

847001

01_4586

Stratigraphic Slimhole Drilling Program - Hunterston
#1 - Well Plan- July 2001
Great South Land Minerals Limited*
Anon SEL13/1998

GREAT SOUTH LAND MINERALS LIMITED

STRATIGRAPHIC SLIMHOLE DRILLING PROGRAM

MICROFILMED
FICHE No.015594-

HUNTERSTON #1

WELL PLAN

01_4586

Stratigraphic Slimhole Drilling Program - Hunterston
#1 - Well Plan- July 2001
Great South Land Minerals Limited*
Anon SEL13/1998

July 2001

MINERAL RESOURCES		
FILE REF: SEL13/98/175		
14 AUG 2001		
DOC. REF:		
OFFICER	FOR ACTION	FOR INFO
See letter		19/8/01
folio 27		
RESUBMIT TO	DATE	

HUNTERSTON #1 WELL PLAN**CONTENTS**

	Page
1. INTRODUCTION	
1.1 Well Data Summary	3
1.2 Location Map	4
2. GEOLOGY	
2.1 Well Prognosis	5
2.2 Geological Map	6
2.3 Geological Cross Sections	7
3. ENVIRONMENTAL MANAGEMENT	
3.1 Landholders	8
3.2 Site Access	8
3.3 Wellsite Preparation	8
3.4 Wellsite Operations	9
3.5 Clean-up and Rehabilitation	9
4. DRILLING PROGRAM	
4.1 Outline Summary	10
4.2 Setting and Cementing Casing	10
4.3 Drilling Fluids Program	11
4.4 Well Diagram and Volumes	12
4.5 Drilling and Coring Procedures	13
4.6 Plug and Abandon Procedure	13
5. FORMATION EVALUATION	
5.1 Core Recovery, Logging and Analysis	14
5.2 Mudlogging Services	14
5.3 Wireline Logging and Drill Stem Testing	14
6. TESTING AND SAFETY PROCEDURES	
6.1 BOP Testing Procedures	15
6.2 Pressure Integrity Test	15
7. COMMUNICATIONS AND REPORTING	16
8. PLANT AND EQUIPMENT DETAILS	
8.1 Mindrill F66 Drill Rig	17
8.2 BOP Equipment	17
8.3 Site Layout	18

HUNTERSTON #1 WELL PLAN**1. INTRODUCTION**

Hunterston #1 is located near Porters Pinnacle on a domal structure in central Tasmania about 20 km north of Bothwell and 2 km east of the Lake Highway, opposite the homestead on the property named 'Hunterston'.

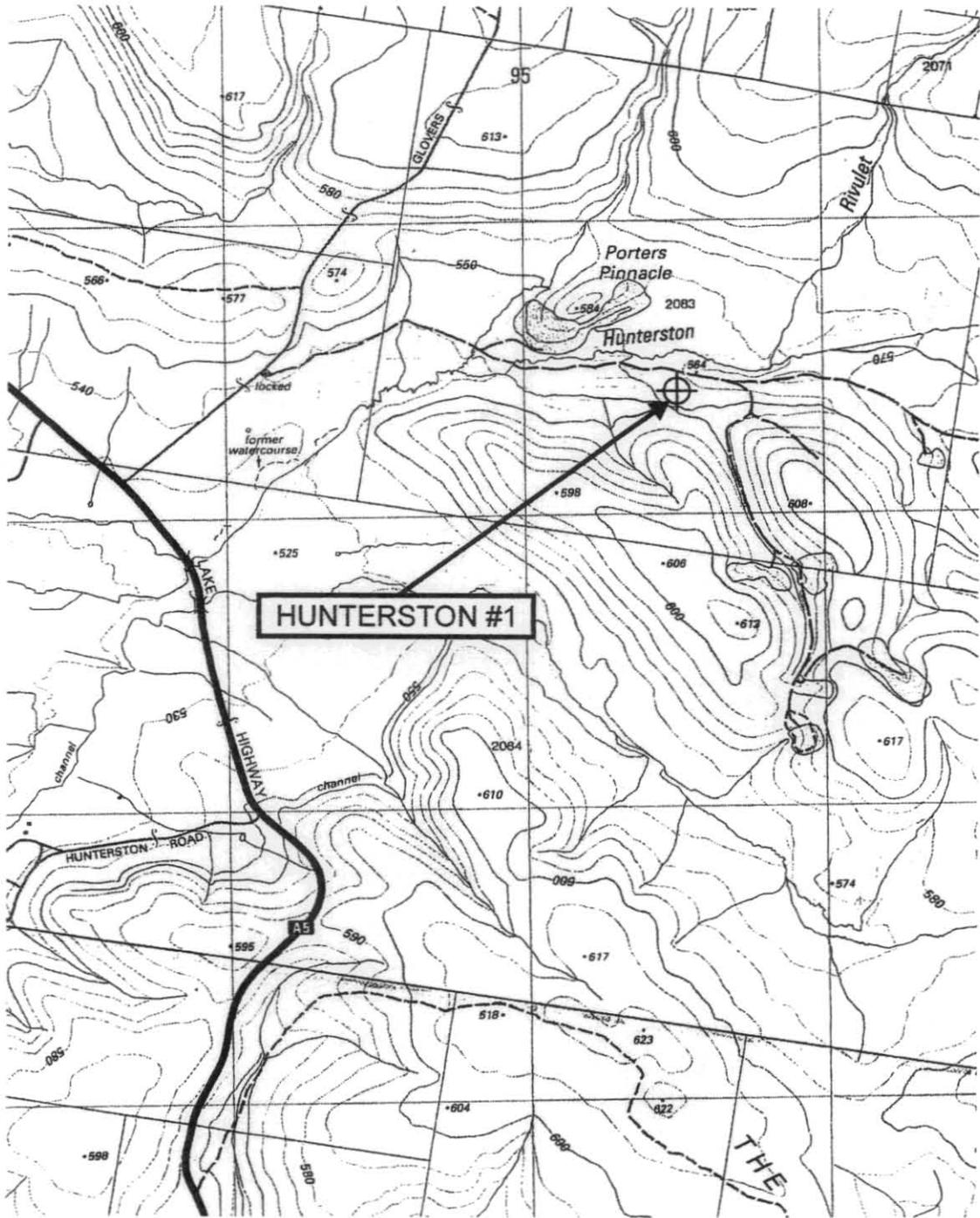
Further details can be found under *Geology Section 2.1 Well Prognosis*.

1.1 Well Data Summary

State:	Tasmania
Location:	Hunterston
Municipality:	Central Highlands
Licence No:	SEL 13/98
Well Name:	Hunterston #1
Coordinates:	495,500 E 5,326,400 N
Elevation:	550m ASL
Datum:	Footclamps
Drill Rig:	Mindrill F66
Spud Date:	Precollar spudded August 1997; coring planned August 2001
Planned Depth:	900 -1200 m (see prognosis)

HUNTERSTON #1 WELL PLAN

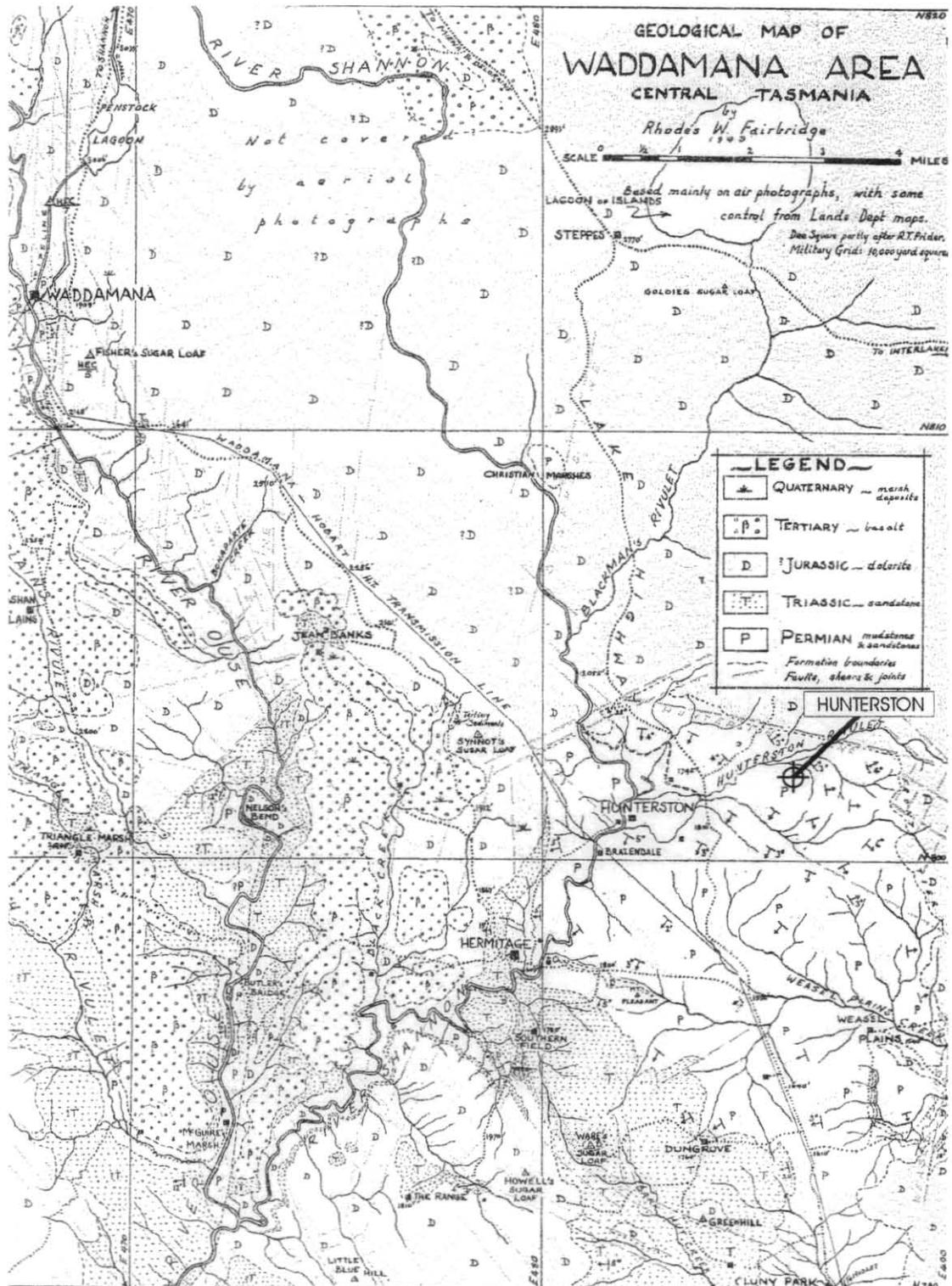
1.2 Location Map - Tasmap 1:25,000 Hermitage Sheet 4832 Edition 1, 1993



5 cm

HUNTERSTON #1 WELL PLAN

2.2 Geological Map



5 cm

HUNTERSTON #1 WELL PLAN

2.3 Geological Cross Sections

RHODES W. FAIRBRIDGE

133

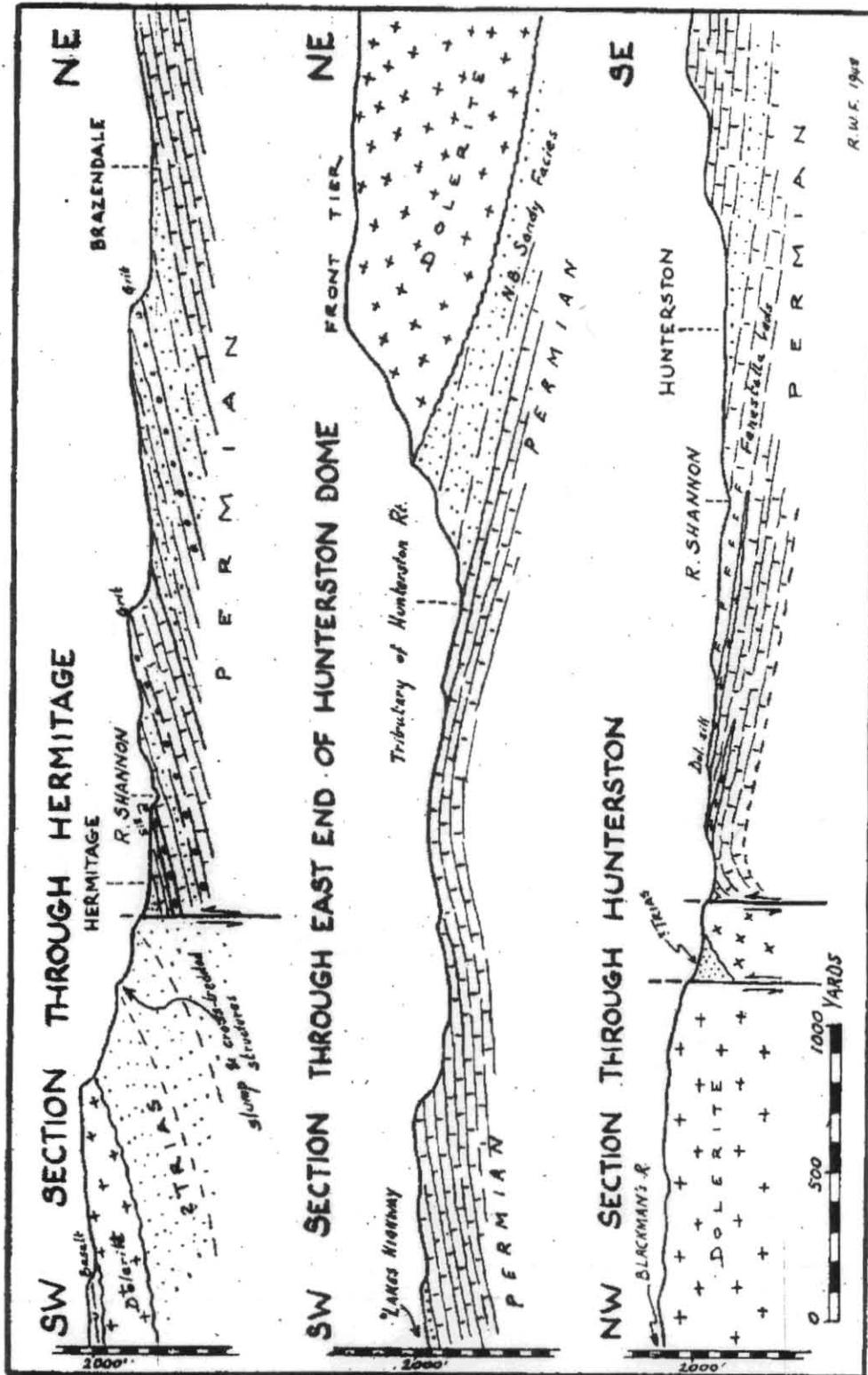


FIG. 5.—Sections through Hermitage and Hunterston.

HUNTERSTON #1 WELL PLAN

3. ENVIRONMENTAL MANAGEMENT

Great South Land Minerals Limited is committed to conducting its business with the desire to protect the natural environment. The company plans and manages its operations to ensure minimum impact on the environment. It will continue to meet all industry environmental standards and obligations. In applying this policy, activities will be governed by the APPEA Code of Environmental Practice.

The company will maintain an active rehabilitation program to restore land disturbed by exploration activities and will respond quickly and effectively if accidental pollution or environmental damage occurs.

3.1 Landholders

Hunterston #1 is situated on the private sheep grazing property of Hunterston, belonging to Mr. Neil Monks. Discussions have been held with Mr. Monks and agreement has been reached for the continuation of drilling operations on his property. Although very supportive of the exploration program, Mr. Monks has expressed some concern at the potential noise nuisance during the lambing season that extends from early October through to November, and also the possibility for scaring off deer during the hunting season during February and March.

3.2 Site Access

The drillsite is only 2 km off the Lake Highway alongside an existing all-weather gravel road that branches off Glovers Road shortly after leaving the Highway. No vegetation has been cleared, and the existing access road is adequate.

3.3 Wellsite Preparation

Mobilisation of the drilling equipment at Hunterston #1 would require the construction of eight small concrete footings on which to mount the drill floor support frame, thus providing clearance for installation of the BOP stack without recourse to a deep cellar. An area around the drillrig would be cleared of topsoil in order to maintain a clean and tidy operation and ensure good rehabilitation at the end of the drilling program.

A flare pit would be excavated about 120m northwest of the wellhead. Mud pits and associated silt traps would be constructed on cleared land adjacent to the drillsite, with drainage to the nearby creek. All mud handling operations are now carried out in CGI tanks, with silt traps downstream of the overflow.

Refer to the Site Layout sketch in Section 8 for further details.

HUNTERSTON #1 WELL PLAN

3.4 Wellsite Operations

Water for drilling operations will be sourced from Hunterston Rivulet, about 250m north of the proposed drillsite. Under drought conditions it may be necessary to cart water in from the Shannon River about 5 km away. Waste water run-off will be directed through silt traps to the small creek at the drill site. Based on earlier experience, mud chemical use should be limited to liquid polymer for viscosity and caustic soda for pH correction. Experience has shown that the resulting fluid is environmentally friendly.

Calcium chloride will be stockpiled on site for weighting up in the event that a kill mud is required. Cellulose fibre is also held on site to treat any lost circulation zones. All mud additives will be handled with care to reduce the risk of spillage.

Diesel fuel will be held on site in a 1500 litre bunded tank, with fuel being pumped up into the drillrig tank daily. Minimal quantities of other lubricants will be stored in secure steel containers, with waste oils being removed from site.

All other wastes and rubbish will be carted away to the local Municipal disposal area, or inert wastes buried on site where appropriate.

3.5 Clean-Up and Rehabilitation

On abandonment of the drill site, concrete footings will be buried and the mud pit, flare pit and silt traps will be backfilled and covered with available topsoil.

Any other rubbish will be removed from site and the area re-seeded in agreement with the landowners requirements. A final inspection will be carried out with the landowner to confirm acceptance.

HUNTERSTON #1 WELL PLAN**4. DRILLING PROGRAM**

All diamond drilling operations will be carried using the OME Rig #002 Mindrill F66 track mounted hydraulic over mechanical driven swivel head type drilling rig. The rig is diesel powered and provides power via a bank of hydraulic pumps to drive the various functions of the rig. The main drive is through a five speed gearbox and main drive shaft to the rotating head. A separate hydraulic circuit drives the operation of the hydraulic head feed mechanism. The rig has an angle package, nine metre mast for drilling at angles from the vertical to horizontal.

The drill rig has been designed for the requirements and safety of drillers engaged in drilling down to +1400 metres in NQ size equipment.

The wellhead will be fitted with a 5000 psi BOP stack and 3000 psi Choke assembly.

The hole has been pre-collared to a depth of about 336m. The hole has been cased with 100mm HW fully welded API rated casing. The hole will be drilled with HQ (89mm rods drilling a 96mm hole and 63mm core) to a depth of around 800m, followed by NQ (70mm rods drilling a 76mm hole and 48mm core) to planned total depth of up to 1200m.

4.1 Outline Summary

Drilling contractors Gerald Spaulding Drillers P/L were used to drill the pre-collar and run casing. For details, refer to Section 4.2 *Setting and Cementing Casing*.

The Mindrill F66 drillrig will be set up over the hole on a 1.8m high steel subframe and work will continue in accordance with the following program:

- Weld 4¹/₁₆" 5M 6B flange to top of casing and nipple up BOP stack.
- Pressure test casing and BOP as per testing and safety procedures.
- Run in HQ string and drill out cement plug and casing shoe at 336m.
- Carry out pressure integrity test of casing shoe.
- Continue drilling HQ (96mm hole) to around 800m.
- Run in NQ string and complete drilling (76mm hole) to target depth.
- Condition hole for Wireline Log or DST as required.
- Evaluate drilling results and finalise report.
- Establish plug and abandon program as per Schedule C provisions.

4.2 Setting and Cementing Casing

The casing was ERW Ultrapipe supplied by Tubemakers of Australia Limited, complying with API Specification 5L (GDE-B & X42).

Nominal bore:	100mm	Outside diameter:	114.3mm
Wall thickness:	6.0mm	Mass:	16.02 kg/m

HUNTERSTON #1 WELL PLAN

Maximum pressure rating: 21,800 kPa at 72% of minimum yield stress
30,280 kPa (4390 psi) at yield

The casing was supplied in 12m lengths with bevel preparation at each end for full strength butt welds. The pipe was run in the hole with each joint being welded by a qualified pressure pipe welder, and 10mm centralisers fixed at each joint.

A tool joint was attached at the top of the casing to allow circulation and flushing of the annulus. The casing was then cemented using Type B Portland cement mixed at the rate of 35 bags per cubic metre, and circulated until grout of the same consistency emerged from the top collar. The area surrounding the wellhead was concreted to provide support for the BOP stack and to anchor the choke and kill lines.

4.3 Drilling Fluid Program

With no evidence of overpressured formations, we plan to continue using fresh water polymer drill fluids during normal diamond coring operations, with caustic soda used for pH correction. Mud weight, viscosity and pH are monitored continuously during each shift.

Two pallets of calcium chloride are to be kept on site in case weighted kill mud is required. 350 bags of barite are also available if kill mud heavier than 11 ppg is needed, although the use of barite in deep slimhole drilling operations could lead to plugging off circulation.

All drilling mud is mixed in a 3500 litre tank fitted with a high speed hydraulically driven stirrer, and then transferred to 1500-3000 litre CGI holding tanks. The surface circulation system incorporates three CGI tanks to allow for settling of fine cuttings and effective degassing of the drill fluid.

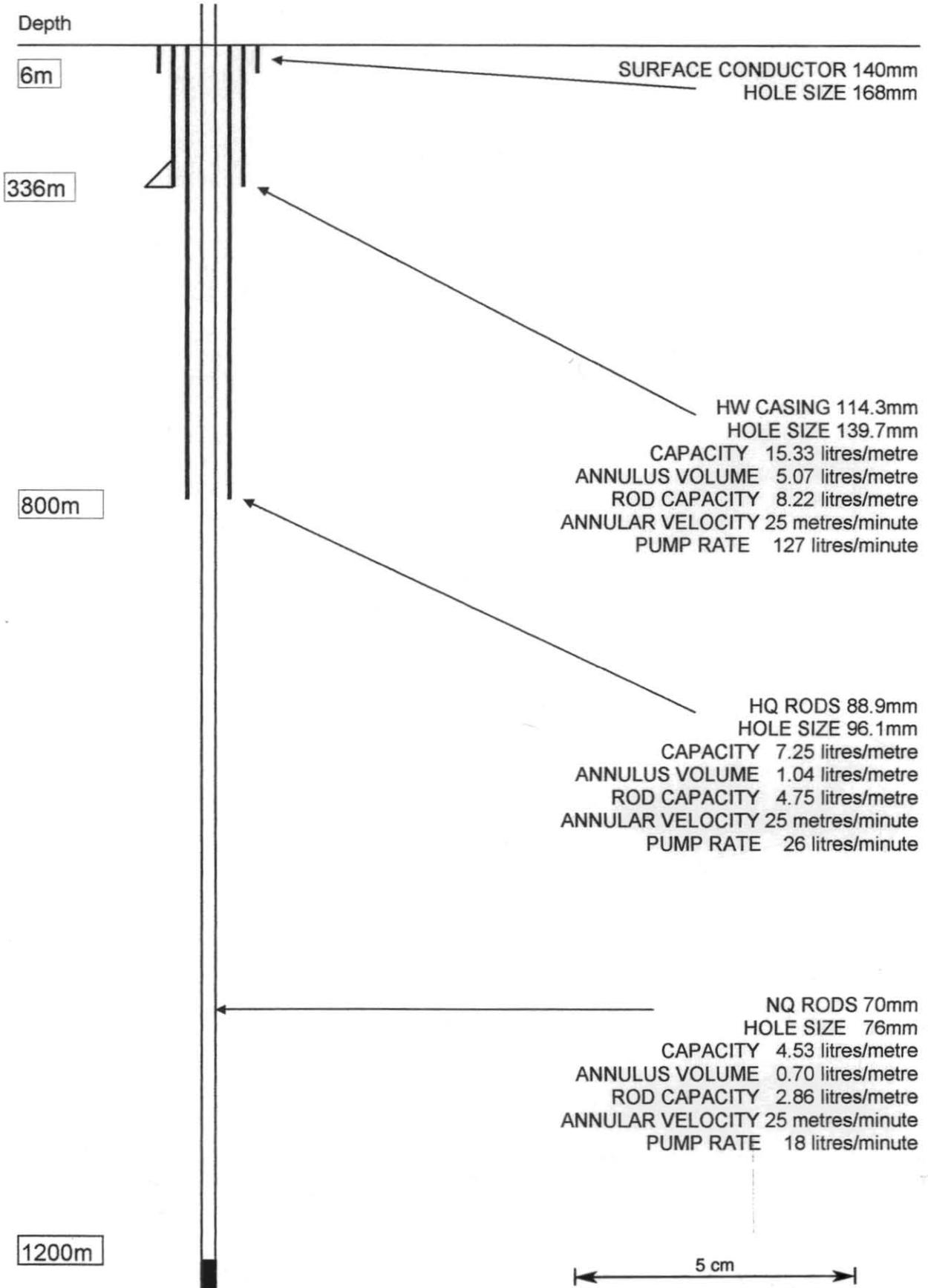
Standard Mud Properties:

Weight:	8.35 ppg (SG 1.0)
pH:	9.5 - 10
Marsh Funnel:	35 - 60 sec
Plastic Viscosity:	8 - 15 cp
Fluid Loss:	5 - 8 cc
Yield Point:	13 - 18
Solids:	Minimum

All mud engineering problems are referred to Kerry Booth of Australian Mud Company (08) 8359 6611 for advice.

HUNTERSTON #1 WELL PLAN

4.4 Well Diagram and Volumes



HUNTERSTON #1 WELL PLAN

4.5 Drilling and Coring Procedures

At all times during drilling operations a full opening drill string safety valve is to be kept on the drill floor.

During the retrieval of cores a wireline oilsaver packer stripper, rated to 3,000 psi is to be installed on the top of the drill rod string.

4.6 Plug and Abandon Procedure

Should the decision be taken to abandon the well the following procedure will be followed.

Approval will be obtained from the Director of Mines.

In the uncased portions of the well, cement plugs will be placed such as to provide a minimum of 30 metres of cement above and 30 metres of cement below any significant oil, gas or fresh water zones.

A cement plug will be placed at the casing shoe so as to extend at least 30 metres above and at least 30 metres below the casing shoe.

A surface cement plug extending at least 15 metres below the surface will be placed in the HW casing.

A steel well marker plate will be installed at least two metres above ground level, welded to the casing head with the well name and number bead welded on it.

5. FORMATION EVALUATION

5.1 Core Recovery, Logging and Analysis

Drill core will be recovered continuously from the bottom of the pre-collar hole. This core will be stored in metal core trays clearly numbered and marked for depth and direction, then logged in detail before being transported to storage.

Samples of the core will be taken periodically for ageing, and hydrocarbon analysis by Amdel Laboratories in Adelaide. Potential reservoir rocks will be tested for porosity and permeability. Gas samples will also be taken and analysed by Amdel to correlate against mudlogging results, and for detection of helium and other gases not measured by mudlogging instruments.

HUNTERSTON #1 WELL PLAN**5.2 Mudlogging Services**

Mudlogging services will be provided throughout drilling of the hole, and will include provision for monitoring and recording the following data:

(a) Gas Detection

- total gas
- chromatographic analysis
- running of calibration gases

(b) Drilling Parameters

- depth
- rate of penetration
- weight on bit/ hydraulic pressure
- speed of rotation
- pump rate
- calculation of lag time
- pit level monitoring
- mud rheological properties

5.3 Wireline Logging and Drill Stem Testing

Once drilling results have been fully analysed, a decision will be made on the extent of wireline logging and drill stem testing to be carried out. Full core recovery with the ability to test for porosity and permeability reduces the imperative for wireline logging, although these logs are valuable for comparative purposes and for establishing a standard point of reference within the industry.

Due to the significant cost of mobilising this equipment to Tasmania, any testing work will probably be combined with other wells, and hence may not occur until a later date. A separate testing program will be issued at this time.

Should the well be flared, all produced fluids will be sent to the flare pit and ignited. The area is to be continuously monitored for spot fires by personnel equipped with firefighting back packs.

HUNTERSTON #1 WELL PLAN**6. TESTING AND SAFETY PROCEDURES**

All operations will be under the direct control of qualified personnel holding current BOP and Well Control Certificates.

6.1 BOP Testing Procedures

- (a) Following nipping up of the BOP, the Annular Preventer, Choke Manifold, Kill valves, stand pipe and swivel will be tested to 3000 psi in 500 psi increments.
- (b) At intervals not exceeding 7 days after drilling below surface casing a pressure test of BOP's and manifold equipment will be carried out using a cup tester.
- (c) The Annular Preventer and Accumulator will be operated daily.
- (d) Safety drills will be carried out periodically at the discretion of the Supervisor.

6.2 Pressure Integrity Test

The Pressure Integrity Test provides a safe method of testing the casing and determining the amount of pressure or equivalent mud weight that the wellbore can withstand without fracturing and losing returns. All pressure integrity tests will be conducted using a small output pump with a pressure gauge. A graduated tank will be used to provide accurate volumetric measurements. The mud weight will be uniform in the wellbore. A pressure integrity test form will be used to record all data as accurately as possible.

Procedure:

Drilling out the shoe and 5 metres of cemented plug, circulate to normalise drilling fluid and test as follows:

- Pull into the casing and fill the hole. Stop pumps and close the annular preventer and kelly cock.
- Begin pumping down the annular at no more than 10 litres per minute. Record and graphically plot the casing pressure versus the volume pumped.
- Terminate the test at a pressure limit of 2000 psi or at the point where the pressure versus volume plot ceases to be a straight line, whichever occurs first.
- Record the instantaneous shut in pressure and trapped pressure for 15 minutes at 1 minute intervals or until it levels off, whichever occurs first.
- Bleed off into the graduated suction tank and record fluid volume recovered, then open the annular preventer.

HUNTERSTON #1 WELL PLAN**7. COMMUNICATIONS AND REPORTING**

All communications to the Operating Company and third parties will take place through Great South Land Minerals Limited office at Level 3, 65 Murray Street, Hobart

David Tanner
Chief Executive Officer
Great Southland Minerals Pty Ltd
Level 3, 65 Murray Street
Hobart TAS 7000
Telephone: 03 6231 9339
Facsimile: 03 6231 9338
Mobile Phone: 0417 354 412

All operational reports will generally be initiated by Great South Land Minerals Limited, Mr. David Tanner, Phone/Fax: 03 6231 5677, Mobile: 0417 354 412.

Daily Logs and geological reports will be forwarded to Mineral Resources Tasmania on a regular basis.

HUNTERSTON #1 WELL PLAN**8. PLANT AND EQUIPMENT DETAILS****8.1 MINDRILL F66 DRILL RIG DESCRIPTION**

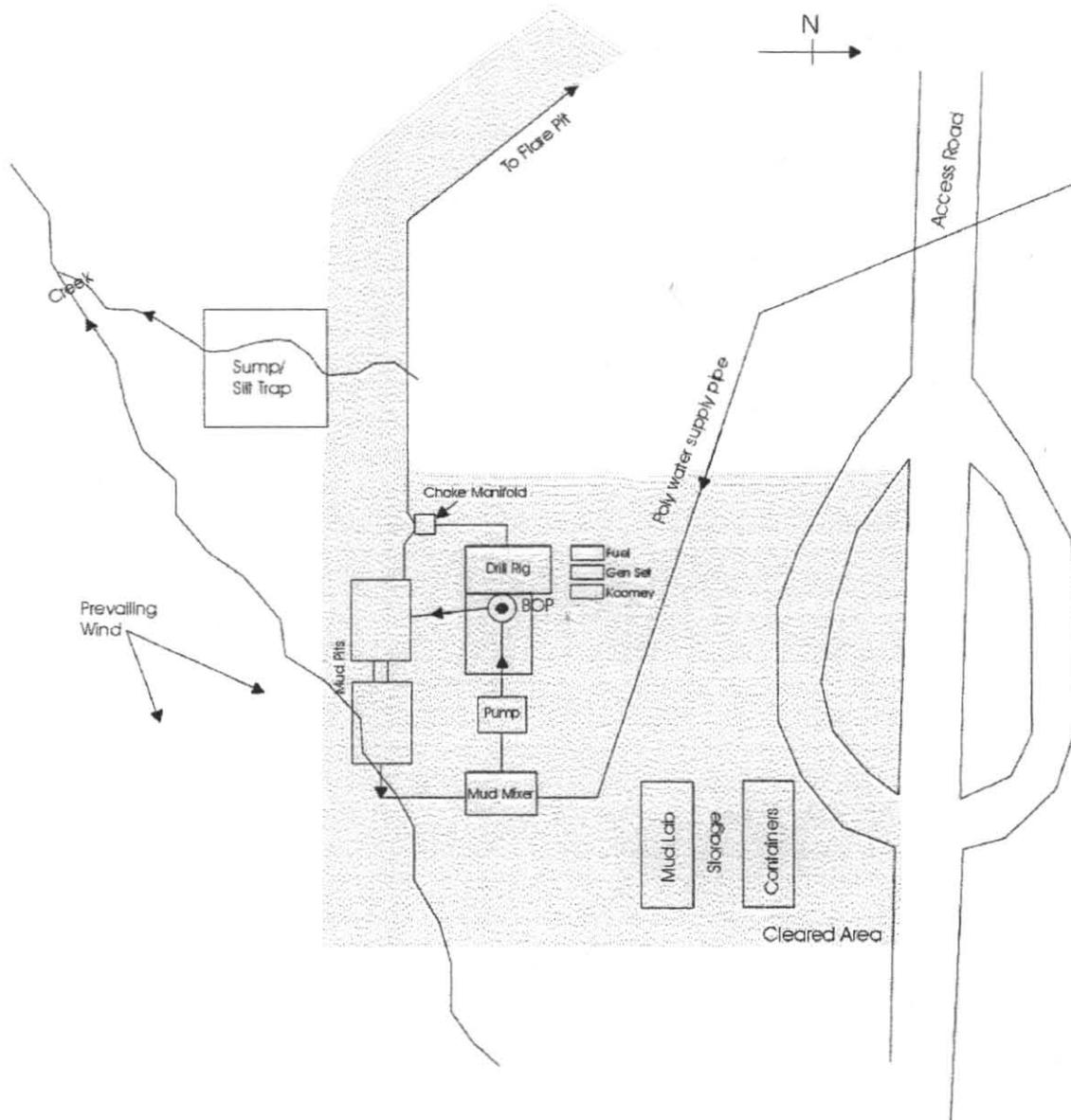
DRILL:	Mindrill F66 track mounted hydraulic over mechanical driven swivel head type drilling rig.
MOTOR:	Cummins 6BTA 5.9P turbocharged diesel delivering 141 (continuous) and 174 (maximum) HP @ 2200 rpm
MAST:	2-section 15 metre mast with 12m rod pull length with pipe stacking rack and hydraulic mast raising cylinder.
WIRELINE HOIST:	Hydraulic drum hoist with 2000m capacity of 8mm cable.
AUXILIARY POWER:	30 KVA Genset driven by Perkins 4108 diesel.
DRILL FLUIDS PUMP:	FMC 50 hp Bean Pump delivering 190 litres/min @ 10,000 kPa. Maximum rated pressure 12,500 kPa (1800 psi)

8.2 BLOWOUT PREVENTION EQUIPMENT

BOP	HYDRIL 4 ¹ / ₁₆ " GKS 5000 Annular Preventer with 4 ¹ / ₁₆ " 5M flange, complete with replacement element and seal kit. P/N 45931, S/N 63820
GATE VALVE	4 ¹ / ₁₆ " 5M API rated full opening GREYGATE flanged valve.
DRILLING SPOOL	4 ¹ / ₁₆ " x 2 ¹ / ₁₆ " 5M Drilling Spool.
CHOKE MANIFOLD	2" 3M Choke Manifold fitted with pressure gauge, dual choke lines and diverter connected to 6" surge tank.
KILL LINE	2" 3M Kill Line fitted with gate valve and check valve.
FLANGES	4 ¹ / ₁₆ " 5M Socket Weld Flanges
ACCUMULATOR	NL Shaffer 3 Station Koomey Unit with 11 gallon accumulator bottle, hydraulic tank, regulator gauges, BOP connection hose and duplex charging pump driven by Kohler engine and control unit. Model No. GED 1000053S, S/N 12483.
CHIKSAN HOSES	2" 3M Chiksan Hoses with hammer unions for connection to kill line and choke line.

HUNTERSTON #1 WELL PLAN

8.3 Site Plan



HUNTERSTON#1 SITE LAYOUT
Not to scale

5 cm