



Cavendish Road, Didsbury

Reference:10-933-R4-1
Date: July 2020



VALIDATION COMPLETION REPORT

Former Withington Hospital
Cavendish Road
Manchester
M20 1LB

Prepared for:
Bellway Homes Manchester



Report Ref: 10-933-R4-1
Date Issued: 30/07/2020

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QUALITY ASSURANCE

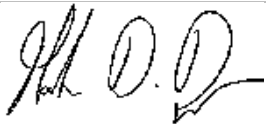
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1. INTRODUCTION

1.1. BACKGROUND

E3P Ltd has been commissioned by Bellway Homes to produce a Completion Report in relation to the validation of the garden plots and gas membrane installations at their newly constructed site at the former Withington Hospital off Cavendish Road, Didsbury.

Manchester City Council confirmed their general acceptance of the remediation works and subsequent validation works for the proposed residential development, pending the following information:

- ✿ Validation of the 600mm cover system; and
- ✿ Validation of the ground gas protection measures.

Interim validation letters pertaining to the above have been produced previously, however all outstanding information is included within this report.

All acronyms used within this report are defined in the Glossary presented in Appendix II.

1.2. OBJECTIVES

E3P have been instructed to develop a detailed Validation Completion Report associated with the validation of the residential development that will incorporate the following:

- ✿ Overview of the validation works undertaken on the development site within the garden areas;
- ✿ Chemical laboratory analysis undertaken of the site won and imported material;
- ✿ Overview of the validation works undertaken on the development site pertaining to the installation of gas protection measures to Characteristic Situation 2 where required.

1.3. LIMITATIONS

The limitations of this report are presented in Appendix I.

1.4. CONFIDENTIALITY

E3P has prepared this report solely for the use of the client and those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed. Should any third party wish to use or rely upon the contents of the report, written approval must be sought from E3P; a charge may be levied against such approval.



2. GARDEN VALIDATION

Independent validation of plots 1–74 was undertaken between 21st March 2018 and 26th November 2019. In total, twenty visits were made during which the depth of the cover system was measured to confirm the installation of 450mm subsoil (site won) and 150mm topsoil (imported) with photographs taken by way of validation.

All material used for the cover system was confirmed chemically suitable for use through chemical analysis, discussed further in Section 3.0. All validation works have been completed in strict accordance with the specification previously agreed with Manchester City Council.

Table 2.1 below shows the Garden Validation reference and date of validation for each garden and landscaped area.

TABLE 2.1 SUMMARY OF GARDEN VALIDATIONS

DATE	REPORT NUMBER	PLOT NUMBER
21 st March 2018	V1	27, 31–32
21 st March 2018	V2	30
5 th April 2018	V3	1–24
20 th April 2018	V4	25–26 & 28–29
13 th June 2018	V5	33
19 th June 2018	V6	69–72
22 nd August 2018	V7	73–74
24 th September 2018	V8	34–35
26 th October 2018	V9	64–68
14 th November 2018	V10	36–37 & 62–63
7 th December 2018	V11	38–39
21 st December 2018	V12	40–41 & 61
21 st February 2019	V13	42–43 & 46–49
21 st February 2019	V14	44
5 th March 2019	V15	45
20 th May 2019	V16	60
5 th July 2019	V17	50



DATE	REPORT NUMBER	PLOT NUMBER
12 th September 2019	V18	51–54 & 58–59
17 th October 2019	V19	57
26 th November 2019	V20	55–56

The full details of the cover system depths of each plot garden area are detailed within the individual letters issued, as per the report reference listed within Table 2.1. All garden validation letter reports are available on request.



3. CHEMICAL VALIDATION

3.1. TOPSOIL AND SUBSOIL

All gardens and landscaped areas required a 600mm chemically suitable cover system comprising at least 450mm subsoil and 150mm topsoil.

Topsoil

No suitable source of topsoil was identified on site; therefore, it was required that topsoil was imported to site for use within the garden areas to complete the cover system and ensure general compliance with Building Control / NHBC warranty requirements for the dwellings.

Subsoil

Site won subsoil was extracted during the site turnover at the east, west and northern boundaries. The granular material was placed to a depth of 450 mm during the reduced dig.

Subsoil was tested prior to use within the proposed cover system to confirm its chemical suitability for use within the development.

3.2. CHEMICAL VALIDATION

Nine samples of the topsoil were analysed in accordance with the E3P Remediation Strategy. Chemical analysis confirmed that these topsoil deposits were chemically suitable for use within the proposed garden areas.

Laboratory certificates 18-78935, 18-12454 and 19-65113 provide analysis of the topsoil imported to site for utilisation within the proposed gardens areas.

The chemical analysis provides a validated volume of 450 m³, each plot required circa 5 m³.

Five samples of the site won subsoil were collected from the stockpile and analysed in accordance with the regulatory approved Remediation Strategy. Laboratory certificate 17-40306 provides analysis of the subsoils that were won from site during the remediation and enabling works.

The chemical analysis provides a validated volume of 1250 m³.

All samples were analysed in accordance with the regulatory approved Remediation Strategy.

Furthermore, E3P inspected the materials intended for topsoil and subsoil. Chemical analysis identified no contaminant exceedances, therefore it has been determined that the topsoil and subsoil is suitable for utilisation within the proposed gardens.

Sufficient samples have been obtained and analysed to meet the agreed sample frequency of 1 sample per 50m³ topsoil and 1 sample per 250m³ subsoil. Laboratory certificates have been attached within the individual garden validation letters and are also included within Appendix IV of this report.



4. GAS MEMBRANE VALIDATION

4.1. SUMMARY OF GROUND GAS RISK ASSESSMENT

E3P completed six ground gas monitoring visits across the site which identified marginally elevated concentrations of carbon dioxide exceeding the action threshold of 5% within one monitoring well (WS101). The remaining monitoring wells did not display any elevated carbon dioxide readings. No elevated methane concentrations were recorded within any of the monitoring wells.

The site was classified as Characteristic Situation 2 in accordance with BS8485 (2015)+A1(2019).

In this instance BS8485 requires a minimum of 3.5 points be achieved by installation of a suitable combination of measures as prescribed within the 2015 version of this specification.

In accordance with BS8485 for Characteristic Situation 2 constructed using a cast in-situ (suspended) floor slab, the following ground gas mitigation was required:

- ✿ 2000-gauge proprietary gas membrane (Visqueen “Low Permeability Gas Membrane or approved other) spanning the footprint of the building.
- ✿ All overlaps of membranes to be a minimum of 150mm sealed with proprietary double-sided tape and jointing tape.
- ✿ All service entry points to be sealed with proprietary gas resistant top hats taped and sealed to the membrane and pipe. Jubilee clip to be used on the neck of the top hat.
- ✿ Floor slabs comprise of reinforced, cast in situ concrete floor slabs.
- ✿ Insulation to be placed between gas membrane and reinforcement to protect from punctures during construction

4.2. GAS MEMBRANE VALIDATION

The ground gas membranes were validated within plots 1–74 with the full details included within the Gas Membrane Validation Certificates included within Appendix V.

In addition, SpS Substructure Protection Ltd carried out Integrity Testing for the first ten plots to be constructed and intermittently thereafter (Integrity Test Certificates are included within Appendix VI).

In brief, the works included the validation of the following for each plot:

- ✿ General condition of the membrane;
- ✿ Verification of the joints; and,
- ✿ Verification of service entries and top hats.

Following the completion of the above, E3P can confirm that Plots 1–74 have been installed with gas protection measures in accordance with Characteristic 2 to an acceptable level of workmanship.



5. CONCLUSIONS

On completion of the validation works undertaken in relation to the installation of a chemically suitable cover system and gas protection measures, E3P can confirm that all works were undertaken in strict accordance with the agreed Remediation Strategy and therefore would deem the site suitable for use as a residential development.

E3P do not consider that any further work is necessary.

END OF REPORT



APPENDIX I LIMITATIONS

1. This report and its findings should be considered in relation to the terms of reference and objectives agreed between E3P and the client as indicated in Section 1.3.
2. For the work, reliance has been placed on publicly available data obtained from the sources identified. The information is not necessarily exhaustive and further information relevant to the site may be available from other sources. When using the information it has been assumed it is correct. No attempt has been made to verify the information.
3. This report has been produced in accordance with current UK policy and legislative requirements for land and groundwater contamination which are enforced by the local authority and the Environment Agency. Liabilities associated with land contamination are complex and requires advice from legal professionals.
4. During the site walkover, reasonable effort has been made to obtain an overview of the site conditions. However, during the site walkover, no attempt has been made to enter areas of the site that are unsafe or present a risk to health and safety, are locked, barricaded, overgrown, or the location of the area has not been made known or accessible.
5. Access considerations, the presence of services and the activities being carried out on the site limited the locations where sampling locations could be installed and the techniques that could be used.
6. Site sensitivity assessments have been made based on available information at the time of writing and are ultimately for the decision of the regulatory authorities.
7. Where mention has been made to the identification of Japanese Knotweed and other invasive plant species and asbestos or asbestos-containing materials, this is for indicative purposes only and do not constitute or replace full and proper surveys.
8. The executive summary, conclusions and recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon without considering the context of the report in full.
9. E3P cannot be held responsible for any use of the report or its contents for any purpose other than that for which it was prepared. The copyright in this report and other plans and documents prepared by E3P is owned by them and no such plans or documents may be reproduced, published or adapted without written consent. Complete copies of this may, however, be made and distributed by the client as is expected in dealing with matters related to its commission. Should the client pass copies of the report to other parties for information, the whole report should be copied, but no professional liability or warranties shall be extended to other parties by E3P in this connection without their explicit written agreement there to by E3P.
10. New information, revised practices or changes in legislation may necessitate the re-interpretation of the report, in whole or in part.



APPENDIX II

GLOSSARY

TERMS

ACM	Asbestos-containing material	MMP	Materials management plan
ADS	Acoustic design statement	ND	Not detected
AST	Above-ground storage tank	NDP	Nuclear density probe
BGS	British Geological Survey	NMP	Noise management plan
BSI	British Standards Institute	NPSE	Noise policy statement for England
BTEX	Benzene, toluene, ethylbenzene, xylenes	NR	Not recorded
CA	Coal Authority	PAH	Polycyclic aromatic hydrocarbon
CBR	California bearing ratio	PCB	Polychlorinated biphenyl
CIEH	Chartered Institute of Environmental Health	PI	Plasticity index
CIRIA	Construction Industry Research Association	PID	Photo ionisation detector
CLEA	Contaminated land exposure assessment	POS	Public open space
CML	Council of Mortgage Lenders	PPE	Personnel protective equipment
CoC	Contaminants of concern	ProPG	Professional practice guidance
CSM	Conceptual site model	QA	Quality assurance
DNAPL	Dense non-aqueous phase liquid (chlorinated solvents, PCB)	SGV	Soil guideline value
DWS	Drinking water standard	SPH	Separate-phase hydrocarbon
EA	Environment Agency	SPT	Standard penetration test
EQS	Environmental quality standard	SVOC	Semi-volatile organic compound
FFL	Finished floor level	TPH	Total and speciated petroleum hydrocarbon
GAC	General assessment criteria	TPH CWG	Total Petroleum Hydrocarbon (Criteria Working Group)
GL	Ground level	UKWIR	United Kingdom Water Infrastructure Risk
GSV	Gas screening value	UST	Underground storage tank
HCV	Health criteria value	VCC	Vibro-concrete column
ICSM	Initial conceptual site model	VOC	Volatile organic compound
LEL	Lower explosive limit	VRSC	Vibro-replacement stone columns
LMRL	Lower method reporting limit	VSC	Vibro-stone columns
LNAPL	Light non-aqueous phase liquid (petrol, diesel, kerosene)	WHO	World Health Organisation
MCV	Moisture condition value	WRAP	Waste and Resources Action Programme

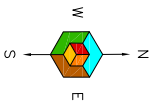
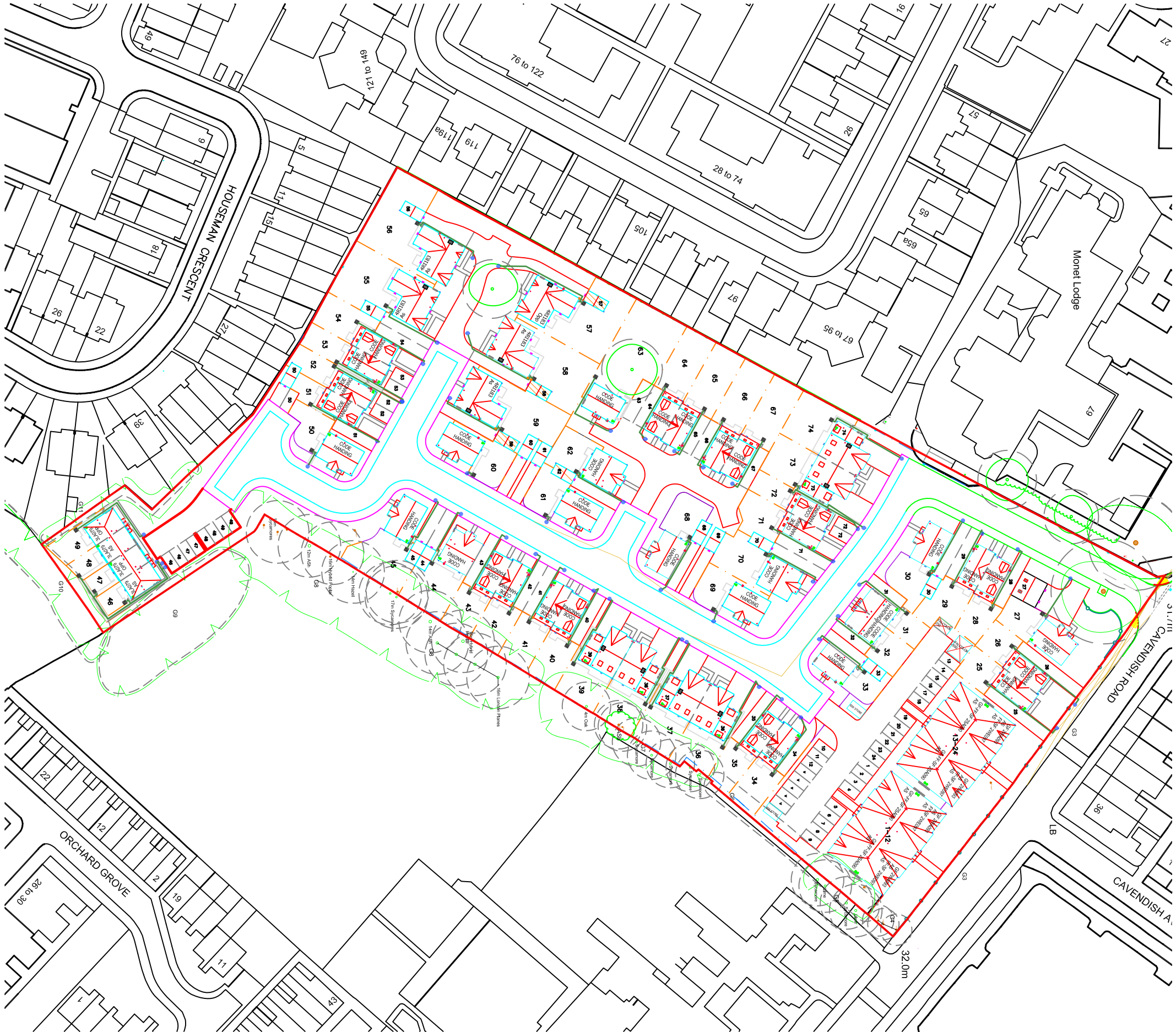


MIBK	Methyl isobutyl ketone	WTE	Water table elevation
m	Metres	ppm	Parts per million
km	Kilometres	mg/m³	Milligram per metre cubed
% v/v	Percent volume in air	m bgl bgl	Metres below ground level
mb	Millibars (atmospheric pressure)	m bcl	Metre below cover level
l/hr	Litres per hour	mAOD	Metres above ordnance datum (sea level)
µg/l	Micrograms per litre (parts per billion)	kN/m²	Kilonewtons per metre squared
ppb	Parts per billion	µm	Micrometre
mg/kg	Milligrams per kilogram (parts per million)	SSRT	Site Specific Remediation Target
PSD	Particle Size Distribution	DD	Dry Density
CL:AIRE	Contaminated Land: Applications in Real Environments	Mc	Moisture Content
ρ	Bulk Density	GPR	Ground Penetrating Radar
NDP	Nuclear Density Probe	FFL	Finished Floor Level
LEL	Lower Explosive Limit	UKWIR	UK Water Industry Research
CIRIA	Construction Industry Research and Information Association	LOD	Limit of Detection



APPENDIX III

DRAWINGS



Notes:

P1	-	06.06.2017	DRAFT	DW	MD
	Revision	Date	Issue	Drawn	Authorised
Bellway Homes		Job No:	10-933	Date:	06.06.2017
		Drawing No:	008	Scale:	1:1000 @ A3

Job Title:	Former Withington Hospital	Drawing Title:	Proposed Development Plan
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APPENDIX IV CHEMICAL TESTING RESULTS



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e: reception@i2analytical.com

Analytical Report Number : 18-78935

Project / Site name:	Cavendish Road	Samples received on:	13/03/2018
Your job number:	10-933	Samples instructed on:	13/03/2018
Your order number:	10933-8277-NS	Analysis completed by:	20/03/2018
Report Issue Number:	1	Report issued on:	20/03/2018
Samples Analysed:	3 soil samples		

Signed:

Nicole Fay
Quality Assistant
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Analytical Report Number: 18-78935

Project / Site name: Cavendish Road

Your Order No: 10933-8277-NS

Lab Sample Number				924741	924742	924743		
Sample Reference				TS101	TS102	TS103		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				12/03/2018	12/03/2018	12/03/2018		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	16	16	16		
Total mass of sample received	kg	0.001	NONE	0.48	0.45	0.45		

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	7.8	7.7		
Total Cyanide	mg/kg	1	MCERTS	57	85	5		
Total Sulphate as SO ₄	mg/kg	50	MCERTS	420	540	360		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	94	74	39		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.047	0.037	0.020		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	46.9	37.0	19.7		
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Total Sulphur	mg/kg	50	MCERTS	270	280	250		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	0.49	0.18	0.35		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	0.68	0.58	0.47		
Pyrene	mg/kg	0.05	MCERTS	0.55	0.58	0.40		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.25	0.26	0.17		
Chrysene	mg/kg	0.05	MCERTS	0.22	0.25	0.18		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.27	0.30	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.10	0.18	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.24	0.26	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.80	2.59	1.57		
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Analytical Report Number: 18-78935

Project / Site name: Cavendish Road

Your Order No: 10933-8277-NS

Lab Sample Number	924741	924742	924743		
Sample Reference	TS101	TS102	TS103		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	12/03/2018	12/03/2018	12/03/2018		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	11	11		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	19	19	17		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	38	36	39		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	63	55	59		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	0.9	0.8	0.8		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	18	17		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	66	61	62		

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0		
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
TPH (C16 - C21)	mg/kg	1	MCERTS	2.1	11	< 1.0		
TPH (C21 - C35)	mg/kg	1	MCERTS	2.3	79	< 1.0		



Analytical Report Number : 18-78935

Project / Site name: Cavendish Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
924741	TS101	None Supplied	None Supplied	Brown clay and loam with vegetation.
924742	TS102	None Supplied	None Supplied	Brown clay and loam.
924743	TS103	None Supplied	None Supplied	Brown loam and clay with gravel.

Analytical Report Number : 18-78935

Project / Site name: Cavendish Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

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Analytical Report Number : 17-40306

Replaces Analytical Report Number : 17-40306, issue no. 1

Project / Site name:	Cavendish Road	Samples received on:	17/02/2017
Your job number:	11-213	Samples instructed on:	17/02/2017
Your order number:	10933-5406-AG	Analysis completed by:	03/03/2017
Report Issue Number:	2	Report issued on:	03/03/2017
Samples Analysed:	5 soil samples		

Signed:

Dr Irma Doyle
Senior Account Manager
For & on behalf of i2 Analytical Ltd.

Signed:

Emma Winter
Assistant Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

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Analytical Report Number: 17-40306

Project / Site name: Cavendish Road

Your Order No: 10933-5406-AG

Lab Sample Number				704053	704054	704055	704056	704057
Sample Reference				SS101	SS102	SS103	SS104	SS105
Sample Number				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Date Sampled				16/02/2017	16/02/2017	16/02/2017	16/02/2017	16/02/2017
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	29	< 0.1	12	7.1	5.3
Moisture Content	%	N/A	NONE	7.8	7.2	8.8	8.1	5.5
Total mass of sample received	kg	0.001	NONE	0.51	0.53	0.55	0.56	0.53

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
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Speciated PAHs

Naphthalene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthene	mg/kg	0.1	NONE	0.20	< 0.10	< 0.10	< 0.10	< 0.10
Fluorene	mg/kg	0.1	NONE	0.14	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	mg/kg	0.1	NONE	1.2	0.41	< 0.10	2.1	< 0.10
Anthracene	mg/kg	0.1	NONE	0.35	< 0.10	< 0.10	0.53	< 0.10
Fluoranthene	mg/kg	0.1	NONE	3.1	0.67	< 0.10	2.4	< 0.10
Pyrene	mg/kg	0.1	NONE	2.7	0.55	< 0.10	1.8	< 0.10
Benzo(a)anthracene	mg/kg	0.1	NONE	1.5	0.41	< 0.10	1.0	< 0.10
Chrysene	mg/kg	0.05	NONE	1.2	0.41	< 0.05	0.71	< 0.05
Benzo(b)fluoranthene	mg/kg	0.1	NONE	1.4	0.24	< 0.10	0.52	< 0.10
Benzo(k)fluoranthene	mg/kg	0.1	NONE	0.39	0.14	< 0.10	0.29	< 0.10
Benzo(a)pyrene	mg/kg	0.1	NONE	0.92	0.20	< 0.10	0.39	< 0.10
Indeno(1,2,3-cd)pyrene	mg/kg	0.1	NONE	0.40	< 0.10	< 0.10	0.16	< 0.10
Dibenz(a,h)anthracene	mg/kg	0.1	NONE	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.44	< 0.05	< 0.05	0.21	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	1.6	NONE	14.0	3.03	< 1.60	10.1	< 1.60
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	NONE	< 1.0	5.2	3.4	6.6	7.0
Barium (aqua regia extractable)	mg/kg	1	NONE	73	21	120	170	51
Beryllium (aqua regia extractable)	mg/kg	0.06	NONE	0.16	0.12	0.36	0.40	0.24
Boron (water soluble)	mg/kg	0.2	NONE	1.5	0.7	0.5	0.6	0.5
Cadmium (aqua regia extractable)	mg/kg	0.2	NONE	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (aqua regia extractable)	mg/kg	1	NONE	9.6	5.2	12	13	6.5
Copper (aqua regia extractable)	mg/kg	1	NONE	12	10	8.4	9.4	7.5
Lead (aqua regia extractable)	mg/kg	1	NONE	16	20	12	18	7.0
Mercury (aqua regia extractable)	mg/kg	0.3	NONE	< 0.3	0.6	0.4	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	NONE	11	9.5	9.8	11	7.8
Selenium (aqua regia extractable)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium (aqua regia extractable)	mg/kg	1	NONE	9.7	5.9	16	19	11
Zinc (aqua regia extractable)	mg/kg	1	NONE	40	22	24	29	18

**Analytical Report Number : 17-40306****Project / Site name: Cavendish Road**

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
704053	SS101	None Supplied	None Supplied	Grey sandy gravel with stones.**
704054	SS102	None Supplied	None Supplied	Grey sandy gravel.**
704055	SS103	None Supplied	None Supplied	Brown sandy gravel with stones.**
704056	SS104	None Supplied	None Supplied	Brown sandy gravel with stones.**
704057	SS105	None Supplied	None Supplied	Brown sandy gravel with stones.**

**Non MCerts matrix



Analytical Report Number : 17-40306

Project / Site name: Cavendish Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Boron, water soluble, in soil	Determination of water soluble boron in soil by hot water extract followed by ICP-OES.	In-house method based on Second Site Properties version 3	L038-PL	D	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 18-12454

Project / Site name:	Cavendish Road	Samples received on:	01/10/2018
Your job number:	10-933	Samples instructed on:	01/10/2018
Your order number:	10933-30286-NS	Analysis completed by:	08/10/2018
Report Issue Number:	1	Report issued on:	08/10/2018
Samples Analysed:	3 soil samples		

Signed

Jordan Hill
Reporting Manager
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Analytical Report Number: 18-12454

Project / Site name: Cavendish Road

Your Order No: 10933-30286-NS

Lab Sample Number				1057530	1057531	1057532		
Sample Reference				TS101	TS102	TS103		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				28/09/2018	28/09/2018	28/09/2018		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	18	19	19		
Total mass of sample received	kg	0.001	NONE	0.45	0.43	0.40		

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.6	7.2	7.7		
Total Cyanide	mg/kg	1	MCERTS	2	2	2		
Total Sulphate as SO ₄	mg/kg	50	MCERTS	610	640	610		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	150	170	140		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.075	0.085	0.072		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	75.0	84.7	71.5		
Sulphide	mg/kg	1	MCERTS	< 1.0	< 1.0	1.9		
Total Sulphur	mg/kg	50	MCERTS	350	380	360		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.46		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.15		
Fluoranthene	mg/kg	0.05	MCERTS	0.29	0.28	1.0		
Pyrene	mg/kg	0.05	MCERTS	0.29	0.26	0.86		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.60		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.66		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.75		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.26		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.61		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.22		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.23		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	5.81		
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Analytical Report Number: 18-12454

Project / Site name: Cavendish Road

Your Order No: 10933-30286-NS

Lab Sample Number	1057530	1057531	1057532		
Sample Reference	TS101	TS102	TS103		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	28/09/2018	28/09/2018	28/09/2018		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	12	12	12		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	0.4	< 0.2		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	31	31	32		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	36	39	49		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	40	44	48		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	21	21	24		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	68	77	87		

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C10 - C12)	mg/kg	2	MCERTS	2.9	< 2.0	4.9		
TPH (C12 - C16)	mg/kg	4	MCERTS	12	4.5	15		
TPH (C16 - C21)	mg/kg	1	MCERTS	23	16	33		
TPH (C21 - C35)	mg/kg	1	MCERTS	90	86	120		
TPH (C35 - C40)	mg/kg	10	MCERTS	18	16	22		
TPH Total C5 - C40	mg/kg	10	MCERTS	150	120	200		



Analytical Report Number : 18-12454

Project / Site name: Cavendish Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1057530	TS101	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.
1057531	TS102	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.
1057532	TS103	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.

Analytical Report Number : 18-12454

Project / Site name: Cavendish Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding.	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.



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Analytical Report Number : 19-65113

Project / Site name:	Cavendish Road	Samples received on:	09/10/2019
Your job number:	10933	Samples instructed on:	09/10/2019
Your order number:		Analysis completed by:	16/10/2019
Report Issue Number:	1	Report issued on:	16/10/2019
Samples Analysed:	3 soil samples		

Signed:

Rexona Rahman
Head of Customer Services
For & on behalf of i2 Analytical Ltd.

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :	soils	- 4 weeks from reporting
	leachates	- 2 weeks from reporting
	waters	- 2 weeks from reporting
	asbestos	- 6 months from reporting

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Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

Iss No 19-65113-1 Cavendish Road 10933

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The results included within the report are representative of the samples submitted for analysis.

Page 1 of 5

Analytical Report Number: 19-65113

Project / Site name: Cavendish Road

Lab Sample Number				1326500	1326501	1326502		
Sample Reference				TS101	TS102	TS103		
Sample Number				None Supplied	None Supplied	None Supplied		
Depth (m)				None Supplied	None Supplied	None Supplied		
Date Sampled				08/10/2019	08/10/2019	08/10/2019		
Time Taken				None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Stone Content	%	0.1	NONE	< 0.1	< 0.1	< 0.1		
Moisture Content	%	N/A	NONE	18	20	14		
Total mass of sample received	kg	0.001	NONE	0.52	0.55	0.50		

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected		
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General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.9	7.8	7.9		
Total Cyanide	mg/kg	1	MCERTS	3	3	2		
Total Sulphate as SO ₄	mg/kg	50	MCERTS	590	670	600		
Water Soluble Sulphate as SO ₄ 16hr extraction (2:1)	mg/kg	2.5	MCERTS	45	100	55		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	g/l	0.00125	MCERTS	0.023	0.052	0.028		
Water Soluble SO ₄ 16hr extraction (2:1 Leachate Equivalent)	mg/l	1.25	MCERTS	22.5	51.7	27.6		
Sulphide	mg/kg	1	MCERTS	2.4	< 1.0	< 1.0		
Total Sulphur	mg/kg	50	MCERTS	450	580	430		

Total Phenols

Total Phenols (monohydric)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
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Speciated PAHs

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Chrysene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05		

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	< 0.80	< 0.80		
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Analytical Report Number: 19-65113

Project / Site name: Cavendish Road

Lab Sample Number	1326500	1326501	1326502		
Sample Reference	TS101	TS102	TS103		
Sample Number	None Supplied	None Supplied	None Supplied		
Depth (m)	None Supplied	None Supplied	None Supplied		
Date Sampled	08/10/2019	08/10/2019	08/10/2019		
Time Taken	None Supplied	None Supplied	None Supplied		
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status		

Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	14	17	12		
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	0.4	0.4	0.3		
Chromium (hexavalent)	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0		
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	32	34	29		
Copper (aqua regia extractable)	mg/kg	1	MCERTS	52	54	48		
Lead (aqua regia extractable)	mg/kg	1	MCERTS	54	53	48		
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3		
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	20	21	17		
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0		
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	110	110	92		

Petroleum Hydrocarbons

TPH (C5 - C6)	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0		
TPH (C6 - C8)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C8 - C10)	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1		
TPH (C10 - C12)	mg/kg	2	MCERTS	< 2.0	3.4	< 2.0		
TPH (C12 - C16)	mg/kg	4	MCERTS	< 4.0	7.2	< 4.0		
TPH (C16 - C21)	mg/kg	1	MCERTS	< 1.0	18	5.6		
TPH (C21 - C35)	mg/kg	1	MCERTS	< 1.0	77	20		
TPH (C35 - C40)	mg/kg	10	MCERTS	< 10	13	< 10		
TPH Total C5 - C40	mg/kg	10	MCERTS	< 10	120	27		



Analytical Report Number : 19-65113

Project / Site name: Cavendish Road

* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1326500	TS101	None Supplied	None Supplied	Brown loam and clay with gravel and vegetation.
1326501	TS102	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
1326502	TS103	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 19-65113

Project / Site name: Cavendish Road

Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with disperion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in water then by acidification, addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Metals in soil by ICP-OES	Determination of metals in soil by aqua-regia digestion followed by ICP-OES.	In-house method based on MEWAM 2006 Methods for the Determination of Metals in Soil.	L038-PL	D	MCERTS
Moisture Content	Moisture content, determined gravimetrically.	In-house method based on BS1377 Part 2, 1990, Chemical and Electrochemical Tests	L019-UK/PL	W	NONE
Monohydric phenols in soil	Determination of phenols in soil by extraction with sodium hydroxide followed by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	MCERTS
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L099-PL	D	MCERTS
Speciated EPA-16 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate, water soluble, in soil (16hr extraction)	Determination of water soluble sulphate by ICP-OES. Results reported directly (leachate equivalent) and corrected for extraction ratio (soil equivalent).	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests, 2:1 water:soil extraction, analysis by ICP-OES.	L038-PL	D	MCERTS
Sulphide in soil	Determination of sulphide in soil by acidification and heating to liberate hydrogen sulphide, trapped in an alkaline solution then assayed by ion selective electrode.	In-house method	L010-PL	D	MCERTS
Total cyanide in soil	Determination of total cyanide by distillation followed by colorimetry.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (Skalar)	L080-PL	W	MCERTS
Total sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, Chemical and Electrochemical Tests	L038-PL	D	MCERTS
Total Sulphur in soil	Determination of total sulphur in soil by extraction with aqua-regia, potassium bromide/bromate followed by ICP-OES.	In-house method based on BS1377 Part 3, 1990, and MEWAM 2006 Methods for the Determination of Metals in Soil	L038-PL	D	MCERTS
TPH in (Soil)	Determination of TPH bands by HS-GC-MS/GC-FID	In-house method, TPH with carbon banding and silica gel split/cleanup.	L076-PL	D	MCERTS

For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

APPENDIX V GAS MEMBRANE VALIDATION CERTIFICATES

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 09-05-2017 / 12-05-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: N. Sellars

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: Apartment Plots 1-24

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 1-24** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Apartment Plots 1-24

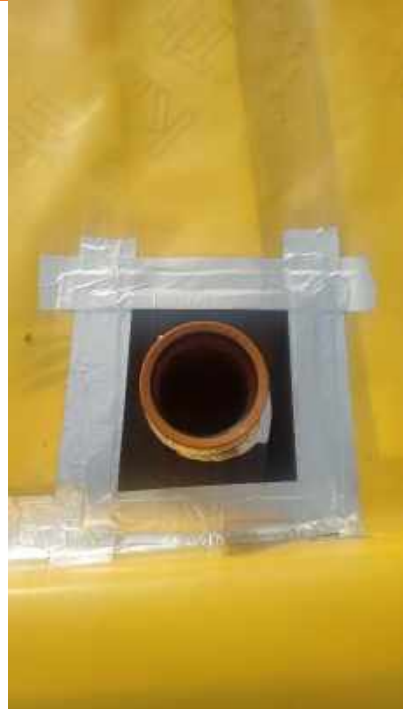
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 1-12

Inspection date/time:

9/5/17 2:00pm

Inspected by:

MARK ATHGATE

Photographed:

✓/x

✓

✓/x

Notes/recommendations

Membrane type

1. VISQUEEN 2000g GAS MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE

Extent of coverage

2. ALL AREAS COMPLETE.

Underside of membrane

3. SAND UNDER KINGSPAN.

Slab/membrane condition

4. NO PUNCTURES TO MEMBRANE.

Laps and joints

5. LAPS AND JOINTS ARE IN ACCORDANCE WITH DESIGN

Damp-proof course

6. ZENDEX TO BE USED.

Service entries

7. TOP HOTS IN ACCORDANCE WITH DESIGN.

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager:

MARIL ATHON

Signed:

* Delete as appropriate

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 13-24

Inspection date/time:

12/5/17

Inspected by:

M. Artherton

Photographed:

✓/x



✓/x

Notes/recommendations

Membrane type

Extent of coverage

Underside of membrane

Slab/membrane condition

Laps and joints

Damp-proof course

Service entries

1. VISQUEEN 2000g GAS MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE.
2. ALL AREAS COMPLETE.
3. SANS UNDER KINGSPAN.
4. NO PUNCTURES.
5. ALL IN ACCORDANCE WITH DESIGN.
6. ZEDOX TO BE USED.
7. TOP HATS IN ACCORDANCE WITH DESIGN.

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~ inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager: M. [Signature]

Signed: M. [Signature]

* Delete as appropriate

For Residential Development at: **Former Withington Hospital, Cavendish Road**



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Oiggie, Oldham. OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 10 May 2017

Area Tested:

Apartment Block (Plots 1 - 12)

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries	<u>15</u>
Ducts	<u> </u>
Steel Columns	<u> </u>
Periscopic Vents	<u> </u>
Starter Bars	<u> </u>

Chases	<u> </u>
Chase Seals	<u> </u>
Piles	<u> </u>
Other	<u> </u>
Other	<u> </u>

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham. OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 12 May 2017

Area Tested:

Apartment Block (Plots 13 - 24)

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

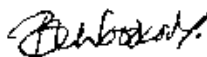
Pipe/Service Entries 15
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 19-05-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: N. Sellars

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: Plots 25 & 26

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 25 and 26** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plots 25 & 26

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record

Bellway

One record sheet to be completed for each plot

Plot No: 25

Inspection date/time: 19/5/17 Inspected by: M. Artherton Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000g MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND UNDER KINGSPAN.
Slab/membrane condition	4. NO PUNCTURES OR REPAIRS.
Laps and joints	5. ALL IN ACCORDANCE WITH DESIGN.
Damp-proof course	6. ZEDDEX TO BE USED.
Service entries	7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at: Former Warrington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager:

M. Arhata

Signed:

M. Arhata

* Delete as appropriate

For Residential Development at: **Former Warrington Hospital, Cavendish Road**





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 26

	Inspection date/time:	19/5/17	Inspected by:	M. ARTHURSON	Photographed:	✓/x	✓
	✓/x	Notes/recommendations					
Membrane type		1. VISQUEEN 2000G MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE.					
Extent of coverage		2. ALL AREAS COMPLETE.					
Underside of membrane		3. SWS UNDER KINGSPAN.					
Slab/membrane condition		4. NO REPAIRS OR PUNCTURES.					
Laps and joints		5. IN ACCORDANCE WITH DESIGN.					
Damp-proof course		6. ZODAX TO BE USED.					
Service entries		7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION					

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ IS NOT* required for this Plot.

Site Manager:

M. Arhett

Signed:

[Signature]

* Delete as appropriate

For Residential Development at: **Former Wittington Hospital, Cavendish Road**



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 May 2017

Area Tested:

Plots 25

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

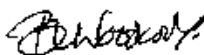
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 May 2017

Area Tested:

Plots 26

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

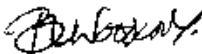
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 19-05-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: N. Sellars

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: Plot 27

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 27** has been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot 27

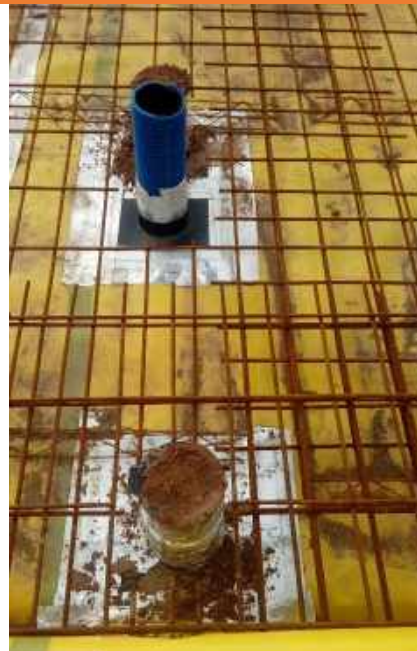
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 27

Inspection date/time:

19/5/17

Inspected by:

M. ARTHURTON

Photographed:

✓/x



✓/x

Notes/recommendations

Membrane type

1. VISQUEEN 2000G MEMBRANE. VISQUEEN DOUBLE SIDED BUTTING TAPE.

Extent of coverage

2. ALL AREAS COMPLETE.

Underside of membrane

3. SAND UNDER KINGSPAN.

Slab/membrane condition

4. NO PUNCTURES OR REPAIRS.

Laps and joints

5. ALL IN ACCORDANCE WITH DESIGN.

Damp-proof course

6. ZODAX TO BE USED.

Service entries

7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ IS NOT* required for this Plot.

Site Manager: M. Antkowiak

Signed: [Signature]

* Delete as appropriate

For Residential Development at: **Former Withington Hospital, Cavendish Road**



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 May 2017

Area Tested:

Plots 27

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries	<u>5</u>
Ducts	<u> </u>
Steel Columns	<u> </u>
Periscopic Vents	<u> </u>
Starter Bars	<u> </u>

Chases	<u> </u>
Chase Seals	<u> </u>
Piles	<u> </u>
Other	<u> </u>
Other	<u> </u>

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 05/06/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: 28-30

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plots 28-30 were validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photograph overleaf.

In addition, SpS Substructure Protection Ltd completed integrity testing on plots 28-30.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.



Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 28

Inspection date/time: 5/6/17 Inspected by: M. ANTON Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000G MEMBRANE. VISQUEEN DOUBLE SIDED JOINING TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND UNDER KINGSLIN.
Slab/membrane condition	4. NO PUNCTURES OR ROADS
Laps and joints	5. IN ACCORDANCE WITH DESIGN.
Damp-proof course	6. ZEOEX TO BE USED.
Service entries	7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ NOT* required for this Plot.

Site Manager: M. Anderson

Signed: [Signature]

* Delete as appropriate

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 29

Inspection date/time: 5/6/17 Inspected by: M. Atkinson Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000G MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND UNDER VISQUEEN.
Slab/membrane condition	4. NO PUNCTURES OR REPAIRS.
Laps and joints	5. ALL IN ACCORDANCE WITH DESIGN.
Damp-proof course	6. ZEDDER TO BE USED.
Service entries	7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS.

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ IS NOT* required for this Plot.

Site Manager: M. Arif-Goon

Signed: [Signature]

* Delete as appropriate

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 30

Inspection date/time: 5/6/17 Inspected by: M. Atkinson Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000G MEMBRANE VISQUEEN DOUBLE SIDED JOINTING TAPE
Extent of coverage	2. ALL AREAS COMPLETE
Underside of membrane	3. SAND UNDER KINGSpan
Slab/membrane condition	4. NO PUNCTURES OR REPAIRS
Laps and joints	5. IN ACCORDANCE WITH DESIGN
Damp-proof course	6. ~~2000G~~ TO BE USED
Service entries	7. TOP HAS IN ACCORDANCE WITH DESIGN AND SPECIFICATION

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~ inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ IS NOT* required for this Plot.

Site Manager: M. Hancock

Signed: [Signature]

* Delete as appropriate

For Residential Development at: Former Withington Hospital, Cavendish Road



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Belfway Homes Limited - Manchester Division

Date: 7 June 2017

Area Tested:

Plots 28

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

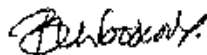
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 7 June 2017

Area Tested:

Plots 29

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

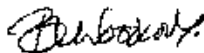
Pipe/Service Entries 5
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01457 870200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 7 June 2017

Area Tested:

Plots 30

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

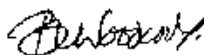
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 13/06/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 31 & 32

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

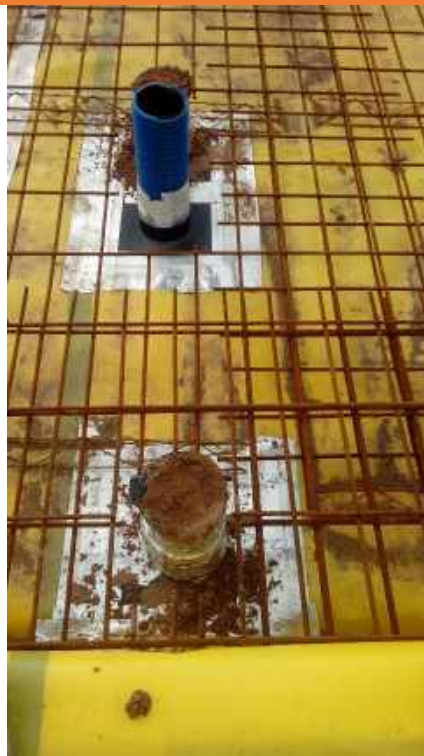
Plots 31 and 32 were validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photograph overleaf.

In addition, SpS Substructure Protection Ltd completed integrity testing on plot 31.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plots – 31 & 32

General Condition of Membrane-Good Condition



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01462 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 15 June 2017

Area Tested:

Plot 31

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

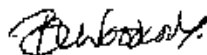
Pipe/Service Entries 5
Ducts
Steel Columns
Periscopic Vents
Starter Bars

Chases
Chase Seals
Piles
Other
Other

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 31

Inspection date/time: 13/6/17 10.00 Inspected by: M. Anderson Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000G GAS MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND UNDER KINGSPAN.
Slab/membrane condition	4. NO PUNCTURES TO MEMBRANE.
Laps and joints	5. LAPS AND JOINTS IN ACCORDANCE WITH DESIGN.
Damp-proof course	6. ZEDOX TO BE USED.
Service entries	7. TOP HATS IN ACCORDANCE WITH DESIGN.

For Residential Development at: Former Withington Hospital, Cavendish Road



Environmental Engineering Partnership Limited trading as E3P
Registered in England No. 08725262 Registered Office: Helipoint Business Park, Liverpool Road, Eccles, Salford, M30 7RU



Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager: M. Arthura

Signed: [Signature]

* Delete as appropriate

For Residential Development at: Furmer Withington Hospital, Cavendish Road

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 15/06/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 33

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

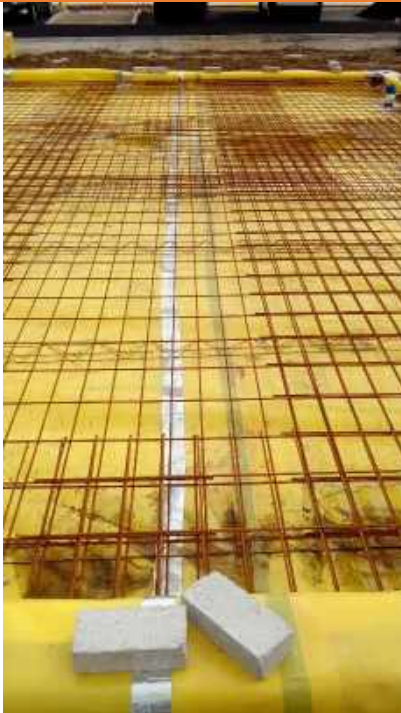
Plot 33 was validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photograph overleaf.

In addition, SpS Substructure Protection Ltd completed integrity testing on plot 33.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot – 33

General Condition of Membrane-Good Condition





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 33

Inspection date/time: 13/6/17 10.00 Inspected by: M. Atkinson Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000g GAS MEMBRANE. VISQUEEN DOUBLE SIDED JOINTING TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND TO UNDERSIDE OF KINGS PAN.
Slab/membrane condition	4. NO PUNCTURES TO MEMBRANE.
Laps and joints	5. LAPS AND JOINTS IN ACCORDANCE WITH DESIGN.
Damp-proof course	6. ZEPER TO BE USED.
Service entries	7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at: Former Withington Hospital, Cavendish Road



Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: Halport Business Park, Liverpool Road, Eccles, Salford, M30 7RU



Gas Protection Validation Record



Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~ inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/~~IS NOT~~ required for this Plot.

Site Manager: M. ATHGILL

Signed: [Signature]

* Delete as appropriate

For Residential Development at: Former Withington Hospital, Cavendish Road

SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 15 June 2017

Area Tested:

Plots 33

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 5
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 18-07-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: Characteristic Situation 2

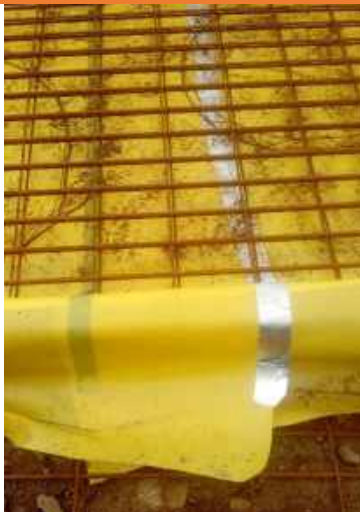
Membrane Specification: Visqueen (Yellow) Membrane

Plot Number: **34 & 35**

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plots 34 and 35 were validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photograph overleaf.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

Plots 34 & 35**General Condition of Membrane-Good Condition****Verification of Joints and Seals-Good Condition****Verification of Service Penetrations- Good Condition**



Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 34

Inspection date/time:	<u>18/7/17</u>	Inspected by:	<u>M. Antgator</u>	Photographed:	<u>✓/x</u> <u>✓</u>
-----------------------	----------------	---------------	--------------------	---------------	---------------------

	✓/x	Notes/recommendations
Membrane type		1. VISQUEEN 200G GAS MEMBRANE. VISQUEEN DOUBLE SIDED TAPE.
Extent of coverage		2. ALL AREAS COMPLETE
Underside of membrane		3. SAND TO UNDERSIDE OF KINGSPAN
Slab/membrane condition		4. NO RUNGULES.
Laps and joints		5. ALL IN ACCORDANCE WITH DESIGN.
Damp-proof course		6. DPC.
Service entries		7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATIONS.

For Residential Development at: Former Withington Hospital, Cavendish Road





Gas Protection Validation Record



Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager: M. Anderson

Signed: M. Anderson

* Delete as appropriate

For Residential Development at: **Former Withington Hospital, Cavendish Road**



Gas Protection Validation Record

Bellway

One record sheet to be completed for each plot

Plot No: 35

Inspection date/time: 18/7/17

Inspected by: M. Antkowiak

Photographed: ✓/x ✓

✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000G MEMBRANE. DOUBLE SIDED VISQUEEN TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND TO UNDERSIDE OF RINGSKANS.
Slab/membrane condition	4. NO PUNCTURES
Laps and joints	5. IN ACCORDANCE WITH DESIGN.
Damp-proof course	6.
Service entries	7. TOP HATS IN ACCORDANCE WITH SPECIFICATION AND DESIGN.

For Residential Development at: Former Withington Hospital, Chapel Walk, Salford





Gas Protection Validation Record

Bellway

Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has ~~PASSED~~ **FAILED** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ **IS NOT** required for this Plot.

Site Manager:

Signed:

* Delete as appropriate

For Residential Development at:

GAS MEMBRANE VALIDATION

Site: Cavendish Road

Date: 18-08-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: Characteristic Situation 2

Membrane Specification: Visqueen (Yellow) Membrane

Plot Number: **36 & 37**

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plots 36 and 37 were validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photograph overleaf.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

Plots 36 & 37

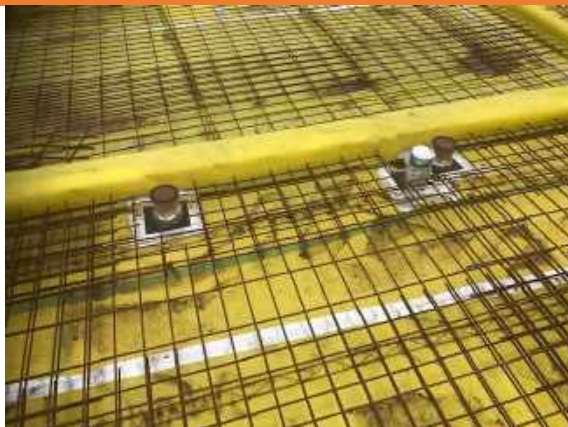
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Record



One record sheet to be completed for each plot

Plot No: 36

1.30

Inspection date/time: 18/8/17

Inspected by: M. Atkinson

Photographed: ✓/x

	✓/x	Notes/recommendations
Membrane type		1. VISQUEEN 2000G MEMBRANE. VISQUEEN DOUBLE SIDED TAPE.
Extent of coverage		2. ALL AREAS COMPLETE.
Underside of membrane		3. SAND TO UNDERSIDE OF KINGSPAN.
Slab/membrane condition		4. NO PUNCTURES.
Laps and joints		5. IN ACCORDANCE WITH DESIGN.
Damp-proof course		6.
Service entries		7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at: Former Whitton Road, Caxton Road



Gas Protection Validation Record

Bellway

Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~ inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager: M. Antkowiak

Signed: [Signature]

* Delete as appropriate

For Residential Development at: Former Worthington Hospital, Cavendish Road



Gas Protection Validation Record

Bellway

One record sheet to be completed for each plot

Plot No: 37

1-30

Inspection date/time: 18/8/17

Inspected by: M. AHGUA

Photographed: ✓/x ✓

	✓/x	Notes/recommendations
Membrane type		1. VISQUEEN 2000G GAS MEMBRANE. VISQUEEN DOUBLE SIDED TAPE.
Extent of coverage		2. ALL AREAS COMPLETE.
Underside of membrane		3. SPUN TO UNDERSIDE OF KINGSPAN.
Slab/membrane condition		4. NO PUNCTURES.
Laps and joints		5. IN ACCORDANCE WITH DESIGN.
Damp-proof course		6.
Service entries		7. TOP HSTS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at: Feynham Way, Wigan, Greater Manchester



Gas Protection Validation Record

Bellway

Guide Notes:

- | | | |
|----|---------------------------|---|
| 1. | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Site Manager: M. Antoon

Signed: M. Antoon

* Delete as appropriate

For Residential Development at: Farnock Wellington Hospital, Garsington Road

GAS MEMBRANE VALIDATION

Site: Cavendish Road

Date: 29-08-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: G. Hirst

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Plot Number: 38 & 39

Overview:

The membrane comprised a Visqueen low permeability gas membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips at the time of inspection. Upon being laid the membrane is to be covered with a Celotex (closed Cell) floor insulation material which is considered to provide a high degree of protection.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 38 & 39** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Membrane Specification: Visqueen Gas Membrane (Yellow)



Plot - 38

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 39

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record

Development CAVENDISH ROAD

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED ~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ NOT* required for this Plot.

Inspection by: G. HIRST

Signed: [Signature]

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 38

	Inspection date/time:	29/8/17 08.30	Inspected by:	G. HIRST	Photographed:	✓/x	✓
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	✓/x	Notes/recommendations
Membrane type		1. Visqueen Gas Membrane (yellow)
Extent of coverage		2. All areas including wall cavities
Underside of membrane		3. Sand binding layer
Slab/membrane condition		4. No damage to membrane
Laps and joints		5. In accordance with design details
Damp-proof course		6. ✓
Service entries		7. Top hats and seals installed in accordance with design/specification



Gas Protection Validation Record

Development CAVENDISH ROAD

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED ~~FAILED~~ inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ IS NOT* required for this Plot.

Inspection by: G. HIRST

Signed: G. Hirst

* Delete as appropriate





Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 39

Inspection date/time:	29/8/17 08.30	Inspected by:	G. HIRST	Photographed:	✓/x	✓
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	✓/x	Notes/recommendations
Membrane type		1. Nisqueen Gas Membrane (yellow)
Extent of coverage		2. All areas including wall cavities
Underside of membrane		3. Sand binding layer
Slab/membrane condition		4. No damage to membrane
Laps and joints		5. In accordance with design details
Damp-proof course		6. ✓
Service entries		7. Top hats and seals installed in accordance with design/specification

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 11-10-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: R. Horseman

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: 40 & 41

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

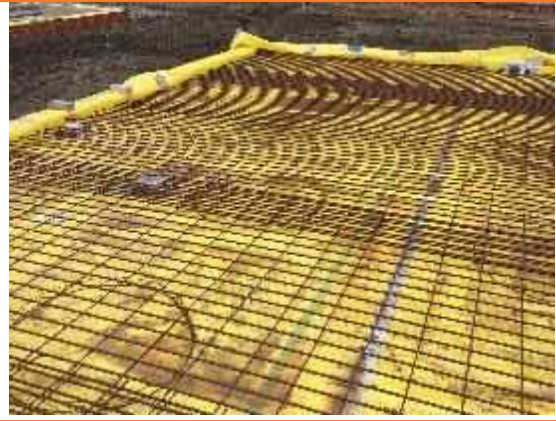
All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 40 & 41** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot - 40

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 41

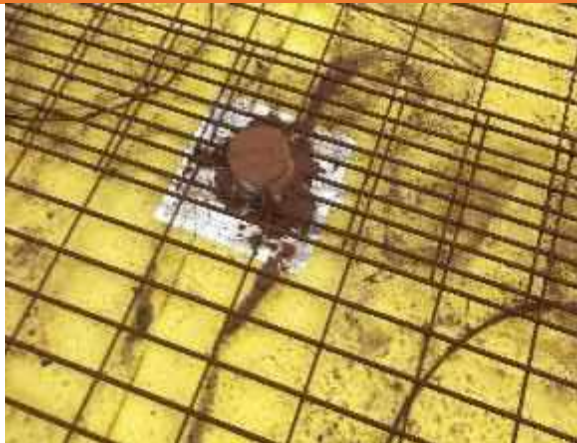
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record

Development Cavenish Rd, Dishbury

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has ~~FAILED~~ **PASSED** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ **IS NOT** required for this Plot.

Inspection by: R. Hoise Mann

Signed: 

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 40

Inspection date/time:	11/10/17 - 15.00	Inspected by:	R. H	Photographed:	✓/x	✓
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	✓/x	Notes/recommendations
Membrane type	✓	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
Extent of coverage	✓	2. ALL SLAB COVERED
Underside of membrane	✓	3. SAND BLANDED
Slab/membrane condition	✓	4. GOOD CONDITION - NO PUNCTURES
Laps and joints	✓	5. ALL AS PER SPEC
Damp-proof course	✓	6. GAS MEMBRANE USED AS DAMP PROOF
Service entries	✓	7. ALL PIPES SEALED WITH TOPHATS



Gas Protection Validation Record

Development Caversham Rd, Didbury

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~/IS NOT* required for this Plot.

Inspection by: R. Horseman

Signed: [Signature]

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 41

Inspection date/time:	11/10/17 15:00	Inspected by:	R. 14	Photographed:	✓/x
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	✓/x	Notes/recommendations
Membrane type	✓	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
Extent of coverage	✓	2. ALL SLAB COVERED
Underside of membrane	✓	3. SAND BLANDED
Slab/membrane condition	✓	4. GOOD CONDITION - NO PUNCTURES
Laps and joints	✓	5. ALL AS PER SPEC
Damp-proof course	✓	6. GAS MEMBRANE USED AS DAMP PROOF
Service entries	✓	7. ALL PIPES SEALED WITH TOPHATS

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 28-11-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: A. Garitty

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: 42 & 43

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 42 & 43** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot - 42

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 43

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Plot No: 43

Inspection date/time:	27.11.17 15.45	Inspected by:	A. Garity	Photographed:	✓
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✓/x	Notes/recommendations
✓	Membrane Type Correct
✓	Extent of Coverage Correct
✓	Underside of Membrane
✓	Slab / membrane condition
✓	Laps and joints
✓	Damp-proof course
✓	Service entries
✓	Folded Membrane Joint
✓	Taped & inspected

This Plot has ~~FAILED~~ inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: A. Garity Signed: A. Garity

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.



Gas Protection Validation Site Record

Plot No: 47

Inspection date/time:	<u>27.11.17</u> <u>15.35</u>	Inspected by:	<u>A. Gally</u>	Photographed:	<u>✓</u>
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	Yellow Visqueen Membrane
Extent of Coverage Correct	✓	Full Slab coverage
Underside of Membrane	✓	Stone banded
Slab / membrane condition	✓	No pits or punctures
Laps and joints	✓	All to design spec
Damp-proof course	✓	DPC in Visqueen
Service entries	✓	All to design spec
Folded Membrane Joint	✓	All to design spec
Taped & inspected	✓	

This Plot has ~~FAILED~~ **PASSED** inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).
An additional inspection visit ~~IS~~ **IS NOT** required for this Plot.

Inspection by: A. Gally Signed: [Signature]

One record sheet to be completed for each plot - To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 12-01-2018

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: A. Garitty

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: 44 & 45

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 44 & 45** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot - 44

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 45

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Plot No: 45

Inspection date/time:	<u>8.25</u> <u>12.01.18</u>	Inspected by:	<u>A. Garrity</u>	Photographed:	<u>✓</u>
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	Yellow Vespene Membrane
Extent of Coverage Correct	✓	Total Slab coverage - including gully
Underside of Membrane	✓	Sealed
Slab / membrane condition	✓	No Punctures or tears
Laps and joints	✓	All to design Spec
Damp-proof course	✓	DPC in dry vespene
Service entries	✓	All to design Spec
Folded Membrane Joint Taped & inspected	✓	All to design Spec

This Plot has ~~FAILED~~ **PASSED** inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: Andrew Garrity Signed: Andrew Garrity

One record sheet to be completed for each plot - To be completed by E3P Professional Inspecting.



Gas Protection Validation Site Record

Plot No.: 44

Inspection date/time:	<u>8.10</u> <u>12.01.18</u>	Inspected by:	<u>A. Gurrity</u>	Photographed:	<u>✓</u>
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✓/x		Notes/recommendations
Membrane Type Correct	✓	<u>Yellow Vlsqueen membrane</u>
Extent of Coverage Correct	✓	<u>Under Slab coverage - including garage</u>
Underside of Membrane	✓	<u>See binkley</u>
Slab / membrane condition	✓	<u>no problems or signs - including garage</u>
Laps and joints	✓	<u>All sealed to design. See</u>
Damp-proof course	✓	<u>DPC integrated in Vlsqueen</u>
Service entries	✓	<u>All to design spec.</u>
Folded Membrane Joint Taped & inspected	✓	<u>All to design spec.</u>

This Plot has ~~FAILED~~ **PASSED** inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ **IS NOT** required for this Plot.

Inspection by: Andrew Gurrity Signed: [Signature]

One record sheet to be completed for each plot - To be completed by **E3P Professional Inspecting**.

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 13-08-2018

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: A. Smith

Ground Gas Risk Assessment: Characteristic Situation 2

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 46 & 48

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 46 & 48** have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

Plots 46

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition



Plots 48

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Plot No: 46

Inspection date/time:	13/08/18	Inspected by:	A SMITH	Photographed:	✓/x ✓
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✓/x	Notes/recommendations
✓	Membrane Type Correct
✓	Extent of Coverage Correct
✓	Underside of Membrane
✓	Slab / membrane condition
✓	Laps and joints
✓	Damp-proof course
✓	Service entries
✓	Folded Membrane Joint Taped & inspected

This Plot has PASSED ~~FAILED~~ inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS ~~IS NOT~~ required for this Plot.

Inspection by: A SMITH Signed: [Signature]

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.



Gas Protection Validation Site Record

Plot No: 48

Inspection date/time:	13/08/18	Inspected by:	A Smith	Photographed:	✓/x ✓
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✓/x Notes/recommendations

Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint Taped & inspected	✓	

This Plot has PASSED ~~FAILED~~ inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS ~~IS NOT~~ required for this Plot.

Inspection by: A Smith Signed: [Signature]

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 16-08-2018

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: A. Smith

Ground Gas Risk Assessment: Characteristic Situation 2

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 47 & 49

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 47 & 49** have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

Plots 47

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition



Plots 49

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Plot No: 47

Inspection date/time:	16/05/18	Inspected by:	A SMITH	Photographed:	✓/x ✓
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✓/x Notes/recommendations

Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint Taped & inspected	✓	

This Plot has PASSED inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS NOT required for this Plot.

Inspection by: A SMITH Signed: [Signature]

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.



Gas Protection Validation Site Record

Plot No: 49

Inspection date/time:	16/08/18	Inspected by:	A Smith	Photographed:	✓/x ✓
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint Taped & inspected	✓	

This Plot has PASSED ~~FAILED~~ inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS NOT required for this Plot.

Inspection by: A Smith Signed: [Signature]

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 12-06-2019	Project Number: 10-933
Project Manager: Nicola Sellars	E3P Engineer:
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 50 & 52	
Due to unforeseen circumstances, photographs of plots 50 and 52 were not taken on site. The groundworker and site manager have confirmed that the gas membrane was installed to a good standard of workmanship. The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. Given that E3P have inspected the adjacent plots and integrity testing has been completed previously, E3P are confident that the membrane for Plots 50 and 52 has been installed to the required standard in accordance with Characteristic Situation 2.	

GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 14-12-2018	Project Number: 10-933
Project Manager: Nicola Sellars	E3P Engineer: J. James
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 51	
The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection. The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant. All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double-sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape. Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane. Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plot 51 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	

Plot 51

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

PLOT No: 51

Inspection date/time:	24/12/18	Inspected by:	J JAMES	Photographed:	✓
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✓/x	Notes/recommendations
✓	Membrane Type Correct
✓	Extent of Coverage Correct
✓	Underside of Membrane
✓	Slab / membrane condition
✓	Laps and joints
✓	Damp-proof course
✓	Service entries
✓	Folded Membrane Joint
✓	Taped & Inspected

This Plot has PASSED / FAILED inspection. (Any proposed remedial works will be noted in the 'Remarks' column on this form).
An additional inspection visit is IS / IS NOT required for this Plot.

Inspection by: Sidhar Juvra Signed: [Signature]

One record sheet to be completed for each plot - To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 24-01-2019	Project Number: 10-933
Project Manager: Nicola Sellars	E3P Engineer: J. James
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 53	
The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection. The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant. All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double-sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape. Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane. Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plot 53 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	

Plot 53

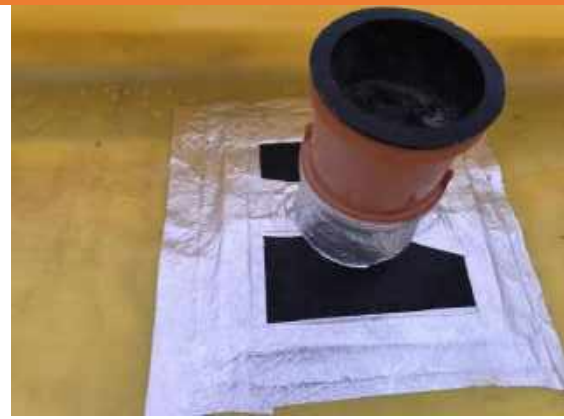
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Plot No: 53

Inspection date/time:	<u>24/1/19</u>	Inspected by:	<u>J JAMES</u>	Photographed:	<u>✓/x ✓</u>
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	<u>✓/x</u>	Notes/recommendations
Membrane Type Correct	<u>✓</u>	
Extent of Coverage Correct	<u>✓</u>	
Underside of Membrane	<u>✓</u>	
Slab / membrane condition	<u>✓</u>	
Laps and joints	<u>✓</u>	
Damp-proof course	<u>✓</u>	
Service entries	<u>✓</u>	
Folded Membrane Joint Taped & inspected	<u>✓</u>	

This Plot has PASSED / FAILED * Inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT required for this Plot.

Inspection by: Jordan James Signed: Jordan James

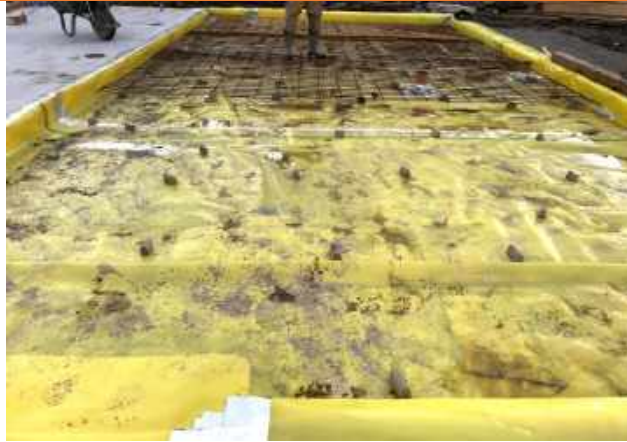
One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 04-02-2019	Project Number: 10-933
Project Manager: Nicola Sellars	E3P Engineer: R. Webster
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 54	
The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection. The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant. All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double-sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape. Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane. Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plot 54 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	

Plot 54

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





e3p

Plot No:

54

Gas Protection Validation Site Record

10933

Inspection date/time:

4/2

Inspected by:

Khelster

Photographed:

✓

✓/x

Notes/recommendations

Membrane Type Correct	✓	✓/x	Notes/recommendations
Extent of Coverage Correct	✓	✓/x	✓/x
Underside of Membrane	✓	✓/x	Full ground floor fully insulated
Slab / membrane condition	✓	✓/x	good
Laps and joints	✓	✓/x	15cm with double sided and silver tape.
Damp-proof course	✓	✓/x	Damp-proof tape dry
Service entries	✓	✓/x	fully sealed with tape
Folded Membrane Joint Taped & inspected	✓	✓/x	Allyols in same direction and taped.

This Plot has **PASSED** / **FAILED** inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT required for this Plot.

Inspection by:

Khelster

Signed:

✓

One record sheet to be completed for each plot - To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road

Date: 18-04-2019

Project Number: 10-933

Project Manager: Nicola Sellars

E3P Engineer: A. Smith

Ground Gas Risk Assessment: Characteristic Situation 2

Membrane Specification: Visqueen (Yellow) Membrane

Plot Number: 55

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

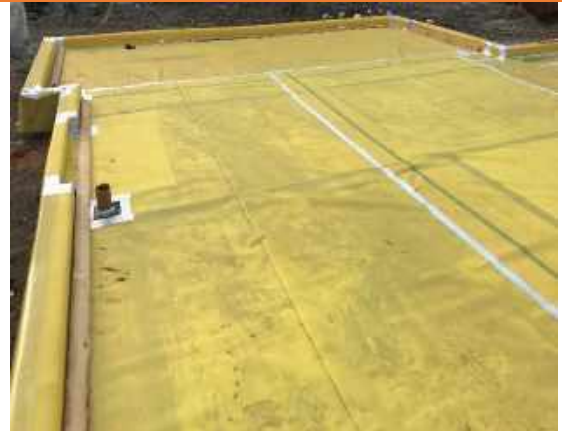
All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double-sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 55** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

Plot 55

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Plot No: 55

Inspection date/time:	18/4/19	Inspected by:	A-SMITH	Photographed:	✓/x ✓
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint Taped & inspected	✓	

This Plot has PASSED/FAILED inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: A-SMITH Signed: 

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.



GAS MEMBRANE VALIDATION

Site: Cavendish Road

Date: 15-05-2019

Project Number: 10-933

Project Manager: Nicola Sellars

E3P Engineer: J. Newall

Ground Gas Risk Assessment: Characteristic Situation 2

Membrane Specification: Visqueen (Yellow) Membrane

Plot Number: 56

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double-sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 56** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

Plot 56

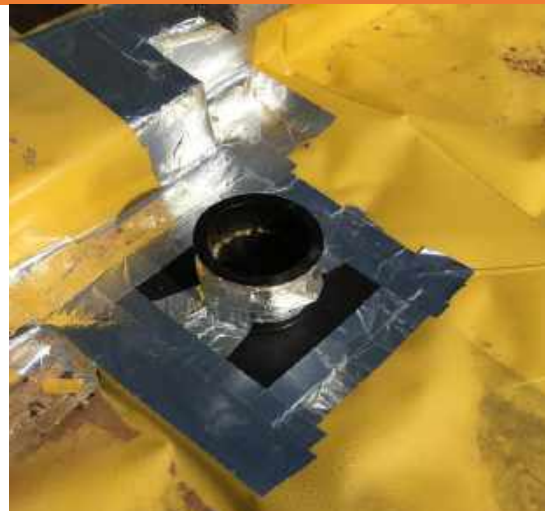
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Plot No: S18

Carvendish Road

Inspection date/time:	<u>15/05/19</u>	Inspected by:	<u>SR</u>	Photographed:	<u>SR</u>
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	✓/x	Notes/recommendations
Membrane Type Correct	/	
Extent of Coverage Correct	/	
Underside of Membrane	/	
Slab / membrane condition	/	
Laps and joints	/	
Damp-proof course	/	
Service entries	/	
Folded Membrane Joint	/	
Taped & inspected	/	

This Plot has PASSED inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).
An additional inspection visit IS/IS NOT required for this Plot.

Inspection by: J Nevill Signed: [Signature]

One record sheet to be completed for each plot - To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 25-02-2019	Project Number: 10-933
Project Manager: Nicola Sellars	E3P Engineer: J. Newall
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 57	
The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection. The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant. All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double-sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape. Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane. Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plot 57 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	

Plot 57

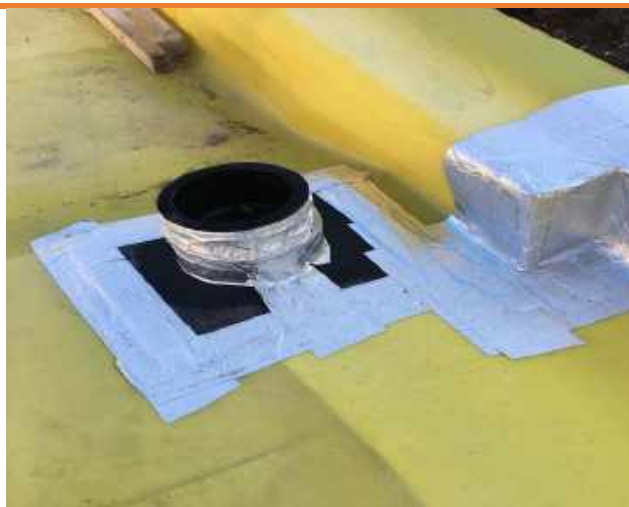
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Cavendish Road.

Plot No: 57

Inspection date/time:	25/02/18	Inspected by:	J Mcard	Photographed:	G/x
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✓/x		Notes/recommendations
Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint	✓	
Taped & inspected	✓	

This Plot has PASSED/FAILED* inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).
An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: J Mcard Signed: J Mcard

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 21-09-2018	Project Number: 10-933
Project Manager: M. Dyer	E3P Engineer: J. Newall
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 58	
The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection. The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant. All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape. Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane. Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plot 58 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	

Plot 58

General Condition of Membrane-Good Condition

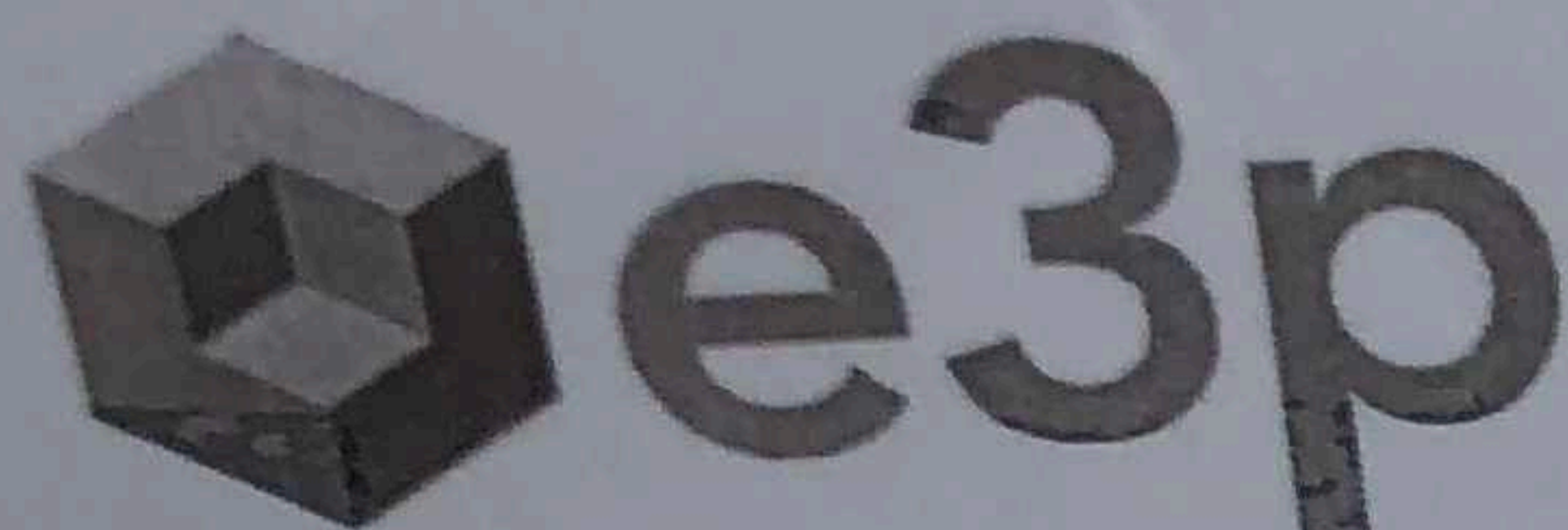


Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

caulendish road

Plot No:

58

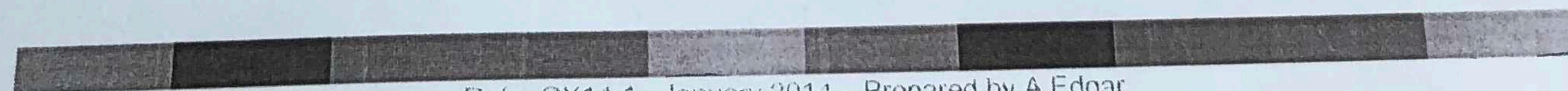
Inspection date/time:	21/09/11	Inspected by:	JN owah	Photographed:	✓/x
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	Vesqueen yellow membrane
Extent of Coverage Correct	✓	full ground floor
Underside of Membrane	✓	fully insulated
Slab / membrane condition	✓	good
Laps and joints	✓	15cm with double sided and silver tape
Damp-proof course	✓	Double sided tape dry
Service entries	✓	Fully sealed with tophatis
Folded Membrane Joint Taped & inspected	✓	All folds in same direction and taped

This Plot has PASSED/FAILED* inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).
An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: JN owah Signed: [Signature]

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.



GAS MEMBRANE VALIDATION

Site: Cavendish Road	
Date: 28-09-2018	Project Number: 10-933
Project Manager: M. Dyer	E3P Engineer: J. James
Ground Gas Risk Assessment: Characteristic Situation 2	
Membrane Specification: Visqueen (Yellow) Membrane	
Plot Number: 59	
The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection. The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant. All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape. Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane. Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that Plot 59 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	

Plot 59

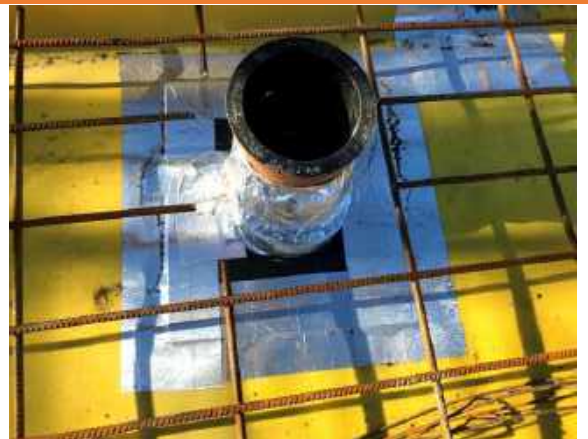
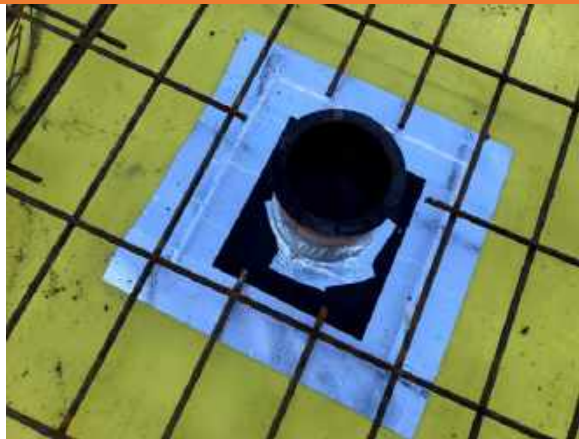
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition





Gas Protection Validation Site Record

Plot No: 59

Inspection date/time:	<u>28/9/18</u>	Inspected by:	<u>S JAMES</u>	Photographed:	<u>✓/x ✓</u>
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint Taped & inspected	✓	

This Plot has PASSED/FAILED* inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by:

Jordan James

Signed:

Jordan James

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road

Date: 07-06-2018

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: J. James

Ground Gas Risk Assessment: Characteristic Situation 2 / Amber 1

Membrane Specification: Visqueen (Yellow) Membrane

Plot Number: 60

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 60** has been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot 60

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations- Good Condition



Gas Protection Validation Site Record

Plot No: 66

Inspection date/time:	<u>7/6/18</u>	Inspected by:	<u>J JAMES</u>	Photographed:	<u>✓</u>
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	✓/x	Notes/recommendations
Membrane Type Correct	✓	
Extent of Coverage Correct	✓	
Underside of Membrane	✓	
Slab / membrane condition	✓	
Laps and joints	✓	
Damp-proof course	✓	
Service entries	✓	
Folded Membrane Joint Taped & inspected	✓	

This Plot has PASSED ~~FAILED~~* inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form).
 An additional inspection visit IS/IS NOT required for this Plot.

Inspection by: Jordan James Signed: [Signature]

One record sheet to be completed for each plot – To be completed by E3P Professional Inspecting.

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 28-09-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: N. Sellars

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: 61 & 62

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 61 & 62** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot - 61

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 62

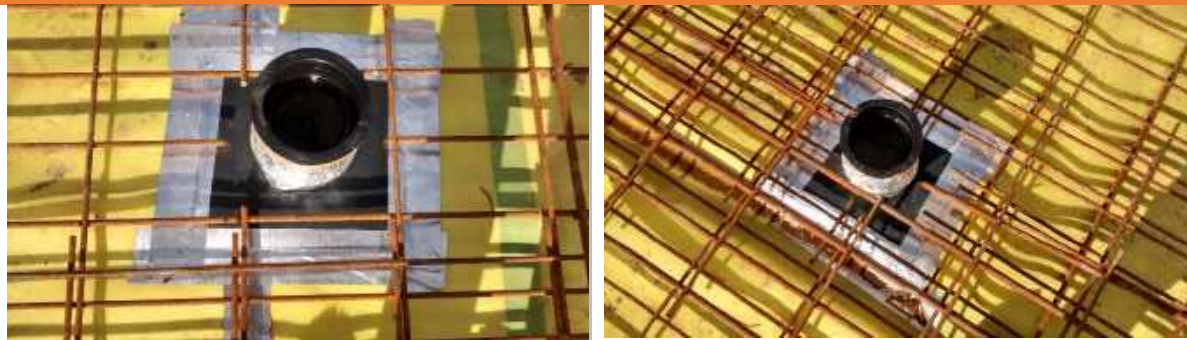
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 61

Inspection date/time:	28/09/17	Inspected by:	N. JELLMERS	Photographed:	✓/x	✓
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✓/x	Notes/recommendations
Membrane type	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
Extent of coverage	2. ALL SLAB COVERED
Underside of membrane	3. SAND BLANDED
Slab/membrane condition	4. GOOD CONDITION - NO PUNCTURES
Laps and joints	5. ALL AS PER SPEC
Damp-proof course	6. GAS MEMBRANE USED AS DAMP PROOF
Service entries	7. ALL PIPES SEALED WITH TOPHATS



Gas Protection Validation Record

Development 10933 CAVENOUSH ROAD

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/FAILED* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: Nicola Selvaraj

Signed: N. Selvaraj

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 62

Inspection date/time:	28/09/17	Inspected by:	N. SELLARS	Photographed:	✓/x	✓
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✓/x	Notes/recommendations
	Membrane type
1.	VISQUEEN LOW PERMEABILITY GAS MEMBRANE
2.	ALL SLAB COVERED
3.	SAND BLENDED
4.	GOOD CONDITION - NO PUNCTURES
5.	ALL AS PER SPEC
6.	GAS MEMBRANE USED AS DRAIN PROOF
7.	ALL PIPES SEALED WITH TIGHTNATS
	Service entries



Gas Protection Validation Record

Development 10933 CAVENDISH ROAD

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/FAILED* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Inspection by: Nicola Seumas

Signed: N Seumas

* Delete as appropriate

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 14-09-2017

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer: R. Horseman

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Low Permeability Gas Membrane (Yellow)

Plot Number: 63-67

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips in the membrane at the time of inspection.

The is delivered in roll form with folded sections, where folds were sealed at jointing positions the membrane was inspected and confirmed to be sealed to a reasonable standard with double sided jointing tape and as such is considered compliant.

All external joints were inspected and E3P can confirm that the membrane was overlapped and double taped to external and internal gas resistant DPM. The membrane was taped to the gas resistant DPM using a double sided jointing tape. All the overlaps were then additionally taped using foil backed girth tape.

Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 63-67** have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot - 63

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 64

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 65

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 66

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition

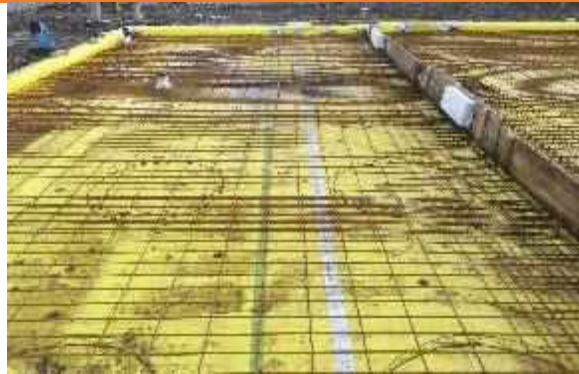


Verification of Service Penetrations-Good Condition



Plot - 67

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Record

Development Caendish Rd

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has ~~FAILED~~ **PASSED*** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ **IS NOT*** required for this Plot.

Inspection by: R. Horsman

Signed: [Signature]

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 63

Inspection date/time:	14/09/17	Inspected by:	R. THORSEMAN	Photographed:	✓/x	✓
-----------------------	----------	---------------	--------------	---------------	-----	---

✓/x	Notes/recommendations
✓	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
✓	2. ALL SLAB COVERED
✓	3. SAND BLANDED
✓	4. GOOD CONDITION - NO PUNCTURES
✓	5. ALL AS PER SPEC
✓	6. GAS MEMBRANE USED AS DAMP PROOF
✓	7. ALL PIPES SEALED WITH TIGHTHATS
	Service entries



Gas Protection Validation Record

Development Cavendish LA

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has ~~PASSED~~ **PASSED*** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ **NOT*** required for this Plot.

Inspection by: R. Horsman.....

Signed: [Signature].....

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 64

Inspection date/time:	14/09/17	Inspected by:	R. HOGSEMAN	Photographed:	✓/x	✓
-----------------------	----------	---------------	-------------	---------------	-----	---

✓/x	Notes/recommendations
✓	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
✓	2. ALL SLAB COVERED
✓	3. SAND BLANDED
✓	4. GOOD CONDITION - NO PUNCTURES
✓	5. ALL AS PER SPEC
✓	6. GAS MEMBRANE USED AS DAMP PROOF
✓	7. ALL PIPES SEALED WITH TOPHATS
✓	Service entries



Gas Protection Validation Record

Development Cavendish Road

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/~~FAILED~~ inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~is~~/IS NOT* required for this Plot.

Inspection by: R. Horseyman

Signed: [Signature]

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 65

Inspection date/time:	14/09/17	Inspected by:	R. HORSMAN	Photographed:	✓/x
-----------------------	----------	---------------	------------	---------------	-----

✓/x	Notes/recommendations
✓	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
✓	2. ALL SLAB COVERED
✓	3. SAND BLANDED
✓	4. GOOD CONDITION - NO PUNCTURES
✓	5. ALL AS PER SPEC
✓	6. GAS MEMBRANE USED AS DAMP PROOF
✓	7. ALL PIPES SEALED WITH TOPHATS



Gas Protection Validation Record

Development Canardish Road

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~is~~/IS NOT* required for this Plot.

Inspection by: R. Hershman

Signed: 2/11/17

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 66

Inspection date/time:	14/09/17	Inspected by:	R. HOBSEMAN	Photographed:	✓/x	✓
-----------------------	----------	---------------	-------------	---------------	-----	---

✓/x	Notes/recommendations
✓	1. VISQUEEN LOW PERMEABILITY GAS MEMBRANE
✓	2. ALL SLAB COVERED
✓	3. SAND BLANDED
✓	4. GOOD CONDITION - NO PUNCTURES
✓	5. ALL AS PER SPEC
✓	6. GAS MEMBRANE USED AS DAMP PROOF
✓	7. ALL PIPES SEALED WITH TIGHTHATS
	Service entries



Gas Protection Validation Record

Development Cavendish Road

Guide Notes:

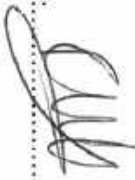
1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has PASSED/~~FAILED~~* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~may~~ IS NOT* required for this Plot.

Inspection by: R. Horsemann

Signed: 

* Delete as appropriate



Gas Protection Validation Record

One record sheet to be completed for each plot

Plot No: 67

Inspection date/time:	14/09/17	Inspected by:	A. HOLLAND	Photographed:	✓
-----------------------	----------	---------------	------------	---------------	---

✓/x Notes/recommendations					
Membrane type	✓	1.	VISQUEEN LOW PERMEABILITY GAS MEMBRANE		
Extent of coverage	✓	2.	ALL SLAB COVERED		
Underside of membrane	✓	3.	SAND BLENDED		
Slab/membrane condition	✓	4.	GOOD CONDITION - NO PUNCTURES		
Laps and joints	✓	5.	ALL AS PER SPEC		
Damp-proof course	✓	6.	GAS MEMBRANE USED AS DAMP PROOF		
Service entries	✓	7.	ALL PIPES SEALED WITH TIGHTHATS		

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 23/07/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 68

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plot 68 was validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photographs overleaf.

In addition, SPS Substructure Protection Ltd completed integrity testing on plot 68.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot – 68

General Condition of Membrane-Good Condition





Gas Protection Validation Record

Bellway

One record sheet to be completed for each plot

Plot No.:

68

10.30

Inspection date/time:

23/7/17

Inspected by:

M. Anderson

Photographed:

✓

✓

✓/x

Notes/recommendations

Membrane type	1. Visqueen 2000g Gas Membrane. Visqueen Double Sided TPE.
Extent of coverage	2. All Areas Covered.
Underside of membrane	3. Saw no evidence of holes.
Slab/membrane condition	4. No Holes.
Laps and joints	5. In Accordance with Design.
Damp-proof course	6.
Service entries	7. All HATS in Accordance with Design and Specifications.

For Residential Development at: **Former Withington Hospital, Cavendish Road**



Gas Protection Validation Record

Bellway

Guide Notes:

- | | Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
|----|---------------------------|---|
| 1. | Membrane type | |
| 2. | Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. | Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. | Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. | Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. | Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. | Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/FAILED* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/IS NOT* required for this Plot.

Site Manager: *H. Antecan*

Signed: *H. Antecan*

* Delete as appropriate

For Residential Development at: **Former Withington Hospital, Cavendish Road**



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 2 August 2017

Area Tested:

Plot 68

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): C Ridgway

SIGNATURE:



GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 19/07/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 69

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plot 69 was validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photographs overleaf.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot – 69

General Condition of Membrane-Good Condition



Ref – QD37-1

Environmental Engineering Partnership Limited trading as E3P

Registered in England No: 08725262 Registered Office: Heliport Business Park, Liverpool Road, Eccles, Salford, M30 7RU



Gas Protection Validation Record

Bellway

One record sheet to be completed for each plot

Plot No: 69

Inspection date/time: 19/7/17 11.00

Inspected by:

M. Anderson

Photographed:

✓/x

✓

✓/x Notes/recommendations

- | | ✓/x | Notes/recommendations |
|-------------------------|-----|--|
| Membrane type | | 1. Visqueen 2000 Gas Membrane. Visqueen Double Sided Tape. |
| Extent of coverage | | 2. All Areas Covered. |
| Underside of membrane | | 3. Sand To underside of KINGSPAN. |
| Slab/membrane condition | | 4. No Punctures |
| Laps and joints | | 5. All in accordance with design. |
| Damp-proof course | | 6. |
| Service entries | | 7. All in accordance with design and specification. |

For Residential Development at: Former Withington Hospital, Cavendish Road



Gas Protection Validation Record

Bellway

Guide Notes:

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

This Plot has **PASSED** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~is~~ **NOT*** required for this Plot.

Site Manager: M. Antkowiak

Signed: [Signature]

* Delete as appropriate

For Residential Development at: **Former Withington Hospital, Cavendish Road**

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 19/07/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 70

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plot 70 was validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photographs overleaf.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot – 70

General Condition of Membrane-Good Condition





Gas Protection Validation Record

Bellway

One record sheet to be completed for each plot

Plot No: 70

Inspection date/time: 19/7/17 11:00 Inspected by: M. Atkinson Photographed: ✓/x ✓

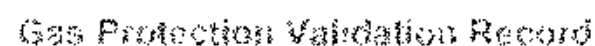
✓/x	Notes/recommendations
Membrane type	1. VISQUEEN 2000G GAS MEMBRANE. VISQUEEN DOUBLE SIDED TAPE.
Extent of coverage	2. ALL AREAS COMPLETE.
Underside of membrane	3. SAND TO UNDERSIDE OF KINGSPANS
Slab/membrane condition	4. NO PUNCTURES.
Laps and joints	5. ALL IN ACCORDANCE WITH DESIGNS.
Damp-proof course	6.
Service entries	7. TOP HATS IN ACCORDANCE WITH DESIGN AND SPECIFICATION

For Residential Development at:

.....

.....

Continuation Engineering Products is a London based firm
Registered in England No. 14727242 Registered Office: 25 Rotherhithe Road, London E16 2JH. Tel: 020 7461 0100



Bellway

1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit ~~IS~~ IS NOT* required for this Plot.

Site Manager:

Signed:

* Delete as appropriate

For Residential Development at:

GAS MEMBRANE VALIDATION

Site: Cavendish Road, Didsbury

Date: 26/06/17

Project Number: 10-933

Project Manager: M. Dyer

E3P Engineer:

Ground Gas Risk Assessment: **Characteristic Situation 2 / Amber 1**

Membrane Specification: Visqueen Gas Membrane (Yellow)

Plot Number: 71, 72, 73 & 74

Overview:

The membrane comprised a folded Visqueen Low Permeability Gas Membrane (Yellow) resistant to radon, carbon dioxide and low levels of methane.

Plots 71-74 were validated by the site manager and groundworker who confirmed that the membrane was installed to a good standard of workmanship as shown in the photographs overleaf.

In addition, SpS Substructure Protection Ltd completed integrity testing on plots 71-74.

E3P have since been called to site to validate each plot and can confirm that all plots have been installed with gas protection measures in accordance with Characteristic Situation 2 / Amber 1 to an acceptable level of workmanship.

Plot – 71/72

General Condition of Membrane-Good Condition



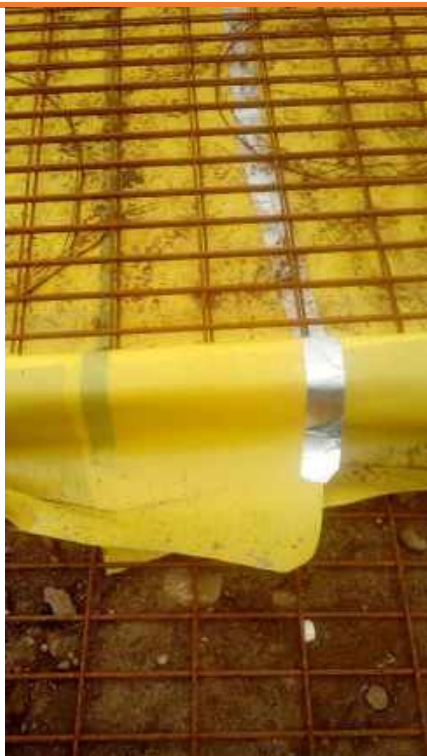
Ref – QD37-1

Environmental Engineering Partnership Limited trading as E3P

Registered in England No: 08725262 Registered Office: Heliport Business Park, Liverpool Road, Eccles, Salford, M30 7RU

Plot – 73/74

General Condition of Membrane-Good Condition



Ref – QD37-1

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: Heliport Business Park, Liverpool Road, Eccles, Salford, M30 7RU



Gas Protection Validation Record

Belway

One record sheet to be completed for each plot

Plot No: 71

Inspection date/time:

22/6/17 11:00

Inspected by:

H. Antecorn

Photographed:

✓

✓/x

Notes/recommendations

1. Visqueen 2000g Gas Membrane. Visqueen Double Sided Tape.
2. All Areas Covered.
3. Sand to under SoE of Kurigran.
4. No Rinsed to Membrane.
5. LARS And Joints in Accordance with Design.
6. ZEOCK to be used.
7. TBP Mats in Accordance with Design And Specification.

For Residential Development at:



Gas Protection Validation Record

Bellway

Guide Notes:

- | | |
|------------------------------|---|
| 1. Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. Underside of membrane | Confirm sand blinding layer is present beneath membrane. |
| 4. Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has PASSED/FAILED* inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit IS/ISNT NOT* required for this Plot.

Site Manager: A. Anterou

* Delete as appropriate

Signed: M. [Signature]

For Residential Development at:



Bellway

One record sheet to be completed for each plot

Plot No: 72

Inspection date/time: 22/6/17 11:00 Inspected by: H. Harrison Photographed: ✓

✓/x	Notes/recommendations
	1. VDSQUEGS 2000g GRASS HERBANE. VDSQUEGS DOUBLE SIDED JAWSTING TREE.
	2. All Areas COMPLETE.
	3. SAND TO UNDER SIDE KINGSPAN.
	4. No FURIGURES TO HERBANE.
	5. LAPS AND JOINTS IN ACCORDANCE WITH DESIGN.
	6. Z6000 TO BE USED.
	7. TOP LAPS IN ACCORDANCE WITH DESIGN AND SPECIFICATION.

For Residential Development at:

Plot No: 72



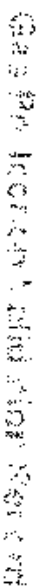
1.	Membrane type	Note manufacturer and product specification, including batch/roll numbers if present.
2.	Extent of coverage	Confirm all areas are complete, including wall cavities.
3.	Underside of membrane	Confirm sand binding layer is present beneath membrane.
4.	Slab/membrane condition	Confirm condition of membrane and any punctures or repairs.
5.	Laps and joints	Check that all joints are lapped and sealed in accordance with design details.
6.	Damp-proof course	Record DPC manufacturer and product code – possibly integrated with the membrane.
7.	Service entries and seals	Confirm top hat types and seal arrangements in accordance with design/specification.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

Site Manager: W. Anderson

Signed: 

For Residential Development at:



Bellway

Plot No: 73

261617

M. Anderson

41

Notes/recommendations

Extent of coverage

Slab/membrane condition

Damp-proof course

Service entries

For Residential Development at:

1. Visqueen 2000g has Herbicide. Visqueen Double Sided Junction Tape.
2. All Area Complete.
3. Sand to underside of Kingspan.
4. No punctures to membrane.
5. Laps And Joints in Accordance with Design.
6. Zeoex to be used
7. Top Hats in Accordance with Design and Specification.

Figure 1. The effect of the concentration of the *Agrobacterium* suspension on the transformation efficiency of *Agrobacterium* strains.



Can be used for Waterbury, Conn.

Belway

Guide Notes:

- | | |
|------------------------------|---|
| 1. Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. Damp-proof course | Record DPC manufacturer and product code -- possibly integrated with the membrane. |
| 7. Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has **PASSED/FAILED*** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit **IS/IS NOT*** required for this Plot.

Site Manager: M. Atkinson

Signed: M. Atkinson

* Delete as appropriate

For Residential Development at:

Plot No. 1000 of 1000 plots in the development of 1000 plots.
The development is situated at 1000 Street, 1000 Town, 1000 County, 1000 State, 1000 Zip Code.
The development is a 1000 unit development.
The development is a 1000 unit development.



Bellway

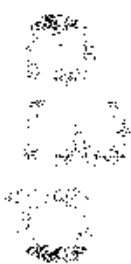
One record sheet to be completed for each plot

Plot No: 74

Inspection date/time: 22/6/17 11.00 Inspected by: H. Anttonen Photographed: ✓

✓/x	Notes/recommendations
Membrane type	1. Visqueen 2000g and Hestane. Visqueen Double Sided Tape.
Extent of coverage	2. All Areas Covered.
Underside of membrane	3. Sand To underside of Kingspan.
Slab/membrane condition	4. No punctures To Hestane.
Laps and joints	5. Laps And Joints In Accordance With Design.
Damp-proof course	6. DPCX To Be Used.
Service entries	7. Top Holes In Accordance With Design And Specification.

For Residential Development at:



For further information, please contact:

Bellway

Guide Notes:

- | | |
|------------------------------|---|
| 1. Membrane type | Note manufacturer and product specification, including batch/roll numbers if present. |
| 2. Extent of coverage | Confirm all areas are complete, including wall cavities. |
| 3. Underside of membrane | Confirm sand binding layer is present beneath membrane. |
| 4. Slab/membrane condition | Confirm condition of membrane and any punctures or repairs. |
| 5. Laps and joints | Check that all joints are lapped and sealed in accordance with design details. |
| 6. Damp-proof course | Record DPC manufacturer and product code – possibly integrated with the membrane. |
| 7. Service entries and seals | Confirm top hat types and seal arrangements in accordance with design/specification. |

This Plot has **PASSED/FAILED** inspection.

(Any proposed remedial works will be noted in the "Remarks" column on this form).

An additional inspection visit **IS/IS NOT** required for this Plot.

Site Manager: *H. Hume*

* Delete as appropriate

Signed: *[Signature]*

For Residential Development at:

Plot: *[Redacted]* Address: *[Redacted]* Date: *[Redacted]*

SpS Substructure Protection Limited

Unit 2, Worth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01487 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 June 2017

Area Tested:

Plot 71

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

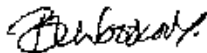
Pipe/Service Entries 3
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ - Telephone : 01457 575200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 June 2017

Area Tested:

Plot 72

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

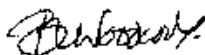
Pipe/Service Entries 4
Ducts
Steel Columns
Periscopic Vents
Starter Bars

Chases
Chase Seals
Piles
Other
Other

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5P.J. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 27 June 2017

Area Tested:

Plots 73

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 6
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Muddersfield Road, Diggle, Oldham, OL3 5PL - Telephone : 01657 876200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 June 2017

Area Tested:

Plot 74

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 6
Ducts
Steel Columns
Periscopic Vents
Starter Bars

Chases
Chase Seals
Piles
Other
Other

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



APPENDIX VI INTEGRITY TEST CERTIFICATES

SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 15 June 2017

Area Tested:

Plots 33

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 5
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ, ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 25 August 2017

Area Tested:

Plots 38

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 7
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): C Ridgway

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Belhway Homes Limited - Manchester Division

Date: 12 January 2018

Area Tested:

Plots 44

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

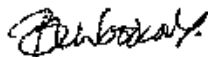
Pipe/Service Entries 5
Ducts _____
Steel Columns _____
Periscope Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham. OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 2 August 2017

Area Tested:

Plot 68

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): C Ridgway

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Oiggie, Oldham. OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 10 May 2017

Area Tested:

Apartment Block (Plots 1 - 12)

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 15
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham. OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 12 May 2017

Area Tested:

Apartment Block (Plots 13 - 24)

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

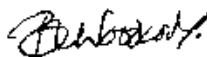
Pipe/Service Entries 15
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 May 2017

Area Tested:

Plots 25

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

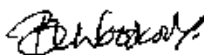
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 May 2017

Area Tested:

Plots 26

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

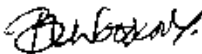
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 May 2017

Area Tested:

Plots 27

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries	<u>5</u>
Ducts	<u> </u>
Steel Columns	<u> </u>
Periscopic Vents	<u> </u>
Starter Bars	<u> </u>

Chases	<u> </u>
Chase Seals	<u> </u>
Piles	<u> </u>
Other	<u> </u>
Other	<u> </u>

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle Oldham, OL3 5PJ. ~ Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Belfway Homes Limited - Manchester Division

Date: 7 June 2017

Area Tested:

Plots 28

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

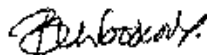
Pipe/Service Entries 4
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Wardi Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 7 June 2017

Area Tested:

Plots 29

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries	5
Ducts	
Steel Columns	
Periscopic Vents	
Starter Bars	

Chases	
Chase Seals	
Piles	
Other	
Other	

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:

Benbrook.

SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. + Telephone : 01457 873200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 7 June 2017

Area Tested:

Plots 30

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries	4
Ducts	
Steel Columns	
Periscopic Vents	
Starter Bars	

Chases	
Chase Seals	
Piles	
Other	
Other	

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:

Penbrook.

SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. ~ Telephone : 01462 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 15 June 2017

Area Tested:

Plot 31

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 5
Ducts
Steel Columns
Periscopic Vents
Starter Bars

Chases
Chase Seals
Piles
Other
Other

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Worth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ. - Telephone : 01487 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 June 2017

Area Tested:

Plot 71

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

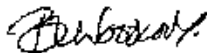
Pipe/Service Entries 3
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5PJ - Telephone : 01457 575200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 June 2017

Area Tested:

Plot 72

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

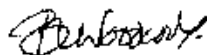
Pipe/Service Entries 4
Ducts
Steel Columns
Periscopic Vents
Starter Bars

Chases
Chase Seals
Piles
Other
Other

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Huddersfield Road, Diggle, Oldham, OL3 5P.J. - Telephone : 01457 878200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 27 June 2017

Area Tested:

Plots 73

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 6
Ducts _____
Steel Columns _____
Periscopic Vents _____
Starter Bars _____

Chases _____
Chase Seals _____
Piles _____
Other _____
Other _____

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:



SpS Substructure Protection Limited

Unit 2, Warth Mill, Muddersfield Road, Diggle, Oldham, OL3 5PL - Telephone : 01657 876200

CERTIFICATE OF INTEGRITY TEST

Project: Eclipse, Cavendish Road, Didsbury, M20 1LB

Client: Bellway Homes Limited - Manchester Division

Date: 23 June 2017

Area Tested:

Plot 74

All ground floor areas - passed.

All Service/Pipe penetrations - passed.

Penetration Details

Pipe/Service Entries 6
Ducts
Steel Columns
Periscopic Vents
Starter Bars

Chases
Chase Seals
Piles
Other
Other

We confirm that we have tested the Gas Barrier Installation carried out on the above project and are satisfied that at the point of testing the installed Gas Barrier was fully sealed and performing to the required specification and standard.

mts tester (Print Name): Bryan Woodcock

SIGNATURE:

