand or sandy loam.
- B4 Broad poorly drained plain with deep grey siliceous sands and bleached sands with a pan, underlain at depths generally greater than 1.5 m by a mottled grey clay layer supporting a perched water table.
- B5 Generally shallowly incised stream channels of minor creeks and rivers with soils similar to B4.

VASSE ESTUARINE AND LAGOONAL SYSTEM — Low lying poorly drained terraces, flats and beach ridges fringing Peel Inlet, Harvey Estuary, the coastal lake system and major river mouths. Soils are extremely variable, being formed on unconsolidated Holocene estuarine alluvium and lagoonal deposits, and are often highly saline and subject to periodic inundation.

- V1 Saline tidal flats composed of grey, black and brown foetid muds and humic sandy clays with locally common shell and limestone fragments.
- V2 Samphire covered sand and mud flats marginally higher than V1 and frequently inundated. Soils are deep alkaline alluvial sands and clayey sands.
- V3 Sand flats similar to V2 but marginally higher and commonly supporting stands of *Melaleuca* spp.
- V4 Low level storm beach ridges and terraces with shallow to moderately deep uniform alkaline black sandy loams to loams overlying unconsolidated shell beds or clayey marl. Minor limestone outcrop present.
- V5 Upper level sandy terraces and gently undulating beach ridges with shallow to moderately deep grey siliceous sand overlying soft shelly limestone or shell beds.
- V6 Upper level sandy terraces and gently undulating beach ridges with deep grey or bleached pale brown siliceous sands overlying soft shelly limestone.
- V6a Gently undulating beach ridges similar to V6 but formed from reworked Pleistocene Bassendean sands; deep bleached grey acid siliceous sands with iron-organic hardpan.
- V7 Very broad shallow depression with deep, poorly drained, fine textured alkaline estuarine alluvium.
- V8 Flat poorly drained plains forming the margins of the estuarine deposits which border and partially overlie the Pinjarra Plain. Variable, moderately deep to deep saline soils, commonly mottled yellow duplex soils over calcareous sediments or prior soils of the Pinjarra Plain.

**Location 1 - Wetlands to the east of Forrestdale Lake.** Location Map 11. Vegetation Map Area 20, p 99.

**Yeg: b LW, mb W, mi LHT & WM (mi LHT, me Ht, S & H)**  
**Cond: Very Good to Good**

#### GENERAL COMMENTS

A mosaic of associations are present at this location. *Melaleuca* Closed Heath to Open Heath in the wetter low lying areas, Low Closed Heath to Open Heath on the edges and *Banksia* and Marri Low Woodland on the sandy rises. At times the shrubs are absent and there are small patches of Herblands and Sedgelands scattered through the wetter areas. These associations are generally of less than 10 metres squared and are not described as a separate site.

The Condition is generally Very Good to Good. Degradation is related to the large number of tracks and too frequent burning.

Area around the Golf Course is *Banksia* Low Woodland on Bassendean Sands in Poor to Completely Degraded Condition. This area is significantly invaded by \* *Ehrharta calycina*.

#### Site 1a

**mb W                    *Banksia* and Marri Low Woodland over Low Closed Heath to Low Open Heath.**

Trees:                    *Nuytsia floribunda*, *Allocasuarina fraseriana*, *Eucalyptus tootiana*, *Banksia menziesii* and *Banksia attenuata*

Shrubs:                    *Dasypogon bromeliifolius*, *Acacia pulchella*, *Acacia lasiocarpa*, *Xanthorrhoea preissii*, *Bassia eriocarpa*, 3\* *Jacksonia 'swamp'*

#### CONDITION

Rating                    **Good to Very Good**

Comments                Edges towards road heavily infested with Love Grass.

Aerial Photograph: Run 12    5144

Soil:                        Sandy rise in the swampland, grey sand; B2 (Van Gool 1990)

Water:                    well drained

Aspect:                   flat

#### Site 1b

**mi Ht, S&H    Low Closed Heath to Open Heath, with patches of *Melaleuca* Closed Heath, over Herbland and Sedgeland**

Shrubs:                    4\* *Melaleuca uncinata*, 4\* *M. polygaloides*, *M. viminea*, *Regelia inops*, *Hakea varia*, *Actinostrobus pyramidalis*, *Periclymenum ellipticum*, *Euchilopsis linearis*, *Notus gracillima*, *Dryandra nivea*, *Dasypogon bromeliifolius*, 3\* *Jacksonia 'swamp'*, *Verticordia densiflora*, *Stirlingia latifolia*, *Eriostemon spicatus*, *Hypocalymma angustifolium*, + *Leucopogon* sp, 5\* *Banksia telmatraea*, + *Astartea fascicularis*.

Herbs:                    *Borys*, *Stylidium repens*, *Phlebocarya ciliata*, *Haemodorum* sp, 3, 6\* *Eryngium pinnatifidum* sp 'palustris', *Drosera gigantea*, *Amigodanthos viridis*, *Fatersonia occidentalis*, *Lomandra micrantha*, 4\* *Stylidium dichotomum*

Same association: 3, 6\* *Diuris purdiei*

Sedges:                    *Lyginia barbata*, *Schoenus rigens*, *Loxocarya pubescens*, 4\* *Harperia lateriflora*

## CONDITION

Rating: **Very Good to Good**Comments: Apparently burnt too frequently for the taller shrubs to maintain dense populations except in occasional dense patches, very few *Banksia telmatiaea* and *Actinostrobus* both of which need to regrow from seed. Weeds uncommon, few scattered \**Hypochaeris glabra*.

Aerial Photograph: Run 12 5144

Soil: dark grey sand, over clay, P8 (Van Gool 1990)

Drainage: poor, water to 2 cm

Aspect: gentle slope to the north west

Site 1cme Ht & S ***Melaleuca* Closed Heath to Open Heath over Sedgeland**Shrubs: *Melaleuca raphiophylla* 'shrub', *M. viminea*, 4# *M. lateritia*, 4# *M. polygaloides*Herbs: 4# *Schoenolaena juncea*, *Cassytha* sp, *Triglochin procera*, *Villarsia* spSedges: *Baumea acuta*, *Leptocarpus canus*

## CONDITION

Rating: **?Very Good to Good**

Comments: At the time of survey the area was inundated and the condition could not be fully determined.

Aerial Photograph: Run 12 5144

Soil: dark grey sand, over clay, P7 (Van Gool 1990)

Drainage: poor free water &gt;0.5 m

Aspect: flat

Site 1dme Sc (S) ***Melaleuca* Open Scrub over Sedgeland**Shrubs: *Melaleuca raphiophylla* 'shrub', *M. viminea*, 4# *M. lateritia*, 4# *M. polygaloides*, *Hakea varia*Herbs: *Triglochin procera*Sedges: *Leptocarpus canus*Adjacent scattered *Eucalyptus rudis*, *Banksia littoralis* and *Melaleuca preissiana*

## CONDITION

Rating: **?Very Good to Good**

Comments: Needs to be re-assessed when the area is not flooded.

Aerial Photograph: Run 12 5144

Soil: Dark grey sand over clay, P8 (Van Gool 1990)

Drainage: Poor, water &gt;1 m

Aspect: Flat

Site 1e**me H (S)      *Melaleuca* Closed Heath to Open Heath over Sedgeland**

Shrubs: *Melaleuca raphiophylla* 'shrub', *M. viminea*, 4# *M. lateritis*, 4# *M. polygaloides*

Herbs: 4# *Schoenolaena juncea*, *Cassytha*

Sedges: *Baumea acuta*, *Leptocarpus* species

## CONDITION

Rating: **?Good to Very Good**

Comments: Area flooded would need to be assessed when the water has cleared.

Aerial Photograph: Run 12 5144

Soil: Dark grey sand over clay, P8 (Van Gool 1990)

Drainage: Poor, water > 1 m

Aspect: Flat

**Location 2 - Old Wungong Townsite.** Location map 11. Vegetation Map, Appendix 2, p 22.

**Yeg: mw W      Cond: Poor to Completely Degraded, with Good patches.**

## GENERAL COMMENTS

The Wandoo Woodland at this Location of approx. 3 ha. is grossly disturbed due to gravel mining, soil dumping and movement and weed invasion, especially by \* *Freesia* and \* *Sparaxis bulbifera*. There are patches in Good to Poor Condition, described below, that indicate the vegetation of the site before disturbance. Other possible weedy species in mined areas are \* *Cheemsalaucium uncinatum* and \* *Acacia poderylfolia*.

Site 2a**mw W      Marri and Wandoo Woodland over Low Shrubland over Open Sedgeland**

Trees: *Eucalyptus calophylla*, 4# *E. wandoo*, *Allocasuarina fraseriana*

Adjacent *Xylomelum occidentale*

Shrubs: *Viminaria juncea*, *Xanthorrhoea preissii*, 4# *Hakea lissocarpa*, *Hibbertia hypericoides*, *Nemcia capitatum*, 4# *Grevillea bipinnatifida*, *Dryandra nivea*, 4# *Hakea stenocarpa*, *Allocasuarina humilis*, 4# *Isopogon asper*, 4# *Grevillea pilulifera*  
Adjacent 4# *Grevillea wilsonii*

Herbs: *Patersonia occidentalis*, *Caesia micrantha*, *Chamaescilla corymbosa*, *Drosera* species, \* *Ursinia anthemoides*, \* *Freesia* aff. *leichtlinii*, \* *Ehrharta calycina*

Sedges: *Tetraria octandra*, 4# *Mesomelaena tetragona*

## CONDITION

Rating: **Good to Poor**

Comments: The density of the weeds is low but evidence of too frequent fires.

Aerial Photo: Run 13.5169

Soil: brown clayey sand, F2b (Van Gool 1990)

Drainage: well drained, very damp, slope beside creek  
 Aspect: north

### Site 2b

**mw W Marri and Wandoo Woodland over Shrubland over Low Shrubland over Open Herbland.**

Trees: *Eucalyptus calophylla*, 4# *E. wandoo*

Shrubs: *Jacksonia furcellata*, *Xanthorrhoea preissii*, 4# *Hakea lissocarpa*, *Hibbertia hypericoides*, *Nemcia capitatum*, 4# *Grevillea wilsonii*, 4# *Grevillea diversifolia*, 4# *Hakea stenocarpa*, *Allocasuarina humilis*, *Phyllanthus calycinus*, *Hypocalymma angustifolium*, 4# *Acacia teretifolia*  
 Adjacent *Hypocalymma robustum*

Herbs: *\* Freesia* aff. *leichtlinii*, *\* Sparaxis bulbifera*, *\* Watsonia* sp., *Patersonia occidentalis*, *Caesia micrantha*, *Chamaescilla corymbosa*, *Drosera* species, *Lechenaultia biloba*, *Burchardia multiflora*, *B. umbellata*  
 Adjacent 4# *Stypandra glauca*

Sedges: *Tetraria octandra*, 4# *Mesomelaena tetragona*, *Lepidosperma* sp

### CONDITION

Rating **Good to Poor**

Comments: Evidence soil movement and consequent invasion by *\* Freesia* (2-10%), *\* Sparaxis* and *\* Watsonia* in patches.

Aerial Photo: Run 13.5169

Soil: dark brown clayey sand, F2b (Yan Gool 1990)

Water: well drained

Aspect: north

**Location 3: ex-Byford Rifle Range.** Location Map 11. Vegetation Map, Appendix 2, p22.

**Yeg: mw W**

**Cond: Poor with Good patches.**

### GENERAL COMMENTS:

The Wandoo- Marri Woodland at this Location is generally in Poor Condition apparently due to clearing, some ?soil removal, soil compaction and invasion by *\* Romulea roses*.

### Site

**mw W Wandoo and Marri Woodland over *Xanthorrhoea* Open Shrubland over Low Open Shrubland over Closed Herbland**

Trees: *Eucalyptus calophylla*, 4# *E. wandoo*  
 Adjacent: *Nuytsia floribunda*

Shrubs: *Xanthorrhoea preissii*, *Hibbertia hypericoides*, 4# *Hakea lissocarpa*, *Dryandra nivea*, *Acacia pulchella*, 3# *Gonocarpus pithyoides*  
 Adjacent: 4# *Baeckea camphorosmae*, 4# *Lambertia multiflora*, *Allocasuarina humilis*, 4# *Isopogon asper*

Grasses: 4# *Neurachne alopecuroides*



Herbs: \* *Romulea rosea* var. *rosea*, *Patersonia occidentalis*, *Stylidium bulbiferum*,  
*Drosera* sp., *Conostylis* sp., *Burchardia umbellata*  
 Adjacent: + *Lomandra odora*

Sedges: 5# *Cyathochaeta avenacea*, *Lepidobolus* sp., *Lepidosperma* sp., *Mesomeles* sp.,  
*pseudostylis*

#### CONDITION

Rating **Good**

Comments: The site is a patch of vegetation in an area which is otherwise in Poor Condition.

Aerial Photo: Run 13.5169

Soil: brown lateritic clay, F2 (King & Wells 1990)

Drainage: moderate

Aspect: west

**Location 4 - Byford Townsite.** Location Map 11. Vegetation Map, Appendix 2, p22.

**Yeg: mj W**

**Cond: Good**

#### GENERAL COMMENTS

Considering the location and number of tracks traversing the location this area is in remarkably good condition. *Hakea trifurcata* Closed Scrub occurs in patches indicating the area has been burnt in the past 5 years. The more disturbed edges are invaded by \* *Eragrostis curvula*.

#### Site

**mj W Marri and Jarrah Open Woodland over Low Open Heath over  
 Herbland over Sedgeland**

Trees: *Eucalyptus calophylla*, *E. marginata*

Shrubs: 4# *Hakea trifurcata*, *H. ruscifolia*, 4# *Kingia australis*, *Stirlingia latifolia*,  
*Eremaea pauciflora*, *Hibbertia hypericoides*, *Daviesia decurrens*, *Dryandra nives*, *Acacia  
 pulchella*, 4# *Baeckea camphorosmae*, 4# *Templetonia biloba*, *Melaleuca trichophylla*,  
 4# *Gompholobium aristatum*, *Eriostemon spicatus*, 4# *Dryandra armata*, 4# *Grevillea wilsonii*,  
 3# *Daviesia physodes*, *Fimeles sulphurea*, *Hovea trisperma*

Herbs: *Haemodorum* sp., *Conostylis setigera*, *Chamaescilla corymbosa*, *Drosera* species,  
*Lechenaultia biloba*, *Tricoryne elatior*, \* *Ursinia anthemoides*, \* *Hypochaeris glabra*,  
 \* *Trifolium* sp.

Sedges: *Loxocarya*, 4# *Mesomeles tetragona*

#### CONDITION

Rating **Good to Very Good**

Comments: The presence of an intact dense shrub stratum on heavy soils has probably helped maintain the condition of the site.

Aerial Photo: Run 13.5169

Soil: Brown clay sand, F2 (King & Wells 1990)

Drainage: well

Aspect: gentle, west

**Location 5 - Lambert Lane.** Location Map 11. Vegetation Map Area 3, p 84.**Veg: ml LW****Cond: Very Good to Good with patches Completely Degraded****GENERAL COMMENTS**

Much of the Marri and *Eucalyptus lanepoollei* Low Woodland to the west of the railway line is in Very Good to Good Condition with Completely Degraded patches. The degradation is the result of too many tracks, rubbish dumping and gravel mining. The completely degraded areas are invaded by: \* *Cytisus proliferus* (Tagasaste), \* *Leptospermum laevigatum*, \* *Eragrostis curvula*, \* *Rhynchosytrum repens* (Natal Red Top), \* *Eabiana disticha*, \* *Oxalis pes-caprae*, \* *Pennisetum* sp and \* *Pennisetum clandestinum* (Kikuyu).

To the east of the line there are patches in Good Condition but the vegetation is generally in Poor to Completely Degraded Condition. Remnant

*Eucalyptus lanepoollei* occurs to the South Western Hwy and into the Caravan Park to the east of the Hwy. The same vegetation type extends along the Railway, east and west of the line gradually changing to Marri Woodland. Vegetation along the line to Moore St both sides and Eleventh Rd on the east has patches in Good Condition but the condition is generally Poor as disturbance has led to invasions by \* *Eragrostis* and \* *Watsonia*.

This small area of bushland, approx 4 hectares, to the west of the railway line in Very Good Condition was identified by this study as an important conservation area and is being surveyed in detail in the Swan Coastal Plain Survey. A separate publication on the vegetation and floristics of this Location will be prepared as part of the Swan Coastal Plain Survey.

**Site 5a****ml LW**

**Marri and *Eucalyptus lanepoollei* Low Open Woodland over  
*Kingia australis* and *Hakea trifurcata* Open Shrubland over Low  
Shrubland over Open Herbland over Open Sedgeland**

Comments: *Eucalyptus lanepoollei* (in clumps from one lignotuber) scattered clumps *Kingia australis* and *Hakea trifurcata*

Trees: *Eucalyptus calophylla*, 3, 4\* *E. lanepoollei*, *Nuytsia floribunda*

Shrubs: 4\* *Kingia australis*, 4\* *Hakea trifurcata*, *Xanthorrhoea preissii*, *Hakea ruscifolia*, 4\* *Hakea auriculata*, 4\* *Chorizema dicksonii*, *Daviesia decurrens*, *Calceolaria cyanea*, + 4\* *Acacia drewiana*, 4\* *Acacia teretifolia*, *Allocasuarina humilis*, *Petrophile striata*, *Dryandra sessilis*, *Andersonia lehmanniana*, *Hibbertia hypericoides*, 4\* *Dryandra armata*, *Hakea incrassata*, 4\* *Grevillea wilsonii*, 4\* *Synaphea petiolaris*, *Hibbertia aurea*, *Nemcia capitatum*, 4\* *Templetonia biloba*, 4\* *Baeckea camphorosma*, *Daviesia* sp

Grass: *Amphipogon turbinatus*.

Herbs: *Laxmannia squarrosa*, *Lomandra spartea*, *Borya* sp., *Drosera* sp., *Lechenaultia biloba*, *Stylidium brunonianum*, *Conostylis setigera*, *Thysanotus triandrus*, *Stylidium repens*, + 4\* *Conostylis caricina*, *Haemodorum laxum*, *H. paniculatum*, 3\* *Gonocarpus pithyoides*

Sedges: 4\* *Mesomelaena tetragona*, 3\* *Mesomelaena stygia*, *Loxocarya fasciculata*, *Anarthria gracilis*, 5\* *Cyathochaeta avenacea*,

**CONDITION**

Rating: **Very Good**

Comments: The presence of an intact dense shrub stratum on heavy soils has probably helped maintain the condition of the site.

Aerial Photograph: Run 13 5171

Soil: sandy loam over gravelly clay, P1e (Van Gool 1990)

Drainage: moderate

Aspect: Slight slope, west

### Site 5b

**ml W Marri and *Eucalyptus lanepoolei* Low Open Woodland over Low Shrubland**

Trees: *Eucalyptus calophylla*, 3#, 4# *E. lanepoolei*, *Nuytsia floribunda*

Shrubs: 4# *Hakea trifurcata*, *Xanthorrhoea preissii*, *Allocasuarina humilis*, *Acacia pulchella*, 4# *Acacia drewiana*, *Petrophile striata*, *Dryandra nives*, *Hibbertia hypericoides*, 4# *Dryandra armata*, *Hakea incrassata*, 4# *Grevillea wilsonii*, *Synaphea* sp., *Daviesia triflora*  
Adjacent: 4# *Kingia australis*

Herbs: Adjacent 3# *Gonocarpus pithyoides*, *Burchardia multiflora*, 4# *Tribonanthes brachypetala*, \* *Watsonia*

Sedges: 4# *Mesomelaena tetragona*, *Tetraria octandra*

### CONDITION

Rating: **Patches Good generally Poor to Completely Degraded,**

Comments: The presence of an intact dense shrub stratum on heavy soils has probably helped maintain the condition of the site.

Aerial Photograph: Run 13 5171

Soil: dark brown sandy loam over gravelly clay, P1e (Van Gool 1990)

Drainage: moderate

Aspect: flat

### Location 6 - South side Beenyp Rd, Byford. Location Map 11.

**Yeg: jm W**

**Cond: Very Poor**

Aerial Photo: Run 13 5167

Soil: F2&3 (King & Wells 1990)

### Location 7 - South of Nettleton Rd, Byford. Location Map 11. Vegetation Map, p 100.

**Yeg: mj W**

**Cond: Good to Poor with Very Degraded patches**

Aerial Photo: Run 13 5167

Soil: F 2,3&5 (King & Wells 1990)

**Location 8 - Abernathy Rd.** Location Map 11. Vegetation Map, Appendix 2, p 23.

**Yeg: WM (m W, c W, mi LHT, ac/me Sc, me Sc, H & S)**

**Cond: Poor**

#### GENERAL COMMENTS

At this Location site descriptions are made for the general area, 'Sites', as the vegetation on the roadside and in private land, was very disturbed. Collections were made of all the individual species remaining in the area and a description prepared based on these collections and field observations throughout the Location in the *Casuarina obesa* Low Woodland.

It appears that the vegetation in the area for which this location is a remnant was a mosaic of these associations. All species listed below were collected at this location and many were observed as isolated individuals or clumps throughout the area of *Casuarina obesa* Low Woodland.

#### 'Site' 8a

**Between Hopkinson Rd and the drain 1 km to the west, roadside and private land to the south**

**c W, mi LHT, ac me S, me S, H & S**

**On the seasonally inundated flats**

*Casuarina obesa* Low Open Woodland over Low Open Heath OR

*Casuarina obesa* Low Woodland over Open Herbland and Open

Sedgeland OR *Actinostrobus* and *Melaleuca* Open Scrub over Open

Herbland and Open Sedgeland OR Herbland OR Sedgeland.

**On the better drained rises**

**Marri Woodland**

Trees: *Casuarina obesa*, *Eucalyptus csiophylla*, occasional *Melaleuca preissiana*, *Acacia saligna*

Shrubs: *Actinostrobus pyramidalis*, *Jacksonia furcellata*, *Viminaria juncea*, *Melaleuca viminea*, 4# *M. lateriflora*, 4# *M. lateritia*, 4# *M. uncinata*, *Hakea varia*, 5# *H. marginata*, *Regelia pinops*, *Acacia pulchella*, *Kunzea recurva*, *Fericalymma ellipticum*, 4# *Calothamnus sanguineus*, *Synsphaea gracillima*, *Verticordia densiflora*, *Verticordia* sp, *Acacia willdenowiana*, *Asteria fascicularis*, *Eutaxia virgata*, \* *Leptospermum laevigatum*

Grasses: \* *Eragrostis curvula*, \* *Ehrharta calycina*

Herbs: *Tribonanthes australis*, 4# *T. brachypetala*, 4# *Drosera heterophylla*, 6# *D. bulbigena*, *Triglochin procera*, \* *Watsonia*, \* *Romulea rosea*, \* *Oxalis pres-caprae*, *Polypompholyx multifida*

Sedges: *Loxocarya pubescens*, *Leptocarpus coangustatus*, *L. canus*, *Schoenus rigens*, *Gahnia trifida*, 5# *Cyathochaeta avenacea*, *Chorizandra enodis*

#### CONDITION

Rating **Poor**

Comments: Considering that this is the only remnant, other than roadside vegetation, found of this vegetation type with some of the understorey intact makes this remnant particularly valuable.

Aerial Photo: Run 12.5140

Soil: Grey-Brown sandy loam over clay, P1d (Van Gool 1990)

Drainage: Poor, soil waterlogged or free water of varying depth

Aspect: Flat

**'Site' 8b****Abernathy Rd north side road, 0.25 km W from junction Kargotich Rd****c W           *Casuarina obesa* Low Open Woodland over pasture****CONDITION****Rating           Completely Degraded**

**Comments:** The landscape is unique, even if the understorey is completely cleared the *Casuarina obesa* Low Open Woodland is should be retained. The local landowners and Shire should be made aware of the area of this vegetation type and be supported in collecting local seed of *Casuarina obesa* and replanting as the trees become aged. These plantings could be supplemented by plantings of the shrubs listed at site 8a. Regrowth at present is principally from sucker growth, as at Site 8b, especially along roadsides. Competition with weeds and grazing by livestock limits seed regeneration and to maintain the variation generated in a population by regeneration from seed this will have to be encouraged by plantings. Some landowners have begun planting *Casuarina* seg property corner Taylor and Bishop Rd. Nursery stock should not be used as the closely related *Casuarina glauca* from the east is often mistaken for *C. obesa*.

Aerial Photo: Run 11 5041

Soil: grey brown clay, P5 (Van Gool 1990)

Drainage: poor, waterlogged

Aspect: flat

**'Site' 8c****Abernathy Rd, 2.25 km W junction Kargotich Rd****c OF           *Casuarina obesa* Low Open Forest over pasture****CONDITION****Rating           Completely Degraded****Comments:** see above

Aerial Photo: Run 11 5041

Soil: grey brown sandy clay, P8 (Van Gool 1990)

Drainage: poor, waterlogged

Aspect: flat

**'Site' 8d****Abernathy Rd, 0.2 km E junction Kargotich Rd****ac me Sc       *Actinostrobus* and *Melaleuca* Open Scrub over exotics with occasional native.****CONDITION****Rating           Completely Degraded**

**Comments:** see above. Also noted the impact of soil disturbance associated with the drain and grazing by cows.

Aerial Photo: Run 12.5140

Soil: grey brown loam, P7 (Van Gool 1990)

Drainage: poor, waterlogged

Aspect: flat

**Location 9 - Orton Rd. Location Map 11.****Yeg: m W, ac/me Sc****Cond: Poor to Completely Degraded****GENERAL COMMENTS**

At this Location site descriptions are made for the general area not for relevées as the roadside was often very disturbed. Collections were made of all the individual species remaining in the area and a description prepared based on these collections and field observations throughout the 'Sites' on the roadside.

It appears that the vegetation in the area for which this location is a remnant was a mosaic of these associations. All species listed below were collected at this location and many were observed as isolated individuals or clumps throughout the area of *Casuarina obesa* Low Woodland.

**'Site' 9a****Orton Rd, between Hopkinson Rd and Kargotich Rd**

**m W**            **Marri Woodland over *Xanthorrhoea preissii* Shrubland over  
\* *Watsonia* Herbland**

**CONDITION**Rating            **Completely Degraded**

Comments:        see above

Aerial Photo: Run 12.5140

Soil:                Grey-Brown Clay, P3 (Van Gool 1990)

Drainage:         Poor, not waterlogged, slight rise

Aspect:            Flat

**'Site' 9b****Orton Rd, between Hopkinson Rd and Kargotich Rd**

**ac me Sc**        ***Actinostrobus* and *Melaleuca* Open Scrub over Open Herbland  
and Open Sedgeland**

Trees:             occasional *Casuarina obesa*

Shrubs:           *Actinostrobus pyramidalis*, *Jacksonia furcellata*, *Melaleuca viminea*, 4\* *M. lateriflora*, *Hakea varia*, *H. marginata*, *H. sulcata*, 4\* *Kunzea recurva*, *Fericalymma ellipticum*, 4\* *Calothamnus sanguineus*, 4\* *Petrophile seminuda*, *Synaphea gracillima*, *Verticordia densiflora*, *Acacia willdenowiana*, *Astartea fascicularis*, *Eutaxia virgata*

Grasses:           \* *Ehrharta calycina*

Herbs:             *Caesia micrantha*, *Anigozanthos viridus*, *Conostylis aculeata*, *Drosera glanduligera*, *D. menziesii*, *Laxmannia ramosa*, *Dampiera* sp., *Lomandra* sp., *Caladenia deformis*, *Triglochin procera*, \* *Watsonia*, \* *Romulea rosea*, \* *Ursinia anthemoides*

Sedges:            *Loxocarya pubescens*, *Leptocarpus coarctatus*, *L. canus*, *Schoenus rigens*, *Gahnia trifida*

**CONDITION**Rating            **Poor**

Comments:        These roadside remnants have a very precarious future. This area has been the

subject of weed control, which has killed natives as well as weeds and grass earthworks associated with the road and the drain.

Aerial Photo: Run 12.5140

Soil: Grey-Brown Clay, P1d (Van Gool 1990)

Drainage: Poor, waterlogged, beside drain

Aspect: Flat

**Location 10 – Brickwood Reserve and adjacent lands.** Location Map 11. Vegetation Map Area 21, p100.

**Yeg: mk OW, b LW & WM(mi Ht, p Ht, me Sc, b W, H & S).**

**Cond: Very Good**

#### GENERAL COMMENTS

This large area, approx 43 hectares, of bushland was identified early in this study as an important conservation area and is being surveyed in detail in the Swan Coastal Plain Survey.

This Location contains an unusual suite of soils, Ridge Hill Shelf, Pinjarra Plain and a ridge on Bassendean Sands. The Ridge Hill Shelf and Pinjarra Plain are indistinguishable vegetatively and are treated as Pinjarra Plain as the associations are typical of associations of the flats of the Plain. The Location has the most extensive areas of Marri Open Woodland with scattered *Kingia* found in the Study and these accompanied by *Pericalymma ellipticum* Closed Heath, *Melaleuca viminea* Open Scrub, Herbland and Sedgeland on the areas where the soils are inundated for longer periods. *Banksia* Woodland occurs on the Ridge of sand.

There is significant *\*Watsonia* infestation in the wetter areas. The vegetation along the railway line is similar to that included in Brickwood and in Good to Poor Condition. Tracks and weed invasion are evident.

#### Site 10a

**mk W Marri Open Woodland over *Jacksonia* High Shrubland scattered *Kingia* over Shrubland over Low Shrubland over Open Herbland and Sedgeland**

#### CONDITION

Rating: **Very Good**

Aerial Photo: Run 13.5167

Soil: F5 (Van Gool 1990)

Drainage: Poor, waterlogged

Aspect: flat

#### Site 10b

**mk W Marri Woodland over *Hakea trifurcata* Open Scrub scattered *Kingia* over Shrubland over Low Shrubland over Open Herbland and Open Sedgeland**

## CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: F5 (Van Gool 1990)

Drainage: Poor, waterlogged

Aspect: flat

**Site 10c****p Ht & S** *Pericalymma ellipticum* Closed Heath over Open Sedgeland

## CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: F5 (Van Gool 1990)

Drainage: Poor, free water to 3cm

Aspect: flat

**Site 10d****me Sc & S** *Melaleuca viminea* Open Scrub over Open Bunch Grassland over Closed Sedgeland (adjacent areas have patches of Herbland)

## CONDITION

Rating: **Good**Comments: There is significant invasion by \* *Watsonia* in this association.

Aerial Photo: Run 13 5167

Soil: F5 (Van Gool 1990)

Drainage: Poor, free water to 50cm.

Aspect: flat

**Site 10e****mk W & mi Ht** Marri Open Woodland over Open Shrubland scattered *Kingia* over Low Shrubland over Grassland Closed Sedgeland (adjacent areas have extensive patches of Low Shrubland to Closed Heath)

## CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: F5 (Van Gool 1990)

Drainage: Poor, waterlogged

Aspect: gentle slope, NW



**Site 10f**

**b LW *Banksia* Woodland over Shrubland Low Shrubland over Open Grassland over Open Sedgeland**

## CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: B1 (Van Gool 1990)

Drainage: good

Aspect: top ridge

**Site 10g**

**mk W Marri Woodland over *Xanthorrhoea* and *Kingia* Low Open Shrubland over Low Shrubland over Open Herbland and Open Sedgeland**

## CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: P1e (Van Gool 1990)

Drainage: Poor, waterlogged

Aspect: flat

Significant taxa: > 20, including 3 priority taxa - 4\* *Lambertia multiflora*, 4\* *Kingia australis*, 5\* *Cyathochaeta avenacea*, 4\* *Mesomelaena tetragona*, 4\* *Lomandra odora*, 4\* *Baeckea camphorosmeae*, 4\* *Melaleuca lateriflora*, 4\* *Hakea trifurcata*, 4\* *Verticordia plumosa*, 4\* *Synsphaea petiolaris*, 4\* *Tricoryne humilis*, 5\* *Frasophyllum drummondii*, 4\* *Petrophile seminuda*, 6\* *Petrophile media* var. *juncifolia*, 4\* *Grevillea pilulifera*, 4\* *Darwinia thymoides*, 5\* *Calytrix aurea*, 4\* *Acacia drewiana*, 3, 6\* *Verticordia lindleyi* ssp *lindleyi*, 3, 6\* *Stylidium utricularioides*, 4\* *Isopogon asper*, 4\* *Grevillea bipinnatifida*, 4\* *Hakea auriculata*, 4\* *Hakea erinacea*, 6\* *Petrophile media* var. *juncifolia*, 4\* *Drosera heterophylla*, 4\* *Verticordia acerosa*, 3\* *Daviesia physodes*, 4\* *Jacksonia alata*, 4\* *Andersonia aristata*, 4\* *Melaleuca lateritis*, 4\* *Scaevola lanceolata*, 4\* *Stylidium dichotomum*, , 4\* *Philydrella drummondii*, 4\* *Tribonanthes brachypetala* and 5\* *Melaleuca uncinata*.

**Location 11 - Cardup Nature Reserve.** Location Map 11. Vegetation Map, Appendix 2, p25.

**Yeg: mk W, b W, jkx W, me LW**

**Cond: Very Good**

## GENERAL COMMENTS

This large area of bushland, approx 58 hectares, was identified early in this study as an important conservation area and is being surveyed in detail in the Swan Coastal Plain Survey. Each vegetation association is described below. A separate publication on the vegetation and floristics of this Location will be prepared as part of the Swan Coastal Plain Survey.

The *Banksia* Woodland, Marri Open Woodland, Jarrah Woodland and *Melaleuca* Low Woodland at this Location is in generally in Very Good Condition except on the periphery where past grazing

and possibly partial clearing have allowed weed invasion. The most significant weeds are  
*\* Ehrharta calycina*, *\* Homeria flaccida* and *\* Briza maxima*.

### Site 11a

**mk W Marri Open Woodland over scattered *Kingia* over Low Shrubland over  
 Herbland and Sedgeland**

#### CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: P 6 (Van Gool 1990)

Drainage: Poor, waterlogged

Aspect: gentle, W

### Site 11b

**b W *Banksia* Woodland over Low Open Heath over Sedgeland**

#### CONDITION

Rating: **Very Good**

Comments: Some areas of the Banksia Woodland especially on the western boundary are  
 heavily invaded by *\* Ehrharta calycina* and in Good to Very Poor Condition

Aerial Photo: Run 13 5167

Soil: B 1a & 2 (Van Gool 1990)

Drainage: good

Aspect: gentle, W

### Site 11c

**j kx W Jarrah Woodland over scattered *Xylomelum occidentale*, *Kingia* and  
*Xanthorrhoea* over Low Open Heath over Sedgeland**

#### CONDITION

Rating: **Very Good**

Aerial Photo: Run 13 5167

Soil: B 1a (Van Gool 1990)

Drainage: Good

Aspect: gentle, W

### Site 11d

**me W *Melaleuca* Low Woodland over Open Herbland over Open Sedgeland**

#### CONDITION

Rating: **Poor**

Comments: The area appears to have been cleared and grazed before fencing for the Nature  
 Reserve. Regeneration is progressing well but the species diversity is reduced.

Aerial Photo: Run 13 5167  
 Soil: P 1d (Van Gool 1990)  
 Drainage: Poor, free water to 25cm  
 Aspect: gentle to central depression

### Site 11e

#### **mj W Marri and Jarrah Woodland over pasture**

#### CONDITION

Rating: **Completely Degraded**  
 Comments: Scattered Arum Lillies in the area may pose a future threat to the Nature Reserve.

Aerial Photo: Run 13 5167  
 Soil: P 1 (Van Gool 1990)  
 Drainage: Poor, free water to 25cm  
 Aspect: gentle to central depression

Significant Species: 4# *Lambertia multiflora*, 5# *Dasyogon obliquifolius*, 4# *Grevillea bipinnatifida*, 5# *Drasera macrantha* 'robust', 4# *Mesomelaena tetragona*, 4# *Baeckea camphorosmae*, 4# *Grevillea pilulifera*, 4# *Pentapeltis peltigera*, 4# *Kingia australis*, 3# *Daviesia physodes*, 4# *Labichea punctata*, 4# *Hibbertia vaginata*, 3# *Johnsonia* aff. *pubescens*, 4# *Styphelia tenuifolia*, 5# *Allocasuarina thuyssoides*, *Tetratheca hirsuta* 'Swan Coastal Plain form', *Stachystemon vermicularis* and 4# *Conostylis setosa*

### Location 12 - Junction of King and Leopold Rd. Location Map 12.

**Yeg: c LW, me Sh**

**Cond: Very Poor to Completely Degraded**

**c W, me Sh** *Casuarina obesa* Low Woodland over *Melaleuca viminea* Shrubland

#### CONDITION

Rating: **Very Poor to Completely Degraded**  
 Comments: remnant vegetation on the side of a drainage line.

Aerial Photo: Run 11.5043  
 Soil: P5 (Van Gool 1990)  
 Drainage: poor, side drain  
 Aspect: flat

### Location 13 - Wetland Jackson Rd. Location Map 12.

**Yeg: r OF**

**Cond: Poor**

### Site

**r OF** *Eucalyptus rudis* Open Forest over Open Scrub over Open Herbland and Sedgeland

Trees: *Eucalyptus rudis*, *Melaleuca raphiophylla*  
 Shrubs: *Agonis linearifolia*, 2\* *Paraserianthes lophantha*  
 Herbs/Ferns: *Triglochin procera*, *Pteridium esculentum*, \* *Zantedeschia aethiopica*  
 Sedges: *Lepidosperma ligulatum*, *Juncus pallidus*

#### CONDITION

Rating **Poor**

Comments: Remnant vegetation on the side of a drainage line, probably been cleared in the past, weedy grasses invading some sections.

Aerial Photo: Run 11.5043

Soil: B3/P5 (Van Gool 1990)

Drainage: banks of drainage line, natural, ponded water

Aspect: NA

#### Location 14 - Bird Rd. Location Map 12.

**Veg: me Sh**

**Cond: Completely Degraded**

#### Description

**me Sh** *Melaleuca viminea* Shrubland over pasture

#### CONDITION

Rating **Completely degraded**

Comments: The area is grazed, no understorey evident from the road.

Aerial Photo: Run 11.5043

Soil: P5 (Van Gool 1990)

Drainage: poor, waterlogged

Aspect: flat

#### Location 15 - Duckpond and Mundijong Rd intersection. Location Map 12. vegetation Map Area 2, p83.

**Veg: m W & WM (me Sh, H & S)**

**Cond: Good to Completely Degraded**

#### GENERAL COMMENTS

This is one of the few areas of Marri Woodland found with an intact understorey, in Good Condition.

Much of the south eastern section of this Location is in Very Poor Condition or Completely Degraded due to clearing, too frequent burning and significant invasion by \* *Ehrharta calycina*, \* *Ehrharta latifolia*, \* *Briza maxima*, \* *Hypochaeris glabra* and \* *Cynodon dactylon* (Couch).

**Site 15a**

**me Sh, H & S      *Melaleuca viminea* and *Hakea varia* Open Shrubland over  
Open Herbland and Open Sedgeland**

Comments: *Melaleuca viminea* occurs in a clump. In adjacent areas there are patches of Herbland and Sedgeland.

Shrubs: *Melaleuca viminea*, *Hakea varia*

Herbs: *Caesia micrantha*, *Triglochin procera*, *Tribonanthes paustralis*, *Drosera gigantea*, *Drosera* species, *Stylidium* species, 3, 6# *Stylidium utricularioides*

Sedges: *Lepyrodon muirii*, 5# *Cyathochaeta avenacea*, 4# *Mesomelaena tetragona*, *Leptocarpus canus*

**CONDITION**

Rating **Good to Very Good**

Comments: Some of the plants appear to be rotting, inundation is probably greater than average, collects of the road.

Aerial Photo: Run 10.5051

Soil: Red loam, P3 (Van Gool 1990)

Drainage: poor, water to 25cm

Aspect: flat

**Site 15b**

**m W      Marri Woodland over Low Shrubland over Closed Herbland to  
Herbland and Open Sedgeland**

Trees: *Eucalyptus calophylla*

Shrubs: *Jacksonia furcellata*, *Xanthorrhoea preissii*, *X. ?brunonis*, *Phyllanthus collycinus*, 4# *Grevillea pilulifera*, *Dryandra sessilis*, *Opercularia vaginata*, 1# *Opercularia spiciflora*, 4# *Baeckea camphorosmae*, 4# *Hibbertia commutata*, *Astroloma ciliatum*, *Daviesia angulata*

Adjacent 4# *Grevillea bipinnatifida*

Grasses: 4# *Neurachne slopecurioides*, \* *Briza maxima*

Herbs: *Caesia micrantha*, 4# *Trichocline spathulata*, *Sowerbaea laxiflora*, 5# *Drosera macrantha* 'robust', *Dampiera* sp., *Arthropodium capillipes*, *Haemodorum* species, *Thysanotus multiflorus*, *Conostylis aculeata*, *Diuris longifolia*, + 2, 4# *Kennedia stirlingii*, \* *Romulea rosea*, \* *Hypochaeris glabra*

Sedges: 4# *Mesomelaena tetragona*, *Loxocarya ?flexuosa*

**CONDITION**

Rating **Good to Very Good**

Comments: There is no bare ground in the area, is this the the vegetation of the "grassy plains" of the early European Settlers.

Aerial Photo: Run 10.5051

Soil: red brown loam, P3 (Van Gool 1990)

Drainage: poor, waterlogged

Aspect: gentle slope to south east

**Location 16 - N Norman Rd.** Location Map 11 & 12.**Yeg: ml W****Cond: Very Poor****Location 17 - S Norman Rd.** Location Map 12. Vegetation Map, Appendix 2, p25.**Yeg: ml W****Cond: Poor****Site****ml W**      *Eucalyptus calophylla* and *Eucalyptus lanepoollei* Woodland over  
*Xanthorrhoea* and *Kingia* Shrubland over Sedgeland

Comments: Private Land

**CONDITION**Rating      **Poor**

Comments:      Grazed, part larger cleared paddock

Aerial Photo: Run 13.5165

Soil:      F2b (van Gool, 1990)

Drainage:      good

Aspect:      north-west

**Location 18 - S Norman Rd along South Western Hwy.** Location Map 12. Vegetation Map, Appendix 2, p25.**Yeg: jm W/F****Cond: Good****GENERAL COMMENTS**

This Location was fenced and observed from the road. This is a relatively large area of Jarrah and Marri Woodland typical of the Ridge Hill Shelf is in need of further investigation.

**Site****jm W/F**      *Eucalyptus calophylla* and *Eucalyptus marginata* Woodland with  
scattered *Banksia attenuata* and *B. menziesii* over Shrubland over  
Open Sedgeland.Trees:      *Allocasuarina fraseriana*, *Banksia grandis***CONDITION**Rating      **Very Good to Good**

Comments:      Grazed

Aerial Photo: Run 13.5165

Soil:      F4, 2a &amp; 2c (Van Gool, 1990)

Drainage:      good

Aspect:      east

**Location 19 - Mundijong Townsite.** Location Map 12. Vegetation Map, Appendix 2, p26.

**Veg: b W, ab W & j W**

**Cond: Good to Completely Degraded**

Within the townsite are three areas of bushland, all located on Bassendean Sands. Two of the areas are local government Flora Reserves.

- A) Bella Cumming Reserve

**Banksia Low Woodland** similar to Cardup, in Good to Very Good Condition. Several specimens of \* *Leptospermum laevigatum* present. The area was originally a Cemetery, now a Flora and Fauna Reserve vested in the Shire of Serpentine - Jarrahdale (E.Coy pers com).

- B) NW cnr Tonkin St and Baskerville Rd

***Allocasuarina fraseriana* and *Banksia Low Woodland***, in Good Condition.

- C) SE cnr Tonkin St and Baskerville Rd

Remnant trees, mainly Jarrah, Completely Degraded Condition.

Aerial Photo 13.5165

Soil: B2 (Van Gool, 1990)

Drainage: Well

Aspect: gentle slope to flat

**Location 20 - Roman Rd.** Location Map 12. Vegetation Map, Appendix 2, p28.

**Veg: b W, mk OF**

**Cond: Good to Poor**

#### GENERAL COMMENTS

The Marri Open Forest in Good to Poor Condition is in the south of the Location with *Banksia Low Woodland* in Good to Poor Condition to the north..

#### Site

**mk OF Marri Open Forest over *Kingia* Open Heath over Open Herbland**

Trees: *Eucalyptus calophylla*

Shrubs: 4\* *Kingia australis*, *Xanthorrhoea preissii*, 4\* *Grevillea bipinnatifida*,  
*Hibbertia hypericoides*

Grasses: \* *Ehrharta calycina*

Herbs: *Drosera* species, *Lechenaultia floribunda*, *Hypoxis occidentalis*,  
+ 4\* *Tribonanthes brachypetala*, *Burchardia multiflora*

Sedges: 4\* *Mesomelaena tetragona*

#### CONDITION

Rating **Good to Poor**

Comments: Apparently cleared in the past, >10 years, Marri is regrowth. Too frequent fires, <2 years previously and possibly grazing with scattered \* *Ehrharta calycina*..

Aerial Photo: Run 13.5163

Soil: dark brown sandy loam over clay, P1d (Van Gool, 1990)

Drainage: poorly drained, waterlogged  
 Aspect: flat

**Location 21 - Watkins Rd Reserve.** Location Map 12. Vegetation Map, Appendix 2, p28.

**Yeg: m LW, Sh, me Sh, b LW, jx LW**

**Cond: Poor to Good**

#### GENERAL COMMENTS

Some part of this Location is apparently on the Register of the National Estate.

The Marri Low Open Woodland, *Viminaria juncea* and *Hakea trifurcata* High Shrubland and portions of the *Pericalymma ellipticum* Closed Heath in the wetter areas at this Location are in poor condition as a result of too frequent fires, soil disturbance (?removal) and invasion by \* *Watsonia*, particularly in the *Viminaria juncea* and *Hakea trifurcata* High Shrubland. There are remnants of vegetation, principally *Pericalymma ellipticum* Closed Heath, *Banksia* Low Woodland and Jarrah Low Woodland in good condition, particularly on the sandy rise to the north west. The vegetation on the location does not indicate that the alluvial soils are close to the surface, the overlay of Bassendean Sands (not mapped) results in vegetation similar to that at Cardup, the Jarrah Low Woodland and Banksia Woodland. The continued movement of soil is supplementing the invasion by seed of \* *Watsonia* into the Jarrah Low Woodland and Banksia Woodland in good condition.

The northern section of the Location is an area of private land. This area is similar to the Reserve, see map, but the condition of the vegetation is poor to very poor due to grazing and partial clearance. There is an area of *Melaleuca* Shrubland in this area.

#### Site 21a

**m LW      Marri Low Open Woodland over *Viminaria juncea* High Open  
 Shrubland over Low Shrubland over Open Sedgeland**

#### Comments

The density of the Marri and shrubs varies greatly, from scattered isolated individuals to dense clumps

Shrubs: *Viminaria juncea*, *Hakea varia*, *Pericalymma ellipticum*, *Nanthorrhoea preissii*, *Acacia pulchella*, 4\* *Grevillea bipinnatifida*, *Synaphea* sp, 4\* *Grevillea pilulifera*, *Stirlingia latifolia*, *Adenanthos meisneri*

Herbs: \* *Watsonia*

Sedges: 4\* *Mesomeleiaena tetragona*, *Hypolaena exsulca*, *Restio leptocarpoides*

#### CONDITION

Rating **Poor**

Comments. The Marri trees are all 5-8 m, apparently regrowth after clearing as evidenced by the presence of disturbed soil. \* *Watsonia* scattered throughout the area as individuals or in denser clumps spread by soil movement and seed.

Aerial Photo: Run 13.5163

Soil: white-grey sandy clay, F2b (Van Gool, 1990)

Drainage: well drained

Aspect: south



**Site 21b**

**HSh**      **Scattered *Melaleuca preissiana* in *Yiminaria juncea* and *Hakea trifurcata* High Shrubland to High Open Shrubland over Low Open Shrubland over \* *Watsonia* Herbland and Open Sedgeland.**

Trees:      *Nuytsia floribunda*

Shrubs:      *Xanthorrhoea preissii*, 4\* *Kingia australis* (occasional), *Hypocalymma angustifolium*, 4\* *Grevillea bipinnatifida*, *Acacia pulchella*, *Synaphes*  
Adjacent *Pericalymma ellipticum*, *Adenanthos meisneri*

Herbs:      \* *Watsonia*, *Conostylis pandicans*  
Adjacent + *Lomandra nigricans* (5.7) + *Diuris longifolia* (5.7)

Sedges:      4\* *Mesomelaena tetragona*, *Hypolaena exsulca*

**CONDITION**

Rating      **Very Poor**

Comments:      Apparently regrowth after clearing as evidenced by the presence of very disturbed soil (uneven surface) perhaps for soil removal and subsequent frequent fires.  
\* *Watsonia* grows densely throughout the area having been spread by soil movement and seed.

Aerial Photo: Run 13.5163

Soil:      grey sandy clay, F2b (Van Gool, 1990)

Drainage:      poorly drained, waterlogged

Aspect:      south east

**Site 21c**

**p Ht**      ***Pericalymma ellipticum* Closed Heath over Open Sedgeland**

Comments      The *Pericalymma* occurs as dense patches amongst clumps sedges.

Trees:      *Eucalyptus calophylla*

Shrubs:      4\* *Kingia australis*, 4\* *Melaleuca lateriflora*, *Calothamnus lateralis* *Hakea prostrata*, *Synaphes* sp

Herbs:      \* *Watsonia*

Sedges:      *Hypolaena exsulca*

**CONDITION**

Rating      **Good**

Comments:      This area has only a few scattered \* *Watsonia* and evidence of too frequent burning. This site is probably a remnant of the vegetation that covered the wetland before the gross soil disturbance.

Aerial Photo: Run 13.5163

Soil:      white sand over grey sandy clay, F2b (Van Gool, 1990)

Drainage:      Poorly, waterlogged

Aspect:      south west

**Site 21d****b LW      *Banksia* Low Woodland over Low Open Heath over open Sedgeland**

Trees: *Banksia menziesii*, *B. attenuata*, *B. grandis*, *Xylomelum occidentale*

Shrubs: *Kingia australis*, *Xanthorrhoea preissii*, *Allocasuarina humilis*, *Hibbertia hypericoides*, *Eremaea pauciflora*, *Hakea stenocarpa*, *Lysinema ciliatum*, *Calectasia cyanea*, *Hakea ceratophylla*, *Conostephium preissii*, *C. pendulum*, *Stirlingia latifolia*, *Adenanthos meisneri*, 4# *Grevillea pilulifera*, *Daviesia decurrens*, *Hybanthus calycinus*

Adjacent *Dryandra nives*, *Astroloma pallidum*, *Bossiaea eriocarpa*, *Hibbertia aurea*, *H. pachyrrhiza*, *Petrophile linearis*, 4# *Baeckea camphorosmae*, *Acacia sessilis*, *Conospermum stoechadis* (one individual seen)

Herbs: *Anigozanthos manglesii*, *Lechenaultia biloba*, *Lomandra caespitosa*, *Dasypogon bromeliifolius*

Adjacent *Lomandra nigricans*

Sedges: *Restio sinuosus*, *Mesomelaena pseudostygia*, *Tricostularia neesii*

**CONDITION**

Rating **Good to Very Good**

Comments: This site does not show evidence of soil disturbance and the species richness indicates that the area has not been disturbed. Fire probably frequent, area to the north fire break had been burnt in the Autumn.

Aerial Photo: Run 13.5163

Soil: sandy rise, white sand over grey sand, F2b (Van Gool, 1990)

Drainage: well drained

Aspect: south west

**Site 21e****jx LW      Jarrah Low Woodland over Low Open Heath over open Sedgeland**

Comments: The *Banksia* Woodland on the sides of the ridge merges gradually with the Jarrah Low Woodland on the top of the sand ridge.

Trees: *Eucalyptus marginata*, *Banksia grandis*, *Xylomelum occidentale*

Shrubs: as Site 1d with occasional *Macrozamia riedlei*

**CONDITION**

Rating **Good to Very Good**

Comments: The trees are all low and young indicating that this area had been cleared <20 years ago.

Aerial Photo: Run 13.5163

Soil: pale grey sand over yellow sand, F2b (Van Gool, 1990)

Drainage: well drained

Aspect: gently to the south west

**Location 22 - junction Watkins Rd and South Western Hwy.** Location Map 12.  
Vegetation Map, Appendix 2, p28.

**Yeg: W LW**

**Cond: Very Poor**

### Description

**W LW Wandoo Low Woodland**

Comments: No detailed site description was made. Species of interest were noted.

Trees: *Eucalyptus wandoo*

Shrubs: 4# *Grevillea wilsonii*, 4# *Acacia urophylla*, *A. pulchella*

Herbs: *Kennedia coccinea* miscellaneous exotic species

Sedges: 4# *Mesomelaena tetragona*, *Lepidosperma* sp

### CONDITION

Rating **Poor to very Poor**

Comments: Understorey and trees extensively cleared, regenerating, many young Wandoo.  
Areas of gross soil disturbance, removal.

Aerial Photo: Run 13.5163

Soil: brown loamy sand, F2c (Van Gool, 1990)

Drainage: well drained

Aspect: south and south west, slope steep

**Location 23 - Lewis Rd.** Location Map 12 (Location not shaded). Vegetation Map, Appendix 2, p27.

**Yeg: m LOF, mj W**

**Cond: Good with some areas Completely Degraded**

### GENERAL COMMENTS

The Marri Low Open Forest to the east gradually changes to Marri and Jarrah Woodland to the west. This Location is on private land, with completely degraded areas around the houses and service tracks.

### Site 23a

**m LOF Marri Low Open Forest over Open Low Shrubland over Closed Sedgeland**

Trees: *Eucalyptus calophylla*

Shrubs: 4# *Hakea lissocarpa*, *Phyllanthus calycinus*, *Hibbertia hypericoides*, *Dryandra nives*, *Calothamnus* sp, 4# *Baeckea camphorosmae*, *Hypocalymma angustifolium*, *Xanthorrhoea preissii*, *Isopogon* sp, *Acacia pulchella*, 4# *Acacia lateriticola*, *Melaleuca* ?*scabra*

Herbs: *Burchardia umbellata*, *Patersonia occidentalis*

Sedges: 4# *Mesomelaena tetragona*, *Loxocarya fasciculata*, *Lepidosperma* sp, *Tetraria octandra*

**CONDITION**Rating **Good**

Comments: Apparently been cleared at some stage for timber, all Marri young and dense.

Aerial Photo: Run 13.5159

Soil: dark grey clayey sand, F7 (King and Wells, 1991)

Drainage: good

Aspect: moderate slope to west

**Site 23b****mj W Marri-Jarrah Woodland over Low Shrubland**Trees: *Eucalyptus calophylla*, *E. marginata*, *Banksia grandis*Adjacent: \**Acacia podalyifolia*

Shrubs: *Allocasuarina humilis*, 4\* *Grevillea wilsonii*, 4\* *Hakea trifurcata*, 4\* *Hakea undulata*, *Hakea incrassata*, 4\* *Grevillea pilulifera*, 4\* *Grevillea bipinnatifida*, 4\* *Synaphea* sp., *Cryptandra arbutiflora*, 4\* *Petrophile seminuda*

Herbs: *Burchardia umbellata*, *B. multiflora*Sedges: *Tetraria octandra***CONDITION**Rating **Good**

Comments: Tracks, clearing houses

Aerial Photo: Run 13.5159

Soil: dark grey clayey sand, F2 (King and Wells, 1991)

Drainage: well

Aspect: moderate slope to west

**Location 24 - Mundijong Rd south side road between Webb Rd and Lightbody Rd.**

Location map 12.

**Yeg: me Ht, me Sh, m W, c W, mi Ht H & S      Cond: Very good to Completely Degraded**

**GENERAL COMMENTS**

Throughout the area are scattered

*Casuarina obesa* - on poorly drained flats over *Melaleuca* Open Heath over Low Open Heath over Herbland and/or Sedgeland.

*Eucalyptus rudis* - along drainage lines

*Eucalyptus calophylla* - on the better drained rises over *Melaleuca* Open Heath over Low Open Heath over Herbland and/or Sedgeland.

The condition varies from Very Good to Completely Degraded.

This section of Mundijong Rd contains the greatest variety of associations in Good Condition that were probably representative of the vegetation of the Pinjarra Plain. The complete Location is in need of detailed survey. This roadside was identified by this study as an important conservation area and is to be surveyed in detail in the Swan Coastal Plain Survey. A separate

publication on the vegetation and floristics of this Location will be prepared as part of the Swan Coastal Plain Survey.

### General Vegetation Description for the road verge

me Ht *Melaleuca* Open Heath over Low Open Heath over Herbland and/or Sedgeland.

#### Site 24a

cnr Lightbody Rd and Mundijong Rd

me Sh *Melaleuca* Shrubland with scattered *Casuarina obesa* and Marri over ± *Watsonia*

#### CONDITION

Rating **Completely Degraded**

Comments: Burnt too frequently, soil disturbed and weed invaded

Aerial Photo: Run 11 5045

Soil: P3 (Van Gool, 1990)

Drainage: poor, waterlogged

Aspect: flat

#### Site 24b

300 m W Kargotich Rd

mi Ht **Low Open Heath** with scattered Marri and *Viminaria juncea* over Open Herbland and Open Sedgeland

Trees: *Eucalyptus calophylla*

Shrubs: *Viminaria juncea*, *Melaleuca viminea*, *Hypocalymma angustifolium*, 4# *Kunzea micrantha*, *Allocasuarina humilis*

Herbs: *Boryasp*, 3# *Gonocarpus pithyoides*

Sedges: *Schoenus* sp

#### CONDITION

Rating **Very Good to Good**

Comments: A reassessment of Condition should be made when the area is less wet.

Aerial Photo: Run 11 5045

Soil: P4 (Van Gool, 1990)

Drainage: poor, waterlogged

Aspect: flat

#### Site 24c

800 m W Kargotich Rd

m1 Ht, H, 5

**Low Open Heath with scattered *Actinostrobilus* and *Melaleuca*  
over Open Herbland and Open Sedgeland**

Shrubs: *Actinostrobilus pyramidalis*, *Viminaria juncea*, *Melaleuca viminea*, *M. pauciflora*,  
4\* *M. lateriflora*, *Hypocalymma angustifolium*, 4\* *Kunzea micrantha*  
Adjacent: 4\* *Melaleuca lateritis*, 4\* *M. uncinata*, 76\* *Baeckea tenuifolia*, 4\* *Calothamnus*  
*hirsutus*, 6\* *Verticordia plumosa* ssp. *pleiobotrys*, 6\* *Petrophile media* var. *juncifolia*,  
6\* *Pimelea imbricata* ssp. *gracillima*

Herbs: 6\* *Drosera bulbigena*, *Wurmbea* sp., *Tribonanthes australis*, *Borya* sp.  
Adjacent: 5\* *Anthotium junciforme*, *Pogonolepis* sp.

Sedges: *Schoenus brevisetis*

Adjacent: 4\* *Harperia lateriflora*

**CONDITION**

Rating **Very Good to Good**

Comments: A reassessment of Condition should be made when the area is less wet.

Aerial Photo: Run 11 5045

Soil: P4 (Van Gool, 1990)

Drainage: poor, waterlogged

Aspect: flat

**Site 24d**

**rise at 800 m E Kargotich Rd**

**m W**

**Marri Open Woodland over Low Open Heath over Open Herbland and  
Open Sedgeland**

**CONDITION**

Rating **Good**

Comments: A reassessment of Condition should be made when the area is less wet.

Aerial Photo: Run 11 5045

Soil: P4 (Van Gool, 1990)

Drainage: poor, waterlogged

Aspect: flat

**Site 24e**

**W large drain Mundijong Rd**

**c W**

**Casuarina Low Woodland over \* *Watsonia* Herbland**

Condition

Rating **Very Poor to Completely Degraded**

Comments: Burnt too frequently, soil disturbed and weed invaded.

Aerial Photo: Run 11 5045

Soil: P4

Drainage: poor, waterlogged

Aspect: flat

**Location 25 - Lambkin Reserve, Serpentine.** Location Map 12. Vegetation Map, Appendix 2, p29.

**Yeg: me Sc, j LW**

**Cond: Good**

#### GENERAL COMMENTS

This Location adjacent to and in the Serpentine townsite includes a small reserve, Lambkin Reserve, and the vegetated road and rail reserves. Lambkin Reserve with a wetland to the north and Jarrah Low Open Woodland is typical of the vegetation associations of the Location. The Jarrah Low Open Woodland, although on a different mapped soil type, is similar to that at Location 30. This Location was minimally surveyed.

The Reserve is in Good Condition as are patches of vegetation in the remainder of the Location. There is much severe localised disturbance on the road and rail reserves. Invasion by \* *Eragrostis curvula* and \* *Watsonia* are significant.. The verge along south side Leslie St (southern boundary Reserve) is in Good Condition and contains 2# *Hakea cyclocarpa*.

#### 'Site' a

**me Sc**      *Melaleuca raphiophylla* and *Hakea varia* Open Scrub over *Pericalymma ellipticum*, *Kunzea recurva* and *Asteria fascicularis*  
Closed Heath with scattered *Kingia*.

#### CONDITION

Rating      **Good**

Comments:      A reassessment of Condition should be made when the area is less wet.

Aerial Photo: Run 12 5132

Soil:      P1d (Van Gool, 1990)

Drainage:      poor, water to >1 m

Aspect:      flat

#### 'Site' b

**j LW**      Jarrah Low Open Woodland over *Allocasuarina* Low Open Heath over Open Herbland and Sedgeland

#### CONDITION

Rating      **Good**

Comments:      This isolated area of bushland has been able to retain its structure..

Aerial Photo: Run 12 5132

Soil:      B2 (Van Gool, 1990)

Drainage:      well

Aspect:      gentle slope to NW

**Location 26 - Westcott Rd, south drain.** Location Map 13.

**Yeg: m W**

**Cond: Very Poor to Completely Degraded**

**m W**      Marri Low Open Woodland to Woodland over *Kingia* Open Shrubland over pasture

Condition  
 Rating: **Very Poor to Completely Degraded**  
 Comments: This is apparently all private land, with completely degraded remnant area.

**Location 27 - Westcott Rd.** Location Map 13.

**Yeg: mj W** **Cond: Very Poor to Completely Degraded**

**Description**

**mjn W** **Marr, Jarrah and *Nuytsia* Low Open Woodland to Woodland over pasture**

CONDITION  
 Rating: **Very Poor to Completely Degraded**  
 Comments: This is apparently all private land, with completely degraded areas around the remnant area.

Aerial Photo: Run 12.5128  
 Soil: P1a (Van Gool, 1990)  
 Drainage: good  
 Aspect: moderate slope to west

**Location 28 - Westcott Rd, south of intersection with Elliot Rd.** Location Map 13.

**Yeg: mja W** **Cond: Completely Degraded**

**Description**

**jma W** ***Eucalyptus marginata*, *Eucalyptus calophylla*, *Nuytsia floribunda* and *Allocasuarina fraseriana* Woodland over pasture**

CONDITION  
 Rating: **Completely degraded**

Aerial Photo: Run 12.5128  
 Soil: B1 (Van Gool, 1990)  
 Drainage: good  
 Aspect: west

**Location 29 - Hall Rd - System 6 M88.** Location Map 13.

**Yeg: ml W** **Cond: Completely Degraded**

**ml W** ***Eucalyptus lanepooliei* and Marri Low Open Woodland over scattered *Kingia* over pasture**



Condition  
 Rating: **Completely Degraded**  
 Comments: Native understorey almost non-existent.

Aerial Photo: Run 12.5128  
 Soil: Ple (Van Gool, 1990)  
 Drainage: good  
 Aspect: gentle slope to east

**Location 30 - Page Rd.** Location Map 13. Vegetation Map Area 4, p85.

**Yeg: j LW Cond: Very Good**

#### GENERAL COMMENTS

An isolated block of private land fenced and not grazed adjacent to a house to the west of the block. Eucalyptus lanepooli trees were observed in the adjacent paddock to the east.

#### Site

**j LW Jarrah Low Open Woodland over *Kingia*, *Hakea cyclocarpa* and *H. ruscifolia* High Open Shrubland over Low Open Heath**

Trees: *Eucalyptus marginata*

Shrubs: 4\* *Kingia australis*, 4\* *Hakea cyclocarpa*, *H. ruscifolia*, *Petrophile striata*, 5\* *Conothamnus trinervis*, 4\* *Hakea stenocarpa*, 4\* *Baeckea camphorosmae*, *Hibbertia hypericoides*, 4\* *Bassiaea ornata*, 4\* *Acacia nervosa*, *Dasypogon bromeliifolius*, *Daviesia decurrens*, *Astroloma stomarrhena*, *Allocasuarina humilis*, *Dryandra nives*, *Hovea trisperma*, *Xanthorrhoea preissii*, + 4\* *Nemcia? spathulatum*, *Eremaea pauciflora*

Herbs: *Drosera ?pallida*, *Haemodorum* sp, *Lomandra nigricans*

Sedges: 4\* *Mesomelaena tetragona*

#### CONDITION

Rating: **Very Good**  
 Comments: The Jarrah trees are all multistemmed, probably regrowth after being cut.

Aerial Photo: Run 12.5126  
 Soil: lateritic loam, F2b ( Wells and Heap, 1989)  
 Drainage: good  
 Aspect: very gentle to west

**Location (no number) - North Dandalup - rail and road verges.** Location Map 14, North Dandalup, not marked.

**Yeg: m W Cond: Completely Degraded**

Marri Woodland over \* *Eragrostis curvula* (Love Grass) with occasional *Allocasuarina fraseriana*, *Xanthorrhoea brunonis*, *Kingia australis*, *Stirlingia latifolia* and *Mesomelaena pseudostygia*.

**Location 31 - Redheads Rd Reserve and adjacent wetland to the south, west junction with Hopelands Rd.** Location Map 14. No Vegetation Map.

**Yeg: m W, mr W**

**Cond: Poor to Very Poor**

#### GENERAL COMMENTS

This Location has apparently been partially cleared and grazed which has lead to significant weed invasion. A Bandicoot was observed indicating that this location supports some wildlife.

#### Site 31a

**m W Marri Open Woodland over Low Open Shrubland**

Trees: *Eucalyptus calophylla*, *Acacia saligna*  
Adjacent *Eucalyptus rudis*

Shrubs: 4# *Baeckea camphorosmae*, *Acacia* sp, *Hypocalymma angustifolium*, *Hakea prostrata*, *Dryandra nives*, *Jacksonia sternbergiana*, *Xanthorrhoea brunonis*

Herbs: *Dianella divaricata*

Sedges: *Leptocarpus canus*, *Lepidosperma angustatum*

#### CONDITION

Rating **Poor to Very Poor**

Comments: Road reserve that has been partially cleared, a remnant of the original wet Marri

Aerial Photo: Run 12 5057

Soil: sandy rises, P7 ( Wells and Hesp, 1989)

Drainage: waterlogged

Aspect: gentle slope to west

#### Site 31b

**mr W *Melaleuca raphiophylla* Low Open Woodland over *Melaleuca* Open Heath**

Trees: *Melaleuca raphiophylla*, *Eucalyptus rudis*

Shrubs: 4# *Melaleuca lateritia*, *M. viminea*, 4# *M. lateriflora*, 4# *M. polygaloides*, *Regelia inops*, *Hakea varia*, *Pericalymma ellipticum*, *Astartes fascicularis*

Herbs: *Cassytha*, pasture

Sedges: *Chorizandra enodis*, *Baumea acuta*, *Lepyrodia muirii*

#### CONDITION

Rating **Poor to Very Poor**

Comments: Paddock grazed by horses , little understorey and no regeneration occurring.

Aerial Photo: Run 12 5057

Soil: grey sandy clay, P7 ( Wells and Hesp, 1989)

Drainage: poor, water to 1 m

Aspect: flat

**Location 32 – Punrack Rd.** Location Map 12. No Vegetation Map.**Yeg: mi Ht, S****Cond: Good to Very Poor****GENERAL COMMENTS**

The Mixed Open Heath at this Location is similar to the same associations further north but is significant as it is apparently outside the *Casuarina obessarea*.

**'Site'****mi Ht            Mixed Open Heath to Shrubland over Sedgeland**

Comments: Dominant species occur in dense clumps.

Trees: *Acacia saligna*

Shrubs: *Actinostrobus pyramidalis*, *Pericalymma ellipticum*, *Regelia inops*, *Dasyogon bromeliifolius*, 4\* *Acacia teretifolia*, *Asteres fascicularis*, *Eutaxia virgata*, *Hakea varis*, *Verticordia densiflora*, 4\* *Kunzea micrantha*

Adjacent: *Viminaria juncea*.

Sedges: *Lepyrodia macra*, *Leptocarpus canus*, *Loxocarya flexuosa*, *Leptocarpus tenax*, *Hypolaena exsulca*

**CONDITION**

Rating **Good** with severe localised disturbance

Comments: Earthworks associated with the drain have severely disturbed the area and led to invasion by \* *Eragrostis curvula* and \* *Watsonia* which occur in scattered clumps. area in best condition is between Karnup Rd and Rapids Rd.

Aerial Photo: Run 11 5049

Soil: Dark Grey Clay Sand, P8 ( Wells and Hesp, 1989)

Drainage: Poor

Aspect: Flat

**Location 33 – E junction Alcoa Drive and South West Coastal Hwy, north and south Alcoa Rd.** Location Map 15. Vegetation Map, Appendix 2, p31.**Yeg: mi Ht, S, m W****Cond: Very Good****GENERAL COMMENTS**

Most of the Location is a seasonally inundated wetland as described below. The *Melaleuca polygaloides*, and *Pericalymma ellipticum* occur in very dense patches at times there are patches bare of these species and the sedges occur alone. The rises in the wetland are vegetated with Marri Open Low Woodland with *Melaleuca preissiana*, *Banksia littoralis* and *Nuytsia floribunda*. The shrub layer includes *Kingia australis*, *Viminaria juncea*, *Adenanthos meisneri* and *Stirlingia latifolia*.

**Site**

**mi Ht            *Melaleuca polygaloides* and *Pericalymma ellipticum* Closed to Open Heath over *Leptocarpus canus* and *Baumea acuta* Sedgeland.**

Trees *Banksia littoralis*, *Melaleuca raphiophylla*

Shrubs *Melaleuca raphiophylla*, 4# *Melaleuca lateritis*, *Calothamnus lateralis*,  
*Asteria fascicularis*

Herbs *Triglochin procera*, *Villarsiasp*  
 Adjacent Diuris *sp*

#### CONDITION

Rating: **Very Good**

Comments: This is conditional because of the presence of free water. This is a very small area of vegetation which has retained its species diversity and structure. Adjacent to the roadside are plantings of inappropriate species: *Eucalyptus botryoides*, *E. cladocalyx* and *Melaleuca quinquenervia*. These species are non-local and of a non-sympathetic form and should be removed immediately. The eucalypts are known weeds in the State (Keighery, pers com).

Aerial Photograph: Run 10 5031

Soils: Flat, dark brown clay sand over clay, P8 & 1b (Wells and Hesp, 1989)

Drainage: poor, water to >1 m deep

Aspect: flat, with sandy rises

**Location 34- Social Club, approx 3 kms E South West Hwy on Alcoa Rd.** Location Map 15. Vegetation Map, Appendix 2, p31.

**Yeg: mba LW**

**Cond: Poor**

#### Description

**mba LW** *Marri*, *Banksia* and *Allocasuarina* Low Woodland

#### CONDITION

Rating: **Poor**

Comments: Apparently partially cleared and burnt relatively at short intervals.

Aerial Photograph: Run 10 5031

Soils: B1 (Wells and Hesp, 1989)

Drainage: well

Aspect: gentle slope to west

**Location 35 - Murray Rvr Dye, 250 m N Yunderup Dye.** Location Map 15.

**Yeg: mr W**

**Cond: Very Poor**

#### Site

**mr W** *Melaleuca raphiophylla* Low Woodland with scattered clumps of Flooded Gums, *Eucalyptus rudis* over *Melaleuca lateritis*, *M. polygaloides* and *Asteria fascicularis* Low Shrubland

Trees: *Melaleuca raphiophylla*, *Eucalyptus rudis*, *Acacia saligna*,

Shrubs: *Callistachys lanceolatum*, *Viminaria juncea*, *Leptospermum canus*, *Juncus pallidus*, \* *Ehrharta calycina*, Love Grass, Blowfly Grass, *Paterstonia occidentalis*, *Cassythasp* and mixed pasture.

#### CONDITION

Rating: **Very Poor.**

Comments: The *Melaleuca raphiophylla* and *Eucalyptus rudis* are approximately 5 m tall indicating that the area has been cleared and/or severely burnt in the last 10 years. Observations were made from outside the area on road to the west. The area is apparently grazed when dry.

Aerial Photograph: Run 8 5031

Soil: Dark grey clay sand, P7 (Wells and Hesp, 1989)  
 Drainage: poor, with free water  
 Aspect: flat

**Location 36 - Yunderup Rd, 250 m E junction with Delta Dye.** Location Map 15.

**Yeg: r W**

**Cond: Very Poor**

**GENERAL COMMENTS**

The remainder of vegetation at the location is Completely Degraded with scattered *Eucalyptus rudis*, *Melaleuca raphiophylla* and *Casuarina obesa* and small patches of vegetation similar in composition to the two locations described. Patches of *Kunzea ericifolia* on the high ground indicate the presence of the sandy soil in the higher areas around these depressions. The prominent roadside weed is \* *Eragrostis curvula* (Love Grass) with occasional dense patches of \* *Watsonia* sp.

**Site**

**r W                    *Eucalyptus rudis* Low Woodland over mixed Open Shrubland to Shrubland**

Trees: *Eucalyptus rudis*, *Acacia saligna*, *Melaleuca raphiophylla*

Shrubs: *Jacksonia sternbergiana*, *J. furcellata*.

Herbs: \* *Ehrharta calycina*, \* *E. longiflora*, \* *Eragrostis curvula* (Love Grass), several *Oxalis* species, particularly *Oxalis pes-caprae*, clovers, \* *Lupinus luteus*, \* *Romulea roses*, \* *Ursinia anthemoides*, \* *Watsonia* sp.

Adjacent: *Caesia micrantha*, *Conostylis aculeata*, *Sowerbaea laxiflora*.

Sedges: *Leptocarpus canus*, *Juncus pallidus*

**CONDITION**

Rating: **Very Poor.**

Comments: The *Eucalyptus rudis* are below their full height, less than 15 m, indicating that the area has been cleared and the vegetation is regrowth. This is further supported by evidence of gross soil disturbance, hillocks and depressions.

Aerial Photograph: Run 8 5031

Soils: Grey sand, V6a & P7 (Wells and Hesp, 1989)  
 Drainage: Poor, free water in scattered depressions  
 Aspect: Flat

**Location 37- S bank Murray River opposite junction Banksia Dye and Murray Rvr Dye.** Location Map 15.

**Yeg: r OW**

**Cond: Completely Degraded**

**r OW                    *Eucalyptus rudis* Open Woodland with scattered *Melaleuca raphiophylla*, *Casuarina obesa*, *Acacia saligna* and occasional**

*Banksia grandis*, *Jacksonia sternbergiana* and *Dodonaea viscosa*  
subsp. *angustissima* over weeds.

Soil: V6a  
Drainage: Good  
Aspect: Flat

**Location 38 - Phillips Rd, Industrial Area West Pinjarra, FIG 19, Photos 20-24.**

**Veg: r LF, m W, b W & WM (mi Lht, me Ht, H & S)**

**Cond: Good**

**GENERAL COMMENTS**

This Location is at the junction of Bassendean Sand and the Pinjarra Plain. The area to the north of the block, adjacent to Pinjarra Rd, is apparently a continuation of the Bassendean Sands wetland to the north of the road. The area to the west of Phillips Rd shows the greatest affinities with the wetlands of the Pinjarra Plain by the presence of *Kingia* to the west of Phillips Rd. The vegetation in the Bassendean Sands section of the Location is Mixed Low Open Heath with scattered *Melaleuca preissiana*. This area is a recorded site for of the DRF, *Diuris purdiei*. This Location is generally in Good Condition with severe localised disturbance. The associations of the Pinjarra Plain flats present at this Location are: *Melaleuca* Open Heath, *Melaleuca* Open Scrub, *Pericalymma ellipticum* Open Heath, Herblands and Sedgelands. The flora of the Location was minimally assessed as the Location was visited in Winter when the area was under water. To the east Flooded Gum Low Forest is found.

This Location is generally in Good Condition with severe localised disturbance due to ;

- tracks associated with 3 SEC transmission lines (Photo 22), weed infestation along the tracks and line, evident on the aerial photo. These weed species are unknown as the wetland at the time of inspection was inundated with water to 1 m deep.
- roadsides very infested with \* *Eragrostis curvula*
- much of the area to the west of Phillips Rd is in Poor to Very Poor Condition, with patches in Good Condition.

**Site 38a**

**me Ht (H, S)**

*Melaleuca uncinata*, *M. polygaloides*, *Pericalymma ellipticum* and *Kunzea recurva* Open Heath over *Leptocarpus coangustatus* and *L. canus* Sedgeland .

**Comments:**

The *Melaleuca uncinata*, *M. polygaloides*, and *Kunzea recurva* occur in very dense patches at times there are patches bare of these species and the *Leptocarpus coangustatus* and *L. canus* occur alone.

**Shrubs:** 4\* *Melaleuca uncinata*, 4\* *M. polygaloides*, *Pericalymma ellipticum*, 4\* *Kunzea recurva*, 4\* *Melaleuca lateritis*, *Hakea varia*, 5\* *H. ceratophylla*, *H. sulcata*, *Viminaria juncea*, *Xanthorrhoea preissii* and *Calothamnus lateralis*  
Adjacent *Melaleuca pauciflora*

**Herbs:** *Cassytha* sp, *Triglochin procera*, *Conostylis aculeata*, *Tribonanthes* 'purple', *Villarsia* sp

**Sedges:** *Leptocarpus coangustatus*, *L. canus*, 4\* *Mesomelaena tetragona*

**CONDITION**     **Good.** This is conditional because of the presence of free water, unburnt for a considerable period as the *Melaleuca uncinata*, *M. polygaloides*, and *Kunzea recurva* attained over 2 m.

Aerial Photograph: Run 8 5160

Soils:                Flat, dark brown clay sand over clay, P1a (Wells and Hesp, 1989)

Drainage:          Poor, water to 4 cm deep

Aspect:            Flat

### Site 38b

**mi LHT            *Pericalymma ellipticum* and *Hakea sulcata* Open Heath over Low Open Shrubland over Open Herbland over Open Bunch Grassland over Sedgeland .**

Comments:

The *Pericalymma ellipticum* and *Hakea sulcata* occur in very dense patches at times. Throughout this association are patches of the *Melaleuca* species, *Kunzea recurva* and *Viminaria juncea*. One small patch of *Kingia australis* was found to the W of Phillips Rd. This area has many patches of severe localized disturbance

Shrubs:            *Pericalymma ellipticum*, *Hakea sulcata*, *Xanthorrhoea preissii*, *Stirlingia latifolia*, *Synsphaea* sp., *Daviesia decurrens*, *Hakea candolleana*, *Acacia incurva*, *Dryandra sessilis*, 4\* *Kunzea recurva*, 6\* *Petrophile media* var. *juncifolia*

Herbs:            *Conostylis aculeata*, *Stylidium* species, *Paterosonia occidentalis*, *Chamaecilla corymbosa*, 4\* *Lomandra odora*, *Tribonanthes 'purple'*, *Hypoxis*, Asteraceae species.

Grasses:          4\* *Neurachne alopecuroides*

Sedges:           4\* *Mesomelaena tetragona*, *Tricostularia neesii*, *Hypolaena exsulca*, *Loxocarya pubescens*, *Lyginia barbata*, *Schoenus* species.

**CONDITION**

**Rating            Good.**

Comments:       This is conditional because of the presence of free water retarding the growth of weedy annuals. Many rabbit mounds and associated weedy annuals. Herbs and sedges obviously heavily grazed by kangaroos and rabbits.

Aerial Photograph: Run 8 5160

Soils:                Grey brown sandy clay sand, B2/P1a (Wells and Hesp, 1989)

Drainage:          Poor, water 1 cm to 2 cm

Aspect:            Very gently sloping to the east,

### Site 38c

**m W                *Jacksonia sternbergiana* High Open Shrubland with scattered Marri over *Xanthorrhoea preissii* Open Low Open Shrubland over Low Open Shrubland over Very Open Herbland over Very Open Bunch Grassland over Open Sedgeland .**

Trees:            *Eucalyptus calophylla*, *Nuytsia floribunda*

Shrubs:           *Hovea trisperma*, *Eriostemon spicatus*, *Bossiaea eriocarpa*, *Gompholobium tomentosum*

Adjacent, towards wetland    4\* *Grevillea bipinnatifida*

Herbs: *Conostylis aculeata*, *Stylidium piliferum*, *Phlebocarya ciliata*, *Dracopis erythrorhiza*, *D. stolonifera*, *Caladenia* sp., *Burchardia umbellata*, \* *Hypochaeris glabra*  
 Adjacent, towards wetland *Burchardia multiflora*, *Tribonanthes australis*, *Hypoxis*, *Sowerbaea laxiflora*

Sedges: 4\* *Mesomelaena tetragona*, *Hypolaena exsulca*, *Lyginia barbata*, *Schoenus* species, *Lepidosperma angustifolium*

#### CONDITION

Rating: **Good**

Comments: Herbs and sedges obviously heavily grazed by kangaroos and rabbits.

Aerial Photograph: Run 8 5160

Soil: Pale grey sand over dark grey sand, B2/P1a (Wells and Hesp, 1989)

Drainage: Well drained

Aspect: gentle E facing slope

#### Site 38d

mr OSc *Melaleuca raphiophylla*, *M. polygaloides*, and *M. viminea*  
**Open Scrub with scattered *Eucalyptus rudis* over *Lepyrodia muirii***  
**Open Sedgeland .**

Trees: *Eucalyptus rudis*

Shrubs: *Melaleuca raphiophylla*, 4\* *M. polygaloides*, *M. viminea*

Herbs: *Cassytha* sp (10%-20% cover)

Sedges: *Lepyrodia muirii*

To the east of this area there is apparently a *Eucalyptus rudis* Low Forest. This was not visited due to the increasing depth of water.

#### CONDITION

Rating: **Good**

Comments: This is conditional because of the presence of free water. The height of the shrubs, >2 m indicates that the site has been unburnt for a considerable period. the *Melaleuca viminea* and *M. polygaloides* reach to 3 m.

Aerial Photograph: Run 8 5160

Soil: B2/P1a (Wells and Hesp, 1989)

Drainage: Poor, water to 1 m deep

Aspect: Flat

#### Location 39 - Cole St. Location 15. Vegetation Map, Appendix 2, p32.

**Yeg: mi Ht, m W, S & b W**

**Cond: Good to Poor**

#### GENERAL COMMENTS

This Location is very similar to the adjacent wetlands to the north entirely on Bassendean Sands. There were no *Kingia* evident at the Location and there were scattered *Eucalyptus rudis* and *Melaleuca preissiana* on the margins of the wetter areas of the Location.

The overall condition is Good to Poor with widespread severe localised disturbance due to ;  
 - tracks



- roadsides and cleared areas infested with \* *Eragrostis curvula*
- evidence of earth movement

The higher ground is all BS and is *Banksia* Woodland to the north and *Banksia* and *Allocasuarina fraseriana* Woodland to the north east in Good to Poor condition, with widespread severe localised disturbance with occurrences of \* *Ehrharta calycina* and *longiflora*, \* *Hypochoeris glabra* and \* *Ursinia anthemoides*. The wetland along the northern boundary of the location is similar to the one to the south of the location even though it is recorded as occurring on BS. The condition of this area is again Good to Poor condition, with widespread severe localised disturbance with occurrences of \* *Eragrostis curvula* and \* *Watsonia* sp..

### Site 39a

**mi Ht** *Melaleuca polygaloides*, *Pericalymma ellipticum* and *Hakea varia*  
Open Heath with scattered *Melaleuca raphiophylla* over *Lepyrodia muirii* and *Baumea acuta* Sedgeland .

Trees: *Melaleuca raphiophylla*  
Adjacent Scattered *Melaleuca preissii* and *Eucalyptus rudis* towards the edge wetland

Shrubs *Melaleuca polygaloides*, *Pericalymma ellipticum*, *Hakea varia*  
Adjacent *Acacia pulchella*, 5\* *Hakea ceratophylla*, *H. sulcata*, *Melaleuca viminea*, *Xanthorrhoea preissii* and *Calothamnus lateralis*

Herbs: *Cassytha racemosa* (10-20% cover)

Sedges: *Lepyrodia muirii*, *Baumea acuta*  
Adjacent *Leptocarpus canus*, *L. coangustatus*.

### CONDITION

Rating **Good**

Comments This is conditional because of the presence of free water. The area appears to have been patchily burnt as the *Melaleuca raphiophylla* are multi stemmed and the height of the *M. polygaloides*, and *Hakea varia* are variable. .

Aerial Photo Run 12 5160

Soil grey brown clayey sand over clay, P7 (Wells and Hesp, 1989)

Drainage Poor, water to 2 cm

Aspect Flat

### Site 39b

**m W** *Marri* Woodland to Open Forest over Open Shrubland over Low Open Shrubland over Herbland .

Trees: *Eucalyptus calophylla*  
Adjacent *Melaleuca preissii*, *Eucalyptus rudis*

Shrubs: *Acacia pulchella*, *Dasyogon bromeliifolius*, *Gompholobium tomentosum*

Herbs: *Phlebocarya ciliata*, *Hardenbergia comptoniana*, *Hypoxis*, *Caesia micrantha*, *Opercularia hispidula*, *Dracopis erythrorhiza*, *Diuris longifolia*, *Caladenia* sp., *Fatersonia occidentalis*, *Burchardia umbellata*, *Lagenifera huegelii*, \* *Hypochoeris glabra*, \* *Romulea rosea*,

Sedges Adjacent *Mesomelaena tetragona*

**CONDITION**Rating **Good**

Comments Damage to Marri canopy , possibly too frequent fires.

Aerial Photo Run 12 5160

Soil light grey sand over dark grey sand, B2/4 (Wells and Hesp, 1989)

Drainage moderately well drained.

Aspect Gentle slope to the east,

**Location 40 - Murray River, Ravenswood Speedway, Old Mandurah Rd.** Location 15.  
Vegetation Map, Appendix 2, p33.

**Yeg: r F****Cond: Poor to Completely Degraded****GENERAL COMMENTS**

The site described at this Location is in what is apparently the least disturbed vegetation representative of the Location. The Shrubs are confined to the margins of the area in Poor Condition and are all 2-4 m tall.

Much of this Location is in Completely Degraded condition with scattered *Eucalyptus rudis* and *Melaleuca raphiophylla* over pasture. On the immediate banks of the Murray River the vegetation is similar to that at Yunderup (Location 35); *Eucalyptus rudis* Open Woodland with scattered *Melaleuca raphiophylla*, *Casuarina obesa*, *Acacia saligna* and occasional *Banksia grandis*, *Jacksonia sternbergiana* and # *Dodonaea viscosa* subsp. *angustissima* over weeds.

Adjacent to this Location is a large area of bushland apparently in private ownership. This area is predominantly mapped as being on Bassendean Sands. The vegetation is apparently similar to the wetlands at Locations 36 and 37 being:

*Melaleuca polygaloides*, *Pericalymma ellipticum* and *Hakea varis* Open Heath with scattered *Melaleuca raphiophylla* over Sedgeland. *Melaleuca preissiana* and *Kunzea ericifolia* occur towards the better drained margins.

This vegetation is in Good to Very Good Condition with severe localised disturbance associated with tracks. The central area is apparently weed infested as it appears brown on the aerial photograph, as at Location 37. As the Bassendean Sand area next to Location 37 is a DRF site this area should be further surveyed for DRF.

Of particular interest was an area of cliffside shrub vegetation in apparently Good Condition along the river (shaded area on FIG 21).

**Site****r F      *Eucalyptus rudis* and *Melaleuca raphiophylla* Forest/Low Forest A.**

Comments: Adjacent to this area the *Eucalyptus rudis* occurs as a Woodland over exotic pasture.

Trees: *Eucalyptus rudis*, *Melaleuca raphiophylla*

Shrubs: Adjacent *Astartes fascicularis*, *Calystachys lanceolata*, *Acacia pulchella*

Grasses: Couch, misc immature exotic grass species

Herbs: \* *Watsonia* sp., \* *Papyrus*

Sedges: *Boerhaavia acuta*, *Juncus pallidus*

## CONDITION

Rating: **Poor**

Comments: Soil Movement to improve drainage into the wetland and the presence of a weedy ground layer indicate the area has been grossly disturbed in the past.

Aerial Photo: Run 9 5158

Soil: Flat beside the Murray River, grey clay loam over clay, P10 (Wells and Hesp, 1989)

Drainage: Poor, free water to considerable depth.

Aspect: Flat

The remainder of this page is blank.

**Location 41** - Flora Reserve, Williams Rd, Armadale. Location Map 10. Vegetation Map, Appendix 2, p21.

**Yeg: jmb W**

**Cond: Good with severe localised disturbance**

#### GENERAL COMMENTS

The *Eucalyptus calophylla* and *Eucalyptus marginata* Woodland, of approx 5 ha, at this Location is generally in Good Condition with patches in Very Good Condition and areas with severe localised disturbance. The condition of the vegetation is apparently affected by too frequent burning (Figure ), rubbish dumping associated with tracks and weed invasion along tracks and at sites of rubbish dumping, especially \* *Eragrostis curvula*.

#### Site

**jmb W** *Eucalyptus calophylla*, *Eucalyptus marginata* and *Banksia*  
Woodland over Low Shrubland over Open Herbland and  
Open Sedgeland

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*, *Xylomelum occidentale*,  
*Allocasuarina fraseriana*, *Banksia grandis*, *Banksia attenuata*

Shrubs: *Stirlingia latifolia*, *Daviesia nudiflora*, *Hibbertia hypericoides*,  
*Xanthorrhoea preissii*, *Conespermum stoechadis*, *Bossiaea eriocarpa*, 4# *Baeckea*  
*camphorosmae*, *Eremaea pauciflora*, *Dryandra nivea*, *Gompholobium capitatum*,  
*Calcectasis cyanea*, *Dasypogon bromeliifolius*, *Pimelea sulphurea*

Herbs: *Burchardia umbellata*, *Drasera stolonifera*, *Chamaescilla corymbosa*,  
*Anigozanthos mangliessii*, *Scsevoia paludosa*, *Lechensaultia biloba*, *Haemodorum spicatum*,  
*Trachymene pilosa*, *Stylidium carnosum*, \* *Ursinia anthemoides*, \* *Hypochaeris glabra*,  
\* *Gladiolus caryophyllaceus*, \* *Ehrharta longifolia*, \* *Homeria flaccida*

Sedges: *Tetraria octandra*, *Schoenus curvifolius*, *Mesomelaena pseudostygia*

#### CONDITION

Rating Good, with severe localised disturbance

Comments: Apparently frequently burnt, epicormic growth on the trees, many young trees and no tall shrubs.

Aerial Photo: Run 11 5173

Soil: Grey sand over pale brown grey sand, F (Churchward and McArthur 1980)

Drainage: Good

Aspect: Flat

**Location 42** - Adjacent to Grey Park, Kelmscott. Location Map 10. Vegetation Map, Appendix 2, p21

**Yeg: jmb W**

**Cond: Very Good to Very Poor**

#### General Comments

The Jarrah and *Banksia attenuata* and *menziesii* Woodland, at this Location is predominantly in Very Good to Good Condition but there is severe localised disturbance

along the tracks and outer boundary, especially on the northern boundary, that are severely invaded by \* *Ehrharta calycina* and on the western margin of the oval where the vegetation has been completely cleared in the past.

### Site

**jb W** Jarrah and *Banksia attenuata* and *menziesii* Woodland over scattered *Jacksonia sternbergiana* over *Hakea ruscifolia* and *Conospermum stoechadis* Open Shrubland over mixed Low Open Shrubland over Open Sedgeland.

Trees: *Eucalyptus marginata*, *Banksia attenuata*, *Banksia menziesii*

Shrubs: *Jacksonia sternbergiana*, *Hakea ruscifolia*, *Conospermum stoechadis*, *Hibbertia hypericoides*, *Eremaea pauciflora*, *Eriostemon spicatus*, *Xanthorrhoea preissii*, *Daviesia decurrens*, *Synaphea spinulosa*, *Gompholobium tomentosum*, *Bossiaea eriocarpa*, 4# *Baeckea camphorosmae*  
Adjacent: 4# *Chorizandra dicksonii*

Grasses: *Poa drummondiana*, *Stipa compressa*, \* *Ehrharta calycina*, \* *Eriosa maxima*, \* *Avena fatua*

Herbs: *Dasyglosson bromeliifolius*, *Lechenaultia floribunda*, *Burchardia umbellata*, \* *Gladiolus caryophyllaceus*, *Haemodorum laxum*, *Laxmannia squarrosa*

Sedges: *Mesomelaena pseudostygia*, *Loxocarya fasciculata*, *Schoenus* sp

### CONDITION

Rating **Very Good to Good**

Comments: This is one of the patches at this Location in such condition.

Aerial Photo: Run 13 5173

Soil: cream sand over yellow sand, F (Churchward and McArthur 1980)

Drainage: well

Aspect: gentle, W

**Location 43** – Adjacent to Kelmscott Snr High School. Location Map 10. Vegetation Map, Appendix 2, p21

**Yeg: b LW** **Cond: Very Good to Good**

### GENERAL COMMENTS

The Location of approx 4 ha is predominantly *Banksia* Low Woodland (Figure ) with scattered Jarrah, *Xylomelum* and *Nuytsia* in Very Good to Good Condition with severe localised disturbance associated with tracks, rubbish dumping and weed invasion. The density of the Jarrah increases to the south. \* *Ehrharta calycina*, \* *Avena fatua*, \* *Ursinia anthemoides* and \* *Gladiolus caryophyllaceus* are the most significant weed species. Fire is apparently influencing vegetation structure as seen in the epicormic suckering of the trees, tree death and the *Acacia pulchella* Closed Heath stratum along Railway Ave and the recent fire in the area immediately adjacent to the School initiating the germination of *Stipa compressa*.

Site

**b LW** *Banksia attenuata* and *Banksia menziesii* Low Woodland over mixed Low Shrubland Open *Mesomelaena pseudostygia* Sedgeland and Herbland.

Trees: *Banksia attenuata*, *Banksia menziesii*

Adjacent: *Eucalyptus marginata*, *Xylomelum occidentale*, *Nuytsia floribunda*

Shrubs: *Allocasuarina humilis*, *Stirlingia latifolia*, *Petrophile macrostachya*, *Hibbertia hypericoides*, *Lysinema ciliatum*, *Hibbertia aurea*, *Hibbertia acerosa*, *Daviesia triflora*, *Gompholobium tomentosum*, 4\* *Baeckea camphorosmae*, *Petrophile linearis*, *Conostephium pendulum*, *Sphaerolobium macranthum*

Grasses: *Amphipogon turbinatus*, \* *Briza maxima*

Herbs: *Chamaescilla corymbosa*, *Burchardia umbellata*, *Dasypogon bromeliifolius*, 5\* *Dasypogon obliquifolius*, *Stylidium piliferum*, *Conostylis aurea*, *Conostylis setigera*, *Paterosmia occidentale*, *Lechensultia floribunda*, *Anigozanthos humilis*, *Johnsonia pubescens*, *Scaevola paludosa*, *Drosera palacea* ssp. *palacea*, *Haemodorum laxum*

Adjacent: 3\* *Tetratheca hirsuta* 'Swan Coastal Plain form', *Laxmannia squarrosa*

Sedges: *Tetraria octandra*, *Mesomelaena pseudostygia*, *Loxocarya fasciculata*

CONDITION

Rating Very Good

Comments:

Aerial Photo: Run 13 5173

Soil: grey sand, over yellow sand, F (Churchward and McArthur 1980)

Drainage: good

Aspect: flat

Location 44 - South Bedfordale Hill Rd. Location Map 11.

**Yeg: m W**

**Cond: Completely Degraded**

Description

**m W** Marri Woodland over pasture with scattered Wandoo and Flooded Gum along creek lines.

Aerial Photo: Run 14 5133

Soil: F (Churchward and McArthur 1980)

Location 45 - Suburban area between Albany Hwy, south, and Carawatha Ave, north. Location Map 10. Vegetation Map, Appendix 2, p19

**Yeg: m W**

**Cond: Very Good to Completely Degraded**

## Description

**m W Marri Woodland over Low Open Heath.**

### CONDITION

Rating: Very Good to Completely Degraded

Comments: Small patches of bushland on vacant land in the area to isolated trees with no understorey.

Aerial Photo: Run 14 5133

Soil: F (Churchward and McArthur 1980)

**Location 46** - Area bounded by Rushton Rd to the south, Ecco Rd to the north. Location Map 10. Vegetation Map, Appendix 2, p20.

**Veg: mW W, r W, w W Cond: Completely Degraded to Very Good**

### GENERAL COMMENTS

The whole Location is best described as Wandoo Woodland as the three associations described below merge. Although most of the Location is severely degraded there are patches of vegetation in Very Good Condition especially that on lateritic soils.

## Site 46a

**r W Flooded Gum Woodland with scattered Marri and Wandoo over  
\* *Rhynchelytrum repens* and \* *Avena fatua* Grassland**

### CONDITION

Rating: Completely Degraded

Comments: Much of the site has been cleared and cultivated, perhaps for grazing in the past and the condition of the trees, stagged, indicates that the area has been subject to too frequent burning. Adjacent areas have scattered shrubs, *Acacia pulchella*, *Xanthorrhoea preissii* and *Hakea lissocarpa*.

Aerial Photo: Run 14 5131

Soil: ?Brown loam, over laterite, ?F/DS (King and Wells 1990)

Drainage: Good

Aspect: Steep, west

## Site 46b Salter Rd

**w W Wandoo Low Open Woodland over *Hakea lissocarpa* and  
*Xanthorrhoea preissii* Open Shrubland over *Dryandra nives*  
and *Baeckea camphorosmae* Low Open Shrubland over Open  
Herbland**

Trees: 4\* *Eucalyptus wandoo*

Adjacent: *Eucalyptus calophylla*

Shrubs: 4\* *Hakea lissocarpa*, *Xanthorrhoea preissii*, *Acacia pulchella*,  
4\* *Lasiopetalum floribundum*, 4\* *Isopogon asper*, *Dryandra nives*, 4\* *Baeckea  
camphorosmae*

Adjacent: *Phyllanthus calycinus*, ?*Sollya heterophylla*

Grasses: *Stipa campylachne*, \* *Briza maxima*, *Neurachne alopecuroides*,  
*Danthonia* sp

Herbs: *Acanthocarpus canaliculatus*, *Opercularia vaginata* *Dampiera linearis*,  
*Stylidium brunonianum*, \* *Oxalis pes-caprae*, \* *Romulea roses*, *Caesia micrantha*,  
 4\* *Stypandra glauca*, *Haemodorum* sp, \* *Trifolium campestre*  
 Adjacent: 4\* *Arthropodium preissii*

Sedges: *Tetraria octandra*, *Lepidosperma?* *tenue*, *Schoenus* sp

#### CONDITION

Rating Good

Comments: Soil disturbance, the significant cover of \* *Romulea roses*  
 and \* *Trifolium campestre*, the presence of a predominance of native species that have  
 underground perennating organs and the multi-trunked stunted wandoo indicate that the  
 area is subject to frequent fires.

Aerial Photo: Run 14 5131

Soil: Red-brown loam over granite, ?F/DS (King and Wells 1990)

Drainage: Good

Aspect: NE

#### Site 46c

#### mW W Marri and Wandoo Woodland over mixed Low Open Heath over Open Herbland

Comments: In adjacent areas of the same vegetation association there are patches of Open  
 Heath of *Hakea lissocarpa* and *Hakea erinacea*.

Trees: *Eucalyptus calophylla*, 4\* *Eucalyptus wandoo*

Adjacent: *Eucalyptus marginata*

Shrubs: 4\* *Hakea lissocarpa*, 4\* *Hakea erinacea*, *Xanthorrhoea preissii*,  
*Hibbertia hypericoides*, *Dryandra nives*, *Phyllanthus calycinus*, *Acanthocarpus*  
*canaliculatus*, *Hypocalymma angustifolium*, 4\* *Gompholobium polymorphum*,  
 4\* *Grevillea pilulifera*, 4\* *Baeckea camphorosmae*, 4\* *Lasiopetalum floribundum*,  
*Astroloma* sp, *Gompholobium capitatum*, 4\* *Templetonia biloba*, 4\* *Isopogon asper*  
 Adjacent: 4\* *Fimelia imbricata*, *Borya* sp, *Allocasuarina humilis*

Grasses: *Stipa campylachne*, 4\* *Neurachne alopecuroides*, \* *Briza maxima*

Herbs: *Petersonia occidentalis*, 4\* *Petersonia juncea*, *Stylidium brunonianum*,  
*Stylidium bulbiferum*, 4\* *Stylidium affine*, *Dampiera* sp, *Drosera micrantha*, *Caesia*  
*micrantha*, *Chamaecilla corymbosa*, *Burchardia umbellata*

Sedges: *Tetraria octandra*, *Lepidosperma?* *tenue*, *Lepidosperma* sp

#### CONDITION

Rating **Very Good**

Comments: This site is in the best condition of those for this Location, \* *Briza* is  
 present but the cover is not as significant the Low Open Heath has maintained the  
 integrity of the site. The Wandoo is in the same condition as for Site 2, perhaps  
 indicating a disease factor influencing the condition of these trees..

Aerial Photo: Run 14 5131

Soil: Brown loam over granite, ?F/DS (King and Wells 1990)



Drainage: Good to Moderate  
Aspect: Steep, NE

**Location 47** - Lloyd Hughes Park, Martin St Kelmscott. Location Map 10. Vegetation Map Area 19, p98.

**Yeg: r W, m W, w W**

**Cond: Very Good to Good**

**with areas of severe localised disturbance**

#### GENERAL COMMENTS

At this Location of approximately 17 ha the watercourse is in a relatively natural condition. The upper area where the watercourse originates, probably from a spring, has a ground stratum of sedges which becomes mixed with *Typha? domingensis* on the lower slopes. \* *Watsonia marginata* is scattered through the Woodland in the upper reaches of the watercourse and becomes a significant species (20-30% cover) in the low wet flat in the west of the Reserve. \* *Cortaderia selloana* is a significant species in the upper areas of the watercourse. On the remainder of the Location there is Marri Woodland on the lower slopes and Wandoo Woodland on the higher slopes. Much of the Location is in Very Good to Good Condition but there are many areas of severe localised disturbance associated with tracks, gravel mining, rubbish dumping, water erosion due and weed invasion. Significant weeds along the margins of the tracks and particularly the road are \* *Avena fatua*, \* *Ehrharta calycina*, \* *Eragrostis curvula*, \* *Cytisus proliferus*, \* *Acacia podalyrifolia*, \* *Pennisetum clandestinum* and \* *Trifolium angustifolium*. A great deal of the Location was been burnt in Autumn 1991.

#### Site 47a

**r W Flooded Gum Woodland over *Viminaria juncea* High Open Shrubland over Pampas Grass Open Grassland over Closed Sedgeland**

Trees: *Eucalyptus rudis*

Shrubs: *Viminaria juncea*

Grasses: \* *Cortaderia selloana*

Herbs: *Burchardia multiflora*, *Labellia alata*, \* *Anagallis arvensis*,  
\* *Urospermum picroides*

Adjacent: \* *Watsonia marginata*

Sedges: *Esomes* species

#### CONDITION

Rating **Good**

Comments: The site is invaded by Pampas Grass (\* *Cortaderia selloana*) and is subject to frequent fires as indicated by the presence of dead trees, the young Flooded Gums and the epicormic growth on the trees.

Aerial Photo: Run 14 5131

Soil: dark brown peaty loam, ?SW (King and Wells 1990) 1

Drainage: poor  
Aspect: gentle to steep slope to the SW.

### Site 47b

#### **m W Marri Woodland over Low Shrubland over Open Grassland and Herbland**

Trees: *Eucalyptus calophylla*  
Adjacent: *Eucalyptus marginata*, 4# *Eucalyptus wandoo*

Shrubs: 4# *Hakea lissocarpa*, *Phyllanthus calycinus*, *Hibbertia hypericoides*, *Dryandra nives*, *Gompholobium reticulatum*, 4# *Acacia lateriticola*, *Pimelea* sp

Grasses: + *Stipa campylachne*, + *Stipa elegantissima*, + \* *Piptatherum miliaceum*  
+ *Microsena stipoides*, \* *Briza maxima*, \* *Briza minor*

Herbs: *Burchardia multiflora*, *Thysanotus multiflorus*, 4# *Trichocline spathulata*, 4# *Stypandra glauca*, *Scaevola* species, *Caesia micrantha*, *Arthropodium capillipes*, *Ptilotus manglesii*, *Ptilotus* sp, *Opercularia vaginata*, *Kennedia prostrata*, \* *Trifolium campestre*  
Adjacent: *Kennedia coccinea*, *Eryngium pinnatifidum*, *Oxalis* species

Fern: 4# *Cheilanthes australis*

#### CONDITION

Rating **Good**

Comments: The condition of this site is affected by fire, there is a predominance of shrub species regenerating from rootstocks at the site and there is a significant weed cover, especially \* *Briza maxima* (10% cover).

Aerial Photo: Run 145131

Soil: lateritic brown loam, ?F/DS (King and Wells 1990)  
Drainage: well  
Aspect: steep slope, SW

### Site 47c

#### **w W Wandoo Low Open Woodland over *Acacia lateriticola* Shrubland over Low Shrubland**

Comments: In adjacent areas the *Hakea undulata*, *Lasiopetalum floribundum* and *Hakea trifurcata* at times form an Low Closed to Open Heath stratum.

Trees: *Eucalyptus wandoo*

Shrubs: 2&4# *Acacia lateriticola*, *Acacia pulchella*, *Daviesia horrida*, *Xanthorrhoea preissii*, *Macrozamia riedlii*, 4# *Hibbertia commutata*, *Dryandra nives*, *Sphaerolobium medium*, 4# *Hakea lissocarpa*, 2&4# *Gossiaea ornata*, *Hibbertia hypericoides*, 4# *Pimelea imbricata*, 4# *Gompholobium marginatum*

Adjacent: 4# *Fetrophila biloba*, 2&4# *Isopogon asper*, 4# *Hakea undulata*, 4# *Hakea trifurcata*, 4# *Lasiopetalum floribundum*, 2&4# *Chorizema dicksonii*, 3, 4# *Gonocarpus pithyoides*, 2&4# *Gompholobium polymorphum*

Grasses: *Stipa camphylachne*, *Tetrarrhena laevis*

Herbs: 4# *Stypandra glauca*, *Pronayasp*, *Cassytha glabella*, *Cassythasp*,  
*Patersonia occidentalis*, 4# *Patersonia juncea*, *Olearia elaeophila*, *Stylidium*  
*bulbiferum*, 4# *Stylidium affine*, 4# *Xanthosia candida*, *Scaevola* sp  
 Adjacent : 4# *Acanthocarpus canaliculatus*

Sedges: *Lepidosperma ? tenue*

#### CONDITION

Rating **Very Good**

Comments: Adjacent areas in this association have areas of severe localised disturbance associated with gravel mining

Aerial Photo: Run

Soil: brown lateritic loam, ?F/DS (King and Wells 1990)

Drainage: good

Aspect: very gentle, NW

**Location 48** – NW junction Connel Ave and Ciro Rd, Kelmscott. Location Map 10.  
 Vegetation Map Area 18, p98

**Yeg: me Sc, r OW, s Sc, ja W, w LW**

**Cond: Good**

#### GENERAL COMMENTS

This Location of 22ha has *Melaleuca preissiana* Open Forest and *Melaleuca raphiophylla* High Open Shrubland on the low lying areas to the west and moving upslope to the east *Jacksonia sternbergiana* Open Scrub, *Allocasuarina fraseriana* Woodland, Jarrah and *Allocasuarina fraseriana* Open Forest and Wandoo Open Woodland. There are very few *Banksia menziesii* or *B. attenuata* at this Location which is unusual when there are many species in the understorey of Site c typical of *Banksia* Woodlands. This could indicate the presence of dieback. The latter two associations form a continuum and are mapped as one unit. There is extensive track development in the Location and the tracks are used by the Pony Club located to the NW of the bushland. Although there has been some clearing the Location is generally in Good Condition. \* *Ehrharta ciliata* and \* *Briza maxima* are the most significant weeds in the bushland and along with \* *Eragrostis curvula* and \* *Hyparrhena hirta* on the roadsides. \* *Chamaeleucium uncinatum*, \* *Acacia podaricifolia* and \* *Cytisus proliferus* were also observed as roadside weeds. There is considerable rubbish dumping on the south eastern corner and a variety of garden escapes are persisting such as \* *Nasturtium* and \* *Agave*

To the east of this Location is a considerable area of bushland, principally Jarrah and *Allocasuarina fraseriana* Open Forest and Wandoo Open Woodland.

#### Site 48a

**r OW Flooded Gum Open Woodland over *Melaleuca preissiana* Open Forest with scattered emergent over *Agonis linearifolia* and *Astartea fascicularis* Open Scrub over exotic Grassland.**

Trees: *Eucalyptus rudis*, *Melaleuca preissiana*, *Melaleuca raphiophylla*

Shrubs: *Astartea fascicularis*, *Agonis linearifolia*, *Dryandra sessilis*,  
*Pericalymma ellipticum*

Grasses: \* *Ehrharta clypeata*, \* *Briza maxima*

Herbs: *Conostylis aculeata*

#### CONDITION

Rating: Poor

Comments: This area has apparently been cleared in the past and subsequently grazed and invaded by weedy grasses.

Aerial Photo: Run 14 5129

Soil: grey sand over ?clay, F1 (King and Wells 1990)

Drainage: moderate

Aspect: flat

#### Site 48b

**me Sh** *Melaleuca raphiophylla* High Open Shrubland over *Astartea fascicularis* and *Melaleuca polygaloides* Open Heath over *Hypolaena exsulca* and *Mesomelaena tetragona* Open Sedgeland

Trees: Adjacent: *Eucalyptus rudis*

Shrubs: *Melaleuca raphiophylla*, *Astartea fascicularis*, 4\* *Melaleuca polygaloides*, 4\* *Hakea erinacea*, *Dryandra nivea*, *Gompholobium tomentosum*, *Cassytha racemosa*

Herbs: *Cassytha racemosa*

Sedges: *Hypolaena exsulca*, 4\* *Mesomelaena tetragona*, 5\* *Cystochaeta avenacea*

#### CONDITION

Rating: **Very Good**

Comments: No obvious disturbance

Aerial Photo: Run 14 5129

Soil: cream sand over clay, some lateritic pebbles, F1 (King and Wells 1990)

Drainage: poor

Aspect: flat

#### Site 48c

**s Sc** *Jacksonia sternbergiana* Open Scrub over *Hakea ruscifolia* Shrubland over *Eremaea pauciflora* and *Hibbertia hypericoides* Low Open Heath

Trees: *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*

Shrubs: *Jacksonia sternbergiana*, *Adenanthos cygnorum*, *Hakea ruscifolia*, *Eremaea pauciflora*, *Hibbertia hypericoides*, *Stirlingia latifolia*, *Conospermum stoechadis*, 4\* *Baeckea camphorosmae*, *Gompholobium tomentosum*, *Acacia sessilis*  
Adjacent: *Synsphaea spinulosa*, 4\* *Isopogon dubius*, *Hibbertia subvaginata*

Grasses: *Amphipogon turbinatus*

Herbs: *Dasypogon bromeliifolius*, *Laxmannia squarrosa*, *Lomandra suaveolens*,  
*Stylidium diuroides*, *Stylidium piliferum*, *Burchardia umbellata*, *Cassytha* sp.,  
*Conosperma ciliolobum*, *Conostylis setigera*, *Conostylis sculeata*,  
 Adjacent: *Johnsonia pubescens*, *Phlebocarya filifolia*

Sedges: *Mesomelaena pseudostygia*, *Schoenus* sp., *Loxocarya pubescens*

#### CONDITION

Rating **Good**

Comments: A few *Banksia* trees were observed on higher land to the south in the *Allocasuarina* Woodland indicating that this association may be the result of a long-standing dieback infection and repeated fires in the past. Some time has elapsed since the last fire, at least 10-15 years, as there are mature *Dryandra sessilis* and *Adenanthos cygnorum* are present in this vegetation association

Aerial Photo: Run 14 5129

Soil: cream sand over yellow sand, F1 (King and Wells 1990)

Drainage: good

Aspect: gentle, W

#### Site 48d

**ja W Jarrah and *Allocasuarina fraseriana* Woodland over *Conospermum stoechadis* Open Heath over *Hibbertia hypericoides* Low Shrubland over *Mesomelaena pseudostygia* Sedgeland**

Trees: *Allocasuarina fraseriana*, *Eucalyptus marginata*

Shrubs: *Hibbertia hypericoides*, 4# *Baeckea camphorosmae*, *Gompholobium tomentosum*, *Bossiaea eriocarpa*, *Daviesia decurrens*, *Hibbertia huegelii*, *Dryandra nives*, *Calceolaria cyanea*, *Synsphaera spinulosa*, *Petrophile linearis*  
 Adjacent: *Hakea ruscifolia*, *Xanthorrhoea preissii*

Grasses: 4# *Neurachne aleopercuroides*

Herbs: *Burchardia umbellata*, *Conostylis setigera*, *Conostylis sculeata*, *Drosera stolonifera*, *Stylidium piliferum*, *Stylidium diuroides*, *Haemodorum laxum*, *Waitzia citrina*, *Waitzia suaveolens*, *Tricoryne tennella*, *Chamaescilla corymbosa*

Sedges: *Mesomelaena pseudostygia*, *Tetraria octandra*, *Lepidosperma* sp.

#### CONDITION

Rating **Good**

Comments: see above

Aerial Photo: Run 14 5129

Soil: cream sand over yellow sand, F1 (King and Wells 1990)

Drainage: good

Aspect: gentle, SW

**Site 48e**

**W LOW**      **Wandoo Low Open Woodland over *Hakea lissocarpa***  
**Shrubland over *Allocasuarina humilis* and *Leucopogon***  
***sprengelioides* Low Open Heath *Stylidium bulbiferum***  
**Herbland**

Trees:      *Eucalyptus wandoo*

Shrubs:      4\* *Hakea lissocarpa*, *Xanthorrhoea preissii*, *Allocasuarina humilis*,  
*Leucopogon sprengelioides*, 4\* *Chorizema dicksonii*, *Melaleuca scabra*, *Petrophile*  
*striata*, *Phyllanthus calycinus*, *Dryandra nives*, *Hakea erinacea*, *Acacia pulchella*,  
4\* *Verticordia pennigera*, *Pimeles imbricata*, 4\* *Baeckea camphorosmae*, 4\* *Darwinia*  
*thymoides*ssp, 4\* *Hakea stenocarpa*

Grasses:      4\* *Neurachne slopecursoides*, \* *Briza maxima*

Herbs:      *Stylidium bulbiferum*, *Haemodorum laxum*, *Petersonia occidentalis*,  
*Gonocarpus cordiger*, *Cassytha flava*

Sedges:      *Tetraria octandra*

**CONDITION**

Rating      **Very Good**

Comments:      Area to the east cleared and subject to rubbish dumping and invaded by  
\* *Avena fatua*, \* *Pennisetum clandestinum*, \* *Eragrostis curvula* and \* *Trifolium*  
*angustifolium* with scattered \* *Acacia podarcifolia* and \* *Cytisus proliferus*

Aerial Photo: Run

Soil:      brown loam with lateritic pebbles over laterite and granite, F1 (King  
and Wells 1990)

Drainage:      moderate

Aspect:      west

**Location 49** - Creekline Connel Rd, Kelmscott. Location Map 10.

**Veg: rmj OF**

**Cond: Poor to Very Poor**

**Site**

**rmj OF**      **Flooded Gum, Marri and Jarrah Open Forest over scattered**  
**native shrubs and sedges in *Watsonia* Closed Herbland**

Trees:      *Eucalyptus rudis*, *Eucalyptus calophylla*, *Eucalyptus marginata*

Shrubs:      *Viminaria juncea*, 4\* *Calothamnus quadrifidus*, 4\* *Chorizema dicksonii*,  
4\* *Grevillea bipinnatifida*, *Acacia pulchella*, 4\* *Hakea lissocarpa*, *Dryandra nives*,  
*Melaleuca? scabra*, *Hibbertia hypericoides*, *Tricoryne elatior*, *Xanthorrhoea preissii*,  
4\* *Hakea stenocarpa*, 4\* *Hakea erinacea*

Herbs:      \* *Watsonia*

Sedges:      4\* *Mesomelaena tetragona*, *Tetraria octandra*

**CONDITION**Rating **Poor to Very Poor**Comments: The \* *Watsonia* cover is very significant (70%) but there are sufficient native species in the understorey at this stage to re-establish the understorey if this was eradicated.

Aerial Photo: Run 13 5175

Soil: brown loam, F10 (King and Wells 1990)

Drainage: moderate

Aspect: creekside

**Location 50** – S junction Connel Ave and Willarra Rd on west side Connel Rd. Location Map 10.**Veg: mr W****Cond: Very Poor****mr WW** **Marri and Flooded Gum Woodland over scattered clumps of shrubs over exotic Grasslands****CONDITION**Rating **Very Poor**

Comments: Cleared and grazed.

Aerial Photo: Run 14 5129

Soils F1/F5 (King and Wells 1990)

**Location 51** – Mary Carroll Lake, Kelmscott. Location Map 9. Vegetation Map 20, Appendix 2, p 20.**Veg: m/r W/F****Cond: Very Poor****Description****m/r W/F** ***Melaleuca raphiophylla* Woodland to Open Forest with scattered emergent Flooded Gum over exotic Grassland****Comments**

The rises around the Lake are predominantly exotic grassland with some remnant Marri scattered amongst other trees of differing origin.

**CONDITION**Rating **Very Poor**

Comments: The native vegetation is confined to the margins of the Lakes and is confined principally to tree species with a few scattered native sedges amongst exotic grasses.

Aerial Photo: Run 13 5175

Soil: grey clayey sand over clay, SR (Churchward and McArthur 1980)

Drainage: poor, free water all year  
Aspect: flat

**Location 52** - Opposite Grovelands Primary School, Grovelands Rd, Kelmscott.  
Location Map 10. Vegetation Map, Appendix 2, p18

**Yeg: jb W** **Cond: Good to Poor with patches in Very Good and Completely Degraded Condition.**

#### GENERAL COMMENTS

There are patches of Jarrah and *Banksia* Woodland at this Location in Very Good Condition to Completely Degraded Condition. The vegetation condition has been effected by partial clearing in the north east of the Location (separated by dashed line) and fires. This area is invaded by \* *Ehrharta calycina* to form a Grassland stratum (Photo). In the south western section of the Location fire is an important factor but the vegetation is in better condition and *Stipa compressa* forming a Grassland stratum.

#### Site

**jb W Jarrah and *Banksia* Woodland over *Allocasuarina humilis* and *Eremaea pauciflora* Low Open Heath over *Mesomelaena pseudostygia* Open Sedgeland**

Trees: *Eucalyptus marginata*, *Banksia attenuata*, *Banksia menziesii*, *Banksia grandis*, *Banksia illicifolia*, *Xylomelum occidentale*

Shrubs: *Allocasuarina humilis*, *Stirlingia latifolia*, *Petrophile macrostachya*, *Hibbertia hypericoides*, *Lysinema ciliatum*, *Hibbertia aurea*, *Hibbertia acerosa*, *Daviesia triflora*, *Gompholobium tomentosum*, 4\* *Baeckea camphorosmae*, *Petrophile linearis*, *Conostephium pendulum*, *Sphaerolobium macranthum*, *Leucopogon conostephioides*, *Melaleuca thymoides*, 4\* *Acacia drewiana*, 3\* *Tetratheca hirsuta* 'Swan Coastal Plain form', *Conospermum stoechadis*, *Macraemia riedlei*

Grasses: as for Location 43, significant weeds are \* *Ehrharta calycina*, \* *Briza maxima*, \* *Briza minor*, \* *Eragrostis curvula*

Grasses: *Amphipogon turbinatus*, \* *Gladiolus caryophyllaceus*, \* *Ursinia anthemoides*, \* *Briza maxima*, \* *Ehrharta calycina*, \* *Eragrostis curvula*

Herbs: *Chamaescilla corymbosa*, *Burchardia umbellata*, *Dasypogon bromeliifolius*, 5\* *Dasypogon obliquifolius*, *Stylidium piliferum*, *Conostylis aurea*, *Conostylis setigera*, *Patersonia occidentalis*, *Lechenaultia floribunda*, *Anigozanthos humilis*, *Johnsonia pubescens*, *Scaevola paludosa*, *Oxera palacea* ssp. *palacea*, *Haemodorum laxum*

Adjacent: *Laxmannia squarrosa*

Sedges: *Tetraria octandra*, *Mesomelaena pseudostygia*, *Loxocarya fasciculata*

Aerial Photo: Run

Soil: grey sand over yellow sand, SR (Churchward and McArthur 1980)  
Drainage: good  
Aspect: flat



**Location 53** – Lake Rd, Kelmscott. Location Map 10. Vegetation Map, Appendix 2, p18.

**Veg: mp LW**

**Cond: Poor to Completely degraded**

#### GENERAL COMMENTS

The *Melaleuca preissiana* Low woodland at this Location is in Poor to Completely Degraded Condition probably having been cleared and grazed in the past. This Location is on Bassendean Sands.

#### Description

**mp LW**      ***Melaleuca preissiana* Low Woodland over exotic Herbland with scattered \* *Leptospermum laevigatum* and native species.**

Shrubs:      *Hypocalymma angustifolium*, *Acacia pulchella*, *Astartea fascicularis*, *Kunzea ericifolia*

Herbs:      *Phlebocarya ciliata*, *Dasypogon bromeliifolius*, *Thysanotus multiflorus*

Aerial Photo: Run 13 5175

Soil:      grey sand over ?clay, SR (Churchward and McArthur 1980)

Drainage:      poor

Aspect:      flat

**Location 54:** Rushton Rd, Martin. Location Map 9. Vegetation Map, Appendix 2, p18

**Veg: jm W/OF**

**Cond: Good to Poor**

#### GENERAL COMMENTS

This Location is very similar to Location 55, below, but a larger element of Scarp species such as *Grevillea wilsonii*. Disturbance is significant, such as an old gravel mine and SEC transmission line along Rushton Rd.

Aerial Photo: Run 14 5127

Soil:      gravelly red loam over gravel, F1/F2 (King and Wells 1990)

Drainage:      moderate

Aspect:      flat

**Location 55** – Pitt Rd, Orange Grove. Location Map 9. Vegetation Map, Appendix 2, p18

**Veg: jm LOF**

**Cond: Poor to Very Poor**

#### GENERAL COMMENTS

This Location of approx 3 ha has been mined for gravel. The Jarrah and Marri Low Open Forest is apparently regrowth after this gross disturbance. The understorey has regenerated well in many places but there is significant invasion of aggressive weed species such as \* *Ehrharta calycina*, \* *Watsonia*, \* *Pennisetum clandestinum*, \* *Briza maxima*, \* *Cytisus proliferus* (to 70% cover in patches) and \* *Avena fatua*. Other weedy species are established along Pitt Rd such as \* *Phragmites* sp., \* *Acacia podalyfolia* and

\* *Dolichos lignosus*. In the most disturbed central area of the Location ponds are formed in the deep mining pits and these are edged with *Eucalyptus rudis*. *Hakea trifurcata* and *Dryandra sessilis* Closed Scrub are present on some of the disturbed areas.

### Site

**j LOF Jarrah Low Open Forest over scattered *Hakea undulata* and *trifurcata* over *Melaleuca steedmanni* and *Isopogon drummondii* Open Shrubland over *Hakea stenocarpa*, *Daviesia physodes* and *Cryptandra arbutiflora* Low Shrubland**

Trees: *Eucalyptus marginata*

Adjacent: *Eucalyptus calophylla*

Shrubs: *Hakea trifurcata*, 4\* *Hakea undulata*, 4\* *Melaleuca radula*, 5\* *Isopogon drummondii*, 3\* *Daviesia physodes*, 4\* *Hakea stenocarpa*, *Cryptandra arbutiflora*, \* *Leptospermum laevigatum*, *Comesperma calycula*, 4\* *Baeckea camphorosmeae*, ? *Logania*

Grasses: 4\* *Neurachne alopecuroides*

Herbs: *Stylidium bulbiferum*, *Stylidium piliferum*, *Tricoryne elatior*, \* *Freesia*, *Gonocarpus cordiger*, *Kennedia coccinea*, *Caesia micrantha*, *Dryandra sessilis*, 4\* *Pentapeltis peltigera*, *Thysanotus manglesianus*, *Xanthosia huegelii*

### CONDITION

Rating **Poor**

Comments: The soil has been significantly disturbed at some time in the past, probably about 10-15 years previously as indicated by the age of the trees.

Aerial Photo: Run 14 5127

Soil: gravelly red loam over gravel, F2/?F3 (King and Wells 1990)

Drainage: moderate

Aspect: flat

**Location 56** - Bushland north of Maddington Snr High School, Maddington. Location Map 9. Vegetation Map, appendix 2, p17.

**Veg: w W, m W, WM (S, H, v HSh, p Sh)  
Degraded**

**Cond: Good to Completely**

### CGENERAL COMMENTS

The vegetation at this Location, Wandoo Woodland, Marri Woodland and wetland associations, has been severely disturbed by clearing and development associated with an abandoned Drive-In (Twilight Drive-In). Considering this past developments at the Location the vegetation is in remarkably good condition and regenerating in the least disturbed areas (Fig ) probably because of the heavy soils of the Location. Present disturbance is related to dumping of rubbish, off-road vehicle usage and weed invasion along the sides of the roads principally by \* *Eragrostis curvula*.

Descriptions are of the area of each site rather than being confined to 10m/10m areas.

### Site 56a

**S, H Mosaic of *Leptocarpus aristatus* Sedgeland and Herblands**

**CONDITION**

Rating ?Good

Comments: At the time of survey this site had completely dried out and all herbaceous species were dead. Vehicles had also driven through the claypan area at the centre of the Sedgeland.

Aerial Photo: Run 13 5179

Soil: clay, ?Gf6 (King and Wells 1990)

Drainage: poor, free water in winter/spring to ?5cm

Aspect: flat

**Site 56b**

**v HSh *Viminaria juncea* and *Acacia saligna* High Shrubland to Open Scrub over *Kunzea micrantha* Low Open Heath over Herbland**

Shrubs: *Viminaria juncea*, *Acacia saligna*, *Kunzea micrantha*, 3, 4# *Synsphaea acutiloba*, *Cryptandra arbutiflora*, *Allocasuarina humilis*, *Astartea fascicularis*, *Fericalymma ellipticum*, 4# *Verticordia huegelii*, 4# *Jacksonia restioides*  
Adjacent: 4# *Thomasia macrocarpa*,

Herbs: *Thysanotus dichotomus*, *Haemodorum* sp., 4# *Stylidium dichotomum*, 4# *Stylidium canaliculatum*

Sedges: 5# *Cyathochaeta avenacea*, *Chorizanthe enodis*

**CONDITION**

Rating **Poor**

Comments: This area is apparently regrowing after past clearance and the soil surface is uneven indicating soil disturbance.

Aerial Photo: Run

Soil: brown loam over clay, ?Gf6 (King and Wells 1990)

Drainage: poor

Aspect: flat

**Site 56c**

**m W Marri Woodland over Shrubland over Low Open Heath,**

Trees: *Eucalyptus calophylla*

Shrubs: 4# *Chorizema dicksonii*, 4# *Hakea trifurcata*, *Fericalymma ellipticum*, *Gompholobium capitatum*

Herbs: 3, 4# *Gonocarpus pithyoides*, *Tricoryne elatior*, *Fronia* sp., *Thysanotus dichotomus*

Sedges: 5# *Cyathochaeta avenacea*, 4# *Nesomelesena tetragona*

**CONDITION**

Rating **Good**

Comments:

Aerial Photo: Run 13 5179

Soil: brown sandy loam, ?Gf4 (King and Wells 1990)

Drainage: good  
Aspect:

### Site 56d

**W W Wandoo Woodland over *Watsonia* Herbland**

#### CONDITION

Rating **Completely Degraded**  
Comments: This area is cleared and apparently grazed.

Aerial Photo: Run 13 5179

Soil: yellow brown sandy loam  
Drainage: good  
Aspect: slopes beside creek

### Site 56e

**p Sh *Pericalymma ellipticum* Shrubland over mixed Low Shrubland  
over Open Sedgeland**

Shrubs: *Pericalymma ellipticum*, *Conospermum? canaliculatum*,  
4\* *Conospermum huegelii*, *Xanthorrhoea brunonis*, 3, 4\* *Synaphea acutiloba*,  
6\* *Petrophile media* var *juncifolia*, 4\* *Verticordia pennigera*, *Verticordia densiflora*,  
4\* *Jacksonia restioides*

Herbs: 4\* *Stylidium dichotomum*, 4\* *Stylidium divaricatum*, 5\* *Conostylis  
festucacea*, *Thysanotus dichotomus*

Sedges: 5\* *Cyathochaeta avenacea*, *Leptocarpus aristatus*, *Schoenus sp*

#### CONDITION

Rating **Good to Poor**  
Comments: Some areas have been cleared but regeneration is occurring.

Aerial Photo: Run 13 5179

Soil: brown loam over clay, ?Gf6 (King and Wells 1990)  
Drainage: poor  
Aspect: flat

**Location 57** - Bickley Brook, Eva St , Maddington. Location Map 9. Vegetation Map,  
Appendix 2, p17.

**Yeg: W, r/mr W**

**Cond: Completely Degraded**

**Flooded Gum, Wandoo and *Melaleuca raphiophylla* Open Forest to Woodland**

Aerial Photo: Run 13 52179

Soil: brown sandy loam, ?SW 4 & 2.(King and Wells 1990)  
Drainage: good  
Aspect: banks Bickley Brook

**Location 58** - Dale Rd, Orange Grove. Location Map 9. Vegetation Map, appendix 2, p16.

**Veg: ba LW**

**Cond: Good**

#### GENERAL COMMENTS

The *Banksia* Woodland at this Location was apparently Open Forest before the trees and some understorey were cleared. The shrub, herb and sedge strata are still essentially intact and regenerating to former density. The Location is generally in Good Condition. The roadside is invaded by \* *Ehrharta calycina* with a cover to 50% and occasional \* *Leptospermum laevigatum*

#### Site

**ba LOF**      *Banksia attenuata*, *Banksia menziesii* and *Allocasuarina fraseriana* Low Open Forest with scattered Jarrah over *Allocasuarina humilis* Shrubland over mixed Low Shrubland

Trees:      *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*

Adjacent: *Eucalyptus marginata*

Shrubs:      *Allocasuarina humilis*, *Eriostemon spicatus*, *Eremaea pauciflora*, *Daviesia nudiflora*, *Conostephium pendulum*, *Dryandra nives*, *Gompholobium tomentosum*, *Hibbertia hypericoides*, *Melaleuca scabra*, *Petrophile macrostachys*  
Adjacent: 6\* *Conospermum undulatum*, *Nemcia reticulatum*, *Hemianthera pungens*, *Pimelea suaveolens*, *Macarthuria australis*, 4\* *Jacksonia? restioides*

Grasses:      *Amphipogon turbinatus*, *Stipa* sp., *Briza maxima*, \* *Ehrharta calycina*

Herbs:      5\* *Haemodorum loratum*, 5\* *Dasypogon obliquifolius*, *Drosera stolonifera*, *Burchardia umbellata*, *Conostylis setigera*, *Conostylis aculeata*, \* *Ursinia anthemoides*, *Thelymitra* sp., *Dampiera linearis*, *Tricoryne tennellus*, \* *Gladiolus caryophyllaceus*, *Stylidium piliferum*, *Stylidium calcaratum*

Sedges:      *Mesomelaena pseudostygis*, *Loxocarya fascicularis*, *Lepidosperma* sp., *Tetraria octandra*

#### CONDITION

Rating      **Good to Very Good**

Comments:      The site was located in one small section of the Location that had not been cleared of most of the trees.

Aerial Photo: Run 14 5125

Soil:      pale grey sand over cream sand, F1 (King and Wells 1990)

Drainage:      good

Aspect:      gentle, NW

**Location 59** - Bushland north and south east of the junction of Kelvin and White Rds, Orange Grove. Location Map 9. Vegetation Map, Appendix 2, p16.

Yeg: b LW, bj W

Cond: Very Good

## GENERAL COMMENTS

At this Location *Banksia* Woodland occurs to the south and *Banksia* and Jarrah Woodland to the north with similar understorey. The understorey occurs with only scattered trees in patches to the south. The entire area is on private land and well fenced. There is no apparent grazing of the vegetation and the Location's vegetation is in very Good Condition. There is \* *Ehrharta calycina* on the margins of the tracks and fire breaks and scattered \* *Briza maxima*, \* *Hypochoeris glabra*, \* *Ursinia anthemoides* and \* *Gladiolus caryophyllaceus* in the bushland

Site

**b LW** *Banksia attenuata* and *Banksia menziesii* Low Woodland over scattered *Hakea ruscifolia* and *Lambertia multiflora* over *Eremaea pauciflora* and *Allocasuarina humilis* Low Open Heath over *Mesomelaena pseudostygia* Sedgeland

Trees: *Banksia attenuata*, *Banksia menziesii*

Shrubs: *Hakea ruscifolia*, 4\* *Lambertia multiflora*, *Eremaea pauciflora*, *Allocasuarina humilis*, 4\* *Dryandra armata*, *Stirlingia latifolia*, *Hakea prostrata*, *Hakea incrassata*, 5\* *Isopogon drummondii*, 6\* *Conospermum undulata*, *Eriostemon spicatus*, *Gompholobium confertum*, *Hibbertia hypericoides*, *Hovea trisperma*, *Xanthorrhoea preissii*, 5\* *Hakea conchifolia*, 5\* *Pityrodia bertlingii*, *Synaphea spinulosa*, *Acacia sessilis*

Grasses: *Stipa* sp

Herbs: 5\* *Dasypogon obliquifolius*, *Laxmannia sessiliflora*, *Tricoryne elatior*, *Patersonia occidentalis*

Sedges: *Mesomelaena pseudostygia*, *Alexgeorgea nitens*, *Lepidobolus priessianus*

## CONDITION

Rating **Very Good**

Comments:

Aerial Photo: Run 14 5125

Soil: cream sand over yellow sand, F1 (King and Wells 1990)

Drainage: good

Aspect: gentle, W

**Location 60** - NW of Kelvin Rd, bounded to the E by Tonkin Highway and W by Clifford St, Maddington. Location Map 9. Vegetation Map, appendix 2, p16.

Yeg: m W, mw W, mi Sh, a LW  
Poor

Cond: Very Good to Very

## GENERAL COMMENTS

The three Woodland areas, Marri and Wandoo Open Woodland, Marri Open Woodland and *Allocasuarina fraseriana* Open Low Woodland, at this Location of about 8 ha, have been

grossly disturbed leading to weed invasion but the wetter area of Mixed Open Shrubland, is in Very Good Condition

### Site 60a

**m OW**                    **Marri Open Woodland over scattered *Viminaria juncea* and *Hakea undulata* over mixed Low Open Heath over *Mesomelaena tetragona* Sedgeland**

#### Comments

This site is a small area of vegetation in Very Good Condition. Most of this association is in Very Poor Condition probably due to clearing, soil movement for drain construction and subsequent invasion by weeds especially \* *Watsonia* species. The Wandoo Open Woodland to the north east is similarly invaded by \* *Watsonia* species.

Trees:                    *Eucalyptus calophylla*

Shrubs:                    *Viminaria juncea*, 4# *Hakea undulata*, *Pericalymma ellipticum*, *Acacia pulchella*, 4# *Baeckea camphorosmae*, *Gompholobium confertum*, *Hypocalymma angustifolium*, *Eremaea pauciflora*, *Fimeleasp*, *Gompholobium capitatum*, *Gompholobium marginatum*, *Daviesia decurrens*, 4# *Grevillea bipinnatifida*, *Sphaerolobium macranthum*, *Dryandra nivea*, 4# *Acacia teretifolia*, 5# *Hakea ceratophylla*, *Xanthorrhoea preissii*, *Allocasuarina humilis*, *Verticordia densiflora*, *Eriostemon spicatus*

Grasses:                    \* *Polypogon tennellus*, *Amphipogon turbinatus*, \* *Briza maxima*

Herbs:                    5# *Drosera macrantha* 'robust form', *Haemodorum laxum*, *Stylidium brunonianum*, *Cassythasp*, *Paterosia occidentalis*, *Xanthosia huegelii*, \* *Oxalis purpurea*

Sedges:                    *Loxocarya fasciculata*, 4# *Mesomelaena tetragona*, *Lepidospermasp*

#### CONDITION

Rating                    **Very Good**

Comments:

Aerial Photo: Run 13 5170

Soil:                    grey sand clay over clay, ?Gf7 (King and Wells 1990)

Drainage:                moderate

Aspect:                  flat

### Site 60b

**mi OSh**                    **Mixed Open Shrubland over *Hakea ceratophylla* and *Xanthorrhoea preissii* Low Open Heath over Open Sedgeland**

Shrubs:                    4# *Hakea undulata*, 4# *Lambertia multiflora*, 6# *Conospermum undulatum*, 5# *Hakea ceratophylla*, *Xanthorrhoea preissii*, *Acacia pulchella*, *Pericalymma ellipticum*, *Verticordia densiflora*, *Hibbertia hypericoides*, *Gompholobium confertum*, *Eriostemon spicatus*, *Fimeleasp*, *Dryandra nivea*, *Allocasuarina humilis*, 4# *Jacksonia restioides*

Adjacent: 5# *Calectasia grandiflora*

Herbs: *Xanthosia huegelii*, *Conostylis setigera*, *Stylidium brunonianum*,  
*Dasypogon bromeliifolius*, *Thysanotus multiflorus*  
 Adjacent: *Johnsonia pubescens*, *Thelymitra fuscolutea*

Sedges:

#### CONDITION

Rating **Very Good**

Comments:

Aerial Photo: Run 13 5179

Soil: grey sandy clay over clay, ?Gf6 (King and Wells 1990)

Drainage: poor

Aspect: flat

#### Site 60c

**a LOW *Allocasuarina fraseriana* Low Open Woodland over *Stirlingia latifolia* and *Xanthorrhoea preissii* Low Shrubland over Open Grassland**

Trees: *Allocasuarina fraseriana*, *Eucalyptus marginata*, *Eucalyptus calophylla*,  
*Banksia attenuata*, *Banksia menziesii*

Shrubs: similar to Site b with *Stirlingia latifolia*

Grasses: \* *Ehrharta calycina*, \* *Eragrostis curvula*, \* *Briza maxima*,  
 \* *Flagiophloe uniolae*

#### CONDITION

Rating **Poor**

Comments: The site is significantly invaded by grassy weeds.

Aerial Photo: Run 13 5179

Soil: grey sand, ?Gf7 (King and Wells 1990)

Drainage: good

Aspect: gentle, NW

#### Site 60d

**mw W Marri and Wandoo Woodland over *Watsonia* Herbland**

Locations 61 – 65 form the **Canning Wetlands**, a series of wetland associations characteristic of the heavy seasonally inundated soils of the flats of the Pinjarra Plain. The presence of sand and ironstone at the various locations and the changing topography has resulted in a complex mosaic of associations. Locations 62 and 64 have been the subject of detailed long term studies and Location 63 has been subject to environmental assessment. The interpretation of these studies based on experience with other wetlands



in the study area, especially Location 65 and 62, were used to prepare the following treatments of the vegetation at these Locations.

The entire area is mapped on the Guildford geomorphic/soil unit (Churchward and McArthur 1980)

**Location 61** - East Brixton St Wetlands. Location Map 9. Vegetation. Map, p96.

**Veg: WM (v HSh, mi Sh, H, S)**

**Cond: Good to Very Good**

This Location is similar to the Brixton St Wetlands and the associations are as for that Location.

**Location 62** - Brixton St Wetlands. Location Map 9. Vegetation Map Area 17, p96. Reference: Keighery and Keighery, 1990.

**Veg: m W, me Sh, WM (v HSh, mi Ht, H, S)**  
**Good**

**Cond: Very Good**

#### GENERAL COMMENTS

This Location is characterised by heavy clay soils associated with ironstone and loamy rises. The deep depressions or ponds that occur in the heavy clay soils characterised by *Melaleuca lateritia* Shrubland over Grassland, Sedgeland or Herblands depending on the time of the year, the shallow depressions by Mixed Open Heath and the flats by *Viminaria* High Shrubland, Mixed Heaths, Herblands and Sedgeland. Marri Woodland is characteristic of the rises.

The vegetation is generally in Very Good Condition with severe localised disturbance associated with the tracks and rubbish dumping. \* *Parentucellia viscosa*, \* *Romulea rosea* and \* *Sparaxis bulbifera* are a significant weeds of the clayey soils and \* *Ehrharta calycina* and \* *Eragrostis curvula* are common on the margins of the Location and along the tracks.

#### Descriptions

##### Loamy Rises

**m W** Marri Woodland over *Viminaria juncea* Open Shrubland over *Hibbertia hypericoides*, *Nemcia capitatum* and *Xanthorrhoea preissii* Low Shrubland over *Xanthosia huegelii*, *Anigozanthos manglesii* and *Dampiera linearis* Herbland and *Tetraria octandra*, *Lepidosperma angustatum* and *Cyathochaeta avenacea* Sedgeland.

##### Clay Flats

**v Sh** *Viminaria juncea* High Shrubland over *Hypocalymma angustifolium*, *Verticordia serrata*, *Allocasuarina humilis* and *Xanthorrhoea brunonis* Low Open Heath over

***Mesomelaena tetragona* and *Leptocarpus coangustus***  
Sedgeland.

**mi Ht** ***Astartea fascicularis* and *Pericalymma ellipticum*** Open Heath over ***Goodenia filiformis* var. *filiformis*** and ***Stylidium roseo-alatum*** Herbland and ***Leptocarpus canus*** Sedgeland.

#### Deep Depressions, ponds.

**me Sh** ***Melaleuca lateritia*** Shrubland over ***Pimelea imbricata* var. *gracillima*** Low Shrubland over ***Aponogeton hexatepalus***, ***Hydrocotyle lemnaoides*** and ***Wurmbea dioica* ssp nov** Herbland and ***Leptocarpus coangustus*** Open Sedgeland.

**H** ***Aponogeton hexatepalus* and *Wurmbea dioica* ssp nov**  
Herbland

This association occurs in the flooded ponds in winter and is replaced by ***Amphibromus neesii*** Grassland in the spring. .

#### Shallow Depressions

**mi Ht** ***Kunzea recurva*** Open Heath with scattered ***Viminaria juncea*** over ***Xanthorrhoea brunonis***, ***Grevillea bipinnatifida*** and ***Daviesia physodes*** Low Open Heath over ***Conostylis festucacea***, ***Borya scirpoidea*** and ***Scaevola lanceolata*** Herbland and ***Amphipogon turbinatus*** and ***Cyathochaeta clandestina*** Open Sedgeland.

Species of interest are:

Shrubs: 4\* ***Acanthocarpus canaliculatus***, 4\* ***Grevillea bipinnatifida***, 4\* ***Hakea auriculata***, 4\* ***Hakea erinacea***, 6\* ***Petrophile media* var. *juncifolia***, 3\* ***Daviesia physodes***, 4\* ***Jacksonia alata***, 4\* ***Melaleuca lateritia***, 4\* ***Verticordia acerosa***, 4\* ***Conospermum huegelii***, 4\* ***Synaphea acutiloba***, 4\* ***Gompholobium marginatum***, 4\* ***Gompholobium aristatum***, 4\* ***Calytrix aurea***, 4\* ***Andersonia aristata***, 4\* ***Verticordia huegelii* var. *huegelii***

Herbs DRF, 6\* ***Aponogeton hexatepalus***, 6\* ***Hydatella dioica***, 4\* ***Agrostocrinum scabrum***, 5\* ***Tricoryne humilis***, 4\* ***Anigozanthos bicolor***, 6\* ***Tribonanthes* sp.**, 4\* ***Patersonia juncea***, 5\* ***Drosera heterophylla***, 3, 6\* ***Erynium 'subdecumbens'***, DRF, 6\* ***Hydrocotyle lemnaoides***, 3, 5\* ***Villarsia submersa***, 6\* ***Hyalospermum pyrethrum***, 6\* ***Trichoclina* sp.**, 4\* ***Scaevola lanceolata***, 5\* ***Conostylis festucacea***, 5\* ***Burchardia beirdii***, 4\* ***Stylidium ecorne***, 4\* ***Stylidium dichotomum***, 4\* ***Stylidium canaliculatum***, 4\* ***Stylidium divaricatum***, 6\* ***Calandrinia composita***, 4\* ***Philydrella drummondii***, 4\* ***Tribonanthes brachypetala***, 3, 6\* ***Stylidium utricularioides***, 6\* ***Eryngium pinnatifidum* ssp. 'palustris'** and 5\* ***Frasophyllum drummondii***.

Sedges 6\* ***Schoenus capillifolius***, 3, 5\* ***Schoenus andrewsii***

**Location 63** - North Brixton St Wetlands. Location Map 9. Vegetation Map Area 17, p96.

Reference: Gobble Garrat, E.M. 1991 Report on the Biological Survey of Lots 48 and Pt 35 Brixton St, Kenwick. Prepared for Hames and Sharley, 1991. This reference is not in the main reference list as it was not available until the mid January, 1992.

**Yeg: mi LSh/Sh, WM (H, S, mi LHT, v HSh, me HSh, sm LSh) Cond: Very Good to Very Poor**

#### GENERAL COMMENTS

The vegetation associations at this Location, Mixed Low Open Heath, Low Shrubland to Shrubland, *Yiminaria juncea* High Shrubland, *Melaleuca* High Shrubland, Samphire Low Shrubland, Herblands and Sedgeland are influenced by significant intrusions of sand over clay. There are no apparent occurrences of ironstone as found at Location 62 and Location 65.

The condition of the vegetation is variable. The western two thirds of the Location is in Good Condition with patches in Very Good Condition and the western third is Very Poor to Poor. There is severe localised disturbance associated with the tracks. Common weeds on the western side are annual grasses, \* *Ixis maculata* and \* *Homeria flaccida*. The eastern side is heavily invaded by \* *Ehrharta calycina* on the sandier soils to the north and \* *Stenotaphrum secundatum* and \* *Cynodon dactylon* on the heavier soils to the south.

#### Sandy rises over clay

**mi LSh/Sh** *Melaleuca* species, *Acacia* species and *Verticordia acerosa* Low Shrubland with scattered *Yiminaria juncea* over Sedgeland.

or

*Eremaea pauciflora* Shrubland over mixed Low Shrubland over *Mesomelaena tetragona* and *Lyginia barbata* Sedgeland.

#### Clayey Flats

**mi LHT** *Hypocalymma angustifolium* and *Verticordia* species Low Open Heath with scattered *Melaleuca viminea*, *Yiminaria juncea* and *Actinostrobilus pyramidalis* over Herbland and Sedgeland.

**v HSh** *Yiminaria juncea* High Shrubland over mixed Low Open Heath over *Mesomelaena tetragona* Sedgeland

**me Sh** *Melaleuca raphiophylla*, *M. lateritia* and *M. bracteosa* Shrubland over exotic Grassland and Herbland.

**S, H** Herbland and *Leptocarpus* species Sedgeland.

**sm LSh** *Halosarcia halocnemoides* (Samphire) Low Shrubland.

**p LHT** *Pericalymma ellipticum* Low Open Heath over Herbland and *Mesomelaena* and *Restio tremulus* Sedgeland.

Species of interest are:

Shrubs: 4\* *Grevillea bipinnatifida*, 6\* *Banksia telmatiaea*, 6\* *Petrophile media* var *juncifolia*, 4\* *Petrophile seminuda*, 5\* *Calothamnus hirsutus*, 4\* *Verticordia acerosa*, 3, 6\* *Grevillea thelemanniana* ssp. *thelemanniana*, 3\* *Daviesia physodes*, 4\* *Jacksonia alata*, 4\* *Melaleuca lateritia*, 4\* *Verticordia huegelii*, 4\* *Calytrix aurea*, 3\* *Gonocarpus pythoides*.

Herbs: 6# *Hydatella dioica*, 4# *Anigozanthos bicolor*, 4# *Scaevola lanceolata*, 5# *Conostylis festucacea*, 4# *Stylidium dichotomum*, 5# *Isotoma scapigera*, 6# *Eryngium pinnatifidum* ssp. 'palustris' and 5# *Frasophyllum drummondii*.

Sedges: 5# *Restio tremulus*, 4# *Mesomelaena tetragona*.

**Location 64** - Yule Brook Reserve, System 6 Reserve M 69. Location Map 9.

Vegetation Map Area 17, p97.

Reference: Speck and Baird, 1984.

**Yeg: b LW, mi Sh/Ht, WM (H, S and me Ht, v HSh, ac HSh, p Sh, sm LSh, me HSh)**  
**Cond: Very Good to Poor.**

#### GENERAL COMMENTS

At this Location there are considerable areas of sand and no evidence of ironstone. The sand forms several ridges with intervening clayey areas. Low sandy mounds are scattered throughout the clayey areas. The characteristic vegetation of the ridges is *Banksia* Low Woodland with Mixed Shrubland on the slopes and Sedgelands, Herblands, mixed Shrublands/Heaths *Melaleuca* High Shrubland and *Actinostrobus* High Shrubland on the flats.

The condition of the vegetation is Very Good with some severe weed invasion on the margins. areas along the southern boundary are severely invaded by \* *Ehrharta calycina*, with some \* *Watsonia* along Brook Rd and perennial and annual grasses along Boundary Rd just below the sandy ridge in the Mixed Shrubland.

#### Descriptions

##### Sandy Rises

**b LW** *Banksia attenuata* and *Banksia menziesii* Low Woodland over Low Shrubland over Herbland.

**mi Sh/Ht** *Eremaea pauciflora* and *Allocasuarina humilis* Shrubland to Open Heath  
 in patches on the ridge and on the upperslopes of the ridge and  
*Pericalymma ellipticum*, *Banksia telmatiaea*, *Hypocalymma angustifolium* and *Daviesia physodes* Shrubland to Open

**Heath**  
 on the lower slopes of the ridges.

##### Sandy Clay Flats

- shallow depressions

**H, S** Herbland and *Leptocarpus aristatus* Sedgeland

**sm Sh** *Halosarcia halocemoides* Low Shrubland

- low sandy rises

**p Sh** *Pericalymma ellipticum* Shrubland over Herbland and *Restio tremulus* Sedgeland

- sandy mounds and low sandy rises

- mi LHT**      *Melaleuca bracteosa*, *Hakea varia*, *Banksia telmatiaea* and *Verticordia* species Low Open Heath
- ac HSh**      *Actinostrobus pyramidalis* High Shrubland over *Hypocalymma angustifolium*, *Pericalymma ellipticum*, *Melaleuca lateritia*, *Kunzea micrantha* and *Verticordia* species Shrubland over Herbland.
- me HSh**      *Melaleuca raphiophylla*, *M. uncinata*, *M. viminea* and *M. cuticularis* High Shrubland.

Species of interest are:

Shrubs:      6\* *Banksia telmatiaea*, 5\* *Calothamnus hirsutus*, 4\* *Verticordia acerosa*, 3, 6\* *Grevillea thelemanniana*ssp. *thelemanniana*, 3\* *Daviesia physodes*, 4\* *Andersonia aristata*, 4\* *Melaleuca lateritia*, 5\* *Melaleuca uncinata*.

Herbs:      5\* *Byblis gigantea*, 4\* *Agrostocrinum scabrum*, 4\* *Anigozanthos bicolor*, 4\* *Patersonia juncea*, 5\* *Drosera heterophylla*, 4\* *Scaevola lanceolata*, 5\* *Conostylis festucacea*, 5\* *Burchardia bairdii*, 4\* *Stylidium ecorne*, 4\* *Stylidium dichotomum*, 4\* *Stylidium diversicatum*, 4\* *Stylidium canaliculatum*, 5\* *Isotoma scapigera*, 4\* *Tribonanthes brachypetala*, 6\* *Eryngium pinnatifidum*ssp. *palustris* and 5\* *Frasophyllum drummondii*.

Sedges:      5\* *Restia tremulus*, 3, 5\* *Schoenus andrewsii*

**Location 65:** Wetlands NE of the Yule Brook Reserve between Brook and Boundary Rds, Kenwick. Location Map 9. Vegetation Map Area 17, p97.

**Veg:** WM (S, H, mi Sh, mi Ht, me Sh, sm LSh, me/ac Sc)

**Cond:** Very Good, Good and Poor with severe localised disturbance.

#### GENERAL COMMENTS

This Location has a mixture of sandy clays and clays and loamy soils. Although no ironstone was observed in undisturbed areas a section eroded road showed exposed underlying ironstone. Each of the vegetation association subject to site descriptions are not mapped as each association is too small in area. The vegetation is very much affected by drainage. Sites are described from the sandy mounds, well drained flats and poorly drained flats. These terms are relative as the whole Location is poorly drained.

A notable absence from this Location are

- Marri Woodlands and *Banksia* Woodlands on loamy or sandy rises.
- deep claypans. This may be natural but the drainage of this Location may have cause this, the drainage lines described below to the south of the Location may have been connected artificially.

This Location is in varying condition ranging from Completely Degraded to Very Good Condition due to drainage, grazing (rabbits), frequent fires, weed invasion, off-road vehicle activities, vehicle dumping and rubbish dumping. The Location is a mosaic of vegetation associations overlain with a secondary mosaic of disturbance. Most of the Location, except for isolated areas is in Good to Poor Condition and should regenerate if the disturbance factors are reduced. Although there are pockets of vegetation in Good

Condition in the areas outside this delineated location these are predominantly in Poor to Very Poor Condition.

### **Sandy Mounds**

#### **GENERAL COMMENTS**

The condition of the rises varies from those in Very Good Condition to those in Poor Condition. Weeds found on the rises are \* *Romulea rosea*, \* *Sparaxis bulbifera*, \* *Hemeris flaccida*, \* *Gladiolus angustus*, \* *Trifolium campestre*, \* *Lolium*, \* *Ehrharta longiflora*, \* *Arctotheca calendula*, \* *Hypochaeris glabra*, *Watsonia* sp and \* *Ursinia anthemoides*.

### **Site a**

**mi Ht                      Scattered *Viminaria juncea* and *Actinostrobos pyramidalis* over Mixed Closed Heath over Low Shrubland over Open Sedgeland**

Shrubs:                      *Viminaria juncea*, *Actinostrobos pyramidalis*, *Hypocalymma angustifolium*, *Acacia lasiocarpa*, *Kunzea recurva*, 5# *Banksia telmatiaea*, *Hakea varia*, 4# *Calothamnus hirsutus*, 4# *Verticordia acerosa*, 3, 6# *Grevillea thelemanniana*ssp *thelemanniana*, 3# *Daviesia physodes*, 4# *Jacksonia restioides*, *Acacia stenoptera*, 4# *Andersonia aristata*

Other species common in this association: 4# *Melaleuca lateritia*, *Melaleuca viminea*, *Melaleuca hamulosa*, 5# *Melaleuca bracteosa*, *Melaleuca raphiophylla*

Herbs:                      4# *Scaevola lanceolata*, *Thysanotus manglesianus*

Adjacent: 5# *Conostylis festucacea*

Other species common in this association: *Drosera glanduligera*, *Brachycome iberidifolia*

Sedges:                      5# *Restio tremulus*, *Leptocarpus aristatus*, *Gahnia trifida*

Other species common in this association: *Leptocarpus canus*, *Leptocarpus coangustatus*, *Loxocarya pubescens*

#### **CONDITION**

Rating                      Very Good

Comments:

Aerial Photo: Run

Soil:                          grey clayey sand over clay

Drainage:                  moderate

Aspect:                      NA

### **Site b**

**me/ac Sc                      *Melaleuca viminea* and *Actinostrobos pyramidalis* Closed Scrub over Open Herbland and Open Sedgeland**

Shrubs:                      *Melaleuca viminea*, *Actinostrobos pyramidalis*, *Melaleuca hamulosa*, *Hypocalymma angustifolium*

Other species common in this association: 4# *Petrophile seminuda*, *Dodonaea aeters*

Grasses:                      \* *Briza maxima*, \* *Briza minor*, \* *Pentaschistis airoides*

Herbs:                      *Goodenia filiformis*, *Opercularia vaginata*, 5# *Fogonolepis stricta*, *Mitrasacme paradoxa*, *Cotula coronopifolia*

Sedges: *Juncus acutus*, *Juncus holashoenus*, *Aphelia cyperoides*, *Isolepis cernus*  
*Isolepis oldfieldiana*  
 CONDITION  
 Rating Very Good  
 Comments:

Aerial Photo: Run  
 Soil: grey clayey sand over clay  
 Drainage: moderate  
 Aspect: NA

## Flats

### 1) Shallow sandy soil over clay

#### H, S Herblands and Segelands

The Herblands are variable in their species composition and tend to contain a few species in large numbers. These species are predominantly annual and geophytic herbs and sedges. The Segelands contain fewer species. The two associations merge over small areas.

The commonly occurring species in these associations are listed below. These areas may be affected by salt. The following descriptions relate observations in the general area indicated as sites c and d but are related to a series of smaller areas in this general area rather than a specific 10m by 10m area as these communities are smaller than this.

#### Site c

Fresh

Herbs: *Anigozanthos viridus*, 5\* *Burchardia bairdii*, *Brachycome iberidifolia*, *Polypompholyx multifida*, *Drosera menziesii* 'swamp', *Stylidium ecorne*, 4\* *Stylidium dichotomum*, 4\* *Stylidium divaricatum*, *Tribonanthes australis*, *Drosera glanduligera*  
 Other species common in this association: 5\* *Stylidium guttatum*, 6\* *Stylidium utricularioides*, *Stylidium ecorne*, *Bulbine semibarbata*, *Helipterum ? demisium*, *Wurmbea* species, 6\* *Calandrinia composita*, *Apium annuum*

Sedges: *Leptocarpus aristatus*, *Leptocarpus canus*, *Leptocarpus coangustatus*, *Triglochin procera*, *Triglochin minutissima*, *Centrolepis aristata*, *Aphelia cyperoides*, 5\* *Schoenus andrewsii*, *Centrolepis aristata*, *Centrolepis polygyna*, *Schoenus humilis*

Grasses: miscellaneous exotic species

#### Site d

Salt effected

Herbs: *Halosarcia* sp., *Samolus juncea*, 5\* *Isotoma scapigera*, *Apium annuum*, *Wilsonia backhousei*, *Tribonanthes australis*, ? *Calocephalus angianthoides*, 5\* *Fogonolepis stricta*  
 Other species common in this association: *Wilsonia humilis*, 4\* *Schoenolaena juncea*

Sedges: *Leptocarpus aristatus*, *Baumea* sp., *Schoenus rigens*, *Juncus bufonis*

Grasses: miscellaneous exotic species

## 2) Heavy ?shallow soils on clay flats

### Site e

mi LHT ***Verticordia* Low Open Heath over Herbland over Open Sedgeland**

Shrubs: 4# *Verticordia acerosa*, 4# *Verticordia plumosa*, *Verticordia densiflora*, 6# *Calytrix brevisetasp breviseta*, *Hypocalymma angustifolium*, *Boronia crenulata*, *Asteloma glaucescens*

Grasses: 4# *Neurachne alopecuroides*, \* *Pentstemonis siroides*, \* *Briza maxima*

Herbs: 4# *Stylidium dichotomum*, 4# *Stylidium divaricatum*, *Borys scirpoides*, 4# *Philydrella drummondii*, *Goodenia filiformis*, *Burchardia multiflora*, *Stylidium bulbiferum*, *Drosera heterophylla*, *Drosera menziesii* 'swamp', *Cotula coronopifolia*, \* *Parentucellia viscosa*, *Thelymitra* sp, *Diuris carinata*, *Caladenia paludosa*, 4# *Tribonanthes brachypetala*, *Tribonanthes australis*, *Polypompholyx multifida*, \* *Romulea rosea*, *Thysanotus manglesianus*, *Brachycome iberidifolia*  
Other species common in this association: 6# *Stylidium utricularioides*, *Stylidium roseo-alatum*

Sedges: *Leptocarpus canus*, 5# *Schoenus andrewsii*, *Centroplepis aristata*, *Centroplepis polygyna*, *Triglochin minutissima*, *Schoenus ?humilis*

### CONDITION

Rating **Very Good to Good**

Comments: A roadside area but apparently little disturbed.

Aerial Photo: Run 13 5179

Soil: brown grey clay over clay

Drainage: poor

Aspect: flat

## 3) Wet depression on flat

### Site f

me Ht ***Melaleuca uncinata* Open to Closed Heath over *Velleia trinervis* and *Eryngium pinnatifidasp. 'palustris'* Open Herbland and *Baumea rubiginosa* and *Leptocarpus coangustatus* Open Sedgeland**

Shrubs: 4# *Melaleuca uncinata*, *Melaleuca raphiophylla*, *Viminaria juncea*, *Actinostrobos pyramidalis*, *Acacia lasiocarpa*

Adjacent: *Hypocalymma angustifolium*, *Astartea fascicularis*, *Verticordia densiflora*, *Melaleuca pauciflora*, 3,6# *Grevillea thelemanniana*ssp *thelemanniana*

Grasses: \* *Briza maxima*, \* *Briza minor*, \* *Poaceae* sps

Herbs: *Velleia trinervis*, 3,6# *Eryngium pinnatifidasp 'palustris'*, *Brachycome iberidifolia*, 5# *Prasophyllum drummondii*, *Hydrocotyle diantha*, *Siloxerus humifusus*, *Cassytha racemosa*



On slight rises adjacent to the Site: *Patersonia occidentalis*, 5# *Conostylis festucacea*,  
*Laxmannia ramosa*, 4# *Stylidium canaliculatum*

Sedges: *Baumea rubiginosa*, *Leptocarpus coangustatus*, *Leptocarpus canus*,  
*Lepidosperma* sp., ? *Arthrochoenus*, *Hydrocotyle* sp.  
Adjacent: *Schoenus nanus*

#### CONDITION

Rating **Very Good to Good**

Comments:

Aerial Photo: Run 13 5179

Soil: brown grey loam over clay

Drainage: poor

Aspect: flat

**Location 66** - Private Rd, NW intersection of Crystal Brook Rd and Gadour Rd, Wattle Grove. Location Map 8. Vegetation Map, Appendix 2, p16.

**Yeg: mj OF**

**Cond: Good to Very Good**

#### Site

**mj OF Marri and Jarrah Open Forest with scattered *Allocasuarina fraseriana* over scattered to Open Scrub *Hakea ruscifolia*, *trifurcata* and *undulata* over *Allocasuarina humilis* and *Lambertia multiflora* Open Heath over Low Open Shrubland**

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*, *Allocasuarina fraseriana*

Shrubs: 4# *Dryandra armata*, *Allocasuarina humilis*, 4# *Lambertia multiflora*,  
5# *Isopogon drummondii*, *Daviesia nudiflora*, *Eremaea pauciflora*, *Dryandra nives*,  
5# *Hakea conchifolia*, *Hibbertia hypericoides*, *Acacia pulchella*, 4# *Jacksonia restioides*,  
*Xanthorrhoea preissii*, *Nemcia capitatum*, \* *Romulea rosea*, \* *Freesia*  
Adjacent: 3, 6# *Conospermum undulatum*, \* *Leptospermum laevigatum*

Grasses: \* *Briza maxima*

Herbs: *Haemodorum laxum*, *Anigozanthos manglesii*, *Burchardia umbellata*,  
*Tricoryne elatior*, \* *Gladiolus caryophyllaceus*, \* *Ursinia anthemoides*

#### CONDITION

Rating **Good**

Comments: The area is fenced and is not apparently grazed. The height of the understorey indicates that the area has not been subject to fire for 15+ years.

Aerial Photo: Run 14 5123

Soil: brown loamy sand over yellow sand, F1 (King and Wells 1990)

Drainage: good

Aspect: flat

**Location 67** - Bushland remnants south and west of Lesmurdie Falls. Location Map 8. Vegetation Map, Appendix 2, p16.

**Veg:** m OW, mj W, b LW

**Cond:** Very Good to Very Poor

#### GENERAL COMMENTS

This Location is an area of fragmented remnants on the Ridge Hill Shelf soils. On the loamy lateritic soils Marri Open Woodland occurs and on the sandier soils *Banksia* Woodland. The condition of the vegetation is generally Poor but there are patches in Very Good Condition and with the appropriate management the remnants could be maintained, especially those along the SEC line. The *Hakea trifurcata* and *Dryandra sessilis* High Open Shrubland to Open Scrub is apparently a response to disturbance caused by fire or clearing.

#### Site a

Lewis Rd under SEC lines.

**m OW Marri Open Woodland over *Hakea trifurcata* and *Dryandra sessilis* High Open Shrubland to Open Scrub over mixed Open Heath over *Mesomelaena tetragona* and *Mesomelaena pseudostygia* Sedgeland.**

Trees: *Eucalyptus calophylla*

Shrubs: 4# *Hakea trifurcata*, *Dryandra sessilis*, 4# *Lambertia multiflora*, 3# *Daviesia ? physodes*, *Hakea incrassata*, 4# *Baeckea camphorosmae*, *Spyridium tridentatum*, *Eremaea pauciflora*, *Hibbertia hypericoides*, *Ostrya aurea*, 4# *Hakea undulata*, *Xanthorrhoea preissii*, 4# *Leptospermum erubescens*, \* *Leptospermum laevigatum*

Grasses: 4# *Neurachne aleopecuroides*, \* *Eragrostis curvula*

Herbs: *Haemodorum laxum*, *Haemodorum spicatum*, \* *Gladiolus caryophyllaceus*

Sedges: 4# *Mesomelaena tetragona*, *Mesomelaena pseudostygia*

#### CONDITION

Rating Good

Comments: The condition along the SEC lines is variable with many patches in Good Condition but others in Very Poor Condition.

Aerial Photo: Run 14 5123

Soil: brown loamy laterite, F (Churchward and McArthur 1980), ?F2 (King and Wells 1990)

Drainage: good to moderate

Aspect: flat

#### Site b

base Lesmurdie Falls.

**m OW Marri Open Woodland over *Hakea trifurcata* and *Petrophile biloba* High Open Shrubland to Open Scrub over mixed Open Heath over Open Low Shrubland *Mesomelaena tetragona* Open Sedgeland.**

Trees: *Eucalyptus calophylla*, 4# *Eucalyptus wandoo*, *Nuytsia floribunda*

Shrubs: 4\* *Hakea trifurcata*, 4\* *Petrophile biloba*, *Hakea incrassata*, 4\* *Baeckea camphorosmae*, *Hypocalymma angustifolium*, 4\* *Calothamnus sanguineus*, 4\* *Hakea erinacea*, 4\* *Grevillea bipinnatifida*, *Darwinia citriodora*, 4\* *Finlaya imbricata*, *Dryandra nives*

Grasses: 4\* *Neurachne alopecuroides*,

Herbs: *Gonocarpus* sp., *Stylidium repens*, *Tricoryne elatior*

Sedges: 4\* *Mesomelaena tetragona*

#### CONDITION

Rating Very Good

Comments: This site is apparently in the Lesmurdie Falls Reserve but the vegetation to the south is similar.

Aerial Photo: Run 14 5123

Soil: brown loamy laterite, F (Churchward and McArthur 1980), ?F2 (King and Wells 1990)

Drainage: good to moderate

Aspect: slope to creek

#### Site c

Welshpool Rd – minimal survey.

#### **b LW *Banksia menziesii* and *Banksia attenuata* Low Woodland over mixed Open Heath**

Species of interest: 5\* *Haemodorum lortatum*

#### CONDITION

Rating Very Good

Comments: This site is apparently affected by dieback as many *Banksias* are dead.

Aerial Photo: Run 14 5123

Soil: yellow sand, F (Churchward and McArthur 1980), F1 (King and Wells 1990).

Drainage: good

Aspect: gentle, south

**Location 68**– Hartfield Country Club Area, Forrestfield. Location Map 8. Vegetation Map Area 16, p95.

**Yeg: b LOW, b LW, me LOW, ac/p CHT, p CHT, jab W, mj k OF** **Cond: Very Good to Completely Degraded**

#### GENERAL COMMENTS

This vegetation associations at this Location, *Fericalymma ellipticum* and *Hakea sulcata* Closed Heath, *Banksia menziesii* Low Open Woodland, Jarrah, *Banksia menziesii* and *Allocasuarina fraseriana* Woodland to Open Woodland and Marri and Jarrah Open Forest over *Kingia australis* High Open Shrubland are fragmented by developments at the Location such as the Golf Course, Pony Club, clearing for parkland and track proliferation associated with these developments and the Tonkin Hwy.

The *Pericalymma ellipticum* and *Hakea sulcata* Closed Heath with rises of *Banksia menziesii* and *Allocasuarina fraseriana* Low Woodland are generally in Good to Very Good Condition and are the most extensive associations at the Location even though they are dissected by the Tonkin Hwy and partially drained. Within the *Pericalymma ellipticum* and *Hakea sulcata* Closed Heath there are two poorly defined associations, *Melaleuca* Open Low Woodland and an area with scattered *Actinostrobos*.

The remaining intact areas of vegetation are further severely disturbed by inappropriate 'enrichment' planting, rubbish dumping, soil disturbance and weed invasion. With the appropriate management these areas could be maintained.

#### **Site 68a: sandy clay flats**

**p CH** *Pericalymma ellipticum* and *Hakea sulcata* Closed Heath over *Verticordia densiflora* Low Open Shrubland over *Leptocarpus coangustatus* Sedgeland

#### **COMMENTS**

In places the density of *Melaleuca preissiana* increases to form an Open Low Woodland in the eastern section of this vegetation association and there is a area with a *Actinostrobos pyramidalis* Open Shrubland in a band to the east and west of the Hwy, south of the southern *Banksia* Woodland Ridge.

Trees: Adjacent: occasional *Melaleuca preissiana*

Shrubs: *Pericalymma ellipticum*, *Verticordia densiflora*, 4\* *Kingia australis*, ? *Beaufortia squarrosa*, *Gompholobium reticulatum*, *Stirlingia latifolia*

Adjacent: 3, 6\* *Conospermum undulatum*, *Conospermum teretifolia*, *Astartes fascicularis*, *Hypocalymma angustifolium*

Herbs: *Stylidium brunonianum*, *Patersonia aff. umbrosa*, *Haemodorum laxum*

Sedges: *Leptocarpus coangustatus*, *Schoenus* sp., *Cyathochaeta avenacea*

#### **CONDITION**

Rating **Very Good**

Comments: An adjacent drain has probably caused the area to drain more effectively than in the past which could have effects on the vegetation that is dependant on seasonal inundation

Aerial Photo: Run 135181

Soil: grey sandy clay over grey clay, SR (Churchward and McArthur 1980), ?Gf6 (King and Wells 1990)

Drainage: poor

Aspect: flat

#### **Site 68b: Sandy Rise**

**ba W** *Banksia menziesii* Low Open Woodland to Low Open Woodland over *Hibbertia hypericoides* and *Eremaea pauciflora* Open Shrubland over *Cyathochaeta avenacea* and *Mesomelelea stygia* Sedgeland

Trees: *Banksia menziesii*, *Allocasuarina fraseriana*, *Eucalyptus marginata*

Shrubs: *Adenanthos cygnorum*, 4\* *Lambertia multiflora*, *Verticordia densiflora*, *Hibbertia hypericoides*, *Eremaea pauciflora*, *Bossiaea eriocarpa*, *Xanthorrhoea preissii*,

*Stirlingia latifolia*, 3,6\* *Conospermum undulatum*, *Synaphea spinulosa*, *Gompholobium confertum*, *Jacksonia densiflora*, *Beaufortia squarrosa*, *Pericalymma ellipticum*  
 Adjacent: 4\* *Kingia australis*

Herbs: *Pteronia occidentalis*, *Phlebocarya filifolia*, *Dasypogon bromeliifolius*, *Burchardia umbellata*, *Tricoryne elatior*, *Conostylis setigera*, *Conostylis aurea*, *Johnsonia pubescens*, *Scaevola paludosa*, *Lomandra hermaphrodita*

Sedges: *Schoenus* sp., *Tetraria octandra*, *Luzula barbata*

#### CONDITION

Rating **Good to Very Good**

Comments:

Aerial Photo: Run 13 5181

Soil: grey sand over cream sand, SR (Churchward and McArthur 1980),  
 ?Gf7 (King and Wells 1990)

Drainage: good

Aspect: top of rise, flat

**Site 68c: Sandune.** To the north west Jarrah becomes an important tree species and this association is mapped as **Jarrah, Banksia and Allocasuarina Woodland**

**ba W** *Banksia menziesii*, *Banksia attenuata* and *Allocasuarina fraseriana* Low Woodland to Low Open Forest over *Adenanthos cygnorum* High Open Shrubland over *Hibbertia hypericoides*, *Isopogon drummondii* and *Xanthorrhoea preissii* Low Open Shrubland over *Cyathochaeta avenacea* and *Mesomeleena pseudostygia* Sedgeland

Trees: *Banksia menziesii*, *Banksia attenuata*, *Allocasuarina fraseriana*

Shrubs: *Adenanthos cygnorum*, *Jacksonia densiflora*, *Hibbertia hypericoides*, 3,5\* *Isopogon drummondii*, *Petrophile linearis*, *Hemiandra pungens*, *Conostephium pendulum*, *Calectasia cyanea*, *Leucopogon conostephioides*, 4\* *Jacksonia restioides*, *Pimelea* sp., *Eremaea pauciflora*, *Xanthorrhoea preissii*, *Stirlingia latifolia*, 3,6\* *Conospermum undulatum*, *Synaphea spinulosa*, *Gompholobium confertum*,

Grasses: *Amphipogon turbinatus*, \* *Briza maxima*

Herbs: *Phlebocarya filifolia*, *Dasypogon bromeliifolius*, 5\* *Dasypogon obliquifolius*, *Burchardia umbellata*, *Tricoryne elatior*, *Conostylis aurea*, *Conostylis setigera*, *Johnsonia pubescens*, *Macarthuria australis*, \* *Ursinia anthemoides*

Sedges: *Alexgeorges nitens*, *Mesomeleena pseudostygia*, 5\* *Cyathochaeta avenacea*, *Lepidosperma* sp., *Loxocarya fasciculata*, *Hypolaena exsulca*

#### CONDITION

Rating **Poor**

Comments: The area of this description is fragmented by tracks and is further disturbed by timber cutting, rubbish dumping and scattered deaths of mature Banksias.

Aerial Photo: Run 13 5181

Soil: light grey sand over light grey sand, SR (Churchward and McArthur 1980), ?Gf7 (King and Wells 1990) Drainage: good

Aspect: gentle, SW

**Site 68d****mj k OF**

**Marri and Jarrah Open Forest over *Kingia australis* High  
Open Shrubland over *Xanthorrhoea preissii* Shrubland over  
Low Open Heath over *Mesomelaena tetragona* and *Tetraria  
octandra* Open Sedgeland**

**COMMENTS**

This vegetation association in which this site is located, Marri and Jarrah Open Forest over *Kingia australis* is fragmented by tracks and then further severely disturbed by inappropriate 'enrichment' planting, rubbish dumping, soil disturbance and weed invasion. Weeds in the association are \* *Freesia*, \* *Fennisetum clandestinum*, \* *Cytisus prolifer*, \* *Leptospermum laevigatum* (to 70% cover), \* *Eragrostis curvula*, \* *Avena fatua* and \* *Trifolium* species

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*, *Allocasuarina fraseriana*

Shrubs: 4\* *Kingia australis*, *Xanthorrhoea preissii*, *Dryandra nives*,  
4\* *Isopogon asper*, *Petrophile macrostachya*, 4\* *Gompholobium polymorphum*,  
4\* *Jacksonia restioides*, *Petrophile linearis*, *Gompholobium knightianum*, 4\* *Acacia  
nervosa*, *Hemiandra pungens*, *Eriostemon spicatus*, *Calectasia ?cyanea*  
Adjacent: 4\* *Lambertia multiflora*

Grasses: \* *Briza maxima*, *Microlaena stipoides*

Herbs: 4\* *Fentapeltis peltigera*, *Anigozanthos manglesii*, *Dampiera linearis*,  
*Chamaescilla corymbosa*, *Fatersonia occidentalis*, *Stylidium piliferum*, *Stylidium  
repens*, *Lyperanthus serratus*, *Drosera stolonifera*, *Thysanotus* sp., *Fronia* sp.,  
*Gonocarpus cordiger*, \* *Gladiolus caryophyllaceus*, *Burchardia umbellata*, \* *Ursinia  
anthemoides*

Adjacent: *Haemodorum spicatum*, *Haemodorum laxum*

Sedges: 4\* *Mesomelaena tetragona*, *Tetraria octandra*, *Loxocarya fasciculata*

**CONDITION**

Rating **Good**

Comments:

Aerial Photo: Run 13 5181

Soil: brown loam with lateritic pebbles over grey brown clay, F  
(Churchward and McArthur 1980), ?F2 (King and Wells 1990)

Drainage: moderate

Aspect: flat

**Location 69:** Bushland, north and south of the junction of McDowell and Welshpool  
Rds, Canning. Not shown on Location Map. Vegetation Map, Appendix 2, p13.

**Veg: m W, b LW, S, me LW**

**Cond: Poor to Very Poor**

**GENERAL COMMENTS**

This Location has more affinities with the Bassendean Sand associations than the  
Pinjarra Plain being on sandy soils with little influence of the heavier soils. The Marri

Woodland, *Banksia* Low Woodland, Sedgeland and *Melaleuca preissiana* Open Low Woodland are degraded by soil disturbance, rubbish dumping, numerous tracks, wood collection and weed invasion. The Location is consequently in Poor to Very Poor Condition with small areas in Good Condition.

### Site 69a

**m W Marri Woodland to Open Forest over *Stirlingia latifolia*  
Open Low Shrubs over *Patersonia occidentalis*, *Phlebocarya ciliata*  
and *Dasypogon bromeliifolius* Open Herbland**

Trees: *Eucalyptus calophylla*

Shrubs: *Xanthorrhoea preissii*, *Jacksonia? furcellata*, *Stirlingia latifolia*,  
*Gompholobium tomentosum*

Grasses: \* *Briza maxima*

Adjacent: \* *Ehrharta calycina*, \* *Ehrharta longiflora*, \* *Avena fatua*, \* *Eragrostis curvula*

Herbs: *Patersonia occidentalis*, *Phlebocarya ciliata*, *Dasypogon bromeliifolius*,  
*Tricoryne humilis*, \* *Freesiaaff. leichlinii*, *Caesia micrantha*, *Drosera stolonifera*,  
*Conostylis juncea*, *Thysanotus multiflorus*

Sedges: *Loxocarya fasciculata*, *Hypolaena exsulca*, *Alexgeorgea nitens*

### CONDITION

Rating **Good to Poor**

Comments: Adjacent areas invaded by numerous weedy grasses; \* *Ehrharta calycina*, \* *Ehrharta longiflora*, \* *Avena fatua* and \* *Eragrostis curvula*

Aerial Photo: Run 12 5154

Soil: grey - brown sand over white sand, SR (Churchward and McArthur 1980)

Drainage: good

Aspect: very gentle, west

### Site 69b

**S Scattered Jarrah, *Allocasuarina fraseriana* and *Banksia attenuata*  
over *Alexgeorgea nitens* Sedgeland**

Trees: *Eucalyptus marginata*, *Allocasuarina fraseriana*, *Banksia attenuata*

Shrubs: *Jacksonia? furcellata*, *Gompholobium tomentosum*, *Bossiaea eriocarpa*,  
*Acacia stenoptera*, *Acacia pulchella*, *Hemianandra pungens*

Grasses: \* *Briza maxima*, *Amphipogon turbinatus*, \* *Ehrharta calycina*,

Herbs: *Patersonia occidentalis*, *Phlebocarya filifolia*, *Phlebocarya ciliata*,  
*Dasypogon bromeliifolius*, *Tricoryne humilis*, *Stylidium repens*, *Stylidium brunonianum*, *Burchardia umbellata*, \* *Ursinia anthemoides*, \* *Gladiolus caryophyllaceus*, 3\* *Macarthuria* sp., *Thysanotus patersonii*

Sedges: *Loxocarya fasciculata*, *Lyginia barbata*, *Alexgeorgea nitens*

## CONDITION

Rating **Good**

Comments: Possibly a sedgeland induced by dieback infestation.

Aerial Photo: Run 12 5154

Soil: dark grey sand over grey sand SR (Churchward and McArthur 1980)

Drainage: moderate

Aspect: very gentle, west

**Site 69c**

**b LW** *Banksia menziesii* and *Banksia attenuata* Low Woodland over  
*Baeckea camphorosmae* and *Hibbertia hypericoides* Low Open  
 Shrubland *Mesomelaena pseudostygia* Open Sedgeland and  
 \* *Ehrharta calycina* Grassland

Trees: *Banksia menziesii*, *Banksia attenuata*

Shrubs: *Daviesia divaricata*, 4\* *Baeckea camphorosmae*, *Hibbertia hypericoides*, *Jacksonia sternbergiana*, *Acacia pulchella*, *Allocasuarina humilis*  
 In association: patches of *Conospermum triplinervium*

Grasses: \* *Ehrharta calycina*,

Herbs: *Burchardia umbellata*, *Foddothea gracilis*, *Sowerbaea laxiflora*,  
*Drosera stolonifera*, *Opercularia vaginata*, *Conostylis setigera*, \* *Hypochaeris glabra*,  
 \* *Ursinia anthemoides*, \* *Gladiolus caryophyllaceus*, *Macarthuria australis*, *Thysanotus manglesianus*

Sedges: *Mesomelaena pseudostygia*

## CONDITION

Rating **Poor**Comments: \* *Ehrharta calycina* is well established at the site with a cover of 50-70%. There is also significant soil disturbance and dumping of rubbish.

Aerial Photo: Run 12 5154

Soil: light grey sand over pale yellow sand, SR (Churchward and McArthur 1980)

Drainage: good

Aspect: flat

**Site 69d**

**me LW** *Melaleuca preissiana* and *Acacia saligna* Low Open Woodland  
 over *Hakea varia* High Open Shrubland over *Pericalymma ellipticum* Open Shrubland over \* *Eragrostis curvula*  
 Grassland and \* *Gladiolus angustus* and \* *Watsonia* sp Herbland

Trees: *Melaleuca preissiana*, *Acacia saligna*



Shrubs: *Hakea varis*, *Pericalymma ellipticum*, *Xanthorrhoea? preissii*

Grasses: *\* Eragrostis curvula*, *\* Cynodon dactylon*

Herbs: *\* Gladiolus angustus*, *\* Watsoniasp*, *Drosera glanduligera*,  
*Centroplepis aristatus*, *\* Romulea roses*

Sedges: *Baumeasp*

#### CONDITION

Rating **Very Poor**

Comments: Major disturbance of the soil, rubbish dumping, numerous tracks and weed invasion are contributing to the degradation of the site.

Aerial Photo: Run 12 5154

Soil: grey-brown clayey sand, SR (Churchward and McArthur 1980)

Drainage: poor

Aspect: flat

**Location 70:** Wetland, Sheffield Rd, Cannington. Location Map 8. Vegetation Map, Appendix 2, p13.

**Yeg: me LF**

**Cond: Poor**

#### GENERAL COMMENTS

This Location has been very disturbed in the past as have most semi-permanent lakes in the metropolitan area. The presence of exotic trees, shrubs and grasses on the southern margin of the lake indicate that at some stage there was a residence on the Location. The Location is surrounded by an old fence. The lake is vegetated with *Melaleuca preissiana* and *Melaleuca raphiophylla* Low Open Forest over *Typha* and *Baumes articulata* Open Sedgeland with scattered Marri and *Melaleuca*s over exotic grasses around the margins.

**Location 71:** Bushland north Sheffield Rd, Cannington. Location Map 8. Vegetation Map, Appendix 2, p13.

**Yeg: b LW**

**Cond: Good**

#### GENERAL COMMENTS

This Location is on Bassendean Sands. In the low lying areas in the *Banksia* Woodland are small seasonally wet areas of *Melaleuca raphiophylla* and *M. viminea* Shrubland with scattered *Melaleuca preissiana*

#### Site

**b LW** Scattered *Eucalyptus tottiana* and *Muytsia floribunda* over *Banksia attenuata* and *Banksia menziesii* Low Woodland over *Adenanthos cygnorum* High Open Shrubland over *Eremaea pauciflora*, *Stirlingia latifolia* and *Hibbertia hypericoides* Low Shrubland

Trees: *Eucalyptus tottiana*, *Muytsia floribunda*, *Banksia attenuata*, *Banksia menziesii*

Adjacent: *Eucalyptus marginata*, *Allocasuarina fraseriana*

Shrubs: *Adenanthos cygnorum*, *Eremsea pauciflora*, *Stirlingia latifolia*, *Hibbertia hypericoides*, *Scholtzia involucrata*, *Xanthorrhoea preissii*, *Bossiaea eriocarpa*

Grasses: \* *Briza maxima*, *Amphipogon turbinatus*

Herbs: *Patersonia occidentalis*, *Conostylis juncea*, *Conostylis aculeata*, *Phlebocarya ciliata*, *Phlebocarya filifolia*, *Laxmannia ramosa*, \* *Ursinia anthemoides*, \* *Hypochaeris glabra*, *Dasypogon bromeliifolius*

Sedges: *Alexgeorgea nitens*

#### CONDITION

Rating Good to Very Good

Comments:

Aerial Photo: Run 12 5154

Soil: grey sand over white sand, SR (Churchward and McArthur 1980)

Drainage: good

Aspect: very gentle, south west

**Location 72** - Tomah Rd, Wattle Grove. Location Map 8. Vegetation Map, Appendix 2, p13.

**Veg: r/me OF**

**Cond: Very Good to Very Poor**

#### GENERAL COMMENTS

This Location has been surveyed in detail by Martinick & Assocs (1991) and LeProvost, Semeniuk and Chalmers (1987) both being unpublished reports to the Department of Main Roads. These should be consulted for more detail on this Location and an assessment of the significance of the Location in relation to other wetlands of this type.

The vegetation condition is fragmented by partial clearing, grazing, tracks, rubbish dumping and fire. Cleared areas are vegetated with exotics and \* *Romulea roses*, \* *Briza maxima*, \* *Homeria flaccida* and \* *Paspalum* sp were observed in the bushland. The vegetation associations in Good to Very Good Condition are the *Melaleuca preissiana* and *Eucalyptus rudis* Open Forest, *Melaleuca raphiophylla*, *Agonis linearifolia* and *Astartea linearis* Closed Scrub and patches of the other vegetation types.

#### Site

**r/mr OF** *Eucalyptus rudis* and *Melaleuca preissiana* Open Forest over  
*Agonis linearifolia* and *Nemcia lineare* Closed Scrub over  
*Leptocarpus coangustatus* Sedgeland

Trees: *Eucalyptus rudis*, *Melaleuca preissiana*

Shrubs: *Agonis linearifolia*, *Nemcia lineare*, *Astartea fascicularis*

Grasses: \* *Paspalum* sp

Herbs: \* *Romulea rosea*, \* *Briza maxima*, \* *Homeria flaccida*, *Paterosmia* aff. *umbrasa*

Sedges: In the drain line: *Typha* and *Lepidosperma gladiatum*

CONDITION

Rating **Good**

Comments: Herb/Grass stratum is exotic

Aerial Photo: Run 13 5181

Soil: clay over clay, SR (Churchward and McArthur 1980)

Drainage: poor

Aspect: free water, ?depth

**Location 73** - Bushland in the area of the Fire Training Centre, Forrestfield. System 6 Reserve M 53. Location Map 8. Vegetation Map Area 15, p94.

**Veg: p Ht, b LW, jab W, bx LW, jm k W, m W, mi k Sh** **Cond: Very Good to Very Poor**

#### GENERAL COMMENTS

This Location has an unusual combination of vegetation associations that reflect the various combinations of alluvial soils and aeolian sands at the Location. Generally the soils are sandier to the south west and *Pericalymma ellipticum* Low Open Heath occurs on the poorly drained sandy clay flats with *Sanksia* Low Woodland on the sandy rises. Towards the north east the influence of the heavier alluvial soils becomes apparent and on the uplands other tree species become important components of the canopy to form various combinations with the *Sanksia* that are difficult to map. These are Jarrah, *Allocasuarina fraseriana*, *Xylomelum occidentale*, *Ferrosoma elliptica* and Marri. In the northern third of the Location the soils become too heavy for *Sanksia* and Jarrah and Marri Woodland occurs over scattered *Kingia*. On the heaviest soils at this Location the Jarrah is absent and Marri Woodland is found along the creekline and Mixed Shrubland on the poorly drained flats.

The condition of the vegetation is variable. There is a great deal of severe localised disturbance associated with the tracks and there are several tracks of developed lands, SEC buildings, the Fire Training Centre and an abandoned Water Authority installation. The vegetation not associated with these developments is in Good to Very Good Condition.

#### Site 73a

Webster Rd, Forrestfield

**p Oht** ***Pericalymma ellipticum* Low Open Heath with scattered *Kingia* over Open Herbland and Sedgeland**

Trees: Adjacent: *Eucalyptus calophylla*, *Nuytsia floribunda*

Shrubs: *Pericalymma ellipticum*, 4\* *Kingia australis*, *Xanthorrhoea preissii*, *Eriostemon spicatus*, *Stirlingia latifolia*, *Hypocalymma angustifolium*, *Dryandra nivea*, *Acacia wildenowiana*

Herbs: *Johnsonia pubescens*, *Laxmannia ramosa*, *Conostylis setigera*,  
*Conostylis aurea*, *Dasypogon bromeliifolius*, *Stylidium bulbiferum*, *Tricoryne tennella*  
 Adjacent: 4\* *Byblis gigantea*, *Tribonanthes paustralis*

Sedges: *Schoenus curvifolius*, *Hypolaena exsulca*, *Loxocarya fasciculata*,  
 4\* *Mesomelaena tetragona*, 4\* *Mesomelaena graciliceps*

#### CONDITION

Rating **Good to Very Good**

Comments: The area of the site has been burnt in the last two years and the  
*Pericalymma* is yet to reach its full height. The fire probably accounts for the density  
 of herbs such as *Stylidium brunonianum*.

Aerial Photo: Run 13 5181

Soil: grey sandy clay over grey clay, SR (Churchward and McArthur 1980)

Drainage: poor

Aspect: flat

#### Site 73b

**lab W** *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina*  
*fraseriana* and *Eucalyptus marginata* Woodland over *Adenanthos*  
*cygnorum* High Open Shrubland over Low Shrubland over  
*Cyathochaeta avenacea* Sedgeland

Trees: *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*,  
*Eucalyptus marginata*

Shrubs: *Adenanthos cygnorum*, *Xanthorrhoea preissii*, 5\* *Pityrodia bartlingii*,  
 3,6\* *Conospermum undulata*, 3,5\* *Isopogon drummondii*, *Eremaea pauciflora*,  
*Astroloma stomorrhena*

Herbs: 5\* *Dasypogon obliquifolius*, *Dasypogon bromeliifolius*, *Conostylis aurea*,  
*Stylidium diuroides*, *Phlebocarya ciliata*

Sedges: *Cyathochaeta avenacea*

#### CONDITION

Rating **Good**

Comments: The area of the site is subject to timber cutting, off road vehicle use and  
 rubbish dumping.

Aerial Photo: Run 13 5181

Soil: grey sand over yellow sand, SR (Churchward and McArthur 1980)

Drainage: good

Aspect: gentle, SW

#### 'Site' 73c

**p Sc** Scattered *Melaleuca preissiana* over scattered to Closed Scrub of  
*Pericalymma ellipticum* with scattered *Hakea varia* with  
 \* *Eragrostis curvula* Closed Grassland to Grassland

Trees: *Melaleuca preissiana*

Shrubs: *Pericalymma ellipticum*, \* *Leptospermum laevigatum*, \* *Chamelaucium uncinatum*

Grasses: \* *Eragrostis curvula*, \* *Avena fatua*, \* *Cortaderia selkoi*

Herbs: \* *Trifolium* species

#### CONDITION

Rating **Very Poor to Completely Degraded**

Comments: This area is on the side of a track and has been cleared in the past.

#### Site 73d

**Note** Vegetation Map Area 15 shows Sites d & e alongside each other near Tonkin Hwy. Only one Site should be shown for this area, Site d in the position of the adjacent symbol e.

**bja W** *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana* and Jarrah Woodland over *Adenanthos cygnorum*  
**High Open Shrubland over *Allocasuarina humilis* over *Leucopogon conostephioides*, *Hibbertia hypericoides* and *Stirlingia latifolia* Low Open Heath over *Lyginia barbata* and *Alexgeorgea nitens* Sedgeland**

Trees: *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Eucalyptus marginata*

Shrubs: *Adenanthos cygnorum*, *Allocasuarina humilis*, *Leucopogon conostephioides*, *Hibbertia hypericoides*, *Stirlingia latifolia*, *Eremaea brevifolia*, *Petrophile linearis*, 4\* *Jacksonia restioides*, *Gompholobium tomentosum*, *Daviesia triflora*, *Acacia auronitens*, *Synaphea spinulosa*, *Hovea trisperma*

Grasses: \* *Ehrharta calycina*

Herbs: *Dasyopogon bromeliifolius*, *Conostylis aurea*, *Conostylis setigera*, *Stylidium diuroides*, *Phlebocarya filifolia*, *Lechenaultia floribunda*, *Drosera macrantha*, *Drosera stolonifera*, *Drosera palacea*, *Burchardia umbellata*, \* *Ursinia anthemoides*, \* *Gladolus caryophyllaceus*

Adjacent: *Phlebocarya ciliata*

Sedges: *Lyginia barbata*, *Alexgeorgea nitens*, *Hypolaena exsulca*

#### CONDITION

Rating **Very Good to Good**

Comments: To the west, alongside the *Pericalymma* Heath the tree layer has died and the shrubs thinned to result in a *Phlebocarya ciliata* and *Patersonia occidentalis* Herbland and *Alexgeorgea nitens* and *Lyginia barbata* Sedgeland. The death of the trees could be the result of dieback or the lowering of the water table (C Seminiuk, pers com).

Aerial Photo: Run 13 5181

Soil: grey brown sand over grey sand, SR (Churchward and McArthur 1980)

Drainage: good

Aspect: flat

Site 73e

**m W Marri Woodland over *Hakea trifurcata* High Open Shrubland over Shrubland**

Trees: *Eucalyptus celophylla*

Shrubs: 4# *Thomasia macrocarpa*, 2,5## *Allocasuarina thuyoides*, 4# *Dryandra armata*, *Hibbertia hypericoides*, *Acacia pulchella*, 4# *Thomasia glutinosa*, *Xanthorrhoea preissii*, 4# *Kingia australis*, 4# *Pimelea imbricata*

Adjacent: 4# *Isopogon dubius*, *Gompholobium capitatum*, *Hemigenia sericea*

Herbs: *Tricoryne elatior*, \* *Gladiolus caryophyllaceus*, \* *Watsonia*

Sedges: 4# *Caustis dioica*, 4# *Mesomelaena tetragona*

## CONDITION

Rating Good

Aerial Photo: Run 13 5183

Soil: brown loam over light brown clay, SR (Churchward and McArthur 1980)

Drainage: moderate

Aspect: creekside

Site 73h

**mj k W Marri and Jarrah Woodland to Open Woodland over scattered *Kingia***

## CONDITION

Rating: Very Good Condition.

Comments: This area is fenced and entry prohibited. The understorey was similar to that of Site f.

Site 73f

**bx W *Banksia attenuata*, *Banksia menziesii*, *Banksia grandis* and *Xylomelum occidentale* Woodland over scattered *Adenanthos cygnorum* and *Hakea ruscifolia* over *Lambertia multiflora* Open Heath to Shrubland over *Hibbertia hypericoides* and *Conospermum undulatum* Low Shrubland over *Mesomelaena pseudostygia* Sedgeland**

## COMMENTS

There is a large area around an abandoned Water Board Installation to the east of this site. The vegetation is grossly disturbed in this area mostly being cleared and now a \* *Ehrharta calycina* Closed Grassland and at the edges that were partially cleared scattered trees with patches of *Adenanthos cygnorum* Open Scrub.

Trees: *Banksia attenuata*, *Banksia menziesii*, *Allocasuarina fraseriana*, *Xylomelum occidentale*, 4# *Persoonia elliptica*

Adjacent: *Eucalyptus marginata*

Shrubs: *Adenanthos cygnorum*, *Hakea ruscifolia*, 4\* *Lambertia multiflora*, *Xanthorrhoea preissii*, 3\* *Daviesia physodes*, *Stirlingia latifolia*, *Gompholobium confertum*, *Fimelea suaveolens*, *Hemlandra pungens*, *Bosstea eriocarps*, *Conostephium pendulum*, *Hovea trisperma*

Herbs: *Dasypogon bromeliifolius*, 5\* *Dasypogon obliquifolius*, *Haemodorum laxum*, *Monotaxis grandiflora*, *Tricoryne tennella*, *Patersonia occidentalis*, *Conostylis aurea*, *Stylidium diuroides*, *Burchardia umbellata*,

Sedges: *Luzinia barbata*, *Alexgeorgea nitens*, *Loxocarya fasciculata*

#### CONDITION

Rating **Very Good**

Comments: Adjacent area is subject to off road vehicle use and rubbish dumping.

Aerial Photo: Run 13 5181

Soil: grey sand over yellow sand, SR (Churchward and McArthur 1980)

Drainage: good

Aspect: gentle, NW

#### Site 73q

mi/k Sh **Scattered Marri and *Nuytsia* over Mixed Shrubland with scattered *Kingia* over Sedgeland**

Trees: *Eucalyptus calophylla*, *Nuytsia floribunda*

Shrubs: 4\* *Kingia australis*, 4\* *Lambertia multiflora*, *Calytrix aurea*, *Verticordia densiflora*, *Xanthorrhoea preissii*, *Allocasuarina humilis*

Herbs: *Dasypogon bromeliifolius*

Sedges: 4\* *Mesomelaena tetragona*, *Caustis dioica*

#### CONDITION

Rating **Very Good**

Comments: A large drain runs around the entire eastern perimeter, \* *Ehrharta calycina* and \* *Eragrostis curvula* along roadside and tracks and enrichment plantings along the northern and eastern margins.

Aerial Photo: Run 13 5183

Soil: light brown sandy clay, SR (Churchward and McArthur 1980), ?Gf (King and Wells 1990)

Drainage: poor

Aspect: flat

**Location 74** - Harrison Rd High, Wycombe. Location Map 8. Vegetation Map, p94.

**Yeg: ajm W**

**Cond: Good**

#### Site

**ajm W** *Allocasuarina fraseriana*, Marri and Jarrah Open Woodland to Open Forest over *Stachyslemon vermicularis*, *Hibbertia hypericoides* and *Xanthorrhoea preissii* Low Open Heath

Trees: *Allocasuarina fraseriana*, *Eucalyptus calophylla*, *Eucalyptus marginata*

Shrubs: *Stachystemon vermicularis*, *Hibbertia hypericoides*, *Xanthorrhoea preissii*, *Stirlingia latifolia*, 3\* *Daviesia physodes*, 4\* *Labichea lanceolata*, *Petrophile linearis*, *Bassia eriocarps*, *Synaphea spinulosa*, *Dryandra sessilis*, *Monotaxis grandiflora*, *Hemiandra pungens*

Adjacent: 4\* *Baeckea camphorosmae*, *Eriostemon spicatus*, 3, 6\* *Conospermum undulata*

Grasses: \* *Briza maxima*

Herbs: *Dasypogon obliquifolius*, 5\* *Dasypogon bromeliifolius*, \* *Gladiolus caryophyllaceus*, *Haemodorum laxum*, *Anigozanthos manglesii*, *Burchardia umbellata*, *Caesia micrantha*, *Lomandra preissii*, *Romulea rosea*, *Fodolepis gracilis*, *Caladenia sp.*, *Stylidium piliferum*, *Conospermum setigera*, *Conostylis aurea*, *Trachymene pilosa*, *Paterosmia occidentalis*

Sedges: *Mesomelaena pseudostygia*, 5\* *Cyathochaeta avenacea*, *Loxocarys fascicularis*, 4\* *Caustis dioica*, *Alexgeorgea nitens*

Adjacent: 4\* *Mesomelaena tetragona*

#### CONDITION

Rating **Good**

Comments: Significant invasion by weeds

Aerial Photo: Run 13 5183

Soil: grey sandy clay over light grey sand, SR (Churchward and McArthur 1980)

Drainage: well

Aspect: flat

**Location 75:** Sultana Rd, High Wycombe. Location Map 8. Vegetation Map Area 14, p93.

**Yeg: b LOF**

**Cond: Very Good**

#### GENERAL COMMENTS

This Location of *Banksia attenuata* and *Banksia menziesii* Low Open Forest of 14+ ha is in Very Good Condition and has a unique shrub flora. The shrub flora is of further interest as it has not been burnt for a long period and the shrubs have reached maturity. The margins of the Location are invaded by \* *Ehrharta calycina*, \* *Briza maxima*, \* *Ursinia anthemoides* and \* *Gladiolus caryophyllaceus* with \* *Eragrostis curvula* on the roadside. \* *Ehrharta calycina* and \* *Gladiolus caryophyllaceus* are found occasionally in the main body of the bushland at the Location

#### Site

**b LOF** *Banksia attenuata* and *Banksia menziesii* Low Open Forest over *Adenanthos cygnorum* High Open Shrubland over mixed Open Heath over *Tricostularia neesii* and *Mesomelaena pseudostygia* Sedgeland

Trees: *Banksia attenuata*, *Banksia menziesii*

Area: scattered 2\* - confined to the Darling Scarp *Ferrosia elliptica*



Shrubs: 4\* *Lambertia multiflora*, 3, 5\* *Isopogon drummondii*, 5\* *Banksia incana*, 4\* *Petrophile seminuda*, 2\* - confined to grey sand subject to inundation, 5\* *Actinostrobus scuminatus*, *Calectasia cyanea*, *Dryandra nivea*, 5\* *Eremaea Yimbrata*, 6\* *Conospermum undulata*, *Allocasuarina fraseriana*, 5\* *Conothamnus trinervis*, *Hakea prostrata*, *Lysinema ciliatum*, 5\* *Hakea conchifolia*, *Hibbertia hypericoides*  
 Area: 4\* *Calytrix aurea*, 5\* *Pityrodia bartlingii*, 4\* *Jacksonia restioides*, *Beaufortia squarrosa*

Herbs: 5\* *Dasypogon obliquifolius*, *Fatersonia occidentalis*, *Phlebocarys ciliata*  
 Adjacent: *Dasypogon bromeliifolius*  
 Area: *Haemodorum laxum*, 5\* *Haemodorum loratum*

Sedges: *Mesomelaena pseudostygia*, *Lygimia barbata*, *Tricostularia neesii*, 5\* *Cyathochaeta avenacea*  
 Adjacent: 4\* *Mesomelaena tetragona*, 4\* *Caustis dioica*

#### CONDITION

Rating Very Good

Comments: Unburnt for 20+ years, litter to 50cm and shrubs all mature, some *Adenanthos cygnorum* to 8m.

Aerial Photo: Run 13 5183

Soil: grey sand over yellow sand, SR (Curchward and McArthur 1980), ?Gf (King and Wells 1990)

Drainage: good, but shrub species indicate water is available

Aspect: very gentle to NE

**Location 76** - Milner Rd, High Wycombe. Location Map 8. Vegetation Map, Appendix 2, p12.

**Veg: jab W**

**Cond: Poor**

#### Description

**jab W Jarrah, *Allocasuarina fraseriana* and *Banksia* Woodland over Low Shrubland over *Cyathochaeta avenacea* Open Sedgland**

Similar to the Harrison Rd Location, *Conospermum undulatum* present.

#### CONDITION

Rating **Poor**

Comments: Significant cover \* *Ehrharta calycina*

Aerial Photo: Run 13 5183

Soil:

Drainage: good

Aspect: flat

**Location 77** - Raven Rd , High Wycombe. Location Map 7. Vegetation Map, Appendix 2, p12.

**Yeg: m OF, mja W**

**Cond: Very Good**

#### GENERAL COMMENTS

A small area of remnant vegetation in Very Good Condition associated with a creekline. The Marri Open Forest to Woodland at this Location indicates that this Location is closely allied with the Pinjarra Plain as is the creekline and associated vegetation at Location 73.

#### Site a

**m OF Marri Open Forest over Open Heath over Low Open Shrubland over *Xanthosia candida* Herbland**

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*

Shrubs: *Hakea undulata*, 5# *Thomasia macrocarpa*, *Hibbertia hypericoides*, *Hakea lissocarpa*, *Hakea sulcata*, *Xanthorrhoea preissii*, 2# *Gompholobium capitatum*, 5# *Thomasia glutinosa*, 5# *Trymalium lediifolium*, *Baeckea camphorosmae*

Adjacent: 5# *Isopogon asper*, 5# *Grevillea bipinnatifida*

Herbs: 5# *Xanthosia candida*, *Stylidium brunonianum*, *Thysanotus manglesianus*, *Cassytha glabella*, *Scaevola* sp, 5# *Stylidium affine*, *Fronya*, *Patersonia occidentalis*

Sedges: *Loxocarya fasciculata*

#### CONDITION

Rating **Very Good**

Comments: \* *Watsonia* in adjacent areas in creekline

Aerial Photo: Run 13 5183

Soil: brown sandy clay with lateritic pebbles, ?SW (King and Wells 1990)

Drainage: moderate

Aspect: steep, N

#### Site b

**mja OW Marri, Jarrah and *Allocasuarina fraseriana* Open Woodland over scattered *Hakea ruscifolia* and *undulata* over *Allocasuarina humilis* Shrubland to Open Heath over *Stirlingia latifolia* and *Acacia pulchella* Low Open Shrubland over *Caustis dioica* and *Cyathochaeta avenacea* Sedgeland.**

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*, *Allocasuarina fraseriana*

Shrubs: *Hakea ruscifolia*, 4# *Hakea undulata*, *Allocasuarina humilis*, *Eriostemon spicatus*, *Stirlingia latifolia*, *Acacia pulchella*, 5# *Eremaea fimbriata*, *Calectasia cyanea*, 4# *Templetonia biloba*, 4# *Jacksonia restioides*, *Hemiandra pungens*, 4# *Grevillea bipinnatifida*, *Dryandra nivea*, *Petrophile linearis*

Grasses: *Microlaena stipoides*, *Amphipogon turbinatus*

Herbs: *Conosperma calymega*, *Scaevola paludosa*, *Haemodorum laxum*,  
*Conostylis aurea*, *Stylidium calcaratum*, *Helipterum cotula*, *Drosera stolonifera*, *Caesia*  
*micrantha*, *Chamaescilla corymbosa*, *Burchardia umbellata*, *Xanthosia huegelii*,  
 \* *Ursinia anthemoides*, \* *Gladiolus caryophyllaceus*, *Anigozanthos mangiesii*,  
 5# *Stylidium affine*

Sedges: *Alexgeorgea nitens*, *Loxocarya fasciculata*, *Lepidosperma* sp.,  
 4# *Mesomelelaena tetragona*, *Mesomelelaena pseudostylgia*, *Lyginia barbata*

#### CONDITION

Rating Very Good

Comments:

Aerial Photo: Run 13 5183

Soil: white grey sand over yellow sand, ?Gf (King and Wells 1990)

Drainage: good

Aspect: flat

**Location 78** - Milner Rd at crossing over Poison Gully, High Wycombe. Location Map  
 7. Vegetation Map, Appendix 2, p12

**Veg: m OF**

**Cond: Good to Poor**

#### GENNERAL COMMENTS

This Location on the Poison Gully creekline is very similar to Site 77a but not in as good condition with a greater cover of \* *Watsonia*.

**m OF Marri Open Forest over Open Heath over Low Open  
 Shrubland over Herbland**

**Location 79** - Adjacent to Edney Primary School, High Wycombe. Location Map 7.  
 Vegetation Map, Appendix 2, p12

**Veg: ja LW**

**Cond: Good to Poor**

#### GENNERAL COMMENTS

**ja LW Jarrah and *Allocasuarina fraseriana* Low Woodland over  
 Open Heath.**

Trees: *Eucalyptus calophylla*, *Allocasuarina fraseriana*

Shrubs: 4# *Lambertia multiflora*, 3, 6# *Conospermum undulatum*, 5# *Hakea  
 conchifolia*

#### CONDITION

Rating Good to Poor

Comments: Many tracks occur through the bushland.

Soil: grey sand with lateritic pebbles, SR (Churchward and McArthur 1980), ?Gf (King and Wells 1990)  
 Drainage: good

**Location 80** - Flemming Park, High Wycombe. Location Map 7. No Vegetation Map.

**Veg: jab LW**

**Cond: Good to Poor**

#### GENERAL COMMENTS

This Location in northern High Wycombe is apparently representative of the vegetation that occurred in this recently developed housing estate and is similar to that found in the southern section of High Wycombe.

#### Site

**jab LW/LOF Jarrah, *Banksia* and *Allocasuarina fraseriana* Low Woodland to Low Open Forest over Low Shrubland.**

Trees: *Eucalyptus calophylla*, *Allocasuarina fraseriana*, *Banksia menziesii*, *B. attenuata*, *B. grandis*, 4# *Persoonia elliptica*

Shrubs: *Xanthorrhoea preissii*, 3, 6# *Conospermum undulatum*, 3, 5# *Isopogon drummondii*, *Stachystemon vermicularis*, *Daviesia nudiflora*, *Stirlingia latifolia*

Grasses: \* *Ehrharta calycina*, \* *Briza maxima*

Herbs: *Conostylis aures*, \* *Ursinia anthemoides*

Sedges: *Mesomelesena pseudostygia*

#### CONDITION

Rating Good to Poor

Comments: Many tracks occur through the bushland. Weeds, principally \* *Ehrharta calycina*, \* *Eragrostis curvula*, \* *Briza maxima* and \* *Ursinia anthemoides* are found along the tracks and in scattered clumps in the bushland. Frequent fires have reduced the density of the shrub, herb and sedge strata.

Soil: grey sand, SR (Churchward and McArthur 1980)

Drainage: good

**Location 81** - Activ Industries Site, SW intersection Adelaide St And Roe Hwy.

Location Map 7. Vegetation Map Area 13, p93

**Veg: b LOF, jab OW  
 severe localised disturbance**

**Cond: Very Good to Good with**

#### GENERAL COMMENTS

*Banksia attenuata* and *Banksia menziesii* Low Open Woodland to Low Open Forest and Jarrah, *Allocasuarina fraseriana*, *Banksia attenuata* and *Banksia menziesii* Open Woodland are the characteristic associations of this Location.

Roadsides heavily infested \* *Ehrharta* and \* *Eragrostis*, some rubbish dumping, off road, timber cutting. The area to the west of Site a has been burnt in 1991 as indicated by the numerous flowering *Xanthorrhoea*. Most of the vegetation is in Very Good Condition with severe localised disturbance associated with the developments. Little enrichment planting observed, owners in sympathy with the bushland.

### Site 81a

**b LOF** *Banksia attenuata* and *Banksia menziesii* Low Open Woodland with scattered Jarrah and *Muylisia* over *Adenanthos cygnorum* high Open Shrubland over *Lambertia multiflora* and *Jacksonia densiflora* Open Shrubland over mixed Low Open heath over Open Sedgeland

Trees: *Banksia attenuata*, *Banksia menziesii*, *Eucalyptus marginata*, *Muylisia floribunda*

Shrubs: *Adenanthos cygnorum*, 4# *Lambertia multiflora*, *Jacksonia densiflora*, *Eremaea pauciflora*, 5# *Hakea conchifolia*, *Hibbertia hypericoides*, 4# *Jacksonia restioides*, 3, 5# *Isopogon drummondii*, 3, 6# *Conospermum undulatum*, *Stirlingia latifolia*, *Eriostemon spicatus*, *Dryandra nives*, *Xanthorrhoea preissii*, *Melaleuca scabra*, 5# *Pityrodia bartlingii*, 5# *Banksia incana*, *Petrophile macrostachya*, *Boschia eriocarpa*, *Calytrix*, 3# *Daviesia physodes*

Grasses: *Stipa* sp., *Amphipogon turbinatus*

Herbs: *Tricoryne elatior*, *Burchardia umbellata*, \**Gladiolus caryophyllaceus*, *Conostylis setigera*, *Conostylis aurea*, *Paterosmia occidentalis*, *Scaevola paludosa*

Sedges: *Mesomelaena pseudostygia*, 5# *Cyathochaeta avenacea*, 5# *Cautis dioica*, *Loxocarya fasciculata*, *Schoenus subflavus*, *Schoenus* ? *clandestinus*

### CONDITION

Rating Good to Very Good

Comments: The bushland in the adjacent area is fragmented by tracks and some invasion of \* *Ehrharta calycina* and \* *Avena fatua* at the edges tracks.

Aerial Photo: Run 13 5185

Soil: pale grey sand over cream to yellow sand, F (Churchward and McArthur 1980), ?Gf7 or F2 (King and Wells 1990)

Drainage: good

Aspect: flat

### Site 81b

**jab OW** Jarrah, *Allocasuarina fraseriana*, *Banksia attenuata* and *Banksia menziesii* Open Woodland with scattered *Persoonia elliptica* over *Allocasuarina humilis* and *Xanthorrhoea preissii* Low Open heath.

Trees: *Eucalyptus calophylla*, *Allocasuarina fraseriana*, *Banksia attenuata*, *Banksia menziesii*, 4# *Persoonia elliptica*

Shrubs: *Allocasuarina humilis*, *Xanthorrhoea preissii*, *Hibbertia hypericoides*, *Petrophile linearis*, *Daviesia nudiflora*, *Conostephium pendulum*, *Stirlingia latifolia*, *Dryandra nives*, *Gompholobium tomentosum*, *Daviesia triflora*, 3, 6# *Conospermum*

*undulatum*

Adjacent: 4# *Lambertia multiflora*, *Eremsea pauciflora*

Herbs: *Stylidium piliifera*, *Stylidium diuroides*, *Paterosmia occidentalis*,  
*Anigozanthos manglesii*, *Haemodorum laxum*, *Dasypogon bromeliifolius*, 5# *Dasypogon*  
*obliquifolius*, \* *Ursinia anthemoides*, *Conostylis setigera*, *Conostylis aurea*  
Adjacent: 5# *Biancos canescens*

Sedges: *Tetraria octandra*, *Mesomelaena pseudostygia*, *Loxocarya fasciculata*,  
*Alexgeorgea nitens*

#### CONDITION

Rating Good to Very Good

Comments: Area subject to fires, rubbish dumping, off road vehicle, ?dieback dead  
Banksia, rabbits. \* *Ehrharta calycina* at the edge of tracks and roads.

Aerial Photo: Run

Soil: pale grey sand over yellow sand, F (Churchward and McArthur 1980),  
?Gf7 or F2 (King and Wells 1990)

Drainage: good

Aspect: flat

**Location 82** - Bushland at the junction of Great Eastern Hwy Bypass and Roe Hwy,  
Hazlemere. Location Map 7. Vegetation Map, Appendix 2, p10.

**Veg: bma OF, pk OHT**

**Cond: Very Good to Poor**

#### Descriptions

**bma OF** *Banksia attenuata*, *Banksia menziesii*, Marri and  
*Allocasuarina fraseriana* Open Forest over scattered  
*Jacksonia densiflora* over Low Open Heath.

**pk OHT** *Pericalymma ellipticum* Open Heath with scattered  
*Kingia australis* and *Melaleuca preissiana*

#### CONDITION

Rating Very Good to Poor

Comments: Fragmented by the two major roads traversing the Location, tracks and  
partial clearing.

Aerial Photo: Run 13 5185

Soil: ?Gf (King and Wells 1990)

Drainage: good to poor

**Location 83** - Banks of the Helena River at crossing with the Roe Hwy. Location Map  
7. Vegetation Map, Appendix 2, p11.

**Veg: rW W**

**Cond: Very poor to Completely Degraded**

### Description

**r W** *Eucalyptus rudis* replaced by *Eucalyptus wandoo* up the slope and  
*Melaleuca raphiophylla* Open Forest to Woodland over scattered  
*Paraserianthes lophantha* in *Yiminaria juncea* High Shrubland  
 over exotic Herbland

#### CONDITION

Rating: Very Poor to Completely Degraded

Comments: Probably cleared and grazed in the past and soil movement associated with roadworks, earth movement

Aerial Photo: Run

Soil: red-brown loam, ?SW 3 (King and Wells 1990)

Drainage: Poor

Aspect: banks of the Helena River

**Location 84** - SE corner Roe Hwy and Great Eastern Hwy. Location Map 7. Vegetation Map, Appendix 2, p11.

**m W** *Marri* Open Woodland over *Yiminaria juncea* High Open  
 Shrubland over *Xanthorrhoea preissii* and *Kingia australis*  
 Shrubland over \* *Watsonia* and exotic grass Herbland.

#### CONDITION

Rating: Poor to Very Poor

Comments: Severely weed invaded and water dumped on site.s

Aerial Photo: Run

Soil: Gf 1SR (King and Wells 1990)

Drainage: Poor, under water ?depth

Aspect: Flat

**Location 85** - Roe Hwy from Morrison Rd to Great Northern Hwy. Location Map 6.

**Veg: r OW, w OW**

**Cond: Completely Degraded**

### Description

**Lower slopes to west**

**r OW** *Eucalyptus rudis* Open Woodland with scattered clumps of  
*Melaleuca raphiophylla* over exotic Herbland and Grassland

**Higher slopes to east**

**w OW** *Eucalyptus wandoo* Open Woodland with scattered clumps of  
*Melaleuca raphiophylla* over exotic Herbland and Grassland

#### CONDITION

Rating: Completely Degraded

Comments: Cleared and grazed in the past, now subject to housing development

Aerial Photo: Run

Soil: red-brown loam, ?SW 3(King and Wells 1990)

Drainage: moderate

Aspect: gentle, west

**Location 86** - Talbot Rd Reserve and adjacent bushland south to Blanchard St.  
Location Map 6. Vegetation Map Area 12, p92.

**Veg:**  $\nu$  W, s HSh, m OW, b LW, Sand Heath, Lateritic Heath, m W  
**Cond:** Very Good to Good Condition with areas of severe localised disturbance

#### GENERAL DESCRIPTION

This large area, approx 88 hectares, of bushland was identified early in this study as an important conservation area and is being surveyed in detail in the Swan Coastal Plain Survey. A separate publication on the vegetation and floristics of this Location will be prepared as part of the Swan Coastal Plain Survey.

The entire Location is on the Ridge Hill Shelf and the soils change from loamy lateritic soils on the highest land to the east through sand over laterite to deep sands on the west. The vegetation associations are:

- on the loamy lateritic soils, Wandoo Open Woodland and Mixed Open to Closed Heathland
- on the sandy lateritic soils, *Jacksonia sternbergiana* High Shrubland, Marri Open Woodland and Marri and Jarrah woodland
- on the sandy soils, *Banksia* Low Woodland and Mixed Open to Closed Heath.

The Location is generally in Very Good to Good Condition with areas of severe localised disturbance associated with gravel mines and a few areas of partial clearing. There is significant weed invasion, particularly by \* *Ehrharta calycina*, associated with the outer boundaries of the Location especially on the sandier soils. The gravel mines are also subject to weed invasion, the weeds are of a variety of species, originating from the dumped rubbish.

#### Site 86a

**m W** Marri Woodland over *Acacia pulchella*, *Xanthorrhoea preissii* and *Kingia australis* Open Shrubland over *Hibbertia hypericoides*, *Gompholobium aristatum* and *Dryandra nivea* Low Shrubland over *Anigozanthos manglesii* Open Herbland and Open Sedgeland

#### Comments

This site is of particular significance as this is the most northerly population of *Kingia* found in the study area. South of this Location *Kingia*'s presence on the Swan Coastal Plain can be used as an indicator of Ridge Hill Shelf and Pinjarra Plain vegetation.

Species of interest are:

Shrubs: 4# *Grevillea bipinnatifida*, 4# *Gompholobium aristatum* 4# *Kingia australis*

Grasses: 4# *Neurachne alopecuroides*,



Herbs: 4\* *Trichocline spathulata*, 4\* *Chamaescilla versicolor*,  
 Sedges: 5\* *Cyathochaeta avenacea*, 4\* *Mesomelaena tetragona*  
 CONDITION  
 Rating Very Good  
 Soil: grey sand, ?F1 (King and Wells, 1990)  
 Drainage: moderate  
 Aspect: gentle, west

### **Site 86b**

**b LW** *Banksia menziesii* Low Open Woodland over *Adenanthos cygnorum*  
 High Open Shrubland over *Calytrix angulata* and *Conospermum*  
*stoechadis* Low Shrubland over Open Herbland and *Mesomelaena*  
*pseudostygia* Sedgeland.

Species of interest are:

Grasses: 4\* *Neurachne alopecuroides*,  
 Sedges: *Tricostularia neesii*  
 CONDITION  
 Rating Good  
 Comments: There are dead *Banksia* indicating the presence of dieback.  
 Soil: grey white sand, ?F1 (King and Wells, 1990)  
 Drainage: good  
 Aspect: gentle, west

### **Site 86c – Lateritic Heath**

**mi OHT** *Hakea trifurcata*, *H. undulata*, *Beaufortia purpurea* and  
*Allocasuarina humilis* Open Heath over *Hibbertia*  
*hypericoides*, *Jacksonia condensata*, *Hypocalymma*  
*angustifolium* and *Melaleuca scabra* Low Open Heath over  
*Neurachne alopecuroides* Open Grassland, *Borya scirpoidea*  
 and *Stylidium* species Herbland and Open Sedgeland

Species of interest are:

Trees: 4\* *Eucalyptus wandoo*  
 Shrubs: 4\* *Hakea erinacea*, 4\* *Hakea lissocarpa*, 4\* *Dryandra armata*,  
 3, 4\* *Synaphaea acutiloba*, 4\* *Chorizema dicksonii*, 4\* *Baeckea camphorosmae*,  
 4\* *Hakea erinacea*, 4\* *Hakea lissocarpa*, 4\* *Hakea undulata*, 4\* *Pimelea imbricata*,  
 3, 4\* *Beaufortia purpurea*  
 Grasses: 4\* *Neurachne alopecuroides*  
 Herbs: 4\* *Stylidium bulbiferum*, 4\* *Stylidium brevicaepum*, 4\* *Stylidium*  
*dichotomum*, 4\* *Xanthosia candida*, *Borya scirpoidea*, 4\* *Laxmannia grandiflora*

**CONDITION**

Rating Good to Very Good

Comments: The general area of Lateritic Heath has been disturbed and there is an old gravel mine at the top of the rise the western slope is in good condition with small patches of weeds associated with tracks, off road vehicle use, rubbish dumping and soil disturbance. The boundary is fenced which discourages the dumping of garden refuse.

Aerial Photo: Run

Soil: pale brown sandy loam over laterite, ?F6 (King and Wells, 1990)

Drainage: moderate to poor

Aspect: gentle, west

**Site 86d**

**s HSh *Jacksonia sternbergiana* and *Adenanthos cygnorum* High Open  
Shrubland over *Allocasuarina humilis* and *Hakea ruscifolia*  
Shrubland over *Hibbertia hypericoides* and *Stirlingia latifolia* Low  
Shrubland over Sedgeland**

Species of interest are:

Shrubs: 4# *Kingia australis*

Grasses: 4# *Neurachne alopecuroides*

Sedges: 4# *Mesomelaena tetragona*

**CONDITION**

Rating Good to Very Good

Comments: The general area of Lateritic Heath has been disturbed and there is an old gravel mine at the top of the rise the western slope is in good condition with small patches of weeds associated with tracks, off road vehicle use, rubbish dumping and soil disturbance. The boundary is fenced which discourages the dumping of garden refuse.

Aerial Photo: Run

Soil: yellow sand, ?F1 (King and Wells, 1990)

Drainage: well

Aspect: gentle, west

**Site e**

**m OW Marri Open Woodland over Low Open Heath**

**CONDITION**

Rating Very Good

Soil: sand, ?F1 (King and Wells, 1990)

Drainage: well

Aspect: gentle, S

**Site f – Sand Heath**

**mi Ht** *Allocasuarina humilis*, *Hakea ruscifolia*, *Lambertia multiflora* and *Xanthorrhoea preissii* Low Open Heath

Species of interest are:

Shrubs: 3,5# *Isopogon drummondii*, 4# *Lambertia multiflora*, 4# *Andersonia lehmanniana*

Grasses: 4# *Neurachne slopecurioides*,

Herbs: 4# *Conostylis caricina*

Sedges: 4# *Mesomelaena tetragona*

**CONDITION**

Rating Very Good

Soil: sand, ?F1 (King and Wells, 1990)

Drainage: well

Aspect: gentle, NE

**Site q**

**m W** Marri Open Woodland over Low Open Heath over Open Herbland and *Mesomelaena tetragona* Open Sedgeland

**CONDITION**

Rating Very Good

Soil: loamy sand, ?SW (King and Wells, 1990)

Drainage: moderate

Aspect: bank creek

**'Site' h**

***Hakea varia* and *Hakea trifurcata* Closed Heath to High Open Shrubland over \* *Sparaxis* and \* *Homeria* Herbland**

Shrubs: *Hakea varia*, 4# *Hakea trifurcata*, *Acacia saligna*, *Xanthorrhoea preissii*, 4# *Kingia australis*, *Viminaria juncea*

Grasses: \* *Ehrharta calycina*

Herbs: \* *Sparaxis*, \* *Homeria flaccida*

Sedges: 5# *Cyathochaeta avenacea*, 4# *Mesomelaena tetragona*, *Hypolaena exsulca*

## CONDITION

Rating: Very Poor

Comments: Apparently the area has been cleared and regenerated to some extent

Site i

**W W Wandoo Open Woodland over *Hakea lissocarpa*, *Acacia pulchella*, *Hypocalymma angustifolium* and *Hakea erinacea* Low Shrubland over *Borya sphaerocephala*, *Trichocline? scapigera* and *Xanthosia candida* Herbland and *Mesomelaena tetragona* Open Sedgeland**

Trees: 4# *Eucalyptus wandoo*

Shrubs: 4# *Hakea erinacea*, 4# *Hakea lissocarpa*, 4# *Dryandra armata*, *Hypocalymma angustifolium*, 3, 4# *Synaphaea acutiloba*, *Cryptandra arbutiflora*, 4# *Pultenaea ericifolia*, *Melaleuca scabra*, 4# *Daviesia horrida*, 3, 4# *Hakea myrtilloides*, 4# *Memcia spathulatum*, *Hibbertia hypericoides*, 4# *Chorizema dicksonii*, 4# *Dryandra armata*, 4# *Baeckea camphorosmae*

Adjacent: 3, 4# *Synaphaea pinnata*Grasses: *Stipa pycnostachya*, 4# *Neurachne alopecuroides*

Herbs: 3# *Gonocarpus pithyoides*, 4# *Xanthosia candida*, 4# *Borya sphaerocephala*, 2, 3# *Trichocline? scapigera*, 4# *Chamaescilla versicolor*, \* *Hesperanthera falcata*, 4# *Patersonia juncea*, \* *Romulea rosea*, *Caesia micrantha*, 4# *Xanthosia candida*

Sedges: 5# *Cyathochaeta avenacea*, *Loxocarya cinerea*, 4# *Mesomelaena tetragona*, *Lepidosperma* species

## CONDITION

Rating: Good to Very Good

Comments: The overall area of Wandoo Open Woodland has been disturbed and there is an old gravel mine at the top of the rise the southern slope is in good condition with small patches of weeds associated with tracks, rubbish dumping and soil disturbance. The boundary is fenced which discourages the dumping of garden refuse.

Soil: red loam over quartzite, ?F6 (King and Wells, 1990)

Drainage: moderate to poor

Aspect: gentle to steep slope, south

adjacent Site i

**mW W Marri and Wandoo Open Woodland over *Hakea trifurcata* High Open Shrubland over *Hakea lissocarpa* and *Memcia spathulata* Low Shrubland over *Neurachne alopecuroides* Grassland, Open Herbland and Open Sedgeland**

Trees: *Eucalyptus calophylla*, 4# *Eucalyptus wandoo*

Shrubs: 4# *Hakea trifurcata*, 4# *Hakea undulata*, 4# *Hakea lissocarpa*, *Acacia pulchella*, 4# *Memcia spathulatum*, *Leucopogon polymorphous*, *Melaleuca scabra*, 4# *Pimelea imbricata*, *Xanthorrhoea preissii*

Grasses: 4\* *Neurachne alopecuroides*, *Stipa pycnostachya*

Herbs: 4\* *Stylidium affine*, 4\* *Xanthosia candida*, 4\* *Trichocline spathulata*, *Eryngium pinnatifidum*, 4\* *Tribonanthes brachypetala*, 5\* *Drosera macrantha* 'robust', 4\* *Arthropodium preissii*, 4\* *Chamaescilla versicolor*, *Stylidium bulbiferum*, \* *Romulea rosea*, \* *Hypochaeris glabra*, \* *Gladiolus caryophyllaceus*

Sedges: 5\* *Cyathochaeta avenacea*, *Loxocarya fasciculata*, *Loxocarya cinerea*, *Lepidosperma* species

#### CONDITION

Rating: Good  
Comments: see above

Aerial Photo: Run 14 5035

Soil: red loam over laterite, ?F6 (King and Wells, 1990)  
Drainage: moderate  
Aspect: gentle, south

#### Site 86j

#### **mj W Marri and Jarrah Woodland over Low Shrubland**

#### CONDITION

Rating: Good  
Comments: Surveyed from the road.

Aerial Photo: Run 14 5035

Soil: sand, ?F1 (King and Wells, 1990)  
Drainage: good  
Aspect: gentle, S

**Location 87** - Hazelmere Lakes, System 6 Reserve M45, Hazelmere. Location Map 6. Vegetation Map, Appendix 2, p10.

**Yeg:mr/mp/r W/OF, mba LOW  
Degraded**

**Cond: Poor to Completely**

#### GENERAL COMMENTS

This assessment was made from the aerial photographs and EPA Report 13 (System 6), 1983. The area of vegetation is virtually confined to fringing vegetation around the Lakes, mostly around the southern Lake. There are some remnants of the upland Marri, *Banksia* and *Allocasuarina fraseriana* Open Woodland in a Degraded Condition associated with the southern Lake.

**Location 88** - Ridge Hill Rd, Helena Valley. Location Map 7. Vegetation Map, Appendix 2, p14

Reference: Report on the area probably?Dames and Moore 1990 (from the CALM file).

**Yeg: w W, Lht**  
**localised disturbance.**

**Cond: Very Good to Good with severe**

#### GENERAL COMMENTS

This assessment was made from the aerial photographs and a report on Bushmead Rifle Range(?Dames and Moore, 1990).

The entire Location is on lateritic Ridge Hill Shelf soils, F3, 6 & 8(King and Wells 1990) Location Map 7, adjacent to the Scarp and has very close affinities with the flora of the Scarp.

#### Description

**w OW, Lht**      **Wandoo Open Woodland over Mixed Low Open Heath, with areas of Mixed Low Open Heath.**

#### CONDITION

Rating            Very Good to Good with severe localised disturbance  
Comments:       Mined for gravel and some housing development

Aerial Photo: Run

Soil:              red-brown lateritic loam, F3, F6 & F8  
Drainage:        moderate  
Aspect:           ?steep, west

**Location 89** - Bushmead Rifle Range, Helena Valley. Location Map 7. Vegetation Map, Appendix 2, p14

Reference: Report on the area probably?Dames and Moore 1990 (from the CALM file).

**Yeg: ba LW, m OW, j W/ jm W, r/mr W/OF**  
**Good to Good with severe localised disturbance.**

**Cond: Very**

#### GENERAL COMMENTS

This assessment was made from the aerial photographs and a report on Bushmead Rifle Range(?Dames and Moore, 1990). The Location is vested in the Commonwealth Government and is presently being assessed again for possible development. Recommendations on this Location are dependant on this most recent assessment. This assessment should also consider Location 88 as together the the two areas include the principal soil types of the Ridge Hill Shelf.

The Location is apparently on Guildford and Ridge Hill Shelf soils(extrapolation from King and Wells as the area was excluded from their study). On the rises of sand to the north west, Guildford soils, *Banksia* and *Allocasuarina* Woodland and Marri Open woodland is found. Along the drainage channel *Eucalyptus rudis* and *Melaleuca raphiophylla* Woodland is found. The Ridge Hill Shelf soils to the south east are also sandy with some laterite and are characterised by the presence of Jarrah and the Jarrah Woodland and Marri And Jarrah Woodlands are characteristic of these soils(?Dames and Moore, 1990).

## Descriptions

**ba LW**      *Banksia attenuata*, *B. menziesii* and *Allocasuarina fraseriana* Low Woodland to Open Forest over Mixed Low Shrubland to Closed Heath.

### Comments

The proportional densities of *Banksia* and *Allocasuarina* are variable. At times the density of *Allocasuarina* is so great that an *Allocasuarina* Open Forest occurs. Other important trees are *Eucalyptus tootiana* and Jarrah.

Species of interest: 3, 5\* *Isopogon drummondii* and there is a record of 5\* *Eremaea fimbriata* from the area.

### CONDITION

Rating      Good

Comments:

Aerial Photo: Run

Soil:      Deep sand or sand over gravel on lower slopes and flats, ?Gf7 (King and Wells 1990)

Drainage:      good

**m OW**      **Marri Open Woodland over ?exotic Grassland with scattered shrubs**

### CONDITION

Rating      Completely Degraded

Comments:      Grazed

**j W/jm W**      **Jarrah Woodland over Mixed Low Shrubland and Herbland or Jarrah and Marri Woodland over Mixed Low Shrubland and Herbland.**

### CONDITION

Rating      Poor to Very Poor

Comments:      Past grazing and timber cutting.

Aerial Photo: Run

Soil:      Sandy lateritic, ?F2 & 3 (King and Wells 1990)

Drainage:      good

**r/mr W/OF**      *Eucalyptus rudis* and *Melaleuca raphiophylla* Woodland to Open Forest over exotic Grassland

### CONDITION

Rating      Completely Degraded

Comments:      Cleared and grazed.

Aerial Photo: Run

Soil:      Sandy lateritic, ?F2 & 3 (King and Wells 1990)

Drainage:      good

**Location 90** - Bushland N and S of Watsonia Rd, adjacent to intersection with Gooseberry Hill Rd, Regional Open Space. Location Map 7. Vegetation Map, Appendix 2, p9.

**Veg:** mj W, w m W

**Cond:** Very Good to Poor

#### GENERAL COMMENTS

This Location includes part of the Darling Range Regional Open Space and private land to the north. The Location is Marri and Jarrah Woodland merging with the Wandoo Woodland of the Scarp to the east and north east. There is considerable evidence of vegetation degradation as a result of too frequent burning, bulldozer activity, horse trails, rubbish dumping, track proliferation and weed invasion. Significant weeds are \* *Ehrharta calycina*, \* *Hypochaeris glabra*, \* *Eragrostis curvula*, \* *Watsonia* sp, \* *Homeria flaccida*, \* *Oxalis* species and \* *Trifolium campestre*.

#### Site 90a

**mj W** Marri and Jarrah Woodland over *Hakea trifurcata* and *Xanthorrhoea preissii* scattered to Closed Scrub over *Hakea lissocarpha* Low Shrubland over Open Herbland

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*

Shrubs: 4# *Hakea trifurcata*, *Xanthorrhoea preissii*, 4# *Grevillea wilsonii*, 4# *Hakea lissocarpha*, *Hibbertia hypericoides*, *Dryandra nivea*, 4# *Hakea stenocarpa*, 4# *Baeckea camphorosmae*, 3# *Templetonia drummondii*, *Astroloma* sp

Grasses: 4# *Neurachne alopecuroides*

Herbs: 4# *Trichocline spathulata*, *Lechenaultia biloba*, *Haemodorum* sp, *Conostylis* sp, *Caesia micrantha*, misc. immature annuals

Sedges: *Tetraria octandra*

#### CONDITION

Rating: Very Good

Comments: The Site has been burnt approx a year previously, no litter occurs on the ground, adjacent areas scattered \* *Ehrharta calycina*, \* *Hypochaeris glabra* and \* *Trifolium campestre*.

Aerial Photo: Run 14 5119

Soil: dark brown loamy clay over laterite, ?F1 & 2 (King and Wells 1990)

Drainage: moderate

Aspect: moderately steep, W

#### Site 90b

**m w W** Marri and Wandoo Woodland over *Hypocalymma angustifolium* Open Low Shrubland over Herbland

Trees: *Eucalyptus calophylla*, 4# *Eucalyptus wandoo*



Shrubs: *Xanthorrhoea preissii*, 4\* *Hakea lissocarpa*, *Hypocalymma angustifolium*

Herbs: *Anigozanthos viridis*, 4\* *Tribonanthes brachypetala*, *Tribonanthes longipetala*, *Burchardia multiflora*, 4\* *Stypandra glauca*, \* *Watsonia*, \* *Hesperanthera*, \* *Ehrharta calycina*, \* *Romulea rosea* and misc. immature annuals and geophytes

#### CONDITION

Rating Good to Poor

Comments: The Site has been burnt approx a year previously, no litter occurs on the ground and there is significant weed invasion accompanying substantial disturbance of the area by human activity.

Aerial Photo: Run 14 5119

Soil: dark brown loamy clay, ?F1 & 2 (King and Wells 1990)

Drainage: moderate to poor

Aspect: moderately steep, creekside

#### Site 90c

**mj W Marri and Jarrah Woodland over scattered *Hakea ruscifolia* over *Conospermum undulatum* Low Open Heath**

#### CONDITION

Rating Very Good

Comments: This Site is part of the Xanthorrhoea Nursery

Aerial Photo: Run 14 5119

Soil: loamy sand over laterite, ?F1 & 2 (King and Wells 1990)

Drainage: good

**Location 91** - Holmes Rd, north, Maida Vale - minimal survey. Location Map 7. Vegetation Map, Appendix 2, p9.

**Yeq: W W**

**Cond: Very Good to Poor**

#### Description

**Wandoo Woodland over Low Open Heath**

#### CONDITION

Rating Good

Soil: F3 (King and Wells 1990)

**Location 92** - Roe Hwy junction Great Northern Hwy. Location Map 6.

**Veg:** r OW, w OW

**Cond:** Completely Degraded

**Description**

**Jane Brook**

*Eucalyptus rudis* Forest over exotic Herbland and Grassland

**Banks Brook**

*Eucalyptus wandoo* Forest over exotic Herbland and Grassland

**CONDITION**

Rating: Completely Degraded

Comments: Cleared and grazed in the past.

Aerial Photo: Run

Soil: red-brown loam, ?SW 3(King and Wells, 1990)

Drainage: moderate

Aspect: gentle, west

**Location 93** - Hallet Gdns, Upper Swan. Location Map 5.

**Veg:** mw OW

**Cond:** Poor

**Site**

**mw OW** Marri and Wandoo Open Woodland over *Xanthorrhoea brunonis* and *Acacia pulchella* Low Open Heath over Open Herbland

Trees: *Eucalyptus calophylla*, 4# *Eucalyptus wandoo*

Shrubs: *Xanthorrhoea brunonis*, *Acacia pulchella*, *Acacia wildenowiana*, *Nemcia capitatum*, *Dryandra nivea*, *Hibbertia hypericoides*

Adjacent: *Phyllanthus calycinus*

Grasses: \* *Ehrharts calycina*, \* *Briza maxima*

Adjacent: \* *Hyparrhena hirta*, 4# *Neurachne alopecuroides*, \* *Avena fatua*

Herbs: *Sowerbaea laxiflora*, *Drosera stolonifera*, *Caesia micrantha*, *Haemodorum* sp., \* *Homeria flaccida*, \* *Hesperanthera falcata*, *Thysanotus thrysoides*, \* *Romulea rosea*

Adjacent: *Diuris longifolia*, *Dianella divaricata*, *Lomandra* sp., *Kennedia prostrata*, \* *Babiana stricta*

Sedges: *Tetraria octandra*, *Loxocarya cinerea*, 4# *Mesomelaena tetragona*

**CONDITION**

Rating: Poor to Very Poor

Comments: The vegetation has been severely degraded by the cumulative effects of too frequent fire, soil disturbance and subsequent weed invasion.

Aerial Photo MRD: Run 13 5191

Soil: dark brown loam over lighter brown loam, Gf 5 (King and Wells, 1990)

Drainage: moderate to poor

Aspect: flat

**Location 94-** General area between Locations 93 and 95.

**1) Undulating Alluvial Soils**

**Yeg: mW W**

**Cond: Completely Degraded**

**Description**

**Marri and Wandoo Woodland over exotics**

**2) River Valleys**

**Yeg: r, mr W, r F**

**Cond: Completely Degraded**

**Description**

**Flooded Gum and *Melaleuca raphiophylla* Woodland to Forest over exotics**

*\* Homeria flaccida* and *\* Hesperanthera falcata* are very common in this area, particularly *\* Hesperanthera falcata* which frequently forms closed Herblands.

**Location 95** – J and B Martyn Nature Reserve, Reserve 27620, System 6 Reserve M17. Location Map 5. Vegetation Map, Appendix 2, p8.

**Yeg: mr W, r W, WM (me SH, v Sc to Sh, H, S, m W)**

**Cond: Good to Very Poor**

**GENERAL COMMENTS**

This Reserve of approx 58 hectares is an important conservation reserve, being one of two sites from which the Short-Necked Swamp Tortoise is known and is being surveyed in detail in the Swan Coastal Plain Survey. Each vegetation association is described below. A separate publication on the vegetation and floristics of this Location will be prepared as part of the Swan Coastal Plain Survey.

The wetlands to the south of the main E-W fire break occupy approx 23 ha in Very Good to Poor Condition and are principally *Melaleuca lateritis* Open Shrubland, *Kunzea recurva* and *Viminaria juncea* High Shrubland, Sedgeland and Herblands with nodes of Marri Open Forest to Woodland.

In the remainder of the Location, to the north of the fire break, are *Eucalyptus rudis*, Marri and ? *Banksia* Woodlands in Poor to Completely Degraded Condition. The creek lines in the northern area are lined with *Eucalyptus rudis* Woodland to Open Forest in Very Poor Condition.

There is significant weed infestation in the wetter areas but this is not as severe as that in the Woodlands. The most significant weeds of the Wetlands are \* *Homeria flaccida*, \* *Hesperanthera falcata*, \* *Romulea rosea* and \* *Parentucellia viscosa*. These three species are common weeds of Wetlands on the eastern side of the Plain and \* *Homeria flaccida* and \* *Parentucellia viscosa* have a substantial visual impact as they both have conspicuous flowers. \* *Hypochaeris glabra*, \* *Ursinia anthemoides*, \* *Briza maxima* and \* *Briza minor* are also common in these areas.

Apparently the area was grazed before reservation and the Woodland area was more accessible the whole year round so the impact of grazing on the vegetation would be expected to be more marked.

### Site 95a

v HSh *Kunzea recurva* and *Yiminaria juncea* High Shrubland over *Verticordia densiflora*, *Xanthorrhoea preissii* and *Hakea lissocarpa* Low Open Heath over mixed Herbland

#### CONDITION

Rating **Good**

Comments: Weed species are distributed throughout the Herbland principally; \* *Homeria flaccida*, \* *Briza maxima*, \* *Briza minor*, \* *Romulea rosea*, \* *Parentucellia latifolia* and \* *Parentucellia viscosa*. T

Soil: brown clay, ?Gf 8 (King and Wells, 1990), Guildford (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

### Site 95b

v HSh Scattered *Eucalyptus rudis* and *Acacia saligna* over and *Yiminaria juncea* Open Scrub over *Hakea varia* Open Shrubland over *Verticordia racemosa*, *Hypocalymma angustifolium*, *Xanthorrhoea preissii* and *Hakea erinacea* Low Open Heath over Open Herbland and Open Sedgeland

#### CONDITION

Rating **Good**

Comments: Weed species are distributed throughout the Herbland principally; \* *Homeria flaccida*, \* *Briza maxima*, \* *Briza minor*, \* *Romulea rosea* and \* *Parentucellia viscosa*. T

Soil: brown clay, ?Gf 8 (King and Wells, 1990) Guildford (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**Site 95c**

**m OF Marri Open Forest over scattered *Acacia saligna* and *Yiminaria juncea* over *Phyllanthus calycinus* and *Hypocalymma angustifolium*  
Low Open Shrubland over *Cyathochaeta avenacea* Open Sedgeland**

**CONDITION**

Rating **Good**

Comments: Weed species are prevalent principally; \* *Homeria flaccida*, \* *Briza maxima*, \* *Briza minima*, \* *Avena fatua*, \* *Trifolium subterraneum*, \* *Oxalis perrenans*, \* *Romulea rosea* and \* *Watsonia* sp.

Soil: brown loam over clay, ? Gf 2, ? Gf 8 (King and Wells, 1990) Guildford (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**Site 95d**

**LSH Scattered *Yiminaria juncea* over *Verticordia acerosa* and *Hypocalymma angustifolium* mixed Low Shrubland over Open Herbland and *Cyathochaeta avenacea* Open Sedgeland**

**CONDITION**

Rating **Good**

Comments: Weed species are prevalent principally; \* *Homeria flaccida*, \* *Briza maxima*, \* *Briza minima*, \* *Avena fatua*, \* *Trifolium subterraneum*, \* *Oxalis pes-caprae*, \* *Romulea rosea* and \* *Watsonia* sp.

Soil: brown loam over clay, ? Gf 8 (King and Wells, 1990) Guildford (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**Site 95e**

**v HSH *Acacia saligna* and *Yiminaria juncea* High Shrubland over *Hypocalymma angustifolium* and *Xanthorrhoea preissii* Low Open Heath over *Neurachne aleopecuroidea* Grassland.**

**CONDITION**

Rating **Good to Very Good**

Comments: Weed species are ; \* *Homeria flaccida*, \* *Romulea rosea* and \* *Ehrharta longiflora*.

Soil: clay, ? Gf 8 (King and Wells, 1990) Guildford (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**Site 95f**

**GHS** *Neurachne alopecuroides* Open Grassland, \* *Hesperanthera falcata*  
Herbland and annual Sedgeland

**CONDITION**

Rating: Poor

Comments: Weed species are dominate the Herbland principally; \* *Hesperanthera falcata*, \* *Homeria flaccida*, \* *Romulea rosea* and \* *Parentucellia viscosa*. Also significant are \* *Briza maxima*, \* *Briza minor* and \* *Lotus suaveolens*

Soil: brown clay, ?Gf 8 (King and Wells, 1990) Guildford (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**Site 95g**

**me LSh** *Melaleuca lateritia* Open Shrubland

**CONDITION**

Rating: Good to Very Good

Comments: At the time of survey the claypans were too wet to be surveyed in detail and the condition rating is conditional. These claypans contain DRF, *Hydrocotyle lemnoides*.

Soil: clay, ?Gf 8 (King and Wells, 1990) Guildford (Churchward and McArthur, 1980)

Drainage: poor, free water to 1m

Aspect: flat

**Significant species:**

Shrubs: 4# *Melaleuca lateritia*, 4# *Verticordia scerasa*, 4# *Gompholobium marginatum*, 4# *Hakea erinacea*, 6# *Pimelea imbricata* var. *gracillima*, 4# *Kunzea recurva*, 4# *Hakea lissocarpha*

Herbs: 4# *Philydrella pygmaea*

Sedges: 5# *Cyathochaeta avenacea*

Grasses: 4# *Neurachne alopecuroides*

**Location 96** - Twin Swamps Nature Reserve, Reserve 27621, System 6 Reserve M17. Location Map 4. Vegetation Map, Appendix 2, p7.

**Yeg: rg CHT, b W, me OHT, S, H**

**Cond: Very Good to Poor**

**GENERAL COMMENTS**

Location of approx 143 ha and is much sandier than the J&B Martyn Reserve and mostly better drained. This Location was not surveyed in detail probably site future detailed survey. The principal vegetation associations appear to be *Rhaphia ciliata* Closed Heath,

*Banksia* Woodland, *Melaleuca* Open Heath, Herblands and Sedgeland in the wetter areas. Weed invasion by exotic grasses is significant at the margins.

Aerial Photo: MRD 13 5197

Soils: Beermullah and Yanga (Churchward and McArthur, 1980).

Drainage: Very Good on the sand ridges to poor in the depressions

**Location 97** - Area to east of Great Northern Hwy and north Walyunga Rd. Location Map 4. Vegetation Map, Appendix 2, p5.

**Yeg: b W**

**Cond: Good to Completely Degraded**

#### GENERAL COMMENTS

A sand dune being mined for sand, the undisturbed section being vegetated with Jarrah, *Allocasuarina fraseriana* and *Banksia* Woodland.

Aerial Photo: MRD 14 505

Soils: cream sand over yellow sand, F 1, Gf 2 (King and Wells, 1990); Yanga,

System 6.

Drainage: Good, sandune

**Location 98** - Walyunga National Park

#### GENERAL COMMENTS

Mostly mapped in the Darling Plateau, small portion to the west is in the Forrestfield Unit. To be surveyed in detail by CALM at a later date.

**Location 99** - Great Northern Hwy from Walyunga Rd to Bullsbrook. Location Map 4.

**Yeg: w W, mw W, r/mr W**

**Cond: Completely Degraded**

#### GENERAL COMMENTS

Area between Ellen Brook and the Scarp has been almost totally cleared the only remnants are trees. The heavy red brown loams are favoured for agriculture. The gently rolling hills are clothed with Open Woodland, at times a mixture of Marri and Wandoo or either of the species may occur alone. Along Ellen Brook *Eucalyptus rudis* and *Melaleuca raphiophylla* Woodland to Open Forest is found. The creeklines running from the Scarp are lined with Marri Woodland. In general the predominance of Wandoo increases on the banks of the Ellen Brook on the soils of the Guildford Formation, Gf5, Gf4 & Gf3 (King and Wells, 1990).

All vegetation associations are Completely Degraded.

Aerial Photo: GG GW 296 5133

Soils: Guildford and Forrestfield (King and Wells, 1990).

Drainage: moderate

Locations 100-109 are grouped as the **Bullsbrook Bushland**, Area 11 of Recommendation 4. All the Locations included in this Area are shown on Location Map 3.

**Location 100** - Bushland in Pearce spanning area between Great Northern Hwy and Chittering Rd. Location Map 3&4. Vegetation Map Area 11b, p89.

#### GENERAL COMMENTS

This Location of 11 ha and the smaller block to the south of 2 ha are the only areas of Wandoo Woodland and associated Shrublands on the Guildford Formation in Good Condition available for survey (see Location 101) in the whole study area. The condition of the Location is remarkably good considering its location in the middle of a town and that it may have been partially cleared and selectively logged in the past. After being surveyed from the east a sign was observed on the west indicating it was Commonwealth land associated with the Airforce Base and trespassing was forbidden. This may account for the reduced disturbance such as rubbish dumping.

**Yeg:** W OW, Sh, LSh

**Cond:** Very Good to Very Poor

#### Site 100a

**Sh** *Hakea prostrata*, *Jacksonia sternbergiana*, *Daviesia horrida* and *Xanthorrhoea preissii* Shrubland over *Hypocalymma angustifolium* and *Hakea lissocarpa* Low Shrubland over *Mesomelaena tetragona* and *Cyathochaeta avenacea* Sedgeland.

Shrubs: *Hakea prostrata*, *Jacksonia sternbergiana*, 4\* *Daviesia horrida*, *Xanthorrhoea preissii*, *Hypocalymma angustifolium*, 4\* *Hakea lissocarpa*, 3\* *Daviesia physodes*, *Dryandra nivea*, 4\* *Kunzea recurva*, 4\* *Petrophile seminuda*, *Hibbertia hypericoides*, *Daviesia sp.*, *Hibbertia hypericoides*, 4\* *Gompholobium marginatum*, *Phyllanthus calycinus*, 4\* *Pimelea imbricata*

Adjacent: *Verticordia densiflora*, 4\* *Templetonia biloba*

Similar vegetation association: *Viminaria juncea*, 4\* *Calothamnus sanguineus*

Grasses: 4\* *Neurachne alopecuroides*

Adjacent: \* *Briza maxima*, \* *Avena fatua*

Herbs: *Borja scirpoidea*, *Haemodorum simplex*, *Haemodorum spicatum*, *Dianella divaricata*, 4\* *Ptilotus declinatus*, \* *Hesperanthera falcata*, 4\* *Philydrella drummondii*, 4\* *Stylidium divaricatum*, \* *Romulea roses*

Adjacent: \* *Watsonia* sp., *Ptilotus marginata*, *Tribonanthes?* *longipetala*

Sedges: 4\* *Mesomelaena tetragona*, 5\* *Cyathochaeta avenacea*, *Lepidosperma* sp., *Tetraria octandra*

#### CONDITION

Rating Good

Comments: Substantial invasion by \* *Hesperanthera falcata* and adjacent areas subject to frequent tracks, and soil disturbance and dumping.



Aerial Photo: GG GW Run 29S 5131

Soil: dark brown clayey sand over clay, Gf 4(King and Wells, 1990)

Drainage: poor

Aspect: flat

### Site 100b

**W W Wandoo Open Woodland over *Acacia lasiocarpa* and *Hakea lissocarpa* Low Open Heath over \* *Hesperanthera falcata* and \* *Romulea rosea* Herbland**

Trees: 4# *Eucalyptus wandoo*

Shrubs: *Acacia lasiocarpa*, 4# *Hakea lissocarpa*, 4# *Kunzea recurva*, *Hakea prostrata*, *Xanthorrhoea preissii*, *Hypocalymma angustifolium*

Grasses: 4# *Neurachne aleopecuroides*, \* *Briza maxima*

Herbs: \* *Hesperanthera falcata*, \* *Romulea rosea*, 4# *Dampiera coronata*, *Dianella divaricata*, \* *Parentucellia viscosa*, 4# *Trichocline spathulata*

### CONDITION

Rating: Poor

Comments: The location has apparently been partially cleared, burnt, traversed by numerous tracks and soil movement and dumping has occurred.

Aerial Photo GG GW: Run 29S 5131

Soil: dark brown loam over clay, Gf 4(King and Wells, 1990)

Drainage: poor

Aspect: flat

Location 101 - Pearce Aerodrome. Location Map 3&4.

**Yeg: jwm OF & OW, W, r/mr W, al OF, mr CSc, c OF**  
**Cond: ?**

### GENERAL COMMENTS

This area is closed to the public and aerial photographs are not available. The System 6 Report(p180) describes the vegetation associations:

'The area carries open forest of marri, wandoo and jarrah, with woodland of wandoo, some flooded gum and and swamp paperbark (*Melaleuca preissiana*). In the southern and eastern sections there is a mixture of low open forest of sheoak (*Allocasuarina fraseriana*) and open woodland of marri, wandoo and jarrah with a closed scrub of paperbark (? *Melaleuca raphiophylla*). The western section includes a low open forest of swamp sheoak and closed scrub of paperbark '

It could be assumed that the Wandoo Woodland is similar to that at Location 100.

The Condition of the vegetation is not known.

Soils: Yanga, Beermullah and Guildford formations (Churchward and McArthur, 1980).

**Location 102-** Bushland blocks (including Bullsbrook District High Reserve 31478), NW Chittering Rd, S Ashton St, Bullsbrook. Location Map 3&4. Vegetation Map Area 11b, p89.

**Yeg: jm OW**

**Cond: Good to Poor**

**Marri and Jarrah Open Woodland over mixed Low Shrubland**

Condition

Rating: Good to Poor

Comments: Apparently partially cleared and selectively logged, invaded by \* *Ehrharta calycina* and other exotic grasses.

Aerial Photo GG GW: 29S 5131

Soils: pale yellow sand, Re 1, Re7 (King and Wells, 1990) (Churchward and McArthur, 1980)

Drainage: Good

**Location 103-** Bushland between Ashton Rd and Chittering Rd, Bullsbrook. Location Map 3&4. Vegetation Map Area 11b, p89.

**Yeg: mw W/OF, j W  
localised disturbance**

**Cond: Very Good with severe**

**GENERAL COMMENTS**

This Location of approx 12 ha is predominantly Wandoo and Marri Woodland to Open Forest with a small section of Jarrah Woodland in the in the southern corner. At times there are small areas of pure Wandoo and pure Marri but the understorey is similar in both areas. The condition of the Location is variable. Much of the Wandoo and Marri Woodland is in Very Good Condition but there are areas of severe localised disturbance associated with the old gravel mine, the water tanks and the numerous tracks. The Jarrah Woodland is in Poor Condition probably associated with a communication installation located here.

**Site**

**m OF Marri Open Forest over *Gastrolobium spinosum*, *Hakea trifurcata* and *Xanthorrhoea preissii* High Shrubland over *Phyllanthus calycinus* Low Open Heath**

Trees: *Eucalyptus calophylla*

Adjacent: 4# *Eucalyptus wandoo*

Shrubs: 4# *Gastrolobium spinosum*, 4# *Hakea trifurcata*, *Xanthorrhoea preissii*, *Phyllanthus calycinus*, 4# *Hakea lissocarpa*, *Acacia pulchella*, 4# *Calothamnus sanguineus*, 4# *Hibbertia commutata*, *Dillwynia aff cinerascens*

Adjacent: *Hypocalymma angustifolium*, 4# *Isopogon dubius*, 4# *Isopogon asper*, *Oryandra nives*

Grasses: 4# *Neurachne slopecurioides*

Herbs: *Stylidium piliferum*, \* *Gladiolus caryophyllaceus*  
 Adjacent: 4\* *Stypandra glauca*, 3, 4\* *Gonocarpus pithyoides*, *Kennedia coccinea*, *Scaevola phlebopetala*

Sedges: *Loxocarya cinerea*

#### CONDITION

Rating: Very Good to Good

Comments:

Aerial Photo: Run 29S 5131

Soil: Re 3 (King and Wells, 1990)

Drainage: well

Aspect: gentle to steep, NW

#### Adjacent to Site

**j W Jarrah Woodland over *Dryandra sessilis* Open Scrub**

Condition

Rating: Poor to Very Poor

Comments: Disturbance associated with the communication installation and roadworks, probably cleared, as indicated by the *Dryandra sessilis* density and the presence of various weeds such as \* *Ehrharta calycina*, \* *Watsonia* sp and \* *Cytisus proliferus*.

Aerial Photo GG GW: 29S 5131

Soils: red brown sand, Re 1 (King and Wells, 1990)

Drainage: Good

There is no Location 104.

**Location 105**- Burley Park. Location Map 3&4. Vegetation Map Area 11a, p88.

**Yeg: pw W, w W, SH, mj LW/LF, rm W Cond: Very Good to Poor**

#### GENERAL COMMENTS

This Location of 43 ha is a local government reserve generally in Very Good to Good Condition. The eastern side is a steeply sloped and clothed in Powderbark Wandoo, Marri and Jarrah Open Forest, the Powderbark Wandoo being replaced by Wandoo towards the base of the slope and Jarrah becoming more frequent towards the top of the slope. The western side of the Location is Marri and Jarrah Low Woodland to Low Open Forest and a small area of *Allocasuarina humilis* and *Calytrix angulata* Open Heath lies between the two associations.

#### Site 105a

Comments

The percentage of Jarrah increases markedly towards the top of the ridge to form a Jarrah Woodland over Low Open Heath and the Powderbark Wandoo is replaced by Wandoo on the lower slopes of the ridge.

**pW W Powderbark Wandoo, Marri and Jarrah Open Forest to Woodland over *Hakea undulata* and *Hakea lasianthoides* Open Scrub over *Xanthorrhoea preissii* Open Shrubland over *Dryandra armata*, *Brachysema praemorsum*, *Astroloma microdonta* and *Daviesia cordata* Open Heath**

Trees: *Eucalyptus accedens*, *Eucalyptus calophylla*, *Eucalyptus marginata*

Shrubs: 4# *Hakea undulata*, 4# *Hakea lasianthoides*, *Acacia pulchella*, *Xanthorrhoea preissii*, 4# *Dryandra armata*, 4# *Brachysema praemorsum*, *Astroloma microdonta*, 4# *Daviesia cordata*, 4# *Gompholobium polymorphum*, 4# *Boronia ovata*, *Hibbertia hypericoides*, 4# *Lasiopetalum floribundum*, 4# *Lambertia multiflora*  
Adjacent: 4# *Hakea lissocarpa*, 4# *Gastrolobium spinosum*

Herbs: *Burchardia multiflora*, 2# *Stylidium amoenum*? var. *caulescens*, 4# *Conostylis setosa*, *Cassytha* sp

Sedges: *Lepidosperma* sp

#### CONDITION

Rating Very Good to Good

Comments: The density of *Hakea undulata*, *Hakea lasianthoides*, *Daviesia cordata* and *Gastrolobium spinosum* reaches >70% in patches indicating that the area has been burnt regularly (Site d), perhaps too regularly as many of the Powderbark Wandoo are low and multitrunked.

Aerial Photo: Run 29S 5131

Soil: pale brown clay over siltstone, Re 8 (King and Wells, 1990)

Drainage: moderate to good

Aspect: steep, SE

#### Site 105b

**Ht *Allocasuarina humilis* and *Calytrix angulata* Open Heath over *Hibbertia hypericoides*, *Hibbertia spicata* and *Dryandra nivea* Low Shrubland**

Trees: Adjacent: *Eucalyptus calophylla*, *Muytsia floribunda*

Shrubs: *Allocasuarina humilis*, *Calytrix angulata*, *Hibbertia hypericoides*, *Hibbertia spicata*, *Dryandra nivea*, *Acacia huegelii*, *Andersonia lehmanniana*, *Conostephium preissii*, *Conostephium pendulum*, *Astroloma macrocalyx*, *Bossiaea eriocarpa*, *Acacia pulchella*, *Daviesia trifurcata*, *Xanthorrhoea preissii*  
Adjacent: *Persoonia seccata*, *Hakea ruscifolia*, *Petrophile linearis*

Grasses: *Stipa* sp, *Danthonia* sp, \* *Briza maxima*

Herbs: *Laxmannia squarrosa*, *Haemodorum laxum*, *Scaevola canescens*, *Conostylis aculeata*, *Stylidium diuroides*, *Cassytha* sp, \* *Ursinia anthemoides*, \* *Hypochaeris glabra*, *Anigozanthos humilis*, *Waitzia suaveolens*

Sedges: *Mesomelaena pseudostygia*, *Alexgeorgea nitens*, *Lyginia barbata*, *Lepidobolus preissianus*

## CONDITION

Rating Very Good to Good

Comments: Young Marri trees in the area indicates that it may have been partially cleared.

Aerial Photo GG GW: Run 29S 5131

Soil: grey sand over pale yellow sand, Re1 (King and Wells, 1990)

Drainage: good

Aspect: gentle, N

Site 105c

**mj LW/LF** Marri and Jarrah Low Woodland to Low Open Forest over *Lepidosperma erubescens* and *Gastrolobium spinosum* Open Shrubland with scattered patches *Hakea undulata* Open Heath over *Xanthorrhoea preissii* and *Hibbertia hypericoides* Low Shrubland

Trees: *Eucalyptus marginata*, *Eucalyptus calophylla*

Shrubs: *Lepidosperma erubescens*, 4\* *Gastrolobium spinosum*, 4\* *Hakea undulata*, *Xanthorrhoea preissii*, *Hibbertia hypericoides*, 4\* *Dryandra bipinnatifida*, 4\* *Hakea lissocarpa*, *Daviesia triflora*, 4\* *Grevillea synaphaea*, *Bossiaea eriocarpa*, 4\* *Syzyphia tenuifolia*, *Sphaerolobium macranthum*, 4\* *Baeckea camphorosmeae*, *Isopogon*, *Petrophile striata*, *Acacia nervosa*, 4\* *Gompholobium marginata*, *Acacia pulchella*

Herbs: *Conostylis setosa*, *Thysanotus*, *Ptilotus marginata*, *Lobelia tenuior*, 2\* *Stylidium amoenum*? var *caulescens*, 3, 4\* *Gonocarpus pithyoides*, *Lomandra sericea*

Sedges: *Tetraria octandra*, *Loxocarya fasciculata*, *Lepidospermasp*

## CONDITION

Rating Very Good to Good

Comments:

Aerial Photo GG GW: Run 29S 5131

Soil: Re 1 (King and Wells, 1990)

Drainage: Good

Aspect: gentle, SE

Site 105d

**j W** Jarrah and Powderbark Wandoo Woodland over *Hakea undulata* and *Acacia pulchella* Closed to Open Low Heath over *Kennedia coccinea* Closed Herbland

## CONDITION

Rating Good

Comments: Adjacent to a gravel mine and immediately adjacent to a firebreak, recently burnt.

Aerial Photo GG GW: Run 29S 5131

Soil: Re8 (King and Wells, 1990)

Drainage: good  
Aspect: gentle, N

### Site 105e

Adjacent Creekline

**rm W      Flooded Gum and Marri Woodland to Open Forest over exotics**

#### CONDITION

Rating: Very Poor to Completely Degraded  
Comments: Outside the actual Location in a paddock.

Aerial Photo GG GW: Run 29S 5131  
Soil: F5 (King and Wells, 1990)  
Drainage: moderate  
Aspect: NA

**Location 106-** SE corner of Great Northern Hwy and Sounness Rd. Location Map 3&4. Vegetation Map Area 11c, p90.

**Yeg: b LW      Cond: Good**

#### GENERAL COMMENTS

Apparently similar to the Banksia Woodland in Location 108. Weed infestations around the margins, predominantly \* *Ehrharta calycina*.

Aerial Photo GG GW: 28 5141  
Soils: grey sand, Re 7 (King and Wells, 1990)  
Drainage: Good

**Location 107-** Bullsbrook Recreation Reserve, S Sounness Rd, eastern boundary tip. Location Map 3&4. Vegetation Map Area 11c, p90.

**Yeg: m OW      Cond: Very Good**

#### GENERAL COMMENTS

This Location is Very Good Condition and contains a Marri Open Woodland and a creekline.

### Site 107a

**m OW Marri Open Woodland over *Daviesia physodes*, *Allocasuarina humilis*, *Conospermum stoechadis* and *Acacia pulchella* Open Shrubland over *Stirlingia latifolia*, *Hibbertia hypericoides* and *Gompholobium aristatum* Low Open Heath**

Trees: *Eucalyptus calophylla*, *Banksia menziesii*, *Banksia grandis*, *Muysia floribunda*, *Banksia attenuata*

Shrubs: 3# *Daviesia physodes*, *Allocasuarina humilis*, *Conospermum stoeckadis*, *Acacia pulchella*, *Stirlingia latifolia*, *Hibbertia hypericoides*, 4# *Gompholobium aristatum*, *Jacksonia sternbergiana*, 4# *Calothamnus sanguineus*, *Acacia huegelii*, *Eriostemon spicatus*, *Daviesia triflora*, *Calytrix flavescens*, *Petrophile linearis*, *Acacia wildenowiana*

Grasses: *Stipasp*, *Amphipogon turbinatus*, \* *Briza maxima*

Adjacent: \* *Ehrharta calycina*

Herbs: *Patersonia occidentalis*, *Dasypogon bromeliifolius*, *Anigozanthos manglesii*, *Conostylis setigera*, \* *Gladiolus caryophyllaceus*

Adjacent: *Lechenaultia biloba*

Sedges: 4# *Mesomelaena tetragona*, *Mesomelaena pseudostygia*, *Tetraria octandra*, 5# *Caustis dioica*, *Tetraria octandra*, *Luzinia barbata*, *Alexgeorgea nitens*, *Lepidospermasp*

#### CONDITION

Rating Very Good

Comments:

Aerial Photo GG GW: Run 28 5141

Soil: cream sand over yellow sand, Re 1 (King and Wells, 1990)

Drainage: good

Aspect: very gentle slope, W

#### Site 107b

**m OW Marri Open Woodland over *Hakea trifurcata*, *Allocasuarina humilis* and *Xanthorrhoea preissii* Shrubland over *Hibbertia hypericoides* and *Gompholobium aristatum* Low Shrubland over *Mesomelaena tetragona* Open Sedgeland**

Trees: *Eucalyptus calophylla*, *Acacia saligna*

Shrubs: 4# *Hakea trifurcata*, *Allocasuarina humilis*, *Xanthorrhoea preissii*, *Hibbertia hypericoides*, 4# *Gompholobium aristatum*, 4# *Isopogon asper*, 4# *Isopogon dubius*, 4# *Pimelea imbricata*, *Daviesia preissii*, 3, 4# *Synaphea acutiloba*, 3# *Daviesia physodes*, 4# *Baeckea camphorosmae*, *Verticordia densiflora*, *Dryandra nivea*

Grasses: *Stipasp*, *Neurachne slopecuroidea*, *Briza maxima*

Herbs: *Scaevola phlebopetala*, *Opecularia vaginata*, *Tricoryne elatior*, *Borya scirpoidea*, \* *Ursinia anthemoides*

Sedges: 4# *Mesomelaena tetragona*, *Tetraria octandra*, *Lepidospermasp*, 5# *Caustis dioica*

#### CONDITION

Rating Very Good

Aerial Photo GG GW: Run 28 5141

Soil: brown sandy clay, Re 5 (King and Wells, 1990)

Drainage: moderate, seasonally waterlogged

Aspect: gentle to steep towards creekbed, N

**'Site' 107c**

This association is not mapped as it forms in a narrow band along the creekline.

**S      Scattered *Acacia saligna*, *Xanthorrhoea preissii* and *Viminaria juncea* over *Leptocarpus coangustatus* Closed Sedgeland**

Trees:            *Acacia saligna*

Shrubs:          *Xanthorrhoea preissii*, *Viminaria juncea*

Grasses:        \* *Eragrostis curvula*

Herbs:           *Petersonia*? aff. *umbrosa*

Adjacent: 3,6\* *Stylidium utricularioides*, *Brachycome pusilla*

Sedges:          *Leptocarpus coangustatus*

**CONDITION**

Rating            Very Good

Comments:

Aerial Photo GG GW: Run 28 5141

Soil:              Re 5 (King and Wells, 1990)

Drainage:        poor

Aspect:          NA

**Location 108-** Wetland to the south of Location 106. Location Map 3&4. Vegetation Map Area 11c, p90.

**Yeg: WM (S, H, me Sh, s Sh)**

**Cond: Very Poor**

**GENERAL COMMENTS**

This Location has been grossly disturbed as a result of mining for gravel. The vegetation is regenerating but the drainage and soils have been grossly affected by the soil removal. The vegetation associations are not described in detail but the species observed in the area are listed below and the expected associations listed above. To the south of this Location are lands with similar vegetation associations apparently often in Good Condition but these are areas of restricted access being part of the Pearce Airforce Base Lands

Shrubs:          *Jacksonia sternbergiana*, *Melaleuca raphiophylla*, *Melaleuca viminea*, *Hypocalymma angustifolium*, *Pericalymma ellipticum*, *Hibbertia stellaris* 'yellow', *Verticordia densiflora*

Herbs:           *Drosera gigantes*, *Drosera leucoblasta*, 4\* *Stylidium dichotomum*, *Goodenia filiformis*, *Stylidium brunonianum*

Sedges:          *Leptocarpus canus*, *Lyginia barbata*, *Hypolaena exsulca*, 4\* *Mesomelaena tetragona*



**CONDITION**

Rating: Very Poor

Comments: see General Comments

Aerial Photo GG GW: 28 5141

Soils: brown clay, Ya1 (King and Wells, 1990)

Drainage: poor

Aspect: flat

**Location 109-** System 6 Reserve M14, Reserve C1654, approx 4km N Bullsbrook on the Great Northern Hwy. Location Map 3. Vegetation Map Area 11d, p91.

**Yeg: WM (H, S, me Sh, ac me Ht), b LW, jm W**  
**Very Good**

**Cond:****GENERAL COMMENTS**

The substantial area bushland, approx. 117 ha, at Location 109 contains a variety of vegetation associations from the Jarrah and Marri Woodland and Banksia Woodland on the sandier rises to the east to the extensive ephemeral wetlands to the west. Most of the reserve is in Very Good Condition but there is some disturbance associated with rubbish dumping, fire, partial clearing in the north eastern corner and weed invasion along the road, dump and private property margins. The road verge between Great Northern Hwy and the private land is in Very Good Condition to Good Condition and contains wetlands similar to those in the reserve.

There are further local government lands to the south, through to Location 107 (FIG )and this whole area except for the Golf Course and the Completely Degraded sections of the land south of Sounness Rd could be incorporated in the reserve. This area would then include the extensive area of Banksia Woodland predominantly in Very Good Condition immediately south of Location 109 and Location 107 and adjacent areas of bushland.

**Site 109a**

**jm W Jarrah and Marri Woodland over *Xanthorrhoea preissii* Shrubland over *Hibbertia hypericoides* and *Daviesia nudiflora* Low Open Heath over *Mesomelaena tetragona* and *Mesomelaena pseudostygia* Open Sedgeland.**

Trees: *Eucalyptus calophylla*, *Eucalyptus marginata*

Shrubs: *Xanthorrhoea preissii*, *Hibbertia hypericoides*, *Daviesia nudiflora*, *Eriostemon spicatus*, *Acacia pulchella*, 4\* *Grevillea pilulifera*, *Leucopogon australis*, 3\* *Daviesia physodes*, *Nemcia capitatum*, 4\* *Gompholobium preissii*, 4\* *Hibbertia commutata*

Grasses: *Poa drummondiana*

Herbs: *Drosera erythrorhiza*, *Thysanotus patersonii*, 4\* *Patersonia juncea*, *Lagenifera huegelii*, 4\* *Ptilotus manglesii*, *Scaevola canescens*, *Haemodorum laxum*, *Conostylis aculeata*, *Conostylis setigera*, \* *Gladiolus caryophyllaceus*

Sedges: *Mesomelaena pseudostygia*, 4\* *Mesomelaena tetragona*

**CONDITION**

Rating           Very Good

Comments:

Aerial Photo GG GW: 28 5141

Soils:           brown sand over yellow sand, Re 2 (King and Wells, 1990)

Drainage:       good

Aspect:         gentle, W

**Site 109b**

**b LW** Scattered *Eucalyptus tottiana* over *Banksia attenuata* and *Banksia menziesii* Open Forest over *Stirlingia latifolia* and *Allocasuarina humilis* Shrubland over *Eremaea pauciflora*, *Hibbertia hypericoides* and *Synphaea spinulosa* Low Shrubland

**COMMENTS**

Beside the road there is an understorey layer of *Adenanthos cygnorum* Open Scrub in response to disturbance. Towards the wetlands *Banksia illicifolia* becomes common.

Trees:           *Eucalyptus tottiana*, *Banksia attenuata*, *Banksia menziesii*

Shrubs:          *Stirlingia latifolia*, *Allocasuarina humilis*, *Eremaea pauciflora*, *Hibbertia hypericoides*, *Synphaea spinulosa*, *Hovea trisperma* 'large', *Hibbertia acerosa*, *Eriostemon spicatus*, *Daviesia nudiflora*, *Leucopogon conostephioides*, *Bassia eriocarpa*, *Petrophile linearis*, *Hibbertia aurea*, *Calytrix strigosa*, *Hemiandra pungens*

Grasses:         *Danthomiasp*, *Amphipogon turbinatus*, *Stipa compressa*

Herbs:           *Patersonia occidentalis*, *Johnsonia pubescens*, *Drosera erythrorhiza*, *Drosera macrantha*, *Dasyopogon bromeliifolius*, *Conostylis juncea*, *Conostylis setigera*, *Phlebocarya ciliata*, *Phlebocarya filifolia*, *Burchardia umbellata*, *Anigozanthos humilis*

Sedges:          *Lyginia barbata*, *Schoenus curvifolius*, *Hypolaena exsulica*, *Alexgeorgea nitens*, *Mesomelaena pseudostygia*

**CONDITION**

Rating           Very Good

Comments:

Aerial Photo GG GW: 28 5141

Soils:           grey sand over white sand, Re 7 (King and Wells, 1990)

Drainage:       good

Aspect:         gentle, W

**Wetland Mosaic****Site 109c- Inundated shallow basin**

*Melaleuca raphiophylla*, *Melaleuca viminea* and *Melaleuca uncinata* High Shrubland over *Astartea fascicularis* and *Hypocalymma angustifolium* Shrubland over *Restio stenostachyus* Sedgeland

Trees: Adjacent: *Melaleuca preissii*

Shrubs: *Melaleuca raphiophylla*, *Melaleuca viminea*, 4# *Melaleuca uncinata*,  
*Astartea fascicularis*, *Hypocalymma angustifolium*  
 Adjacent : 4# *Melaleuca lateriflora*

Herbs: *Tribonanthes australis*, *Brachycome pusilla*, *Stylidium petiolare*,  
*Drosera gigantea*  
 Adjacent: +3,6# *Eryngium pinnatifidum*ssp.'palustris'

Sedges: +3,6# *Restio stenostachyus*

#### CONDITION

Rating Very Good

Comments: Adjacent to the road this vegetation association has been substantially disturbed and the herb and sedges are replaced with exotics.

Aerial Photo GG GW:

Soils: black humus rich sand, Ya 4 (King and Wells, 1990)

Drainage: poor, water to 2 cm

Aspect: flat

#### Site 109d - Sandy Rise

me/ac Ht *Melaleuca uncinata* and *Actinostrobus pyramidalis* Open  
 Heath to Shrubland over *Eriostemon spicatus* Low Open  
 Heath over *Restio stenostachyus* Sedgeland

Trees: Adjacent : *Eucalyptus rudis*, *Melaleuca preissii*, *Acacia saligna*

Shrubs: *Eriostemon spicatus*, *Hypocalymma angustifolium*, 4# *Kunzea recurva*,  
*Dryandra nives*  
 Adjacent : 6# *Grevillea obtusifolia*, *Melaleuca scabra*

Herbs: *Drosera macrantha*, 4# *Stylidium dichotomum*, 4# *Scaevola lanceolata*,  
*Stylidium brunonianum*, *Burchardia umbellata*

Sedges: 3,6# *Restio stenostachyus*

#### CONDITION

Rating Very Good

Comments:

Aerial Photo GG GW:

Soils: grey sandy clay, Ya 2 (King and Wells, 1990)

Drainage: poor

Aspect: NA

#### 'Site' 109e- Sedgeland and Herblands

S, H Open Sedgeland to Sedgeland and Herbland

Herbs: *Samolus juncea*, *Thelymitra antennifera*, *Tribonanthes australis*,  
*Brachycome pusilla*, 4\* *Philydrella pygmaea*, *Anigozanthos viridis*, 3,6\* *Eryngium*  
*pinnatifidum*ssp 'paluastis', 6\* *Burchardia beirdii*

Sedges: *Leptocarpus canus*, *Leptocarpus cosquustatus*, 3,6\* *Restio*  
*stenostachyus*, *Baumea acuta*, *Triglochin muelleri*, *Triglochin calcitrapa*, *Aphelia*  
*cyperoides*, *Centrolepis aristata*, *Hypolaena exsulca*

#### CONDITION

Rating: Good to Very Good

Comments: Many annual grasses and herbs associated with these areas, the cover is  
 not large but potential exists. \* *Ursinia anthemoides*, \* *Hypochaeris glabra*, \* *Briza*  
*maxima*, \* *Briza minor*, \* *Sonchus oleraceus* and \* *Anagallis arvensis*

Aerial Photo: Run

Soil: Ya 2 (King and Wells, 1990)

Drainage: poor, water to 5cm

Aspect: flat

**Location 110**- Bushland on private land along Ellen Brook west of Great Northern  
 Hwy just south intersection with Wandena Rd. Location Map 3 Vegetation Map, Appendix  
 2, p5.

**Yeg: ? c OW, ?me SH**

**Cond: ?Good**

#### GENERAL COMMENTS

This Location of approx. 33 ha is on private land and too distant from the road for  
 assessment. The detailed soils maps (King and Wells, 1990) indicate this area is on  
 Guildford(Gf 5) soils and the general soils place it in the Beermullah Unit (Churchward  
 and McArthur, 1980). Aerial photographs and inspection from Great Northern Hwy  
 indicate the Location is in Good Condition and should be investigated further as vegetation  
 in Good Condition on this soil unit is rare.

Aerial Photo GG GW: 28 5143

Soils: ?Gf 5 (King and Wells, 1990)

Drainage: moderate to poor

**Location 111**- West side of Great Northern Hwy from Souness Rd to Wandena Rd.  
 Location Map 3.

**Yeg: c OW, me LOW,**

**Cond: Completely Degraded**

Aerial Photo GG GW: 28 5141, 5143

Soils: ?Ya 5 (King and Wells, 1990), Beermullah and Yanga (Churchward and  
 McArthur, 1980)

Drainage: moderate

**Location 112**– Roadside depression cnr Grt Northern Hwy and Wandena Rd. Location Map 3. Vegetation Map, Appendix 2, p5.

**Yeg: p Ht, mj W**

**Cond: Good**

#### GENERAL COMMENTS

This Location of approx 1.5 ha is somewhat disturbed by the road but is generally in Good to Very Good Condition. On the higher land are nodes of Marri and Jarrah.

#### Site

**p Ht** *Pericalymma ellipticum* Low Open Heath to Closed Heath over *Caustis dioica* and *Mesomelaena tetragona* Sedgeland

Shrubs: *Pericalymma ellipticum*, 4# *Hakea trifurcata*, 4# *Verticordia scerosa*, 4# *Hakea undulata*, *Allocasuarina humilis*

Adjacent: *Melaleuca viminea*, *Melaleuca raphiophylla*, *Xanthorrhoea preissii*, *Calytrix traseri*, 4# *Baeckea camphorosmae*, 5# *Darwinia* aff. *nieldiana*, 4# *Petrophile seminuda*, 4# *Dryandra armata*

Herbs: *Thelymitra antennifera*, *Stylidium bulbiferum*, *Orosera macrantha*, *Orosera menziesii*

Adjacent: *Burchardia multiflora*, *Eorya* sp, *Thysanotus thrysoides*

Sedges: 5# *Caustis dioica*, 4# *Mesomelaena tetragona*, *Juncus pallidus*, *Hypolaena exsulca*, 4# *Harperia laterifolia*

#### CONDITION

Rating: Good

Comments: Soil disturbance associated with roadworks

Aerial Photo GG GW: Run 28 5143

Soil: Re 7 (King and Wells, 1990)

Drainage: poor

Aspect: flat

**Location 113**– Remnant Bushland on private land to east Great Northern Hwy, 1/2 km S intersection with Old Gin Gin Rd. Location Map 2.

**Yeg: me LW, b W, jm W**

**Cond: Good to Poor**

#### GENERAL COMMENTS

Observed from the road, *Melaleuca preissiana* Low Woodland in wetland, backed by a sandy rise with *Banksia* Woodland then Marri and Jarrah Woodland. The aerial photographs show numerous tracks through bushland indicating the Location is grazed.

Aerial Photo GG GW: 27 5061

Soils: Coonambidgee and Reagan (Churchward and McArthur, 1980)

Drainage: poor to good

**Location 114-** western side Great Northern Hwy from Wandena Rd to Old GinGin Rd.  
Location Map 2.

**Yeg: w W, mw W, mr W**

**Cond: Completely Degraded**

#### GENERAL COMMENTS

The low hills of this area running down to Ellen Brook were vegetated with Wandoo Woodland, Marri and Wandoo Woodland and Marri and Flooded Gum Woodland on the creeklines and flats. This area has been completely cleared and the understorey replaced with exotic pasture.

Aerial Photo GG GW: 27 5061, 27

Soils: red loams, Yanga (Churchward and McArthur, 1980)

Drainage: moderate

Aspect: gentle, W

**Location 115-** roadside remnants, Old GinGin Rd. Location Map 2.

**Yeg: ?mu Sc, ?ac/m LSc, ?S**

**Cond: Very Poor**

#### GENERAL COMMENTS

The vegetation at this Location is confined to a small strip along the both sides of the road. The lower shrub, herb and sedge strata are almost completely cleared and replaced by exotics. No site description was made but the remnant species listed and the vegetation associations extrapolated from these.

Trees: occasional *Eucalyptus rudis* towards the south, *Melaleuca preissiana*, *Melaleuca raphiophylla*, *Acacia saligna*

Shrubs: 4# *Melaleuca uncinata*, *Actinostrobus pyramidalis*, *Lotus intermedia*, *Regelia ciliata*, *Jacksonia sternbergiana*, *Hypocalymma angustifolium*, *Melaleuca ? ciliosa*, *Verticordia densiflora*, *Hakea varia*, 4# *Melaleuca lateritia*

Grasses: misc exotics including \* *Lolium* sp., \* *Ehrharta longiflora*, \* *Briza maxima*

Herbs: \* *Lotus angustissimus*, 6# *Burchardia bairdii*, *Cotula coronopifolia*

Sedges: 3, 6# *Restio stenostachyus*, *Leptocarpus canus*, *Baumea* sp.

Aerial Photo GG GW: 27 5059

Soils: humus rich black sand, Yanga (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**Location 116 -** 1 km S Neaves Rd on Pearce Rd and north to Muchea. Location Map 3.

**Yeg: m W, m/mr/mp W, mi Sc, b W, H, S**  
**Completely Degraded**

**Cond: Very Poor to**

## GENERAL COMMENTS

Generally the remnants of the vegetation along the railway line indicates that the vegetation associations of this flat sometimes waterlogged area were Marri Woodland, Marri, *Melaleuca preissiana* and *M. rhaphiophylla* Woodland and Heathlands. The better drained sandy rises are Banksia Woodland as at Location 117. The condition of this bushland is generally Very Poor to Completely Degraded with some patches in better condition.

**'Site' 116a** - E side line**Closed exotic Herbland**

Grasses: \* *Pennisetum clandestinum*, \* *Stenotaphrum secundatum*, \* *Ehrharta calycina*, \* *Cynodon dactylon*

Herbs: \* *Watsonia bulbiferum*, \* *Lupinus angustifolius*, \* *Vicia sativa*\*,  
\* *Romulea rosea*, \* *Sonchus*, \* *Jonquil*

Aerial Photo: Run 27 5067

Soil: dark grey humus rich sand, Yanga (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

**'Site' 116b** - W side line**HSh *Jacksonia furcellata* High Shrubland over Low Shrubland over Herbland and Grassland**

Trees: Adjacent: *Acacia saligna*

Shrubs: *Jacksonia furcellata*, *Hakea prostrata*, *Xanthorrhoea preissii*,  
5\* *Grevillea bitermata*

Grasses: \* *Ehrharta calycina*

Herbs: *Sowerbaea laxiflora*, *Corynotheca micrantha*, *Burchardia multiflora*,  
\* *Ursinia anthemoides*, \* *Watsonia* sp.

Sedges:

## CONDITION

Rating: Very Poor

Comments: Soil movement, clearing and fires have resulted in the area being invaded by weeds, small patches of vegetation in exotics.

Aerial Photo: Run 27 5067

Soil: dark grey humus rich sand, Yanga (Churchward and McArthur, 1980)

Drainage: moderate

Aspect: flat

## NOTE:

*Grevillea bitermata* was observed in the study area between 5 km N Muchea to 1 km S Muchea. All plants observed were mature plants and found in vegetation in Poor or Very Poor Condition. The taxonomic status of this taxa is unsure, P. Olde has placed it with

*G. paniculata*. Presently there are no collections of this taxon from this area in the WA Herbarium to help elucidate on this problem.

**Location 117**- Bushland E line just south of Muchea. Location Map 3, number omitted.

**Veg: b W**

**Cond: Good to Poor**

GENERAL COMMENTS

42 ha, grazed, private land

CONDITION

Rating Good to Poor

Aerial Photo GG GW: Run 27 5063

Soil: Yanga (Churchward and McArthur, 1980)

Drainage: good

**Location 118** - Muchea Townsite, System 6 Reserve C 25, Shire of Chittering. Location Map 3. Vegetation Map Area 10, p87.

**Veg:m/mr/r W**

**Cond: Poor**

GENERAL COMMENTS..

Of the original area, in four separate blocks, delineated in the System 6 Report only one block, Location 118b of approx 12 ha, and a portions of Location 118c and 118a, presently retain natural vegetation. All areas of private land have been cleared. The remaining areas are in Poor condition due to grazing and weed invasion.

**Description**

**mr W Marri and Flooded Gum Woodland over *Melaleuca* Shrubland over Low Shrubland over exotic Herbland /Grassland and Open Sedgeland**

Significant species: 5# *Darwinia* aff. *neildiana*, 6# *Grevillea bitermata*

CONDITION

Rating Poor

Comments: All location grazed by cows

Aerial Photo GG GW: Run 27 5063

Soil: Yanga (Churchward and McArthur, 1980)

Drainage: poor

Aspect: flat

**Location 119**- Ioppolo Rd. Location Map 2. Vegetation Map, Appendix 2, p6.

**Veg: c W, m W, b LOW, m W**

**Cond: Very Good to Completely Degraded**

GENERAL COMMENTS

Ioppolo Rd runs south along the railway line through the *Casuarina obesa* Woodlands on the wet flats then directly east across the northern arm of the Chandala Swamps, up the



sandy rise of the foothills of the Dandaragan Plateau and onto the Plateau. There is sufficient vegetation remaining in this area to give an idea of the pattern of vegetation associations moving from the Yanga soils on the flats through Coonambidgee soils and the Reagan soils of the foothills of the Dandaragan Plateau to the west.

Along the western section of Ippolo Rd as it runs north-south are *Casuarina obesa* Woodlands that are part of extensive areas of *Casuarina obesa* Woodlands on the damp flats in this area. These extend from 2.5 km S Ippolo Rd on Brand Hwy to immediately north of Chandala Brook (approx. 1 km S Breera Rd). The only areas left in better than Completely Degraded Condition are the remnants along the railway line and Brand Hwy. The condition is variable from Completely Degraded to small areas in Good Condition. Nodes of Marri Woodland are found on the deeper better drained soils.

Ippolo Rd leaves the *Casuarina obesa* Woodlands to run west-east towards the Plateau. The road then transects, from the seasonally inundated sandy clay flats to the well drained plateau:

- *Melaleuca preissiana* and *Melaleuca raphiophylla* Low Open Woodland to Low Closed Forest in what is a northern section of the Chandala wetlands
- *Banksia illicifolia* Low Open Woodland on the margins of the wetland
- *Banksia* Low Open Woodland
- *Banksia* Low Open Woodland with scattered Marri and *Eucalyptus tottiana*, merging with Marri Woodland over *Banksia* Low Open Woodland as the density of the Marri increases

The entire Location is private land and subject to sand mining leases

Further to the east and south the Location is continuous with a large area of vegetation on soils that are not the subject of this survey. To the south of Ippolo Rd bushland in Very Good Condition on the Dandaragan Plateau runs south to the Yalal Brook and across Yalal Brook. This is all apparently private land. Some of this bushland has been recently cleared and cleared in the last few years. This section of the Reagan and Dandaragan Plateau is in need of Survey with the view to selecting an area of vegetation that is representative of the Plateau south of GinGin for possible reservation.

**'Site' 119 a-** Ippolo Rd, 0.5km N rt angle bend towards scarp

**COMMENTS**

The area of vegetation at this Location is so narrow that a description is given of the species present in the area rather than at a specific site.

**Yeg: c W**

**Cond: Poor**

Trees: *Casuarina obesa*, *Acacia saligna*, *Melaleuca raphiophylla*

Shrubs: *Viminaria juncea*, *Actinostrobus pyramidalis*, *Melaleuca viminea*, *Hakea varia*, *Jacksonia sternbergiana*, 5\* *Grevillea obtusifolia*, 4\* *Kunzea recurva*, *Verticordia drummondii*

Grasses: \* *Ehrharta calycina*, \* *Ehrharta longiflora*

Herbs: \* *Hypochoeris glabra*, 6\* *Burchardia bairdii*, *Opercularia vaginata*, 6\* *Isotropis* aff. *cuneifolia*, *Petersonia* ?aff. *umbrosa*, *Sowerbaea laxiflora*, \* *Romulea rosea*, 5\* *Helipterum manglesii*, 4\* *Dampiera coronata*, \* *Ursinia anthemoides*, \* *Arctotheca calendula*, *Haemodorum* sp

Sedges: *Gahnia trifida*, 5\* *Cyathochaeta avenacea*

**CONDITION**

Rating            Good to Poor

Comments:      The area is subject to a great deal of disturbance, substantial soil movement and frequent burning with subsequent weed invasion. There are a large number of *Actinostrobus* seedlings and few mature plants.

Aerial Photo GG GW: 26 5128

Soils:            brown clayey sand, Yanga (Churchward and McArthur, 1980)

Drainage:        poor

Aspect:          flat

**Site 119 b**

**me W/F      *Melaleuca preissiana* and *Melaleuca raphiophylla* Low Open Woodland to Low Closed Forest over *Kunzea ericifolia* High Shrubland to Closed Scrub over Sedgeland.**

**CONDITION**

Rating            Very Good to Poor

Comments:      The density of *Kunzea ericifolia* indicates that the area may have been partially cleared and as it is in a paddock grazed at this time.

Aerial Photo GG GW:

Soils:            dark grey humus rich sand, Yanga (Churchward and McArthur, 1980)

Drainage:        poor

Aspect:          flat

**'Site' 119c**

\* **bi W          *Banksia illicifolia* Low Open Woodland over Low Open Heath.**

**CONDITION**

Rating            Good to Poor

Comments:      The area has been cleared relatively recently but is regenerating well and could be rehabilitated. This area is not shaded on the Location Map.

Aerial Photo GG GW:

Soils:            grey sand over yellow sand, Yanga (Churchward and McArthur, 1980)

Drainage:        good

Aspect:          gentle, W

**'Site' 119d**

\* **b W          *Banksia attenuata* and *Banksia menziesii* Low Woodland over *Eremaea pauciflora* Low Open Heath**

Species of Interest: *Conaspermum crassinervium*

**CONDITION**

Rating            Good to Poor

Comments:      The area has been cleared relatively recently but is regenerating well..

Aerial Photo GG GW: 26 5128

Soils: grey sand over yellow sand, Yanga and Coonambidgee (Churchward and McArthur, 1980)

Drainage: good

Aspect: gentle, W

### Site 119e

#### COMMENTS

In adjacent areas density of the Marri trees alters to give Marri Woodland over Banksia Low Open Woodland in places.

**b LOW** Scattered *Eucalyptus tottiana* and *Eucalyptus calophylla* over *Banksia menziesii* and *Banksia attenuata* Low Open Woodland over *Jacksonia sternbergiana* and *Adenanthos cygnorum* High Open Shrubland over *Allocasuarina humilis* and *Chamaelucium* sp. nov. Open Heath over *Eremaea pauciflora* and *Astroloma xerophyllum* Low Shrubland over *Mesomelaena pseudostygia* Open Sedgeland.

Trees: *Eucalyptus tottiana*, *Eucalyptus calophylla*, *Banksia menziesii* and *Banksia attenuata*

Shrubs: *Jacksonia sternbergiana*, *Adenanthos cygnorum*, *Allocasuarina humilis*, 3, 6 # *Chamaelucium* sp. nov., *Eremaea pauciflora*, *Astroloma xerophyllum*, *Calytrix angulata*, *Schoitzia involucrata*, *Bossiaea eriocarpa*, *Eriostemon spicatus*, *Hibbertia hypericoides*, *Gompholobium tomentosum*, *Hibbertia enervia*

Grasses: *Stipa compressa*, *Stipa pycnostachya*, \* *Briza maxima*

Herbs: *Anigozanthos manglesii*, *Anigozanthos humilis*, *Phlebocarya filifolia*, *Paterosia occidentalis*, *Stylidium diuroides*, *Stylidium brunonianum*, *Stylidium piliferum*, *Stylidium adpressum*, *Conostylis aurea*, *Conostylis setigera*, \* *Ursinia anthermoides*

Sedges: *Mesomelaena pseudostygia*, *Alexgeorgea nitens*, *Tetraria octandra*

Rating Very Good

Comments:

Aerial Photo GG GW: 26 5128

Soils: pale yellow sand over yellow sand, Coonambidgee and Reagan (Churchward and McArthur, 1980)

Drainage: good

Aspect: gentle, SW

**Location 120**—Lake Chandala, part of System 6 Reserve C17. Location Map 2. Vegetation Map, Appendix 2, p6.

**Yeg:** me/r F, me Sc, sm Sh, ?S, ?H

**Cond:** Good to Completely Degraded

## GENERAL COMMENTS

A portion of Lake Chandala is reserved, Reserve 37060. There is considerable remnant vegetation in the area of the Lake, see Location 119.

The vegetation associations given for the Location are

***Melaleuca preissiana* and *Eucalyptus rudis* Low Closed Forest**

***Melaleuca* Closed Scrub**

**Samphire Shrublands**

There would probably be Herblands and Sedgelands at this Location. The condition of the vegetation associations is variable from Completely Degraded to Good Condition. The areas north of Ioppolo Rd are Completely Degraded and the area south of Ioppolo Rd is variable.

Aerial Photo GG GW: 26 5128, 5126

Soils: Yanga (Churchward and McArthur, 1980)

Drainage: poor

Aspect: flat

**Location 121** - Breera Rd. Location Map 1. Vegetation Map, Appendix 2, p4.

**Yeg: m/r W, me/r F, bi W, b W  
Good**

**Cond: Very Good to  
Good**

## GENERAL COMMENTS

This Location transects a similar the same series of soils and vegetation associations as Ioppolo Rd. However the vegetation on the flat is predominantly mapped as being on Coonambidgee soils although similar to that at Ioppolo Rd. The entire Location is in Good to Very Good Condition.

Aerial Photo GG GW: 26 5126

Soils: Yanga and Coonambidgee (Churchward and McArthur, 1980)

Drainage: Poor to Good

Aspect: flat and western slope

**Location 122** - Bambun Rd and Brand Hwy. Location Map 1.

**Yeg: me LOF**

**Cond: Good to Poor**

**Site**

**me LOF *Melaleuca preissiana* Low Open Forest over *Xanthorrhoea preissii* and *Hypocalymma angustifolium* Low Open Shrubland over  
Herbland**

Trees: *Melaleuca preissiana*, *Melaleuca raphiophylla*, *Banksia littoralis*,  
*Eucalyptus rudis*

Shrubs: *Xanthorrhoea preissii*, *Hypocalymma angustifolium*

Grasses: \* *Briza maxima*, \* *Briza minor*, misc exotic grasses

Herbs: *Lobelia alata*, *Cotula coronopifolia*, \* *Lotus angustissimus*, \* *Hypochaeris glabra*, 3, 6 \* *Eryngium?* *pinnatifid* sp. '*psilustris*', \* *Ranunculus trilobus*, *Hydrocotyle diantha*

Adjacent: 6 \* *Burchardia bairdii*

#### CONDITION

Rating: Good to Poor

Comments: The area is apparently regrowth after clearing or fire and is apparently grazed. Weeds are well established in the understorey.

Aerial Photo GG GW: 25 5020

Soils: dark grey humus rich sand, Yanga (Churchward and McArthur, 1980)

Drainage: Poor

Aspect: flat

**Location 123**- Reserve 22831, Bambun Rd, east Lake Bambun. Location Map 1.  
Vegetation Map Area 9, p86.

**Yeg: b LW, c LW, H, S, r W**

**Cond: Good to Very Poor**

#### GENERAL COMMENTS

This Location of approx 12 ha contains the largest area of *Casuarina obesa* Woodlands in the Study Area. The other vegetation associations are *Banksia prionotes* Woodland and *Eucalyptus rudis* Woodland around the drain on the northern perimeter of the Location. The perimeters of the Location are severely weed invaded and are in Very Poor to Completely Degraded Condition as are some other sections of the Location. The *Casuarina obesa* Woodlands would have extended east to Location 122 as the intervening paddocks contain scattered *Casuarina obesa*.

This Location is in an area that was of early interest, lands between Lake Bambun and Lennards Brook to the NE being granted to E. Barret-Lennard in 1830 who abandoned the land but the area was the first block surveyed, Swan Location 96(1841), in the GinGin area and was acquired initially by William L. Brockman. By 1860 the entire area was subject to ownership or lease for grazing (Udell, 1980).

#### Site 123a

**c LW** *Casuarina obesa* Low Open Woodland over *Melaleuca viminea* and  
*Melaleuca raphiophylla* High Open Shrubland over exotic  
Grassland, Herbland and *Leptocarpus canus* Sedgeland.

Trees: *Casuarina obesa*

Adjacent: *Acacia saligna*

Shrubs: *Melaleuca viminea*, *Melaleuca raphiophylla*, 4 \* *Kunzea recurva*,  
*Verticordia densiflora*

Adjacent: *Jacksonia furcellata*

Grasses: \* *Briza maxima*, \* *Lolium sp*

Herbs: *Haemodorum simplex*, *Frasophyllum drummondii*, 6# *Burchardia bairdii*, 6# *Podolepis gracilis* 'pink', \* *Lotus angustissimus*, *Dianella divaricata*, *Tribonanthes australis*, *Paterosonia occidentalis*, *Microtis alba*, 6# *Isotropis aff. cuneifolia*

Adjacent: 6# *Myriocephalus helichrysoides*, *Drosera gigantea*

Sedges: *Leptocarpus canus*, *Centrolepis aristata*, *Triglochin* sp

Adjacent: *Loxocarya pubescens*, 3, 6# *Restio stenostachyus*

#### CONDITION

Rating Good to Poor

Comments: Annual weed species significant density (50% cover), but native species still significant. Adjacent areas in Very Poor Condition as weeds, especially \* *Lotus angustissimus*, up to 80% cover and few native species.

Aerial Photo GG GW: 24 5219

Soils: humus rich grey sand over white sand, Yanga (Churchward and McArthur, 1980)

Drainage: poor

Aspect: very gentle, W

#### Site 123b

c LW/LF *Casuarina obesa* Low Open Forest to Low Woodland over *Myriocephalus helichrysoides* and *Villarsia capitata* Closed Herbland

Trees: *Casuarina obesa*

Herbs: *Villarsia capitata*, 6# *Myriocephalus helichrysoides*, ? \* *Crassula natans*

Adjacent: 6# *Stylidium longitubum*

Sedges: *Triglochin procera*, *Isolepis cernua*, 2# *Eleocharis? acuta*

Adjacent: *Triglochin muellerii*

#### CONDITION

Rating Very Good

Comments: The presence of *Crassula natans* may indicate this heavily weed invaded but there are doubts about the status of the origin of this species (GJK pers com).

Aerial Photo GG GW: 26 5219

Soils: dark grey to black clay, Yanga (Churchward and McArthur, 1980)

Drainage: poor, free water in lowest level, 20/11/1991

Aspect: flat

#### Site 123c

b LW *Banksia prionotes* Open Low Woodland over *Kunzea ericifolia* and *Jacksonia furcellata* High Open Shrubland to Open Scrub over *Xanthorrhoea preissii* and *Conostephium preissii* Low Shrubland

Trees: *Banksia prionotes*, *Acacia saligna*

Shrubs: *Kunzea ericifolia*, *Jacksonia furcellata*, *Regelia ciliata*, *Xanthorrhoea preissii*, *Conostephium preissii*, *Calytrix angulata*, *Gompholobium tomentosum*

Adjacent: *Miscrozamia riedlii*

Grasses: \* *Briza maxima*, misc exotic grasses

Herbs: *Haemodorum spicatum*, *Lobelia tenuior*, *Fodolepis angustifolia*, *Kennedia prostrata*, *Hypochaeris glabra*, *Mitilota tenuifolia*, *Trachymene pilosa*, *Stylidium brunonianum* 'purple'

Sedges: 3, 6 \* *Restia stenostachyus*

#### CONDITION

Rating Poor

Comments: There has been substantial soil disturbance in the past possibly recently associated with chaining and the area has undoubtedly been grazed. Rabbits are present.

Aerial Photo GG GW: 26 5219

Soils: grey sand, Yanga (Churchward and McArthur, 1980)

Drainage: good

Aspect: very gentle, S

**Location 124-** Lake Bambun, Lake Mungala and Nambung, System 6 Reserve, C15.

Location Map 1. Vegetation Map, Appendix 2, p3.

**Yeg: r/mep LOF**

**Cond: Good to Very Poor**

#### GENERAL COMMENTS

The remaining vegetation is confined to a fringe around the Lakes. The Lakes are in a reserve of 81 ha, Reserve 24257, vested in the NPNCA.

#### CONDITION

Rating Poor

Aerial Photo GG GW: 26 5219

Soils: Yanga (Churchward and McArthur, 1980)

Drainage: permanent and semi permanent Lakes

Aspect: flat

**Location 125-** Wallering Swamp, System 6 Reserve, C15 and Nature Reserve.

Location Map 1. Vegetation Map, Appendix 2, p3.

**Yeg: me SC**

**Cond: Poor to Completely Degraded**

#### GENERAL COMMENTS

Remnant in low lying swampy area the remainder Completely Degraded. This Reserve of 19 ha is vested in the NPNCA, Reserve 26756.

Aerial Photo GG GW: 26 5219

Soils: Yanga (Churchward and McArthur, 1980)

Drainage: semi permanent wetland and upland

Aspect: flat

**Location 126** - Creighton Rd. Location Map 1. Vegetation Map, Appendix 2, p2.

**Yeg: mbt W**

**Cond: Poor to Very Poor**

#### GENERAL COMMENTS

An area of private land, fenced and grazed

#### Site

**mbt W** **Marri, *Banksia attenuata* and *Eucalyptus tottiana* Low Open Woodland over *Jacksonia sternbergiana* and *Dryandra sessilis* High Open Shrubland over Yeldt Grass Grassland.**

Note: *Grevillea vestita* occurs along the roadside adjacent to the Location, towards Location 126. *Viminaria juncea*, *Eucalyptus rudis* and *Acacia saligna*.

#### CONDITION

Rating: Poor to Very Poor

Comments: The Location is grazed and fenced.

Aerial Photo GG GW: 25 5022

Soils: Coonambidgee, Reagan and ?GinGin (Churchward and McArthur, 1980)

Drainage: good

Aspect: gentle, W

6# *Isotropis* aff. *cuneifolia*, 5# *Burchardia bairdii*, 6# *Eryngium* 'palustris', *Podolepis gracilis* 'pink', 6# *Tribonanthes* sp, 5# *Stylidium ecorne*, 5# *Arthropodium preissii*, 4# *Dampiera coronata*, 4# *Microtis alba*, 5# *Pogonolepis stricta*,

**Location 127** - Bushland between Brand Hwy and southern t/o to GinGin. Location Map 1. Vegetation Map Area 17, p83.

**Yeg: c LW, me Sc, H, S, sm LSh**

**Cond: Good to Poor**

#### GENERAL COMMENTS

An area of just 5ha, with great diversity in a small area which is difficult to map accurately and is best described as a mosaic of vegetation associations, these being *Melaleuca raphiophylla* and *Melaleuca viminea* High Open Shrubland, *Casuarina obesa* Low Open Forest to Low Open Woodland, Samphire Low Shrubland, Sedgelands and Herblands.



The Location is generally in Good to Poor Condition with some patches of Severe Localised Disturbance. There has been substantial soil disturbance in the whole Location but the vegetation has been able to maintain itself around these areas. To the south is another small area of *Casuarina* Woodland but this is being filled with rubble and being completely alienated.

The suckering of *Casuarina obesa* at the site after what appears to be disturbance by fire and clearing indicates that when the Herblands are lost the density of the *Casuarina obesa* increases.

### **Site 127a**

#### **me Sc *Melaleuca raphiophylla* and *Melaleuca viminea* High Open Shrubland over Herbland and annual Sedgeland**

Trees: Adjacent: *Casuarina obesa*

Shrubs: *Melaleuca raphiophylla*, *Melaleuca viminea*, *Jacksonia furcellata*,  
4\* *Kunzea recurva*, *Hakea varia*

Grasses: \* *Brisa maxima*, misc exotic species

Herbs: 6\* *Isotropis* aff. *cuneifolia*, 6\* *Burchardia bairdii*, *Tribonanthes australis*, 3, 6\* *Eryngium pinnatifidum* sp. 'palustris', 6\* *Podolepis gracilis* 'pink', 2, 5\* *Tribonanthes* sp., *Wurmbea dioica*, *Drosera menziesii*, *Borya scirpoides*, *Brachycome iberidifolia*, 5\* *Stylidium ecorne*, \* *Lotus angustissimus*, \* *Ursinia anthemoides*, \* *Hypochaeris glabra*, \* *Romulea rosea*

Sedges: *Leptocarpus coangustatus*, *Leptocarpus canus*, *Isolepis marginata*, *Schoenus odontocarpus*, *Centrolepis aristata*, *Centrolepis polygyna*, *Triglochin calcitrapa*

#### **CONDITION**

Rating: Good to Very Good

Comments: Adjacent areas substantially more weed invaded, weeds in site significant, a patches of \* *Lotus angustissimus* 70% cover but generally about 2%.

Aerial Photo GG : 25 5022

Soils: clay over ironstone, GinGin Brook Complex (McArthur, 1980), Yanga (Churchward and McArthur, 1980)

Drainage: poor, waterlogged

Aspect: flat

### **Site 127b**

#### **c LW *Casuarina obesa* Low Open Forest to Woodland over Closed Herbland**

Trees: *Casuarina obesa*

Shrubs: 4\* *Kunzea recurva*

Grasses: \* *Ehrharta longiflora*, misc exotic species

Herbs: 6\* *Burchardia bairdii*, 6\* *Podolepis gracilis* 'pink', *Wurmbea dioica*, *Brachycome iberidifolia*, 5\* *Stylidium ecorne*, \* *Ursinia anthemoides*, \* *Romulea rosea*

In similar vegetation association: 4# *Arthropodium preissii*, 4# *Dampiera coronata*, *Oreocera ramellosa*, *Microtis alba*

Sedges: *Triglochin procera*

#### CONDITION

Rating Poor

Comments: Herbland substantially weed invaded\* *Romulea rosea*, \* *Ehrharta longiflora* and misc exotic species cover to 70%. The area has been disturbed in the process of ironstone removal, and a series of ponds form each year from water off the road and the Location.

Aerial Photo GG : 25 5022

Soils: dark grey clay, GinGin Brook Complex (McArthur, 1980), Yanga (Churchward and McArthur, 1980)

Drainage: poor, waterlogged, adjacent man made pond

Aspect: flat

#### Site 127c

**c LW *Casuarina obesa* Low Open Woodland over *Sarcocornia quinqueflora*  
Low Shrubland over Herbland**

Trees: *Casuarina obesa*

Shrubs: *Sarcocornia quinqueflora*

Grasses: \* *Briza maxima*, \* *Briza minor*, misc exotic species

Herbs: 6# *Isotoma scapigera*, 6# *Tribonanthes* sp, 5# *Pogonolepis stricta*, *Cotula australis*, *Siloxerus humifusus*, \* *Romulea rosea*

Sedges: *Isolepis cernua*, *Schoenus humifusus*, *Centrolepis aristata*, *Triglochin mucronata*, *Centrolepis polygyna*

#### CONDITION

Rating Good to Very Good

Comments: Adjacent areas substantially more weed invaded, weeds in site significant, a patches of \* *Lotus angustissimus* 70% cover but generally about 2%.

Aerial Photo GG : 25 5022

Soils: clay over ironstone, GinGin Brook Complex (McArthur, 1980), Yanga (Churchward and McArthur, 1980)

Drainage: poor, waterlogged, ?salt

Aspect: flat

**Location 128** - Crossing over Lennards Brook. Location Map 1. Vegetation Map, Appendix 2, pl.

**Yeg: r/mr F**

**Cond: Poor**

**'Site'**

**r/mr F      Flooded Gum Open Forest over *Melaleuca raphiophylla* Low  
Open Forest over Bracken Closed Fernland**

Trees:      *Eucalyptus rudis*, *Melaleuca raphiophylla*

Shrubs:      \* *Rubus aff. selmeri*

Grasses:      \* *Pennisetum clandestinum*, \* *Stenotaphrum secundatum*, \* *Ehrharta longiflora*

Herbs:      \* *Oxalis pes-caprae*, \* *Polygonum* sp., \* *Rorippa nasturtium-aquaticum*,  
\* *Zantedeschia zethiopica*

Sedges:      \* *Typha orientalis*, *Carex appressa*, *Baumea articulata*, *Lepidosperma effusum*

Ferns:      3# *Cyclosorus interruptus*, *Pteridium esculentum*

**CONDITION**

Rating      Poor

Comments:      Vegetation confined to a thin strip along the Brook and the area has a long history of European land usage.

Aerial Photo GG : 25 5022

Soils:      brown loam, GinGin Brook Complex (McArthur, 1980),

Drainage:      poor, waterlogged

Aspect:      NA

**Location 129-** Recreation Reserve in the GinGin Townsite. Location Map . Vegetation Map, Appendix 2, p1.

**Yeg: m W**

**Cond: Poor**

**GENERAL COMMENTS**

This small remnant of Marri Woodland in Poor Condition is a remnant of the vegetation that was apparently around GinGin on the GinGin Complex soils. The roadsides around GinGin are still lined with remnant Marri and a few other natives over exotic grasses principally \* *Pennisetum clandestinum*, \* *Ehrharta calycina* and \* *Eragrostis curvula*

**'Site'**

**Marri Woodland over exotic Herbland**

Trees:      *Eucalyptus calophylla*

Shrubs:      *Jacksonia sternbergiana*, *Jacksonia furcellata*

Grasses:      4# *Neurachne slopecuroidea*, \* *Ehrharta calycina*

Herbs: 4\* *Kennedia stirlingii*, *Kennedia prostrata*, *Scaevola phlebopetala*,  
*Ptilotus stirlingii*, *Tricoryne elatior*, *Opercularia vaginata*, *Sowerbaea laxiflora*,  
*Drosera menziesii*, *Dianella revoluta*, *Dampiera coronata*, \**Babiana stricta*, \**Romulea*  
*rosea*

Sedges: *Schoenus ?brevisetus*

#### CONDITION

Rating: Poor to Very Poor

Comments: The area has been partially cleared and repeatedly fired.

Aerial Photo GG : 25 5022

Soils: brown loam, GinGin Brook Complex (McArthur, 1980),

Drainage: moderate

Aspect: gentle, N

**Location 130** - Bushland west of Lennards Brook. Location Map 1..

**Yeg: b W, r F, me SC**

**Cond: Good**

#### GENERAL COMMENTS

This large tract of bushland is all on private land and fenced. The soils are all very sandy and the vegetation associations are allied with those on the Bassendean Sands to the west as indicated by the presence of *Kunzea ericifolia* and *Melaleuca preissiana*.

#### CONDITION

Rating: Very Good to Poor

Comments: The area is fenced and is grazed either now or in the past, some weed invasion, principally \**Ehrharta calycina*.

Aerial Photo GG GW: 24 5217

Soils: Coonambidgee and Yanga (Churchward and McArthur, 1980)

Drainage: good to poor in depressions

Aspect: flat

## APPENDIX 2

### Vegetation Maps of Areas Not Included in Recommendation 4

Remnant Vegetation of the Alluvial Soils of the Eastern Side of the Swan Coastal Plain

Prepared by Bronwen Keighery and Malcolm Trudgen.

## Index to Vegetation Maps

Vegetation Maps are generally 200% enlargements of the 1:20,000 Aerial Photographs made for the Metropolitan Street Directory (south of Location 96) and the Gin Gin Groundwater (north of Location 96). Maps of Locations 3, 11d and 95 are 300% enlargements and 119, 120 and 121 are 100% enlargements.

**Key:** R = vegetation map in the Report; A = vegetation map in Appendix 2

Location	Page	Location	Page
1	R 99	74	no map
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5	R 84	76-79	A 12
6	A 22	80	no map
7	no map	81	R 93
8,9	A 23	82	A 10
10	R 100	83,84	A 11
11	A 25	85	no map
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19	A 26	90,91	A 9
20-22	A 28	92-94	no map
23	A 27	95	A 8
24	no map	96	A 7
25	A 29	97	A 5
26-29	no map	98,99	no map
30	R 85	100	R 89
31	no map	101	no map
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46	A 20	113-117	no map
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50	no map	119,120	A 6
51	A 20	121	A 4
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56,57	A 17	123	R 86
58-60	A 16	126	A 2
61,62,63	R 96	127	R 83
64,65	R 97	128,129	A 1
66,67	A 15	130	no map
68	R 95		
69	A 13		
70-72	A 13		
73	R 94		

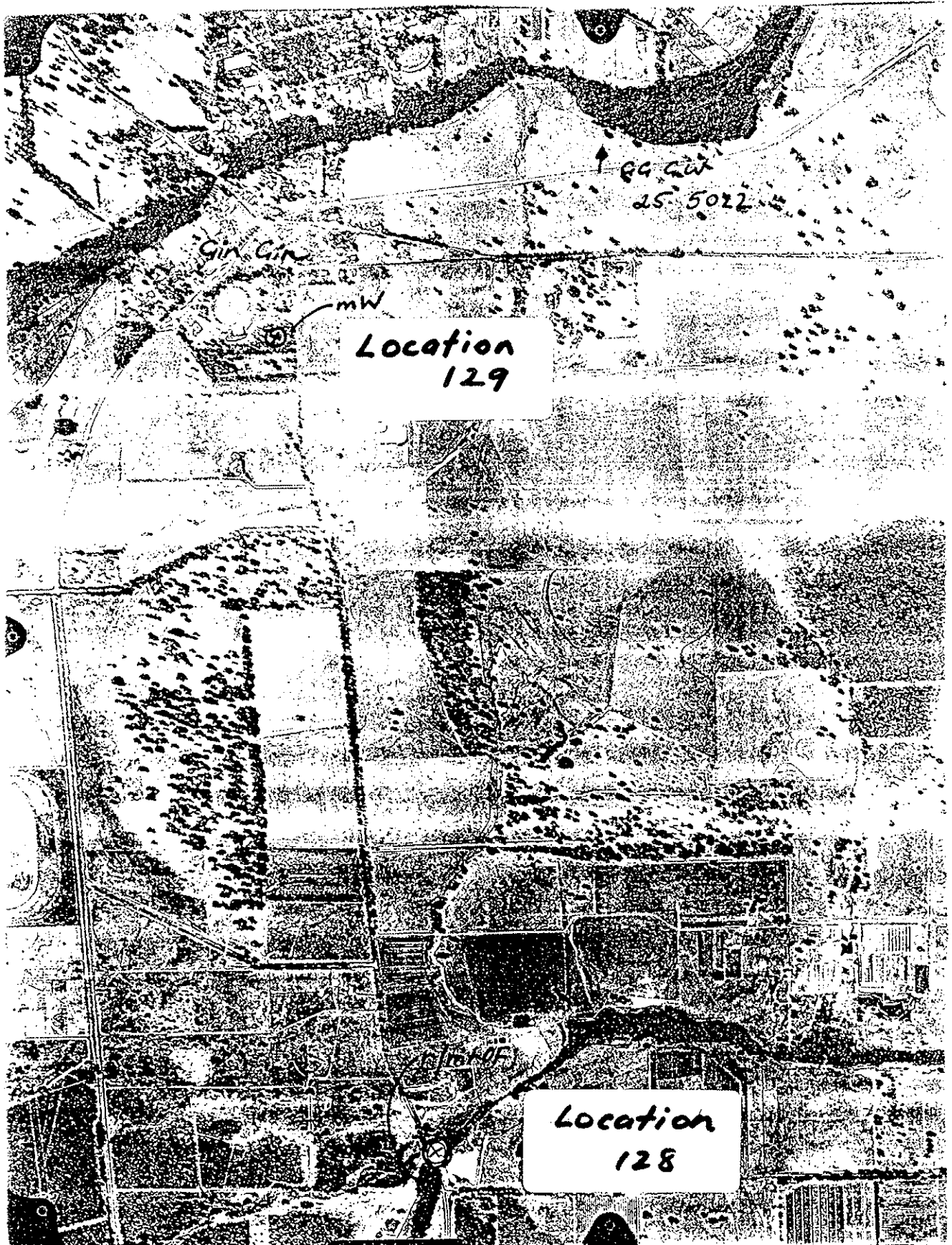
#### **Index to Vegetation Maps of Areas Not Included in Recommendation 4**

Location	Page	Location	Page
128, 129	1	52-55	18
126	2	44-45	19
123-125	3	46, 51	20
121	4	41-43	21
97, 110, 112	5	2-6	22
119, 120	6	8, 9	23
96	7	12-14	24
95	8	11, 16-18	25
90, 91	9	19	26
82, 87	10	23	27
83, 84	11	20-22	28
76 - 79	12	25	29
69, 71-72	13	32	30
88, 89	14	33, 34	31
66, 67	15	39	32
58-60	16	40	33
57-56	17		

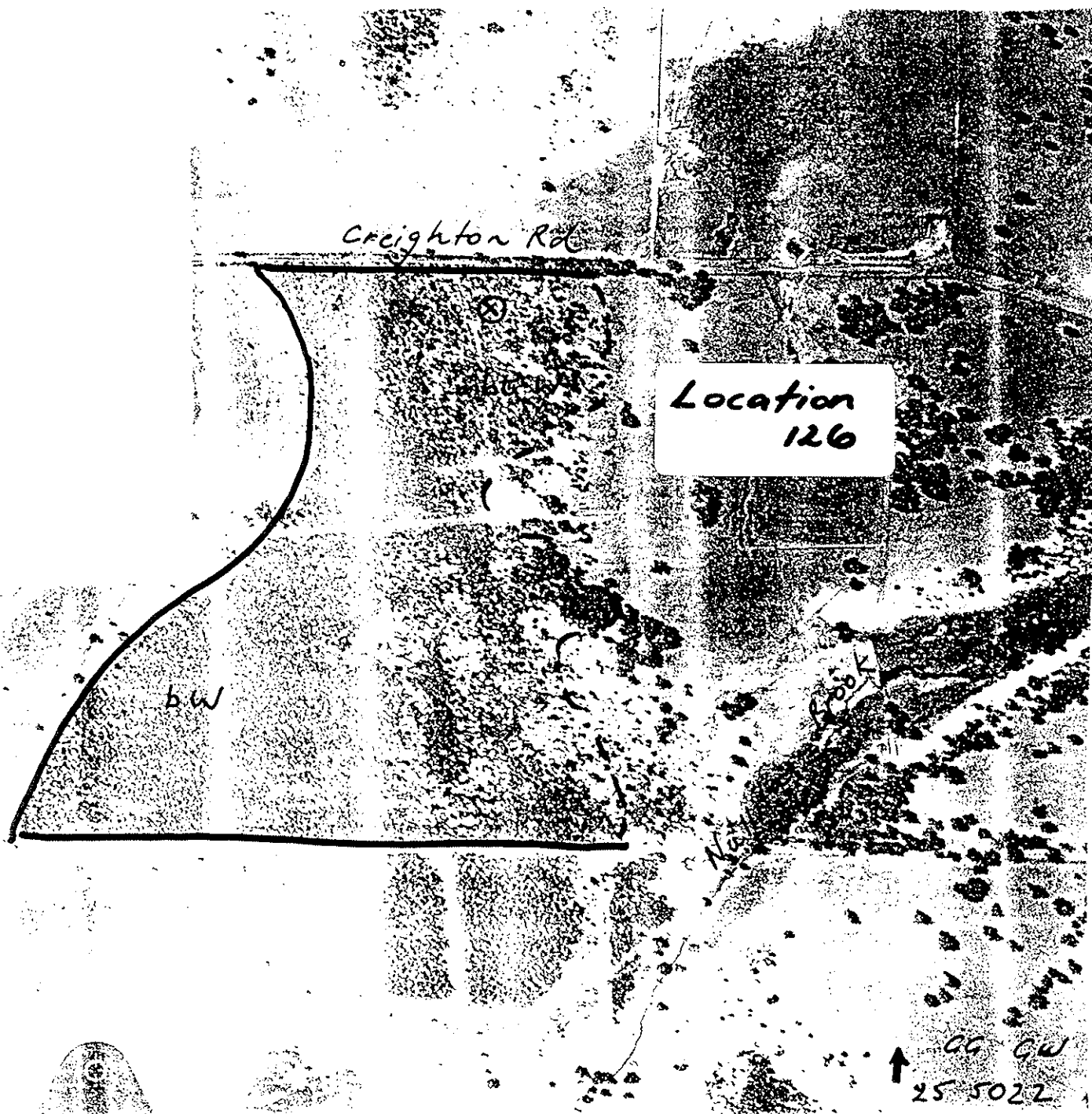
#### **Index to the Vegetation Maps Included in Recommendation 4 in the Report.**

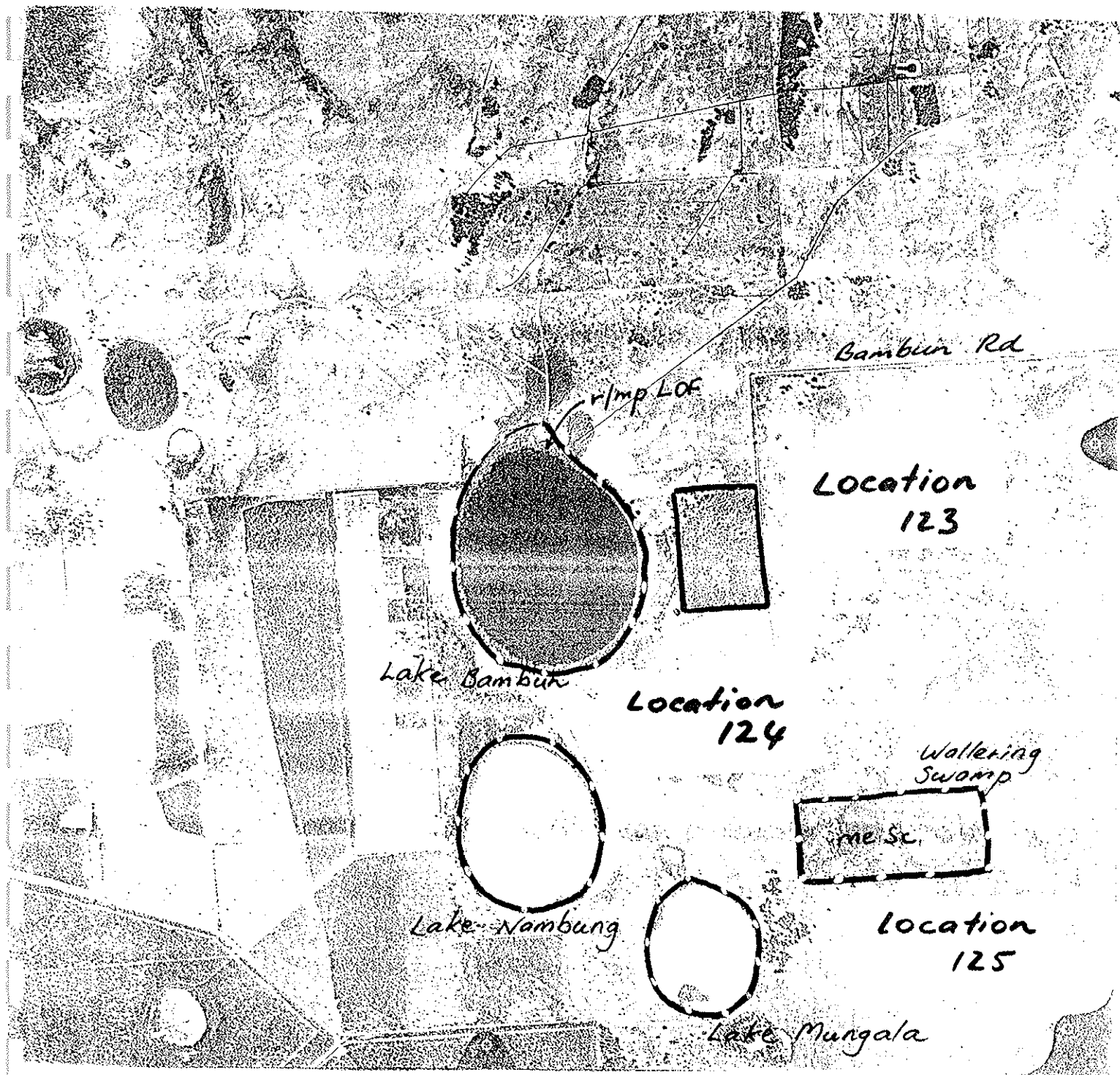
A few areas not included in Recommendation 4 are found with these areas in the Report.

Location	Page	Location	Page
16, 127	83	86	92
5	84	81, 75	93
30	85	73	94
123	86	68	95
118	87	61, 62, 63	96
105	88	64, 65	97
100, 102, 103	89	47, 48, 49	98
106, 107, 108	90	1	99
109	91	10	100
		38	101



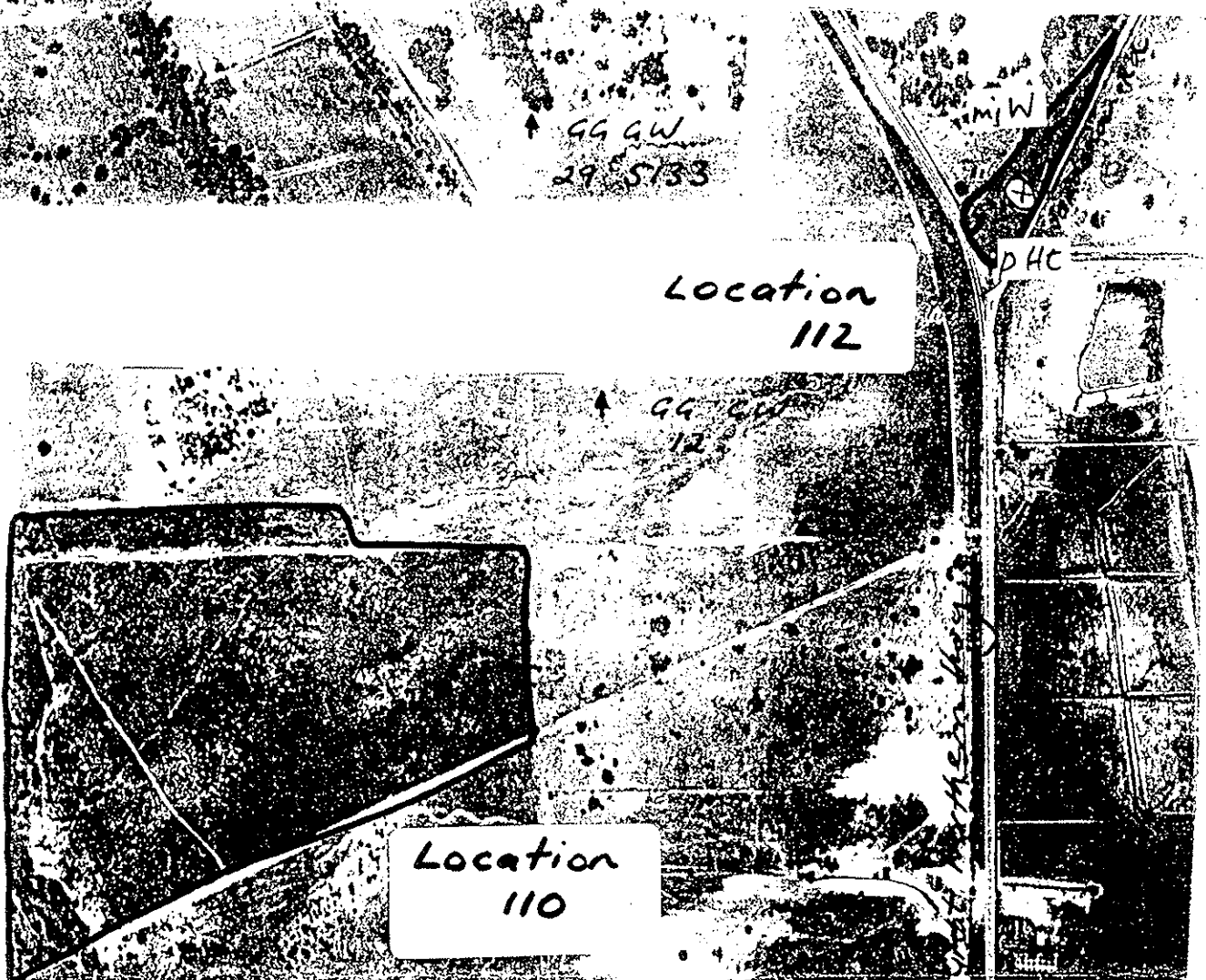
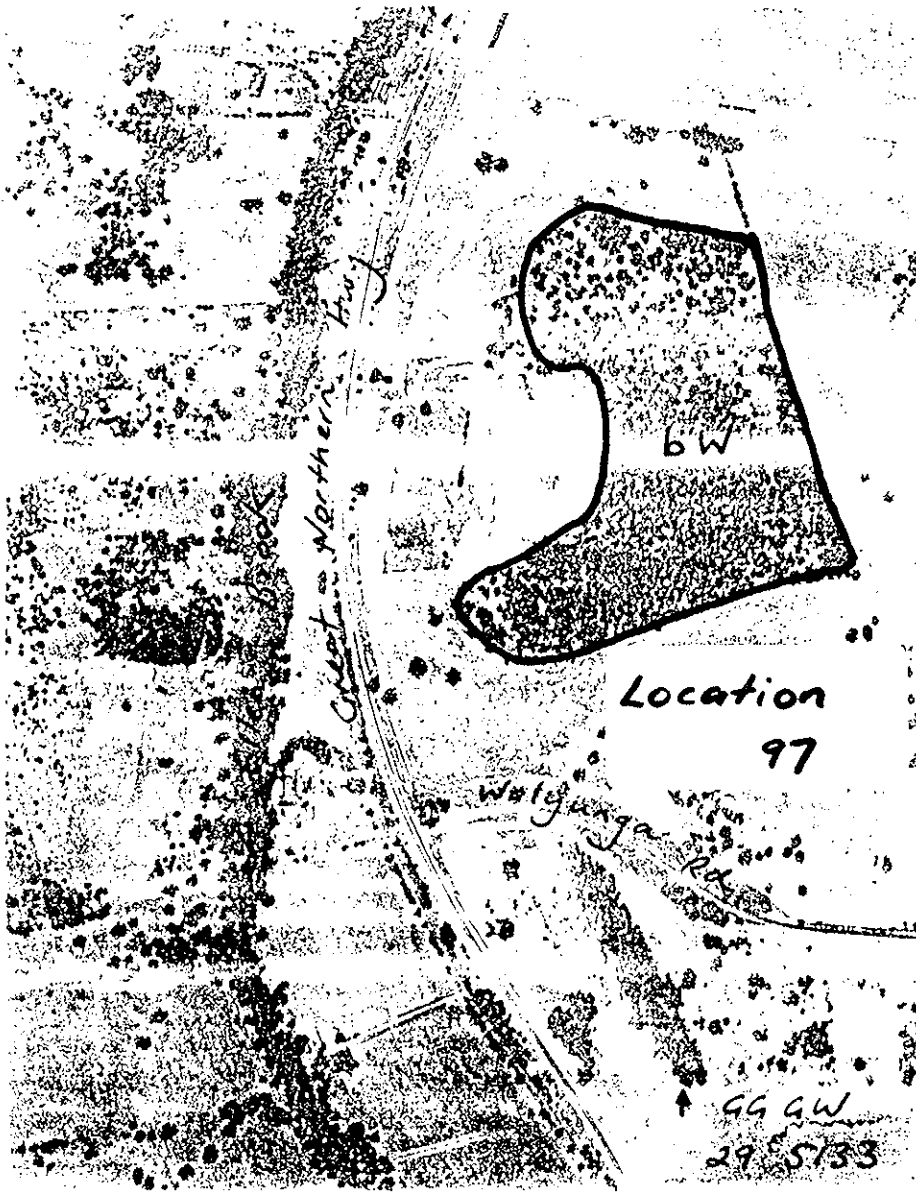




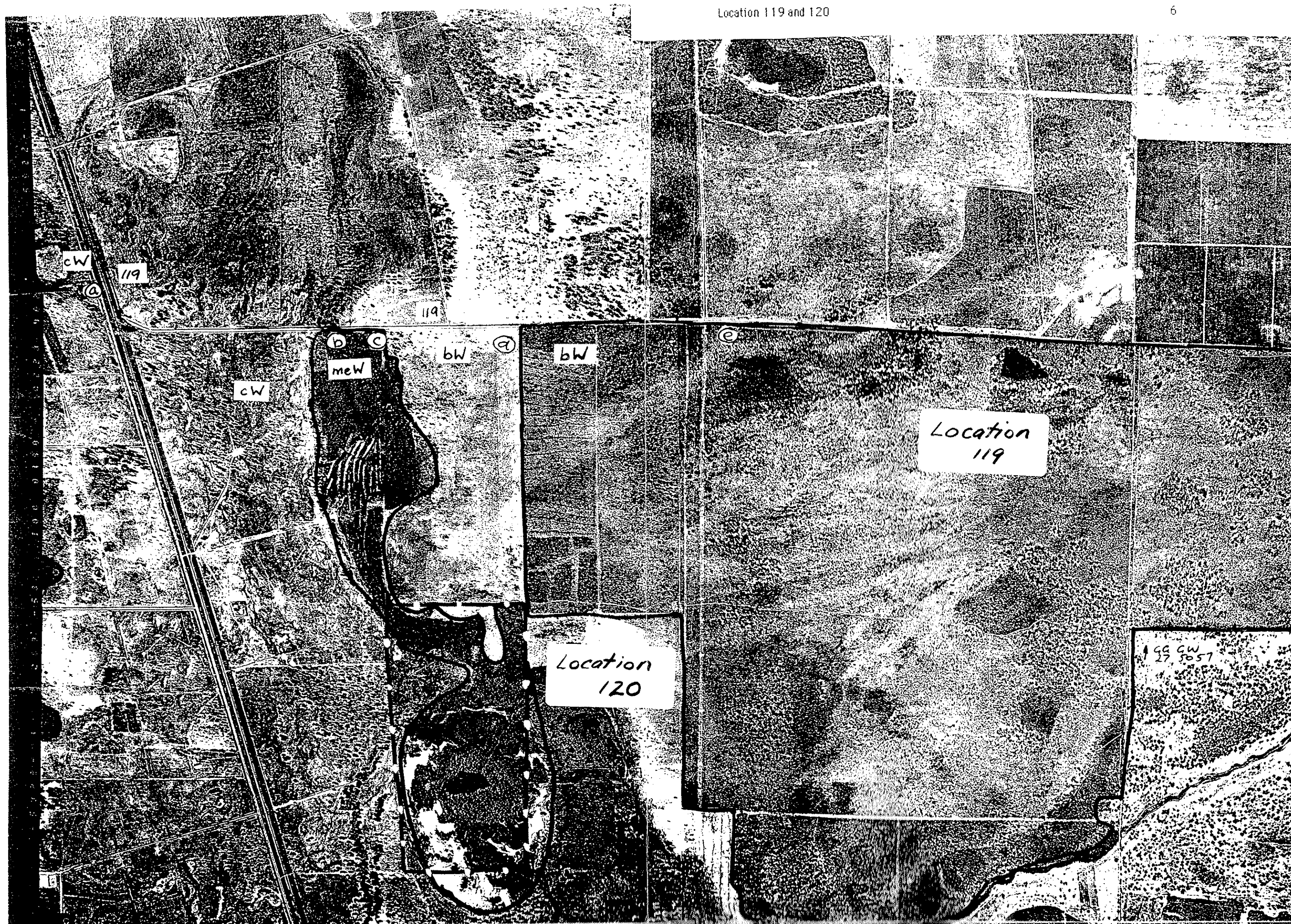




Continuous with page 6







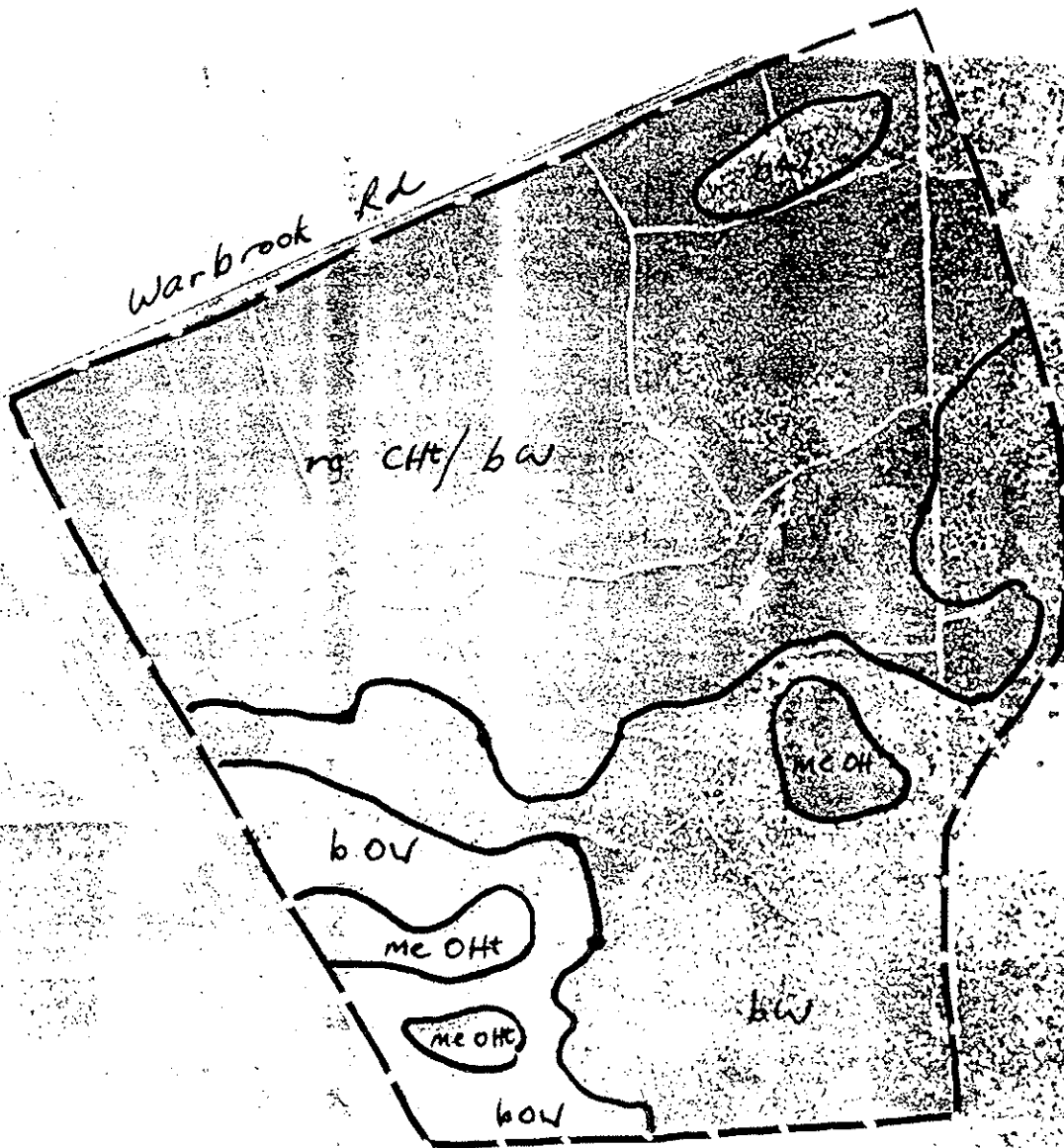


Location  
119

GG GW  
27 5057

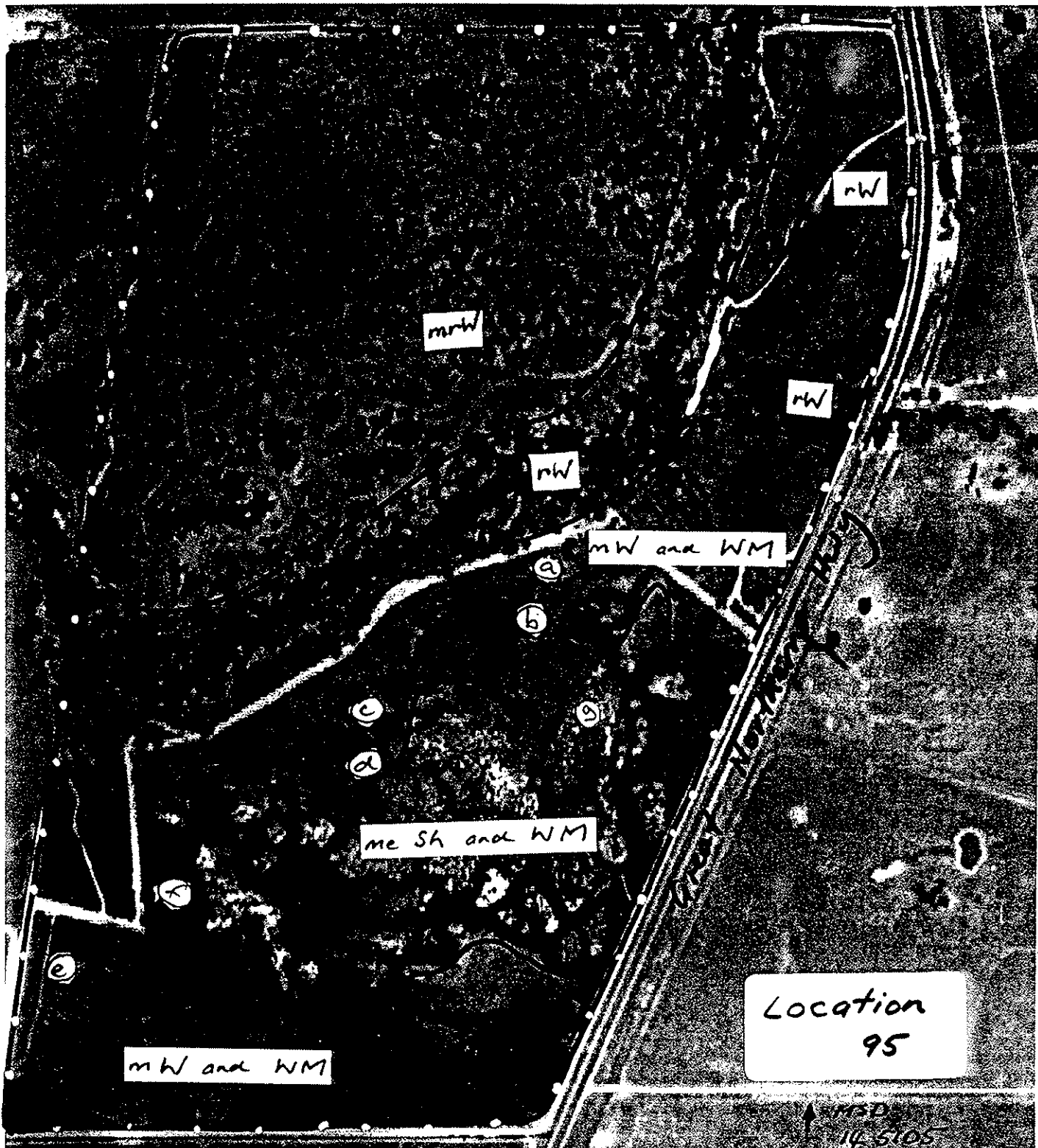
GG GW  
27 5059



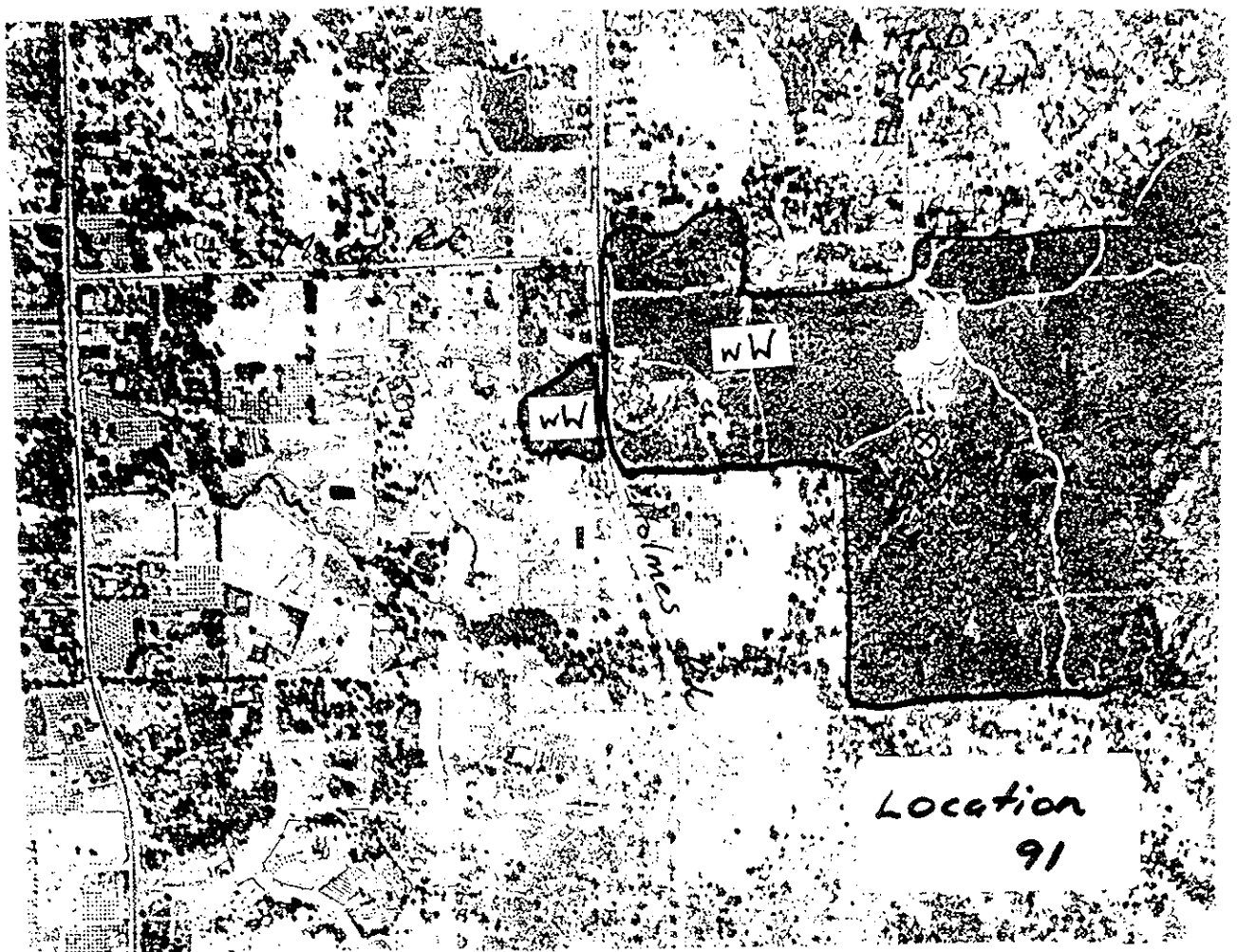
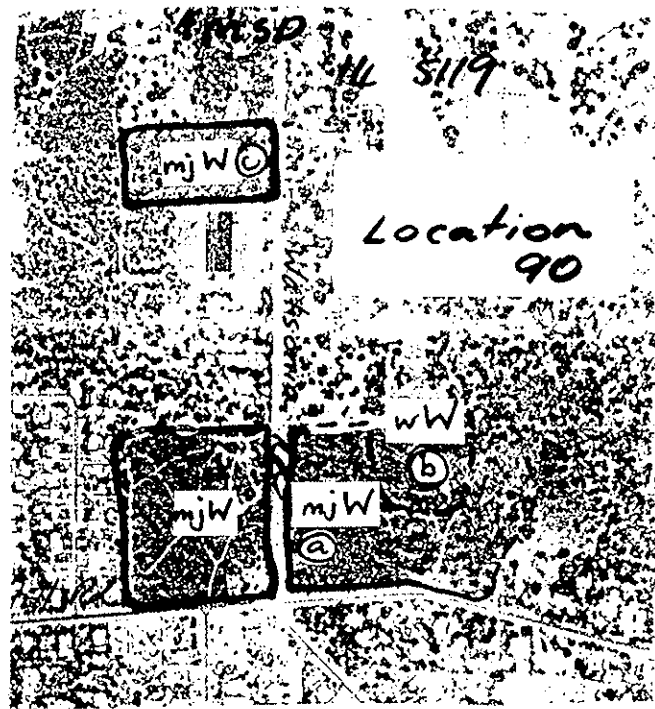


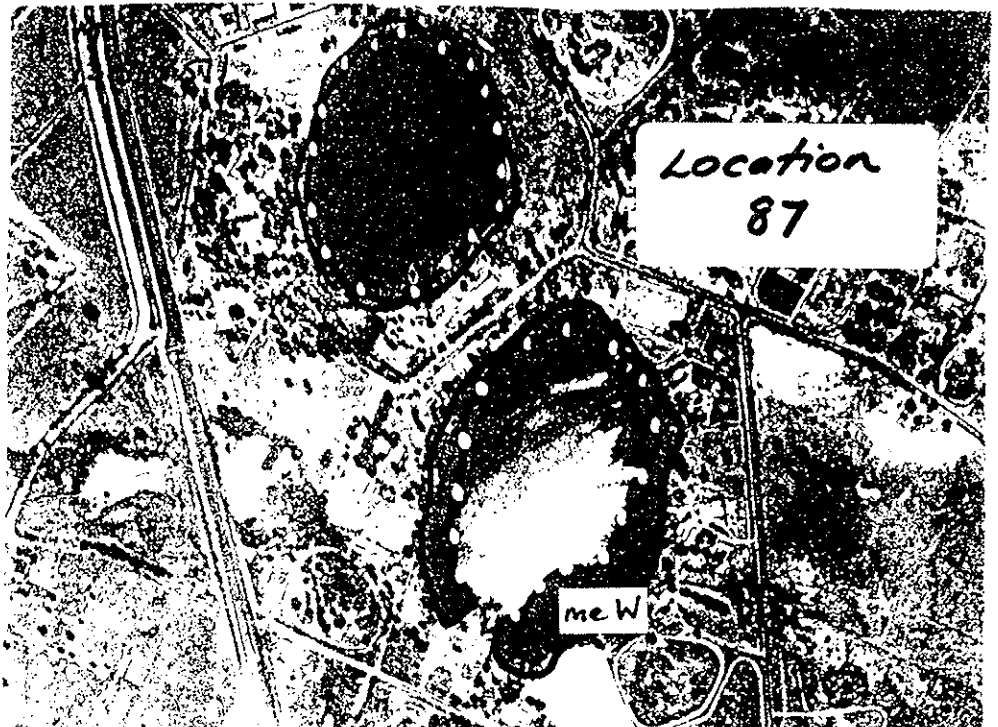
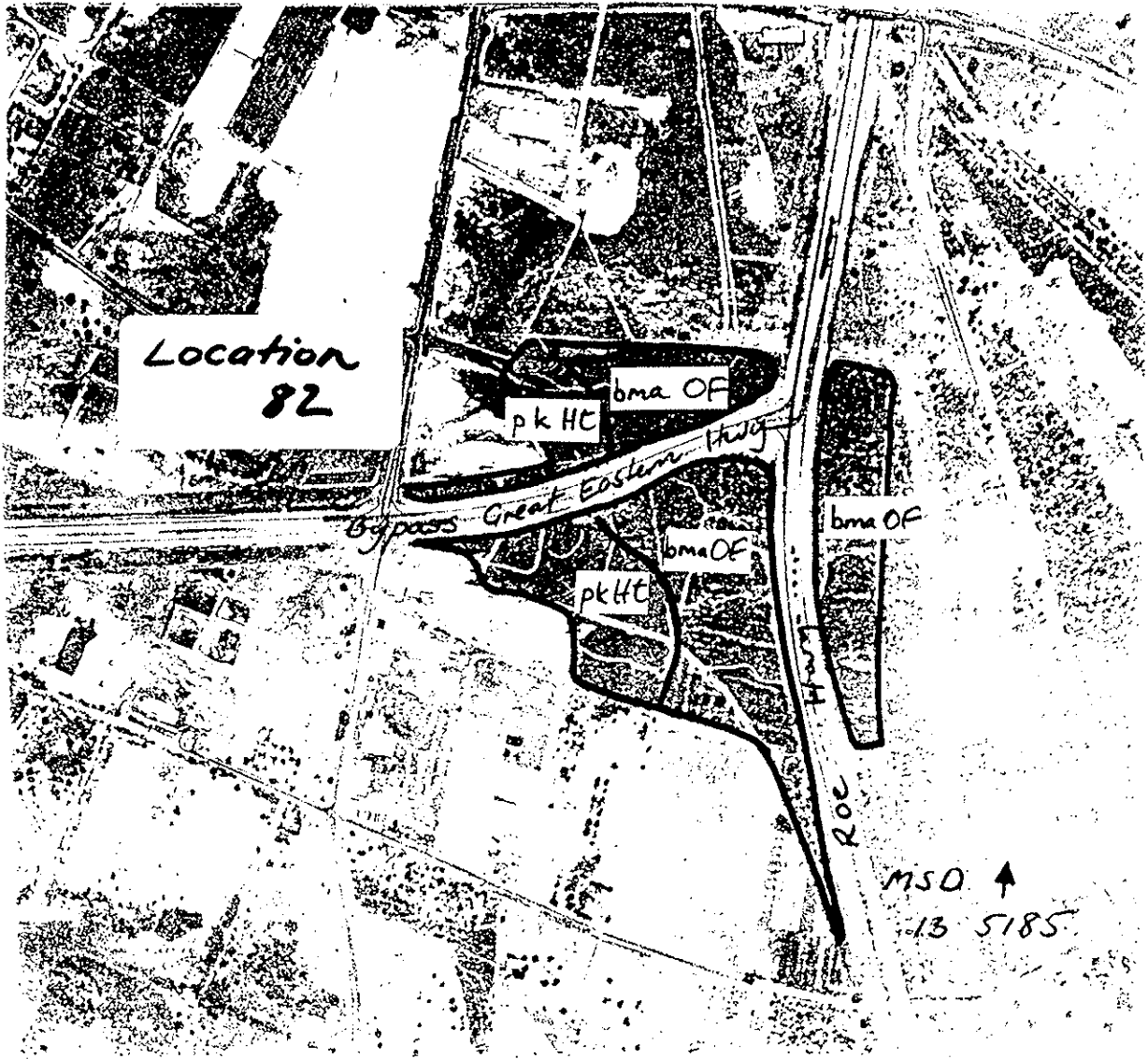
Location  
96

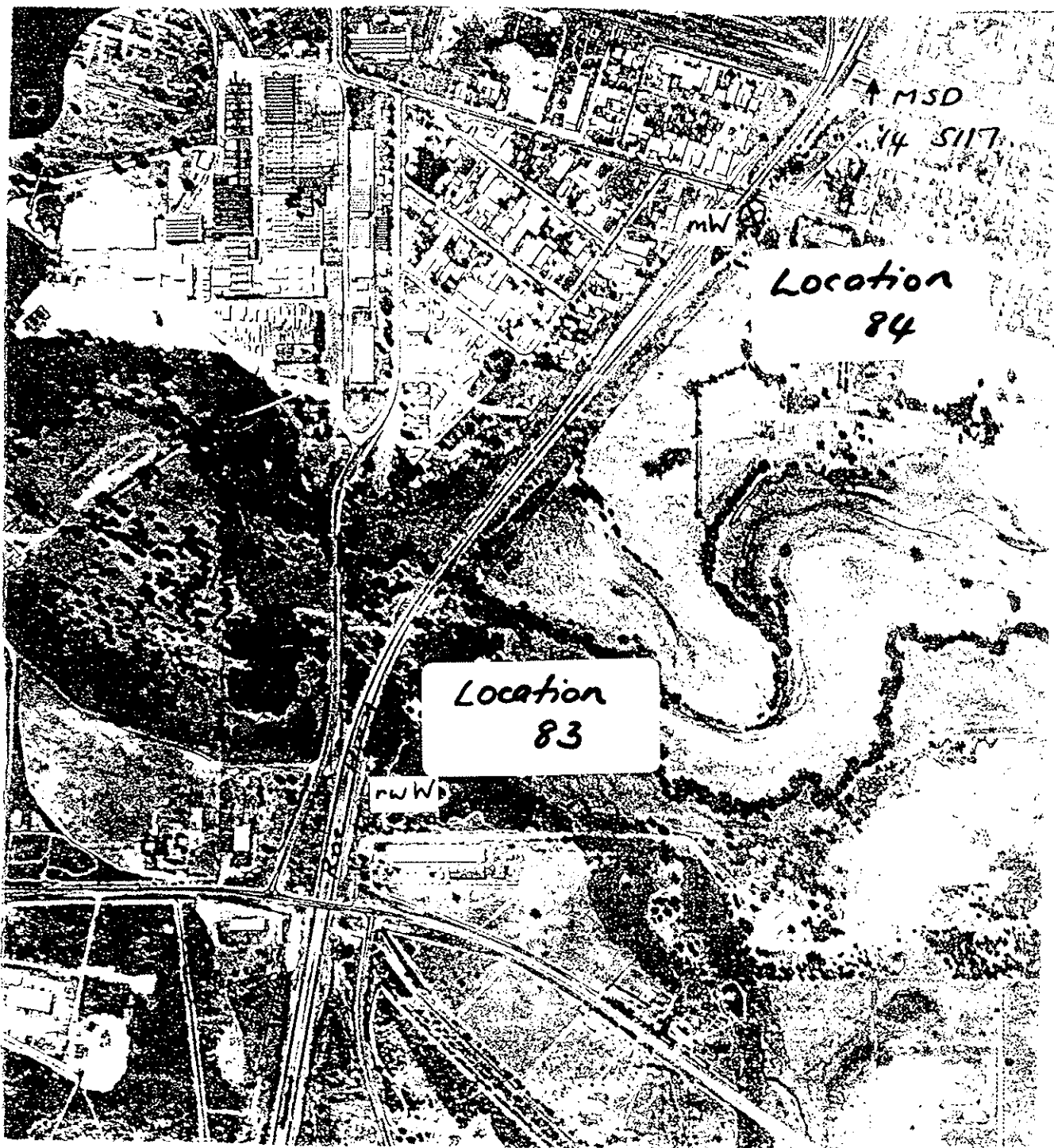
↑ MSD  
13 5197



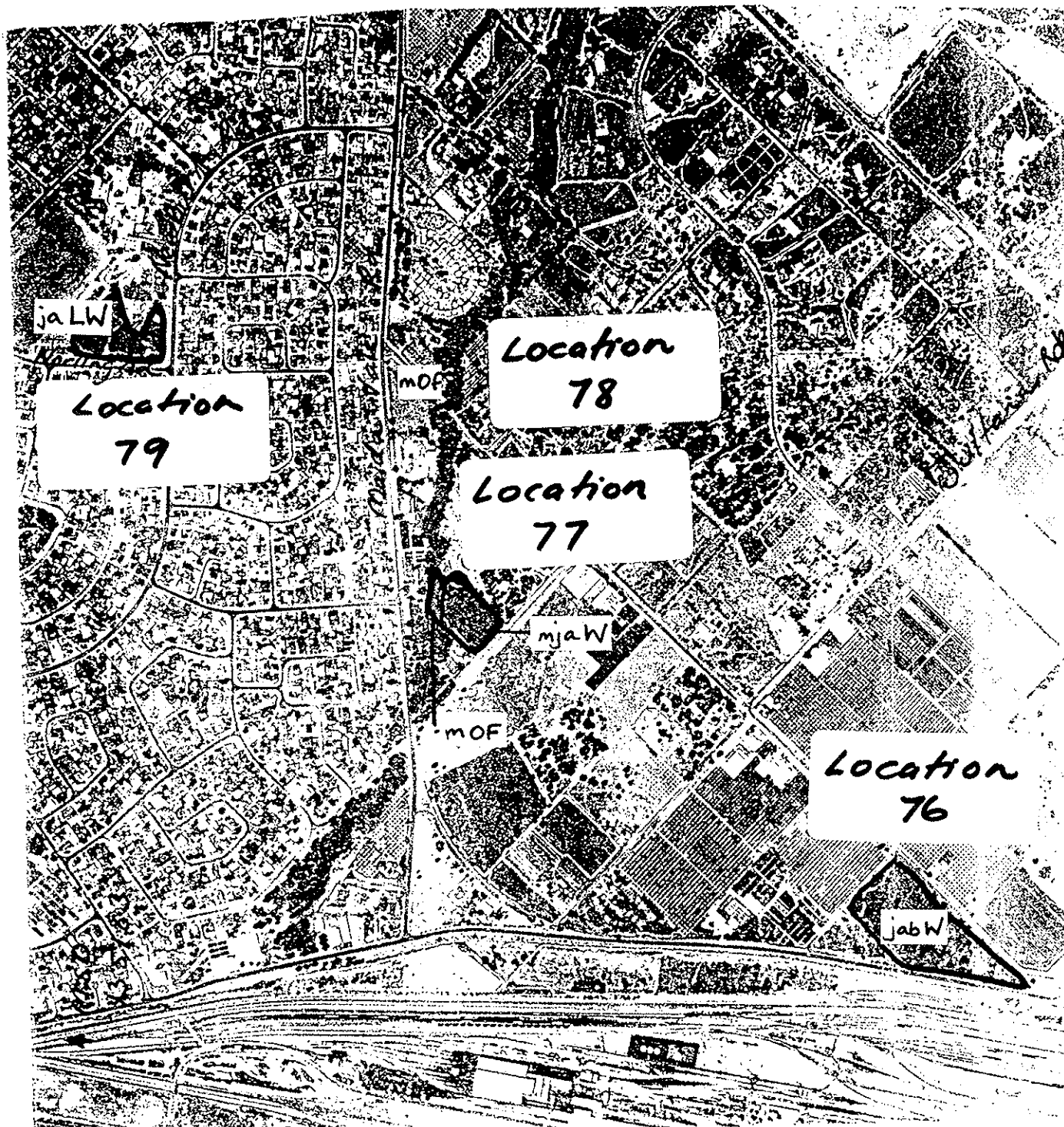


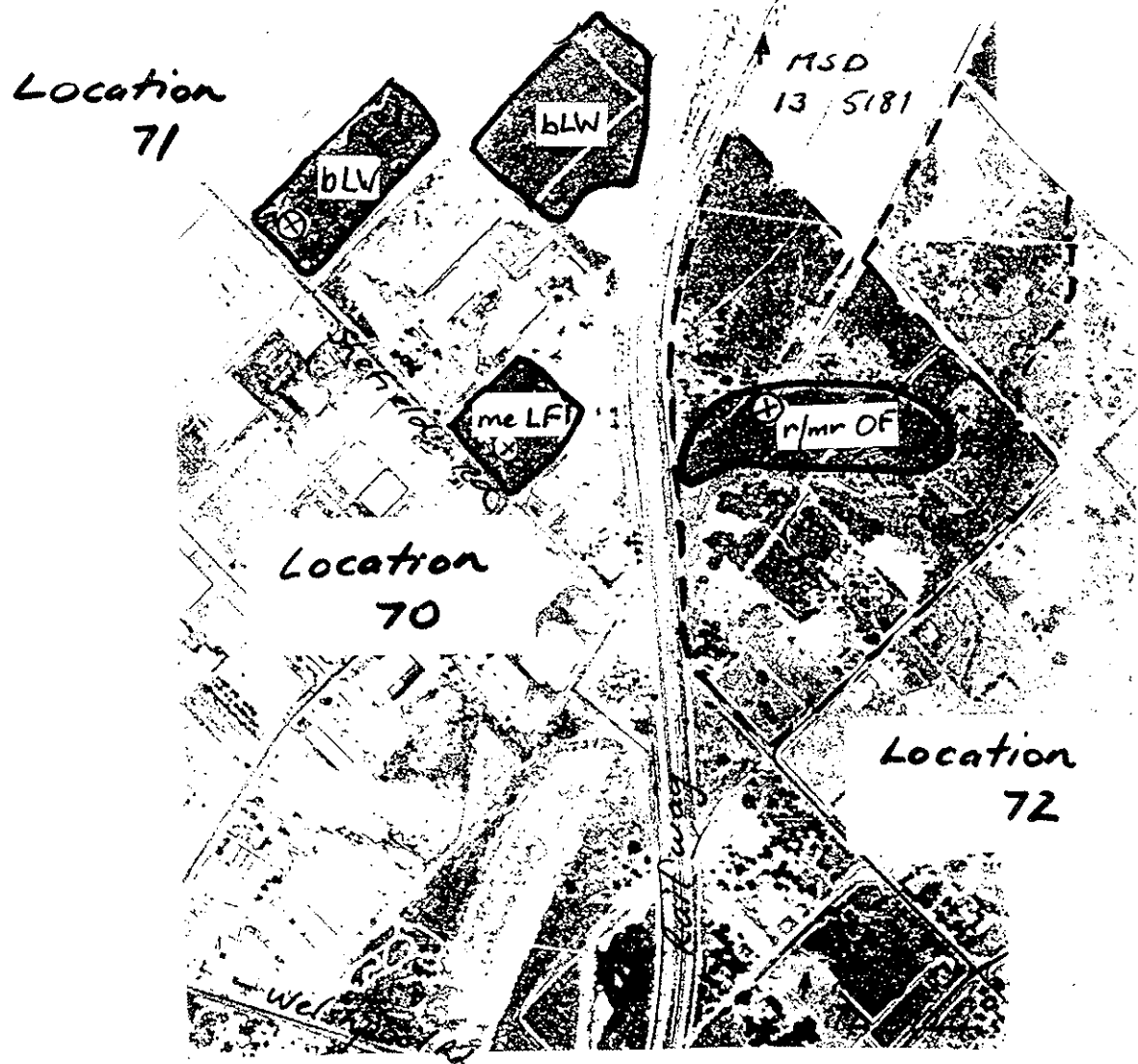
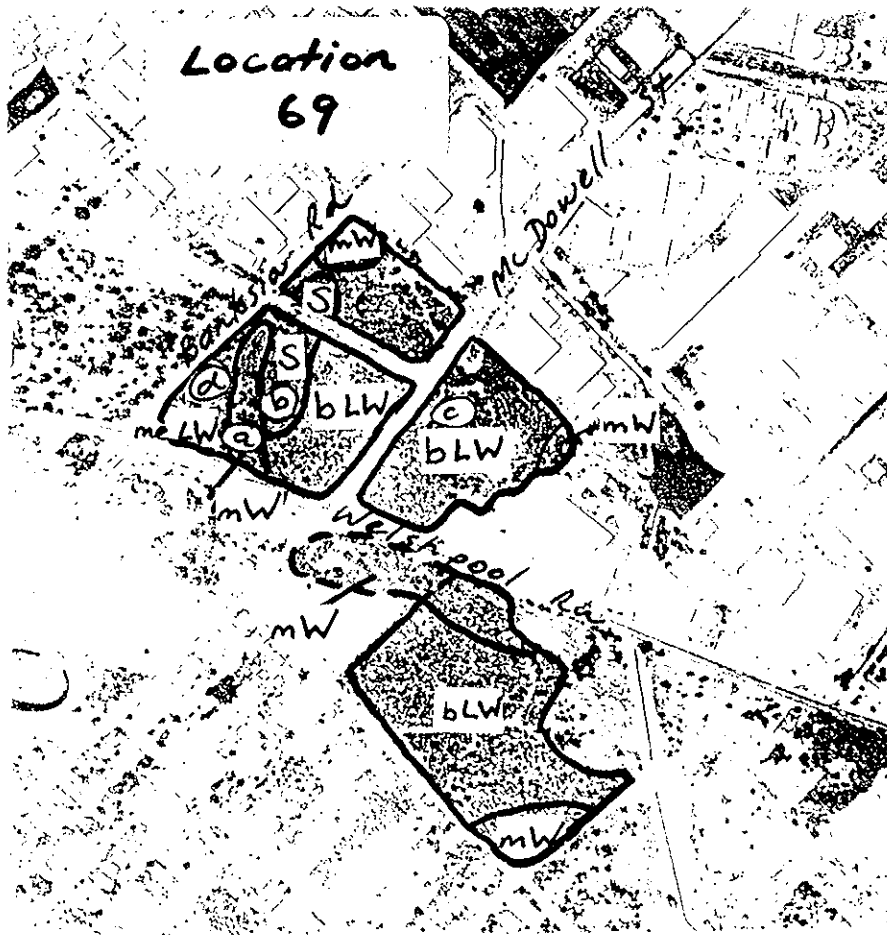






Locations 83 and 84





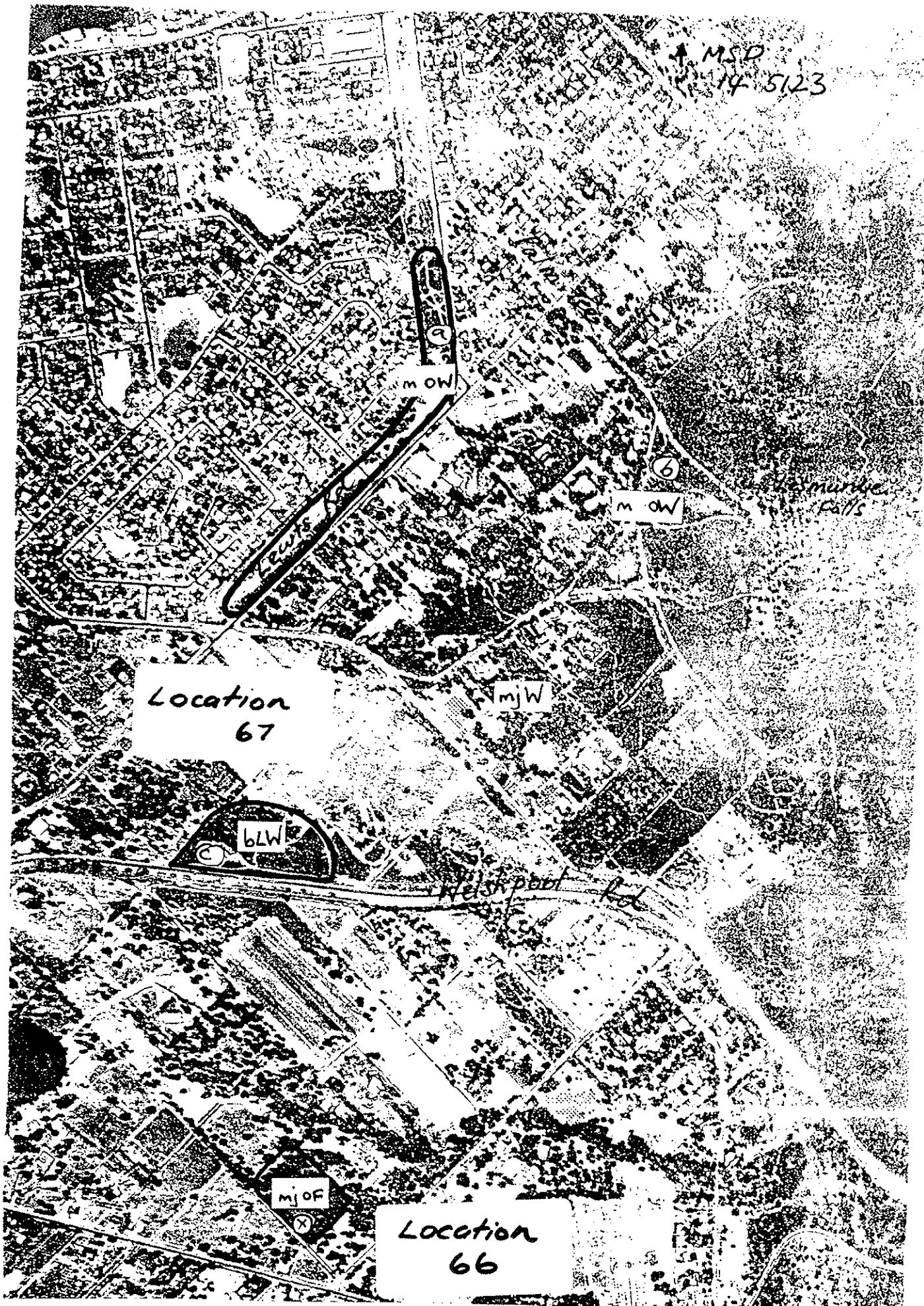


Location  
88

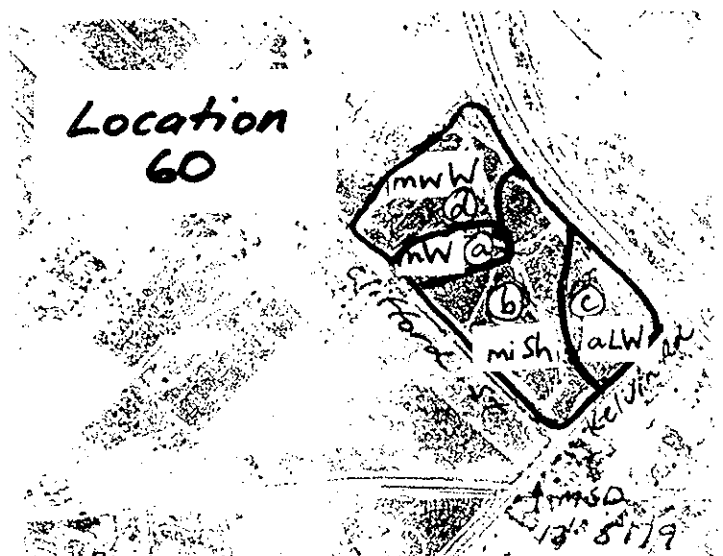
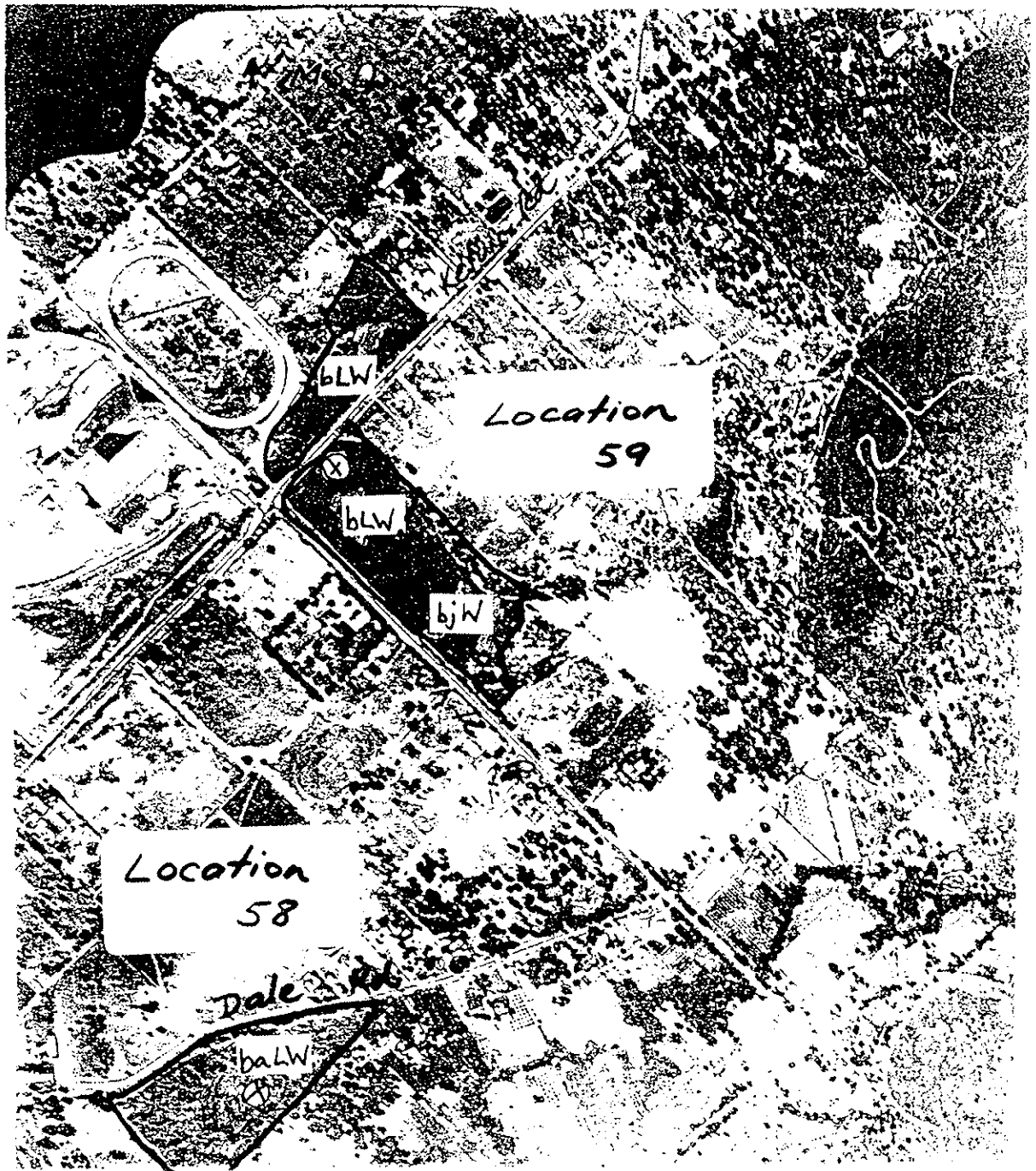
Location  
89

Locations 88 and 89

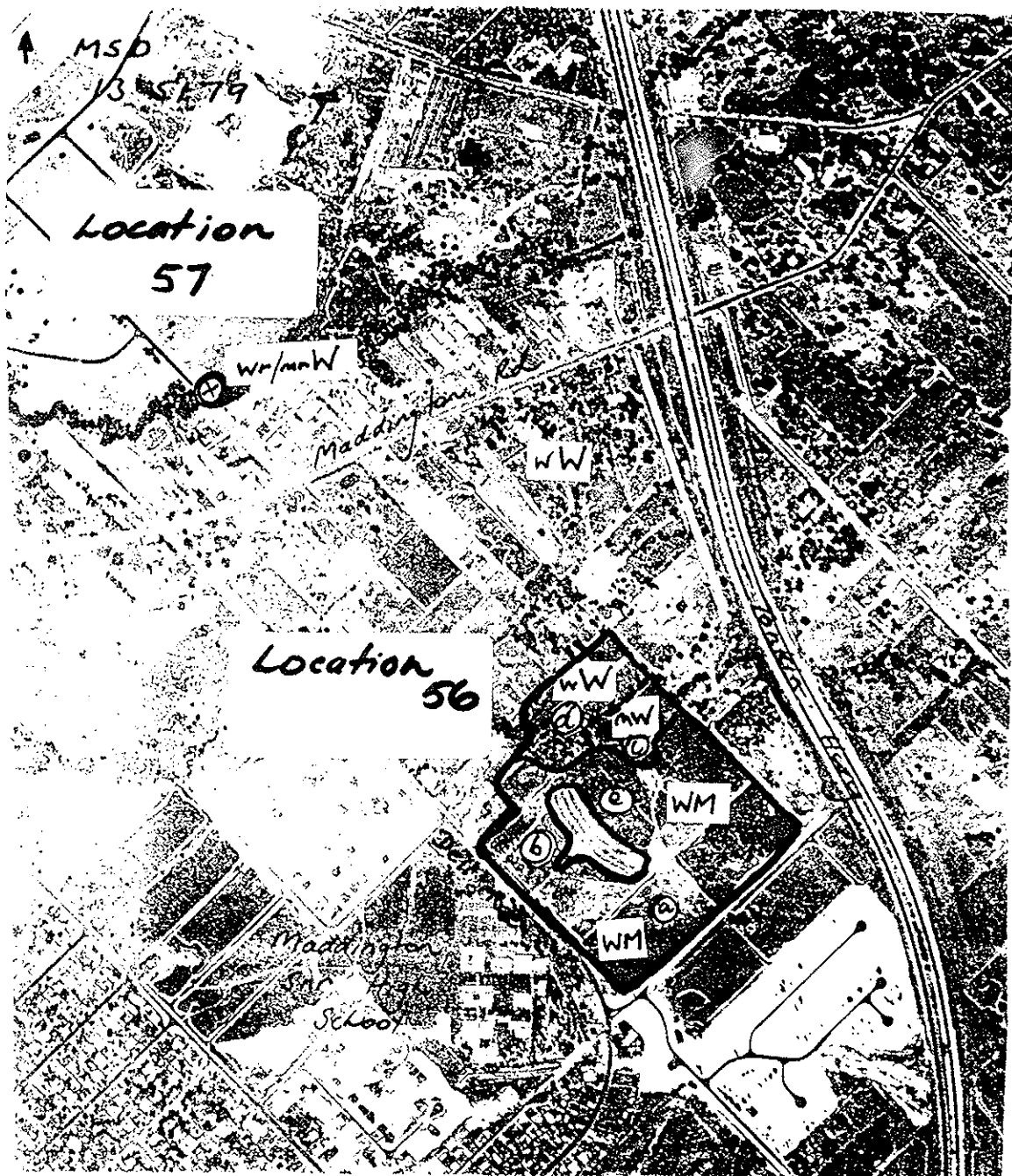




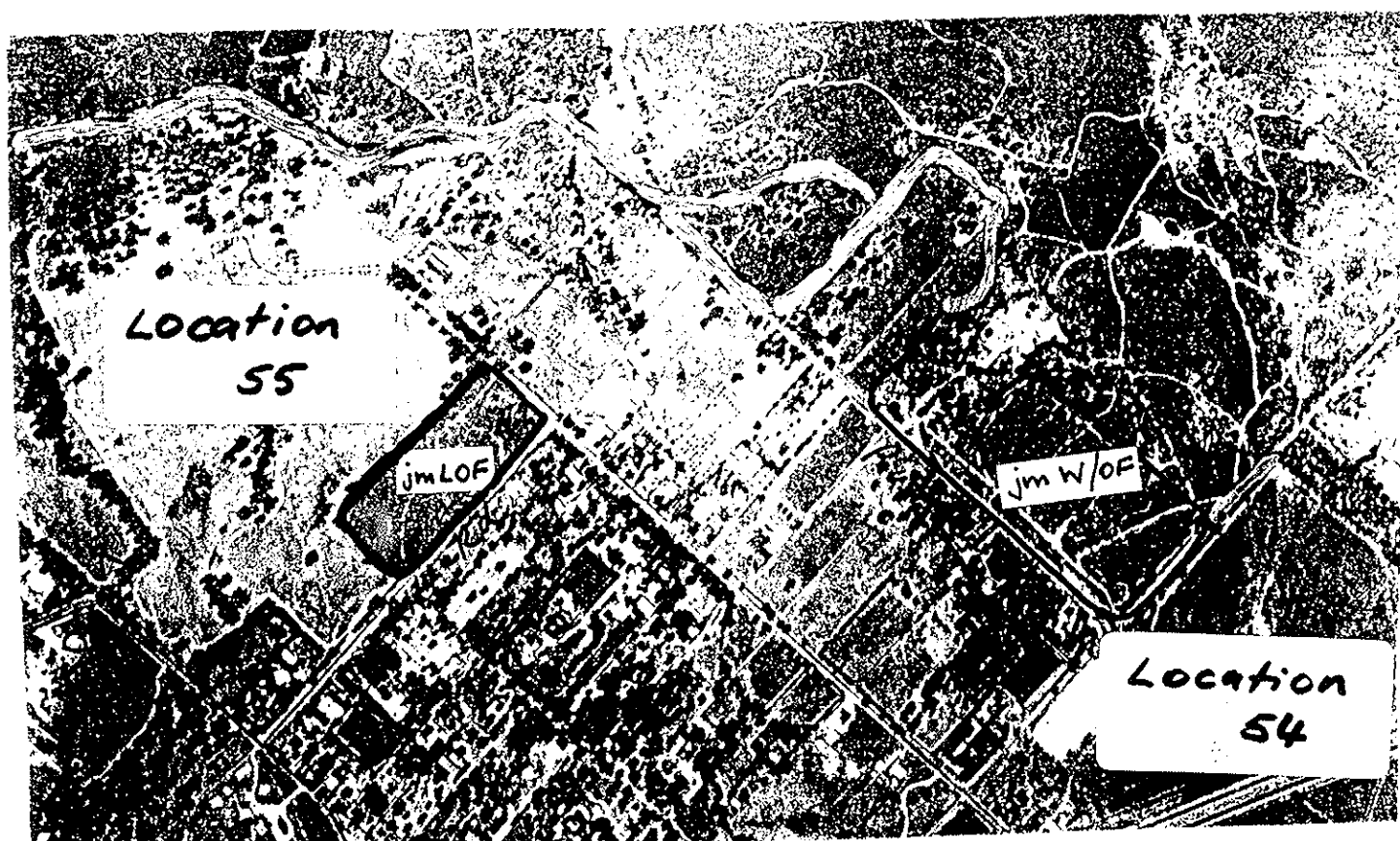
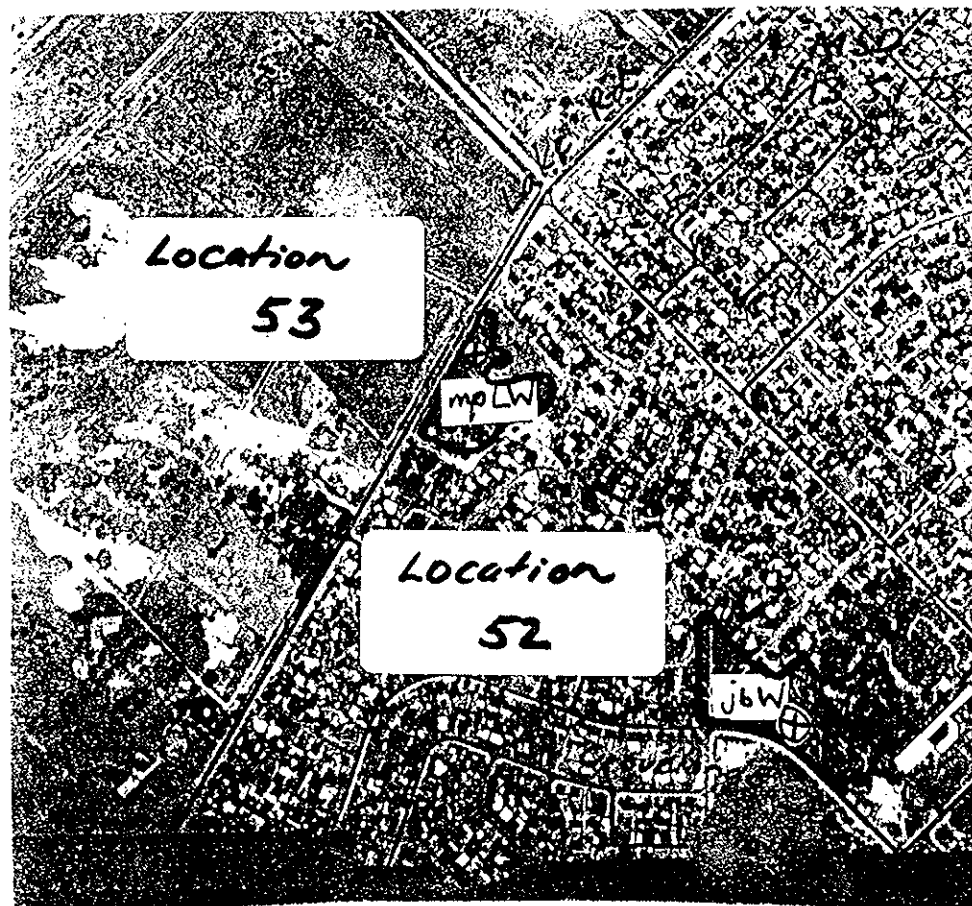
Locations 66 and 67

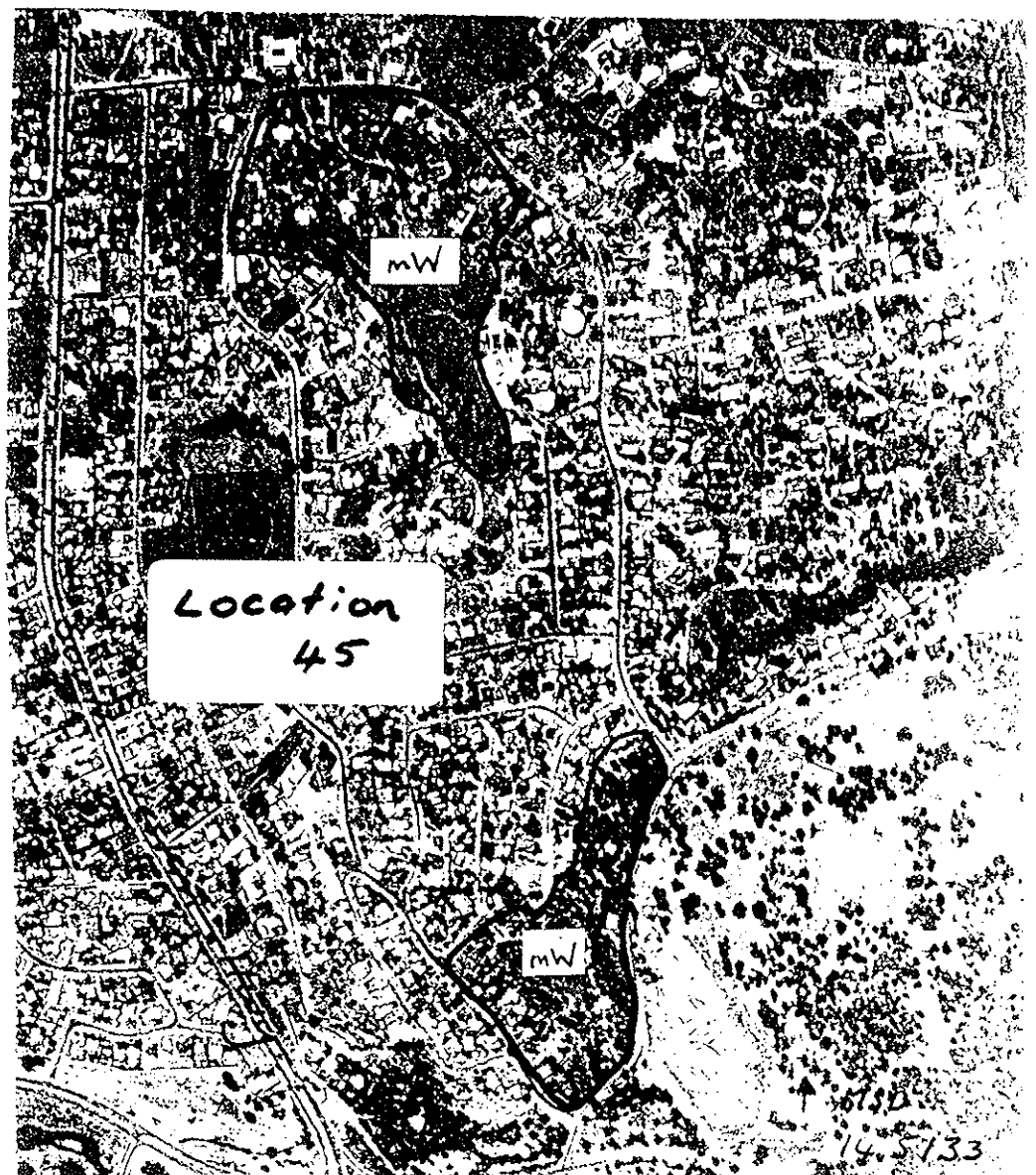
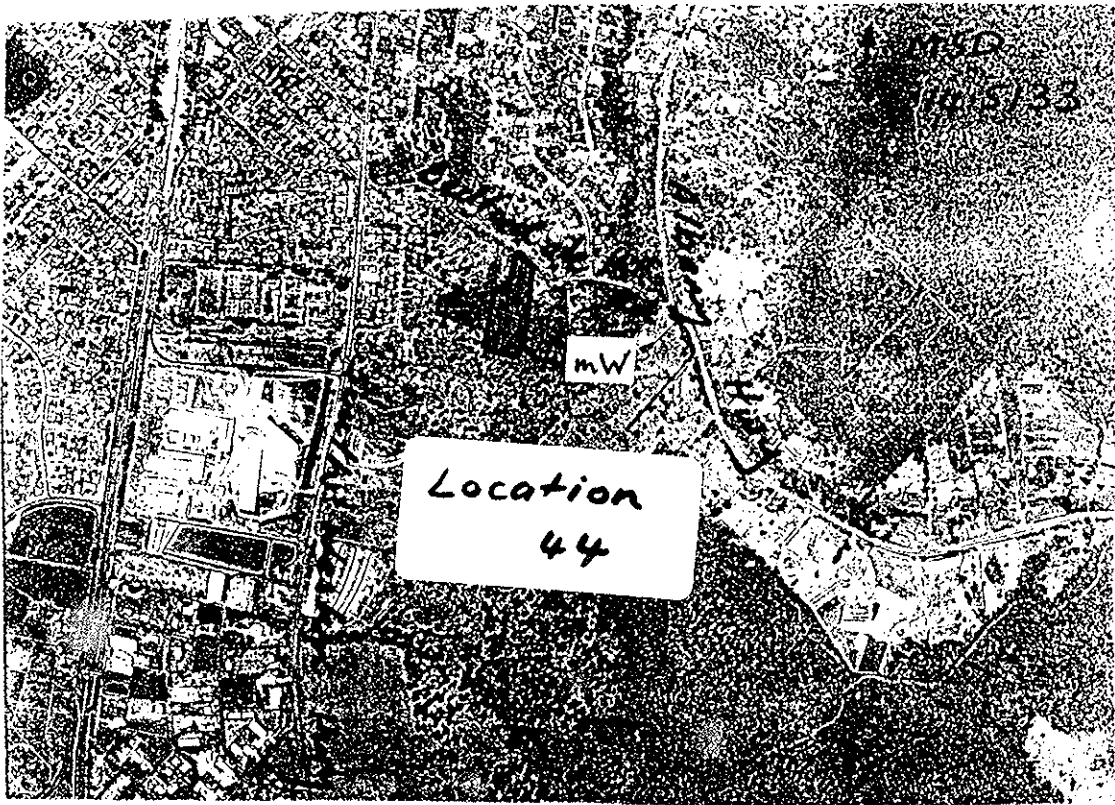


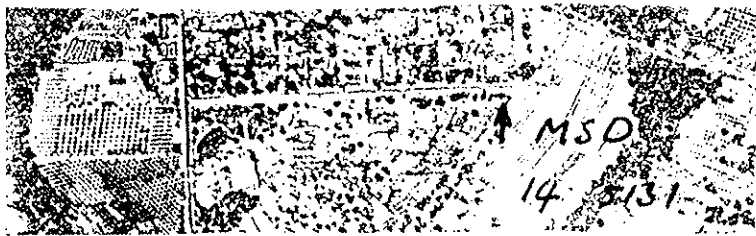




Locations 56 and 57

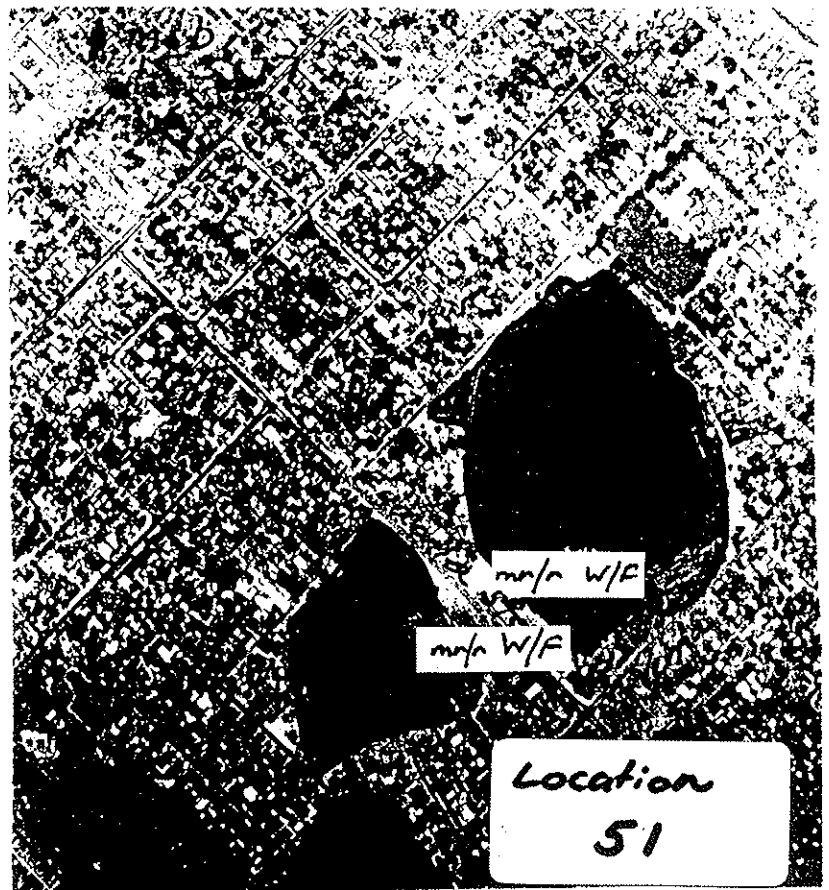
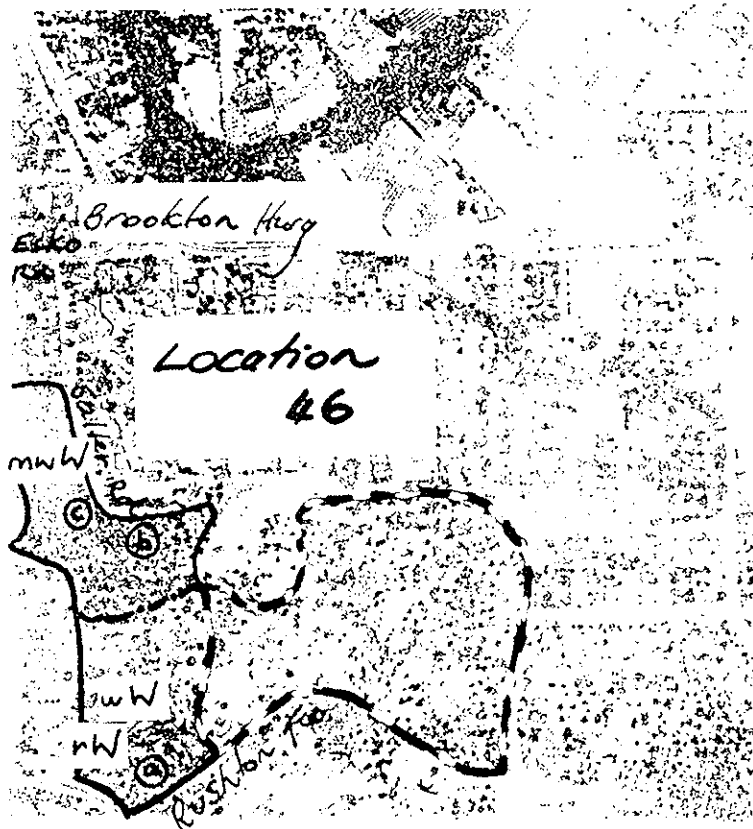


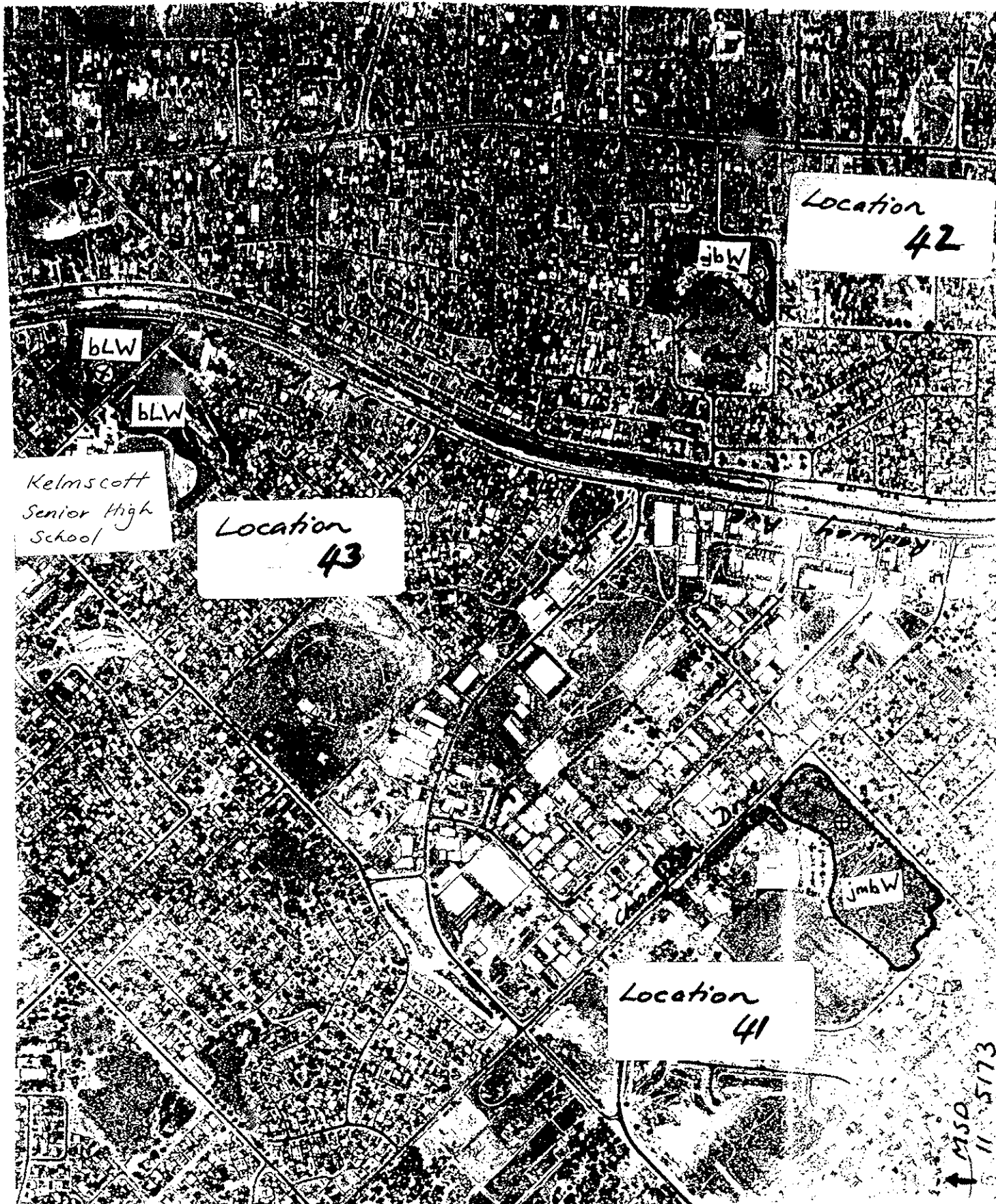




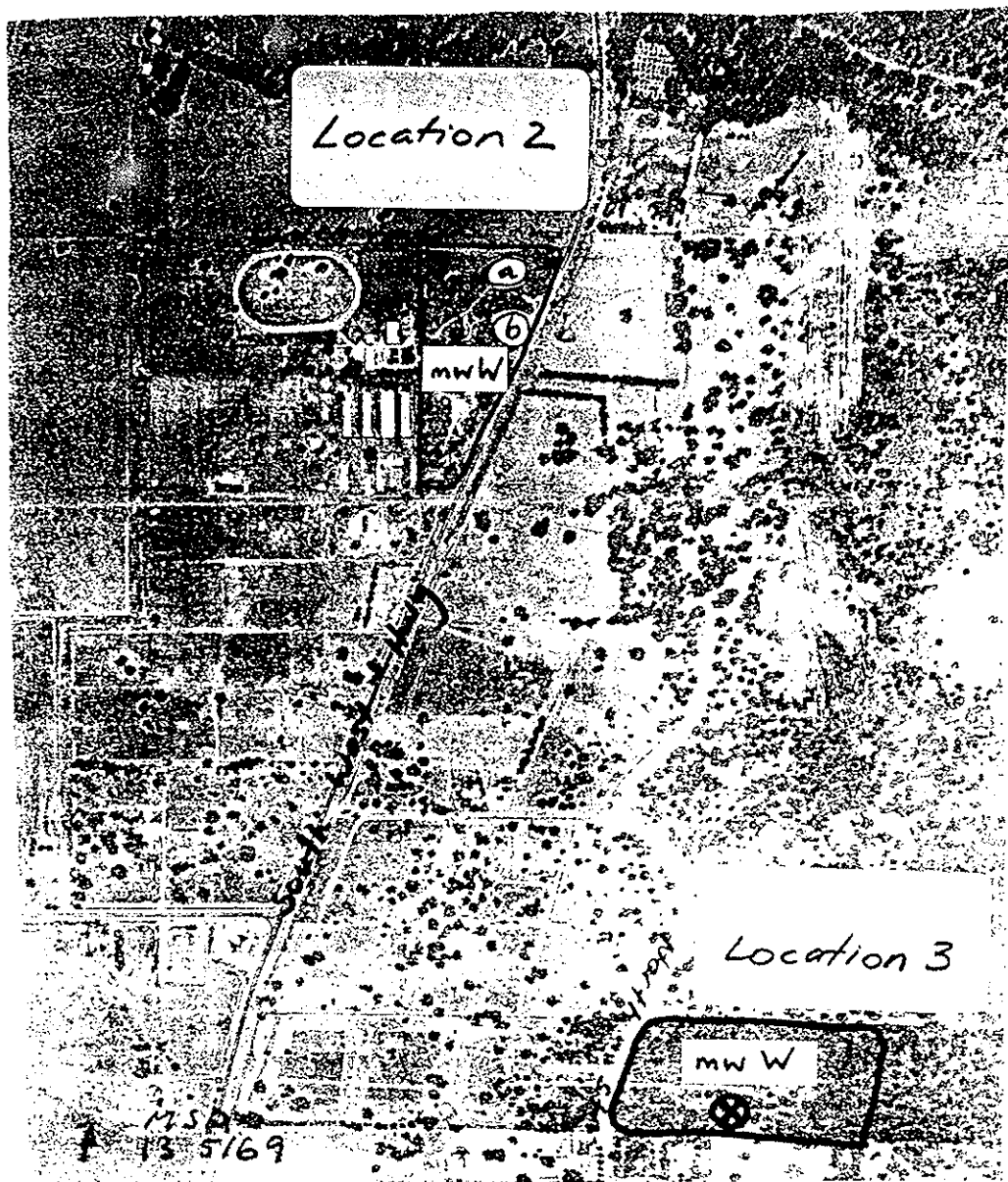
Locations 46 and 51

20

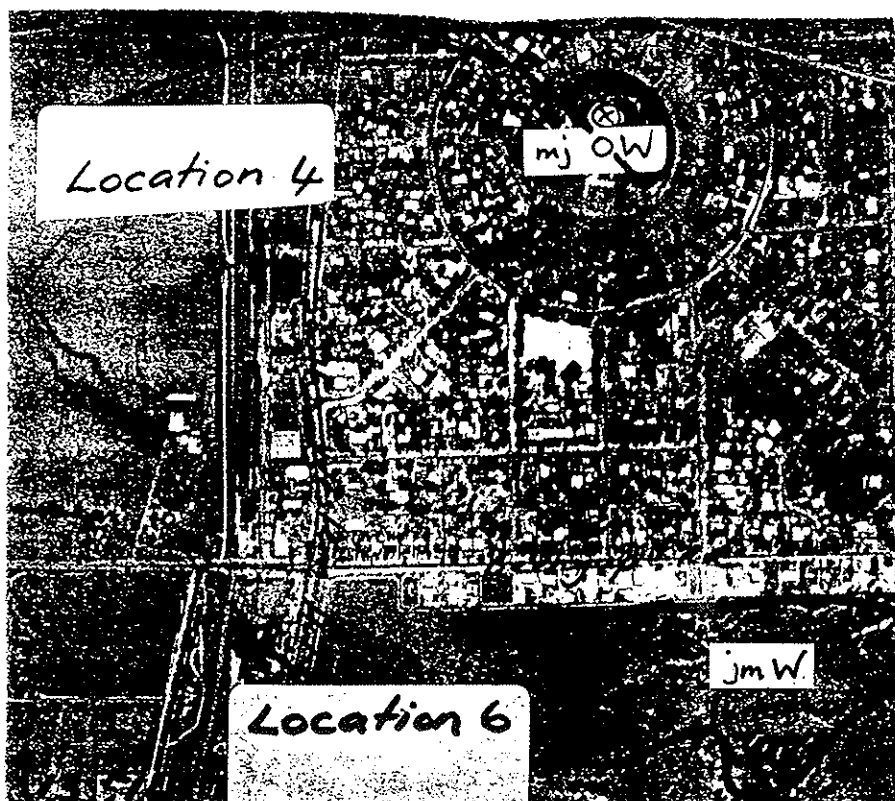






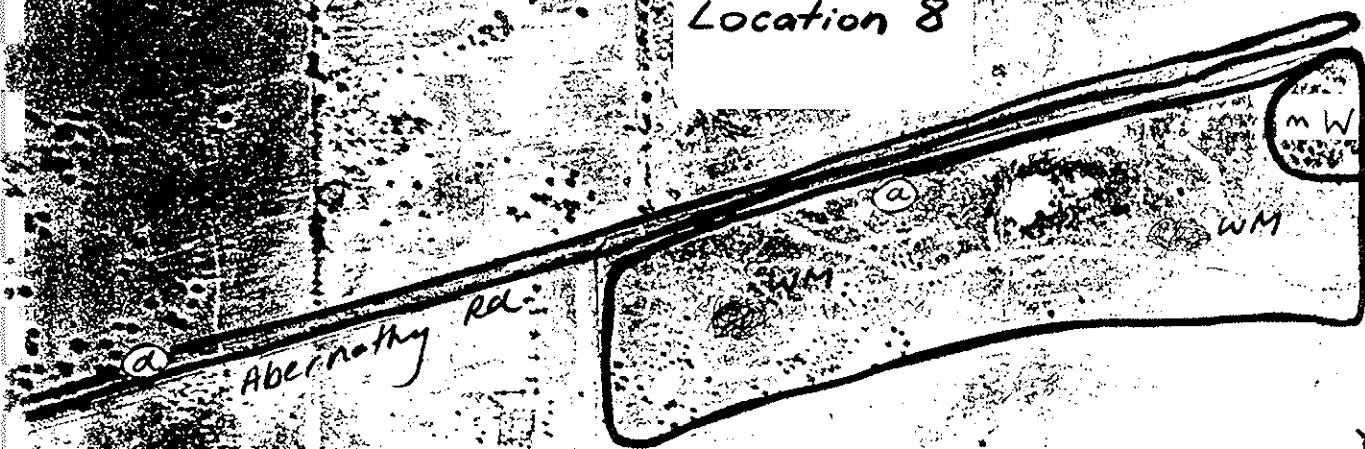


Locations 2 to 6



↑ MSD  
12/5/40

Location 8



Hopkinson Rd

Location 9



MSD  
11 5043

Location 14

ROF

Location 13

mesh

Location 12

CLW

BLOND RD



Location 11

Cardup

mkw

jkxw

meLW

6

6LW

Location 16

mekw

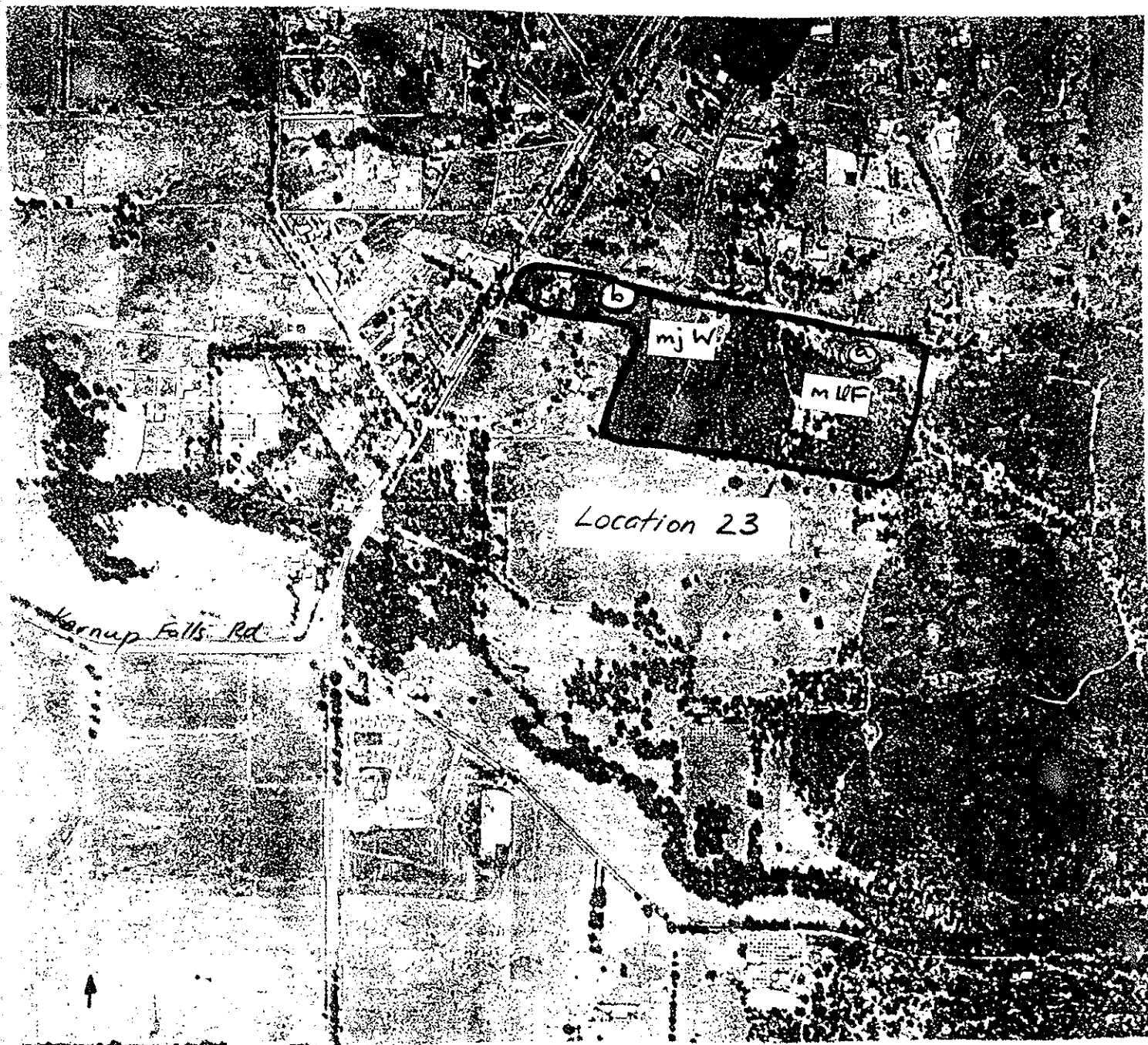
Location 17

mekw

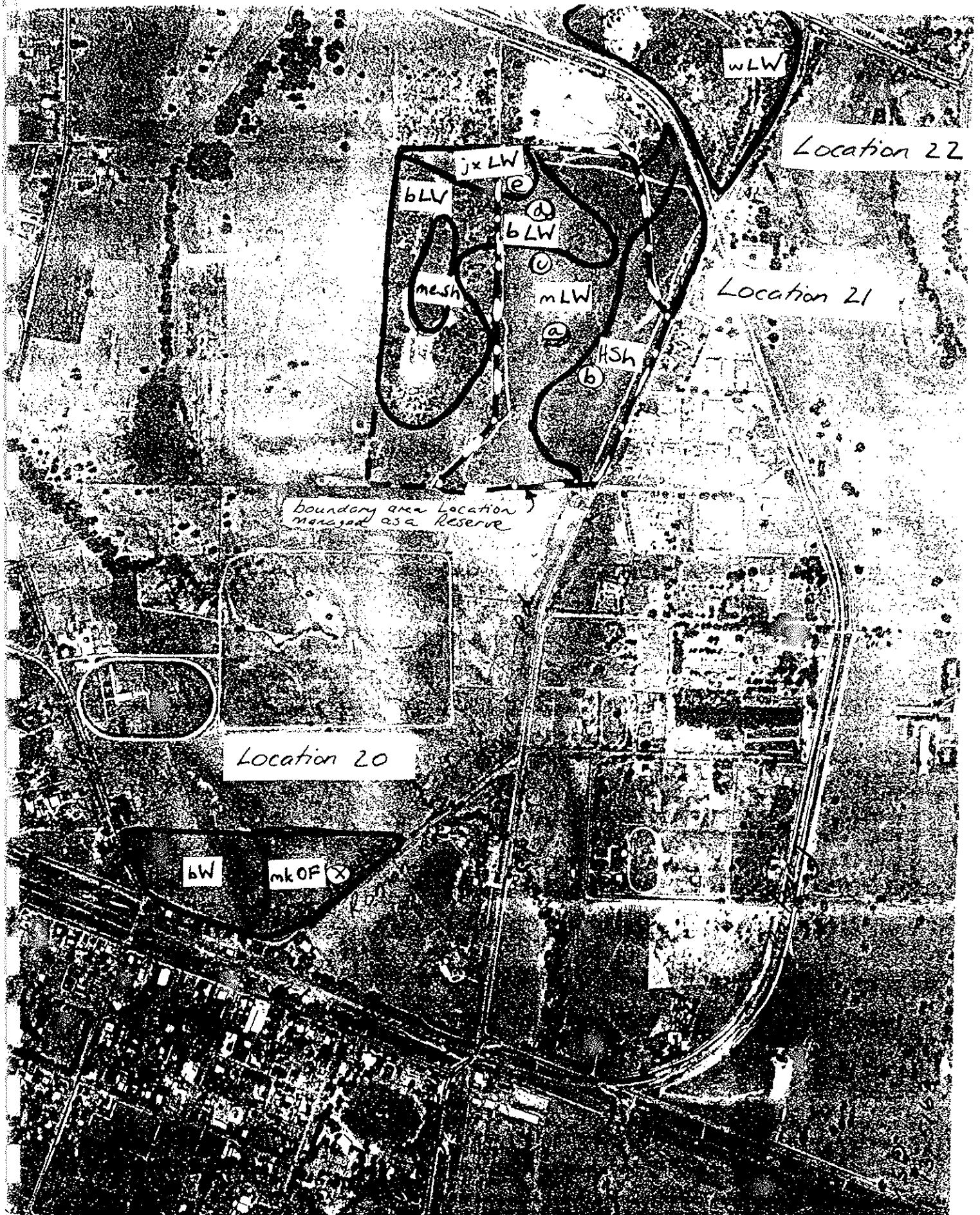
jmW

Location 18

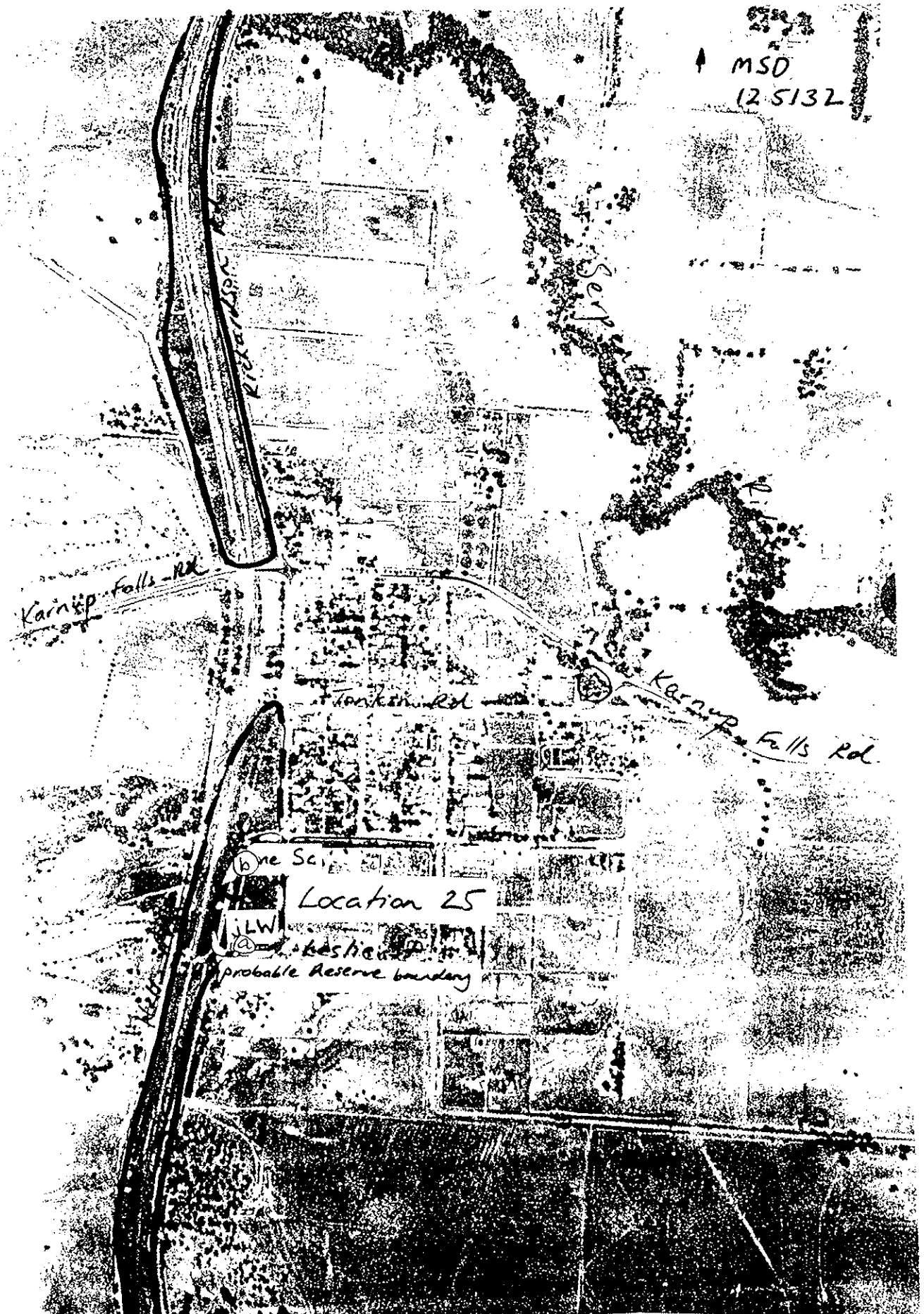




Location 23



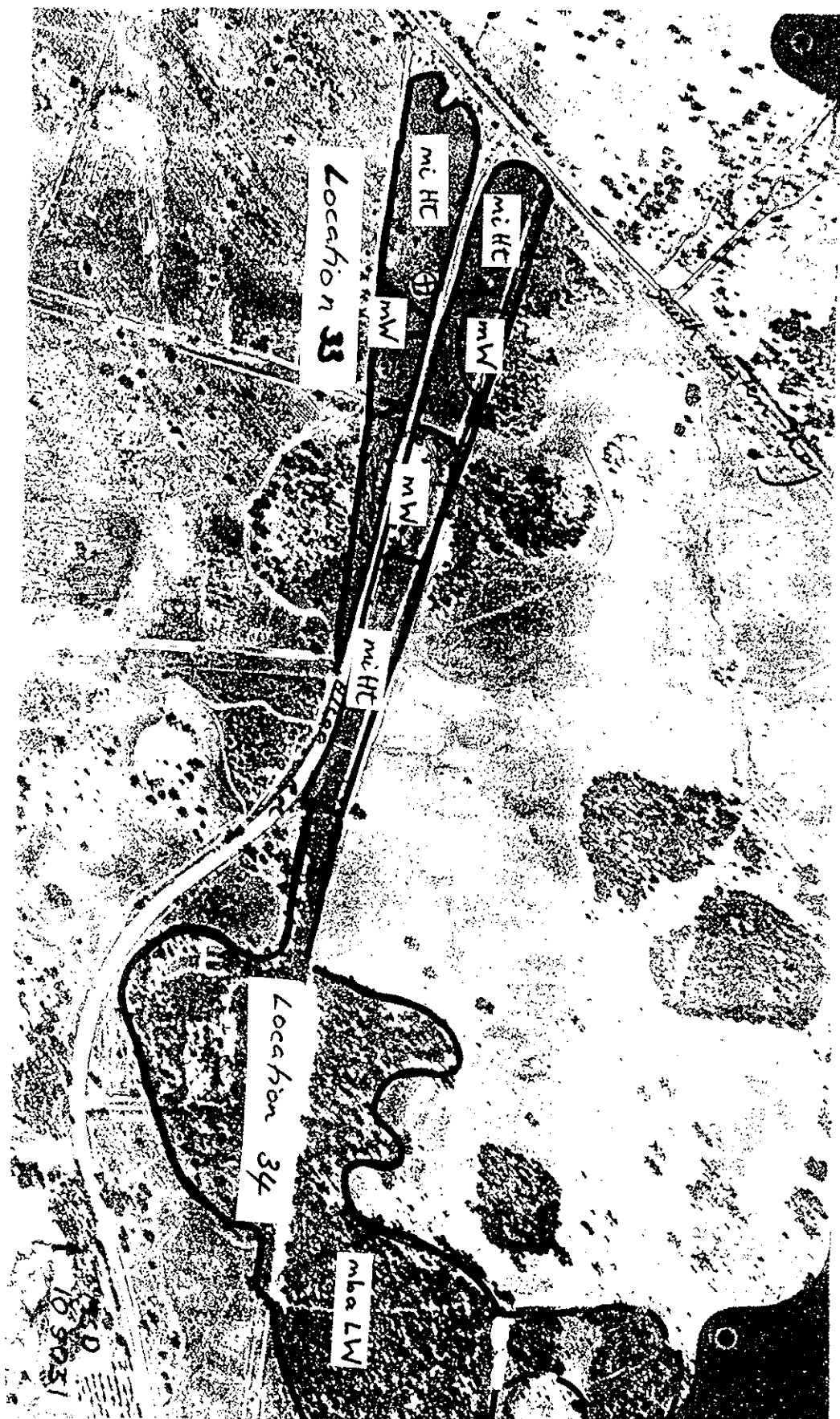




MSD  
115049

Punrack Rd. Location 32

Location 32

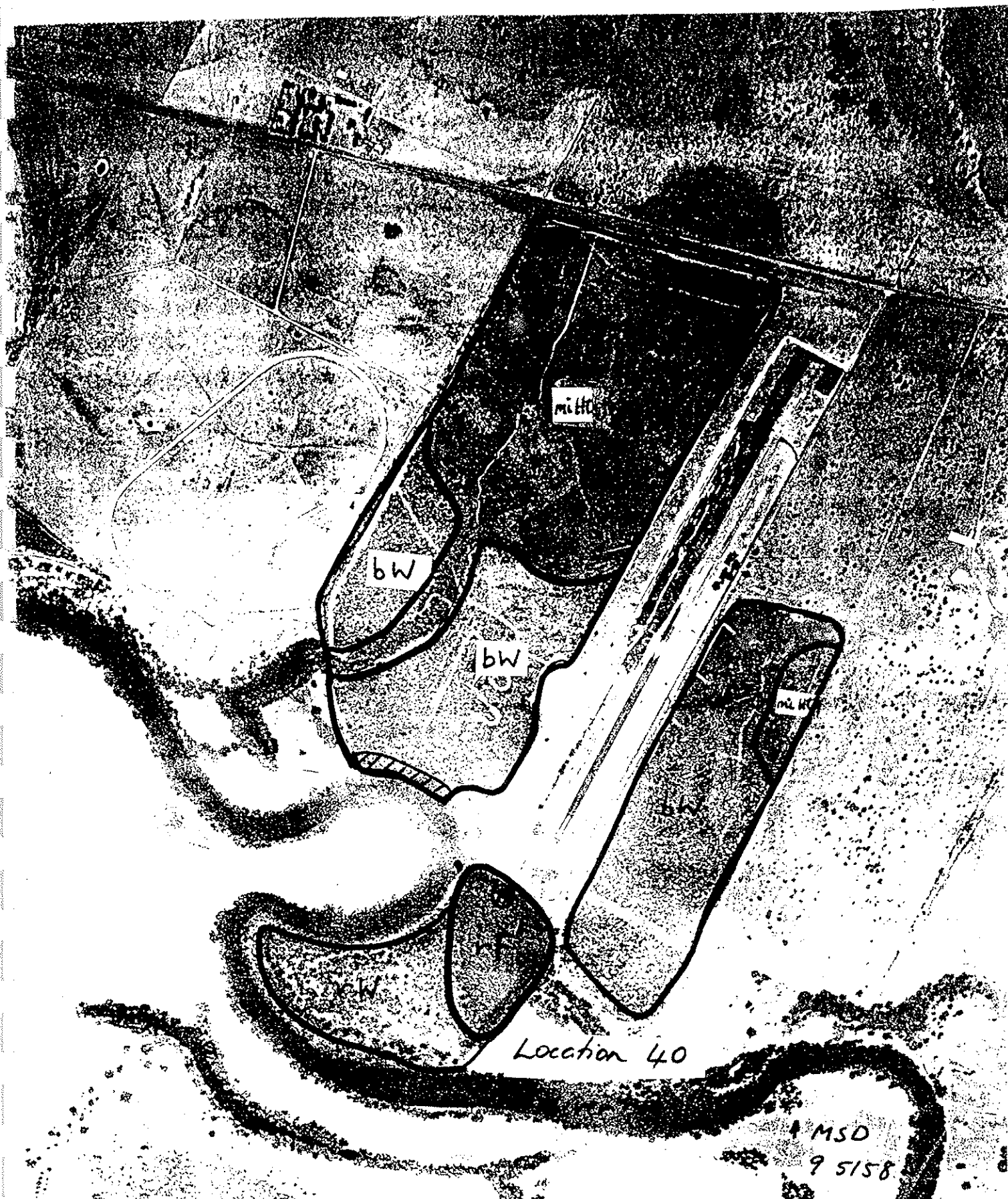


Locations 33 and 34



Location 39





MSD  
9 5158

Location 40

## **APPENDIX 3**

### **Description of the Swan Coastal Plain Survey**

**Remnant Vegetation of the Alluvial Soils of the Eastern Side of the Swan Coastal Plain**

**Prepared by Bronwen Keighery and Malcolm Trudgen.**

## SWAN COASTAL PLAIN SURVEY - 1990-1991

A Wildflower Society of W.A. - Perth Branch and Conservation and Land Management Project

The aim of the SURVEY is to collect detailed knowledge of the flora and vegetation of remnant bush on the Swan Coastal Plain so that the conservation status of individual species and plant communities can be determined.

This information will be available for use in

- the development of recommendations to government for reserve acquisition
- management plans for areas already reserved or to be reserved.

The procedures used to assess the vegetation are based on those developed by the Society in the highly successful Sandplain Survey and as such are consistent with the approach used by CALM in their surveys made throughout the State.

Participants in the Survey who were involved in the Sandplain Survey will be able to use the skills they gained and participants new to these types of survey will be trained in the procedures involved.

It is hoped that the SURVEY will develop a 'SURVEY Package' and train enough individuals in the use of this to enable the many groups and individuals who are becoming involved in the preservation of bushland on the Swan Coastal Plain to document the plants in the area with which they are dealing. This information will then be comparable with other information collected throughout the State..

**We invite you to become involved in the Survey.**

To register your interest please complete and return the slip below to the following address

Swan Coastal Plain Survey  
Stage 1: Eastern Section of the Plain  
Wildflower Society of W.A.  
Co-ordinators Bronwen and Greg Keighery  
224 Hamersley Rd SUBIACO 6008

---

## SWAN COASTAL PLAIN SURVEY - 1990-1991

NAME :

ADDRESS :

POSTCODE

TELEPHONE Day

After/hours

Would you object to being involved in a telephone tree to facilitate the organisation of the Survey? YES NO