Reference: **147-18-292.2080**

Date: **3rd October 2018**

Prestige Air Technology Ltd
Prestige House
Landews Meadow
Green Lane
Challock
Ashford,
Kent
TN25 4BL

For the attention of**: Mr Andy Collins**

INSTALLATION AND VALIDATION OF GAS PROTECTION MEASURES
PLOTS 205 TO 208 AND 221 TO 224
CALDER VIEW, LOWER HOPTON, WEST MIRFIELD

Dear Andy,

Further to your email dated 23rd March 2018, we are pleased to present the validation report for the installation of gas protection measures for plots 205 to 208 and 221 to 224.

1.0 INTRODUCTION

The site is located to the north of Calder View in Mirfield approximately 5.0km to the south-west of Dewsbury on a new housing development at approximate National Grid Reference SE 194 199.

ASL were requested to undertake independent verification of the gas membrane which was installed by Prestige Air Technology Ltd.

The following measures have been incorporated into the construction scheme.

- Juta GP1 gas membrane installed to reasonable levels of workmanship;
- CQA of installation works with independent validation;

These validation works have been completed in accordance with Prestige Air Method Statement for the project, included in Appendix II.

2.0 VALIDATION WORKS

The site has been visited on two occasions. The first visit was undertaken on 24th April 2018 to inspect the gas protection measures in plots 221 to 224 and the second visit was completed on 30th May 2018 to view the gas protection measures in plots 205 to 208.

The works observed included the placement of the gas impermeable membrane, the welding of joints, sealing of penetrations through the membrane and the general standard of the installation works completed.

3.0 INSPECTION FINDINGS

The findings of the inspections are as follows:

The membrane installed was a Juta GP1 gas membrane, the technical data sheet for which is included in Appendix I, in general accordance with the Prestige Air Method Statement included in Appendix II. Photographs showing the general membrane installation are included in Appendix III. The membrane has been installed to an appropriate standard with all joints and penetrations sealed.

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

Further to these inspections we can confirm that the gas protection measures installed within the development meet the required standard.

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

Yours sincerely
for **ASL**

PETE WILTON
Associate Director

APPENDIX I

GAS MEMBRANE TECHNICAL DATA SHEET

0845 034 6012
info@juta.co.uk
www.juta.co.uk

JUTA GP 1 – Gas Barrier is a multi-layer, low-density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil. GP 1 is specifically designed and manufactured to perform as a **Methane, Carbon Dioxide, Radon**, Ground Gas, VOC, air & Moisture protection system.

Product: GP 1

Rev. May 2017

JUTA GP 1 complies with the latest codes of practice as published by BRE, CIRIA and BSI (BS 8485:2015), and carries a relevant BBA certificate for use as a GAS BARRIER. Suitable for use as gas protection for NHBC GREEN, AMBER 1, and AMBER 2 site characterisations.

JUTA GP 1 - GAS BARRIER			
Characteristic	**Test Method**	**Unit**	**JUTA GP1**
Physical Properties			
Thickness	EN 1849-2	mm	0.6
Width	EN 1849-2	M	Various
Length	EN 1849-2	M	Various
Weight	EN 1849-2	g/m^2	350
Hydraulic Properties			
Water Column	EN 20811	-	>300
Resistance to water penetration	EN 13967, EN 1928	-	PASS
Water tightness	EN 1296, EN 1367, EN 1928	-	PASS
Mechanical Properties			
Resistance to Static Load	EN 12730 - B	Kg	20
Tensile Strength (MD)	EN 12311 -1	N/50mm	600
Tensile Strength (CMD)	EN 12311 -1	N/50mm	480
Tensile Elongation (MD)	EN 12311 -1	%	20
Tensile Elongation (CMD)	EN 12311 -1	%	20
Puncture Resistance	EN 12236	kN	1.25
Resistance to tearing (nail shank) MD	EN 12310 - 1	N	330
Resistance to tearing (nail shank) CMD	EN 12310 - 1	N	400
Durability and Chemical Resistance			
Transmission rate of volatile liquids - Diesel	ISO 6179:2010 (B)	$g/m^2/h$	0.246
Transmission rate of volatile liquids - Xylene	ISO 6179:2010 (B)	$g/m^2/h$	0.571
Transmission rate of volatile liquids - Toluene	ISO 6179:2010 (B)	$g/m^2/h$	0.583
Transmission rate of volatile liquids - Petrol	ISO 6179:2010 (B)	$g/m^2/h$	0.135
Gas Permeability			
Methane Permeability	BS EN ISO 15105 - 1	$ml/m^2/day/atm$	<0.09
Carbon Dioxide Permeability	BS EN ISO 15105 - 1	$ml/m^2/day/atm$	<0.09
Radon Permeability	K124/02/95	m^2/s	8.0×10^{-15}
Compliance and Certification			
CE Mark - EN13967:2012			
NHBC Standards Compliant			
BS 8485:2015 Compliant			
BBA Certified - Certificate no. 12/4912			

ISO 9001 ISO 14001 OHSAS 18001 BUREAU VERITAS Certification

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**Values are Typical, with the exception of Thickness, which is Nominal. Typical indicates the mean value derived from the samples taken for any one test as defined in the BS EN ISO standard - usually the mean of five samples. Nominal is a guide value.*

HANDLING

Roll weights can be in excess of 20kg and hence appropriate care and equipment is required for unloading and handling.

STORAGE

Rolls of JUTA GP 1 should be stored on stable/level ground and stacked not more than five rolls high, with no other material stacked on top. The rolls can be stored outdoors when packaged, but should be protected from exposure to UV.

INSTALLATION

JUTA GP 1 should be installed in accordance with the product installation guidelines, and in accordance with BS 8485:2015.

JOINTING AND SEALING

It is recommended JUTA GP 1 be heat welded where possible, with welding carried out by competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015. JUTA GP 1 should be overlapped by at least 100mm. If taping joints, only suitable tape must be used, ensuring application with a silicone roller to remove trapped air. JUTA pre-formed details, or Self Adhesive Gas Membrane are available for sealing around protuberances.

ACCESSORY PRODUCTS

A wide range of accessories are available for use with the JUTA GP 1 GAS BARRIER, including:

- JUTA GP1 STARTER BAND
- JUTA GP TAPE
- JUTA GP SELF ADHESIVE MEMBRANE
- JUTA GP PRIMER
- JUTA GP TOP HATS AND PREFORMED CORNERS
- JUTA GP PROTECTION FLEECE
- JUTA GP VOID VENT (25/40mm)

ADDITIONAL INFORMATION

For additional information or assistance, please contact JUTA UK directly.

APPENDIX II

PRESTIGE AIR METHOD STATEMENT

PRESTIGE AIR TECHNOLOGY LTD

GROUND GAS PROTECTION SCHEME

DOCUMENTATION

AT

LOWER HOPTON
WEST MIRFIELD

FOR

GLEESON
UNIT 1, SILKWOOD PARK
FRYERS WAY
WAKEFIELD, SWF5 9TJ

REF: 3040 DATE: 16th April 2018

GROUND GAS PROTECTION SCHEME

METHOD STATEMENT

Gas Membrane

Pre start

1. Site supervisor qualifications to be min Construction Site Supervisors Safety Certificate and installers to be min. 1 no. per 2 man team NVQ Level 2 Gas Membrane Installation. All installers to be Prestige Air personnel.

2. On site foot and vehicle movement to be site designated routes.

3. Full PPE at all times to include min hard hat, gloves, high viz. and steel toe cap boots.

4. Supervisor/Representative to attend site meetings as required.

Materials

1. Juta GP1 is a reinforced multi-layered LDPE aluminium foil gas barrier .

2. SAGM is a bitumastic self-adhesive gas membrane including an aluminium foil.

3. Bitumastic primer.

4. Deliveries to site are to be by Prestige Air panel van and to be unloaded by hand.

5. Material off cuts, primer containers, packaging and all other waste to be bagged up and disposed of in main contractors skip.

Installation

1. Loose laid membrane to be supplied to site in 2m wide rolls, self adhesive membrane in 75mm, 150mm and 1m wide rolls.

2. The membrane is to be laid directly over the ground floor construction. The laying surface for the membrane needs to be reasonably flat and free from sharp protrusions. The method of installation is to be full lineout.

3. The membrane is to be sealed to all internal penetrations and be continuous throughout the footprint area and to terminate at the outside face of the outside leaf of the perimeter

construction. The membrane is to be taken across the cavity at a level coincident with the top of the periscopic air bricks. Loose laid membrane and self adhesive membrane to be handheld knife cut and welding to be by hot air Leister Gun Triac ST 120v/1600w. Leister Gun to be used by trained personal only. Hot works permit not required, equipment to be PAT tested and stored on site vehicle when not in use.

4. Adjacent sheets of membrane are to be lapped by a min 100 mm and wedge welded or taped. Welder to be a Demtec 110v wedge welder and generator complete with drip tray. The lead is to be run away from pedestrian and vehicle traffic. The wedge welder works using a hot iron which is placed in the lap and moved along the joint to make the weld. Cutting of the membrane is to be carried out on a firm section of the over site and the knife blade is to be moved in a direction away from the installer. Knives and scissors to have blade protection and Kevlar Gloves to be worn.

5. All pipe and service entries to be sealed to, where possible using prefabricated top hat sections or where not, using self adhesive membrane. Where services are to be drawn through ducts the service is to be separately sealed to the inside of duct using- min. 100mm expanding polyurethane foam over laid by liquid membrane. When sealing to pipe and service entries a minimum 150 mm, section, free from collars or bends, is required protruding above the floor level with a minimum 100mm gap between adjacent pipes, services or other structural elements.

6. Any structural elements requiring sealing to will first be primed with a Bitumastic primer then sealed to using self adhesive membrane. Columns to be sealed to using a 300mm wide section of self adhesive membrane. Any concrete surfaces requiring sealing to present a trowelled finish min extent 150mm and columns, where required to be pre-primed. Primer to be applied with brush and paint kettle or roller and tray with one complete coat required. Brush and kettle to be used for areas less than 1m2 and roller and tray to be used for areas greater than 1m2. All priming to be carried out in well ventilated areas.

7. Internal and external corners will be prefabricated on site using self adhesive membrane. 300mm/300mm square section to be folded into equal quarters, pressed into the corner using a Leister hot air gun and one quarter removed.

8. The integrity of the installed membrane to be tested, and repaired where necessary. Installed membrane to be validated by others.

9. On completion of works at the end of each work period the work area is to be left clean and tidy and all waste removed.

10. Risk Assessment sheets Nos. 3, 7, 8, 11, 12, 19, 20, 21 & COSHH for Bitumastic Primer to apply.

PRESTIGE AIR TECHNOLOGY RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No.3	**DATE:** July 2017
LOCATION On site	
OPERATION/PROCESS: Production of electric power	
EQUIPMENT USED Generator	
SUBSTANCES USED Petrol	**COSHH ASSESSMENT** Done
HAZARDS IDENTIFIED: Petrol spillage whilst refilling	**NOISE ASSESSMENT:** 81dB
SECONDARY HAZARDS Heat from engine body	
EXPOSED PERSONS Operator and assistant	**EXPOSURE TO OTHER PERSONNEL** To be excluded from 1 m radius
FREQUENCY OF EXPOSURE: Every day	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure – 1) Equipment is well maintained 2)A minimum of two people are available to lift equipment. 3) Necessary containers/funnels are available for re-fuelling. 4) Kevlar Gloves at all times 5) Equipment to have separate earth.	
MONITORING RESULTS: No accidents recorded	
RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIGE AIR TECHNOLOGY RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No. 7	**DATE:** July 2017
LOCATION On site	
OPERATION/PROCESS: Cutting plastic sheeting	
EQUIPMENT USED Knife or scissors	
SUBSTANCES USED N/A	**COSHH ASSESSMENT** N/A
HAZARDS IDENTIFIED: Cuts received to hands and from falling onto blade	**NOISE ASSESSMENT:** N/A
SECONDARY HAZARDS None identified	
EXPOSED PERSONS Operator and Assistant	**EXPOSURE TO OTHER PERSONNEL** None
FREQUENCY OF EXPOSURE: Every day	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure – 1) Knife or scissors have Specified) when not in use. 2) Knife or pockets when not in use.	Protective caps or blades (where Scissors are not placed in back or side
MONITORING RESULTS: No accidents recorded	
RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIGE AIR TECHNOLOLGY RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No. 8	**DATE:** July 2017
LOCATION On site	
OPERATION/PROCESS: Joining of two membrane sections	
EQUIPMENT USED Leister Hot Air Gun	
SUBSTANCES USED None	**COSHH ASSESSMENT** N/A
HAZARDS IDENTIFIED: Hot Air	**NOISE ASSESSMENT:** 65dB
SECONDARY HAZARDS 110v power supply	
EXPOSED PERSONS Operator only	**EXPOSURE TO OTHER PERSONNEL** None
FREQUENCY OF EXPOSURE: Every day	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure – 1)Operator is fully trained. 2).Safety footwear 3) Equipment should be switched off when not in use.5) 4) Gloves at operator's discretion Regular equipment testing	
MONITORING RESULTS: No accidents recorded	
RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIG AIR TECHNOLOGY RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No.11	**DATE:** September 2017
LOCATION On site	
OPERATION/PROCESS: Priming	
EQUIPMENT USED Disposable Brush and pot	
SUBSTANCES USED Bitumastic Primer	**COSHH ASSESSMENT** Manufacturer supplied
HAZARDS IDENTIFIED: Accidental Spillage	**NOISE ASSESSMENT:** N/A
SECONDARY HAZARDS Contact with skin and eyes	
EXPOSED PERSONS Operator	**EXPOSURE TO OTHER PERSONNEL** None
FREQUENCY OF EXPOSURE: Every day	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure – 1) Primer only dispensed from product can. 2) Primer dispensed in small quantities in area of use. 3) Use disposable bushes and pots for Primer. 4) Gloves and safety glasses to be worn.	
MONITORING RESULTS: No accidents recorded	
RESIDUAL RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIGE AIR TECHNOLOGY

RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No. 12	**DATE:** September 2017
LOCATION On site	
OPERATION/PROCESS: Joining of two membrane sections	
EQUIPMENT USED Hand held blow torch	
SUBSTANCES USED None	**COSHH ASSESSMENT**
HAZARDS IDENTIFIED: Combustion	**NOISE ASSESSMENT:** Not done
SECONDARY HAZARDS ---	
EXPOSED PERSONS Operator only	**EXPOSURE TO OTHER PERSONNEL** Excluded from immediate area
FREQUENCY OF EXPOSURE: Every day	**DURATION OF EXPOSURE** 7 hours per day
CONTROLS MEASURES P.P.E. 1) Operator fully trained 2) Safety footwear 3) Gloves	4) 1Kg powder fire extinguisher to hand 5) Hot works permit required 6) Check area 1/2hr after completion
MONITORING RESULTS: No accidents reported	
RISK ASSESSMENT Acceptable	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIGE AIR TCHNOLOGY RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No. 19	**DATE:** September 2017
LOCATION On Site	
OPERATION/PROCESS: Application of Bitumastic Primer	
EQUIPMENT USED Brush, roller, tin.	
SUBSTANCES USED Bitumastic Primer	**COSHH ASSESSMENT** Harmful
HAZARDS IDENTIFIED: Fire hazard, inhalation of fumes, direct Skin contact.	**NOISE ASSESSMENT:** N/a
SECONDARY HAZARDS N/a	
EXPOSED PERSONS Operator	**EXPOSURE TO OTHER PERSONNEL** None
FREQUENCY OF EXPOSURE: Everyday	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure: 1) Personnel are fully trained. 4) Fluorescent jackets/Waistcoats	2) Safety footwear. 3) Hard hats 5) Gloves PPE Cat. 2 6) Safety glasses 7) Maintained fire extinguisher 8) Well ventilated work area
MONITORING RESULTS: No accidents recorded	
RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIGE AIR TECHNOLOGY

RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No. 20	**DATE:** September 2017
LOCATION On Site	
OPERATION/PROCESS: Decanting petrol	
EQUIPMENT USED Petrol can, funnel, spillage tray.	
SUBSTANCES USED Petrol	**COSHH ASSESSMENT** Harmful
HAZARDS IDENTIFIED: Fire hazard, inhalation of fumes, direct Skin contact.	**NOISE ASSESSMENT:** N/a
SECONDARY HAZARDS N/a	
EXPOSED PERSONS Operation	**EXPOSURE TO OTHER PERSONNEL** Excluded from 1m radius
FREQUENCY OF EXPOSURE: Everyday	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure: 1) Personnel are fully trained. 4) Fluorescent jackets/Waistcoats	2) Safety footwear. 3) Hard hats 5) Gloves PPE Cat. 2 6) Safety glasses 7) Maintained fire extinguisher 8) Well ventilated work area
MONITORING RESULTS: No accidents recorded	
RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

PRESTIGE AIR TECHNOLOGY

RISK ASSESSMENT SHEET	
ON SITE CLEAN AIR BLANKET SYSTEM INSTALLATION ASSESSMENT No. 21	**DATE:** September 2017
LOCATION On Site	
OPERATION/PROCESS: General movement around construction site.	
EQUIPMENT USED N/a	
SUBSTANCES USED N/a	**COSHH ASSESSMENT** N/a
HAZARDS IDENTIFIED: Site traffic, trips, spills, secondary operations/processes.	**NOISE ASSESSMENT:** N/a
SECONDARY HAZARDS None	
EXPOSED PERSONS Operator	**EXPOSURE TO OTHER PERSONNEL** None
FREQUENCY OF EXPOSURE: Everyday	**DURATION OF EXPOSURE** 8 hours per day
CONTROLS MEASURES P.P.E. Ensure: 1) Personnel are fully trained, CSCS general site safety, Training check lists Task No. 2 & No.3 See H & S Policy pages 27 & 28 4) Fluorescent jackets/Waistcoats	2) Safety footwear. 3) Hard hats 5) Gloves PPE Cat. 2 6) Safety glasses 7) Maintained fire extinguisher 8) Well ventilated work area
MONITORING RESULTS: No accidents recorded	
RISK ASSESSMENT Low	
ASSESSOR: Richard Stevens	**POSITION:** Health & Safety Officer

COSHH Assessment Form

This assessment ***only addresses the risk of harm to health*** from the substances listed. Additional risk assessments may be required to control the risk from other hazards associated with this work/the procedures used.

Assessor : Richard Stevens of Prestige Air Technology	**Employer/Supervisor : Prestige Air Technology**
Assessment Date :	Dates reviewed. Dynamic assessment valid for Duration of Works only at:

HAZARDS IDENTIFIED

*If the substance has a R45 or R49 risk phrase or a H350 or H350i hazard statement, it must also be registered on your personal carcinogen return (at Occupational Health) where exposure is not adequately controlled.

Substance	**Hazardous Properties**	**Quantity**
PAG Bitumen primer	Harmful by inhalation Flammable	Normal delivery in 5ltr unit
Application method Brush & paint kettle and/or paint roller & tray	**Exposure / frequency** On site environments, well ventilated / 8 hour per working day	

What will the product be used for? Surface preparation prior to applying self-adhesive bitumen products

Who may be exposed? Installation technician and people in close proximity

METHODS OF PREVENTION OR CONTROL OR EXPOSURE

(select all that apply by circling/ticking/highlighting the appropriate statement)

1) **Engineering controls required**	2) **Access control (not applicable)**
• Total containment • Fume cupboard	• Gloves etc (as PPE guidance) • Eye protection (as PPE guidance)

• Local exhaust ventilation • Blast screen	• Laboratory coat/overalls (specify type) • Other PPE (specify)
3) Special procedures • Standard Operating Procedures (SOP) required □ • Code of practice, local rules, etc □	**4) Approved PPE** • Gloves etc (as PPE guidance) • Eye protection (a PPE guidance) • Laboratory coat/overalls (specify type) • Other PPE (specify)

Disposal procedures (15) (give details of waste disposal procedure to be used) • Are chemicals with risk phrases R50-R59 or hazard statements H400 – H413 (environmental hazards) involved?	Yes/No

TRAINING REQUIREMENTS

Correct storage, selection, wearing and fitting of PPE. Confirmation of operative understanding of COSHH and this assessment

HANDLING AND STORAGE REQUIREMENTS

(Note any special requirements e.g. ventilation, chemical incompatibility, flash point, etc)

Unreactive under stable storage conditions. Secured in bunded area whilst in transit. Load in travel not to exceed amounts stated by the carriage of dangerous goods by road & HSE guidance. Loads greater than 10ltrs will be carried by specialist haulier under legalisation of the carriage of dangerous goods by road regulations.

APPENDIX III

PLATES

Plate 1 Visit 1 - (24/04/2108)

Plate 2 Visit 1 - (24/04/2108)

Plate 3 Visit 1 - (24/04/2108)

Plate 4 Visit 1 - (24/04/2108)

Plate 5 Visit 1 - (24/04/2108)

Plate 6 Visit 1 - (24/04/2108)

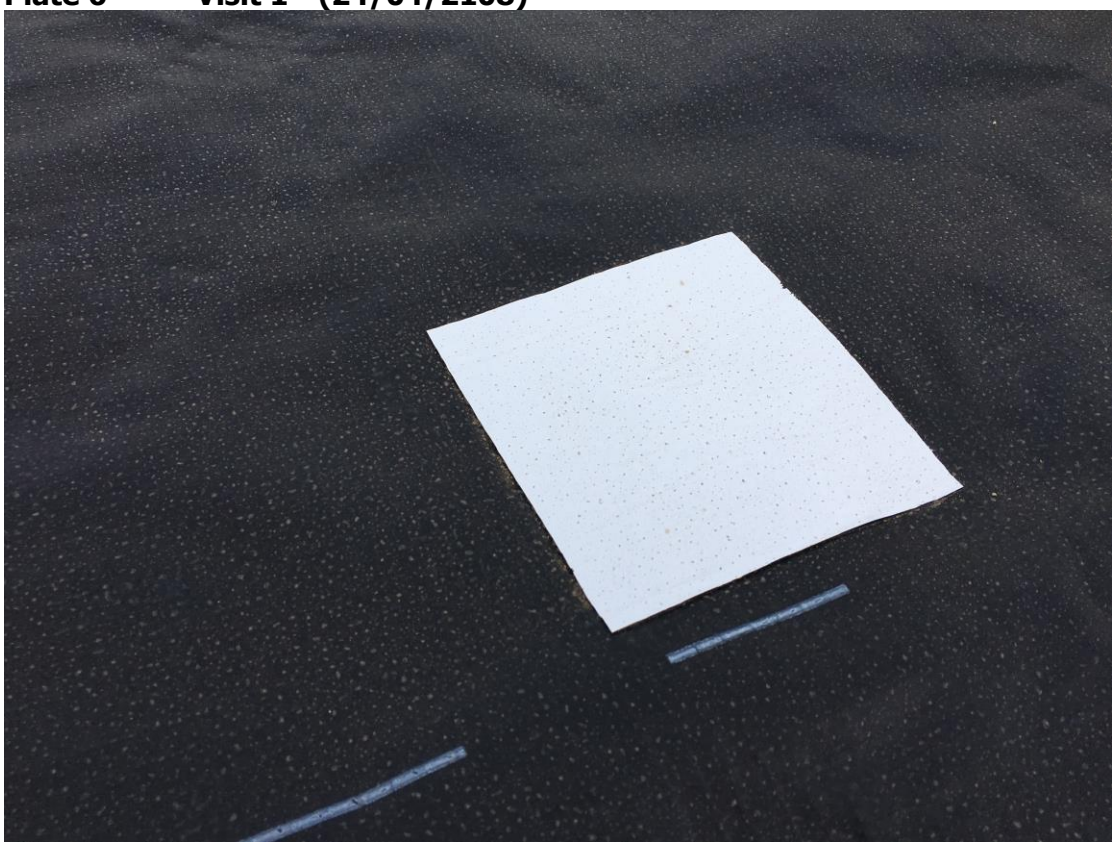

Plate 7 Visit 1 - (24/04/2108)

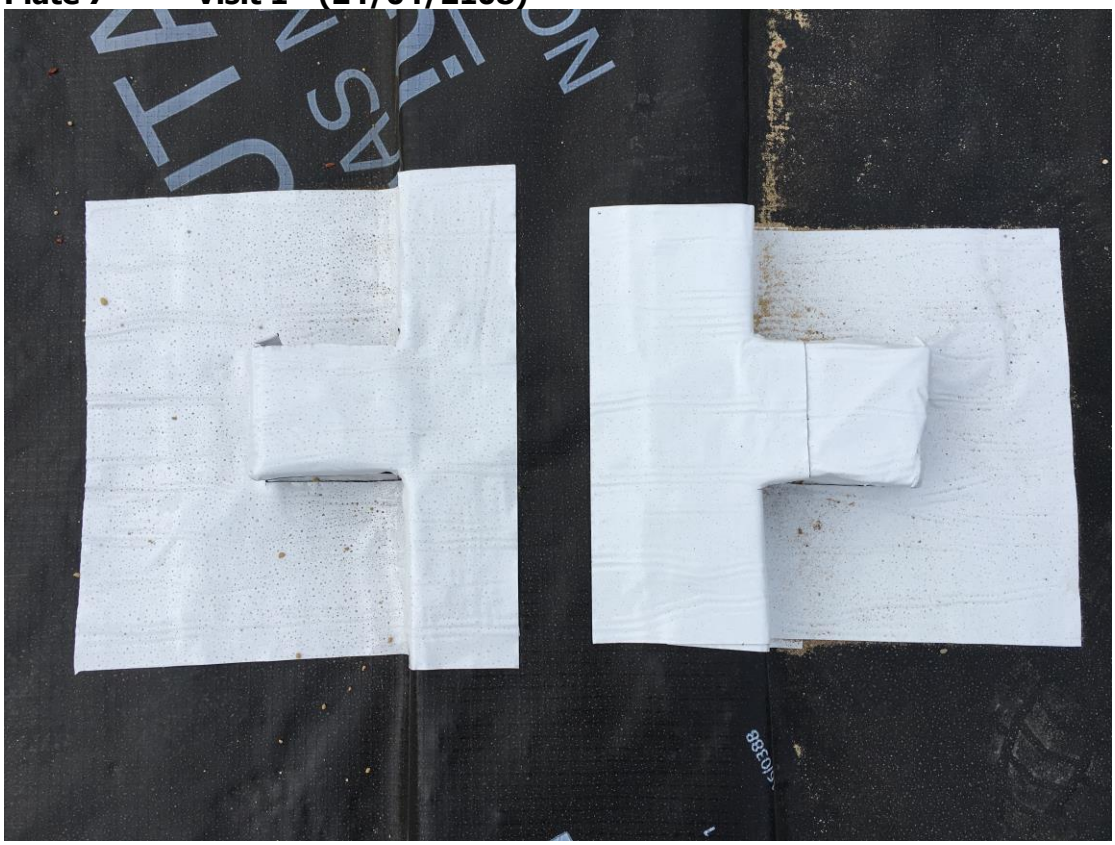

Plate 8 Visit 1 - (24/04/2018)

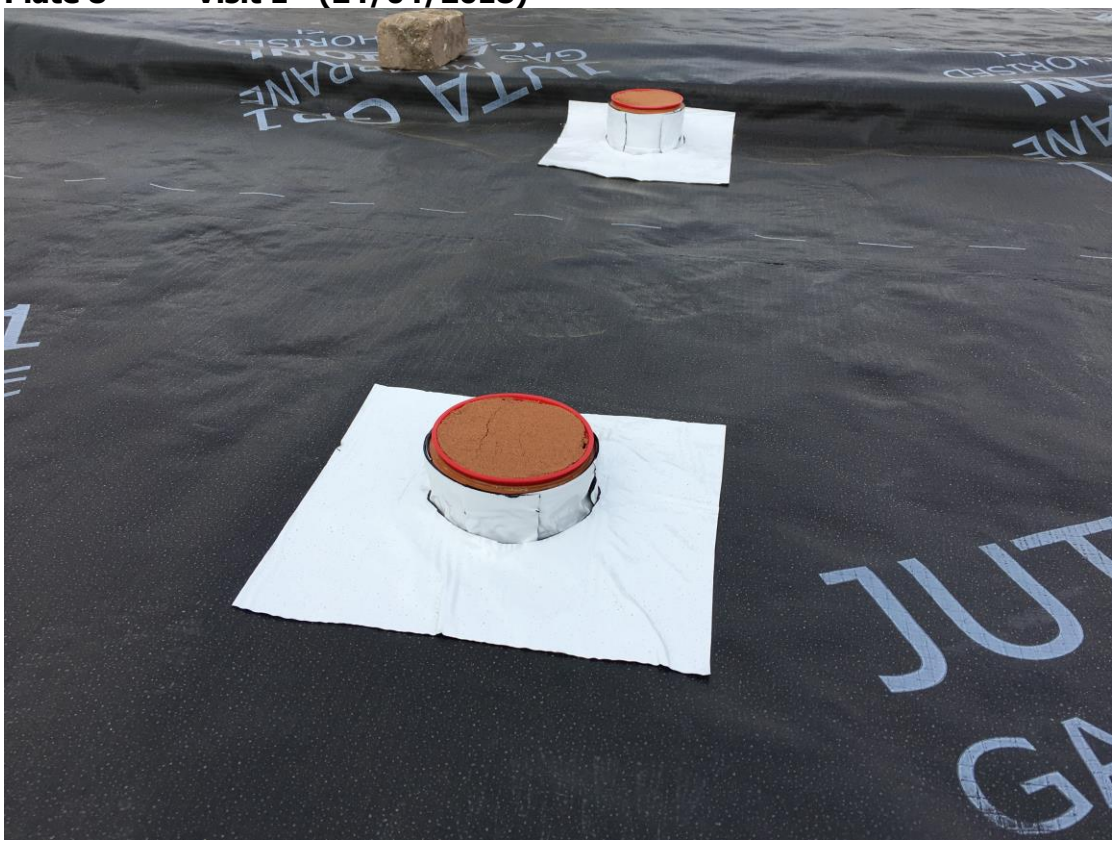

Plate 9 Visit 1 - (24/04/2018)

Plate 10 Visit 1 - (24/04/2018)

Plate 11 Visit 2 - (30/05/2018)

Plate 12 Visit 2 - (30/05/2018)

Plate 13 Visit 2 - (30/05/2018)

Plate 14 Visit 2 - (30/05/2018)

Plate 15 Visit 2 - (30/05/2018)

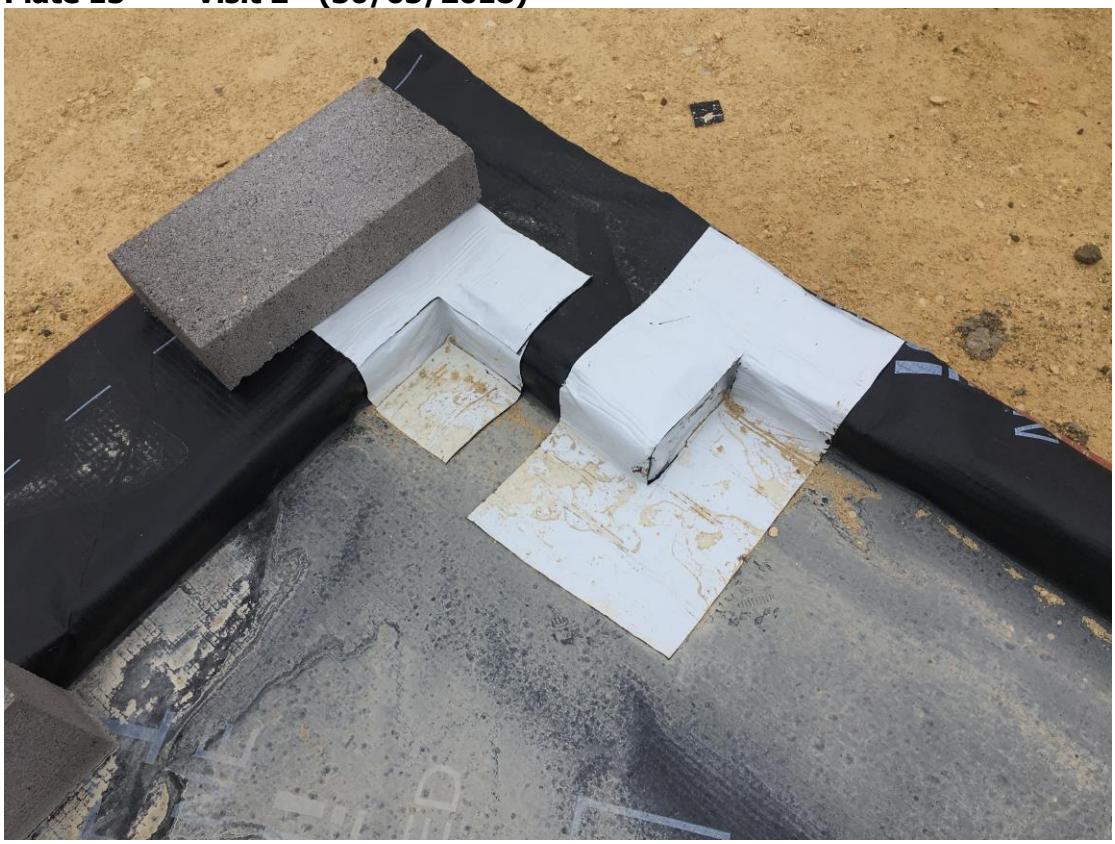

Plate 16 Visit 2 - (30/05/2018)

Plate 17 Visit 2 - (30/05/2018)

Plate 18 Visit 2 - (30/05/2018)