

Section 4: Environmental Plan

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a) Environmental Management Plan

ENVIRONMENT MANAGEMENT PLAN



‘THUNDERBOLT SITE’

SEPTEMBER 2008

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1. PROPOSED ACTIVITY

This document provides an environmental risk assessment and management plan to support the Thunderbolt #1 Drilling Program for Great South Land Minerals (GSLM). The purpose for drilling the Thunderbolt #1 well is to evaluate the hydrocarbon potential of the Thunderbolt 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 Thunderbolt #1 in parallel with, and will be implemented in conjunction with, the following documents:

- Thunderbolt #1 Drilling Program;
- Thunderbolt #1 ERP Bridging Document;
- GSLM Drilling Operations Manual (DOM); and
- GSLM RP033A Drill Site Non FPP Assessment 4th August 2008.

1.1 Location and Access

1.1.1 General

The Thunderbolt #1 well is located southwest of Lake Repulse on Property ID #2520851. The site is located within a State Forest under the authority of Forestry Tasmania.

1.1.2 Site Specific

Drilling is proposed for Thunderbolt #1 well at 466 844 mE and 5 287 200 mN (AGD66 – Zone 55) ¹. The pad will be located on the top side of Dunrobin Road 5, at around 735m in elevation, and slope south for drainage purposes.

1.1.3 Access

Access to Thunderbolt from the Lyell Highway (A10) is via Lake Repulse Road (C606), over Lake Repulse onto Dawson Road, south on Dunrobin Road and ultimately turning onto Dunrobin Road 5.

¹¹ *GSLM Drill Site – RP033A Location Map, Forestry Tasmania, 04/08/2008*

The condition of access roads within the State Forest are considered by Forestry Tasmania as 'significant all weather, 2 lane feeder roads' to 'single lane, all weather minor roads'.

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 1).

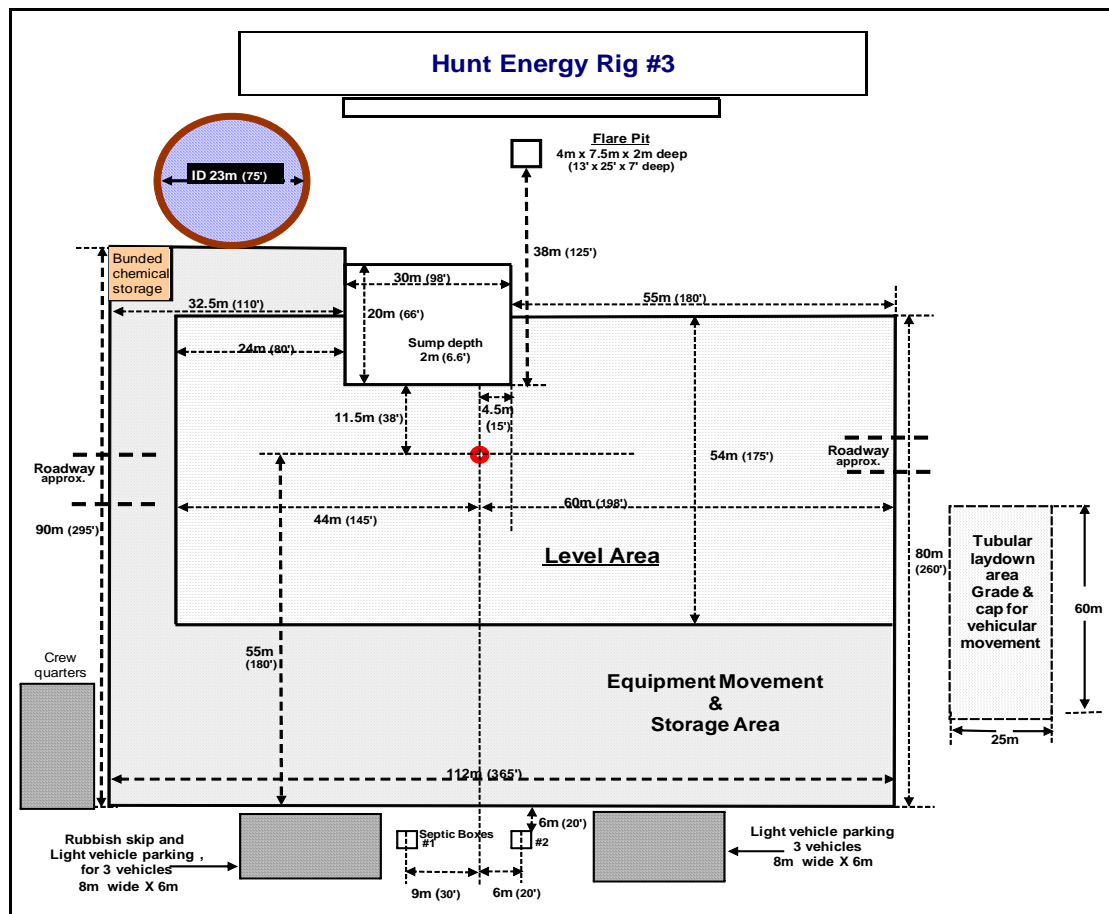


Figure 1. Hunt Energy Rig #3 layout.

A drilling sump, approximately 20m by 30m by 2m, will be required to confine cuttings and drilling muds at the site. A 23m diameter turkey's nest (raised edges to avoid drainage and hold clean water) is required to store clean water. 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 for the sump will be provided by stormwater and shipped in by water truck. Clean turkey nest water will only be shipped in by a water truck.

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 Management

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 “Thunderbolt #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, Duncan New, 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, 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).

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 is outlined in section 1.9 of the Thunderbolt #1 Drilling Program and Appendix A 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 September and December 2009. The general drilling parameters are outlined in section 1 of the Thunderbolt #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. The sump will be constructed to hold the anticipated volume of water generated 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, six runs per day of a water truck over 4-5 days may be needed to fill the turkey nest in each case. 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) 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

Forestry Tasmania manages the planned activity area as a plantation, and therefore a Forest Practices Plan is not applicable. To assess the current environment, Forestry Tasmania was engaged by GSLM to undertake a Non FPP Assessment and provide the level of information requested by MRT for activity approval.

The following subsections summarise the findings of the SVA, with references to relevant assessment components in the Appendices of this document.

2.1 Flora and Fauna

2.1.1 Flora

This area is by Forestry Tasmania as a *wet eucalypt forest and woodland*. Vegetation communities present are Wet *E. delegatensis*.²

There are no known or identified flora values, priority species or *Phytophthora cinnamomi* within the planned activity area.³

2.1.2 Fauna

The site evaluation under this activity indicates the potential for the following threatened species⁴:

- i) Eastern Barred Bandicoot - There is no known habitat suitable to support this species within the operation area or immediate vicinity.
- ii) Grey Goshawk - There is no known habitat suitable to support this species within the operation area or immediate vicinity.
- iii) 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.

² High Quality Wilderness Map, Conservation Inventory Map, Tasmanian Vegetation Map, RFA Communities Coupe Map, Forestry Tasmania, 04/08/08

³ PC Management Area, Forestry Tasmania, 04/08/08

⁴ Threatened Fauna Mapsheet Display, Wedge Tail Eagle Habitat Search, WTE Nest Searching 2002 to 2008, Eagle Nest Management, Forestry Tasmania, 04/08/08

- iv) Eastern and Spotted Tailed Quoll – Large tracts of high quality habitat surrounds the operation area supporting the healthy proliferation of this species.
- v) Tussock Grass Skink – There is no suitable habitat within or adjoining the operation area to support this species.
- vi) 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.
- vii) White Bellied Sea Eagle – There is generally little suitable potential habitat located within 500 metres of the operation area.

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

2.2 Geology and Soils

2.2.1 Geology

The primary geological substrate is Jurassic Dolerite⁵.

The operation area is not located within any site of level 1-8 sensitivity on the Geoconservation Database⁶, and is not within any known or karst boundary⁷.

2.2.2 Soils

One soil type is known within this area and includes Jurassic origin dolerite soils of moderate erodibility rating. The combination of these soil types and slope across the project area mean that the area is considered to be of moderate erodibility with low erosion hazard potential.

2.3 Surface Water and Hydrogeology

2.3.1 Surface Water

No identified streams occur within the planned operation area.

Two (2) Class four streams are located approximately four hundred metres to the south of the planned operation area. Their proximity combined with the nature of the operation should not result in any water quantity or quality changes.

⁵ *Geology*, Forestry Tasmania, 04/08/08

⁶ *Geoconservation*, Forestry Tasmania, 04/08/08

⁷ *Karst Area Catchment*, Forestry Tasmania, 04/08/08

2.3.2 Hydrogeology

A study⁸ of the local hydrogeological conditions was undertaken for the primary purpose of aquifer protection (Appendix A). The study predicts Triassic rocks at ~500m, Late Permian coal between 730m and 810m and Permian rocks to 1,750m. A major unconformity is predicted at 1,770m to 1,800m with underlying rocks of the Gordon Group to at least 2,500m.

Leaman states, “There is, however, potential for a sequence of confined aquifer conditions with variable water volumes and quality in this case given the prediction of karst conditions below the unconformity. Careful drilling and monitoring will be essential once the hole leaves the Woody Island Formation (assuming it to be present) to ensure control of any hydrological changes.”

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 skyline area to the north of the proposed drill site is visible from the Lyell Highway at ~14km in distance. Due to the proposed duration of this activity, it is unlikely that it will detract from the current scenic quality of this area.⁹

2.5 Noise

A noise level assessment¹⁰ of this activity has been conducted (Appendix B), 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 Aboriginal and Non-aboriginal Heritage

There are no known historic sites located within or adjoining the planned operation area¹¹.

An independent survey at the site (Appendix C) discovered no significant Aboriginal heritage features¹².

⁸ *Specification and Recommendations – Matters of Aquifer Protection and Hole Completion*, Leaman Geophysics, 01/08/08

⁹ *Landscape Management Objective*, Forestry Tasmania, 04/08/08

¹⁰ *Thunderbolt – Noise Level Assessment*, VIPAC, 02/09/2008

¹¹ *APZ Map, Aboriginal Sites Enquiry*, Forestry Tasmania, 04/08/08

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.

¹² A Survey for Aboriginal Heritage", Rocky Sainty, 15/09/08

Thunderbolt #1 Drill Plan – EMP

Great South Land Minerals Limited

September 2008

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 be considered once onsite.
Minimise the disturbance to native vegetation and fauna.	<ul style="list-style-type: none"> Decrease in production species (Wet <i>E. delegatensis</i>). 	<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 edge to allow possible burning of this material post operation. This placement of this debris however will not interfere with the effective use of the road including associated drainage structures.*
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 	<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

Thunderbolt #1 Drill Plan – EMP

Great South Land Minerals Limited

September 2008

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
			programs.	control". *
				<ul style="list-style-type: none"> • Weed establishment will be monitored 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. • Loss of productive substrate for replanting. 	<ul style="list-style-type: none"> • Topsoil will be removed from the working area and stored in a wind-row on the top side of the site for rehabilitation.
	<ul style="list-style-type: none"> • Chemical contamination . 	<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"> • 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 with guidance from Forestry

Thunderbolt #1 Drill Plan – EMP

Great South Land Minerals Limited

September 2008

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
				Tasmania.
Avoid contamination of surface water and aquifers.	<ul style="list-style-type: none"> Discharge of salty water with high TSS or pH. 	<ul style="list-style-type: none"> Overflow of sump water. 	<ul style="list-style-type: none"> Increased sediment, pH and plant death 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 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.# Careful drilling and monitoring once the hole leave the Woody Island Formation.#
	<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.
Avoid disturbance to sites of Aboriginal or cultural heritage.	<ul style="list-style-type: none"> Loss of undiscovered cultural (Aboriginal 	<ul style="list-style-type: none"> Uncovered from undertaking 	<ul style="list-style-type: none"> Damage or destruction of 	<ul style="list-style-type: none"> The drill rig accesses the site on existing roading.%

Thunderbolt #1 Drill Plan – EMP

Great South Land Minerals Limited

September 2008

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
	and non-Aboriginal) heritage artefacts.	minor earthworks.	artefacts.	<ul style="list-style-type: none"> • That the drilling and associated activities avoid any of the documented historic cultural sites and features described in Appendix D. % • 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>
Avoid or minimise disturbance to stakeholders and associated infrastructure.	<ul style="list-style-type: none"> • Deterioration of roads. 	<ul style="list-style-type: none"> • Heavy equipment use. 	<ul style="list-style-type: none"> • Unsafe access for GSLM and Forestry Tasmania staff. 	<ul style="list-style-type: none"> • Reduce transport frequency on access roads to a minimum. • Repair/replace associated sections of the road to the conditions from which it was found.
	<ul style="list-style-type: none"> • Non-compliance with Forestry Tasmania’s land 	<ul style="list-style-type: none"> • Poor or no monitoring of SVA 	<ul style="list-style-type: none"> • Non-compliance with Forestry Tasmania, State or 	<ul style="list-style-type: none"> • Undertake monitoring using the SVA provided “Appendix 2: Non-FPP and Reserve Activity

Thunderbolt #1 Drill Plan – EMP

Great South Land Minerals Limited

September 2008

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
	use approval.	components.	Federal environmental legislation and procedures.	Monitoring Sheet”.
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 standards.	<ul style="list-style-type: none"> Site is not rehabilitated to the appropriate standard. 	<ul style="list-style-type: none"> Pad is compacted. Contours do not blend with surrounding environment. Uncontrolled spills. 	<ul style="list-style-type: none"> Contamination of surrounding flora, surface and ground waters. Erosion and loss of slope integrity. Loss of future production for Forestry Tasmania. 	<ul style="list-style-type: none"> Forestry Tasmania will be notified of the intent to commence operations and prior to the completion of operations to ensure rehabilitation works have been conducted to a satisfactory standard.* Following the completion of drilling the drill pad and associated infrastructure will be completely removed from the site.* Drill chips and sediment within the sump will be removed to an approved landfill site. The site will be scarified to allow

Thunderbolt #1 Drill Plan – EMP

Great South Land Minerals Limited

September 2008

Environmental Objective	Possible Risk	Likely Cause	Likely Impact	Management
				for the development of a suitable seedbed.* • Forestry Tasmania will provide seed from the appropriate seed zone to be spread over the operation area.*
	• Drill hole location is damaged or lost.	• Poor or no signage and/or deterring barriers.	• Aquifer contamination. • Property damage.	• The hole will be tagged on completion of capping.#

All management practices recommended by Forestry Tasmania have been denoted by *.
 All management practices recommended by Leaman Geophysics have been denoted by #.
 All management practices recommended by ARCTAS have been denoted by %.
 All management practices recommended by Rocky Sainty 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) Thunderbolt #1 Drill Plan – EMP;
- ii) GSLM Drill Site RP033A – Non-FPP Assessment 4th August 2008; and
- iii) “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 Forestry Tasmania

- *Forest Reserve Register/Reserve Management Objectives*
- *CAR Reserve Values*
- *Property Rights*
- *Internal Policies – Rainforest, Giant Tree, Huon Pine, King Billy Pine, Landscape Management*
- *District Forest Management Plan*
- *MDC*

4.4 Proponent

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

APPENDIX A – HYDROGEOLOGICAL STUDY

LEAMAN GEOPHYSICS

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SUPPLEMENT TO EXPLORATION DRILLING PROGRAM DOCUMENT

SPECIFICATION AND RECOMMENDATIONS MATTERS OF AQUIFER PROTECTION AND HOLE COMPLETION

THUNDERBOLT (TB#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 June 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 (in the range southwest of Lake Repulse at 466 844 mE, 5 287 200 mN), is expected to encounter Triassic rocks at about 500 m, and Late Permian coal measures between 730 and 810 m (possible source rocks). A complete and representative section of Permian rocks is then anticipated to a depth of perhaps 1750 m. This suite will include various sandstones, siltstones and mudstones, and tillite, typical of south Tasmanian sections (including Ferntree Formation, Malbina Formation, Cascades Group, Faulker Group – with possible coal measures at 1250-1300 m, Bundella Formation, Woody Island Formation and Truro Formation – with tillite).

A major unconformity is predicted at 1770-1800 m with underlying rocks of Gordon Group including paleokarst at the erosional boundary and limestone members to at least 2500 m. Other limestone members have been inferred to depths of at least 3150 m. Planned total depth of drilling is 2500 m.

Water conditions will be normal and unconfined at surface and may be quite fresh (perhaps 500 mg/L). Some water recovery is anticipated throughout the first 50-100 m of the hole, 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. Much reduced risks apply to the Triassic section from 500 m.

Most 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 (>800 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 but are highly unlikely. 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 but contamination is most unlikely given the heads feasible and depths involved.

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 in this case given the prediction of karst conditions below the unconformity. Careful drilling and monitoring will be essential once the hole leaves the Woody Island Formation (assuming it to be present) to ensure control of any hydrological changes.

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 samples can be separated.
 - d) All significant aquifers, or groups of aquifers in which quality is comparable, will be sealed and separated with plugs.
 - 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 Ordovician). 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.
- 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 Thunderbolt TB #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).



Dr. D. E. Leaman

Date:

1/8/08

APPENDIX B – ACOUSTICS SURVEY

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 noisescape 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 collars1
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

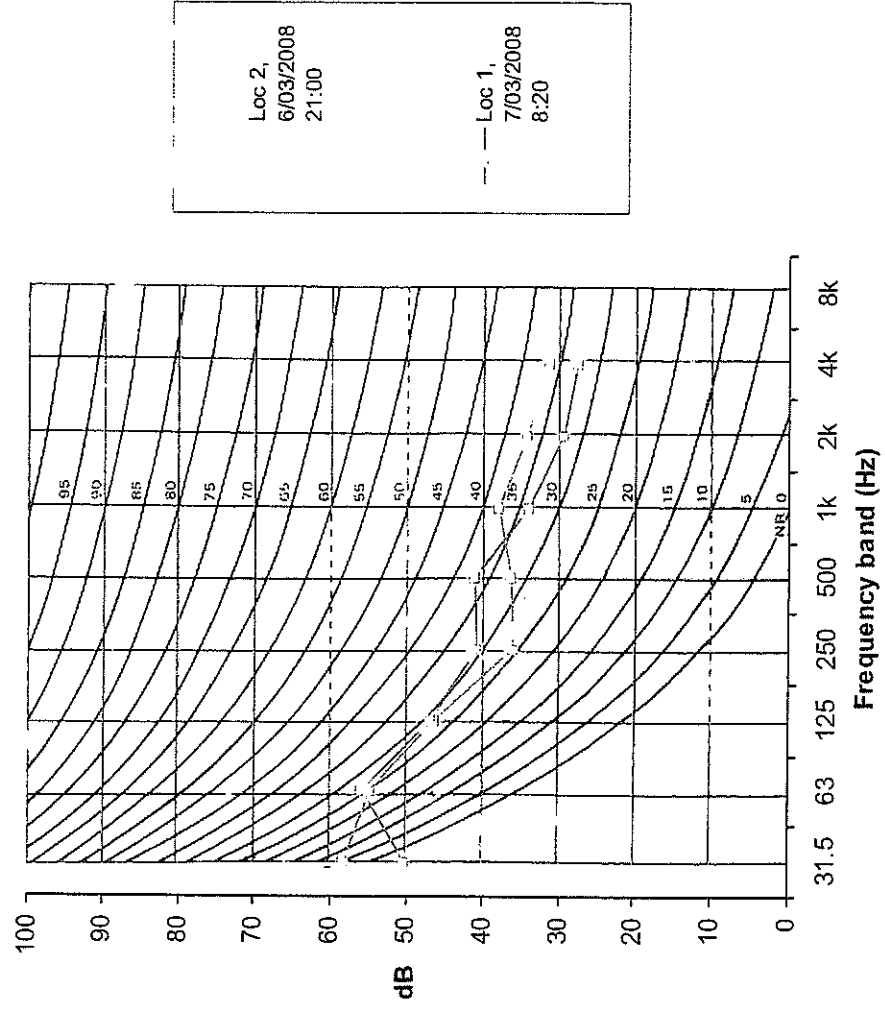
Person	Michael Lichon	Mick Ommundson	Pearu Terts
Area	BAe146 AVRO RJ seat 11B	Drill Rig work	30-40 m from Rig motors
Date	6/03/2008	6/03/2008	7/03/2008
Time	14:41-15:26	18:45-21:42	9:05-9:08
Duration minutes	45	177	3
Leq dB(A)	79.6	87.8	76.9
Exceed 140 dB(A)	no	no	no
Exceed 115 dB(A)	no	no	no
Lmax	90.8	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





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Great South Land Minerals
GPO Box 1603
Hobart Tasmania 7001

2 September, 2008

3150

Attention: Paul Heath

Thunderbolt – Noise Level Assessment

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

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 auxilliary air compressor unit providing additional air for the drilling operation.

The drilling site is nominally located at 466 844 mE, 5 287 200 mN (AGD66), which places it in a small gully ontop of a quite large ridge some 12 km's west of Ouse. The ridge runs NE SW and on the east has a steep sided river gully and to the west a more gentle slope down to another gully. The land is regrowth forest with no residential dwellings in the area. Five eagle nests have been identified within 4 km of the drill site. Three nests to the west have a small knoll blocking their view of the drill site, while two nests to the north east are on the slopes of the river gully and again have no 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 Thunderbolt 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 24 hour period on 31st July 2008, 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
31	27	30

Table 1: Summary of Ambient Noise Levels at Thunderbolt

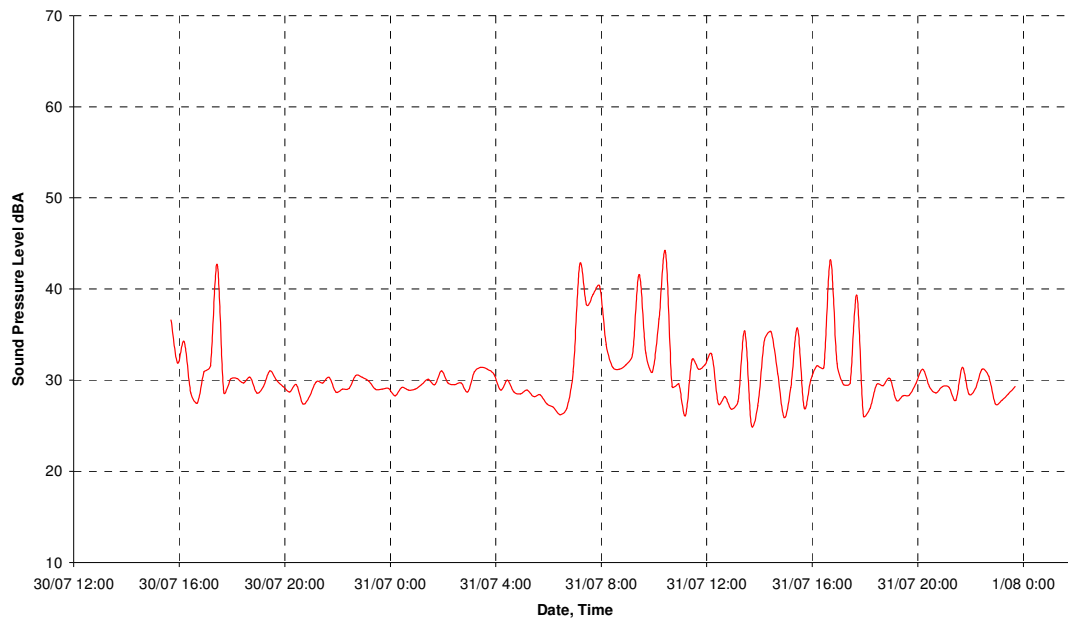


Figure 1: Thunderbolt Ambient Noise, Leq, Trend

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 less than 25 dBA* which is below the existing ambient noise levels of 27 to 30 dBA.

Noise levels from the drilling operation will be clearly perceivable by humans when they are 5 dB above background, which at Thunderbolt will be around 32 to 35 dBA. This contour is highlighted on the contour map by a solid red line. All Eagle locations are well 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

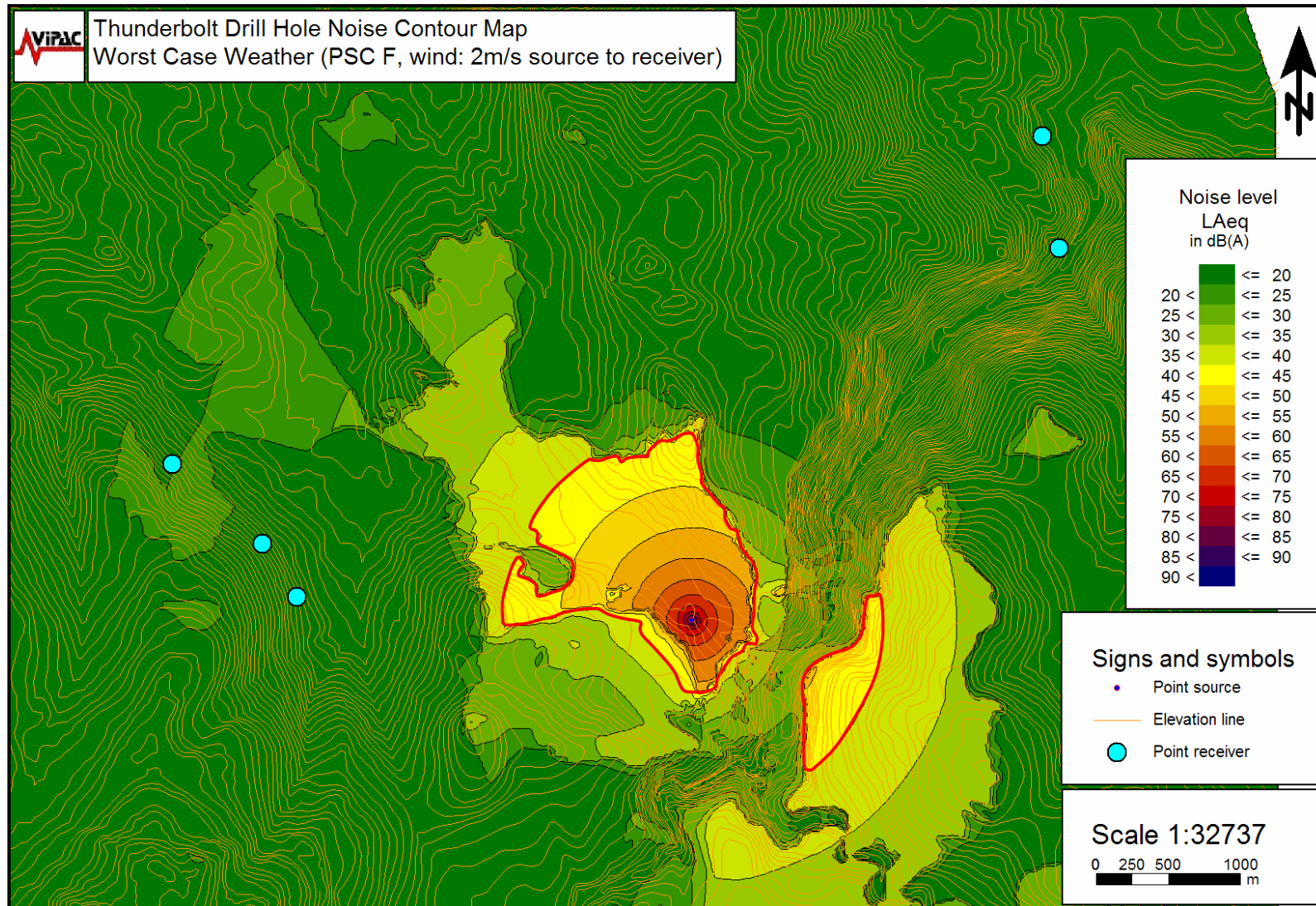


Figure 4: Noise Contour Map – Predicted Drill Rig Noise Levels

APPENDIX C – ABORIGINAL HERITAGE STUDY

A Survey for Aboriginal Heritage

Section 1 INTRODUCTION

This report describes the results of a Survey for Aboriginal Heritage in relation to the proposed construction of a drill site at the Thunderbolt site located south of Ouse in Tasmania at the request of Paul Heath, Executive Geologist, Great South Land Minerals Ltd.

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 6th September 2008. Phil Simpson of Great Southland Minerals Ltd also attended.

It is important to inform and consult with the Aboriginal community on all matters concerning Aboriginal cultural heritage. The Tasmanian Aboriginal Land & Sea Council has established policies, protocols and procedures with various government agencies and other parties in terms of ensuring that the Aboriginal community's cultural heritage interests are maintained and protected. All Aboriginal sites are significant to the Aboriginal community.

Section 2 BACKGROUND INFORMATION

The Great South Land Minerals Ltd is proposing to construct a drilling operation at the site known as Thunderbolt.

The Tasmanian Aboriginal Site Index (TASI) at Aboriginal Heritage Tasmania was inspected 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.

Section 3 FIELD METHODS

The writer surveyed the Survey area in transects 1-2 metres apart. Ground visibility was poor due to thick scrub.

Section 4 RESULTS

No Aboriginal sites were found within the Study Area.

Aboriginal Heritage Survey Report – Thunderbolt Site. Rocky Sainty, Aboriginal Heritage Consultant.
1 Hillcot Place, Glenorchy 7010. PH: 0417016598

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, (i.e. artefacts) once works begin works are to cease immediately and the Aboriginal Heritage Tasmania 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 –

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

APPENDIX D – EUROPEAN HERITAGE STUDY



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HISTORIC CULTURAL HERITAGE ASSESSMENT

THUNDERBOLT ANTICLINE

PROPOSED DRILLING PROGRAM



A report to Great South Land Minerals Limited

By Parry Kostoglou

CONTENTS

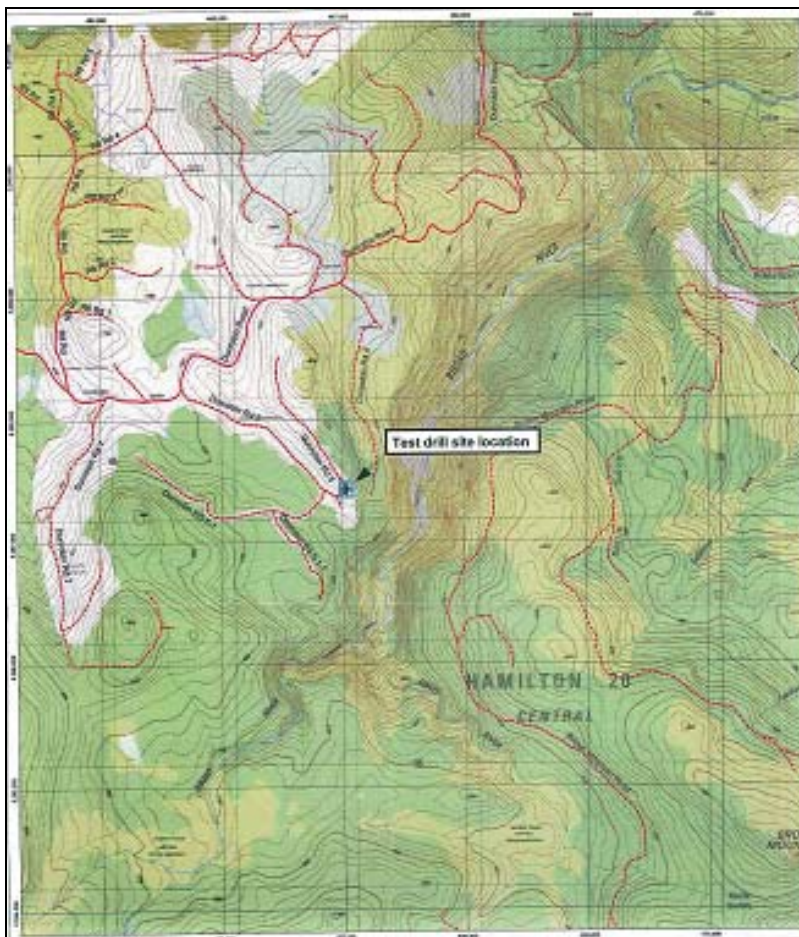
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1.0 BACKGROUND

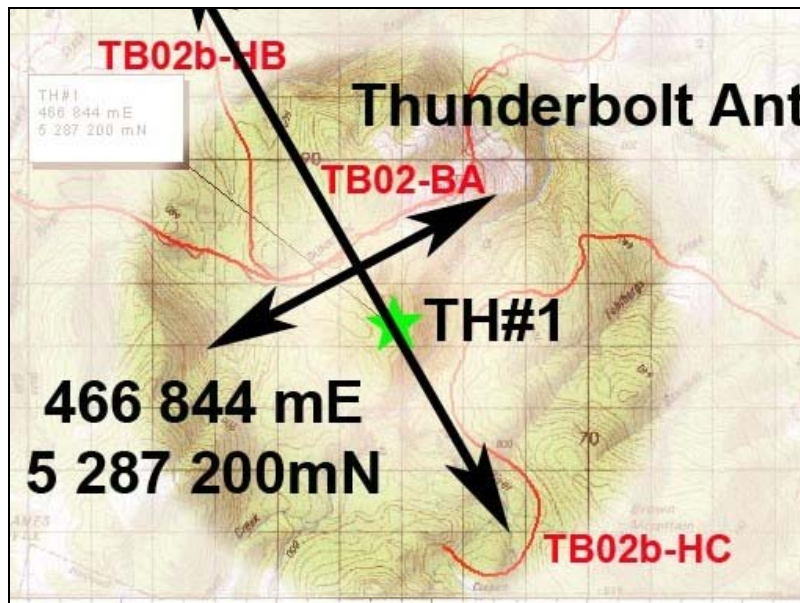
As a part of its oil exploration program throughout the Tasmanian Midlands, Great South Lands Minerals Limited is currently seeking to undertake exploratory drilling in the vicinity of Dunrobin Road in the northern vicinity of the Florentine Valley.

2.0 LOCATION AND EXTENT OF ASSESSMENT AREA

The current program requires drilling throughout a single locality centred atop a known anti-cline situated beside Dunrobin Road in the vicinity of Mount Thunderbolt. This locality consists of a series of steep hillsides comprising the north side of the Broad River valley which are covered with tall wet eucalypt forest and a dense mixed understorey.



1:25,000 map showing location of proposed drill site.



1:100,000 scale map with extent of Anticline (arrows) and proposed drill site (green star) super-imposed.

3.0 METHODOLOGY

This consultant reviewed relevant all known 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 Tyenna Valley vicinity' 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 (5 kilometres) of the geosyncline outline. Relevant location based information appears below while site summaries appear in Section 6.0 overleaf.

Tabular summary of known sites (from Kostoglou 2000)					
No.	Site Name	Grid ref.	Site type	Significance	Source
01	Risbys Brown Mountain sawmill	E 0537162 N 5286000	sawmilling	High Local	Kostoglou 2000
02	Risbys Brown Mountain tramway	E 0537155 N 5285500	Sawmilling	High Local	Kostoglou 2000
03	Mannys Marsh Hut	E 0469050 N 5282250	Pastoral	Medium Local	Kostoglou 2000
04	Repulse station site	E 0469240 N 5293220	Convict road building	Low Local	Kostoglou 2000
05	Quarry Road section	E 0467380 N 5294570	Convict road building	Medium Local	Kostoglou 2000
06	Blue Bridge	E 0466850 N 5293540	Convict road building	High Local	Kostoglou 2000
07	Old Mill road east & west roadway sections	E 0467380 N 5294570	Convict road building	High Local	Kostoglou 2000
08	Old Mill road sawmill engine	E 0466040 N 5294050	sawmilling	Medium Local	Kostoglou 2000
09	'The Mount' Station	E 0458660 N 5291500	Convict road building	High Local	Kostoglou 2000

In regard to the location of the currently proposed drill hole itself, no sites occur within the immediate vicinity as borne out by this consultant's research and the Special Values Assessment for the development recently undertaken by Forestry Tasmania (Vanessa Thompson).

6.0 HISTORICAL CONTEXT

After initial transects undertaken during the late 1820's/1830's by various exploration parties en route to the west coast, the Florentine Valley was first accessed by a convict built road titled 'Dawsons Road' in the early 1840's. This convict built paved route was intended to provide a ready means of access for pastoral flocks to enter the south west, however initial results soon proved the project's folly and the road was duly forgotten. The next wave of settlement did not begin until the early 20th century when high commodity prices abetted by the First World war allied armies need for rare metals encouraged fossickers to seek out osmiridium in the Florentine catchment. After a short term 'rush' centred at Adamsfield, the resident forests were left along until improved road and rail access to the edge of the valley encouraged sawmillers to commence logging and milling operations in the late 1930's. Selective felling and log recovery using horse drawn or tractor powered engines on timber tramways remained the area's sole enterprise until the 1940's when a wholesale concession to the valley obtained by APM led to the mechanisation of logging and road based recovery to the new mill at Boyer. This activity has essentially remained to the present day.

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 either convict based activities along Dawsons Road or historical selective logging occurring sporadically in the adjacent forested slopes.

The physical archaeological vestiges of such activities include:

- Historic logging roads and snig tracks
- Sawdust piles and abandoned machinery
- Stone paved and benched sections of roadway (Convict built)
- Related infrastructure including stone bridge abutments
- Dry-stone structures comprising road building camps

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 proceed with the following constraints:

- **The drill rig should access the site on existing forestry related 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 Tyenna Valley vicinity. Forestry Tasmania.

Kostoglou, P. 1996. Dawsons Road. 'The first road to nowhere'. An archaeological survey of the road and its features. Forestry Tasmania.