

BOTANICAL SURVEY  
NELSON BAY RIVER  
FOR SHREE MINERALS LTD

9<sup>th</sup> August 2008

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## CONTENTS

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### **1.0 INTRODUCTION**

#### **1.1 Background**

#### **1.2 Objectives**

#### **1.3 Study Area**

#### **1.4 Site Description**

### **2.0 DESKTOP SURVEY OF NATURAL VALUES**

#### **2.1 Background**

#### **2.2 Desktop Survey Results**

### **3.0 FIELD SURVEY**

#### **3.1 Survey Methodology**

#### **3.2 Limitations**

#### **3.3 Field Survey Results**

### **4.0 CONCLUSIONS**

### **5.0 RECOMMENDATIONS**

#### **5.1 Threatened Species**

#### **5.2 Phytophthora Management**

#### **APPENDIX 1: Plant Communities and Species Recorded**

#### **APPENDIX 2: Checklist of Species Recorded by Family**

### **REFERENCES**

#### **MAP 1: Location of Survey Area**

#### **MAP 2: Nelson Bay Prospect Area**

#### **MAP 3: Exploration Map of Main Anomaly**

#### **MAP 4: Exploration Map of Southern Anomaly**

## **1.0 INTRODUCTION**

### **1.1 Background**

Shree Minerals Ltd is undertaking a mineral exploration program at Nelson Bay River, north-western Tasmania which will involve a ground magnetometer survey and a drilling program and will utilize an existing cut line and 4WD track for main access. New grid lines are to be cut at 100 metre intervals at right angles from the main existing grid line towards the river.

### **1.2 Objectives**

The objectives of this survey are to determine the botanical and other natural values present within the study area, to determine the possible impacts of the proposed exploration program on those values and to make recommendations on how the possible impacts on those values can be minimized and managed.

The natural values to be surveyed include the indigenous vegetation, the plant communities and species each comprise. The fauna known or considered likely to occur in the locality are also considered.

### **1.3 Study Area**

MAP REF 1: Location Map.Tasmap 1:100,000 Series Sheet 7815, Nelson Bay

MAP REF. 2: Nelson Bay River Prospect Area, 1:25,000

MAP REF. 3: Exploration Map of Main Anomaly Grid lines & Drill Holes

MAP REF. 4: Exploration Map of Southern Anomaly Grid Lines which abuts Map 3 (above) to the south.

GRID REF Point: 310000E – 5442000N, GDA 94.

The study area is located to the immediate south-west of Nelson Bay River. The axis of the main existing grid line runs south-east to north-west roughly parallel with the river for a distance of approximately 1.8 km. This cut grid line is shown on the 1:25,000 Sundown 3044 map sheet. Shree Minerals proposes to extend the main grid line to the north-west at a later stage for further exploration in the area known as the West Anomaly.

The study area extends along this grid line and to the river where it is accessible and in the southern anomaly area where it meets the access track.

### **1.4 Site Description**

The survey followed the existing cut grid line / 4WD track from south-east towards the north-west over a distance of approximately 1.4 km. The river bank and riparian zone was surveyed in one location and the southern anomaly area where the main grid meets the access track.

The terrain along the main grid line is low lying and poorly drained for the first 400 metres or so but then becomes more undulating over a low ridge after crossing a minor creek line. The ground conditions then become well drained with exposed angular rocks and coarse gravel. A small area of ironstone was exposed at the surface in one location.

The secondary grid line followed at reference point on the Shree Minerals map of 10 400mN dropped steeply to the bank of Nelson Bay River.

**2.0 DESKTOP SURVEY OF NATURAL VALUES**

The DPIW database, The Natural Values Atlas was accessed for the known biological records of the locality, which included a 500 metre buffer zone around the site. Records of threatened species known to occur within a 5,000 metre radius of the site were also accessed.

Data sourced included the occurrence of threatened plant communities, the locations of threatened plant species and threatened fauna known or expected to occur in the vicinity.

**PLANT COMMUNITIES:**

The following vegetation communities are mapped as per the TasVeg vegetation mapping program as occurring within a 500 metre radius of the study area.

<b>TasVeg Community</b>	<b>TasVeg Code</b>	<b>Extent in Study Area</b>
<i>Eucalyptus nitida</i> Dry Forest & Woodland	DNI	Widespread
<i>Eucalyptus nitida</i> Wet Forest (undifferentiated)	WNU	South-east and south-west Small area
<i>Eucalyptus obliqua</i> Wet Forest (undifferentiated)	WOU	Mainly limited to creeklines. Largely cleared for plantations
Buttongrass Moorland (undifferentiated)	MBU	Localized on western side and in south
Plantations for silviculture	FPL	Widespread in the eastern half. Have replaced most of WOU

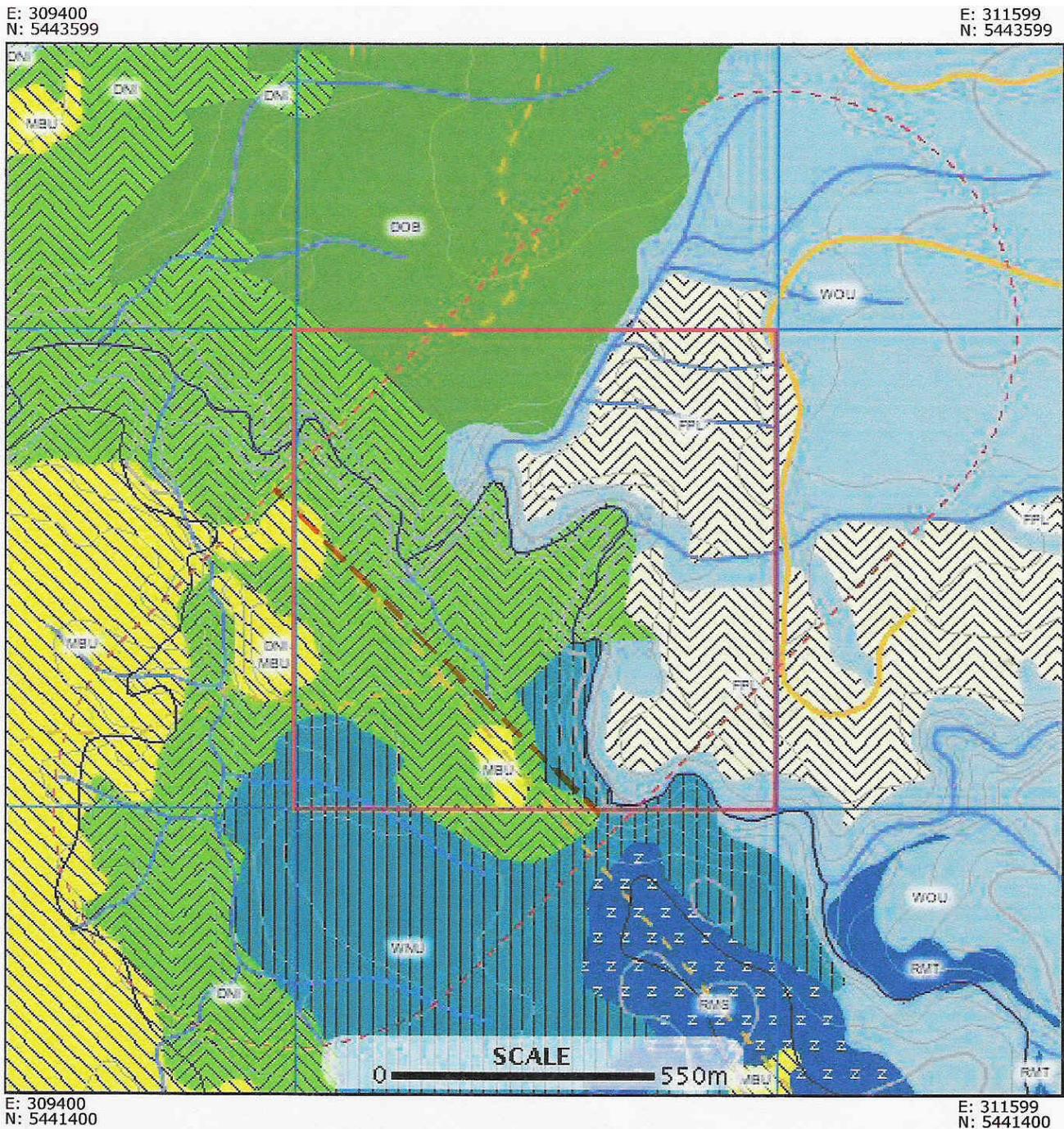


FIGURE 1..... Vegetation Communities as per TasVeg Mapping

**THREATENED VEGETATION COMMUNITIES:**  
No vegetation community listed under the Tasmanian Threatened Native Vegetation Communities Act of 2006 is recorded as occurring within or adjacent to the study area.

**THREATENED FLORA:**

No threatened species of plant was recorded as occurring within 500 metres of the study area.

Three plant species listed under the Threatened Species Protection Act of 1995 were recorded on the database as occurring within 5,000 metres of the study area.

- ***Epacris curtisiae*** A key site for the North-west Heath is in the vicinity of Nelson Bay River and it can be found growing in heathy buttongrass type vegetation on peaty soils and undulating terrain. It is endemic to Tasmania and is listed as rare under the state Act. It is reserved in the Arthur-Pieman Conservation Area and the Meridith Range Regional Reserve.

- ***Caladenia dienema*** The Windswept Spider-orchid is listed as endangered under the state Act. The species has a localized distribution in the coastal zone of the Arthur River area. It is an endemic species and is not represented in a formal reserve. It is found growing in low heathland among dwarfed shrubs and sedges on moist to well drained sandy and clay loam soils. The species flowers in November – December.

- ***Caladenia pusilla*** The Tiny Caladenia is listed as being rare under the Tasmanian Act. It is found in coastal or near coastal areas of north-west and north-east Tasmania and on King and Cape Barren Islands. It is found mainly in heathland but occasionally open forest on moderate to well drained peaty and sandy soils. This species flowers in October to early November.

- ***Prasophyllum favonium*** The Western Leek-orchid is listed as endangered under the Tasmanian Act as it is known only from the north-west between West Point and Sandy Cape growing amongst shrubs in windswept dense low heathland on moderately drained dark grey to black sandy peaty loam. It flowers in October and November and is not represented in a formal reserve.

**NON-THREATENED FLORA OF CONSERVATION SIGNIFICANCE:**

No species of non-threatened flora of conservation significance are recorded on the Natural Values Atlas database as occurring in or within a 1,000 metres radius of the study area.

**THREATENED FAUNA:**

According to the Natural Values Atlas the following threatened species of fauna could potentially occur either within or within a 500 metre radius the study area.

- ***Accipiter novaehollandiae***, the White (Grey) Goshawk is listed as endangered under the State Act.

- ***Aquila audax***, the Wedge-tailed Eagle is listed as endangered under both State and Commonwealth Acts.

- ***Astacopsis gouldi***, the Giant Freshwater Crayfish is listed as vulnerable under both State and Commonwealth Acts

- ***Ceyx azurea***, the Azure Kingfisher is considered endangered under the Tasmanian Act and could occur along the Nelson Bay River.

- ***Haliaeetus leucogaster***, the White-bellied Sea-eagle is listed as vulnerable under the Tasmanian Act.

- ***Prototroctes maraena***, the Grayling is a fish which is listed as vulnerable under both State and Commonwealth Acts and could occur in the Nelson Bay River..

- ***Tasmaphena lamproides***, the Keeled Snail is listed as rare under the Tasmanian Act.

### 3.0 FIELD SURVEY

#### 3.1 Survey Methodology

The survey was undertaken on foot along the existing cut line and 4WD track in a direction from south-east to north-west as shown on the attached map. The secondary grid line at 10 400mN which extended to the bank of Nelson Bay River was also surveyed as was the area in the south where the main grid meets the access track (southern anomaly).

Vascular plants species were recorded, plant communities were observed and cross referenced with the TasVeg mapping of the area.

The survey was conducted on Monday 4<sup>th</sup> August 2008.

#### 3.2 Limitations

The survey was undertaken in winter. No botanical survey can guarantee that all vascular flora will be observed and recorded during a single survey in one year, due to seasonal and annual variation in abundance and the possible absence of flowers and fertile material needed for identification. Ephemeral species that may have been present includes species of orchids, lilies, grasses and other graminoids.

However all significant species known to occur in the study area and its environs are considered in this report.

#### 3.3 Field Survey Results

The vegetation in the south-eastern sector of the study area which included the area known as the Southern Anomaly consisted of a mosaic of *Eucalyptus nitida* Wet Forest and a fire induced community with affinities to Western Wet Scrub. Dead standing trees and stags were prevalent throughout the study area which is indicative of the past fire history of the location. The initial 300 - 350 metres of the grid line tended to be poorly drained which has encouraged the wet scrub community to dominate during the post fire period. Some poorly drained pockets are likely to remain as a wet scrub community although regeneration of *Eucalyptus nitida* is occurring and it is expected that the forest community will re-establish over time providing further fires do not occur. Pockets of Wet Heathland dominated by *Sprengelia incarnata* were also observed within the first 100 metres along the main grid line.

A small outcrop of ironstone at the 250 metre point was reflected in a localized patch of *Eucalyptus obliqua* Wet Forest which has also been fire affected but regenerating with a dense scrubby understorey. From the 300 metre point to the end of the main grid line the soil and substrate became better drained with coarse gravels and angular floating stone and the vegetation community changed from a Wet Scrub Community to *Eucalyptus nitida* Dry Forest which had a dense scrubby understorey up to 3 metres in height with a diversity of species although tending to be dominated by Leptospermums. Parts of this community tended towards a wetter forest with much larger trees of both *Eucalyptus nitida* and *Eucalyptus obliqua* and including larger dead standing trees and with a tall dense understorey. This community also extended to the bank of the Nelson Bay River along the secondary grid line at 10 400mN, REF: Shree Minerals Survey Map. The botanical survey along the main grid line ceased at this junction and it is at this point that the vegetation community became Buttongrass Moorland / Heathland. The botanical values of the balance of the exploration area to the

north-west of this point are to be surveyed at a later time when cut lines can provide access as it is potential habitat for the listed threatened species *Epacris curtisiae*.

5

#### VEGETATION COMMUNITIES;

- **Western Wet Scrub (SWW)** This community has developed from the understory component of the original *Eucalyptus nitida* Wet Forest community during the post fire period and was prevalent in the area of the Southern Anomaly and the south-eastern sector of the study area as a whole where drainage conditions were impeded. It is likely that the community will remain a wet scrub community in the most poorly drained locations but over time will revert to *Eucalyptus nitida* Forest without a repeat fire where *Eucalyptus nitida* is regenerating and saplings are present. A diversity of species was present in the community and the most prevalent species were *Melaleuca squamea*, *Melaleuca squarrosa*, and the *Leptospermum* species of *L. scoparium*, *L. glaucescens*, *L. nitidum*. This community is widespread in western Tasmania.
- **Wet Heathland (SHW)** A localized occurrence of a Wet Heathland community dominated by the Swamp Heath *Sprengelia incarnata* was observed in a poorly drained location in the south-east sector of the study area within the first 100 metres along the grid line. It was characterized by *Sprengelia incarnata* 1.0 to 1.5 metres in height, an absence of large shrubs or trees and a reduced diversity of associated species compared with the adjacent vegetation. Other species present included *Melaleuca squamea*, *Leptocarpus tenax*, *Lindseae linearis*, *Patersonia fragilis*, *Selaginella uliginosa* and *Xyris sp.*
- ***Eucalyptus nitida* Wet Forest (WNU).** Dead standing trees and stags up to 30 metres in height present in the locality indicates a past history of firing of this community which was observed from the 350 metre point to about 850 metres along the main grid line and between the grid line and the river. It is considered that this community is more prevalent in the study area than is indicated on the TasVeg map and that much of the vegetation is typical of a wet forest community rather than a dry forest community. The Wet Forest community formed a mosaic with the Western Wet Scrub community which has developed during the post fire period and also intergrades and overlaps with the *Eucalyptus nitida* Dry Forest community. This community changes to the drier forest community as the grid line extends north-westwards. There is regeneration of the Eucalypt within the community and a dense shrub component with species of *Melaleuca* and *Leptospermum* predominating. This community is widespread in western Tasmania
- ***Eucalyptus nitida* Dry Forest (DNI).** This community is most abundant in the drier locations on low ridges and infertile sites but also occurred with the Wet Scrub community in poorly drained locations within the study area. Again dead standing trees and stags were abundant with their heights varying considerably. Smaller more branched trees with a lower canopy typify this community as well as having a lower height of the understorey layer. Regeneration is occurring along with a dense understorey dominated by species of *Leptospermum*, heath and sedges. It is a widespread community in western Tasmania.
- ***Eucalyptus obliqua* Wet Forest (WOU).** This community occurred as a localized patch where ironstone was present at the soil surface indicating a more fertile soil although *Eucalyptus obliqua* was also present as an overstorey and emergent tree in the *Eucalyptus nitida* communities. This community has also been burnt in the past and dead standing trees were present. The understorey varied in composition from the adjacent vegetation with species such as *Allocasuarina monilifera*, *Pomaderris elliptica*, *Epacris impressa*, *Pultenaea juniperina* and *Pteridium esculentum* being more prevalent. Forms of this community are found in the higher rainfall areas throughout the state.

- **Buttongrass Moorland (MBU)** This community was observed but not surveyed and is located at the north-western end of the main grid line. The current exploration program does not extend into this location and will be botanically surveyed at a later time. It is a common community in western Tasmania.

#### THREATENED VEGETATION COMMUNITY:

No vegetation community listed under the Tasmanian Threatened Native Vegetation Communities Act of 2006 was observed during the field survey.

#### THREATENED FLORA

No vascular plant species listed under the Tasmanian Threatened Species Act of 1995 or the Commonwealth Environment Protection and Biodiversity Conservation Act of 1999 was observed within the study area during the field survey.

***Epacris curtisiae*, North-west Heath** is a listed threatened species and is recorded as occurring within 5,000 metres of the study area. While the plant was not recorded within the study area during the survey it could potentially occur within the Buttongrass community in the north-west sector of the exploration area which was not surveyed botanically at this time.

A secondary survey was undertaken in a Buttongrass Moorland/heathland community along Wuthering Heights Road outside of and to the north-east of the exploration area. *Epacris curtisiae* was observed in this locality in localized patches of a Buttongrass Moorland which had remained unburnt in a recent fire event. Approximately 30 plants were observed.

GRID REF: 3317013E – 5441432N (GDA94)

***Caladenia dienema*, Windswept Spider-orchid** and ***Caladenia pusilla*, Tiny Fingers** flower in October, November and December and are not observable at this time of year. The nearest recorded occurrence of either species is 4,000 metres distant and it is unlikely that either species occurs in the area surveyed. As both species are known to occur in heathland or sedgy heathland there is a possibility of either one occurring in the area of Buttongrass Heathland in the north-west sector of the exploration area which was not included in this botanical survey.

It is desirable that the follow-up botanical survey proposed for this location be timed to coincide with the flowering season of these two orchid species.

***Prasophyllum favonium*, Western Leek Orchid.** No potential habitat for this species was observed in the exploration area.

#### PHYTOPHTHORA

One localized area of possible phytophthora infection was observed during the survey adjacent to existing Drill Site NBR 5. Dead and dieing plants of *Sprengelia incarnata* were observed adjacent to on the northern side of the existing drill pad. This location should be flagged and quarantined to exclude access and to prevent disturbance as a precautionary measure in order to restrict the possible infection to this localized area. The exploration company has implemented hygiene measures for Phytophthora management at entry points and it is important that such protocols be maintained.

Tim Rudman of DPIW's Biodiversity Conservation Branch has produced a very useful report titled "Interim *Phytophthora cinnamomi* Management Guidelines" which provides prescriptions for

managing the disease in the field including hygiene and washdown procedures. It is available to download from the DPIW website at [www.dpiw.tas.gov.au](http://www.dpiw.tas.gov.au) and go to weeds, pests and diseases.

#### **4.0 CONCLUSIONS**

The exploration program as proposed will have limited impact on the botanical values observed within the study area.

No threatened vegetation communities were observed during the survey.

No threatened species of vascular plant was observed during the survey.

The area of Buttongrass Moorland at the north-western end of the exploration area was not botanically surveyed at this time and will require investigation to determine the botanical values present in this location.

Phytophthora management should continue to be considered during field operations.

#### **5.0 RECOMMENDATIONS**

##### **5.1 Threatened Species: *Epacris curtisiae*, North-west Heath *Caladenia dienema*, Windswept Spider-orchid *Caladenia pusilla*, Tiny Fingers**

- Undertake a botanical survey of the north-west sector of the exploration area where the Buttongrass Moorland / Heathland occurs in the spring flowering season to determine the possible presence of any of the above threatened species.

##### **5.2 Phytophthora Management**

- Maintain current hygiene treatment stations at entry points to the exploration area and ensure that personnel observe strict protocols in treating boots, equipment, vehicles and machinery before entering.
- Flag the area adjacent to existing Drill Site NBR5 where a localized infection of Phytophthora is suspected and quarantine from access.

**APPENDIX 1: Plant Communities and Species Recorded****1. Western Wet Scrub (Tasveg Code SWW)**

This community is widespread and abundant in the higher rainfall areas of western Tasmania from near sea level and up to an altitude of about 750 metres. It is a dense shrubby community of variable height often with the Western Peppermint *Eucalyptus nitida* as an emergent and with species of *Melaleuca* and *Leptospermum* being prevalent although not dominant. The community in this location is considered to be fire induced from an original *Eucalyptus nitida* Forest Community.

**EMERGENT TREES**

*Eucalyptus nitida* Western Peppermint

**MEDIUM SHRUBS**

*Acacia mucronata* Caterpillar Wattle  
*Acacia verticillata* Prickly Moses  
*Allocasuarina monilifera* Necklace She-oak  
*Banksia marginata* Silver Banksia  
*Leptospermum glaucescens* Smoky Teatree  
*Leptospermum nitidum* Shiny Teatree  
*Leptospermum scoparium* Manuka  
*Melaleuca squamea* Swamp Honey Myrtle  
*Melaleuca squarrosa* Scented Paperbark  
*Monotoca sp.* A Broomheath

**SMALL SHRUBS**

*Acacia myrtifolia* Redstem Wattle  
*Aotus ericoides* Golden Pea  
*Bauera rubioides* Wiry Bauera  
*Bossiaea cinerea* Showy Bossia  
*Dillwynia glaberimma* Smooth Parrotpea  
*Epacris impressa* Common Heath  
*Epacris obtusifolia* Bluntleaf Heath  
*Leucopogon collinus* White Beardheath

*Philotheca virgata* Twiggy Waxflower  
*Pultenaea juniperina* Prickly Beauty  
*Sprengelia incarnata* Pink Swampheath

**CLIMBERS**

*Cassytha melantha* Dodder-laurel

APPENDIX 1 (cont)

Western Wet Scrub Community

GRASSES & GRAMINOIDS

<i>Baloskion tetraphyllum</i>	Tassel Cordrush
<i>Empodisma minus</i>	Spreading Roperush
<i>Gahnia grandis</i>	Cutting Grass
<i>Gymnoschoenus sphaerocephalus</i>	Buttongrass
<i>Leptocarpus tenax</i>	Slender Twinerush
<i>Patersonia fragilis</i>	Short Purpleflag
<i>Xyris sp.</i>	A Yellow-eye

FERNS & ALLIED PLANTS

<i>Gleichenia dicarpa</i>	Pouched Coralfern
<i>Lindsaea linearis</i>	Screw Fern
<i>Selaginella uliginosa</i>	Swamp Spikemoss

**2 *Sprengelia incarnata* Wet Heathland (TasVeg Code SHW)**

The Swamp Heath occurs as a localized community in a poorly drained location within the Wet Scrub community. It is a treeless and low shrubby community about 1.0 to 1.5 metres high and dominated by the Swamp Heath, *Sprengelia incarnata* although other heath-like plants and sedges are present although the diversity is much lower than in the adjoining wet scrub and forest communities.

DOMINANT SHRUB

<i>Sprengelia incarnata</i>	Pink Swampheath
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OTHER SHRUBS PRESENT

<i>Leptospermum scoparium</i>	Manuka
<i>Melaleuca squamea</i>	Swamp Honeymyrtle

GRASSES & GRAMINOIDS

<i>Leptocarpus tenax</i>	Slender Twinerush
<i>Patersonia fragilis</i>	Short Purpleflag
<i>Xyris sp.</i>	A Yelloweye

FERNS & ALLIED PLANTS

<i>Gleichenia dicarpa</i>	Pouched Coralfern
<i>Lindsaea linearis</i>	Screw Fern
<i>Selaginella uliginosa</i>	Swamp Spikemoss

## APPENDIX 1 (cont)

**3. *Eucalyptus nitida* Wet Forest (TasVeg Code WNU)**

This community is common in the study area and has a species composition similar to the *Eucalyptus nitida* Dry Forest community but with the distinction of taller straight trunked trees and a taller, denser understorey. Most is post fire re-growth. The forest became taller on the more sheltered sites which had good drainage. This community is widespread in western Tasmania.

## DOMINANT TREES

*Eucalyptus nitida* Western Peppermint

## CO-DOMINANT TREES

*Eucalyptus obliqua* Stringybark

## TALL SHRUBS

*Acacia mucronata* Caterpillar Wattle  
*Acacia verticillata* Prickly Moses  
*Banksia marginata* Silver Banksia  
*Leptospermum glaucescens* Smoky teatree  
*Leptospermum scoparium* Manuka  
*Oxylobium arborescens* Tall Shaggypea  
*Pomaderris apetala* Common Dogwood  
*Prostanthera lasianthos* Christmas Mintbush  
*Ziera arborescens* Stinkwood

## SHRUBS

*Amperea xiphoclada* Broom Spurge  
*Bauera rubioides* Wiry Bauera  
*Bossiaea cinerea* Showy Bossia  
*Epacris impressa* Common Heath  
*Gonocarpus teucroides* Forest Raspwort  
*Hibbertia empetrifolia* Scrambling Guineaflower  
*Leucopogon australis* Spike Beardheath  
*Leucopogon collinus* White beardheath  
*Lomatia tinctoria* Guitarplant  
*Olearia stellulata* Sawleaf Daisybush  
*Pimelea linifolia* Slender Riceflower  
*Pultenaea daphnoides* Heartleaf Bushpea  
*Pultenaea juniperina* Prickly Beauty

## GRASSES &amp; GRAMINOIDS

*Dianella tasmanica* Tasman Flax-lily  
*Drymophila cyanocarpa* Turquoiseberry

<i>Empodisma minus</i>	Spreading Roperush
<i>Gahnia grandis</i>	Cutting Grass
<i>Lepidosperma sp.</i>	A Swordsedge

11

APPENDIX 1 (cont)

*Eucalyptus nitida* Wet Forest Community

ORCHIDS

<i>Chiloglottis sp.</i>	A Bird Orchid
<i>Pterostylis sp.</i>	A Greenhood

FERNS & ALLIED PLANTS

<i>Blechnum nudum</i>	Fishbone Waterfern
<i>Blechnum wattsii</i>	Hard Waterfern
<i>Histiopteris incisa</i>	Bat'swing Fern
<i>Pteridium esculentum</i>	Bracken

**4. *Eucalyptus nitida* Dry Forest (TasVeg Code DNI)**

This community was common within the study area and is a widespread community in western Tasmania. It occurred on a range of sites from low ridges which were well drained to poorly drained locations in association with the Wet Scrub community. The dominant trees are of a lower height than in the Wet Forest community and have a lower more branched canopy. The understorey was relatively diverse but varied greatly in composition depending on soil and drainage conditions.

DOMINANT TREES

<i>Eucalyptus nitida</i>	Western Peppermint
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TALL SHRUBS

<i>Acacia mucronata</i>	Caterpillar Wattle
<i>Banksia marginata</i>	Silver Banksia

SHRUBS

<i>Acacia myrtifolia</i>	Redstem Wattle
<i>Acacia suaveolens</i>	Sweet-scented Wattle
<i>Amperea xiphoclada</i>	Broom Spurge
<i>Aotus ericoides</i>	Golden Pea
<i>Bauera rubioides</i>	Wiry Bauera
<i>Bossiaea cinerea</i>	Showy Bossia
<i>Dillwynia glaberimma</i>	Smooth Parrotpea
<i>Epacris impressa</i>	Common heath
<i>Leptospermum glaucescens</i>	Smoky Teatree
<i>Leptospermum scoparium</i>	Manuka
<i>Leucopogon australis</i>	Spike Beardheath
<i>Leucopogon collinus</i>	White Beardheath
<i>Lomatia tinctoria</i>	Guitarplant
<i>Melaleuca squamea</i>	Swamp Honeymyrtle

*Persoonia juniperina*  
*Philotheca virgata*

Prickly Geebung  
Twiggy Waxflower

12

APPENDIX 1 (cont)

*Eucalyptus nitida* Wet Forest Community

SHRUBS

*Pultenaea daphnoides*  
*Pultenaea juniperina*  
*Sprengelia incarnata*  
*Styphelia adscendens*

Heartleaf Bushpea  
Prickly Beauty  
Pink Swampheath  
Golden heath

GRASSES & GRAMINOIDS

*Dianella tasmanica*  
*Empodisma minus*  
*Gahnia grandis*  
*Lepidosperma sp.*  
*Patersonia fragilis*

Tasman Flax-lily  
Spreading Roperush  
Cutting Grass  
A Swordsedge  
Shortstem Purpleflag

FERNS & ALLIED PLANTS

*Gleichenia microphylla*  
*Lycopodium deuterodensum*  
*Selaginella uliginosa*

Scrambling Coralfern  
Conifer Clubmoss  
Swamp Spikemoss

**5. *Eucalyptus obliqua* Wet Forest (TasVeg Code WOU)**

A form of this community with a shrubby understorey occurred on a small outcropping of ironstone but it also occurred as typical wet forest with a taller understorey in association with the *Eucalyptus nitida* Wet Forest and there were numerous understorey species common to both.

*Eucalyptus obliqua* Wet Forest is a widespread community in the wetter parts of Tasmania.

DOMINANT TREES

*Eucalyptus obliqua*

Stringybark

SECONDARY TREES

*Eucalyptus nitida*

Western Peppermint

TALL SHRUBS

*Acacia verticillata*  
*Banksia marginata*  
*Oxylobium arborescens*  
*Pittosporum bicolor*  
*Pomaderris apetala*  
*Prostanthera lasianthos*  
*Ziera arborescens*

Prickly Moses  
Silver Banksia  
Golden Shaggybea  
Cheesewood  
Common Dogwood  
Christmas Mintbush  
Stinkwood

APPENDIX 1 (cont)

*Eucalyptus obliqua* Wet Forest Community

SHRUBS

*Acacia myrtifolia*

*Allocasuarina monilifera*

*Amperea xiphoclada*

*Bauera rubioides*

*Bossiaea cinerea*

*Epacris impressa*

*Hibbertia empetrifolia*

*Leptospermum glaucescens*

*Leptospermum scoparium*

*Leucopogon australis*

*Lomatia tinctoria*

*Monotoca sp.*

*Olearia stellulata*

*Persoonia juniperina*

*Pimelea linifolia*

*Pomaderris pilifera*

*Pultenaea juniperina*

Redstem Wattle

Necklace She-oak

Broom Spurge

Wiry Bauera

Showy Bossia

Common Heath

Scrambling Guineaflower

Smoky Teatree

Manuka

Spike Beardheath

Guitarplant

A Broomheath

Sawleaf Daisybush

Prickly Geebung

Slender Riceflower

Hairy Dogwood

Prickly Beauty

GRASSES & GRAMINOIDS

*Baloskion tetraphyllum*

*Dianella tasmanica*

*Drymophila cyanocarpa*

*Gahnia grandis*

*Lepidosperma spp.*

Tassel Cordrush

Tasman Flax-lily

Turquoiseberry

Cutting Grass

Swordsedge

ORCHIDS

*Pterostylis sp.*

A Greenhood

FERNS & ALLIED PLANTS

*Blechnum nudum*

*Blechnum wattsii*

*Histiopteris incisa*

*Lycopodium deuterodensum*

*Pteridium esculentum*

Fishbone Waterfern

Hard waterfern

Bat's wing Fern

Conifer Clubmoss

Bracken

**APPENDIX 2: Checklist of Species Recorded by Family**

Dicotyledonae	
ASTERACEAE	RECORDED IN COMMUNITY
<i>Olearia stellata</i>	WNU, WOU
CASUARINACEAE	
<i>Allocasuarina monilifera</i>	SWW, WOU
CUNONIACEAE	
<i>Bauera rubioides</i>	SWW, WNU, DNI, WOU
DILLENACEAE	
<i>Hibbertia empetrifolia</i>	WNU, WOU
EPACRIDACEAE	
<i>Epacris impressa</i>	SWW, WNU, DNI, WOU
<i>Epacris obtusifolia</i>	SWW
<i>Leucopogon australis</i>	WNU, DNI, WOU
<i>Leucopogon collinus</i>	SWW, WNU, DNI,
<i>Monotoca sp.</i>	WOU
<i>Sprengelia incarnata</i>	SWW, SHW, DNI,
<i>Styphelia adscendens</i>	DNI
EUPHORBIACEAE	
<i>Amperea xiphoclada</i>	WNU, DNI, WOU
FABACEAE	
<i>Bossiaea cinerea</i>	SWW, WNU, DNI, WOU
<i>Dillwynia glaberimma</i>	SWW, DNI,
<i>Oxylobium arborescens</i>	WNU, WOU
<i>Pultenaea daphnoides</i>	WNU, DNI
<i>Pultenaea juniperina</i>	SWW, WNU, DNI, WOU
HALORAGACEAE	
<i>Gonocarpus teuroides</i>	WNU
LAMIACEAE	
<i>Prostanthera lasianthos</i>	WNU, WOU
LAURACEAE	
<i>Cassytha melantha</i>	SWW

APPENDIX 2 (cont)

Checklist of Species Recorded by Family

MIMOSACEAE

<i>Acacia mucronata</i>	SWW, WNU, DNI,
<i>Acacia myrtifolia</i>	DNI, WOU
<i>Acacia suaveolens</i>	DNI
<i>Acacia verticillata</i>	SWW, WNU, WOU

MYRTACEAE

<i>Eucalyptus nitida</i>	SWW, WNU, DNI, WOU
<i>Eucalyptus obliqua</i>	WNU, WOU
<i>Leptospermum glaucescens</i>	SWW, WNU, DNI, WOU
<i>Leptospermum nitidum</i>	SWW
<i>Leptospermum scoparium</i>	SWW, SHW, WNU, DNI, WOU
<i>Melaleuca squamea</i>	SWW, SHW, DNI
<i>Melaleuca squarrosa</i>	SWW

PITTOSPORACEAE

<i>Pittosporum bicolor</i>	WOU
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PROTEACEAE

<i>Banksia marginata</i>	SWW, WNU, DNI, WOU
<i>Lomatia tinctoria</i>	WNU, DNI, WOU
<i>Persoonia juniperina</i>	DNI, WOU

RHAMNACEAE

<i>Pomaderris apetala</i>	WNU, WOU
<i>Pomaderris pilifera</i>	WOU

RUTACEAE

<i>Philothea virgata</i>	SWW, DNI,
<i>Ziera arborescens</i>	WNU, WOU

THYMELAEACEAE

<i>Pimelea linifolia</i>	WOU
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Monocotyledonae

CYPERACEAE

<i>Gahnia grandis</i>	SWW, WNU, DNI, WOU
<i>Lepidosperma spp.</i>	WNU, DNI, WOU

IRIDACEAE

*Patersonia fragilis* SWW, SHW, DNI

16

APPENDIX 2 (cont)

Checklist of Species Recorded by Family

LILIACEAE

*Dianella tasmanica*

WNU, DNI, WOU

*Drymophila cyanocarpa*

WNU, WOU

ORCHIDACEAE

*Chiloglottis sp.*

WNU

*Pterostylis sp.*

WNU, WOU

RESTIONACEAE

*Baloskion tetraphyllum*

SWW, WOU

*Empodisma minus*

SWW, WNU, DNI

*Leptocarpus tenax*

SWW, SHW

XYRIDACEAE

*Xyris sp.*

SWW, SHW

Pteridophyta

BLECHNACEAE

*Blechnum nudum*

WNU, WOU

*Blechnum wattsii*

WNU, WOU

DENNSTAEDTIACEAE

*Histiopteris incisa*

WOU

*Pteridium esculentum*

WNU, WOU

GLEICHENIACEAE

*Gleichenia dicarpa*

SWW, SHW

*Gleichenia microphylla*

WOU

LINDSAEACEAE

*Lindsaea linearis*

SWW, SHW

LYCOPODIACEAE

*Lycopodium deuterodensum*

DNI, WOU

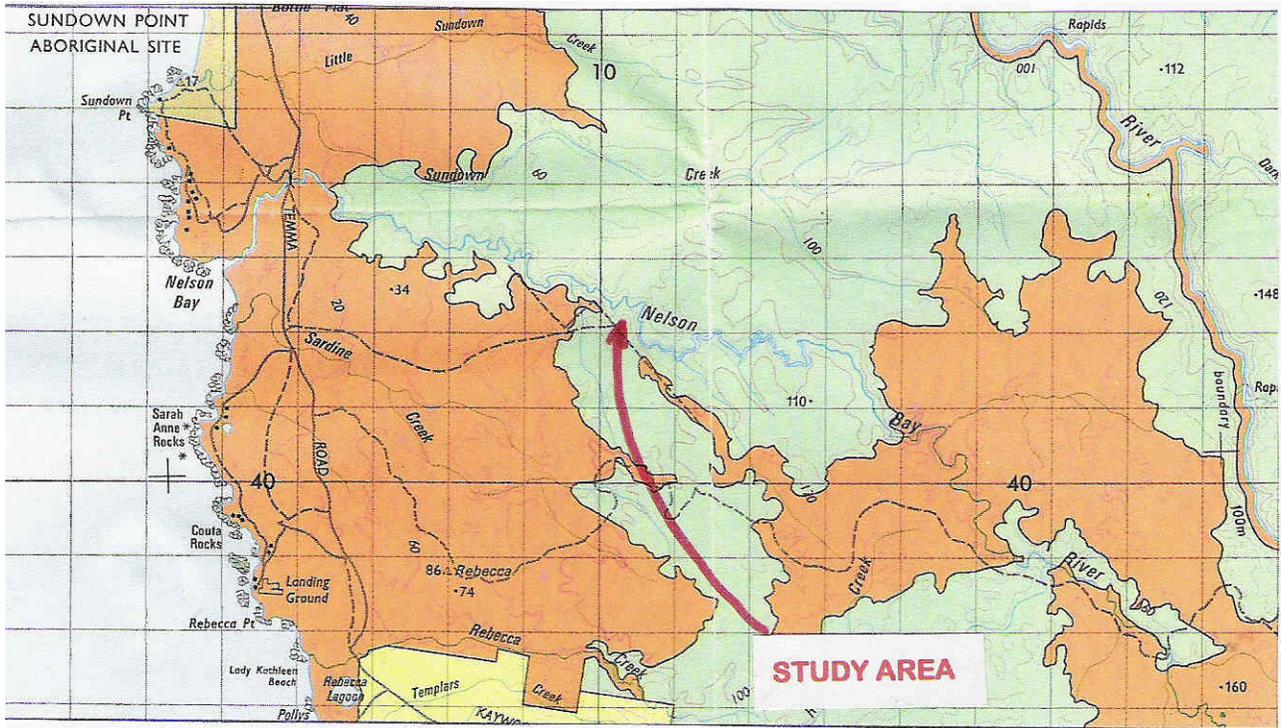
SELAGINELLACEAE

*Selaginella uliginosa*

SWW, SHW, DNI

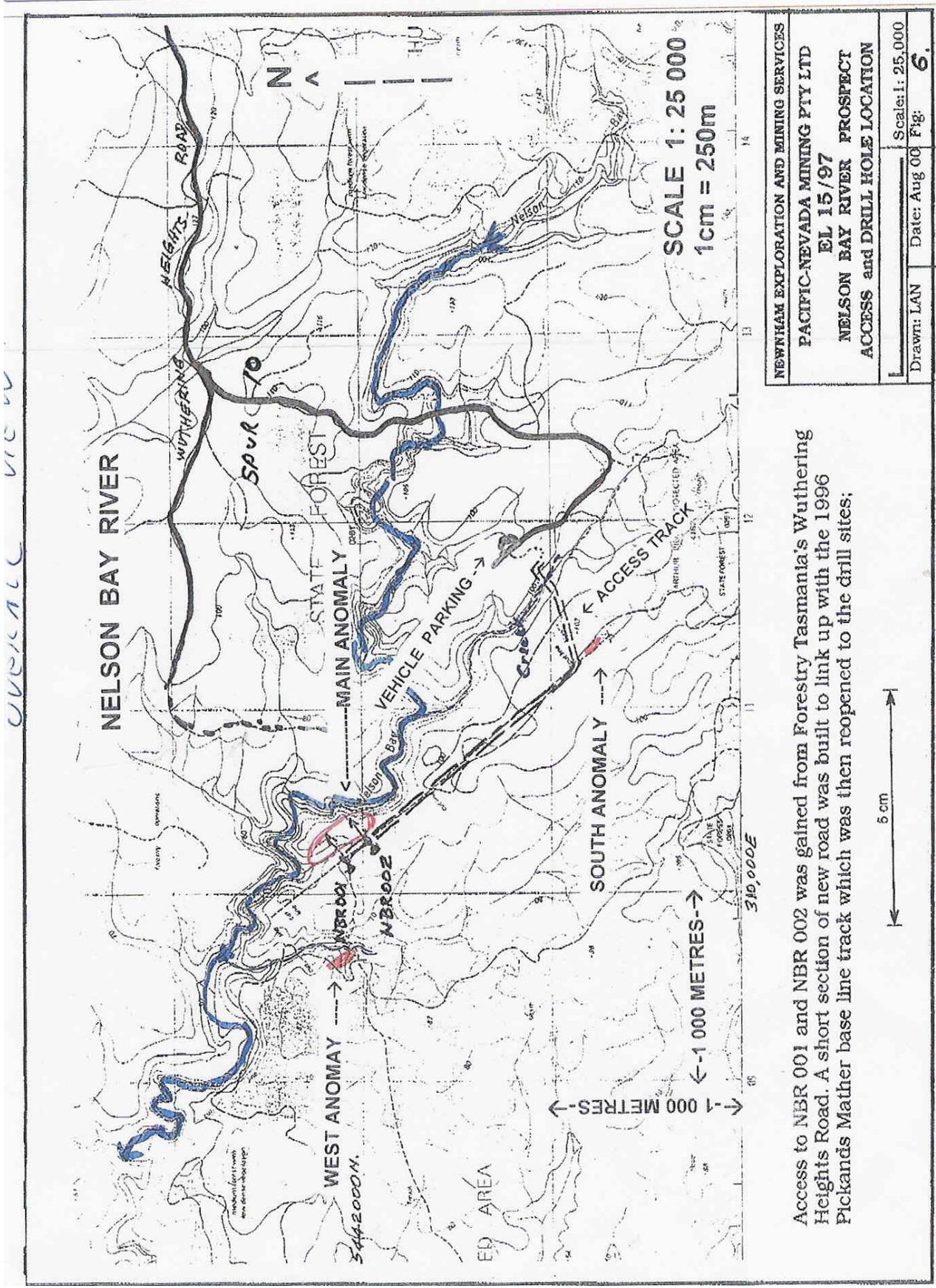
**REFERENCES**

1. DPIW Website ..... [www.dpiw.tas.gov.au/threatenedflora](http://www.dpiw.tas.gov.au/threatenedflora)
2. DPIW Website ..... [www.naturalvaluesatlas.dpiw.tas.gov.au](http://www.naturalvaluesatlas.dpiw.tas.gov.au)
3. Harris S, Kitchener A. (2005), From Forest to Fjaeldmark, DPIW Tasmania
4. Harries C, (Ed), (2001) The Environmental Law Handbook, Environmental Defenders Office, Tas.
5. Jones D, et al (1999) The Orchids of Tasmania, Melbourne University Press
6. Wapstra H, A, & M, Gilfedder L, The Little Book of Common Names for Tasmanian Plants



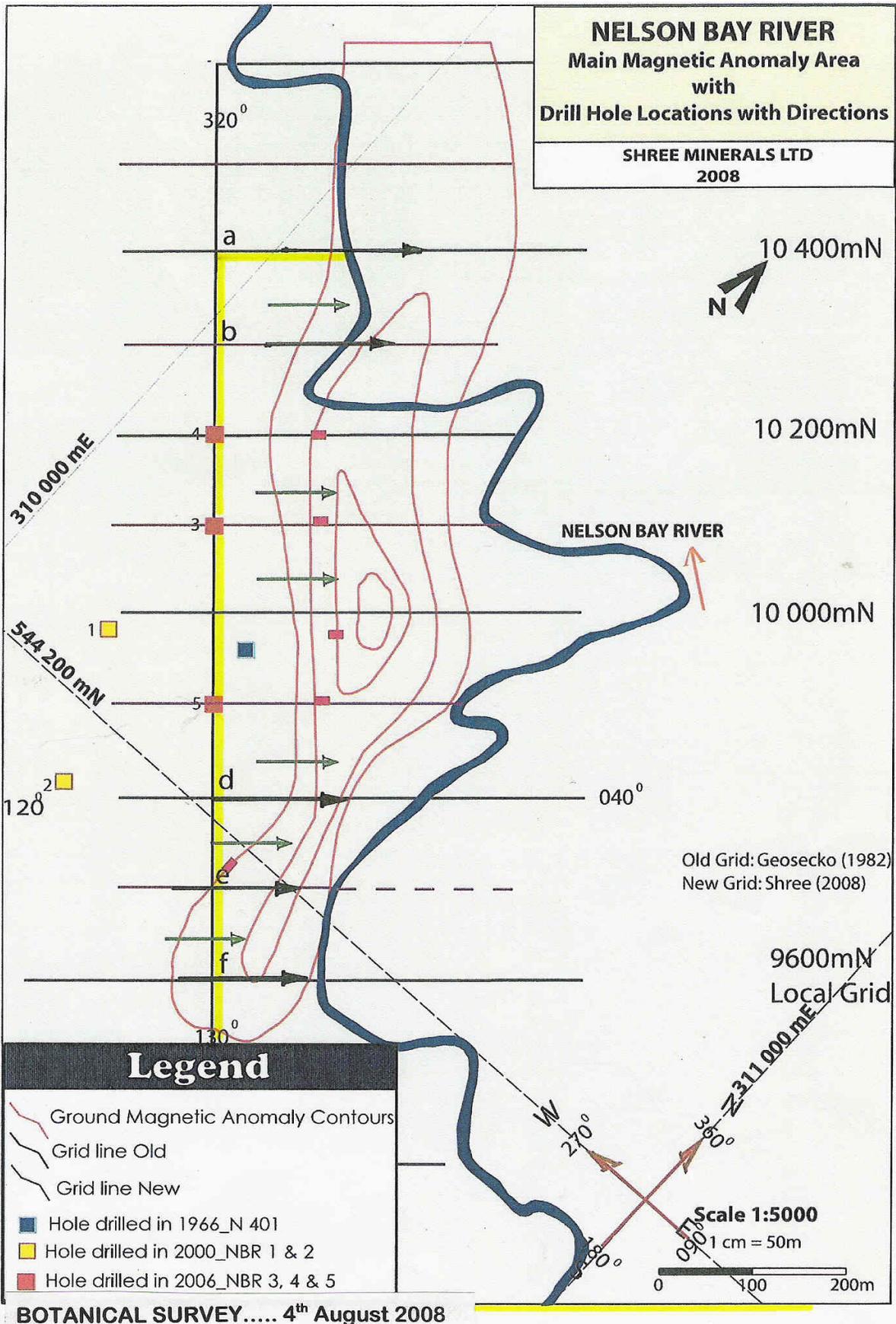
MAP 1 ..... Location of Study Area.... Nelson Bay River

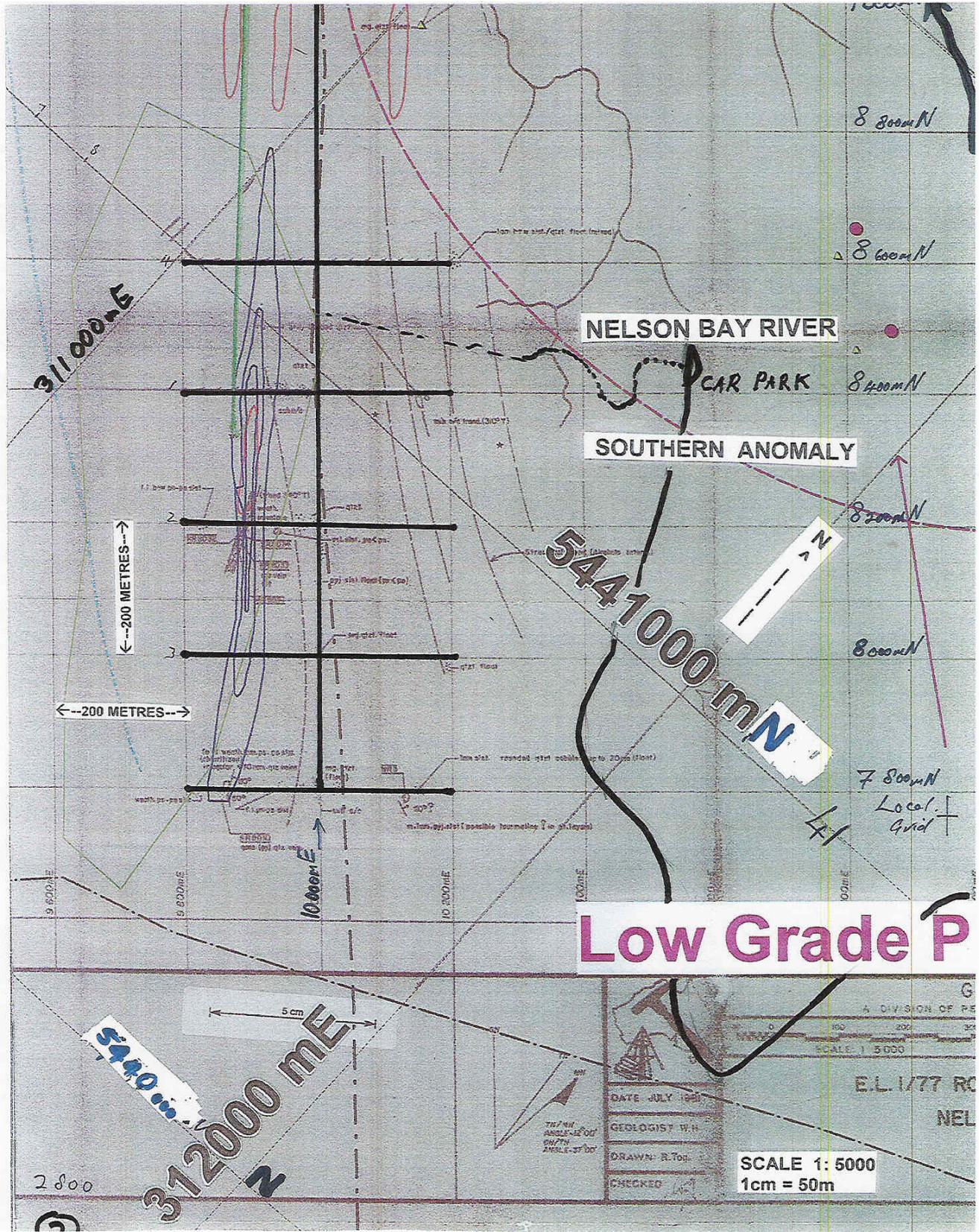




Access to NBR 001 and NBR 002 was gained from Forestry Tasmania's Wuthering Heights Road. A short section of new road was built to link up with the 1996 Pickands Mather base line track which was then reopened to the drill sites;

VISUAL VIEW





MAP 4.....Nelson Bay River Exploration Area ... Southern Anomaly