

Site Inspection Record 5.

Project Number	6351
Project Name	Heath House Lane, Hedge End
Date, time	Coincident with the drainage inspections
Weather	As noted in the drainage reports
Record The site was visited by a Chartered Civil Engineer at a regular interval during the groundworks phase of the construction works A series of drainage inspection reports were produced as the works progressed Dates • 13 Dec 21 • 31 Jan 22 • 31 May 22 • 6 March 23 • 20 June 23 The inspection preceded by a walkover of the road and inspection was undertaken against the design and construction details (also produced by Stuart Michael Associates) Snagging and procedural items, such as retention of delivery tickets, were discussed at the inspections, and a review of the grading and delivery tickets was undertaken to ensure good quality management systems were in place by the site teams and being actively used as the construction work progressed.	
CBR road formation testing A test plan was produced by SMA for the survey of formation CBR test, this was used By the site team and CBR testing undertaken along the course of the private roads See Appendix 1 for the locations and output details of testing, See Appendix 2 for our engineers remedial details for addressing the measured areas where lower the design CBR values were recorded.	
The private roads are split into sections namely Road 1 Road 2 Road 4 Private Car Parks	

The photographic record and delivery ticket and grading information is included under the following appendices

Appendix 3

Road 1 and Road 2, photographic record of construction, the geogrid and membrane can be seen to be installed and was validated on the site inspections

Delivery ticket information is included to underpin the correct material was used in compliance with the design and specification.

Appendix 4

Road 4, photographic record of construction, the geogrid and membrane can be seen to be installed and was validated on the site inspections

Delivery ticket information is included to underpin the correct material was used in compliance with the design and specification.

Appendix 5

The Car Parking areas, photographic record of construction, the porous paving was verified by the drainage inspections, and photos are included within as well as materials and delivery information.

Statement

The record information and photographic evidence contained herein considered alongside the attendance of an Engineer to the site during the construction period is considered to be a true and accurate reflection of the inspections and construction works.

The Work (**UNADOPTED ROADS, FOOTPATHS AND CYCLEWAYS**) inspected over the course of the construction ARE 'deemed satisfactory and is **confirmed as CONSTRUCTED IN COMPLIANCE WITH THE DESIGN SPECIFICATION**'

Print : MARK A SMYTH

Title : Director

Signed : *M Smyth*

Qualification : Chartered Engineer (MICE)

APPENDIX 1

CBD test locations and results

① CBR 3.9 %

② CBR 8.0 %

③ CBR 9.7 %

④ CBR 1.6 %

⑤ CBR 8.9 %

⑥ 0.7 % CBR

⑦ 1.5 % ~~CBR~~ CBR



Report on the Determination of the Californian Bearing Ratio using the Plate Load Test

BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 1 (Road 1)*

Date Tested: *15/12/21*

Material Description: *Light brown clay*

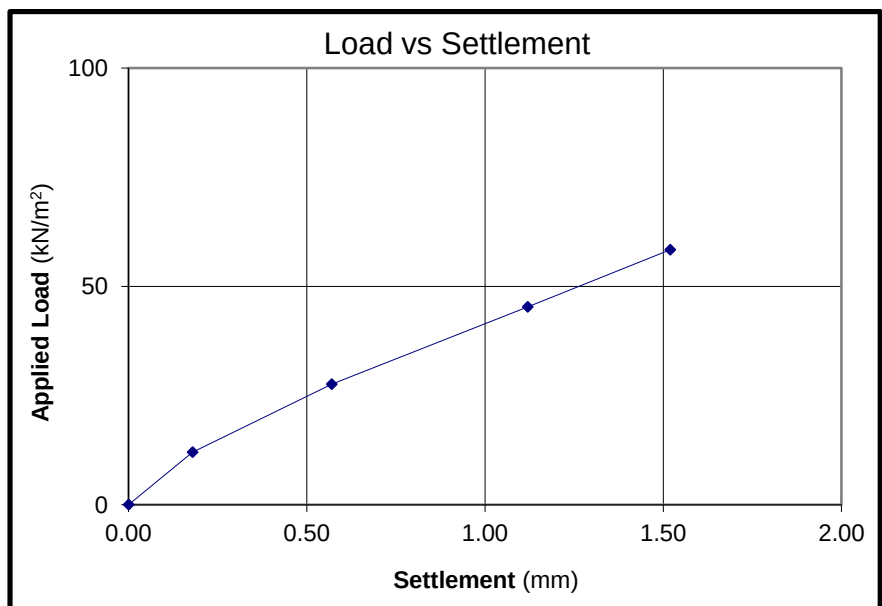
Source (if known):

Depth Below Ground Level: *0.1m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.18	12.0
0.57	27.6
1.12	45.3
1.52	58.4



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

40

(k) Modified for Plate Diameter (k_{762})

32

Equivalent CBR Value (%)

3.9

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By: *NP Burrows*

Dated: 16-Dec-21

Report on the Determination of the Californian Bearing Ratio using the Plate Load Test

BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 2 (Road 1)*

Date Tested: *15/12/21*

Material Description: *Light brown sand*

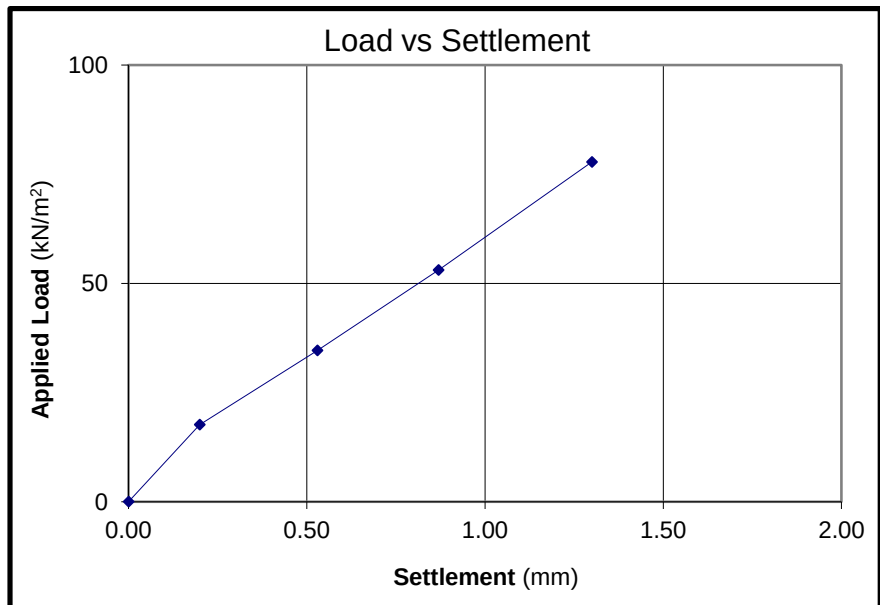
Source (if known):

Depth Below Ground Level: *1.2m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.20	17.7
0.53	34.7
0.87	53.1
1.30	77.8



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

60

(k) Modified for Plate Diameter (k_{762})

48

Equivalent CBR Value (%)

8.0

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By: *NP Burrows*

Dated: 16-Dec-21

Report on the Determination of the Californian Bearing Ratio using the Plate Load Test

BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 3 (Road 3)*

Date Tested: *15/12/21*

Material Description: *Light brown sand*

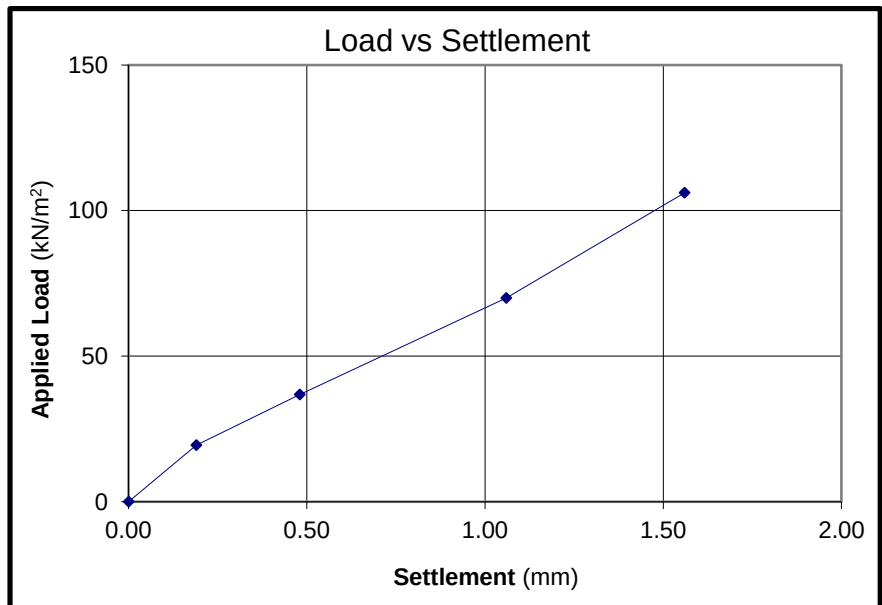
Source (if known):

Depth Below Ground Level: *1.2m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.19	19.5
0.48	36.8
1.06	70.0
1.56	106.1



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

67

(k) Modified for Plate Diameter (k_{762})

54

Equivalent CBR Value (%)

9.7

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By: *NP Burrows*

Dated: 16-Dec-21

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BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 4 (Road 1)*

Date Tested: *15/12/21*

Material Description: *Light brown clay*

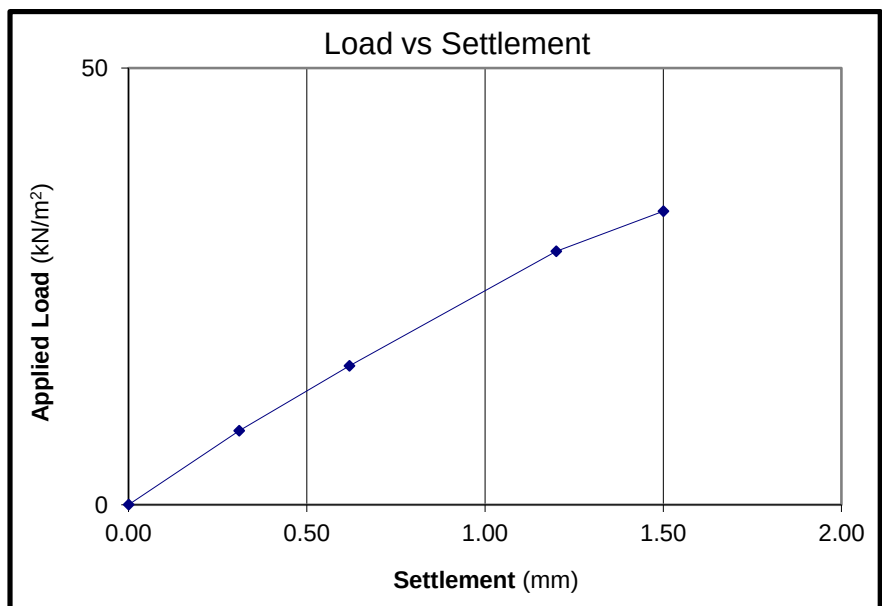
Source (if known):

Depth Below Ground Level: *1.2m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.31	8.5
0.62	15.9
1.20	29.0
1.50	33.6



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

24

(k) Modified for Plate Diameter (k_{762})

19

Equivalent CBR Value (%)

1.6

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By:

NPBurnows

Dated: 16-Dec-21

Report on the Determination of the Californian Bearing Ratio using the Plate Load Test

BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 5 (Road 1)*

Date Tested: *15/12/21*

Material Description: *Crushed brick gravel with brown clay*

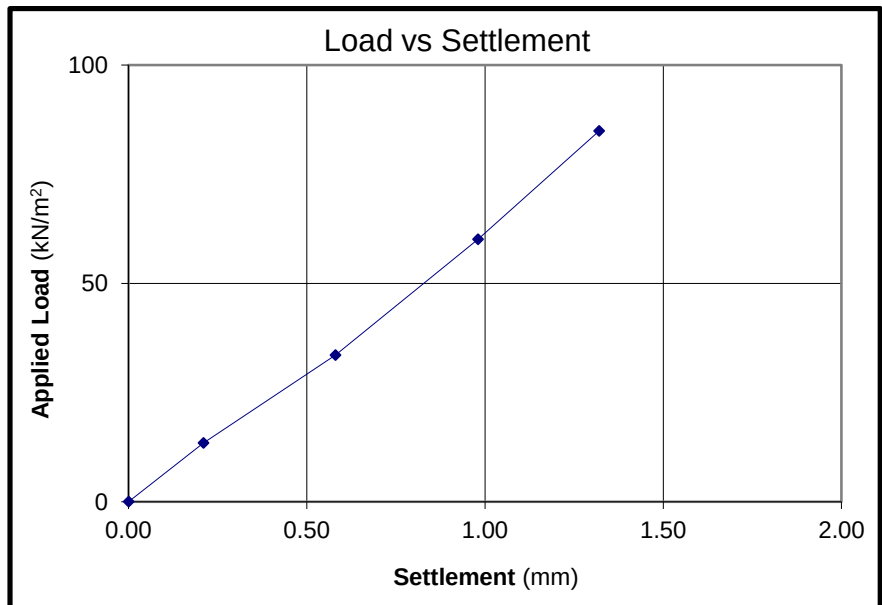
Source (if known):

Depth Below Ground Level: *0.6m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.21	13.4
0.58	33.6
0.98	60.1
1.32	84.9



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

64

(k) Modified for Plate Diameter (k_{762})

51

Equivalent CBR Value (%)

8.9

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By: *NP Burrows*

Dated: 16-Dec-21

Report on the Determination of the Californian Bearing Ratio using the Plate Load Test

BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 6 (Road 1)*

Date Tested: *15/12/21*

Material Description: *Light brown clay*

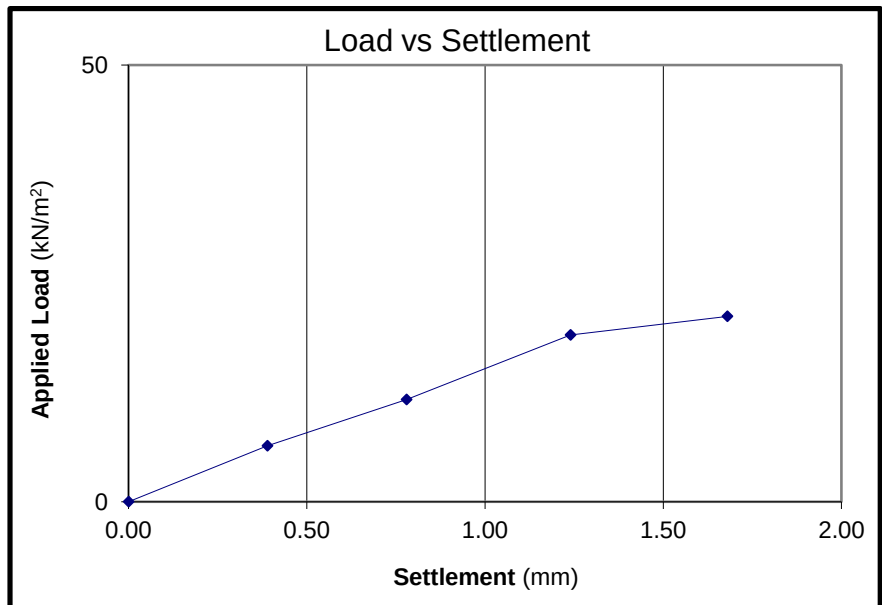
Source (if known):

Depth Below Ground Level: *0.6m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.39	6.4
0.78	11.7
1.24	19.1
1.68	21.2



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

15

(k) Modified for Plate Diameter (k_{762})

12

Equivalent CBR Value (%)

0.7

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By: *NPBurnows*

Dated: 16-Dec-21

Report on the Determination of the Californian Bearing Ratio using the Plate Load Test

BS 1377: Part 9: Clause 4.1, Design Manual for Roads & Bridges Section 4 Chapter 7 & IAN 73/06 (Rev.1)

Project Name: *Heath House Lane, Hedge End,
Southampton, SO30 0PL*

Project No.: *SS2044*

Client: *Viking Projects UK Ltd*

Project Eng: *LB*

Test Location / Ref: *Plate CBR 7 (Road 2)*

Date Tested: *15/12/21*

Material Description: *Light brown clay*

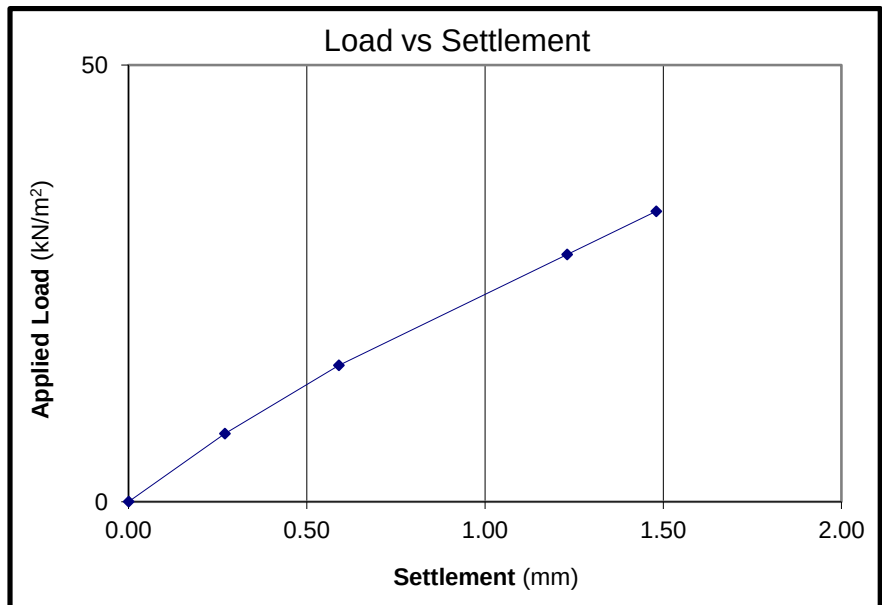
Source (if known):

Depth Below Ground Level: *0.6m*

Reaction Load (kg): *13000*

Plate Diameter (mm): *600*

Settlement (mm)	Load (kN/m ²)
0.00	0
0.27	7.8
0.59	15.6
1.23	28.3
1.48	33.3



Apparent Modulus of Subgrade Reaction (kN/m²/mm)

23

(k) Modified for Plate Diameter (k_{762})

18

Equivalent CBR Value (%)

1.5

* >1.25mm settlement achieved

Remarks: Equivalent CBR calculated to Design Manual and Bridges Vol 7 Section 2 Part 2, IAN 73/06 Rev.1. Modulus calculated at 1.25mm penetration. If 1.25mm penetration not achieved, modulus calculated at maximum obtained penetration.

Checked By: *NP Burnows*

Dated: 16-Dec-21

APPENDIX 2

SMA Engineers remedial details for areas with lower CBR test record, and outwith the specification for design of said roads.

Mark Smyth

From: Darren Marsh <djm@stuartmichael.co.uk>
Sent: 27 January 2022 17:05
To: Callum Safe
Subject: RE: Hamblewood CBR
Attachments: 3000_001.pdf

Hi Callum,

Further to your email below Please see attached sketch

The CBR's at 1, 2 3 and 5 are good as they range from between 3.9 – 9.7% in this case we suggest the following:

150 Type 1
350 Capping Material
Geotextile
Geogrid

For the poorer CBR's at 4, 6 and 7 use:

150 Type 1
Minimum 600 capping material although this may need to be thicker if any soft spots are encountered
Geotextile
Geogrid

As Hampshire want a geogrid we suggest that you also use the geotextile everywhere which will protect the geogrid

I am out of the office until Tuesday 1st so if there is anything urgent please contact either Mark or Aiden in my absence

Kind regards

Darren Marsh MCIHT
Principal Engineer

Stuart Michael Associates Limited
Coombe House,
Coombe Square,
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Telephone: 01635 867711
Facsimile: 01635 861715
www.stuartmichael.co.uk



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From: Callum Safe [mailto:callum.safe@bargatehomes.co.uk]
Sent: 19 January 2022 12:58
To: Darren Marsh
Cc: Mark Smyth
Subject: FW: Hamblewood CBR

Hi Darren,

Please see attached CBR results from Hamblewood and a plan showing where they were taken. Can you have a look and show us we should be increasing the thickness of the capping and providing geotextile in the buildup?

Also note that the results at CBR 6 on the end of road 1 is very poor. Will the <2% CBR detail be appropriate in this area or do we need to consider an even deeper build up?

Kind regards,

CALLUM SAFE | Technical Coordinator

t: 02380 602255

www.bargatehomes.co.uk 



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From: Greg - Viking Projects <greg@viking-projects.co.uk>
Sent: 19 January 2022 12:17
To: Callum Safe <callum.safe@bargatehomes.co.uk>
Cc: Rob Matthews <rob@viking-projects.co.uk>; Kevin Edinberry <kevin.edinberry@viking-projects.co.uk>; tony@bargatehomes.co.uk
Subject: Hamblewood CBR

Callum,

Attached is the CBR results and the positions and numbers of where they were taken.

Kind Regards

Greg Layfield

Site Engineer

For and on behalf of

VIKING PROJECTS UK LTD

UNIT 12, CHERRY TREE INDUSTRIAL PARK, BOTLEY ROAD, BURRIDGE, SO31 1BQ

Tel: 01489 874408

Mob: 07586 612479

Email: greg@viking-projects.co.uk



APPENDIX 3

Verification information Road 1 and Road 2.

APPENDIX 4

Verification information Road 4.

APPENDIX 5

Verification information Car Parking Areas.