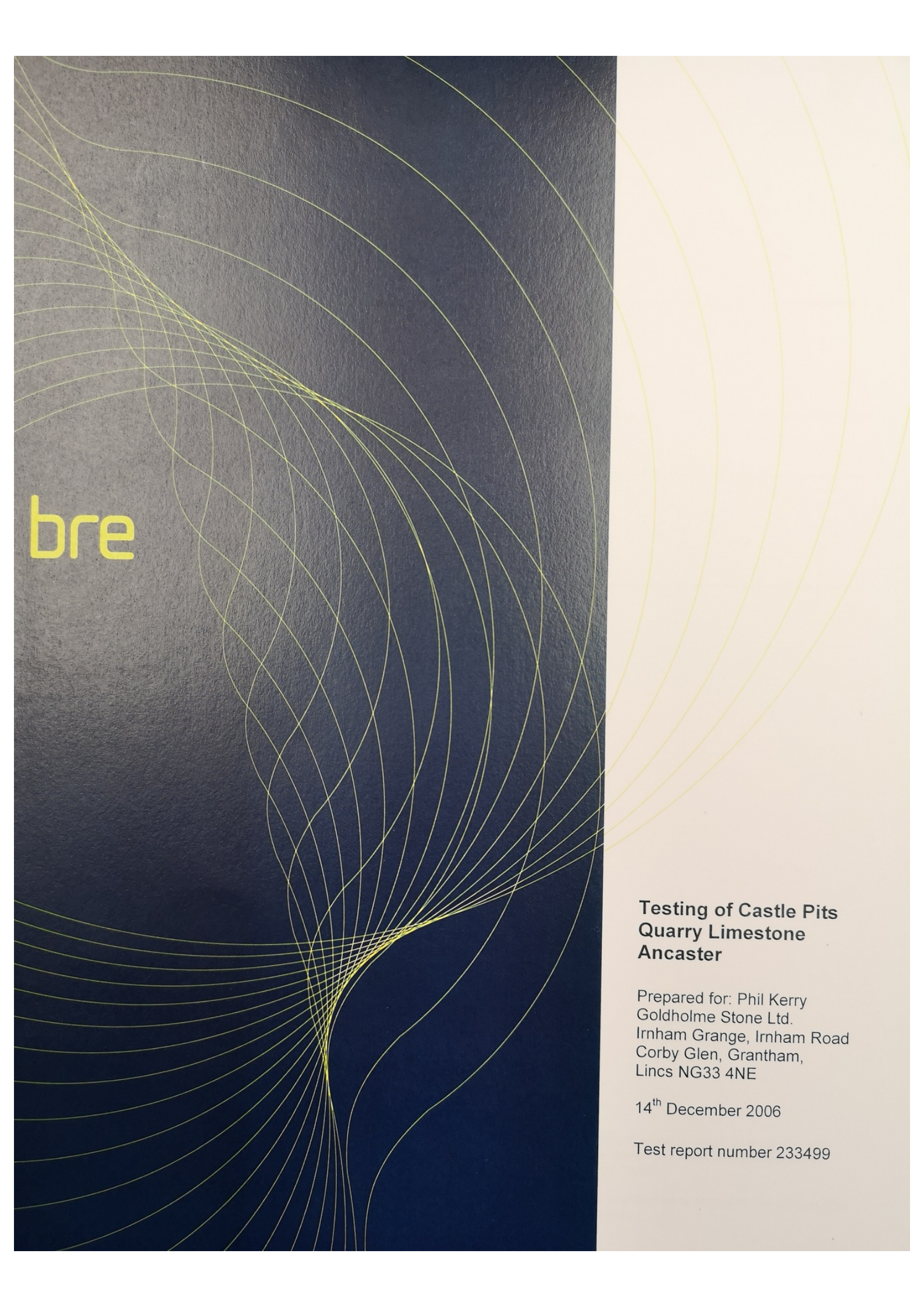




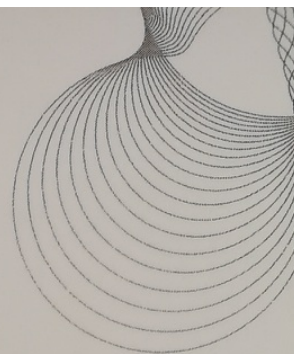
bre

**Testing of Castle Pits
Quarry Limestone
Ancaster**

Prepared for: Phil Kerry
Goldholme Stone Ltd.
Irnham Grange, Irnham Road
Corby Glen, Grantham,
Lincs NG33 4NE

14th December 2006

Test report number 233499



Prepared by

Name Geoff Ashall
Position Senior Consultant

Date 14/12/06

Signature *G. Ashall*

Approved on behalf of BRE

Name Dr. Martyn Webb
Position Associate Director Construction Testing

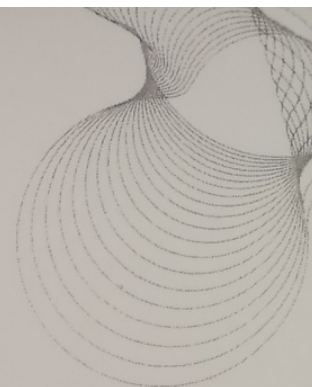
Date 14/12/06

Signature *Martyn Webb*

Construction Division
BRE
Garston
WD25 9XX
T + 44 (0) 1923 664200
F + 44 (0) 1923 664096
E construction@bre.co.uk
www.bre.co.uk

This report may only be distributed in its entirety and in accordance with the terms and conditions of the contract. Test results relate only to the items tested. BRE has no responsibility for the design, materials, workmanship or performance of the product or items tested. This report does not constitute an approval, certification or endorsement of the product tested.

This report is made on behalf of BRE. By receiving the report and action on it, the client – or any third party relying on it – accepts that no individual is personally liable in contract, tort or breach of statutory duty (including negligence).



Contents

1	Introduction	4
2	Details of tests	4
3	Test results	4
4	Appendix : Full test detail results	5

2 Details of tests

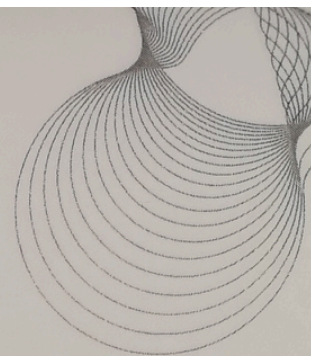
The following tests were carried out on both sets of stone

- BR 141: Determination of porosity
- BR 141: Determination of saturation coefficient
- BR 141: Determination of water absorption
- BR 141: Determination of apparent density
- BS EN 126: Determination of compressive strength perpendicular to bedding

3 Test results

Given below is a summary of the test results. Full test details can be found in the Appendices

Castle Pits Quarry, Sleaford Road	Unit	Value
BR 141: Determination of porosity by volume	%	12.96
BR 141: Determination of saturation coefficient		0.84
BR 141: Determination of water absorption by weight	%	4.37
BR 141: Determination of apparent density	Kgm ⁻³	2378
BS EN 126: Determination of compressive strength perpendicular to bed	MPa	47.94



1 Introduction

Following a letter of instruction dated the 20th November 2006 from Phil Kerry of Goldholme Stone Ltd., BRE have carried out a series of tests on a Limestone reported to be from Castle Pits Quarry, Sleaford Road, Ancaster, delivered to BRE on the 21st November 2006.

2 Details of tests

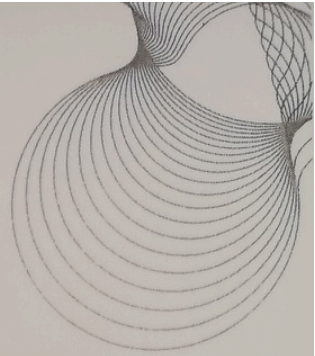
The following tests were carried out on both sets of stone:

- BR 141: Determination of porosity
- BR 141: Determination of saturation coefficient
- BR 141: Determination of water absorption
- BR 141: Determination of apparent density
- BS EN 1926: Determination of compressive strength perpendicular to bedding

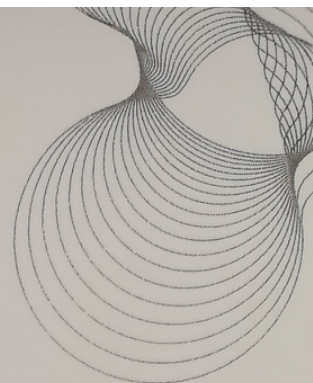
3 Test results

Given below is a summary of the test results. Full test details can be found in the Appendices.

Castle Pits Quarry, Sleaford Road	Unit	Value
BR 141: Determination of porosity by volume	%	12.06
BR 141: Determination of saturation coefficient		0.84
BR 141: Determination of water absorption by weight	%	4.27
BR 141: Determination of apparent density	Kgm ⁻³	2379
BS EN 1926: Determination of compressive strength perpendicular to bed	MPa	47.94



4 Appendix : Full test detail results



Phil Kerry
Goldholme Stone Ltd.
Irnham Grange, Irnham Road
Corby Glen, Grantham
Lincs NG33 4NE

Report Number: 233499/06/R1
MLS Reference: 233499/06/
Date of Issue: 14/12/06
Page 1 of 1
Commercial-in-confidence

BRE Test Report

BR 141, Porosity, Saturation Coefficient, Water Absorption and Apparent Density of Natural Stone

Sample Description

Petrographic nature: Limestone
Commercial name: Castle Pits Quarry Limestone Ancaster
Country of origin: UK
Name of supplier: Goldholme Stone Ltd.
Anisotropic features: Bedding visible
Sampled by: Data not supplied
Project reference: Data not supplied

Testing

Tested by: Ian Rance, Construction Testing
Test standard/method: BRE Specific Procedure SP8/01/J (BR 141)
Date samples received: 21/11/06
Date tested: 28-30/06/06
Number of specimens tested: 6
Specimen dimensions (mm): 40 x 40 x 40
Preparation/conditioning: Prepared to BRE Specific Procedure SP8/01/J (BR 141)

Results

Client specimen number	Castle Pits Quarry Limestone Ancaster					
BRE No 233449/06	11	12	13	14	15	16
Porosity (% by volume)	10.49	13.87	10.97	11.63	13.52	11.89
Saturation coefficient	0.83	0.83	0.83	0.82	0.84	0.89
Water absorption (% by weight)	3.57	4.96	3.78	3.99	4.86	4.45
Apparent density (kgm ⁻³)	2422	2329	2410	2390	2338	2385

The calculation of apparent density assumes the density of water to be 998 kgm⁻³ at 20°C.

Porosity (Mean % by volume): 12.06 %
Saturation Coefficient (Mean): 0.84
Water Absorption (Mean % by weight): 4.27 %
Apparent Density (Mean): 2379 Kgm⁻³

Final approval by:

Ge. Ashall

Date:

14/12/06

Name:

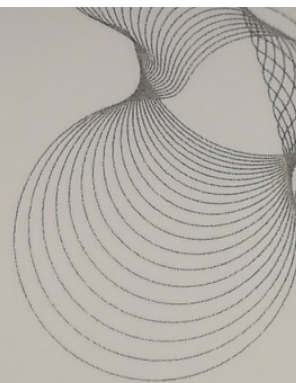
Geoff Ashall

Position:

Principal Consultant



0578



Phil Kerry
Goldholme Stone Ltd.
Irnham Grange, Irnham Road
Corby Glen, Grantham
Lincs NG33 4NE

Report Number: 233499/06/R2
MLS Reference: 233499/06
Date of Issue: 14/12/06
Page 1 of 2
Commercial-in-confidence

BRE Test Report
BS EN 1926: Determination of Compressive Strength of Natural Stone
tested dry perpendicular to bedding

Sample Description

Petrographic nature:	Limestone
Commercial name:	Castle Pits Quarry Limestone Ancaster
Country of origin:	UK
Name of supplier:	Goldholme Stone Ltd.
Anisotropic features:	Bedding visible
Sampled by:	Data not supplied
Project reference:	Data not supplied

Testing

Tested by:	Les White , Construction Testing
Checked by:	Ian Rance, Construction Testing
Test standard/method:	BS EN 1926:1999
Date samples received:	21/11/06
Date tested:	28/11/06
Number of specimens tested:	10
Preparation/conditioning:	Prepared to BS EN 1926:1999

Results Summary

Detailed results given on page 2

Mean Compressive Strength: 47.94 MPa
Standard deviation 7.56 MPa
Variation Coefficient 0.16

Final approval by:

G. Ashall

Date:

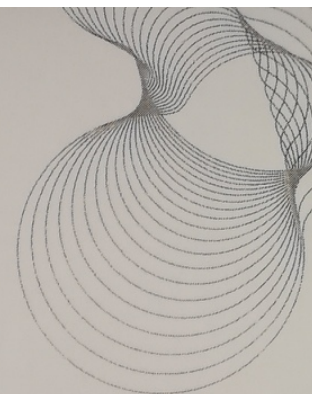
14/12/06

Name:

Geoff Ashall

Position:

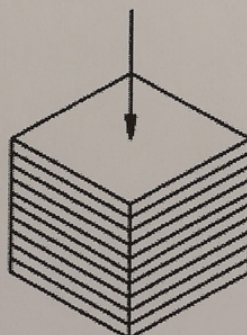
Senior Consultant



Phil Kerry
Goldholme Stone Ltd.
Irnham Grange, Irnham Road
Corby Glen, Grantham
Lincs NG33 4NE

Report Number: 233499/06/R2
MLS Reference: 233499/06
Date of Issue: 14/12/06
Page 2 of 2
Commercial-in-confidence

BRE Test Report **BS EN 1926: Determination of Compressive Strength of Natural Stone** **tested dry perpendicular to bedding**



Results

Castle Pits Quarry	Mean Width	Mean Breadth	Height	Failure load	Compressive strength
	mm	mm	mm	kN	MPa
233499/06/171	52.5	51.4	53.2	142.1	52.62
233499/06/172	53.6	51.9	53.9	149.6	53.80
233499/06/173	51.6	51.0	53.2	116.9	44.45
233499/06/174	51.4	51.9	53.5	94.8	35.54
233499/06/175	51.6	49.7	53.6	159.4	62.22
233499/06/176	52.5	53.6	53.9	142.7	50.80
233499/06/177	51.2	51.0	53.6	119.4	45.75
233499/06/178	52.4	50.8	53.8	130.8	49.10
233499/06/179	51.0	53.6	54.0	123.9	45.34
233499/06/180	50.9	49.7	53.8	100.5	39.74
				Mean	47.94
				St. Dev	7.56
				Co of Var.	0.16

=====REPORT ENDS=====

For further information about BRE

BRE

Garston
Watford
WD25 9XX
T +44 (0)1923 664000
F +44 (0)1923 664010
E enquiries@bre.co.uk

BRE Scotland

Scottish Enterprise Technology Park
East Kilbride
Glasgow
G75 0RZ
T +44 (0)1355 576200
F +44 (0)1355 576210
E enquiries@bre.co.uk
www.bre.co.uk