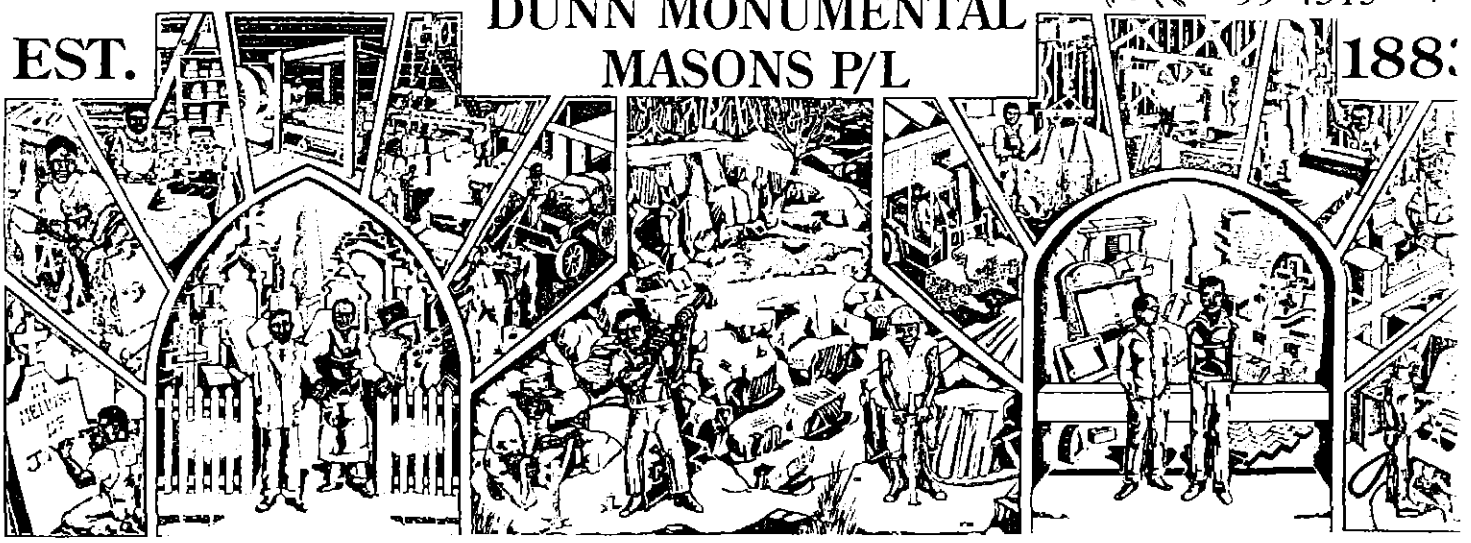
TCR 99-4315

EST. DUNN MONUMENTAL MASONS P/L 188



A.C.N. 009 537 053

Prospect Office: 150 Westbury Road, Prospect, Launceston, Tas. 7250 Telephone: (03) 6344 9966 Facsimile: (03) 6343 19

MINERAL RESOURCES TASMANIA



8 April 1999

Attention Dennis Burgess.
Re. Annual exploration report 8/97

576001

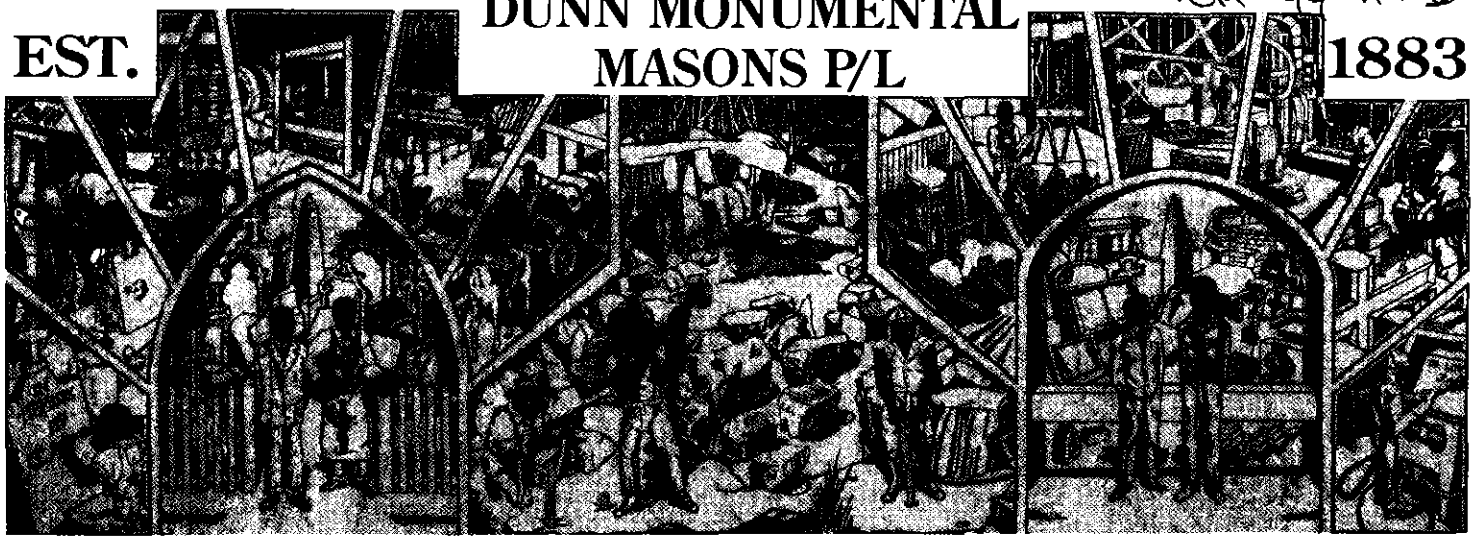


# 99-4315

ANNUAL REPORT- EL 8/97
DUNN MONUMENTAL MASONS P/L

TCR 99-435

# EST. DUNN MONUMENTAL MASONS P/L 1883



A.C.N. 009 537 053

Prospect Office: 150 Westbury Road, Prospect, Launceston, Tas. 7250 Telephone: (03) 6344 9966 Facsimile: (03) 6343 1911

MINERAL RESOURCES TASMANIA



8 April 1999

Attention Dennis Burgess.
Re. Annual exploration report 8/97

576002

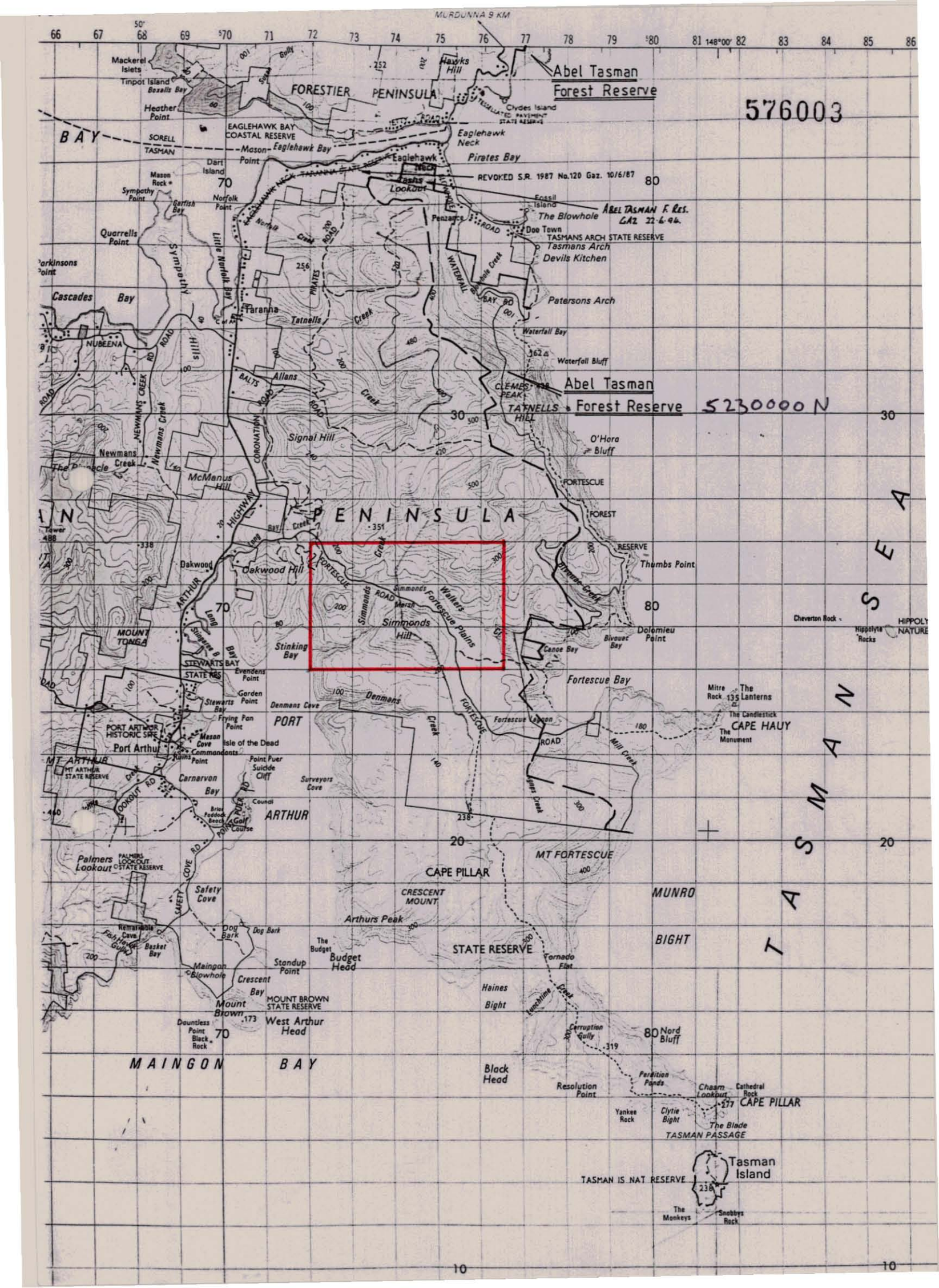
Dear Dennis,

It seems as though I loose a day a week simply trying to catch up with all the paper work. The following report will enable you to understand the process we are taking.

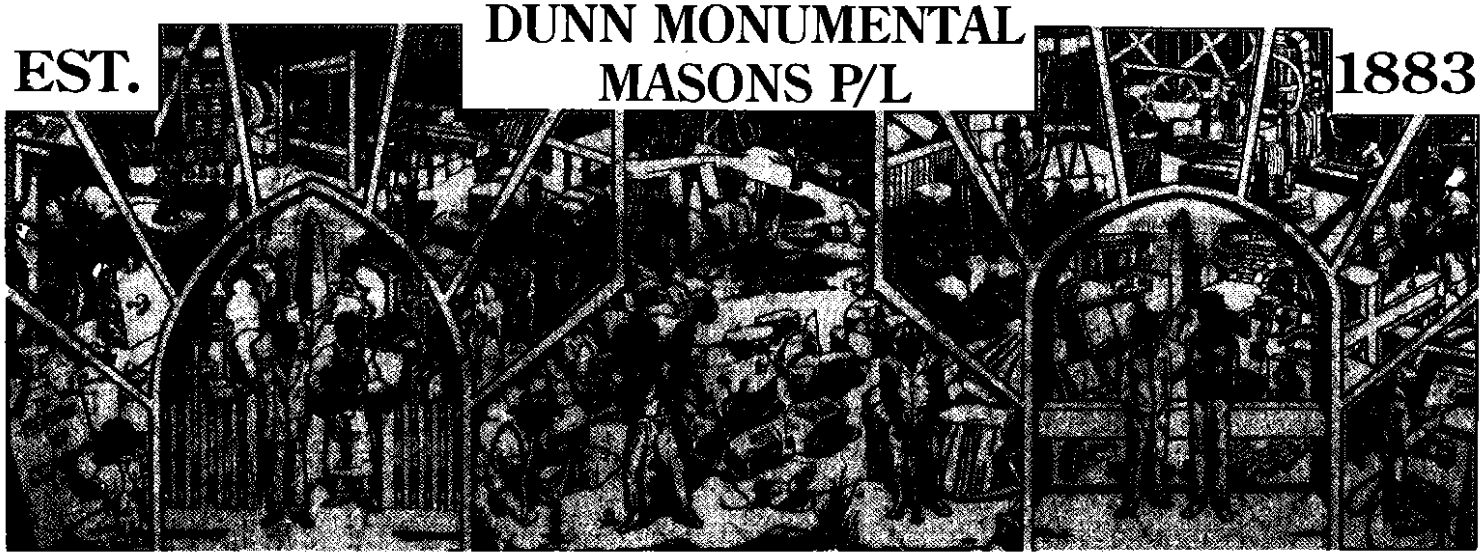
The initial operation required time spent in the field with raw sampling taking place over an extended area. This work requires, in simple terms breaking rocks and observing their characteristics, eg colour, grain structure, grain composition and evenness, depth of continuity, quantity in the proximity.
Once several areas have been evaluated in this manner, a decision is then made as to which are the most favorable.
Diamond core drilling is then undertaken.
After the decision has been made on the best few sites, bulk sampling then can proceed.
With the bulk sampling it is necessary to establish several mandatory requirements.
The first of these is the performance of the stone under the drill.
The second is the splitting and primary cutting.
The third is the consideration of any and all jointing planes within the deposit.
The fourth is the colour continuity within the deposit.
The bulk samples are then transported to the processing plant in L'ton, where the stone is then tested in the following areas.
The first is sawing, examination of grain structure and how the material behaves under the saw.
The second is to rotate the material through all its axis and observe the same characteristics.
The next step is to polish the material and again look at the grain structure, once again the material is rotated through all axis in this process.
The material is then checked for the movement of any oxides.
The next step is to provide a testing laboratory with the material and have it tested for the following properties. Flexural strength, compressive strength,abrasion resistance,structural stability, water absorbs ion and weight.
The next step is to explore the market place both domestically and internationally.To achieve this, an internationally experienced marketing company is appointed.
The whole process continues again with the next bulk sampling process.

If I can offer any further assistance, let me know.
Best regards,

John G. Dunn


MURDUNNA 9 KM
148°00'
576003
5230000 N
Abel Tasman
Forest Reserve
FORESTIER PENINSULA
EAGLEHAWK BAY COASTAL RESERVE
REVOKED S.R. 1987 No.120 Gaz. 10/6/87
ABEL TASMAN F. RES. GAZ 22-6-94.
TASMANS ARCH STATE RESERVE
Tasmans Arch
Devils Kitchen
Patersons Arch
Cascades Bay
NUBEENA
Taranna
Tatnells Creek
Allans Creek
Signal Hill
TATNELLS HILL
O'Hora Bluff
FORTESCUE FOREST RESERVE
Newmans Creek
McManus Hill
PENINSULA
Oakwood
Oakwood Hill
Simmonds Hill
Fortescue Plains
Thumbs Point
Dolomieu Point
Stinking Bay
STEWARTS BAY STATE RES
Fortescue Bay
Denmans Cove
PORT ARTHUR HISTORIC SITE
Port Arthur
Isle of the Dead
MT ARTHUR
MT ARTHUR STATE RESERVE
Carnarvon Bay
ARTHUR
Palmers Lookout
PALMERS LOOKOUT STATE RESERVE
CAPE PILLAR
MT FORTESCUE
CRESCENT MOUNT
Arthurs Peak
MUNRO BIGHT
STATE RESERVE
Budget Budget Head
Standup Point
Maingon Blowhole
Crescent Bay
Mount Brown
MOUNT BROWN STATE RESERVE
West Arthur Head
MAINGON BAY
Haines Bight
Black Head
Nord Bluff
Resolution Point
Partition Ponds
Chasm Lookout
Cathedral Rock
CAPE PILLAR
Yankee Rock
Clytie Bight
The Blade
TASMAN PASSAGE
Tasman Island
TASMAN IS NAT RESERVE
The Monkeys
Snobbys Rock
CAPE HAUY
The Lanterns
The Candlestick
The Monument
Mitre Rock
Cheverton Rock
Hippolyte Rocks
TASMAN SEA

EST. **DUNN MONUMENTAL MASONS P/L** 1883



A.C.N. 009 537 053

Prospect Office: 150 Westbury Road, Prospect, Launceston, Tas. 7250 Telephone: (03) 6344 9966 Facsimile: (03) 6343 1911

MINERAL RESOURCES TASMANIA 8th June 1999
Therese Taylor,

576004

Dear Ms. Taylor,

In reply to your letter of the 6th May 1999. I should like to offer the following information.

The field sampling was carried out over the areas marked on the accompying map.

I have nominated an area bounded by a black line as the most favorable position for further exploration.

The reasons for a rock type to fall short of our requirements are many, in this instance the reasons are as follows, incorrect joint structure (blocks to small), the lack of colour consistency within the body of the rock, the reserves of good material are not sufficient to sustain long term viability.

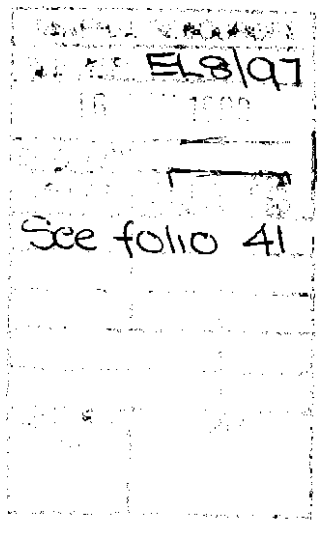
The area bounded by the heavy black line underwent extensive bulk sampling. You asked for the position of drill hole collar positions, this type of exploration has not been utilized at this time, although it is planned for the coming year. Drilling was performed on individual stones as part of the investigation, these stone were then transported to our Launceston plant for further processing evaluation.

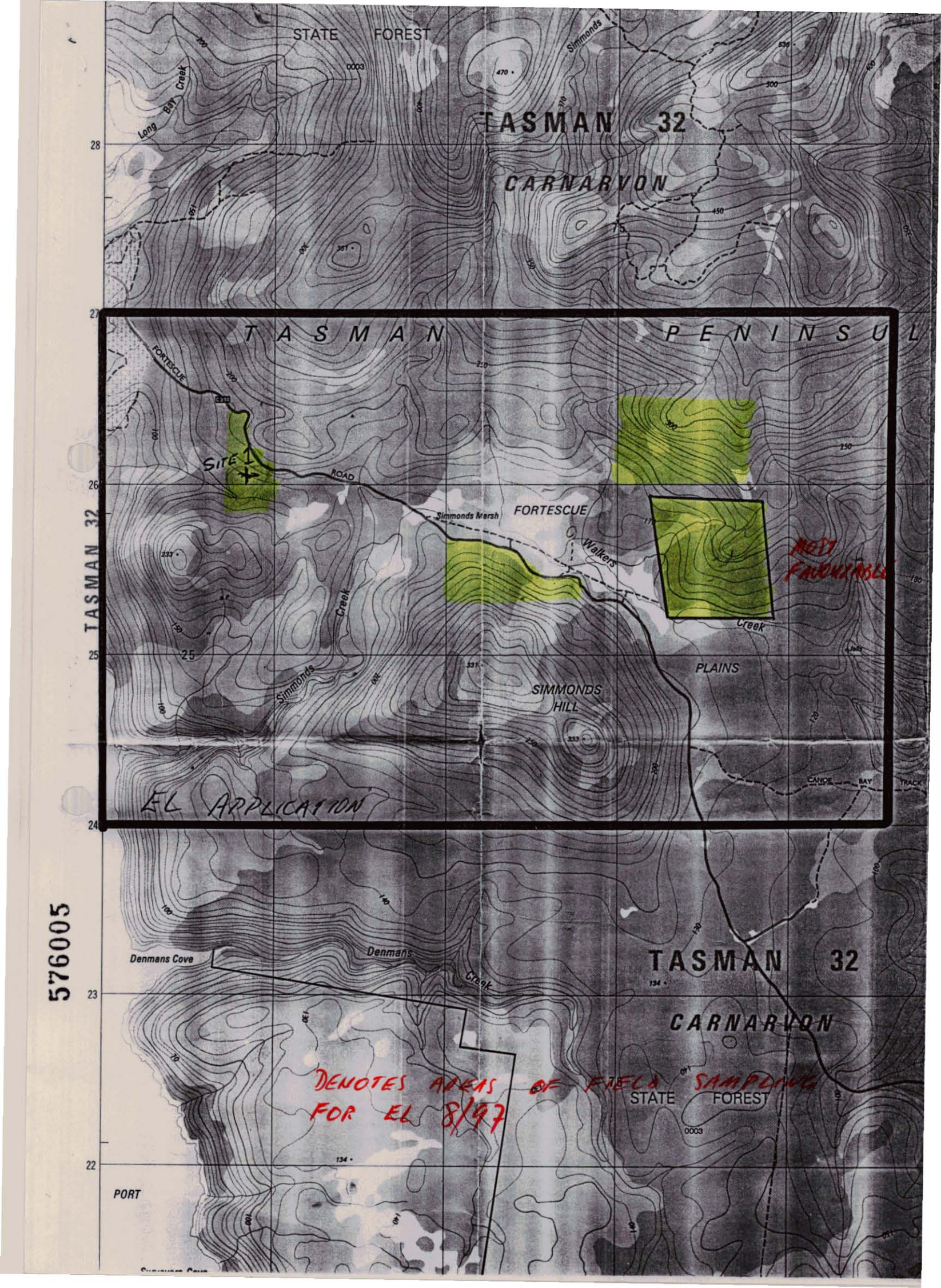
I have included a copy of the test results carried out by Amdel, these results are self explanatory. The report is required to be undertaken to assist with the marketing of the material, as all facets of the performance of the rock need to be considered for each application of the rock as a finished product.

If I am able to assist with anything further let me know.

Best regards,

John G. Dunn.




STATE FOREST
TASMAN 32
CARNARVON
TASMAN PENINSUL
TASMAN 32
SITE 1
ROAD
FORTESCUE
Simmonds Marsh
Walkers
Creek
MOST FAVOURABLE
PLAINS
SIMMONDS HILL
Simmonds
Long Bay Creek
CANOE BAY TRACK
EL APPLICATION
Denmans Cove
Denmans Creek
TASMAN 32
CARNARVON
DENOTES AREAS OF FIELD SAMPLING FOR EL 8/97
STATE FOREST
PORT
576005
28
27
26
25
24
23
22

FILED 8/6/99

APPX 1
99-4315A.

**Amdel Limited**
**A.C.N. 008 127 802**
**INDUSTRIAL SERVICES**
**Certified to AS/NZS ISO 9001**

PO Box 338
TORRENSVILLE PLAZA SA 5031

Telephone: (08) 8416 5200
Facsimile: (08) 8234 2760

QUALITY MANAGEMENT SYSTEM
ISO9001 NATA CERTIFIED

23 December 1997

576006

Dunn Monumental Masons
150 Westbury Road
LAUNCESTON TAS 7250

Attention: Mr John Dunn

# *Evaluation of Eucalypt Dolerite*

**AMDEL REPORT** 7A02747

**CLIENT REFERENCE** Request J. Dunn

**INVESTIGATING OFFICERS** James P. Mann and Frank Radke

EL8/97 pt 1

Jeremy V. Pickering
Group Leader
Material Services

See folio 40A

## 1. INTRODUCTION

Amdel Limited was requested by Dunn Monumental Masons to undertake testing of supplied samples of Eucalypt dolerite (see Plate 1). The samples were received cut to test specimen size.

## 2. TEST PROGRAM

The following test work was undertaken:

576007

Petrography
Bulk Density
Water Absorption
Flexural Strength
Modulus of Rupture
Compressive Strength
Abrasion Resistance

Petrography was undertaken on a polished thin section (TS C69478) prepared from a representative sample and examined by transmitted and reflected light microscopy. The polished thin section was point counted to determine mineral proportions. The offcut chip from the thin section was stained with sodium cobaltinitrite after a hydrofluoric acid etch to detect the possible presence and location of potash feldspar.

Three cubes were supplied for testing in accordance with ASTM C97-96 "Standard Test Methods for Absorption and Bulk Specific Gravity of Dimension Stone". The specimens had been dried at 60 ± 2°C for 48 hours followed by soaking at 22 ± 2°C for a further 48 hours.

Flexural strength was determined in accordance with ASTM C880-96 "Standard Test Method for Flexural Strength of Dimension Stone". The dry specimens had been dried at 60±2°C for 48 hours prior to testing. The soaked specimens had been immersed in water for 48 hours at 22±2°C.

Modulus of Rupture was determined in accordance with ASTM C99-87 "Standard Test Method for Modulus of Rupture of Dimension Stone". The dry specimens had been dried at 60±2°C for 48 hours prior to testing. The soaked specimens had been immersed in water for 48 hours at 22±2°C.

Compressive strength was determined in accordance with ASTM C170 - 90 "Standard Test Method for Compressive Strength of Dimension Stone". Specimens were tested in both dry and soaked condition. The dry specimens had been dried at 60±2°C for 48 hours prior to testing. The soaked specimens had been immersed in water for 48 hours at 22±2°C.

Index of Abrasion Resistance was determined in accordance with ASTM C1353-96 "Test Method for Abrasion Resistance of Dimension Stone by the Taber Abraser".

## 3. RESULTS

576008

Results of testing are summarised below and full test data are contained in Appendix A to this report.

| Property | Eucalypt | |
|---|---|---|
| **Water Absorption** | | |
| % by weight | 0.03 | |
| % by volume | 0.09 | |
| **Bulk Density** | | |
| ($t.m^{-3}$) | 2.86 | |
| **Flexural Strength** | | |
| Dry (MPa) | 23.4 | |
| Soaked (MPa) | 27.3 | |
| Soaked / Dried Ratio | 1.17 | |
| **Modulus of Rupture** | | |
| Dry (MPa) | 22.5 | |
| Soaked (MPa) | 28.9 | |
| Soaked / Dried Ratio | 1.29 | |
| **Compressive Strength** | | |
| Dry (MPa) | 159.6 | |
| Soaked (MPa) | 195.0 | |
| Soaked / Dried Ratio | 1.22 | |
| **Index of Abrasion Resistance** | 106 | |
| **Petrography** | | |
| Rock Name | Dolerite | |
| Mineralogy (vol %) | Plagioclase | 59.5 |
| | Augite | 20.0 |
| | Potash Feldspar | 14.0 |
| | Uralitic Amphibole | 2.4 |
| | Chlorite | 1.3 |
| | Sericite/clay | 0.7 |
| | Ilmenite | 0.7 |
| | Hornblende | 0.6 |
| | Leucoxene | 0.6 |
| | Apatite | 0.2 |
| | Biotite | Trace |
| | Pyrite | Trace |
| | Chalcopyrite | Trace |
| | Marcasite | Trace |

## 4. DISCUSSION

576009

### 4.1 Bulk Density/Water Absorption

The mean water absorption of the specimens tested was 0.03% by weight, which is very low and comparable to the better dimension stones in the "granite suite". It is well below the maximum of 0.4% often specified for "granites" to be used as veneer cladding. The mean bulk density of 2.86t.m$^{-3}$ is comparable with similar stones and well above the typical granite facade specification of 2.55 - 2.60.

### 4.2 Flexural Strength

The mean flexural strength of the specimens tested was 23.4 MPa (dry) with a range of 16.3 to 27.9 MPa and 27.3 MPa (wet) with a range of 25.2 to 28.2 MPa. Ultrasonic pulse velocity determination revealed some variation when a sample of the stone was tested in all three orthogonal orientations (6375-6163m/sec). This level of inherent anistropy is not considered to be the cause of the spread of results. The wide variation in the "dry" test results could be due to damage to the stone in the form of micro-cracking caused by blasting during extraction from the quarry. Given that the "true" typical flexural strength is nearer to 28MPa, Eucalypt could be considered to have a high flexural strength which is well above that typically required of similar dimension stones (typically around 11 MPa).

### 4.3 Modulus of Rupture

The mean modulus of rupture of the specimens tested was 22.5 MPa (dry) with a range of 18.9 to 25.2 MPa and 28.9 MPa (wet) with a range of 26.9 to 30.3 MPa. As for the flexural strength results, the wide variation in the "dry" test results could be due to use of explosives during the extraction process. Given that the "true" typical modulus of rupture is nearer to 28MPa, Eucalypt could be considered to have a high modulus of rupture which is well above that which is typically required of similar dimension stones (typically around 11 MPa).

### 4.4 Unconfined Compressive Strength

The mean compressive strength of the specimens tested was 159.6 MPa (dry) and 195.0 MPa (soaked). The results achieved are considered comparable to good quality granites (typical range 100 - 250 MPa) and well above typical specification minimum requirements of around 130 MPa. Once again, the mean result has been lowered by the scatter in the individual test results (eg. dry strength varied from 118.0 to 223.4 MPa).

### 4.5 Index of Abrasion Resistance

The mean abrasive resistance index of 106 classifies the sample as having a high abrasion resistance and suitable for all uses[1]. This figure can be compared with a typical range for granite of 40 - 240.

[1] D. West, 1983 "Stone in Modern Buildings"

576010

## 4.6 Petrography

The dominant minerals present are plagioclase (59.5%), augite (20.0%) and potash feldspar (14.0%). The randomly oriented plagioclase laths range in size from 0.3 to 1mm in size and are intergrown with large augite crystals up to several mm in size. The potash feldspar is present as the major interstitial mineral.

The rock appears quite fresh with the beginnings of alteration products of the plagioclase visible along irregular fractures. The major alteration products are uralitic amphibole (2.4%), chlorite (1.3%), sericite/clay (0.7%), leucoxene (0.6%) and marcasite (trace). All alteration products are present in relatively low quantities and appear to be finely disseminated throughout the rock. The high abrasion resistance result seems to confirm that the alteration products do not pose a major problem. occurs locally as marginal intergrowths around augite crystals or as marginal intergrowths around disseminated opaques.

Traces of sulphide in the form of pyrite and chalcopyrite are present with most of the sulphides having a grain size below 0.1mm but some being up to 0.4mm. Some of the pyrite is intergrown with minor marcasite which tends to weather more readily than other sulphides present. The presence of these sulphides could cause a problem as they could weather and possibly leave iron-stains, but it is encouraging that they are present only in trace amounts, are small in grain size and appear fresh.

## 5. SUMMARY

The physical properties determined in this test program, indicate that the Eucalypt dolerite has physical properties comparable with many of the high quality "granites" being marketed as dimension stone in Australia. The results achieved show that Eucalypt would comply with most specifications where the stone is required for paving or veneer cladding. The presence of various alteration products and sulphides is worth noting as they may affect the appearance of the polished stone due to "plucking" during polishing, or "iron-stains" after exposure to weather. Determination of loss of polish under traffic could be helpful in determining the in service performance of the stone.

576011

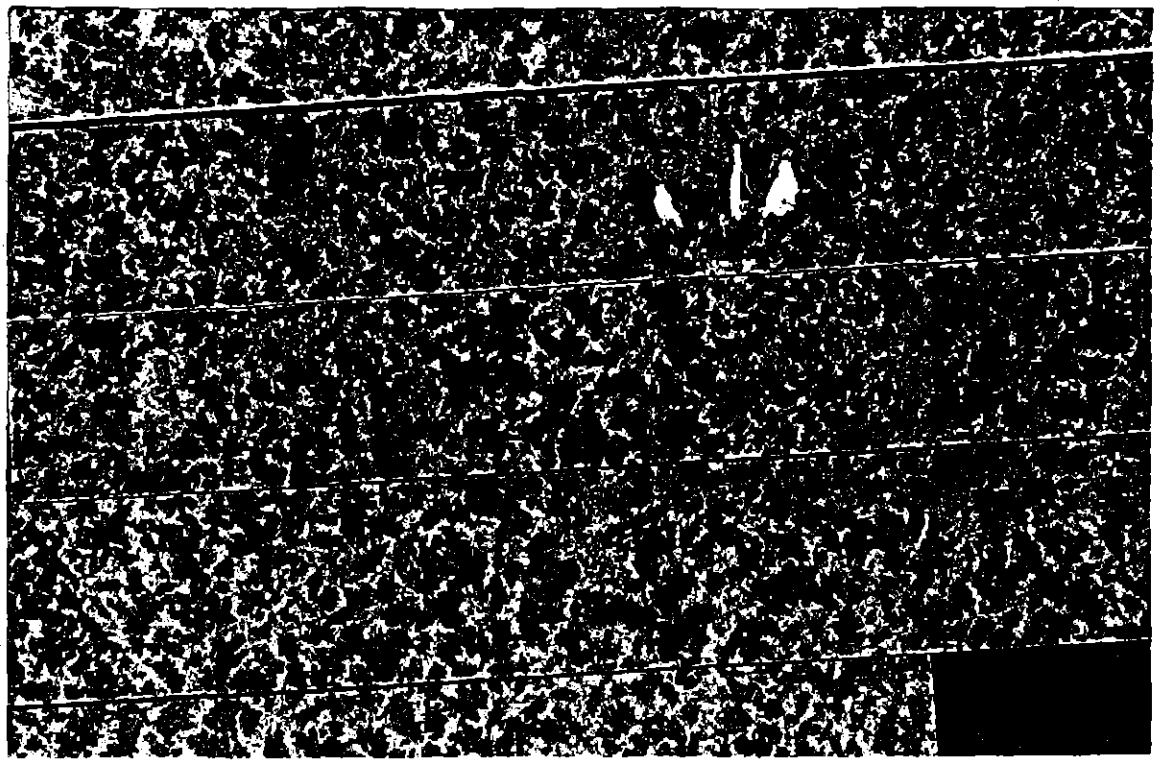


Plate 1: Typical appearance of Eucalypt as received (polished).

# Appendix A

# Full Test Data

amdel

**SAMPLE:** Eucalypt : (Thin Section TS C69478)

**ROCK NAME:** Dolerite

576013

**HAND SPECIMEN:**

This is a medium grained rock with a mottled dark green to light greenish-grey colour. Microchemical tests show that the rock contains finely intergrown potash feldspar in patches ranging up to a few mm in size.

**POLISHED THIN SECTION:**

Mineral proportions as determined by point-counting are as follows:

| Mineral | No. of Points | Volume % | Origin |
|---|---|---|---|
| Plagioclase | 322 | 59.5 | Igneous |
| Augite | 108 | 20.0 | Igneous |
| Potash feldspar | 76 | 14.0 | Igneous |
| Uralitic amphibole | 13 | 2.4 | Alteration |
| Chlorite | 7 | 1.3 | Alteration |
| Sericite/clay | 4 | 0.7 | Alteration |
| Ilmenite | 4 | 0.7 | Igneous |
| Hornblende | 3 | 0.6 | Igneous |
| Leucoxene | 3 | 0.6 | Alteration |
| Apatite | 1 | 0.2 | Igneous |
| Biotite | 0 | Tr | Igneous |
| Pyrite | 0 | Tr | (?)Igneous |
| Chalcopyrite | 0 | Tr | (?)Igneous |
| Marcasite | 0 | Tr | Alteration |

This sample consists mainly of randomly oriented plagioclase laths ranging between 0.3 and 1mm in size intergrown with large augite crystals up to several mm in size. The clinopyroxene crystals have anhedral, somewhat embayed shapes with penetrating plagioclase laths producing a subophitic texture. Also present in this sample is interstitial potash feldspar which tends to have a slightly turbid character and locally has vague myrmekitic textures.

The rock is quite fresh although the plagioclase shows incipient alteration to finely divided sericite/clay which occurs along irregular fractures in plagioclase. The major alteration product is a uralitic amphibole which occurs locally as marginal intergrowths around augite crystals or as marginal intergrowths around disseminated opaques. The rock also contains a pleochroic brown amphibole which is thought to be of late-stage igneous origin as are trace amounts of a pleochroic brown biotite. The rock also contains small amounts of a green phyllosilicate which occurs as intergrowths with mafic minerals and as very fine intergrowths with plagioclase. This mineral has been termed chlorite in the above list of minerals but could be another clay mineral such as a smectite.

The major opaque mineral in this rock is ilmenite, which forms anhedral, disseminated grains ranging up to 1.5mm in size. The ilmenite shows varying degrees of alteration from relatively fresh ilmenite to somewhat altered ilmenite through to leucoxene.

Traces of sulphide in the form of pyrite and chalcopyrite form anhedral disseminated grains. Most of the sulphides have a grain size below 0.1mm although some larger pyrite grains ranging up to 0.4mm are disseminated through the rock. Some of the pyrite is intergrown with minor marcasite.

Apatite forms disseminated, prismatic crystals ranging up to 0.4mm in length.

This is an intrusive igneous rock comprised mainly of plagioclase feldspar and augite with smaller amounts of potash feldspar. The rock is quite fresh, with the major alteration products being uralitic amphibole and secondary phyllosilicates termed chlorite and sericite/clay. These alteration products comprise less than 5% of the sample. The rock also contains trace levels of sulphides in the form of pyrite with smaller amounts of chalcopyrite and marcasite.

amdel

Amdel Limited
A.C.N. 008 127 802
INDUSTRIAL SERVICES
Certified to AS/NZS ISO 9001

PO Box 338
TORRENSVILLE PLAZA SA 5031

Telephone 61 8 84165200
Facsimile 61 8 82342760



576015

# DIMENSION STONE TESTING LABORATORY

## TEST CERTIFICATE

**TEST:** Modulus of Rupture of Dimension Stone
**TEST METHOD:** ASTM C99-87
**SAMPLE:** Eucalypt
**CLIENT:** Dunn Monumental Masons
**DATE TESTED:** 20-22 December 1997
**TESTED BY:** J.Mann
**OUR REF :** 7A02747

**ORIENTATION:** Load applied parallel to zz plane

**CONDITION:** Dried **FINISH IN TENSION:** Diamond Sawn

| Test Number | Specimen Identification | Span (mm) | Width (mm) | Thick (mm) | Load (N) | Strength (MPa) |
|---|---|---|---|---|---|---|
| MR0499 | EUC/15 | 178 | 107.9 | 56.3 | 26600 | 20.8 |
| MR0500 | EUC/17 | 178 | 107.5 | 56.4 | 28050 | 21.9 |
| MR0501 | EUC/19 | 178 | 107.7 | 56.6 | 32600 | 25.2 |
| MR0502 | EUC/21 | 178 | 107.9 | 55.6 | 23650 | 18.9 |
| MR0503 | EUC/23 | 178 | 107.7 | 56.3 | 29650 | 23.2 |
| | | | | | **AVERAGE:** | 22.5 |

**CONDITION:** Soaked **FINISH IN TENSION:** Diamond Sawn

| Test Number | Specimen Identification | Span (mm) | Width (mm) | Thick (mm) | Load (N) | Strength (MPa) |
|---|---|---|---|---|---|---|
| MR0494 | EUC/14 | 178 | 107.9 | 57.1 | 39850 | 30.3 |
| MR0495 | EUC/16 | 178 | 107.8 | 56.8 | 35550 | 27.3 |
| MR0496 | EUC/18 | 178 | 107.6 | 57.9 | 40400 | 30.0 |
| MR0497 | EUC/20 | 178 | 107.7 | 56.8 | 35050 | 26.9 |
| MR0498 | EUC/22 | 178 | 107.7 | 57.1 | 39600 | 30.2 |
| | | | | | **AVERAGE:** | 28.9 |

**Average Soaked / Dried Ratio:** 1.29

**Approved Signatory:** **Date:** 22/12/97

**Name:** James P. Mann
**Registration No.:** 730

Amdel Limited
A.C.N. 008 127 802
INDUSTRIAL SERVICES

P.O.Box 338
TORRENSVILLE PLAZA SA 5031

Telephone 61 8 84165200
Facsimile 61 8 82342760

576016

# DIMENSION STONE TESTING LABORATORY

## TEST CERTIFICATE

**TEST:** Unconfined Compressive Strength
**TEST METHOD:** ASTM C170-90
**SAMPLE:** Eucalypt (EUC)
**CLIENT:** Dunn Monumental Masons
**DATE TESTED:** 13-15 December 1997
**TESTED BY:** J.Mann
**OUR REF.:** 7A02747

**SPECIMEN SHAPE:** Cylinder

| Test Number | Specimen Identification | Test Condition | Area (mm2) | Length (mm) | Max. Load (Newtons) | Mode of Failure | Compressive Strength (MPa) |
|---|---|---|---|---|---|---|---|
| C1836 | EUC/25 | Dried | 2333 | 107.5 | 521200 | Axial | 223.4 |
| C1837 | EUC/27 | Dried | 2333 | 107.5 | 368000 | Axial | 157.7 |
| C1838 | EUC/29 | Dried | 2333 | 107.1 | 411100 | Axial | 176.2 |
| C1839 | EUC/31 | Dried | 2333 | 107.9 | 275300 | Axial | 118.0 |
| C1840 | EUC/33 | Dried | 2333 | 108.1 | 285800 | Axial | 122.5 |

**Mean Compressive Strength:** 159.6 MPa

| Test Number | Specimen Identification | Test Condition | Area (mm2) | Length (mm) | Max. Load (Newtons) | Mode of Failure | Compressive Strength (MPa) |
|---|---|---|---|---|---|---|---|
| C1831 | EUC/24 | Soaked | 2333 | 107.5 | 600100 | Cataclasis | 257.2 |
| C1832 | EUC/26 | Soaked | 2333 | 107.4 | 597700 | Cataclasis | 256.2 |
| C1833 | EUC/28 | Soaked | 2333 | 107.5 | 286700 | Axial | 122.9 |
| C1834 | EUC/30 | Soaked | 2329 | 107.8 | 490800 | Axial | 210.7 |
| C1835 | EUC/32 | Soaked | 2333 | 107.1 | 298000 | Axial | 127.7 |

**Mean Compressive Strength:** 195.0 MPa **Mean soaked / dried ratio :** 1.22

**Approved Signatory:**

James P. Mann
Materials Services
Laboratory Registration No. 730

**Date:** 22/12/97

*Amdel Limited*
A.C.N. 008 127 802
INDUSTRIAL SERVICES
Certified to AS/NZS ISO 9001

P.O. Box 338
TORRENSVILLE PLAZA SA 5031

Telephone 61 8 84165200
Facsimile 61 8 82342760

576017

# DIMENSION STONE TESTING LABORATORY

## TEST CERTIFICATE

**TEST:** Index of Abrasion Resistance
**TEST METHOD:** ASTMC1353-96
**SAMPLE:** Eucalypt
**CLIENT:** Dunn Monumental Masons
**DATE OF TEST:** 12th December 1997
**TESTED BY:** J. Mann
**OUR REF.:** 7A02747

**CONDITIONING TIME:** 48hr
**BULK DENSITY:** 2.87

### ABRASION RESISTANCE

| Test Number | Specimen Identification | Total Cycles | Initial Mass (g) | Final Mass (g) | Weight Loss (g) | Index of Abrasion Resistance |
|---|---|---|---|---|---|---|
| A0021 | EUC/34 | 1000 | 475.11 | 474.16 | 0.95 | 111 |
| A0022 | EUC/35 | 1000 | 488.70 | 487.66 | 1.04 | 101 |
| A0023 | EUC/36 | 1000 | 479.52 | 478.53 | 0.99 | 107 |

**AVERAGE: Index of Abrasion Resistance:** 106

**NATA SIGNATORY:** Date: 12/12/97

**Name:** James P. Mann
Laboratory Registration No. 730

Amdel Limited
A.C.N. 008 127 802
INDUSTRIAL SERVICES
Certified to AS/NZS 9001

P.O. Box 338
TORRENSVILLE PLAZA SA 5031

Telephone 61 8 84165200
Facsimile 61 8 82342760

576018

# DIMENSION STONE TESTING LABORATORY

## TEST CERTIFICATE

**TEST:** Flexural Strength
**TEST METHOD:** ASTM C880-96
**SAMPLE:** Eucalypt
**CLIENT:** Dunn Monumental Masons
**DATE TESTED:** 8th - 10th December 1997
**TESTED BY:** J. Mann
**OUR REF :** 7A02747

**CONDITIONING TIME:** 48 hours

**TESTING ORIENTATION:** Not known

**CONDITION:** Dried **FINISH IN TENSION:** Diamond Sawn

| Test Number | Specimen Identification | Span (mm) | Width (mm) | Thick (mm) | Load (N) | Soaked Strength (MPa) |
|---|---|---|---|---|---|---|
| F1027 | EUC/5 | 320 | 106.8 | 32.4 | 12400 | 26.6 |
| F1028 | EUC/7 | 320 | 105.3 | 31.8 | 10090 | 22.8 |
| F1029 | EUC/9 | 320 | 104.8 | 32.5 | 10790 | 23.5 |
| F1030 | EUC/11 | 320 | 104.8 | 33.6 | 13730 | 27.9 |
| F1031 | EUC/13 | 320 | 105.3 | 32.6 | 7580 | 16.3 |
| | | | | | **Mean** | 23.4 |
| | | | | | **Standard Deviation** | 4.5 |

**CONDITION:** Soaked **FINISH IN TENSION:** Diamond Sawn

| Test Number | Specimen Identification | Span (mm) | Width (mm) | Thick (mm) | Load (N) | Soaked Strength (MPa) |
|---|---|---|---|---|---|---|
| F1022 | EUC/4 | 320 | 107.0 | 33.2 | 13710 | 28.0 |
| F1023 | EUC/6 | 320 | 108.4 | 33.9 | 14460 | 27.9 |
| F1024 | EUC/8 | 320 | 104.9 | 32.1 | 11330 | 25.2 |
| F1025 | EUC/10 | 320 | 104.2 | 31.1 | 11430 | 27.2 |
| F1026 | EUC/12 | 320 | 108.6 | 32.4 | 13410 | 28.2 |
| | | | | | **Mean** | 27.3 |
| | | | | | **Standard Deviation** | 1.3 |

**Mean Soaked : Dried Ratio** 1.17

**NATA SIGNATORY:**  **Date:** 22/12/97

**Name:** James P. Mann
**Laboratory Registration No.: 730**

Amdel Limited
A.C.N. 008 127 802
INDUSTRIAL SERVICES
Certified to AS/NZS ISO 9001

P.O.Box 338
TORRENSVILLE PLAZA SA 5031

Telephone 61 8 84165200
Facsimile 61 8 82342760

576019

# DIMENSION STONE TESTING LABORATORY

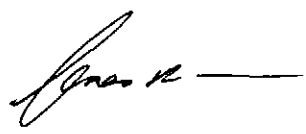
## TEST CERTIFICATE

**TEST:** Absorption and Bulk Specific Gravity of Dimension Stone
**TEST METHOD:** ASTM C97-96
**SAMPLE:** Eucalypt
**CLIENT:** Dunn Monumental Masons
**DATE TESTED:** 3rd - 10th December 1997
**TESTED BY:** J. Mann
**OUR REF:** 7A02747

| Test Number | Specimen Identification | Dry Mass (g) | Suspended Mass (g) | Soaked Mass (g) | Bulk Density | % Water by Volume | % Absorption by Weight |
|---|---|---|---|---|---|---|---|
| W0904 | EUC/1 | 378.78 | 246.44 | 378.89 | 2.86 | 0.08 | 0.03 |
| W0905 | EUC/2 | 392.76 | 255.86 | 392.89 | 2.87 | 0.09 | 0.03 |
| W0906 | EUC/3 | 392.49 | 255.69 | 392.60 | 2.87 | 0.08 | 0.03 |

**AVERAGE:**

| bulk density | % water by volume | % absorption by weight |
|---|---|---|
| 2.86 | 0.09 | 0.03 |

**Approved Signatory:**  **Date:** 22/12/97

**Name:** James P. Mann
**Registration No.** 730

amdel

576020

Amdel Limited
A.C.N. 008 127 802
INDUSTRIAL SERVICES
*Certified to AS/NZS ISO 9001*

P.O. Box 338
TORRENSVILLE PLAZA SA 5031

Telephone 61 8 84165200
Facsimile 61 8 82342760

# DIMENSION STONE TESTING LABORATORY

## TEST CERTIFICATE

**TEST:** Ultrasonic Pulse Velocity
**TEST METHOD:** Standard AMDEL Test Method DS-01.01/A Part 7
**SAMPLE:** Eucalypt
**CLIENT:** Dunn Monumental Masons
**DATE TESTED:** 19th December 1997
**TESTED BY:** J.Mann
**OUR REF:** 7A02747

| Sample | Orientation | Distance (mm) | Time (sec x10-6) | Velocity (m/sec) | Average velocity (m/sec) |
|---|---|---|---|---|---|
| EUC/40 | Parallel yy | 204 | 32.0 | 6375 | |
| | | 204 | 32.1 | 6355 | |
| | | 204 | 31.9 | 6395 | |
| | | 204 | 32.0 | 6375 | 6375 |
| | Parallel xx | 156 | 24.5 | 6367 | |
| | | 156 | 24.5 | 6367 | |
| | | 156 | 24.6 | 6341 | |
| | | 156 | 24.5 | 6367 | 6361 |
| | Parallel zz | 106 | 17.1 | 6199 | |
| | | 106 | 17.3 | 6127 | |
| | | 106 | 17.3 | 6127 | |
| | | 106 | 17.1 | 6199 | 6163 |

Certified by: Date: 20/12/97

James P. Mann
Dimension Stone Testing Officer
Materials Services