

Environmental Plan (Including Third Party Reports)

a) Environmental Plan

ENVIRONMENT MANAGEMENT PLAN



‘BELLEVUE SITE’

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1. PROPOSED ACTIVITY

This document provides an environmental risk assessment and management plan to support the Bellevue #1 Drilling Program for Great South Land Minerals (GSLM). The purpose for drilling the Bellevue #1 well is to evaluate the hydrocarbon potential of the Bellevue structure.

This document includes information to comply with what GSLM believes to be required by Mineral Resources Tasmania's (MRT) for oil and gas exploration drilling in Tasmania.

This document has been developed specifically for Bellevue #1 in parallel with, and will be implemented in conjunction with, the following documents:

- Bellevue #1 Drilling Program;
- Bellevue #1 ERP Bridging Document;
- GSLM Drilling Operations Manual (DOM);
- FPP No. TAS0323 (Great South Land Forest Practices Plan); and
- Land Owner Access and Rental Agreement

1.1 Location and Access

1.1.1 General

The Bellevue #1 well is located northwest of Lake Echo in the Central Highlands of Tasmania on Property ID #7333254 and Title Reference 227512/1. As the site is privately owned, GSLM has provided a landowner agreement within the owners to address this activity¹.

1.1.2 Site Specific

Drilling is proposed for Bellevue #1 well at 465 660 mE and 5 338 904 mN on AGD66, Zone 55 (Appendix A). The pad will be located on the top side of Serpentine Road, at the intersection of an access track. It sits at around 1,075m in elevation and sloping southwest.

¹ See "Land Owner Access and Rental Agreement, 27th August 2008" submitted with this EMP.

1.1.3 Access

Access to Bellevue from Marlborough Highway is via Serpentine Road, approximately half way between Miena and Bronte Park.

The condition of Serpentine road is considered to be a Class 4 standard road.

1.2 Site Requirements

1.2.1 Pad and Camp

The site will require a pad for the rig and camp over a total area of ~1.3ha (see Figure 2).

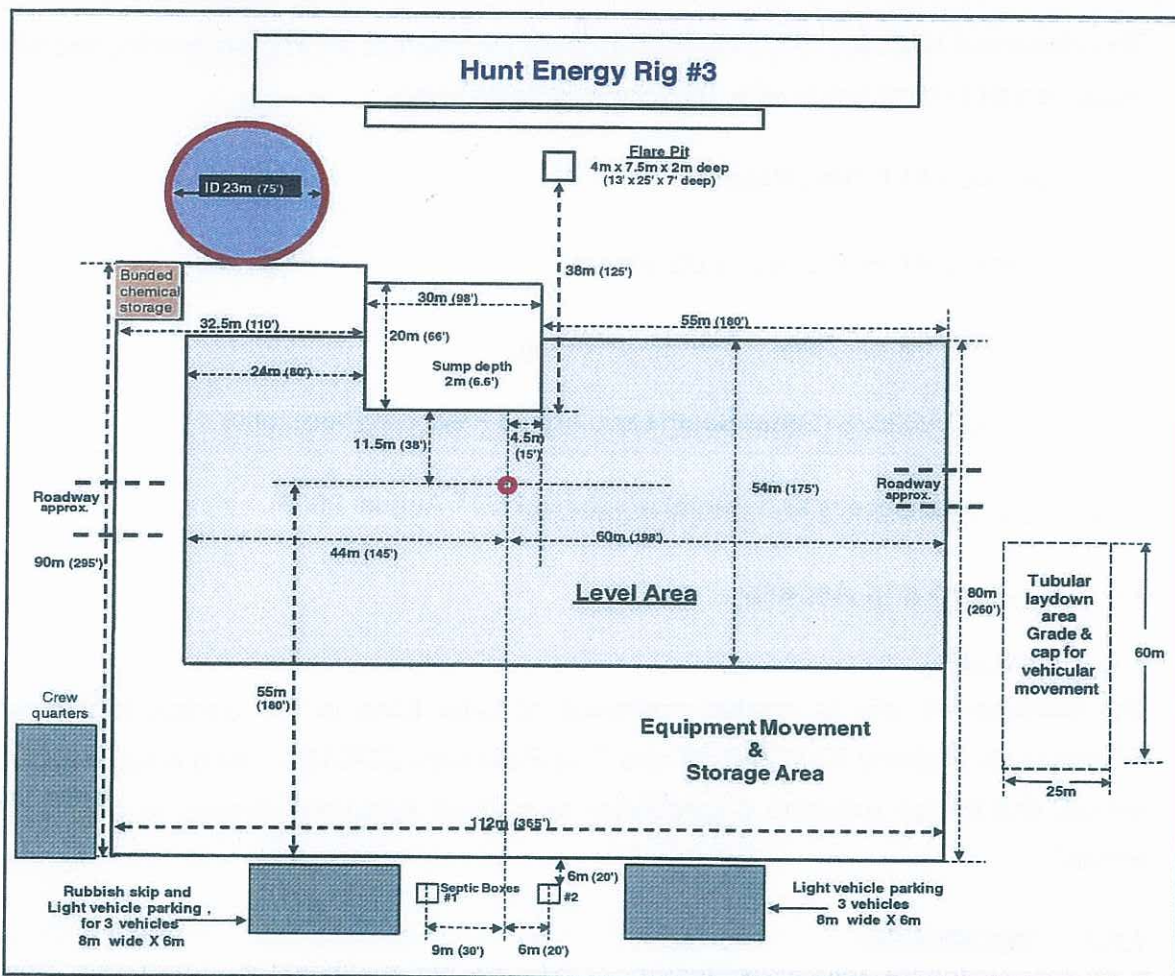


Figure 1. Hunt Energy Rig #3 layout.

A drilling sump, approximately 20m by 30m by 2m, will be required to confine cuttings and drilling muds at the site. A holding tank will replace the turkey's nest to store clean water for mixing with drilling fluids. Minor earthworks will be needed to clear the pad and prepare for loading bays, storage facilities, car parking and general working space.

The pad will lend itself to the contours of the area, ensuring all drainage from the working area is received by the sump. A 4-person workers hut with beds, showers and toilets will be located onsite, with all grey and black water reporting to a mobile holding tank.

1.2.2 Rubbish

All non-biodegradable rubbish will be stored onsite and removed upon activity cessation.

1.2.3 Drilling Water Supply and Associated General Facilities

Construction and drilling water in the sump will be obtained from stormwater and pumped from the flooded private quarry to the north of the site. Clean water for mixing into drilling mud will be sourced from the private quarry and stored in 1 or more storage tanks located onsite (approval for water use outlined in section 2.10 of Landowner Agreement).

1.2.4 Camp Water Supply

Potable water for use in the camps will be purchased and shipped to the site as required.

1.2.5 Wastewater

Crew quarters will be located onsite to house 4-5 permanent drilling staff, which includes showers and toilets. Grey and black water will be pumped from these facilities to two or three high grade PVC sewage tanks with capacity for 3000 LTS each. These tanks will be placed on skid beds and plumbed into a pump to limit excavation requirements for the tanks.

This approach will allow Veolia Environmental Services to pump out wastewater as required and assist with ease of infrastructure transport to and from sites.

1.2.6 Hazardous Materials

Section 5.6 *Hazardous Substances* in “Bellevue #1 ERP Bridging Document” defines the procedures for transporting, storing and using drilling fluids and cementing chemicals, radioactive materials and explosives.

1.3 Drilling

1.3.1 Responsibilities

GSLM's Drilling Manager, _____ will be responsible for supervision of the initial site preparation, enforcement of vehicle movement limitations, tidiness and cleanliness of the site and access, supervision and documentation of remediation works, staff safety and overall compliance with the commitments stated within this Environmental Management Plan (EMP).

The drilling contractor, Hunt Energy, will be responsible for the actual drilling operations in accordance with this EMP, reporting to GSLM.

1.3.2 Drilling Operation

Drilling will follow industry-accepted codes of practice for drilling and workover. Procedures and operations will be defined in GSLM's *Drilling Operations Manual* (DOM) and Hunt Energy's relevant company procedures (eg. Emergency Response Plan, Environmental Principles and Environmental Policy documents).

Drilling will be undertaken 24 hours per day until completion. The anticipated size of workforce is 20 during the day and 15 at night.

Casing design and cementing will be engineered to prevent blowout and petroleum spillage, as well as aquifer protection. Stratigraphy and hydrogeology are outlined in section 1.9 of the Bellevue #1 Drilling Program and Appendix B of this document, respectively. Surface casing, as well as providing blowout protection, will isolate shallow aquifers in surficial formations. Formation damage in the main hole will be minimised by drilling using a controlled water loss/low solids mud. Surface casing will be externally protected from corrosion by cement. Internal protection from corrosion will be provided by either treated drilling mud (surface casing) or other corrosion inhibitor.

Pre-collar drilling to ~350m will require between 10,000 and 30,000 litres of clean and recycled water per day. Deeper drilling could require up to 100,000 litres per day, but is estimated at 50,000 litres per day.

The drilling contractor will be required to regularly test casing integrity and blowout prevention equipment in the normal course of drilling. Tests will be reported to and tracked by GSLM.

1.3.3 Drilling Period and Parameters

Drilling is proposed for between *October and December 2011*. The general drilling parameters are outlined in section 1 of the Bellevue #1 Drilling Program.

1.4 Water Handling and Disposal

Production water requirements will be met by recirculating sump water and treating it with pH balancing or mixing fresh water from onsite storage tanks. The sump will be constructed to retain the anticipated ongoing water requirements over the period of activity

allowing no overflow. The sump will also be lined to catch all settling solids and provide for easy removal upon activity cessation.

Within 30 days of drilling cessation, all remaining sump and turkey nest water will be pumped, transported and treated by a licensed wastewater treatment facility (eg. Veola Environmental Services).

1.5 Transportation and Other Infrastructure

1.5.1 Drilling

Vehicular movements will use defined access. For the initial drilling, the rig and camp will require some 30 trailer loads, with an additional six or so supply loads. Prior to spudding, several runs per day of a water truck over 4-5 days may be needed to fill a clean water holding tank if the local quarry is unable to supply the required volumes. A cementing and logging truck would also be stationed at site for the duration of the drilling.

While drilling is in progress, vehicular movement would be minimised. The following is indicative, for an anticipated mobilisation, drilling and drilling demobilisation of 30 days:

Daily	Water Truck (15t tanker) – if required 1 contractor vehicle	6 round trips (first week) ~1 round trip
Weekly	Crew change: 1 x crew cab vehicle Supply run: 1 x 15t truck Wastewater removal	~3 round trips ~5 round trips ~1 round trip

1.6 Well Abandonment

1.6.1 Plug & Abandon

If commercial quantities of hydrocarbons are not discovered, the drill hole will be 'plugged & abandoned'. All aquifers of different salinities in the open hole section will be isolated by cement lugs to prevent possible crossflow between them. The lease and access road will be restored to the conditions set down in the landowner's agreement.

1.6.2 Case & Suspend

If commercial quantities of hydrocarbons are discovered, the well will be 'cased & suspended'. The well will be cased and capped, fenced, identified through standard industry denotation pending later completion as a producing well. A separate EMP will be developed to prepare and cover completion and production activities.

2. CURRENT ENVIRONMENT

To assess the current environment, Tony Stonjek (Forest Practices Officer) was engaged to undertake a Forest Practices Plan (Appendix D) to provide the anticipated extent of information requested by MRT for activity approval.

The following subsections summarise the current environment based on findings of several required studies and reports.

2.1 Flora and Fauna

2.1.1 Flora

This area is by Forestry Tasmania as a *dry eucalypt forest and woodland*. Vegetation communities present are Dry *E. delegatensis*. There are no known or identified flora values, priority species or *Phytophthora cinnamomi* within the planned activity area.

2.1.2 Fauna

The site evaluation under this activity indicates the presence of two threatened species:

- i) Masked Owl – An isolated patch of forest suitable to support this species occurs to the north of the proposed operation area, along with the Broad River system, although the nature of the activity does not pose any threats.
- ii) Wedge-tailed Eagle – There are no known edge-tailed Eagle next sites located within 500 metres or 1.0 kilometre line of sight of the operation area. (see Appendix F)

No specific management actions are recommended to avoid/mitigate impacts on these species.²

2.2 Geology and Soils

2.2.1 Geology

The primary geological substrate is Jurassic Dolerite. Soil is red/brown clayey.

The operation area is not located within any site of level 1-8 sensitivity on the Geoconservation Database.

² TAS0323 Great South Land Forest Practices Plan, 29th August 2008

2.2.2 Soils

Soil is red/brown clayey. Erodability is rated Low (maximum 1 degree slope).

2.3 Surface Water and Hydrogeology

2.3.1 Surface Water

No identified streams occur within the planned operation area.

2.3.2 Hydrogeology

A study³ of the local hydrogeological conditions was undertaken for the primary purpose of aquifer protection (Appendix B). The study predicts a sequence of aquifers confined within the Jurassic dolerite (~0m–400m) and perhaps the Permian segment (~600m–1,500m). Several recommendations are provided throughout this report, and will be adhered to during the activity.

Leaman states, “Given the location of the site it is highly unlikely that confined conditions will prove artesian and any water level changes will be retained within the well.”

Further, “The well will be established with safeguards as described in the principal specification document in order to control any run off and seepage at the surface. No significant risk, or expectation of flow from the well, exists.”

2.4 Visual

The proposed site is not visible from any public roads, nor is located within 1km of any known eagle nests. No visual issues are anticipated during the proposed activity.

2.5 Noise⁴

A noise level assessment of this activity has been conducted over a period of 4 weeks (Appendix E), the results of which indicate that the noise emitted from this activity will likely have no adverse effects on local human or eagle activities. Hunt Energy commits to maintaining all equipment to ensure that this situation remains.

2.6 Cultural Heritage

Based on past site visits and a recent report undertaken by Parry Kostoglou (Senior Consultant, ARC Tas Pty Ltd)⁵, four sites of low to medium significance are known to exist within around 1 kilometre of the site (Appendix C). None of these sites will be disturbed by

³ *Specification and Recommendations – Matters of Aquifer Protection and Hole Completion*, Leaman Geophysics, 21/08/08

⁴ *“Bellevue - Noise Level Assessment”*, VIPAC, 25/08/2008

⁵ *“Desktop Historic Cultural Heritage Assessment – Proposed Drill Site, Lake Echo Vicinity”*, P. Kostoglou, August 2008

the proposed activity, and all recommendations of this report will be adhered to (summarised in Section 3.2 of this document).

There are no significant Aboriginal sites located within the operations area. (Appendix G)

3. ENVIRONMENTAL RISKS AND MANAGEMENT

3.1 Statement of Environmental Objectives

GSLM has developed a 'Statement of Environmental Objectives' to guide the planning, implementation and cessation of all drilling activities in an environmentally responsible manner. These statements will provide the framework from which an environmental risk assessment and management plan is developed for each activity, and will form the basis of internal monitoring, compliance and reporting programs.

GSLM's 'Statement of Environmental Objectives' is listed in section 3.2.

3.2 Risk Assessment and Management

The following table outlines the risk assessment and associated management practices for the proposed activity based on compliance with GSLM's environmental objectives, stakeholder requirements, government codes and legislation and consultant recommendations.

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
Minimise risk to public and third parties.	<ul style="list-style-type: none"> Members of public entering site. 	<ul style="list-style-type: none"> Unaware of or curious about activity. 	<ul style="list-style-type: none"> High probability of injury. Unsafe working conditions for staff. 	<ul style="list-style-type: none"> Appropriate safety signs will be established to ensure appropriate notification of activity in this area to the general public during operations. Security personnel to remain onsite for the duration of the activity, and maintain a record of all visitors to the site. ⁺
	<ul style="list-style-type: none"> Decrease in production species (Dry E. delegatensis). 	<ul style="list-style-type: none"> Excessive clearing of roads and pad. Poor storage of felled vegetation. 	<ul style="list-style-type: none"> Increased requirements and expense to prepare area for replanting. 	<ul style="list-style-type: none"> Vegetation debris created as a result of this operation will be heaped adjoining the road or drill pad edge.
Minimise the disturbance to native vegetation and fauna.	<ul style="list-style-type: none"> Eagles nest is discovered during clearing activities. 	<ul style="list-style-type: none"> Not identified during previous avifauna studies. 	<ul style="list-style-type: none"> Adverse impact on breeding and habitat. 	<ul style="list-style-type: none"> Cease all forestry activities immediately within 500m (and 1000m line-of-sight during breeding season). Contact the FPA Ecologist and/or DPIW specialist to inspect and provide advice. [^]
	<ul style="list-style-type: none"> Masked Owl nest is discovered during 	<ul style="list-style-type: none"> Not identified during previous 	<ul style="list-style-type: none"> Adverse impact on breeding and 	<ul style="list-style-type: none"> Cease all immediately within 100m and contact the FPA Senior Ecologist to inspect and

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
	operations.	avifauna studies.	habitat.	provide advice. [^]
	<ul style="list-style-type: none"> Disruption within 1km of eagle nests. 	<ul style="list-style-type: none"> Light and heavy vehicle movements. 	<ul style="list-style-type: none"> Adverse impact on breeding season. 	<ul style="list-style-type: none"> Movement of heavy machinery restricted to daylight hours, and no vehicle movement is permitted 2 hours before dusk on any day.[^] No deliberate vehicle stopping on access roads.[^]
Avoid the introduction of weeds and pathogens.	<ul style="list-style-type: none"> Weed species or soil pathogens (<i>Phytophthora cinnamomi</i>) introduced. 	<ul style="list-style-type: none"> Brought in by machinery and vehicles. 	<ul style="list-style-type: none"> Uncontrolled increase of weeds/pathogens resulting in production loss and costly eradication programs. 	<ul style="list-style-type: none"> All machinery will be washed down before being transported to this operation and washed down again, prior to leaving the operation. Wash down will be carried out in accordance with the "Tasmanian Washdown Guidelines for weed and disease control".[^] Weed establishment will be monitored by GSLM and appropriate action taken where necessary.
Minimise contamination to soils and subsoils.	<ul style="list-style-type: none"> Topsoil mixed with subsoils. 	<ul style="list-style-type: none"> Poor pad preparation and topsoil storage. 	<ul style="list-style-type: none"> Loss of topsoil fertilisation and seed. 	<ul style="list-style-type: none"> Topsoil will be removed from the working area and stored in a wind-row (max 1m) on the top side of the site for

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
			<ul style="list-style-type: none"> Loss of productive substrate for replanting. 	<ul style="list-style-type: none"> rehabilitation.^Λ
		<ul style="list-style-type: none"> Drilling sediments infiltrating from sump. 	<ul style="list-style-type: none"> Groundwater contamination. 	<ul style="list-style-type: none"> The sump will contain a plastic liner to capture all drill chips and sediment.
	<ul style="list-style-type: none"> Chemical contamination. 	<ul style="list-style-type: none"> Hazardous material spill (eg. fuel). 	<ul style="list-style-type: none"> Groundwater and soil contamination. 	<ul style="list-style-type: none"> Spill kits containing relevant spill clean-up equipment will be located onsite. All staff will be trained to use these. A spill register will be developed to record the details of all spills during the operation. Remediation efforts will continue post-operation as per the Forestry Practice Code 2000.^Λ
	<ul style="list-style-type: none"> Discharge of water with high TSS or pH. 	<ul style="list-style-type: none"> Overflow of sump water. 	<ul style="list-style-type: none"> Increased sediment and pH along a defined drainage line. 	<ul style="list-style-type: none"> Water quality (in the sump) will be determined where possible and samples can be separated.[#] Within 30 days of drilling cessation, the all wastewater will be removed and treated by a licensed wastewater
<i>Avoid contamination of surface water and aquifers.</i>				

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
				treatment facility.
	<ul style="list-style-type: none"> Water transfer between individually-confined aquifers. 	<ul style="list-style-type: none"> Loss of downhole pressure. Poor or no capping. 	<ul style="list-style-type: none"> Contamination of aquifers. 	<ul style="list-style-type: none"> All significant aquifers, or groups of aquifers in which quality is comparable, will be sealed and separated with plugs as specified in the Leaman report.[#] Careful monitoring of flows to and from the hole during drilling within the dolerite.[#]
	<ul style="list-style-type: none"> Discharge of grey and black water to natural water courses. 	<ul style="list-style-type: none"> No containment and removal of human waste water. 	<ul style="list-style-type: none"> Contamination of local water courses (<i>E. coli</i>, phosphates, etc) 	<ul style="list-style-type: none"> Contain all grey and black water in holding tanks and empty via licensed removalist. Remove tanks upon activity cessation.

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
Avoid disturbance to sites of Aboriginal or cultural heritage.	<ul style="list-style-type: none"> Loss of undiscovered cultural (Aboriginal and non-Aboriginal) heritage artefacts. 	<ul style="list-style-type: none"> Uncovered from undertaking minor earthworks. 	<ul style="list-style-type: none"> Damage or destruction of artefacts. 	<ul style="list-style-type: none"> The drill rig accesses the site on existing roading. ** That the drilling and associated activities avoid any of the documented historic cultural sites and features described in this report. ** That the drilling and associated activities avoid any previously un-documented site and feature types alluded to in Section 7.0 of this report. ** That a field inspection of the proposed drill site be undertaken by a qualified archaeologist or Aboriginal Heritage Officer if any such remains are located prior to drilling. ** <p>Archaeological Heritage Officer – <i>Parry Kostoglou (0408 561 934)</i></p> <p>Aboriginal Heritage Officer – <i>Rocky Sainty (0417 016 598)</i></p>

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
Avoid or minimise disturbance to stakeholders and associated infrastructure.	<ul style="list-style-type: none"> Deterioration of roads during and after operations. 	<ul style="list-style-type: none"> Heavy equipment use. Lack of clear or adequately built drains. 	<ul style="list-style-type: none"> Unsafe access for GSLM and Forestry Tasmania staff. Road scouring, flooding and decrease in integrity. 	<ul style="list-style-type: none"> Reduce transport frequency on access roads to a minimum. Regularly monitor and maintain roads, silt traps and drainage structures.[^] Repair/replace associated sections of the road, fencing, drainage, etc. to the conditions from which it was found.⁺
	<ul style="list-style-type: none"> Non-compliance with relevant codes and regulations. 	<ul style="list-style-type: none"> Poor or no monitoring of compliance during all stages of the activity. 	<ul style="list-style-type: none"> Harm to the surrounding environment. Fine or prosecution by the State or Commonwealth government. 	<ul style="list-style-type: none"> Monitor and record compliance during all stages of this activity with the management practices in this EMP and requirements of the FPP.
Optimise waste reduction and recovery.	<ul style="list-style-type: none"> Reduction of natural values for the region. 	<ul style="list-style-type: none"> Poorly managed rubbish storage and removal procedures onsite. 	<ul style="list-style-type: none"> Non-biodegradable material adversely impacting local flora and fauna. 	<ul style="list-style-type: none"> All rubbish will be removed to an approved landfill site.⁺
Remediate and rehabilitate operational areas to acceptable	<ul style="list-style-type: none"> Site is not rehabilitated to 	<ul style="list-style-type: none"> Pad is compacted. 	<ul style="list-style-type: none"> Contamination of surrounding flora, 	<ul style="list-style-type: none"> Following the completion of drilling the drill pad and

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
standards.	the appropriate standard.	<ul style="list-style-type: none"> Contours do not blend with surrounding environment. Uncontrolled spills. Waste rock is left unmanaged. 	<ul style="list-style-type: none"> surface and ground waters. Erosion and loss of slope integrity. Loss of future commercial prospects. Unconsolidated or contaminated surface. 	<ul style="list-style-type: none"> associated infrastructure will be completely removed from the site.⁺ The site will be rehabilitated and seeded as directed by the landowners⁺ and to comply with the TAS0232 FPP, including a sapling survey within 12-14 months of activity cessation.[^] Assess the nature and chemical characteristics of the remaining rock within the sump, and determine its course of treatment (eg. compaction and capping, wind rows for aeration of hydrocarbons, etc).
	<ul style="list-style-type: none"> Drill hole location is damaged or lost. 	<ul style="list-style-type: none"> Poor or no signage and/or deterring barriers. 	<ul style="list-style-type: none"> Aquifer contamination. Property damage. 	<ul style="list-style-type: none"> The hole will be tagged on completion of capping.[#]

All management practices recommended by ARC Tas Pty Ltd have been denoted by *.

All management practices recommended by Rocky Sainty have been denoted by %.

All management practices recommended by Leaman Geophysics have been denoted by #.

All management practices required by the Land Owner Access and Rental Agreement have been denoted by +.

All management practices required by the Forest Practices Plan have been denoted by ^.

3.3 Monitoring and Compliance

GSLM will engage a third-party consultant to inspect and report on the level of compliance of this activity against the environmental management practices required under:

- i) Bellevue #1 Drill Plan – EMP;
- ii) FPP TAS0323;
- iii) Land Access and Rental Agreement (27th August 2008);
- iv) "Washdown Guidelines for Weed and Disease Control – Machinery, Vehicles & Equipment".

Inspections will occur regularly during site preparation, drilling operations, site rehabilitation and post-operation site monitoring.

Reports will individually assess compliance with the requirements of each of the above documents and recommend actions to improve activity compliance where relevant.

4. REFERENCES

4.1 Commonwealth

- *Environmental Protection and Biodiversity Conservation Act 1999*

4.2 State

- *Threatened Species Protection Act 1995*
- *Aboriginal Relics Act 1975*
- *Historical Cultural Heritage Act 1995*
- *Environmental Management and Pollution Control Act 1994*
- *Land Use Planning and Approvals Act 1993*
- *Water Management Act 1999*
- *Fire Services Act 1979*
- *Forestry Act 1920*
- *RFA, Permanent Native Forest Estate*
- *Mineral Exploration Code of Practice 1999 (Edition 4)*

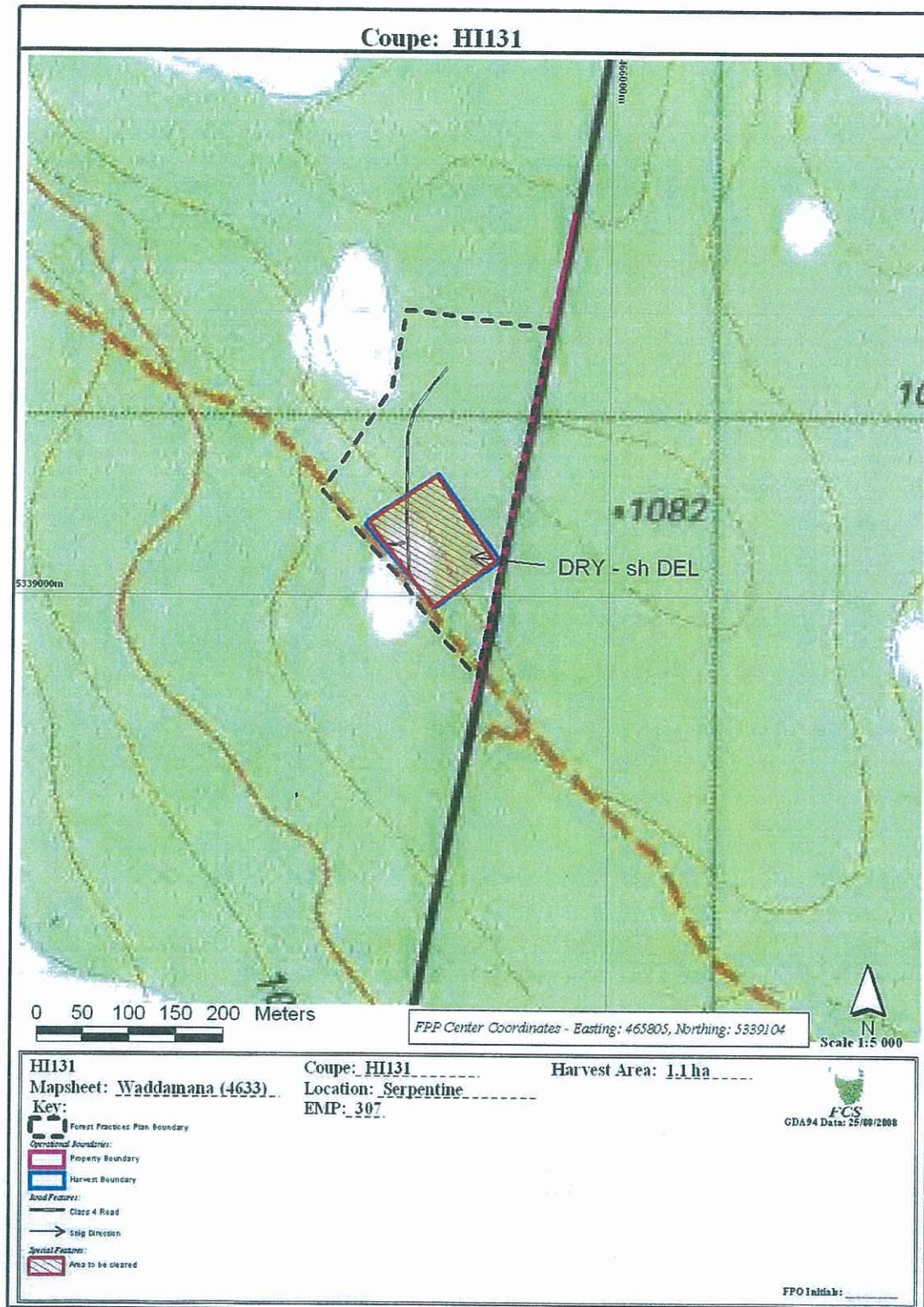
4.3 Land Owner

- *Land Owner Access and Rental Agreement,*

4.4 Proponent

- *GSLM Statement of Environmental Objectives*
- *GSLM Environmental Policy*

APPENDIX A – LOCATION MAP



APPENDIX B – HYDROGEOLOGICAL STUDY

22 AUG 2008

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SUPPLEMENT TO EXPLORATION DRILLING PROGRAM DOCUMENT

SPECIFICATION AND RECOMMENDATIONS MATTERS OF AQUIFER PROTECTION AND HOLE COMPLETION

BELLEVUE LAKE ECHO (BV#1)

Prepared for Great South Land Minerals Limited by D. E. Leaman for Leaman Geophysics. August 2008.

The following specifications are based on a well prognosis prepared by Great South Land Minerals as supplied to Leaman Geophysics in August 2008, and are in accord with guidelines for hole abandonment and aquifer protection published for Western Australia (November, 2002) and Victoria (December, 2002). Where appropriate, these guidelines have been modified so as to be conservative in the unknown conditions applying at the site. These specifications represent expansion of items within, and including the Abandonment Procedure, of the current Exploration Drilling Program draft document as prepared by Great South Land Minerals Limited Engineering Division.

The well, to be spudded in Jurassic dolerite (northwest of Lake Echo at 465 660 mE, 5 338 904 mN), is expected to encounter Triassic rocks at perhaps 400 m, and Late Permian coal measures between 640 and 680 m (possible source rocks). A complete and representative section of Permian rocks is then anticipated to a depth of perhaps 1550m. This suite will include various sandstones, siltstones and mudstones, and tillite, typical of north Tasmanian Tiers sections.

Late Permian coal measures between 640 and 680 m are regarded as possible source or reservoir rocks. Other possible source rocks are the carbonaceous rocks expected at 1100 to 1150 m and oil shales at perhaps 1320 m. Possible reservoir rocks may be present at various levels; 800 m, 880 m, 1100 m.

Possible seal rocks of the Eldon Group (Silurian) are inferred to depths of about 2200 m beneath a major unconformity. Potential reservoir rocks (Crotty Quartzite) are inferred from 2200 m, and Gordon Group limestones from 2410 m. Planned total depth of drilling is 2600 m.

Water conditions will be normal and unconfined at surface and quite fresh (perhaps <300-500 mg/L). Some water recovery is anticipated throughout the first 100 m of the

well, but there is also potential to lose water and fluids from the drilling in this zone due to regional fracture systems. Flows to, or from, the hole should be carefully monitored whilst drilling the dolerite. Lesser risks apply to the Triassic section from 400 to 600 m.

Much of the Permian segment of the hole may be tight with very low yields. No significant flows are expected generally. It is not known what behaviour may be expected of the deeper Permian rocks at the depths predicted (600-1500 m) since cement retention, joint closure or absence, are variable factors, and some units may also act as modest aquifers. Confined conditions could apply in such circumstances, depending on flow paths from the surrounding, more elevated region, but flows will be small unless a large fracture system (or fault) is encountered. In such cases sub-artesian conditions could well occur and the water itself may have raised temperature. No realistic estimate of water quality can be offered at this stage.

Since some of the Permian formations may possess significant porosity water gain, or water loss may occur. This should be monitored and any zones noted should be sealed to avoid contamination – since lateral flow at modest depth is possible from this site.

No significant flows or changes in aquifer conditions have ever been recorded at the base Permian unconformity irrespective of the underlying lithology (whether Cambrian volcanics, Precambrian dolomite, Mathinna Beds, - or Silurian-Ordovician groups for which there is very little deep experience). None of these materials have been associated with high flows at the predicted depths.

There is, however, potential for a sequence of confined aquifer conditions with variable water volumes and quality. Given the location of the site it is highly unlikely that confined conditions will prove artesian and any water level changes will be retained within the well.

Possible seal rocks of the Bell Shale (Devonian) are inferred to depths of about 1880 m beneath a major unconformity. Potential reservoir rocks (Crotty Quartzite) are inferred at 2450 m, and Gordon Group limestones from 2700 m.

The well will be established with safeguards as described in the principal specification document in order to control any run off and seepage at surface. No significant risk, or expectation of flow from the well, exists.

The designed collar configuration should provide adequate retention in essentially unconfined conditions (see Well Plan for casing specifications).

In view of these expectations the well will be completed in the following manner.

- a) Chip and mud logging will be undertaken in association with wire-line logging to identify lithology and unit thickness at those sites where water is either lost or gained during drilling.
- b) Wireline logging observations will be used to estimate porosity and aquifer character – fracture type, grain size or other relevant features.
- c) Water quality will be determined where possible and where samples can be separated.

- d) All significant aquifers, or groups of aquifers in which quality is comparable, will be sealed and separated with plugs. This condition may arise in the Permian section.
- e) Plugs will be placed from bottom up and set from 2 m below the relevant zone to at least 5 m above all confined water, and have a minimum length of 20 m irrespective of aquifer thickness. Bridging plugs will be used to set the main block. Plugs may be composed of concrete, clay grout or cement as required to suit aquifer type of conditions. Low viscosity grouts will be used in fine-grained, low permeability units – as expected in all rock sequences at some stage (especially parts of the Permian and Silurian). Fresh water will be used for all grouts and clay mixes.
- f) Cement grouts will be used for any significant aquifer. Bentonite grouts may be used in other cases.
- g) If no, or negligible, confined water is encountered (as expected) then surface casing will be removed (if possible) and replaced with a cement plug at least 2 m long with a mounded cap about .03 m above ground level. This form of capping will also be used where water is flowing from a shallow, unconfined aquifer, but this condition is not anticipated at this site.
- h) If the water quality is found to vary markedly (salinity variation in excess of 100%) due to the presence of several confined beds or structural zones, then it will be necessary to plug and isolate those which differ, in order to minimise or prevent mixing. Specification of plugs: at least 4 m long across interfaces. This condition is considered unlikely at Bellevue-Lake Echo BV #1.
- j) The hole will be tagged on completion of capping.
- k) The hole report will describe aquifers encountered. Details will include aquifer type, lithology, salinity, depth, yield if known, standing levels, nature of completion (plug locations and capping style).

W Raman

Dr. D. E. Leaman

Date: *21/8/08* .

APPENDIX C – ARCHAEOLOGICAL HERITAGE STUDY



SENIOR CONSULTANT :
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DESKTOP HISTORIC CULTURAL HERITAGE ASSESSMENT

PROPOSED DRILL SITE

SOUTH CENTRAL HIGHLANDS



CONTENTS

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1.0 BACKGROUND

As a part of its oil exploration program throughout the Tasmanian Midlands, Great South Lands Minerals Limited is currently seeking to undertake exploratory drilling in the Lake Echo vicinity in the Tasmanian south central highlands of Tasmania.

2.0 LOCATION AND EXTENT OF ASSESSMENT AREA

The current program requires drilling at a single locality approximately two kilometres north west of Lake Echo adjacent to Snarers Creek.



3.0 METHODOLOGY

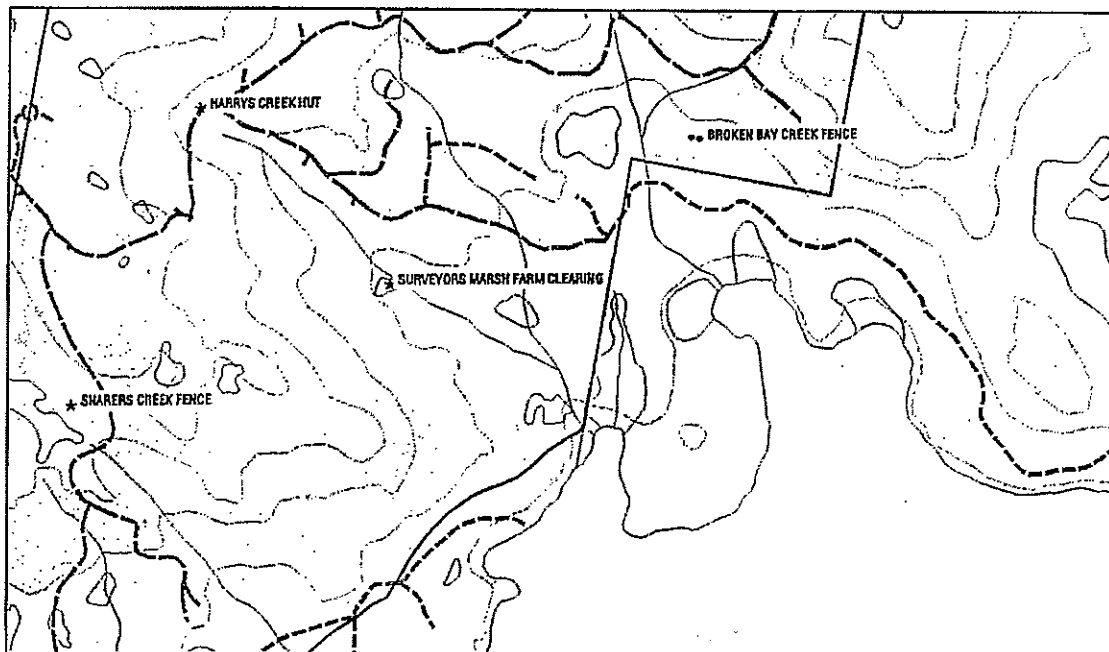
This consultant reviewed relevant documentation held by the majority land manager (Forestry Tasmania).

4.0 PREVIOUS WORK

The principal source of information for this area is a report titled 'An archaeological survey of historic sites in the South Central Highlands of Tasmania by Kostoglou undertaken for Forestry Tasmania in 2000. The location based information for this investigation was derived from extensive field work. Although this was expedited without the use of GPS the grid co-ordinates for located sites are considered accurate to 25 metres.

5.0 SUMMARY OF RESULTS

Based on research conducted for this desktop based investigation, four sites are known to occur within proximity (1 kilometre) to the proposed impact area. Relevant location based information appears below while site summaries appear in Section 6.0 overleaf.



1:25,000 scale map of immediate area surrounding proposed impact zone
showing known historic sites (from Kostoglou 2000)

Tabular summary of known sites (from Kostoglou 2000)				
Site Name	Grid ref.	Site type	Significance	Source
Harrys Creek hut	E 0466800 N 05338950	Pastoral	Medium Local	Kostoglou 2000
Surveyors Marsh farm clearing	E 0468000 N 5338100	Pastoral	Low Local	Kostoglou 2000
Snarers Creek fence	E 0466150 N 5337350	Pastoral	Low Local	Kostoglou 2000
Broken Bay Creek fence	E 469800 N 5338950	Pastoral	Medium Local	Kostoglou 2000

6.0 HISTORICAL CONTEXT

After its initial location by assistant surveyor Thomas Scott in 1823, the area surrounding Lake Echo was successively travelled by several colonial explorers throughout the following 25 or so years. During the early to mid 1850's this land was surveyed into large scale allotments over 500 acres which were only selectively taken up by a small number of large landholders. Associated improvements appear to have been lacklustre and the resident archaeological remains appear to date from the late 19th to early 20th century when these lots were further sub divided and leased by lessees who undertook assorted pastoral and hunting activities. Such marginal activities prevailed until the mid 20th century when selective logging associated with sawmilling was undertaken in the now vacant land. Since the 1970's the relevant Exclusive Forest Permits have been succeeded by large scale logging concessions granted to large scale corporate entities.

7.0 PREDICTIVE SUMMARY

Based on previous work the following predictive statements are considered applicable to the development area.

The resident historical archaeology consists of sites and features associated with small scale pastoral and hunting/snaring activities dating from the late 19th/early 20th centuries. These activities were often undertaken by the same individuals who moved sheep into the highlands vicinity seasonally and trapped game such as wallabies and possums for pelts to supplement their meagre incomes. The mid 20th century saw the incursion of selective timber harvesting and activities related to hydro electricity generation at nearby Lake Echo. The physical archaeological vestiges of such activities include:

- Assorted style timber fences (chock & log or post & rail)
- dry-stone walls erected as lease boundary markers
- dry-stone chimney butts
- dry-stone circular fireplaces
- Small single roomed timber huts
- Timber or dry-stone livestock corrals
- Logging roads and snig tracks

These sites and features have varying levels of cultural significance.

8.0 RECOMMENDATIONS

As a result of this assessment, it is recommended that the drilling program consisting of a single drill hole be allowed to proceed providing that:

- **The drill rig accesses the site on existing roading**
- **That the drilling and associated activities avoid any of the documented historic cultural sites and features described in this report.**
- **That the drilling and associated activities avoid any previously un-documented site and feature types alluded to in Section 7.0 of this report.**
- **That a field inspection of the proposed drill site be undertaken by a qualified archaeologist if any such remains are located prior to drilling.**

9.0 REFERENCES

Kostoglou, P. 2000. An archaeological survey of historic sites in the South Central Highlands of Tasmania. Forestry Tasmania.

APPENDIX D – TAS0323 FOREST PRACTICES PLAN

Forest Practices Act 1985		Forest Practices Plan		FPP No.:	TAS0323-01
Certification Number:	2008-0310			Local File ID:	
Update Type:	Initial	Last edit by:	TAS - Stonjek A	Created on:	25/08/2008
				Updated on:	29/08/2008
<i>It is necessary to read this Forest Practices Plan in its entirety for the specifications required by Section 18(2) of the Forest Practices Act 1985. This Forest Practices Plan authorises forest practices and operations to which it refers on the land specified in the Plan and during the period specified in the Plan, provided that the operations are carried out in accordance with the Plan. This authority is given for the purposes of the Forest Practices Act 1985 only. Those carrying out the operations under the Plan should ensure that they comply with all relevant laws including the conditions of licences, permits and other authorities issued under other laws.</i>					
Coupe Name:	HI131N	Location:	Central Highlands	PTR Number:	0117
Tenure:	Industrial freehold	IBRA 4 region:	Central Highlands	UPI or PID Numbers:	1353
District:	Private Land	Municipality:	Central Highlands	Landowners:	Gunns Limited
Map Sheet:	WADDAMANA : 4633	Grid reference:	485805mE, 5339104mN	Principal Processors:	Gunns Limited
Applicant:	Great South Land Minerals Limited, GPO Box 1603, Hobart Tas 7001, 0418128836				
Parent Rock	1: Jurassic Dolerite (JDL)	Soil Description	1: Red to Brown clayey (RBL)	Stoniness	1: L
	2:		2:		2:
Erodibility Class	1: Low (L)	Majority Slope:	1 deg.	Maximum Altitude:	1070 m
Within town water catchment:	Yes	Within a landscape zone in a Municipal Planning Scheme:	No		
Water Intake:	98 - Derwent R. - Ouse	Known Domestic Water Supply Intake within 2km:	No		
Distance to Intake:	90.0 km	Net Area of Crown Land Reserve:	<not defined>		
Emergency meeting Point:	307 - BRONTE - JCN LYELL HWY & MARLBOROUGH HWY				
Plan certified by:	TAS - Stonjek A	Date certified:	29/08/2008	Plan lifetime:	29/08/2008 - 31/12/2011
				Date notice of intent sent:	22/08/2008
Discrete Operational Phase	Estimated Start Date	Estimated End Date	Details		
Timber Harvesting	01/09/2008	10/09/2008	Minimum Class of Equipment to be used Dry: C1 Wet: C1 Cable: NA		
Roading	01/09/2008	10/09/2008	Main Road Outlet: No Road lengths (km): 1: <not defined> 2: <not defined> 3: <not defined> 4: 0.15		
Reforestation	31/12/2008	31/12/2010			
Reforestation Assessment	31/12/2009	31/12/2010			
Current RPA Forest Community and/or Land Use			Prescription		
Dry E. delegatensis forest (D)			Clearfall followed by Sowing of Native Seed (CF-NF)		
Not Operational Area:	1.10	Total Area to be Reforested:	1.10	Total Area to be Harvested:	1.10
				Total Area of Operation:	1.10

FOREST PRACTICES PLAN

COUPE NAME: C08H131N

FPP NO: TAS0323

A. General

- Forest Practices shall be carried out in accordance with the principles and approaches specified in the Forest Practices Code 2000. All Forest Practices Code mandatory statements ("will" statements) apply whether or not they are referred to below. Other specific requirements set out below are also mandatory.
- All contractors are required to have a copy of this Forest Practices Plan, and any subsequent variations, on site whenever operational activities are occurring
- Operations will not commence until operators have been fully briefed on site by a Gunns Forester.
- All forest operations are to comply with the Fire Services Act 1979 – Regulation 13 (1996), in relation to fire fighting equipment on site. Fire weather monitoring and shutdown procedures for all hazardous forest activities during a Fire Permit Period should be adhered to as per the annually updated Forest Industry Protocols. Hazardous forest activities are defined as any work involving chainsaws, cable machinery, vehicles or tools that come into contact or are close to forest fuels.
- This operation is in the Central Plateau and Upper Derwent Valley region for all fire weather warnings issued by the Bureau of Meteorology.
- To reduce the risk of weed invasion, all harvesting and earth moving equipment entering this coupe will be washed down before leaving their previous location and prior to moving from this operation. Washdown procedures are to follow the "Tasmanian Washdown Guidelines for Weed and Disease Control - Machinery, Vehicles & Equipment".
- Generally slopes within the coupe that will be conventionally harvested and cleared fall into the Flat - Rolling Range (majority slope 0-11 degrees) and standard conventional techniques can be utilised. Therefore the minimum class of equipment to be used on conventional ground in wet weather will be C1.
- The plan also covers the complete clearing and subsequent reforestation of the native forest area as identified on the attached FPP map.

B. Access to the Forest (Roading) (Map attached)

The following details are for access roading for which approximate locations are indicated on the attached map.

(See also section D. Conservation of Natural and Cultural Values and section F. Management of Fuels, Oils, Rubbish and Emissions.)

Person or organisation nominated to assume primary responsibility for management of forest practices under this section of the plan and to identify and mark road lines;
Gunns Limited

INITIALS OF PARTIES TO THE PLAN

LANDOWNER APPLICANT DATE 29/08/08DATE 29/8/08DATE 29/8/08

FOREST PRACTICES PLAN

COUPE NAME: C08H1131N

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- There is 150m of existing spur road that provides access into a disused quarry site to be upgraded from the existing Serpentine main logging road. (identified on the attached map). This will be of class 4 standard and will be gravelled and culverted as required as per Forest Practices Code.
- All road drainage is to be kept clear and functioning adequately throughout the operation by the relevant contractor.
- Roads and tracks will be maintained to ensure a stable running surface and to keep drainage systems operating, including all silt traps and drainage structures that are to be regularly inspected and maintained by clearing accumulated sediment.

C. Harvesting of the Timber

(See also provisions under Streamside Management and in section D. Conservation of Natural and Cultural Values and section F. Management of Fuels, Oils, Rubbish and Emissions.)

General

- The site will be accessed off the main Serpentine Road and linking onto the Marlborough Highway.
- The harvest area will be cleared of standing timber and vegetation in preparation of a drilling site.
- There will be no actual timber extraction as such in the first instance. The few merchantable trees within the site will be processed and stacked to one side for removal at a later date.
- No machinery is not to drive on any of the formed roads without prior permission from Gunns Limited. This includes driving across roads to fuel tankers etc. Any damage resulting to roads from unauthorised use of machinery will be repaired at the relevant contractor's expense.

I. Landings

- There is one *All Weather* landing area that will be used to stockpile the recoverable timber to be loaded out sometime in the future. The approximate location is indicated on the attached FPP map.

Landing area will be located:

1. on well drained site preferably on gently sloping elevated areas.
2. as far as practical away from watercourses and not within 40m of any streamside reserves or machinery exclusion zone, unless specified otherwise in this plan and specific measures are provided to protect water quality.

INITIALS OF PARTIES TO THE PLAN

LANDOWNER [Signature] APPLICANT [Signature] FPP [Signature]
 DATE 29/08/08 DATE 29/8/08 DATE 29/8/08

FOREST PRACTICES PLAN

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FPP NO: TAS0323

- Landing should be kept as small as practicable and will not exceed 0.2ha (40m x 50m) in area.
- Management of fuels and lubricants on the landing will be as per Section F of this plan.

2. *Sng Tracks*

- Not applicable for this operation.

3. *Felling Prescriptions*

General prescriptions

- The harvesting prescription is Clearfall.
- The merchantable trees will all be harvested and processed within the site then stockpiled at the landing area as indicated on the attached map.
- No trees are to be felled across boundaries unless authorised by a FPO for safety reasons. Where a tree accidentally falls over a boundary Gunns forester will make a decision whether the tree will be pulled out or left in place

Specific prescriptions for Fauna species

For Wedge – tailed Eagle,

- If a nest is discovered during the breeding season (August - January inclusive) immediately cease all forestry activity within 500 m of the nest or within 1 km if in line of sight of the nest. The FPA Ecologist and/or DPIW specialist will inspect the nest site and provide advice on appropriate further action as soon as possible.
- If a nest is discovered outside the breeding season (February - July inclusive) cease all forestry activities within 500 m of the nest. The FPA Ecologist and/or DPIW specialist will inspect the nest site and provide advice on appropriate further action as soon as possible. At this time of year in most situations the operation can resume outside the agreed 10 ha nest boundary.

Company Nominated to assume primary responsibility for management of forest practices under this section of the plan and to identify and mark logging area boundaries – Gunns Limited.

4. *Streamside management and special water quality protection measures*

- There are no streams associated with this FPP.

INITIALS OF PARTIES TO THE PLAN

LANDOWNER <u> </u>	APPLICANT <u> </u>	FPO <u> </u>
DATE <u>29/08/08</u>	DATE <u>29/8/08</u>	DATE <u>29/8/08</u>

FOREST PRACTICES PLAN

COUPE NAME: G08H131N

FFP NO: TAS0323

- Care must be taken to avoid spillage when refuelling machines and vehicles, or when filling bulk storages.
- Any significant spillage (20L or more) of any fuel, petroleum product, or any other likely contaminants to be reported IMMEDIATELY to Gunns at Longreach (63 945555) and Department of Primary Industries, Water and Environment (DPIW) by phoning 1800 005 171 as soon as practicable but within 24 hours of the event. Action shall be taken by the contractor immediately to restrict any spillage as soon as it becomes known.
- No servicing or refuelling of equipment, or storage of fuel tankers closer than 40m to any stream.
- If fuel is to be stored on site overnight, it shall be placed in a 'bund area', no closer than 100m to any stream.

Streamside reserve and harvesting boundaries to be marked by -

Person or organisation nominated: **Gunns Limited**

How marked:; Harvest Boundary : Pink flagging tape

Selective Logging area : N/A

Property Boundary: Pink flagging tape

Reserve: Blue flagging tape

Machinery Exclusion Zone: Blue and white striped tape

5. Harvesting Restoration

- There will be minimal harvesting restoration required due to the very few trees that will be actually harvested, approximately 12 – 15 trees. The area is to be completely cleared of all vegetation and be levelled having a gravelled surface for drilling infrastructure and for stability of site machinery.
- Topsoil from clearing of vegetation should where practicable be stockpiled for later spreading in the restoration of the site.

a) Landing

- Adequate drainage should be carried out to reduce puddling and erosion.
- Landing area will be restored as per the forest practices code.
- Rubbish, metal, oil and other foreign material will not be included in either bark or waste wood heaps.

INITIALS OF PARTIES TO THE PLAN

LANDOWNER 

APPLICANT 

FPO 

DATE 29/08/08

DATE 29/8/08

DATE 29/8/08

FOREST PRACTICES PLAN

COUPE NAME: C08H131N

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b) Snig Tracks

- Not applicable for this operation.

c) Roading

- Table drains and culverts will be left functioning adequately at the completion of the operation or if leaving the area for any extended period.
- Any tree heads or debris is to be removed from road verges and batters within 3 meters of table drains.
- Any road maintenance work required to achieve the standards under B – 7 pages 24,25 of the Forest Practices Code 2000 will be undertaken by Great South Land Minerals Limited(GSLM).

e) Other

- All clearing debris is to be contained within the boundaries of the FPP area.
- Any litter associated with the operation is to be removed for disposal at an appropriate municipal tip site or transfer station on a regular basis.
- All petroleum products must be taken from site and disposed of in an appropriate manner.
- All restoration will be done progressively to the standard of the Forest Practices Code.

D. Conservation of Other Values

Prescriptions to manage flora, fauna, geomorphic, soil, archaeological and landscape.

Flora

- All heavy machinery (excluding log trucks) must be thoroughly washed down before entering and leaving operation area to avoid spreading propagules of weed species.
- The area to be cleared will be rehabilitated on the completion of the operation back to native forest.

Fauna***Prescription for the Wedge - tailed Eagle & White Bellied Sea Eagle***

- If a nest is discovered during the breeding season (August - January inclusive) immediately cease all forestry activity within 500 m of the nest or within 1 km if in line of sight of the nest. The FPA Ecologist and/or DPIW specialist will inspect the nest site and provide advice on appropriate further action as soon as possible.
- If a nest is discovered outside the breeding season (February - July inclusive) cease all forestry activities within 500 m of the nest. The FPA Ecologist and/or DPIW specialist will inspect the nest site and provide advice on appropriate further action as

INITIALS OF PARTIES TO THE PLAN

LANDOWNER [Signature] APPLICANT [Signature] FPO [Signature]
 DATE 29/8/08 DATE 29/8/08 DATE 29/8/08

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soon as possible. At this time of year in most situations the operation can resume outside the agreed 10 ha nest boundary.

- There are no known threatened Fauna species known or were located within the operation area. There are however two known Eagle nest sites within 1km line of sight of the access road leading to the site. These have been adequately provided for under FPP MAC1236 with prescriptions within this plan already approved by the FPA. (See dot points below)
- It should also be noted that there will be no actual log carting along this road. There will be two significant vehicle movements involving the delivery of heavy machinery along the road to the site at the initial start - up phase and the withdrawal of same machinery approximately six weeks later. The following prescriptions will apply for the movement of these machines.
 1. The movement of machinery will be restricted to daylight hours and no truck movement is to occur 2 hours before dusk on any given day.
 2. There should be no deliberate stopping of trucks and other vehicles within 1km of the nest sites during the breeding season (August - January inclusive). The section of the road this is to apply to will be clearly marked at either end with pink and black flagging tape.
 3. There is no restriction to the use of the road by maintenance vehicles provided they do not deliberately stop within 1km of the nest sites.
 4. The existing gate near the Marlborough Highway will be utilised to limit unnecessary access.

Prescription for Masked Owl




- Potential nest or roost sites should be included in wildlife habitat clumps where practical. If a suspected nest tree is located during operations, operations should cease within 100 m and the FPP Senior Ecologist notified. Nests are typically located in trees with large hollows and may have evidence of pellets (regurgitated skin/bones) at the base of the tree. As many of the mature paddock trees with large hollows should be retained, particularly where such trees form copses.

Geoscience

- No special prescriptions required.

Archaeological

- No special prescriptions required.

INITIALS OF PARTIES TO THE PLAN		
LANDOWNER 	APPLICANT 	FPO 
DATE <u>27/8/08</u>	DATE <u>29/8/08</u>	DATE <u>29/8/08</u>

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Landscape

- No special prescriptions required.

Water Quality and Soils

- No special prescriptions required.

E. ESTABLISHING AND MAINTAINING FORESTS (REFORESTATION)

See section D on Conservation of other values before undertaking reforestation.

Person or organisation responsible for reforestation and having primary responsibility for management of forest practices under this section of the plan: **GSLM**

General: Requirements of prescribed regeneration works to be carried out on this site will be detailed on a coupe completion notice, at the end of the clearing operation. This is to be completed by an FPO.

The area to be regenerated is approximately 1ha and will be undertaken following the cessation of all drilling activities and removal of the gravel "pad".

Native Forest Regeneration:

Site preparation procedures

- Site preparation machinery is not to drive on any of the formed roads without prior permission from the Gunns forester. This includes driving across roads to fuel tankers etc. Any damage to roads resulting from unauthorised use of machinery will be repaired at the reforestation contractor's expense.
- Damage to the top of road batters will be avoided.
- Gravel used to surface the site should where practicable be removed and stockpiled in a heap on the side of the site for future use.
- Top soil stockpiled, should be spread on cleared site.
- Movement of site preparation machinery across drainage lines is to be minimised.
- Site disturbance from rehabilitation works including surface ripping on removal of gravel should create adequate seedbed. Where necessary, additional disturbance to seedbed may be carried out at the discretion of the supervising FPO.
- Mechanical scarification or ripping will be conducted in dry soil conditions in areas designated by the supervising FPO.

INITIALS OF PARTIES TO THE PLAN

LANDOWNER *[Signature]* APPLICANT *[Signature]* FPO *[Signature]*
 DATE 29/8/08 DATE 29/8/08 DATE 29/8/08

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Burning (eg. planned intensity and timing)

- All burning will be conducted when the summer fire danger period has been lifted or a permit has been obtained from the Tasmanian Fire Service.
- Burning of heaped slash in the cleared area will be conducted at a time where minimal scorch to surrounding trees will be achieved (eg. late autumn / spring).
- Waste wood and bark heaps will be ignited between March and June, depending upon suitable weather conditions. Bark heaps will be inspected at the end of winter or early spring. Any heaps identified with hotspots will be checked again and extinguished prior to the onset of the fire danger period.

Is there a fire management plan for this area? YES / NO

Bronte Special fire area FMP

Sowing or planting treatments (artificial sowing, seed zone, natural regeneration, retained growing stock, planting etc):

- Seed Zone for the coupe is **H56**
- Sowing is to be carried out as soon as possible after burning, ripping or scarification.
- The seed species mix is to be in accordance with the proportions of eucalypt species occupying the coupe area. That is:

E.Del	100	%	@	0.3	Kg/Ha
-------	-----	---	---	-----	-------
- If H56 seed is unavailable then seed from an alternative is to be used (refer to pages 61-2 of Forestry Commission of Tasmania Technical Bulletin No1 1991 for alternative seed supply zones).
- A sowing plan will be developed for the coupe where artificial seeding is required.
- Sowing rates should be as per Forestry Tasmania Technical Bulletin No. 1, pages 12 - 13 for moderately favourable conditions.

Weed control

- Monitoring of weeds will be undertaken and problems will be addressed as they are identified on all Freehold land.

Restoration

- All firebreaks should be constructed at the appropriate distance from stream reserves, utilities, and other exclusion zones, and will be drained as per Table 6 (Maximum Spacing between Cross Drains on Snig Tracks) of the FPC 2000

INITIALS OF PARTIES TO THE PLAN

LANDOWNER

APPLICANT

FPO

DATE 29/08/08

DATE 29/8/08

DATE 29/8/08

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- If necessary at completion of operations, the road will be graded, to provide a surface profile that will effectively drain the road pavement. Table drains, culverts and trafficable grips shall be left clear and functioning at completion or when leaving the area for an extended period.
- Any road maintenance work required after the completion of the reforestation phase, and not able to be completed by the reforestation contractor, will be noted on the Native Forest Establishment Compliance Checklist for further action by Gunns Limited.

Protection of growing stock

Fire protection (e.g. fire breaks and fire management on adjoining land)

- Forest fuels created during operational activities of this plan will be managed in accordance with the relevant forest establishment phase of this FPP.
- Any wildfire which occurs on the property during the period of this plan will be dealt with in accordance with the Gunns Limited Tamar Fire Plan, and as directed by Tasmania Fire Service.

Browsing (eg monitoring and control treatments)

- Appropriate control methods will be identified if browsing impacts on regeneration establishment. These methods may include but not limited to shooting, trapping, fencing or 1080 poison programs. The use of any of the programs will be carried out in accordance with permit conditions issued by PWS and DPIW respectively.

E2. ASSESSMENT OF REFORESTATION

Native Forest Regeneration:

Stocking standards

- A sapling survey will be carried out approximately 12-to 24 months following sowing and or harvesting in accordance with standards specified in Forestry Tasmania Technical Bulletin No 6, 2003.
- For optimum wood production, the coupe should have at least 65% of 12m² plots, stocked with acceptable seedlings, in accordance with standards specified in Forestry Tasmania Technical Bulletin No.6 2003.
- Any consolidated area >2ha in size that is shown to be understocked, should have remedial treatment operations done on the area in question.

Survey to be organised by: GSLM	by 31/12/10:
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INITIALS OF PARTIES TO THE PLAN

LANDOWNER G.L.APPLICANT PSFPO [Signature]DATE 29/08/08DATE 29/8/08DATE 29/8/08

FOREST PRACTICES PLAN

COUPE NAME: C08H1131N

FPP NO: TAS0323

F. Management of Fuels, Oils and Rubbish***Use of fuels, oil and grease:***

- All fuel, oil or grease will be stored in a bunded area. This bund is to be constructed so that it can contain any spill (up to 1000l) and prevent and reduce the flow and/or movement of the substance. For example a bund 2.5m x 2.5m x 0.2m deep would be adequate.
- Bunded areas and sites for equipment refuelling will be located at least 40 metres from any watercourse to minimise the adverse effects on water quality in the event of any spillage.
- Equipment will be maintained so that fuel and oil leaks are minimised.
- Any spill will be contained as soon as possible.
- Spills that cause or threaten to cause serious environmental harm will be reported to the DPIW (phone: 1800 005 171) as soon as practical but within 24 hours of the spill occurring. A Gunns Limited supervisor will also be contacted as soon as possible.
- Any machinery maintenance should be undertaken in a bunded location, at least 40 metres from any water course, if it is possible that fuel, oil or grease could be spilt.

Disposal of Rubbish:

- All rubbish of a non forest nature, will be removed from the site and taken to the nearest municipal waste transfer station that adheres to local government environmental guidelines.

INITIALS OF PARTIES TO THE PLAN

LANDOWNER		APPLICANT		FPO	
DATE	<u>29/08/08</u>	DATE	<u>29/8/08</u>	DATE	<u>29/8/08</u>

FOREST PRACTICES PLAN

COUPE NAME: C08H131N

FPP NO: TAS0323

MAPS TO SHOW*(separate maps may be required for different operations, such as harvesting and reforestation)*

- Contours, scale, north direction.
- Boundary of FPP.
- Property boundaries
- Operational boundaries:
- Harvesting boundaries
- Reserves
- Sites of natural and cultural significance.
- FPP No.
- Stream management including marked boundaries of streamside reserves and class.
- Stream crossings
- Snig track direction
- Landings
- Existing and proposed roads and proposed major upgrading including borrow pits.
- Section boundaries including wet/dry logging areas, cable/conventional logging, reforestation treatments such as burning sowing, windrowing, cultivating planting and areas to be reserved.
- Additional information as applicable.
- Scale: 1:10 000 preferred , 1:25 000 minimum
- Key symbols to be used.

Distribution

- Original File X 1
- Gunns Limited X 1
- Landowner X 1

Forest Practices Officer (Planning)

Certified by (signature):

Date: 29/8/08

Name:

L. J. STOUT

Pursuant to a delegation from the Forest Practices Authority under section 43 of the *Forest Practices Act 1985*.**INITIALS OF PARTIES TO THE PLAN**

LANDOWNER

APPLICANT

FPO

DATE

29/8/08

DATE

29/8/08

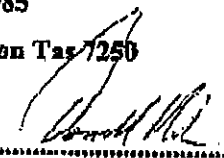
DATE

22/8/08

Acknowledgement form 1

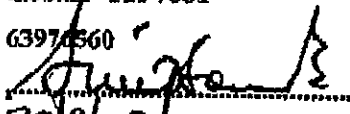
**ACKNOWLEDGEMENT OF PERSONS/ORGANISATIONS IN RELATION TO
FOREST PRACTICES PLAN No TAS0323****1. Landowners consent**

I am the owner of the land or the authorised agent of the owner of the land referred to in the attached Forest Practices Plan No TAS0323 and have given my approval for the plan to be submitted to the Forest Practices Authority for certification under section 19 of the *Forest Practices Act 1985*. I understand that, under section 25C of the *Private Forests Act 1994*, if I am a private landowner, I may be required to pay a levy to Private Forests Tasmania based on the nett area of forest operations under the plan.

Name	Guins Limited
Address	PO Box 985 Launceston Tas 7250
Phone	63945555
Signature	
Date	29/08/08

2. Acknowledgement of applicant

I submit the attached Forest Practices Plan No. TAS0323 to the Forest Practices Authority and apply for its certification. I acknowledge that I understand the provisions of the plan, and that I am responsible for ensuring that the plan is complied with unless otherwise stated in the plan. I understand that I am responsible for the lodgment of interim compliance reports with the Forest Practices Authority within 30 days of the completion of each discrete operational phase* under the plan; and further, for the lodgment of a final compliance report with the Forest Practices Authority within 30 days of the expiry of the plan. I understand that under sections 18(4A) and 18(4B) of the *Forest Practices Act 1985*, I must pay a prescribed application fee at a time, and in a manner, determined by the Authority.

Name	
Company or other entity	Great South Land Minerals Limited
Address	GPO 1603 Hobart Tas 7001
Phone	63976560
Signature	
Date	29/8/08

*Discrete operational phases under this plan include (tick box against each forest practice proposed):




- | | |
|---|---|
| <input checked="" type="checkbox"/> Road construction | <input checked="" type="checkbox"/> Assessment of reforestation |
| <input type="checkbox"/> Tree fern harvesting | <input type="checkbox"/> Tree clearing |
| <input checked="" type="checkbox"/> Timber harvesting | <input type="checkbox"/> Quarry operation |
| <input checked="" type="checkbox"/> Forest establishment (including reforestation, i.e. restocking land with trees) | |



Acknowledgement form 2

Acknowledgement of persons or organisations with primary responsibility for management of forest practices*

Each of the undersigned acknowledges that as an individual/authorised representative of a company or other entity, they are that entity is the person responsible for the forest practice to be conducted under Forest Practices Plan No TASN323 that appears to the immediate left of that signature. It is understood that this responsibility does not include the day to day oversight of contractor employees, which is the responsibility of the individual contractors.



Forest practice	Signature	Date	Name	Company or other entity	Address
Road construction		29/08/2008	PHIL AUSTIN	Gunns Limited	PO Box 985 Launceston 7250
Tree fern harvesting					
Timber harvesting		29/08/08	DARRELL CLARK	Gunns Limited	PO Box 985 Launceston 7250
Forest establishment		29/08/08	PHILLIP SIMPSON	Great South Land Minerals	GPO Box 1603 Hobart Tas 7001
Assessment of reforestation				Great South Land Minerals	GPO Box 1603 Hobart Tas 7001
Tree clearing					
Quarry operation					

* This form does not need to be completed if the applicant to the FPP is also the person responsible (as above) for all forest practices to be undertaken.

Acknowledgement form 3

Acknowledgement of persons or organisations with specific responsibilities under Forest Practices Plan NoTAS0323

As an individual/authorised representative of a company or other entity, I acknowledge that I accept/that entity accepts responsibility for undertaking the activity specified in Forest Practices Plan No. TAS0323 that appears to the immediate left of my signature.

Activity specified in Forest Practices Plan	Signature	Date	Name	Company or other entity	Address
Marking of proposed road locations		29/8/2008	PHIL AUSTIN	Gunnas Limited	PO Box 985 Launceston 7250
Marking of harvesting and reserve boundaries		29/8/2008	PHIL AUSTIN	Gunnas Limited	PO Box 985 Launceston 7250
Marking of reforestation boundaries					
Organising an Aboriginal archaeological survey					


* This form does not need to be completed if the applicant to the FPP accepts the responsibility for undertaking the activities listed.

Acknowledgement form 4

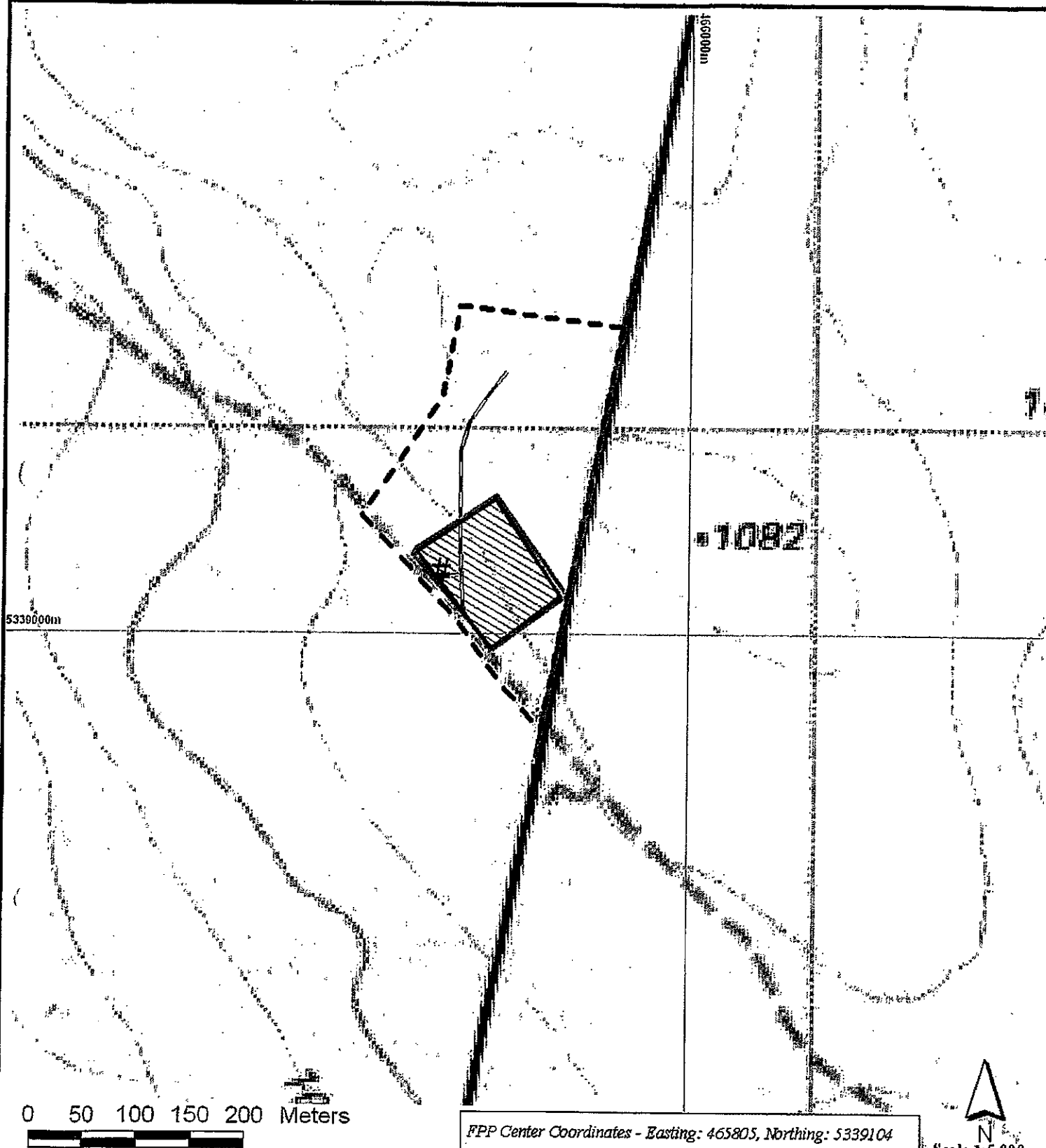
Acknowledgement of persons or organisations operating under Forest Practices Plan No. TAS0323

Each of the persons whose signature appears below hereby acknowledges that:

- (i) if he or she is signing as a representative of a company or other entity, then he or she is an authorised representative of that company or other entity;
- (ii) he or she understands the provisions of the above plan relevant to his or her operations and / or to the operations of the company or other entity of which he or she is the authorised representative;
- (iii) he or she understands his or her obligation and / or the obligation of the company or other entity of which he or she is the authorised representative to comply with the above plan; and
- (iv) he or she understands his or her obligation and / or the obligation of the company or other entity of which he or she is the authorised representative to ensure that his or her servants or agents and / or the servants and agents of that company or other entity are aware of the provisions of the above plan and of their obligation to comply with those provisions.

Person/organisation responsible for....	Signature	Date	Name	Company or other entity	Address
Road construction		29/8/2008	PHIL AUSTIN	Gunns Limited	PO Box 985 Launceston 7250
Tree fern harvesting					
Timber harvesting					

Coupe: HI131N



HI131N

Mapsheet: Waddamana (4633)

Key:

Forest Practices Plan Boundary

Operational Boundaries:

Property Boundary

Harvest Boundary

Landing Features:

Dry Season Landing

Road Features:

Class 4 Road

Special Features:

Area to be cleared

Coupe: HI131N

Location: Serpentine

EMP: 307

Harvest Area: 1.1 ha

FCS
GDA94 Data: 29/08/2008

FPO Initials: _____

Forest Practices Act 1985		Forest Practices Plan		FPP No.: TAS0323-01
Certification Number: 2008-0310				Local File ID: -
Update Type: Initial	Last edit by: TAS - Stonjek A	Created on: 25/08/2008	Updated on: 29/08/2008	

It is necessary to read this Forest Practices Plan in its entirety for the specifications required by Section 18(2) of the Forest Practices Act 1985. This Forest Practices Plan authorises forest practices and operations to which it refers on the land specified in the Plan and during the period specified in the Plan, provided that the operations are carried out in accordance with the Plan.

This authority is given for the purposes of the Forest Practices Act 1985 only. Those carrying out the operations under the Plan should ensure that they comply with all relevant laws including the conditions of licences, permits and other authorities issued under other laws.

Coupe Name: HI131N	Location: Central Highlands	PTR Number: 0117
Tenure: Industrial freehold	IBRA 4 region: Central Highlands	UPI or PID Numbers: 1353
District: Private Land	Municipality: Central Highlands	Landowners: Gunns Limited
Map Sheet: WADDAMANA : 4633	Grid reference: 465805mE, 5339104mN	Principal Processors: Gunns Limited
Applicant: Great South Land Minerals Limited, GPO Box 1603 , Hobart Tas 7001, 0418128838		

Parent Rock 1: Jurassic Dolerite (JDL)	Soil Description 1: Red to Brown clayey (RBL)	Stoniness 1: L
2:	2:	2:

Erodibility Class 1: Low (L) 2: Majority Slope: 1 deg. Maximum Altitude: 1070 m

Within town water catchment: Yes	Within a landscape zone in a Municipal Planning Scheme: No
Water Intake: 98 - Derwent R. - Ouse	Known Domestic Water Supply Intake within 2km: No
Distance to Intake: 90.0 km	Net Area of Crown Land Reserve: <not defined>

Emergency meeting Point: 307 - BRONTE - JCN LYELL HWY & MARLBOROUGH HWY

Plan certified by: TAS - Stonjek A	Date certified: 29/08/2008	Plan lifetime: 29/08/2008 - 31/12/2011	Date notice of intent sent: 22/08/2008
------------------------------------	----------------------------	--	--

Discrete Operational Phase	Estimated Start Date	Estimated End Date	Details
Timber Harvesting	01/09/2008	10/09/2008	Minimum Class of Equipment to be used Dry: C1 Wet: C1 Cable: NA
Roading	01/09/2008	10/09/2008	Main Road Outlet: No Road lengths (km): 1: <not defined> 2: <not defined> 3: <not defined> 4: 0.15
Reforestation	31/12/2008	31/12/2010	
Reforestation Assessment	31/12/2009	31/12/2010	

Current RFA Forest Community and/or Land Use	Prescription	Ha
Dry E. delegatensis forest (D)	Clearfall followed by Sowing of Native Seed (CF-NF)	1.10
Net Operational Area: 1.10	Total Area to be Reforested: 1.10	Total Area to be Harvested: 1.10
		Total Area of Operation: 1.10

APPENDIX E – ACOUSTICS REPORT

Great South Land Minerals oil/gas drilling project 2007-2008

Field report for noise monitoring of Moomba (SA) drillsite locations

General

Great South Land Minerals Limited has proposed a drilling program in search of oil/gas resources in Tasmania. Current drilling operations in the Cooper Basin oil/gas fields west of Moomba, SA provided a preview opportunity for assessing likely noise incursion that may be expected in Tasmanian operations. Hunt Energy Rig #2 was in operation, and the subject of this examination. Local staff advised that Rig #3 was to be used in Tasmania, and that it was regarded as being a quieter unit than Rig #2.

Field noise monitoring locations (140 km drive west of Moomba) were visited 6-7/3/2008 for operational noise measurements, and included site, weather and noisescapes observations. Fieldwork was undertaken over the times: 18:00-22:00, 22:20-23:20, 06:30-07:00 and 07:40-09:10.

Unfortunately, the Rig was not fully operational for much of the window of opportunity of this visit. Furthermore, the site visit was truncated due to sudden vehicle transport shortage and necessity of meeting airline timetable for travelling drilling staff. These constrained the scope of measurements and observations.

Acknowledgements

Great South Land Minerals Limited (Duncan New) kindly arranged the logistics for this valuable opportunity. While we failed to note all names and affiliations, we are indebted to the Hunt Energy camp staff and site crew for considerate hosting. We appreciate discussions with foreman Michael Coleman and geologist Les Burgess (who also loaned us his 4WD), and cooperation of Mick Ommundson (OH&S). We thank the camp staff for comfortable accommodation, and the chef/cook for excellent fare, and Peter Slade for safe driving from Moomba. We also enjoyed hospitality of Santos cafeteria staff at Moomba.

Instruments used

- Brüel & Kjær Statistical Noise Analyser Type 4426 s/n 957489, Laboratory Certified October 2007;
- Brüel & Kjær Level Recorder Type 2306;
- Brüel & Kjær Precision Integrating Sound Level Meter Type 2218 s/n 784345, with
Brüel & Kjær Octave Filter Set Type 1613 s/n 643248, both Laboratory Certified December 2006;
Brüel & Kjær 1/3 Octave Filter Set Type 1616 s/n 661719, Laboratory Certified December 2006;
- Brüel & Kjær Sound Level Calibrator Type 4230 s/n 1207368, Laboratory Certified December 2006;
- Brüel & Kjær Precision Sound Level Meter Type 2232 s/n 1129761, Lab. Certified December 2006;
- Brüel & Kjær Noise Dose Meter Type 4436 s/n 1628859, Laboratory Certified June 2006;
- Weather Instruments (Aneroid barometer, Zeal Wet/Dry bulb Psychrometer, Suunto KB-14/360R compass, Kaindl Windmaster 2 wind speed meter);
- Fibreglass measuring tape

Notes on individual noise monitoring locations - Hunt Energy Rig #2

Location 1 (850 m south of Rig #2)

This was a line-of-sight location part way up a dune 850 m from the drill rig at 170° magnetic bearing, separated by low sandy flats. The Rig and Location were some 5 m above the flats.

Detailed measurements are tabulated and graphed.

Noises noted include:

- Drilling operations
- Pump and generator operations
- Tanker and other vehicles
- Crickets
- Breeze at times

Location 2 (250 m south of Rig #2)

This was a line of sight location on the far side of a trench on the flats 250 m south of the drill rig.

Detailed measurements are tabulated and graphed.

Noises noted include:

- Clangs – 50 dB(A) Impulse, 60 dB(A) Impulse
- Horn toot – 62 dB(A) Impulse
- Crane lifting – 50 dB(A)
- Pump and generator operations
- Crickets
- Breeze

Location 3 (12.5 m east of Compressor)

The release of air was measured, facing the compressor 12.5 m away:

- Initial burst $L_{max}=101.3$ dB(A)
- Average of release $L_{max}=93.6$ dB(A)

Location 4 (40 m east of line of main motors)

Various noise events were measured at this monitoring site, located 40 m from the main rig motors, mud pumps and generators, 30 m from the sub base of the rig.

Noise events:

- Clank – L_{max} exceeded 94 dB(A) instrument limit
- Air tugger – L_{max} 80.5 dB(A)
- Average operating noise - 72.6 dB(A)
- Drilling friction noise - 74.3 dB(A)
- Loader start (20 m away) – 95.2 dB(A)
- Tanker
- Vehicles

Main noise sources operating continuously:

- 2 x rig drive motors
- 2 x mud pumps
- 2 x generators
- compressor

Detailed measurements included noise dose analysis; tabulated and graphed.

Notes on noise monitoring - Hunt Energy Camp

Various positions around the camp were examined. The camp is home to workers for 2-3 weeks at a time. Sound sleep is conducive to safe work.

Situation	Distance from Generator housing, m	Noise level, dB(A)
Inside generator housing	-1	101.5
Outside generator housing door	1	85.0
Camp corridor	5	74.4
Road side of generator	5	70.2
Rear side of generators - exhaust direction	5	80.5
Trench side of generators	5	70.4
Camp corridor - start of dormitory	18	66.0
Camp corridor - outside dormitory room "O"	38	61.5
Inside centre room "O" - aircon ON		47.5
Inside centre room "O" - aircon OFF		37.0
Inside centre room "O" - aircon OFF, snoring ON		48
Inside crib room - ambient - refrigeration, radio, fans, outside hum incursion etc		57
Inside crib room - chef whipping cream		69

Sleeping areas exceed noise levels expected for a rural/remote location.

Measures recommended for reducing camp noise from generators

1. Install Secondary mufflers or replace with Residential muffler
2. Line inside of housing with acoustic materials
3. Increase Generators distance from camp
4. Place Generators behind mound to provide intervening barrier
5. Install wooden skirt under front of housing

Notes on noise monitoring - aircraft travel

Workers commute by air to Moomba from Adelaide each 2-3 weeks. Noise dose analysis was undertaken during the National Jet flight which included a turnaround before landing. Results are tabulated and graphed.

**Statistical distribution summary table of noise and event data
Hunt Drill Rig #2, Moomba western exploration area, SA, 6-7/3/2008**

Location	1	2	1	1
Location distance from Rig #2	850	250	850	850
Date	6/3/08	6/3/08	7/3/08	7/3/08
Time	19:39	21:01	8:14	8:42
Duration, minutes	15	1	15	15
Samples	9000	1	9000	9000
Drill operating	no	no	yes	yes
Mud pumps	yes	yes	yes	yes
Generators	yes	yes	yes	yes
Compressor	yes	yes	yes	yes
Noise level, dB(A)				
L1	39.3		51.3	40.3
L2	38.5		50.8	39.5
L5	37.5		50	38.3
L10	36.5		49.3	36.8
L20	35.3		48.0	35.3
L50	33.3		44.3	32.8
L90	31.0		40.0	30.5
L99	29.0		38.5	29.8
Leq	33.9	42.6	45.6	34

Partial log of movements – Mick Ommundson 6/3/2008

Time	Situation (Hunt Energy Rig #2)
19:00	Drill floor running in drill collars ¹
19:07	Draw works Engine # 1 lifting elevators
19:18	Draw works Engine #1 lifting D/C
19:20	Standing in front of shale shakers
19:22	Agitator motor
19:24	Mud pump #2 idle
19:25	Mud pump #1 idle
19:26	Gen #1 back of
19:27	Gen #1 front of
19:28	Gen #1 besides
19:29	Screw compressor
19:30	Smoke stack

Weather records for site visits

Date	6/3/2008	7/3/2008	7/3/2008
Location	1	1	Moomba
Time	19:40	8:20	14:30
Temp °C	33	24	36
Relative Humidity %	21	37	21
Pressure hPa	1012	1017	
Wind speed average m/s	1.0	calm	
Wind speed maximum m/s	2.2		
Wind direction	SE		
Cloud cover x/8	0	0	0

Statistical distribution of noise – noise dose measurements

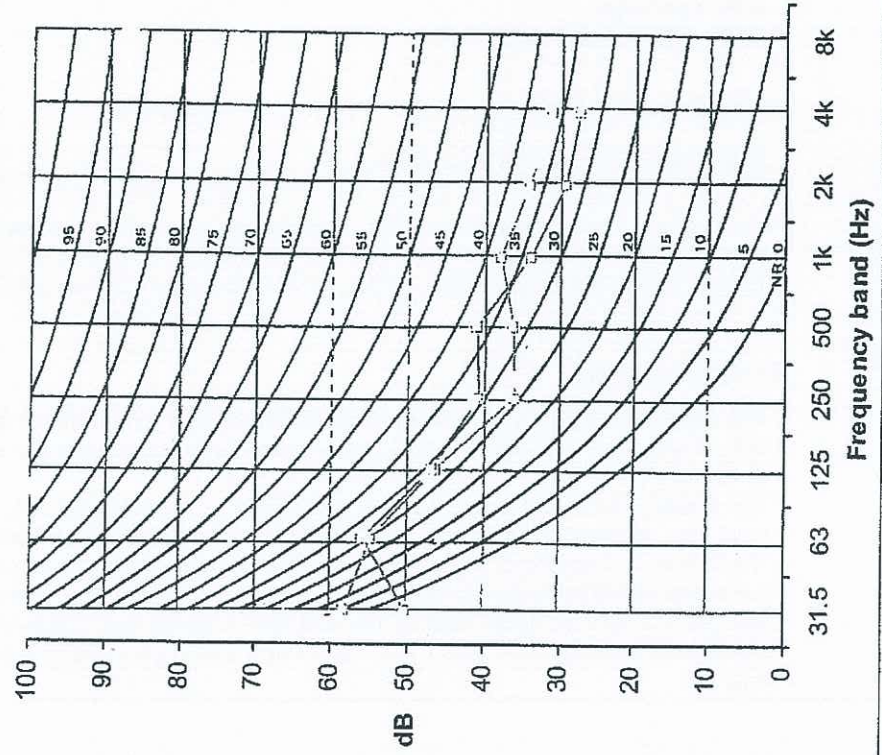
Person	Michael Lichon	Mick Ommundson	Pearu Terts
Area	BAe146 AVRO RJ seat 11B	Drill Rig work	30-40 m from Rig motors
Date	6/03/2008	6/03/2008	7/03/2008
Time	14:41-15:26	18:45-21:42	9:05-9:08
Duration minutes	45	177	3
Leq dB(A)	79.6	87.8	76.9
Exceed 140 dB(A)	no	no	no
Exceed 115 dB(A)	no	no	no
Lmax	90.8	105.4	85.9
Pmax	117.1	134.3	117.9
SEL	113.7	127.9	99.8
Dose % daily	3	71	0
Dose % 8 hour	29	193	15
P_a^2h	0.03	0.72	0
$P_{a(8\text{ hour})}^2h$	0.29	1.95	0.16
LEP,d	79.6	87.8	76.9
PSEL	69.1	83.3	55.2
Distribution			
% 50 dB(A)		0	
% 55 dB(A)		3.9	
% 60 dB(A)	0	9.8	
% 65 dB(A)	6.6	3.2	0
% 70 dB(A)	3.6	9.3	17.5
% 75 dB(A)	58.6	17.3	77
% 80 dB(A)	27.2	24.8	5
% 85 dB(A)	3.8	24.3	0.5
% 90 dB(A)	0.1	4.5	0
% 95 dB(A)	0	1.4	
% 100 dB(A)		1.3	
% 105 dB(A)		0.3	
% 110 dB(A)		0	
Cumulative Distribution			
% 50 dB(A)	100	100	100
% 55 dB(A)	100	100	100
% 60 dB(A)	100	96.1	100
% 65 dB(A)	100	86.3	100
% 70 dB(A)	93.4	83.1	100
% 75 dB(A)	89.8	73.8	82.5
% 80 dB(A)	31.2	56.5	5.5
% 85 dB(A)	4	31.7	0.5
% 90 dB(A)	0.2	7.4	0
% 95 dB(A)	0	2.9	
% 100 dB(A)		1.5	
% 105 dB(A)		0.2	
% 110 dB(A)		0	

Octave spectral distribution – Hunt Rig #2

Summary table

Location	Loc 2,	Loc 1,
Date	6/03/2008	7/03/2008
Time	21:00	8:20
Duration	30 s Leq	30 s Leq
A	41.9	41.3
C	58.1	56.5
Lin	60.2	57.5
Duration	30 s Leq	30 s Leq
31.5	58.3	50.2
63	54.8	55.9
125	46.3	46.9
250	36.1	40.8
500	36.2	40.9
1k	37.8	33.8
2k	34.2	29.3
4k	31.1	27.4
8k		

Octave band noise spectra
Hunt Rig #2, Moomba field, SA, 6-7/3/2008





VIPAC ENGINEERS & SCIENTISTS

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PO Box 476, Rosny Park, Tasmania 7018 AUSTRALIA
Telephone (+61 3) 6244 5556, Facsimile (+61 3) 6245 9200, www.vipac.com.au

Great South Land Minerals
GPO Box 1603
Hobart Tasmania 7001

25 August, 2008

3149_03

Attention: Paul Heath

Bellevue – Noise Level Assessment

Great South Land Minerals (GSLM), is proposing to conduct exploration drilling at Bellevue in the Central Highlands. As part of the development application a noise assessment of the area is required. This letter describes the noise survey conducted by Vipac during the previous 4 weeks.

SITE DESCRIPTION

The exploration drilling will use a mobile drill rig similar to that shown in Figure 2. The rig comprises a drill mounted on the back of a truck, with an auxiliary air compressor unit providing additional air for the drilling operation.

The drilling site is nominally located at 465 660E, 5 338 904N (AGD66), which places it on a relatively level area adjacent to Serpentine Road at the southern extremity of Gunns Ltd. property bearing North North West of Lake Echo. The ridge slopes down on the south east quarter to Lake Echo. Six eagle nests have been identified within around 5 km of the drill site. Five of the nests are on steeply sloping hill sides and as such have no direct view of the drill site. A single nest 3.2km to the south west is on a gently sloping hill and may have direct view of the drill site. Figure 3 shows the general area surrounding the drill site.

NOISE LEVELS

Two sets of noise measurements have been made, one at the drill site to establish what the background or ambient noise levels are in the absence of any drilling, and a second set around the drill rig proposed for use at the site to enable calculation of the drill rig sound power level. An acoustic model of the Bellevue drill site has then been built using contour levels at 10m spacing to describe the local terrain and the calculated drill rig sound power level as the source noise level. The model then predicts the sound pressure level in the surrounding area, the output being a noise level contour map of the area. For this work, the most favourable noise propagation weather conditions were assumed, ie. a light wind from source to receiver.

The background measurements were made over a period of 4 days, the sound level meter logging full statistical data and 1/3 octave spectra using a 15 minute interval time. The measured data is summarised in Figure 1 and Table 1.

Sound Pressure Level, dBA		
L10	L90	Leq
34	30	33

Table 1: Summary of Ambient Noise Levels at Bellevue

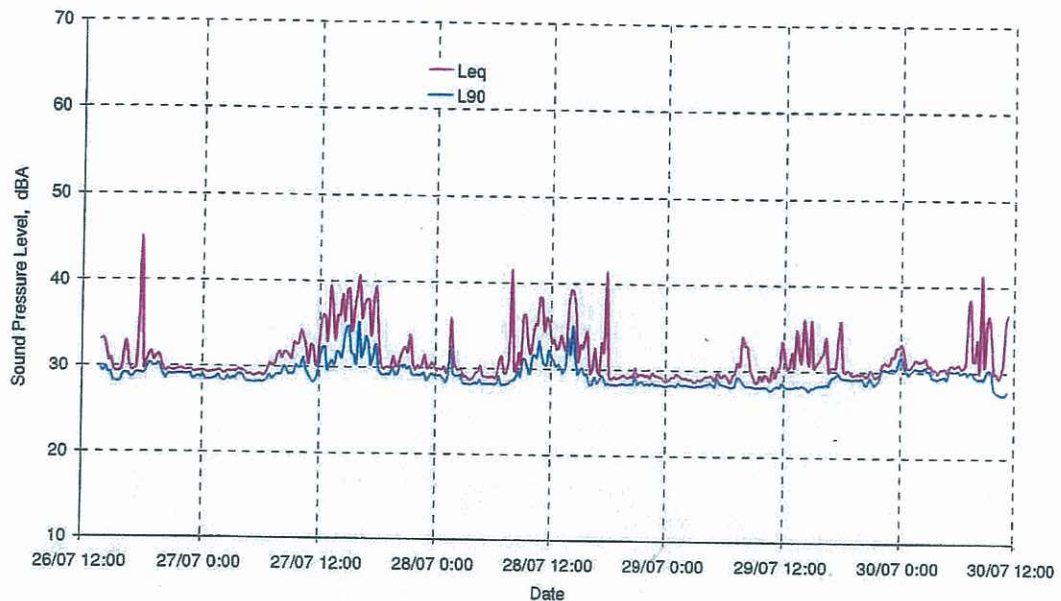


Figure 1: Bellevue Ambient Noise Trend

The predicted noise levels from the acoustic model are shown in Figure 4. *The drill rig noise at the eagle nest locations are predicted to be 25 dBA or less* which is below the existing ambient noise levels of 30 to 33 dBA.

Noise levels from the drilling operation will be clearly perceivable by humans when they are 5 dB above background, which at Bellevue will be around 35 dBA. This contour is highlighted on the contour map by a solid red line. All Eagle locations are outside this area.

Should you have any queries, please do not hesitate to call this office directly.

Yours faithfully

VIPAC ENGINEERS & SCIENTISTS LTD

Bill Butler



Figure 2: Mobile Drill Rig



Figure 3: Ariel View of the Drill Site

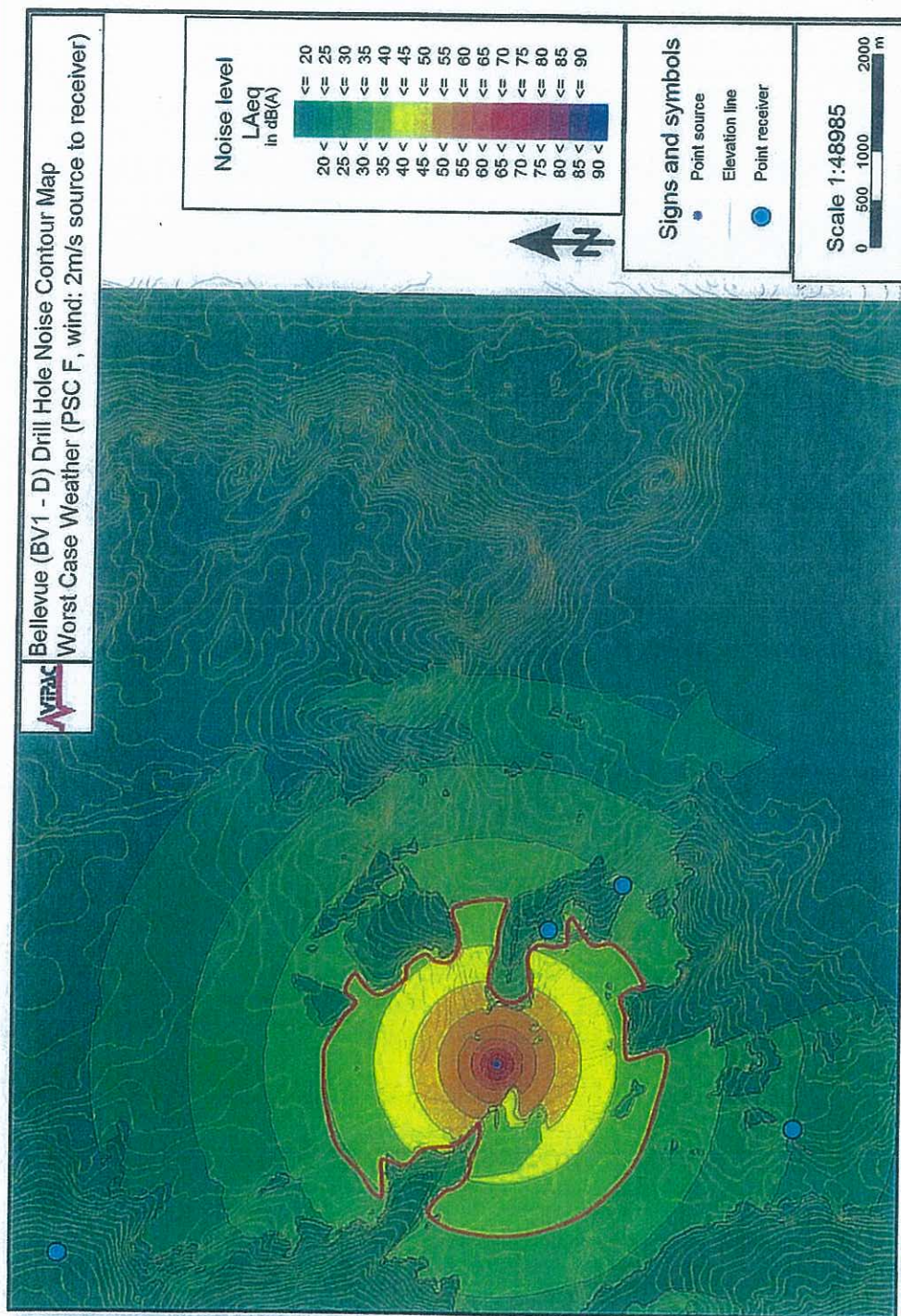


Figure 4: Noise Contour Map – Predicted Drill Rig Noise Levels

APPENDIX F – WEDGE-TAILED EAGLE NEST LOCATIONS

APPENDIX G – ABORIGINAL HERITAGE SURVEY REPORT – BELLEVUE

This report describes the results of a Survey for Aboriginal Heritage in relation the proposed construction of a drill site at Bellevue in the Central Highlands of Tasmania.

The purpose of the survey is to identify and note any previously recorded Aboriginal sites within the survey area.

The writer, Rocky Sainty carried out the survey on 23 & 28th August 2008 at the request of Shane Bartel of Great Southern Land Minerals Ltd.

BACKGROUND INFORMATION

Prior to European occupation this area and its surrounds was used regularly by Aborigines. A number of Aboriginal placenames have been recorded for country all across Tasmania.

The people of this area consisted of small clans or family groups, who frequented specific sites within the surrounding country (including the waterways) for food harvesting, camping, trade and ceremonial purposes.

The Tasmanian Aboriginal Site Index (TASI) at Aboriginal Heritage Tasmania of the Department of Tourism Arts and Environment was inspected by Great Southern Land Minerals Ltd. in order to determine if any Aboriginal sites had previously been recorded within the Study Area or surrounding area. This research also assists in developing an understanding of the nature of any sites in the general area and also allows a review of any previous studies in the area of field survey. The inspection of the TASI revealed that there have been no Aboriginal sites previously recorded within the Study Area. The search revealed however that there have been numerous Aboriginal sites recorded within the country around the Central Lakes area.

Section 3 FIELD METHODS

The writer surveyed the area of the proposed works. Phil Simpson of Great Southern Land Minerals was also present. Ground visibility was poor due to sections of thick native vegetation and snow cover.

Section 4 RESULTS

No Aboriginal sites were found within the proposed site development area (Study Area).

Section 5 RECOMMENDATIONS

As no Aboriginal sites were found within the Study Area the writer recommends that works can proceed. However, should any Aboriginal cultural material appear, once works begin works are to cease immediately and the Tasmanian Aboriginal Land and Sea Council be contacted

As contained under Section 14 (1) of the *Aboriginal Relics Act 1975*:



“Except as otherwise provided in this Act. No person shall, otherwise than in
accordance with the terms of a permit granted by the Minister on the recommendation
of the Director --

destroy, damage, deface, conceal or otherwise interfere with a relic.”



BELLEVUE 1 (EL 14/2009)

Ground Elevation = 1070 m (approx)

Rig: Hilti Rig 3														Easting: 465,904 mE AMG Zone 55)		Ground Elevation = 1070 m (approx)	
Mt MD (RT)	Potential Targets	LITHO-LOGY	P A	WELL SCHEMATIC	CASING/ WELLHEAD	CEMENTATION	DRILLING FLUID	EVALUATION	WELL DATA	PROVISIONAL BIT PROGRAM	BHA Data	FLOW RATE	GENERAL COMMENTS				
250		Dolerite	17 1/2" Hole	13 3/8" Csg	SURFACE CASING 13 3/8" csg 0 - 350m (approx) 56lb/ft K55 BTC (Not confirmed) Two joint shoe track. Air drill surface hole as deep as possible or until Hornfels unit	SURFACE CASING Lead to surface: 30% excess, Wt 11.8 ppg, liquid additives Tail to 120m above shoe: 30% excess. Wt 15.8 ppg. Displace with mud	SURFACE HOLE Air drill to approx 350m Displace with mud prior to moving mineral rig off location Use Gel spud mud to clean out hole prior to running casing.	SURFACE HOLE Gas detector and mudlogging unit may be run IF REQUIRED	20" Conductor set 10-15m below cellar floor. in top of the Dolerite	10m - 350m 17 1/2" Hamer bits as required	Air drilling BHA	AIR DRILL	This will be one of the first oil/gas exploration well drilled onshore Tasmania and therefore all personnel must be alert for possible problems at all times. Pit volumes MUST be closely monitored and any anomalies flow checked. Gas detectors MUST be operational during ALL drilling and circulating Crew competency All personnel working for GSLM must be competent, qualified and trained in their job. No person should undertake any job/task for which they are not trained.				
500		Unit 2	12 1/4" Hole	9 5/8" Casing	INTERMEDIATE CASING 0m - 1650m 9 5/8" 36# K55 BTC Make up casing to the triangle. Two joint shoe track. 12 1/4" 36# K55 BTC marker joints to be run no more than 15m above pay zones more than 75m apart. Set casing shoe 50m into Bell Shale at approximately 1650m.	INTERMEDIATE HOLE Lead from 120m above shoe or 65m above hydrocarbons to 150m inside 13 3/8 casing shoe. Wt 11.8 ppg, liquid additives Tail to 120m above shoe or 65m above any hydrocarbons. Wt 15.6 ppg, liquid additives Cement excess 10% over caliper or 20% over theoretical if caliper not available Do not over displace any job by more than half the shoe track volume Displace cement with mud Cementing contractor will provide detailed cement program prior to job.	INTERMEDIATE HOLE 3-4% KCl-Polymer Mud weight 8.8 ppg 9.0 ppg PV ALAP, YP > 10lbs/sqft API Fluid loss < 7cc's pH 8.5 - 9, PHPA may be added if required Mud properties should be adjusted as indicated by hole condition Any down hole losses should be treated with LCM's as required via periodical sweeps or direct additions. Reuse sump water where Pit volumes must be closely monitored at all times and any anomalies flow checked See mud program for more detail.	INTERMEDIATE HOLE Mudlogging - Samples every 3 meters or less frequently if required due to fast ROP. Wireline Logs: Run 1: BHC-DLL-MSFL-GR-Cal-SP FDC-CNL Run 2: CST Drill Stem Tests Post logging, inflate straddle DST's will be run to evaluate shows	INTERMEDIATE HOLE Test BOP's to 2000 psi Perform LOT Totco surveys every 100m. Min LOT for 30bbl Kick Tolerance = 13.1ppg EMW Expected press. (ppg): Pr grad of 8.6 ppg EMW. expected. Max surf pr = 1825 psi (assumes GTS from 16500m)	350m - Base Dolerite NB#1 12 1/4" insert bit IADC 537, 3 x18 Jets Base Dolerite - 1300m NB#3 12 1/4" PDC Bit 5 blade 16mm cutters 5 x 18 jets 1300m - 1650m NB#5 12 1/4" PDC bit 6 blade 16/13mm cutters 5 x 18 jets	350m - 500m Slick Bit, 3x8DC, 20x6 1/2DC 500m - 1650m Semi Packed Bit, 12 1/4" NBS, 6 1/2" Mud motor 12 1/4" Stabiliser 2 x 8" DC's 18 x 6 1/2" DC's 6 3/4" Drilling Jars 2 x 6 1/2" DC's 6 x HWDP	350m - 1650m 500 - 650 gpm	Rig "Fit for Purpose" The rig shall be inspected by a third party inspector and signed off as being fit for purpose PRIOR TO SPUD. Planned and preventative maintenance systems will be used to ensure the rig remains fit for purpose for the duration of the program. If the rig is deemed at any time to not be in a safe condition operations will be suspended until the problem is resolved. The rig will be inspected by a third party inspector every 6 months after operations commence The drilling contractors operating procedures and systems will also be inspected.				
750		Unit 1															
		Bogan Gap															
		Palmer Sandstone															
		Springmount Mdst															
1000		Garcia Sandstone															
		Proatina Group															
		Lifley Group															
1250		Golden Valley Gp															
		Quamby Fm. (transmission oil shale)															
1500		Stockers Tillite															
1750		Bell Shale															
2000		Florence Quartzite															
2250		Keel Quartzite															
2500		Amber Slate															
2750		Crofty Quartzite															
2900		Under 1st															
TARGETS: 					SAFETY					WELL OBJECTIVES: Evaluate the hydrocarbon potential of the Bellevue structure WATER SOURCE: Drillwater, mixwater, cementing water - Freshwater quarry lake Potable water - Town water DRILLING HAZARDS: Overpressured formations. Stuck pipe due to sticky formation. Lost circulation in shallow sands. H2S. Slow drilling. Differential sticking. Unexpected formations							
P & A PLUGS 					No job is so important that safety needs to be compromised. All available tools (pre-job safety meetings, JSA's, Work Permits e.t.c.) should all be used to ensure a safe operation. It is more important to do the job safely than it is to do it quickly and no job should be rushed. All personnel MUST be trained in EVERY job they do. Any person has the right to suspend any operation they feel is unsafe. The drilling rig and ALL equipment must be "Fit for Purpose". Plan your work and work safely					Prepared by: Duncan New Checked by: Clive Burrett Date: 21 st August 2008							
Min plug length is 45 m Pressure test 9 5/8" shoe plug.										Contingent Bits 1 x12 1/4" IADC 117 1 x 12 1/4" IADC 417 2 x12 1/4" IADC 517 1 x 8 1/2" IADC 117 1 x 8 1/2" IADC 437 2 x 8 1/2" IADC 517 2 x 8 1/2" IADC 537 2 x 8 1/2" IADC 637 Others TBA							
										Max WOB = 85% of buoyed weight below jars. A non-ported float and Totco ring must be run in all hole sections Stabilisers and NBS should be changed out when 1/8" undergauge							
										Flow rates should be sufficient to give good hole cleaning and low enough to reduce hole washout.							
										Rig Move: 6 days Clean out surface hole 1.0 d Surface casing. BOP's: 2.0 d Intermediate hole: 11.0 days Evaluate 12 1/4" hole: 3.0 day 9 5/8" casing and BOP's: 2 d Drill 8 1/2" hole: 15.0 days Evaluation: 3 days P&A or C&S 2.0 days Total=39.0 d (excluding move)							

