



Reference: **024-23-446.2932**

Date: **28th September 2023**

Keytec Geomembranes Ltd

Unit 6 Plover Close
Interchange Park
Newport Pagnell
Buckinghamshire
MK16 9PS

For the attention of: **Mr Gary Burgess**

**VALIDATION OF GAS PROTECTION MEASURES
PLOTS 138 TO 145
MARKFIELD ROAD, RATBY**

Dear Gary,

Further to your instructions we present the gas protection validation report for the installation of gas protection measures for Plots 138 to 145 at the above named site.

1.0 INTRODUCTION

The site is located to the north-east of Markfield Road approximately 0.15km to the north of Ratby village centre. The site is an active development site.

The development comprises the construction of approximately one hundred and sixty-eight semi-detached and terraced residential properties. The buildings are to be constructed with conventional foundations with a suspended beam and block floor slab with associated ventilated sub-floor void. Only Plots 125 to 145 are required to include gas protection measures.

ASL have previously completed a Gas Protection Verification Plan (report reference 024-23-446.2833, dated 13th March 2023). This current report should be read in conjunction with the ASL Verification Plan.

ASL were requested to undertake independent validation of the installation of gas protection measures completed by Keytec Geomembranes Ltd.

The following gas protection measures have been incorporated into the construction scheme:

- Keytec 400 HP gas membrane installed to reasonable levels of workmanship;
- Passive ventilation of the subfloor void beneath suspended ground floor slab;
- CQA of installation works with independent validation.

2.0 VALIDATION WORKS

The site was visited on the 31st May 2023 to view the installation of the gas protection measures at Plots 142 to 145.

In addition to the visit summarised above, ASL have received a sign off sheet and a series of photographs from Keytec Geomembranes Limited showing the installation of the gas resistant membrane at Plots 138 to 141, in accordance with the ASL Verification Plan.

The validation visit comprised visual inspection of the placement of the gas resistant membrane, the welding of joints, sealing of penetrations through the membrane and the general standard of



the installation works completed. An inspection of the installed passive ventilation was also completed.

3.0 INSPECTION FINDINGS

The findings of the inspections are as follows:

The membrane installed was a Keytec 400 HP gas resistant membrane together with Keytec Keyflex Self Adhesive Gas Membrane (SAGM) in general accordance with the ASL Verification Plan. Photographs showing the general membrane installation are included in Appendix I and records of the site inspections are included in Appendix II. The Keytec Geomembrane Limited sign off sheet for the installation of the gas protection measures at Plots 138 to 141 is presented in Appendix III.

The membranes have been installed to an appropriate standard with all joints and penetrations sealed. The defects identified during the inspections were repaired by Keytec Geomembranes Ltd installers to the satisfaction of the ASL validator during inspection.

The general standard of the installation works was good and care was being taken to protect the membrane during the installation works.

The subfloor void has been installed at all plots with periscopic vents installed to connect the subfloor void with air bricks around the perimeter of the buildings.

Further to these inspections we can confirm that the gas protection measures installed within Plots 142 to 145 of the development meet the requirements of the ASL Verification Plan and have been installed to an appropriate standard.

We trust this meets with your requirements and please contact us with any queries.

Yours sincerely
for **ASL**

ASHLEY MEHAFFY
Geo-environmental Scientist

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W: www.aslenvironmental.co.uk

Certified holder of ABBE Level 4 NVQ Diploma in Verification of Ground Gas Protection Systems (143617)

Encl.

Appendix I: Photographs

Appendix II: Validation Inspection Reports

Appendix III: Keytec Geomembranes Limited Sign Off Sheet





APPENDIX I

PHOTOGRAPHS

Plate 1 Plots 142 to 143 – Membrane (31/05/2023)



Plate 2 Plots 142 to 143 – Passive Vent Boxes (31/05/2023)



Plate 3 Plots 142 to 143 – Sealed Joint (31/05/2023)



Plate 4 Plots 142 to 143 – Corner Detailing (31/05/2023)



Plate 5 Plots 142 to 143 – Sealed Penetrations (31/05/2023)



Plate 6 Plots 142 to 143 – Sealed Penetrations (31/05/2023)



Plate 7 Plots 144 to 145 – Membrane (31/05/2023)



Plate 8 Plots 144 to 145 – Passive Vent Boxes (31/05/2023)



Plate 9 Plots 144 to 145 – Sealed Joint (31/05/2023)



Plate 10 Plots 144 to 145 –Corner Detail (31/05/2023)



Plate 11 Plots 144 to 145 – Sealed Penetrations (31/05/2023)



Plate 12 Plots 144 to 145 – Sealed Penetrations (31/05/2023)



Plate 13

Plot 138 – Photograph from Installer



Plate 14

Plots 138 to 139 - Photograph from Installer



Plate 15

Plot 139 Photograph from Installer



Plate 16

Plot 139 Photograph from Installer



Plate 17

Plot 140 - Photograph from Installer



Plate 18

Plot 140 - Photograph from Installer



Plate 19

Plots 138 to 139 - Photograph from Installer



Plate 20

Plots 138 to 139 - Photograph from Installer



Plate 21

Plot 141 – Photograph from Installer



Plate 22

Plots 140 and 141 - Photograph from Installer





APPENDIX II

VALIDATION INSPECTION RECORDS

asl**GAS PROTECTION MEASURES VALIDATION INSPECTION REPORT**

Project Name: <u>Markfield Road, Rugby</u>	Inspection Carried Out by: <u>SP</u>
Project No. <u>024-23-446</u>	Date: <u>31/05/23</u>

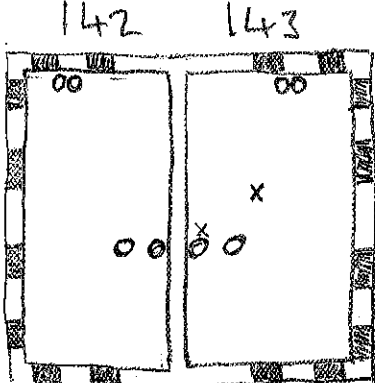
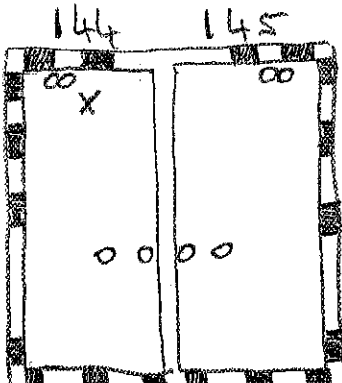
Plot Type: <u>Detached / (Semi-Detached) / Apartments / Commercial</u>	Plot Number (s): <u>142-145</u>	Gas Membrane Installer: <u>Keytec Geomem</u>
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Gas Risk Rating (CS) <u>CS2</u>	VOC	Yes	No	Radon	Yes	No
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Verificatation Plan Completed:	☒ Yes	☐ No	☐ In Production
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Gas Protection Provided by:	Other Details (Membrane Products, Ventilation Type etc):
1. Gas Resistant Membrane ☒ Yes ☐ No	<u>Keytec 400 HP +</u> <u>Periscopic Vents to</u> <u>Subfloor Void</u>
2. Ventilation ☒ Yes ☐ No	
3. Structural Barrier ☐ Yes ☒ No	

Gas Membrane Installation:	☒ Welded ☐ Taped
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Inspection Findings: (note repairs, defects, vent locations, and any other issues identified) Plot No(s).  	Key: X Repairs ■ Vents ○ Penetrations □ Columns
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Number of Defects/Repairs Identified: <u>P143 = 2 P144 = 1 . Total = 3</u>	All Defects/Repairs Completed: (Note locations above) ☒ Yes ☐ No
Number of Vents/Vent Spacing: (Note vent locations above) <u>P142 = 8 P143 = 8 P144 = 9 P145 = 9 (1-2m)</u>	
Integrity Testing required? ☒ Yes ☐ No	Details: <u>Air Lancing</u>
General Comments/Further Action Required: <u>Installed to good standard, a few minor repairs identified</u>	
Photos Taken (✓) ☒	

Verifier Signature

S. L. PritchardInstaller Representative Name S. Tompkins

Signed

CLMCompany Keytec

Site Representative

Name

Signed

Company



APPENDIX III

KEYTEC GEOMEMBRANES LIMITED SIGN OFF SHEET

GAS PROTECTION INSTALLATION & INSPECTION CERTIFICATE

PROJECT DETAILS

Certificate No:	10659	Client:	CHASETOWN
Project/Site:	RATBY	Date:	14 TH JUNE 2023
Membrane:	KEYTEC 400		

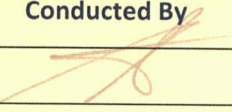
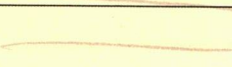
This is to certify that the installation including Lance Testing and membrane materials used in gas protection measures conform with certified quality standards

**Except where alteration, extension or damage by following 3rd party trades may affect performance after the installation*

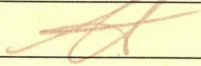
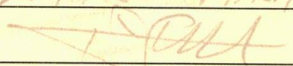
INSTALLATION DETAILS

	Area (m2)	Plot Number(s)	Comments
Perimeter			
Infill			
Full Line Out	212	141, 140, 139, 138	
Garages			
Top Hats No.	17		

INSPECTION DETAILS

	Conducted By	Pass	Fail	Comments
Keytec Visual Inspection		☒	☐	
Keytec Lance Testing		☐	☐	
3 rd Party Validation		☐	☐	
Photographs taken of Inspected Plot(s) and Key Details			Yes/No (delete as appropriate)	

APPROVAL

On behalf of Keytec Geomembranes Ltd		Client	
Name:	A. GALEATO	Name:	SAYBU PARACUTU
Signature:		Signature:	
		Position:	

PLEASE RETAIN A COPY OF THIS DOCUMENT AS PROOF OF GAS CERTIFICATION

