

Validation Completion Report

Site: Sonnet Gate, Prescott

Reference:15-292-R1

Date: July 2025



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QUALITY ASSURANCE

Report reference	15-292-R3
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This report has been prepared for the sole benefit, use, and information of the client. The liability of Environmental Engineering Partnership Limited T/A E3P with respect to the information contained in the report will not extend to any third party. This report has been prepared by the qualified persons as listed below.

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1. INTRODUCTION

1.1. BACKGROUND

E3P Ltd has been commissioned by Miller Homes (North West) to produce a Completion Report in relation to the validation of the garden plots and gas membrane installations at their recently constructed site at Sonnet Gate, Prescott.

Knowsley District Council have previously 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 and consolidated 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 was undertaken of the materials utilised within the cover system;
- ✳ Overview of the validation works undertaken on the development site pertaining to the installation of gas protection measures to CS2/Amber 1 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 1-17, 20-59 & 63-81 was undertaken between 15th March 2022 and 4th December 2023. In total, thirty-one visits were made during which the depth of the cover system was measured to confirm the installation of 450mm subsoil and 150mm topsoil, 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 Knowsley Metropolitan Borough 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
15 th March 2022	V1	1-4
5 th April 2022	V2	5-6
8 th June 2022	V3	7-8 & 16-17
9 th June 2022	V4	18-19
7 th July 2022	V5	9-13
9 th September 2022	V6	34-35
21 st September 2022	V7	33
30 th September 2022	V8	30-32
8 th November 2022	V9	20-21 & 26-29
22 nd November 2022	V10	36
15 th December 2022	V11	37-43
16 th December 2022	V12	22-24
20 th December 2022	V13	25
30 th January 2023	V14	44-45
3 rd March 2023	V15	46-48
10 th March 2023	V16	49
17 th April 2023	V17	14 & 50-52



DATE	REPORT NUMBER	PLOT NUMBER
28 th April 2023	V18	53
23 rd May 2023	V19	15
31 st May 2023	V20	54-55
26 th June 2023	V21	56
27 th June 2023	V22	56
11 th July 2023	V23	57-59
10 th October 2023	V24	60-62
25 th August 2023	V25	63-65
5 th September 2023	V26	64
12 th October 2023	V27	66, 70, 72
24 th October 2023	V28	71
17 th October 2023	V29	67-69
22 nd November 2023	V30	74-76
4 th December 2023	V31	77-81
10 th November 2023	V32	73

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 and have previously been submitted on an individual basis to the warranty provider.



3. CHEMICAL VALIDATION

3.1. TOPSOIL AND SUBSOIL

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

Topsoil

Topsoil was stockpiled towards the end of the earthworks for use within the upper 150mm cover system. Four topsoil samples were submitted for chemical analysis prior to the commencement of works. Topsoil was imported to site under an MMP.

Subsoil

During the earthworks to create a developable platform, install highways and complete drainage trenches the natural cohesive site won materials were stockpiled on-site for use as subsoil within garden and landscaped areas. The subsoils have subsequently been placed within garden plots during development. Generally subsoils were imported to site under an MMP.

Subsoil and topsoil materials were tested prior to use within the proposed cover system to confirm their chemical suitability for use within the development.

3.2. CHEMICAL VALIDATION

Twelve topsoil samples were submitted for chemical analysis, and the results confirmed that the material is suitable for use within the 600mm cover system within the residential development.

Laboratory certificates 22-42746, 22-62748 and 22-12541 provide the results for the topsoil testing.

Twelve samples of subsoil were collected from the stockpile and analysed in accordance with the regulatory approved Remediation Strategy. Chemical analysis identified no contaminant exceedances; therefore, it has been determined that the subsoil would be suitable for utilisation within the proposed gardens.

Laboratory certificates 22-49723, 22-77275, 22-93528 and 22-12541 provide analysis of the subsoils that were stockpiled during the remediation and enabling works.

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 100m³ 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 ground gas monitoring across the site which identified the presence of CH₄ and CO₂.

In accordance with the methodology outlined with the CIRIA publication C665, E3P have utilised the results of the ground gas monitoring surveys to calculate a tentative Gas Screening Value (GSV). The maximum GSV calculated for methane was 0.02 l/hr (CP101) and for carbon dioxide was 0.0041 l/hr (CP102).

Based on the 6 No. gas monitoring surveys, the site is classified as CS2/Amber 1 which will require specialist mitigation measures to be constructed in accordance with BS8485 (2015).

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.

4.2. GAS MEMBRANE VALIDATION

Independent validation of plots 1-81 was undertaken between 24th November 2021 and 3rd July 2023. In total, thirty-one visits were made during which the validation of the gas membrane, the works included:

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

With photographs taken by a way of validation. Full details within the Gas Membrane Validation Certificates are included in Appendix V.

Following the completion of the above, E3P can confirm that Plots 1-81 have been installed with gas protection measures in accordance with CS2 to an acceptable level of workmanship.

Table 4.1 below shows the Gas Membrane Validation reference and date of validation for each gas membrane.

TABLE 4.1 SUMMARY OF GAS MEMBRANE VALIDATIONS

DATE	REPORT NUMBER	PLOT NUMBER
24 th November 2021	V1	1-3
7 th December 2021	V2	4-5
21 st December 2021	V3	6
12 th January 2022	V4	7-8
28 th January 2022	V5	9 & 16-19
14 th February 2022	V6	10-11



DATE	REPORT NUMBER	PLOT NUMBER
17 th February 2022	V7	12-13
25 th March 2022	V8	34-35
5 th April 2022	V9	32-33
25 th April 2022	V10	27-31
1 st June 2022	V11	20 & 26
8 th June 2022	V12	21
9 th June 2022	V13	36-38
15 th June 2022	V14	38-43
29 th June 2022	V15	47-49
7 th July 2022	V16	23 & 25
12 th July 2022	V17	44-46
21 st July 2022	V18	22 & 24
25 th July 2022	V19	50-52
1 st August 2022	V20	53
24 th August 2022	V21	14-15
10 th November 2022	V22	54
22 nd November 2022	V23	55-59
10 th February 2023	V24	60-62
23 rd February 2023	V25	65-67
27 th March 2023	V26	63-64
19 th May 2023	V27	70-71
23 rd May 2023	V28	72 & 80-81
30 th May 2023	V29	73-74
5 th June 2023	V30	77-79



DATE	REPORT NUMBER	PLOT NUMBER
3 rd July 2023	V31	68-69

The full details of the gas membrane validation of each plot are detailed within the individual letters issued, as per the report reference listed within Table 4.1. All gas membrane validation letter reports are available on request.



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

REPORT LIMITATIONS

GENERAL

1. This report and any associated works (together comprising the "Services") were compiled and carried out by E3P for the client (as present in Section 1) under the E3P "Terms of Business" or with those parties with whom a warranty agreement has been executed, or with whom an assignment has been agreed and outlined in the body of the report.
2. Unless explicitly agreed otherwise, in writing, this report has been prepared under E3P Standard Terms and Business as included within our proposal to the Client.
3. Project-specific appointment documents may be agreed upon at our discretion and a charge may be levied for both the time to review and finalise appointment documents and also for associated changes to the appointment terms. E3P reserves the right to amend the fee should any changes to the appointment terms create an increased risk to E3P.
4. The report needs to be considered in light of the proposal and associated limitations of scope. The report needs to be read in full and isolated sections cannot be used without full reference to other elements of the report and any previous works referenced within the report.

PHASE 1 GEOENVIRONMENTAL AND PRELIMINARY RISK ASSESSMENTS

5. Coverage: This section covers reports with the following titles or combination of titles: Phase 1; Desktop Study; Geoenvironmental Assessment; Development Appraisal; Preliminary Environmental Risk Assessment; Constraints Report; Due Diligence Report; Geotechnical Development Review; Environmental Statement; Environmental Chapter; Baseline Environmental Assessment; Project Scope Summary Report (PSSR), Program Environmental Impact Report (PEIR), Geotechnical Development Risk Register; Agricultural Land Assessment; Mineral Safeguarding Assessment; Desk Top Coal Mining Risk Assessment; Hydrogeological Appraisal; Construction Environmental Management Plan; and Site Water Management Plan.
6. The works undertaken to prepare this report comprised a study of available and easily documented information from a variety of sources (including the Client), together with (where appropriate) a brief walkover inspection of the Site and correspondence with relevant authorities and other interested parties. Due to the short timescales associated with these projects responses may not have been received from all parties. E3P cannot be held responsible for any disclosures that are provided post-production of our report and will not automatically update our report.



7. The opinions given in this report have been dictated by the finite data on which they are based and are relevant only for the purpose for which the report was commissioned. The information reviewed should not be considered exhaustive and has been accepted in good faith as providing true and representative data pertaining to site conditions. Should additional information become available which may affect the opinions expressed in this report, E3P reserves the right to review such information and, if warranted, to modify the opinions accordingly.
8. It should be noted that any risks identified in this report are perceived risks based on the information reviewed. Actual risks can only be assessed following intrusive investigations of the site.
9. 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 does not constitute or replace full and proper surveys completed by suitably qualified and experienced specialists in these fields.
10. E3P does not warrant work/data undertaken/provided by others.

INTRUSIVE INVESTIGATION REPORTS

11. Coverage: The following report titles (or combination) may cover this category of work: Geoenvironmental Site Investigation; Geotechnical Assessment; GIR (Ground Investigation Reports); Preliminary Environmental And Geotechnical Risk Assessment; Preliminary Summary; Coal Mining Risk Assessment, Ground Gas Addendum; and, Geotechnical Risk Register.
12. The investigation has been undertaken to provide information concerning either:
 - I. The type and degree of contamination present at the site in order to allow a generic quantitative risk assessment to be undertaken; or
 - II. Information on the soil properties present at the site to allow for geotechnical development constraints to be considered.
13. The scope of the investigation was selected on the basis of the specific development and land use scenario proposed by the Client and may be inappropriate to another form of development or scheme. If the development layout was not known at the time of the investigation the report findings may need revisiting once the development layout is confirmed.
14. Unless otherwise specified in the scope of works, any site drawing(s) provided in this report is (are) not meant to be an accurate base plan but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for setting out and should be considered indicative only.



15. For contamination purposes, the objectives of the investigation are limited to establishing the risks associated with potential contamination sources with the potential to cause harm to human health, building materials, the environment (including adjacent land), or controlled waters.
16. For geotechnical investigations, the purpose is to broadly consider potential development constraints associated with the physical property of the soils underlying the site within the context of the proposed future or continued use of the site, as stated within the report.
17. The amount of exploratory work, soil property testing and chemical testing undertaken has necessarily been restricted by various factors which may include accessibility, the presence of services; existing buildings; current site usage or short timescales. The exploratory holes completed assess only a small percentage of the area in relation to the overall size of the Site, and as such can only provide a general indication of conditions.
18. The number of sampling points and the methods of sampling and testing do not preclude the possible existence of contamination where concentrations may be significantly higher than those actually encountered or ground conditions that vary from those identified. In addition, there may be exceptional ground conditions elsewhere on the site which have not been disclosed by this investigation and which have therefore not been taken into account in this report.
19. The inspection, testing and monitoring records relate specifically to the investigation points and the timeframe that the works were undertaken. They will also be limited by the techniques employed. As part of this assessment, E3P has used reasonable skill and care to extrapolate conditions between these points based on assumptions to develop our interpretation and conclusions.
20. The assumption made in forming our conclusions is that the ground and groundwater conditions (both chemically and physically) are the same as have been encountered during the works undertaken at the specific points of investigation and at the time of the investigation.
21. Conditions can change between investigation points both spatially and over time and these interpretations should therefore be considered indicative. The assessment of extreme weather events and their impact on ground conditions is not within the scope of E3P's work.
22. The risk assessment and opinions provided are based on currently available guidance relating to acceptable contamination concentrations; no liability can be accepted for the retrospective effects of any future changes or amendments to these values. Specific assumptions associated with the risk assessment process have been outlined within the body or associated appendix of the report.
23. Additional investigations may be required in order to satisfy relevant planning conditions or to resolve any engineering and environmental issues.



24. Where soil contamination concentrations recorded as part of this investigation are used for commentary on the potential waste classification of soils for disposal purposes, these should be classed as indicative only. Due consideration should be given to the variability of contaminant concentrations taken from targeted samples versus bulk excavated soils and the potential variability of contaminant concentrations between sampling locations. Where major waste disposal operations are considered, targeted waste classification investigations should be designed and the waste classification and any subsequent disposal option agreed upon with licenced subcontractors and/or the relevant regulators.
25. The results of the asbestos testing are factually reported and interpretation is given as to how this relates to the previous use of the site, the types of ground encountered and site conceptualisation. This does not however constitute a formal asbestos assessment. These results should be treated cautiously and should not be relied upon to provide detailed and representative information on the delineation, type and extent of bulk ACMs and/or trace loose asbestos fibres within the soil matrix at the site.
26. If costs have been included in relation to additional site works, and/or site remediation works these must be considered as indicative only and must be confirmed by a qualified quantity surveyor.

EUROCODE 7: GEOTECHNICAL DESIGN

27. On 1st April 2010, BS EN 1997-1:2004 (Eurocode 7: Geotechnical Design – Part 1) became the mandatory baseline standard for geotechnical ground investigations.
28. In terms of geotechnical design for foundations, slopes, retaining walls and earthworks, EC7 sets guidance on design procedures including specific guidance on the numbers and spacings of boreholes for geotechnical design, there are limits to methods of ground investigation and the quality of data obtained and there are also prescriptive methods of assessing soil strengths and methods of design. Unless otherwise explicitly stated, the work has not been undertaken in accordance with EC7. A standard geotechnical interpretative report will not meet the requirements of the Geotechnical Design Report (GDR) under Eurocode 7. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. The report is likely to represent a Ground Investigation Report (GIR) under the Eurocode 7 guidance.

DETAILED QUANTITATIVE RISK ASSESSMENTS AND REMEDIATION AND ENABLING WORK STRATEGY REPORTS



29. These reports build upon previous report versions and associated notes. The scope of the investigation, further testing and monitoring and associated risk assessments were selected based on the specific development and land use scenario proposed by the Client and may not be appropriate to another form of development or scheme layout. The risk assessment and opinions provided are based on currently available approaches in the generation of Site Specific Assessment Criteria relating to contamination concentrations and are not considered to represent a risk in a specific land use scenario to a specific receptor. No liability can be accepted for the retrospective effects of any future changes or amendments to these values, associated models or associated guidance.
30. The outputs of the Detailed Quantitative Risk Assessments are based upon the manipulation of standard risk assessment models. These are our interpretation of the risk assessment criteria.
31. Before adoption on-site, assessment criteria will need to be discussed and agreed upon with the Regulatory Authorities prior to adoption on site. The regulatory discussion and engagement process may result in an alternative interpretation being determined and agreed. The process and timescales associated with the Regulatory Authority engagement are not within the control of E3P. All costs and programmes presented as a result of this process should be validated by a quantity surveyor and should be presumed to be indicative.
32. E3P does not accept liability for any subcontract work that has not been completed in strict accordance with an approved E3P Remediation and Enabling Works Strategy.

GEOTECHNICAL DESIGN REPORT (GDR)

33. The GDR can only be prepared following confirmation of all structural loads and serviceability requirements. All the relevant information needs to be provided to allow for a GDR to be produced.

MONITORING (INCLUDING REMEDIATION MONITORING REPORTS AND BUILD PHASE MITIGATION)

34. These reports are factual and comprise monitoring, normally groundwater and ground gas and data provided by contractors as part of earthworks or remedial works.
35. The data is presented and will be compared with assessment criteria.



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

APPENDIX IV

CHEMICAL TESTING

RESULTS



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i2 Analytical Ltd.
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WD18 8YS

e: reception@i2analytical.com

Analytical Report Number : 22-42746

Project / Site name:	Sonnet Gate	Samples received on:	01/03/2022
Your job number:	15 292	Samples instructed on/ Analysis started on:	01/03/2022
Your order number:	000 772	Analysis completed by:	07/03/2022
Report Issue Number:	1	Report issued on:	07/03/2022
Samples Analysed:	3 soil samples		

Signed: _____

PL Head of Reporting Team
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.

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.

Analytical Report Number: 22-42746
Project / Site name: Sonnet Gate
Your Order No: 000 772

Lab Sample Number				2190106	2190107	2190108
Sample Reference				SP201	SP202	SP203
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				28/02/2022	28/02/2022	28/02/2022
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	%	0.01	NONE	16	17	12
Total mass of sample received	kg	0.001	NONE	0.30	0.30	0.30

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	KSZ	KSZ	KSZ

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	9.0	8.9	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	550	760	520
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.16	0.24	0.16
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	330	470	320
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	163	236	159
Sulphide	mg/kg	1	MCERTS	6.7	6.7	11
Total Sulphur	mg/kg	50	MCERTS	270	480	310
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	0.9	0.7

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	0.40	0.90
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	0.31
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.58	1.1
Pyrene	mg/kg	0.05	MCERTS	< 0.05	0.55	0.98
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.37	0.65
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.29	0.49
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.34	0.50
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.12	0.24
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.31	0.59
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	2.96	5.76
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Analytical Report Number: 22-42746
Project / Site name: Sonnet Gate
Your Order No: 000 772

Lab Sample Number				2190106	2190107	2190108
Sample Reference				SP201	SP202	SP203
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				28/02/2022	28/02/2022	28/02/2022
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	7.6	10	7.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	0.4
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	34	27	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	59	51
Lead (aqua regia extractable)	mg/kg	1	MCERTS	17	39	26
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	31	26	22
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	55	97	64

Petroleum Hydrocarbons

TPH (C5 - C6) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	< 1.0	8.4	12
TPH (C21 - C35) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	< 1.0	69	91
TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10	32	42
TPH Total C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	MCERTS	< 10	110	140

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-42746

Project / Site name: Sonnet Gate

* 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 *
2190106	SP201	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
2190107	SP202	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.
2190108	SP203	None Supplied	None Supplied	Brown clay and loam with gravel and vegetation.

Analytical Report Number : 22-42746

Project / Site name: Sonnet Gate

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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.	L038-PL	D	MCERTS
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	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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 sulphate (as SO ₄ in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-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
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.	L038-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 organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-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
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-42746

Project / Site name: Sonnet Gate

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total



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Analytical Report Number : 22-49723

Project / Site name:	Prescot Parcel C Sonnet Gate	Samples received on:	04/04/2022
Your job number:	15 292	Samples instructed on/ Analysis started on:	04/04/2022
Your order number:	001190	Analysis completed by:	12/04/2022
Report Issue Number:	1	Report issued on:	12/04/2022
Samples Analysed:	3 soil samples		

Signed: _____

Junior Reporting Specialist
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.

Analytical Report Number: 22-49723
 Project / Site name: Prescott Parcel C Sonnet Gate
 Your Order No: 001190

Lab Sample Number				2227031	2227032	2227033
Sample Reference				Plot 5-6 (1)	Plot 5-6 (2)	Plot 5-6 (3)
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				04/04/2022	04/04/2022	04/04/2022
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	%	0.01	NONE	16	14	17
Total mass of sample received	kg	0.001	NONE	0.5	0.5	0.5

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	SPU	SPU	SPU

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.1	7	6.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	190	420	270
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.01	0.086	0.091
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	20	170	180
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	10	86.3	90.7
Sulphide	mg/kg	1	MCERTS	5.2	3.7	< 1.0
Total Sulphur	mg/kg	50	MCERTS	120	260	140
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.3	1.5	0.7

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: 22-49723

Project / Site name: Prescott Parcel C Sonnet Gate

Your Order No: 001190

Lab Sample Number				2227031	2227032	2227033
Sample Reference				Plot 5-6 (1)	Plot 5-6 (2)	Plot 5-6 (3)
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				04/04/2022	04/04/2022	04/04/2022
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	3.4	12	4.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	20	26	33
Copper (aqua regia extractable)	mg/kg	1	MCERTS	13	35	19
Lead (aqua regia extractable)	mg/kg	1	MCERTS	9.2	49	13
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	26	21	28
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	45	74	72

Petroleum Hydrocarbons

TPH (C5 - C6) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_ID_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_ID_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_ID_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_ID_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-49723

Project / Site name: Prescott Parcel C Sonnet Gate

* 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 *
2227031	Plot 5-6 (1)	None Supplied	None Supplied	Brown clay and loam with vegetation and gravel
2227032	Plot 5-6 (2)	None Supplied	None Supplied	Brown clay and loam with vegetation and gravel
2227033	Plot 5-6 (3)	None Supplied	None Supplied	Brown clay and loam with vegetation and gravel

Analytical Report Number : 22-49723

Project / Site name: Prescott Parcel C Sonnet Gate

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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.	L038-PL	D	MCERTS
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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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 sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-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
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.	L038-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 organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-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
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	NONE
D.O. for Gravimetric Quant if Screen/ID positive	Dependent option for Gravimetric Quant if Screen/ID positive scheduled.	In house asbestos methods A001 & A006.	A006-PL	D	NONE
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-49723

Project / Site name: Prescott Parcel C Sonnet Gate

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-62748

Project / Site name:	Prescott	Samples received on:	01/06/2022
Your job number:	13128	Samples instructed on/ Analysis started on:	01/06/2022
Your order number:	13128 JJ	Analysis completed by:	08/06/2022
Report Issue Number:	1	Report issued on:	08/06/2022
Samples Analysed:	6 soil samples		

Signed: _____

Senior Quality Specialist
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.

Analytical Report Number: 22-62748

Project / Site name: Prescott

Your Order No: 13128 JJ

Lab Sample Number				2301428	2301429	2301430	2301431	2301432
Sample Reference				TS101	TS102	TS103	TS104	TS105
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				31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	18	12	18	17	16
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3	0.4	0.4

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	DSA	DSA	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.2	7.0	7.6	7.2	7.0
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	370	300	410	370	410
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.018	0.017	0.025	0.016	0.026
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	36	35	50	33	51
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	18.1	17.4	24.8	16.4	25.6
Sulphide	mg/kg	1	MCERTS	10	2.4	1.6	3.5	3.5
Total Sulphur	mg/kg	50	MCERTS	280	220	260	260	240
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.3	1.7	2.2	1.9	1.9

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05	0.85	0.18	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.32	1	0.41	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.32	0.99	0.36	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05	0.41	0.19	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05	0.39	0.24	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.37	0.26	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	< 0.05	0.21	0.13	< 0.05	< 0.05
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.29	0.2	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	< 0.80	4.54	1.97	< 0.80	< 0.80
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11	9.5	10	11	9.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24	26	23	24	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32	26	30	30	30
Lead (aqua regia extractable)	mg/kg	1	MCERTS	43	36	42	43	39
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19	23	18	19	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

Analytical Report Number: 22-62748

Project / Site name: Prescott

Your Order No: 13128 JJ

Lab Sample Number				2301428	2301429	2301430	2301431	2301432
Sample Reference				TS101	TS102	TS103	TS104	TS105
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				31/05/2022	31/05/2022	31/05/2022	31/05/2022	31/05/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	57	51	53	54	52

Petroleum Hydrocarbons

TPH (C5 - C6) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	11	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	32	6.1	7.2	7.1	< 1.0
TPH (C21 - C35) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	77	18	21	18	< 1.0
TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	26	< 10	< 10	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	MCERTS	150	24	29	25	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number: 22-62748

Project / Site name: Prescott

Your Order No: 13128 JJ

Lab Sample Number				2301433
Sample Reference				TS106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				31/05/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	17
Total mass of sample received	kg	0.001	NONE	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	6.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	450
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.014
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	28
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	14.2
Sulphide	mg/kg	1	MCERTS	4.6
Total Sulphur	mg/kg	50	MCERTS	270
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.3

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.93
Pyrene	mg/kg	0.05	MCERTS	0.89
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.22
Chrysene	mg/kg	0.05	MCERTS	0.21
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.31
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.13
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.22
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	2.91
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	11
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	24
Copper (aqua regia extractable)	mg/kg	1	MCERTS	32
Lead (aqua regia extractable)	mg/kg	1	MCERTS	42
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	19
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0

Analytical Report Number: 22-62748

Project / Site name: Prescott

Your Order No: 13128 JJ

Lab Sample Number				2301433
Sample Reference				TS106
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				31/05/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	56

Petroleum Hydrocarbons

TPH (C5 - C6) HS_1D_TOTAL	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1
TPH (C8 - C10) HS_1D_TOTAL	mg/kg	0.1	MCERTS	< 0.1
TPH (C10 - C12) EH_CU_1D_TOTAL	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) EH_CU_1D_TOTAL	mg/kg	4	MCERTS	< 4.0
TPH (C16 - C21) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	9.4
TPH (C21 - C35) EH_CU_1D_TOTAL	mg/kg	1	MCERTS	23
TPH (C35 - C40) EH_CU_1D_TOTAL	mg/kg	10	MCERTS	< 10
TPH Total C5 - C40 EH_CU+HS_1D_TOTAL	mg/kg	10	MCERTS	33

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-62748

Project / Site name: Prescott

* 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 *
2301428	TS101	None Supplied	None Supplied	Brown loam and clay with vegetation and gravel
2301429	TS102	None Supplied	None Supplied	Brown clay and loam with vegetation and gravel
2301430	TS103	None Supplied	None Supplied	Brown loam and clay with vegetation and gravel
2301431	TS104	None Supplied	None Supplied	Brown loam and clay with vegetation and gravel
2301432	TS105	None Supplied	None Supplied	Brown loam and clay with vegetation and gravel
2301433	TS106	None Supplied	None Supplied	Brown loam and sand with vegetation and gravel.

Analytical Report Number : 22-62748

Project / Site name: Prescott

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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.	L038-PL	D	MCERTS
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
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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 sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-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
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.	L038-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 organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazine followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-62748

Project / Site name: Prescott

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-77275

Project / Site name:	Prescot	Samples received on:	10/08/2022
Your job number:		Samples instructed on/ Analysis started on:	10/08/2022
Your order number:		Analysis completed by:	18/08/2022
Report Issue Number:	1	Report issued on:	18/08/2022
Samples Analysed:	3 soil samples		

Signed: _____

Junior Reporting Specialist
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.

Analytical Report Number: 22-77275
Project / Site name: Prescot

Lab Sample Number				2383907	2383908	2383909
Sample Reference				SS101	SS102	SS103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				09/08/2022	09/08/2022	09/08/2022
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	21	< 0.1
Moisture Content	%	0.01	NONE	12	11	12
Total mass of sample received	kg	0.001	NONE	0.2	0.3	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	JMA	JMA	JMA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.5	7.8	8.1
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	1600	880	1400
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.51	0.29	0.58
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	1000	570	1200
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	509	287	584
Sulphide	mg/kg	1	MCERTS	7.1	23	10
Total Sulphur	mg/kg	50	MCERTS	760	780	750
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1	0.9	1.3

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	0.61	0.5	0.51
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	1.3	1.2	1
Pyrene	mg/kg	0.05	MCERTS	1.3	1.1	0.97
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.83	0.71	0.61
Chrysene	mg/kg	0.05	MCERTS	0.54	0.58	0.56
Benzo(b)fluoranthene	mg/kg	0.05	MCERTS	0.61	0.62	0.66
Benzo(k)fluoranthene	mg/kg	0.05	MCERTS	0.45	0.33	0.27
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.58	0.55	0.41
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	0.29	0.22	0.32
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	0.4	0.29	0.38

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	MCERTS	6.9	6.04	5.72
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Analytical Report Number: 22-77275
Project / Site name: Prescott

Lab Sample Number				2383907	2383908	2383909
Sample Reference				SS101	SS102	SS103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				09/08/2022	09/08/2022	09/08/2022
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	7.9	7.7	10
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	25	27	29
Copper (aqua regia extractable)	mg/kg	1	MCERTS	29	28	47
Lead (aqua regia extractable)	mg/kg	1	MCERTS	25	21	34
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	23	26	24
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	54	52	73

Petroleum Hydrocarbons

TPH (C5 - C6) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_ID_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_ID_TOTAL	mg/kg	0.1	MCERTS	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_ID_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_ID_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH (C21 - C35) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
TPH (C35 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-77275

Project / Site name: Prescott

* 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 *
2383907	SS101	None Supplied	None Supplied	Brown loam and clay with gravel and glass.
2383908	SS102	None Supplied	None Supplied	Brown clay and loam with brick and stones.
2383909	SS103	None Supplied	None Supplied	Brown clay and loam with gravel.

Analytical Report Number : 22-77275

Project / Site name: Prescott

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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
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.	L038-PL	D	MCERTS
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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 sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-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
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.	L038-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 organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-77275
Project / Site name: Prescott

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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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.

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
-	Operator - understore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-93528

Project / Site name:	Sonnet Gate	Samples received on:	28/10/2022
Your job number:		Samples instructed on/ Analysis started on:	31/10/2022
Your order number:		Analysis completed by:	07/11/2022
Report Issue Number:	1	Report issued on:	07/11/2022
Samples Analysed:	3 soil samples		

Signed: _____

Reporting Specialist
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.

Analytical Report Number: 22-93528
Project / Site name: Sonnet Gate

Lab Sample Number				2481418	2481419	2481420
Sample Reference				SS101	SS102	SS103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				27/10/2022	27/10/2022	27/10/2022
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	%	0.01	NONE	16	18	18
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSO	DSO	DSO

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4	7.7	8.7
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	870	520	1700
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.22	0.13	0.29
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	440	260	580
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	218	129	288
Sulphide	mg/kg	1	NONE	11	17	47
Total Sulphur	mg/kg	50	MCERTS	570	510	950
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	1.3	1.4	1.8

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	NONE	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	NONE	0.16	< 0.05	0.05
Fluorene	mg/kg	0.05	NONE	0.09	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	NONE	0.92	< 0.05	0.29
Anthracene	mg/kg	0.05	NONE	0.26	< 0.05	0.1
Fluoranthene	mg/kg	0.05	NONE	1.2	0.25	0.45
Pyrene	mg/kg	0.05	NONE	1.1	0.25	0.43
Benzo(a)anthracene	mg/kg	0.05	NONE	0.39	0.1	0.12
Chrysene	mg/kg	0.05	NONE	0.64	0.16	0.31
Benzo(b)fluoranthene	mg/kg	0.05	NONE	0.49	0.11	0.19
Benzo(k)fluoranthene	mg/kg	0.05	NONE	0.23	0.09	0.13
Benzo(a)pyrene	mg/kg	0.05	NONE	0.43	< 0.05	0.19
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	NONE	0.21	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	NONE	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	NONE	0.26	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	NONE	6.33	0.96	2.26
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Analytical Report Number: 22-93528
Project / Site name: Sonnet Gate

Lab Sample Number				2481418	2481419	2481420
Sample Reference				SS101	SS102	SS103
Sample Number				None Supplied	None Supplied	None Supplied
Depth (m)				None Supplied	None Supplied	None Supplied
Date Sampled				27/10/2022	27/10/2022	27/10/2022
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	8.4	7.9	6.7
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	1.5	0.4	0.3
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	30	21	19
Copper (aqua regia extractable)	mg/kg	1	MCERTS	340	14	20
Lead (aqua regia extractable)	mg/kg	1	MCERTS	62	26	25
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	32	18	15
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	120	49	46

Petroleum Hydrocarbons

TPH (C5 - C6) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_ID_TOTAL	mg/kg	2	NONE	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_ID_TOTAL	mg/kg	4	NONE	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_ID_TOTAL	mg/kg	1	NONE	10	< 1.0	2.7
TPH (C21 - C35) EH_CU_ID_TOTAL	mg/kg	1	NONE	60	5.8	16
TPH (C35 - C40) EH_CU_ID_TOTAL	mg/kg	10	NONE	29	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	99	< 10	19

U/S = Unsuitable Sample I/S = Insufficient Sample

Analytical Report Number : 22-93528

Project / Site name: Sonnet Gate

* 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 *
2481418	SS101	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2481419	SS102	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.
2481420	SS103	None Supplied	None Supplied	Brown clay and sand with gravel and vegetation.

Analytical Report Number : 22-93528

Project / Site name: Sonnet Gate

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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.	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
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
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	NONE
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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	NONE
Total sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-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
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.	L038-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 organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-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	NONE
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-93528

Project / Site name: Sonnet Gate

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' 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

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

Information in Support of Analytical Results

List of HWOL Acronyms and Operators

Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

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Analytical Report Number : 22-12541

Project / Site name:	Prescot	Samples received on:	09/12/2022
Your job number:	15292	Samples instructed on/ Analysis started on:	12/12/2022
Your order number:		Analysis completed by:	19/12/2022
Report Issue Number:	1	Report issued on:	19/12/2022
Samples Analysed:	6 soil samples		

Signed: _____

Technical Reviewer
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.

Analytical Report Number: 22-12541
Project / Site name: Prescot

Lab Sample Number				2528656	2528657	2528658	2528659	2528660
Sample Reference				TS101	TS102	TS103	SS101	SS102
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				07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
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	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
Moisture Content	%	0.01	NONE	14	14	14	13	13
Total mass of sample received	kg	0.001	NONE	0.3	0.3	0.3	0.3	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected	Not-detected	Not-detected	Not-detected	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA	DSA	DSA	DSA	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	7.0	7.5	7.3	7.8	7.8
Total Cyanide	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	600	390	440	< 50	85
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.14	0.088	0.089	0.0039	0.0046
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	290	180	180	7.7	9.2
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	144	88.1	88.6	3.9	4.6
Sulphide	mg/kg	1	MCERTS	3.2	1.7	2.1	1.4	< 1.0
Total Sulphur	mg/kg	50	MCERTS	280	240	220	< 50	< 50
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	2.1	2.3	2.2	0.3	0.2

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	0.14	0.11	0.27	< 0.05	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	0.24	0.23	0.5	< 0.05	< 0.05
Pyrene	mg/kg	0.05	MCERTS	0.23	0.25	0.5	< 0.05	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	0.19	0.14	0.29	< 0.05	< 0.05
Chrysene	mg/kg	0.05	MCERTS	0.12	0.17	0.24	< 0.05	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	0.23	0.25	0.38	< 0.05	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	0.06*	0.06*	0.11*	< 0.05*	< 0.05*
Benzo(a)pyrene	mg/kg	0.05	MCERTS	0.16	0.15	0.27	< 0.05	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05	0.09	0.15	< 0.05	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05	0.13	0.2	< 0.05	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	1.37*	1.58*	2.91*	< 0.80*	< 0.80*
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	8.2	8.9	8.2	2.1	2.6
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8	< 1.8	< 1.8	< 1.8	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	8.3	7.8	7.7	4.8	5.1
Copper (aqua regia extractable)	mg/kg	1	MCERTS	42	34	34	7.9	9.6
Lead (aqua regia extractable)	mg/kg	1	MCERTS	63	64	60	3.9	4.5
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	9.2	9.9	8.7	4.5	4.4

Analytical Report Number: 22-12541
Project / Site name: Prescot

Lab Sample Number				2528656	2528657	2528658	2528659	2528660
Sample Reference				TS101	TS102	TS103	SS101	SS102
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				07/12/2022	07/12/2022	07/12/2022	07/12/2022	07/12/2022
Time Taken				None Supplied	None Supplied	None Supplied	None Supplied	None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status					
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	81	73	75	12	12

Petroleum Hydrocarbons

TPH (C5 - C6) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
TPH (C6 - C8) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C8 - C10) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
TPH (C10 - C12) EH_CU_ID_TOTAL	mg/kg	2	MCERTS	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
TPH (C12 - C16) EH_CU_ID_TOTAL	mg/kg	4	MCERTS	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
TPH (C16 - C21) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	5.6
TPH (C21 - C35) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0	< 1.0	< 1.0	< 1.0	4.5
TPH (C35 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10	< 10	< 10	< 10	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	< 10	< 10	< 10	< 10	10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected
*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number: 22-12541
Project / Site name: Prescot

Lab Sample Number				2528661
Sample Reference				SS103
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				07/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Stone Content	%	0.1	NONE	< 0.1
Moisture Content	%	0.01	NONE	13
Total mass of sample received	kg	0.001	NONE	0.3

Asbestos in Soil	Type	N/A	ISO 17025	Not-detected
Asbestos Analyst ID	N/A	N/A	N/A	DSA

General Inorganics

pH - Automated	pH Units	N/A	MCERTS	8.4
Total Cyanide	mg/kg	1	MCERTS	< 1.0
Total Sulphate as SO ₄	mg/kg	50	MCERTS	59
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	g/l	0.00125	MCERTS	0.011
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/kg	2.5	MCERTS	22
Water Soluble SO ₄ (2:1 Leach. Equiv.) 1hr extraction	mg/l	1.25	MCERTS	11.1
Sulphide	mg/kg	1	MCERTS	4.9
Total Sulphur	mg/kg	50	MCERTS	< 50
Total Organic Carbon (TOC) - Automated	%	0.1	MCERTS	0.2

Total Phenols

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

Naphthalene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthylene	mg/kg	0.05	MCERTS	< 0.05
Acenaphthene	mg/kg	0.05	MCERTS	< 0.05
Fluorene	mg/kg	0.05	MCERTS	< 0.05
Phenanthrene	mg/kg	0.05	MCERTS	< 0.05
Anthracene	mg/kg	0.05	MCERTS	< 0.05
Fluoranthene	mg/kg	0.05	MCERTS	< 0.05
Pyrene	mg/kg	0.05	MCERTS	< 0.05
Benzo(a)anthracene	mg/kg	0.05	MCERTS	< 0.05
Chrysene	mg/kg	0.05	MCERTS	< 0.05
Benzo(b)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05
Benzo(k)fluoranthene	mg/kg	0.05	ISO 17025	< 0.05*
Benzo(a)pyrene	mg/kg	0.05	MCERTS	< 0.05
Indeno(1,2,3-cd)pyrene	mg/kg	0.05	MCERTS	< 0.05
Dibenz(a,h)anthracene	mg/kg	0.05	MCERTS	< 0.05
Benzo(ghi)perylene	mg/kg	0.05	MCERTS	< 0.05

Total PAH

Speciated Total EPA-16 PAHs	mg/kg	0.8	ISO 17025	< 0.80*
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Heavy Metals / Metalloids

Arsenic (aqua regia extractable)	mg/kg	1	MCERTS	2.5
Cadmium (aqua regia extractable)	mg/kg	0.2	MCERTS	< 0.2
Chromium (hexavalent)	mg/kg	1.8	MCERTS	< 1.8
Chromium (aqua regia extractable)	mg/kg	1	MCERTS	5.3
Copper (aqua regia extractable)	mg/kg	1	MCERTS	10
Lead (aqua regia extractable)	mg/kg	1	MCERTS	5.6
Mercury (aqua regia extractable)	mg/kg	0.3	MCERTS	< 0.3
Nickel (aqua regia extractable)	mg/kg	1	MCERTS	4.8

Analytical Report Number: 22-12541
Project / Site name: Prescott

Lab Sample Number				2528661
Sample Reference				SS103
Sample Number				None Supplied
Depth (m)				None Supplied
Date Sampled				07/12/2022
Time Taken				None Supplied
Analytical Parameter (Soil Analysis)	Units	Limit of detection	Accreditation Status	
Selenium (aqua regia extractable)	mg/kg	1	MCERTS	< 1.0
Zinc (aqua regia extractable)	mg/kg	1	MCERTS	14

Petroleum Hydrocarbons

TPH (C5 - C6) HS_ID_TOTAL	mg/kg	1	NONE	< 1.0
TPH (C6 - C8) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1
TPH (C8 - C10) HS_ID_TOTAL	mg/kg	0.1	NONE	< 0.1
TPH (C10 - C12) EH_CU_ID_TOTAL	mg/kg	2	MCERTS	< 2.0
TPH (C12 - C16) EH_CU_ID_TOTAL	mg/kg	4	MCERTS	< 4.0
TPH (C16 - C21) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0
TPH (C21 - C35) EH_CU_ID_TOTAL	mg/kg	1	MCERTS	< 1.0
TPH (C35 - C40) EH_CU_ID_TOTAL	mg/kg	10	MCERTS	< 10
TPH Total C5 - C40 EH_CU+HS_ID_TOTAL	mg/kg	10	NONE	< 10

U/S = Unsuitable Sample I/S = Insufficient Sample ND = Not detected
*Data reported unaccredited due to quality control parameter failure associated with this result; other checks applied prior to reporting the data have been accepted and the failure justified as having no significant impact on sample data reported.

Analytical Report Number : 22-12541

Project / Site name: Prescott

* 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 *
2528656	TS101	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
2528657	TS102	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
2528658	TS103	None Supplied	None Supplied	Brown loam and sand with gravel and vegetation.
2528659	SS101	None Supplied	None Supplied	Brown sand with gravel.
2528660	SS102	None Supplied	None Supplied	Brown sand with gravel.
2528661	SS103	None Supplied	None Supplied	Brown sand with gravel.

Analytical Report Number : 22-12541

Project / Site name: Prescott

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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.	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
Asbestos identification in soil	Asbestos Identification with the use of polarised light microscopy in conjunction with dispersion staining techniques.	In house method based on HSG 248	A001-PL	D	ISO 17025
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	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
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
pH in soil (automated)	Determination of pH in soil by addition of water followed by automated electrometric measurement.	In house method.	L099-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 sulphate (as SO4 in soil)	Determination of total sulphate in soil by extraction with 10% HCl followed by ICP-OES.	In house method.	L038-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
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.	L038-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 organic carbon (Automated) in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L009-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
Hexavalent chromium in soil	Determination of hexavalent chromium in soil by extraction in NaOH and addition of 1,5 diphenylcarbazide followed by colorimetry.	In-house method	L080-PL	W	MCERTS
Sulphate, water soluble, in soil (1hr extraction)	Sulphate, water soluble, in soil (1hr extraction)	In-house method	L038-PL	D	MCERTS

Analytical Report Number : 22-12541

Project / Site name: Prescott

Water matrix abbreviations:

Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Waters (PrW) Final Sewage Effluent (FSE) Landfill Leachate (LL)

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK or A' analysis have been carried out in our laboratory in the United Kingdom (WATFORD).

For method numbers ending in 'F' analysis have been carried out in our laboratory in the United Kingdom (East Kilbride).

For method numbers ending in 'PL or B' 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

Unless otherwise indicated, site information, order number, project number, sampling date, time, sample reference and depth are provided by the client. The instructed on date indicates the date on which this information was provided to the laboratory.

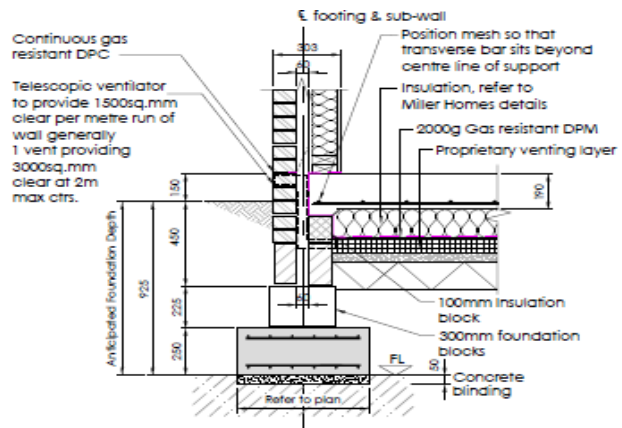
Information in Support of Analytical Results

List of HWOL Acronyms and Operators

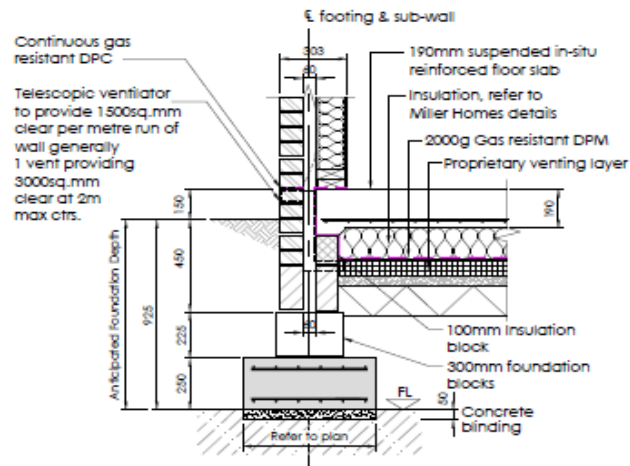
Acronym	Descriptions
HS	Headspace Analysis
MS	Mass spectrometry
FID	Flame Ionisation Detector
GC	Gas Chromatography
EH	Extractable Hydrocarbons (i.e. everything extracted by the solvent(s))
CU	Clean-up - e.g. by Florisil®, silica gel
1D	GC - Single coil/column gas chromatography
2D	GC-GC - Double coil/column gas chromatography
Total	Aliphatics & Aromatics
AL	Aliphatics
AR	Aromatics
#1	EH_2D_Total but with humics mathematically subtracted
#2	EH_2D_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +)
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total

APPENDIX V GAS MEMBRANE VALIDATION CERTIFICATES

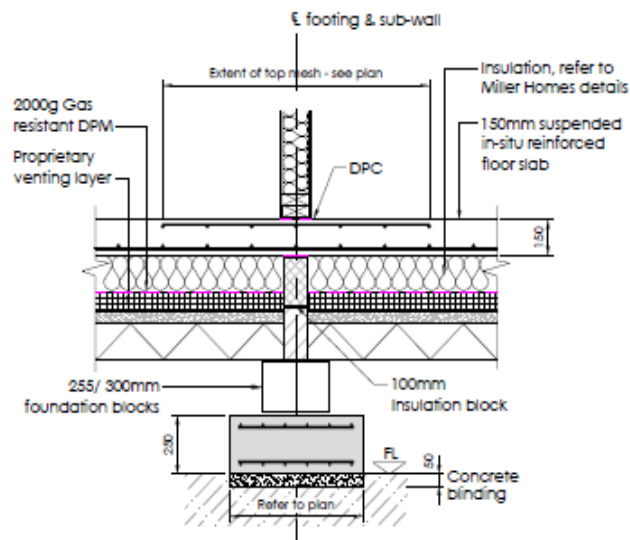
GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 24-11-2021
PM Qualifications: BSc (Hons) FGS, AIEMA, MICE, MEnvSc, CEnv	E3P Engineer:
Engineer Qualifications: Verification of Gas Protection Systems Feb 2020	
Ground Gas Risk Assessment: Characteristic Situation 2	
Overview: The membrane comprised a JUTA GP1 gas membrane (Black) 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 1-3 have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	
 Section 1-1 Scale 1:25	





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 1

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Ventilation-Good Condition



Plot - 2

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Ventilation-Good Condition



Plot - 3

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Ventilation-Good Condition



Juta GP[®] 1 - Gas Barrier is a multi-layer, low density polyethylene membrane, reinforced with a polypropylene reinforcing grid with an integral aluminium foil. GP[®] 1 is specifically designed and manufactured to perform as a Methane, Carbon Dioxide, Radon, Ground Gas, VOC /Hydrocarbon vapors, air & moisture protection system.

JUTA GP [®] 1			
Characteristics	Test Method	Unit	JUTA GP [®] 1
Physical Properties			
Thickness	EN 1849-2	mm	0.6
Thickness - Between Scrim	BS EN ISO 9863-1:2016	Mm	0.4
Width	EN 1849-2	m	Various
Length	EN 1849-2	m	Various
Weight	EN 1849-2	G/M2	370
Hydraulic Properties			
Thickness	EN 20811	-	>300
Resistance to Water Penetration	EN 13967, EN 1928	-	Pass
Water Tightness	EN 1296, EN 1367, EN 1928	-	Pass
Hydraulic Properties			
Resistance to Static Load	EN 12730-B	Kg	20
Tensile Strength (MD)	EN 12311-1	N/50mm	600
Tensile Strength (CMD)	EN 12311-1	N/50mm	480
Tensile Elongation (MD)	EN 12310-1	%	20
Tensile Elongation (CMD)	EN 12310-1	%	20
Puncture Resistance	EN 12236	kN	1.25
Resistance to Tearing (Nail Shank) MD	EN 12310-1	N	330
Resistance to Tearing (Nail Shank) CMD	EN 12310-1	N	400
Durability and Chemical Resistance			
Transmission Rate of Volatile Liquids - Diesel	ISO 6179:2010 (B)	g/m ² /h	0.246
Transmission Rate of Volatile Liquids - Xylene	ISO 6179:2010 (B)	g/m ² /h	0.571
Transmission Rate of Volatile Liquids - Toluene	ISO 6179:2010 (B)	g/m ² /h	0.583
Transmission Rate of Volatile Liquids - Petrol	ISO 6179:2010 (B)	g/m ² /h	0.135
Gas Permeability			
Methane Permeability	BS EN ISO 15105-1	ml/m ² /day/atm	<0.09
Carbon Dioxide Permeability	BS EN ISO 15105-1	ml/m ² /day/atm	<0.09
Radon Permeability	K124/02/95	m ² /s	8.0 x 10 ⁻¹⁵
Compliance and Certification			
CE Mark - EN13967:2012			
NHBC Standards Compliant			
BS 8485:2015 + A1 2019 Accordant			
BBA Certified - Certificate No. 12/4912			

Contact us to find out more information.
info@juta.co.uk | 01772 754177 | JUTA.CO.UK
 Melton Grove Works, Church Road, Lytham, FY8 5PL

JUTA



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Additional Information

HANDLING

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

STORAGE

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

INSTALLATION

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

JOINTING AND SEALING

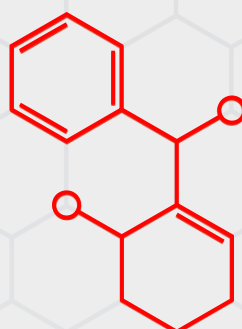
It is recommended JUTA GP® 1 be heat welded where possible, with welding carried out by competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015. JUTA GP® 1 should be overlapped by at least 100mm. If taping joints, only suitable tape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

ACCESSORY PRODUCTS

-  JUTA GP® 1 Starter Band
-  JUTA GP® Tape
-  JUTA GP® Self Adhesive Membrane
-  JUTA GP® Primer
-  JUTA GP® Top Hats and Preformed Corners
-  JUTA GP® Protection Fleece
-  JUTA GP® Void Vent (25/40mm)

PLEASE CONTACT JUTA UK DIRECTLY FOR MORE INFORMATION ON JUTA GP® 1

Contact us to find out more information.
info@juta.co.uk | 01772 754177 | JUTA.CO.UK
Melton Grove Works, Church Road, Lytham, FY8 5PL

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Gas Protection Validation Site Record

Inspection date/time:	24/11/21	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	resid	Plot number:	1	Developer:	

Notes/recommendations	Comments
Membrane Type	Dura CP1
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double – sided butyl tape been used?	NO
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

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: [Redacted] Signed: [Redacted]

Gas Protection Validation Site Record

Inspection date/time:	24/11/21	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	resid	Plot number:	1	Developer:	

Notes/recommendations	Comments
Membrane Type	Dura CP1
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double – sided butyl tape been used?	NO
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

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: [Redacted] Signed: [Redacted]

Inspection date/time:	24/11/21	Inspected by:	P. Webster	Photographed:	✓/x ✓
Type of development:	resid	Plot number:	2	Developer:	

Notes/recommendations	Comments
Membrane Type	Data CAP1
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double –sided butyl tape been used?	NO
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

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: *P. Webster* Signed: *[Signature]*

Gas Protection Validation Site Record

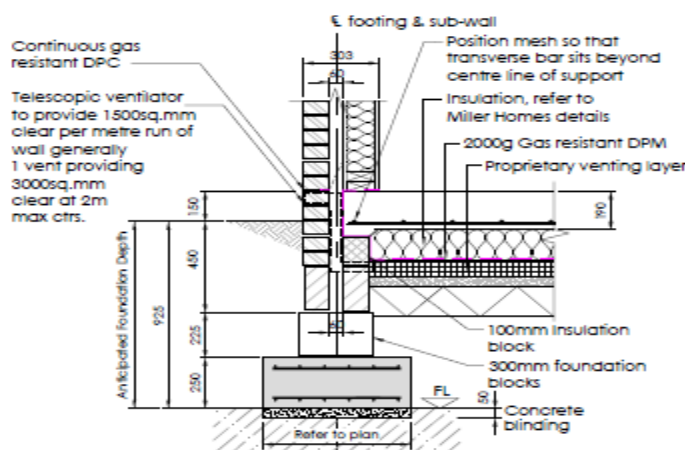
Inspection date/time:	24/11/21	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	resid	Plot number:	3	Developer:	

Notes/recommendations	Comments
Membrane Type	Dura CP1
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double –sided butyl tape been used?	NO
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

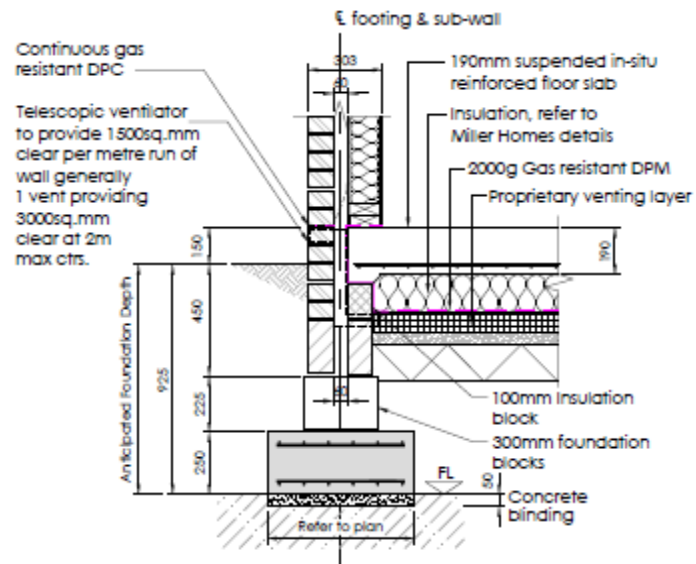
This Plot has ~~PASSED~~ **FAILED** inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form). An additional inspection visit IS/IS NOT required for this Plot.

Inspection by: [Redacted] Signed: [Redacted]

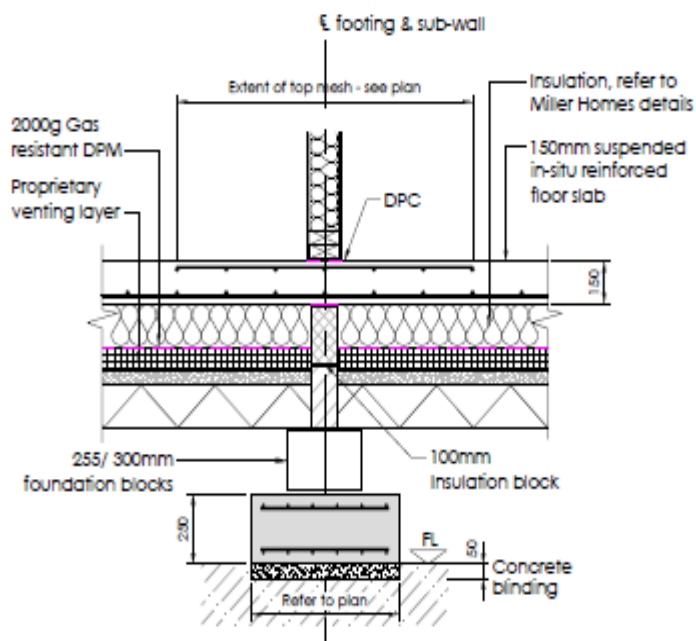
GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 07-12-2021
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	E3P Engineer:
Engineer Qualifications: Verification of Gas Protection Systems Feb 2020	
Ground Gas Risk Assessment: Characteristic Situation 2	
Overview: The membrane comprised a JUTA GP1 gas membrane (Black) 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 4-5 Parcel C have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	
 Section 1-1 Scale 1:25	





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 4

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Ventilation-Good Condition



Plot - 5

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Ventilation-Good Condition



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

JUTA GP® 1			
Characteristics	Test Method	Unit	JUTA GP® 1
Physical Properties			
Thickness	EN 1849-2	mm	0.6
Thickness - Between Scrim	BS EN ISO 9863-1:2016	Mm	0.4
Width	EN 1849-2	m	Various
Length	EN 1849-2	m	Various
Weight	EN 1849-2	G/M2	370
Hydraulic Properties			
Thickness	EN 20811	-	>300
Resistance to Water Penetration	EN 13967, EN 1928	-	Pass
Water Tightness	EN 1296, EN 1367, EN 1928	-	Pass
Hydraulic Properties			
Resistance to Static Load	EN 12730-B	Kg	20
Tensile Strength (MD)	EN 12311-1	N/50mm	600
Tensile Strength (CMD)	EN 12311-1	N/50mm	480
Tensile Elongation (MD)	EN 12310-1	%	20
Tensile Elongation (CMD)	EN 12310-1	%	20
Puncture Resistance	EN 12236	kN	1.25
Resistance to Tearing (Nail Shank) MD	EN 12310-1	N	330
Resistance to Tearing (Nail Shank) CMD	EN 12310-1	N	400
Durability and Chemical Resistance			
Transmission Rate of Volatile Liquids - Diesel	ISO 6179:2010 (B)	g/m2/h	0.246
Transmission Rate of Volatile Liquids - Xylene	ISO 6179:2010 (B)	g/m2/h	0.571
Transmission Rate of Volatile Liquids - Toluene	ISO 6179:2010 (B)	g/m2/h	0.583
Transmission Rate of Volatile Liquids - Petrol	ISO 6179:2010 (B)	g/m2/h	0.135
Gas Permeability			
Methane Permeability	BS EN ISO 15105-1	ml/m2/day/atm	<0.09
Carbon Dioxide Permeability	BS EN ISO 15105-1	ml/m2/day/atm	<0.09
Radon Permeability	K124/02/95	m2/s	8.0 x 10-15
Compliance and Certification			
CE Mark - EN13967:2012			
NHBC Standards Compliant			
BS 8485:2015 + A1 2019 Accordant			
BBA Certified - Certificate No. 12/4912			

Contact us to find out more information.
info@juta.co.uk | 01772 754177 | JUTA.CO.UK
Melton Grove Works, Church Road, Lytham, FY8 5PL

JUTA



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Additional Information

HANDLING

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

STORAGE

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

INSTALLATION

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

JOINTING AND SEALING

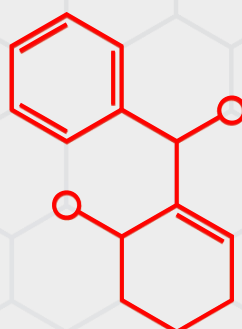
It is recommended JUTA GP® 1 be heat welded where possible, with welding carried out by competent personnel with suitable qualifications in accordance with best practice, and guidance contained within BS 8485:2015. JUTA GP® 1 should be overlapped by at least 100mm. If taping joints, only suitable tape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

ACCESSORY PRODUCTS

-  JUTA GP® 1 Starter Band
-  JUTA GP® Tape
-  JUTA GP® Self Adhesive Membrane
-  JUTA GP® Primer
-  JUTA GP® Top Hats and Preformed Corners
-  JUTA GP® Protection Fleece
-  JUTA GP® Void Vent (25/40mm)

PLEASE CONTACT JUTA UK DIRECTLY FOR MORE INFORMATION ON JUTA GP® 1

Contact us to find out more information.
info@juta.co.uk | 01772 754177 | JUTA.CO.UK
Melton Grove Works, Church Road, Lytham, FY8 5PL

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Gas Protection Validation Site Record

Inspection date/time:	7/12/21	Inspected by:	[Redacted]	Photographed:	✓ 1/2 ✓
Type of development:	Housing	Plot number:	483	Developer:	Miller Homes
Notes/recommendations	Comments				
Membrane Type	Jubilee CP1				
Extent of Coverage	Full				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries - Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double-sided butyl tape been used?	✓				
Welds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

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. Signed: [Redacted]

Inspection date/time:	7/12/21	Inspected by:	[Redacted]	Photographed:	✓
Type of development:	Housing	Plot number:	513	Developer:	Miller Housing

Notes/recommendations	Comments
Membrane Type	Sub GFI
Extent of Coverage	Full
Underside of Membrane	✓
Slab / membrane condition (is membrane clear of debris or insulation)	✓
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	✓
External Wall Air bricks Present?	✓
Corners inspected?	✓
Membrane joints inspected has Double –sided butyl tape been used?	✓
Folds in membrane inspected?	✓
Has the membrane been installed as per the design detail drawing?	✓

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

Inspection by: [Redacted] Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 21-12-2021
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	E3P Engineer:

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

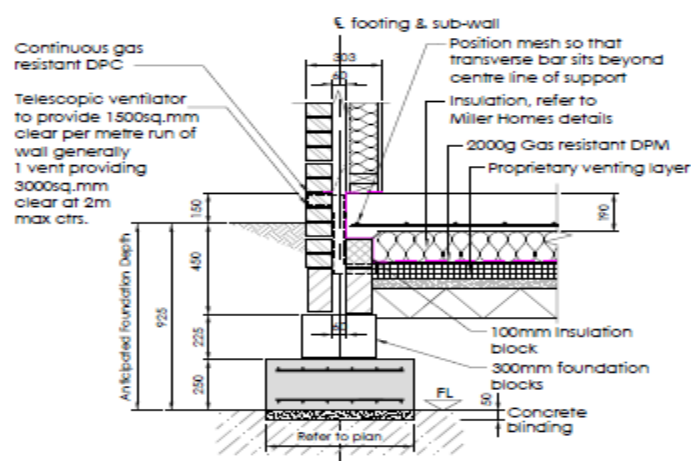
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

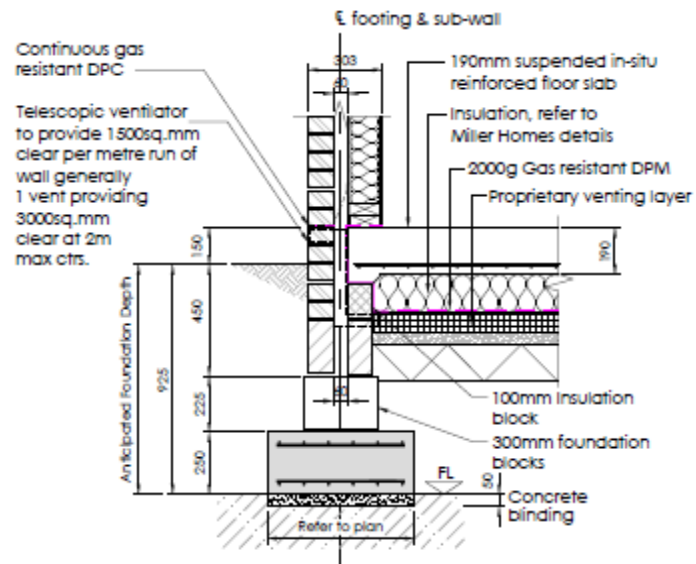
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 6** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

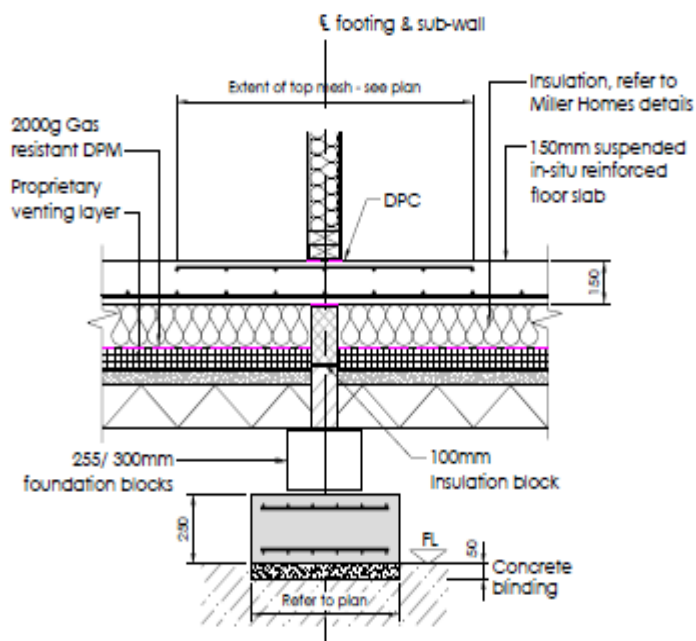


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 6

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: 6.....

Inspection date/time:	21/12/21	Inspected by:		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 NOT required for this Plot.

Inspection by: Signed:

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

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 12-01-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MEnvSc, CEnv	E3P Engineer:

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

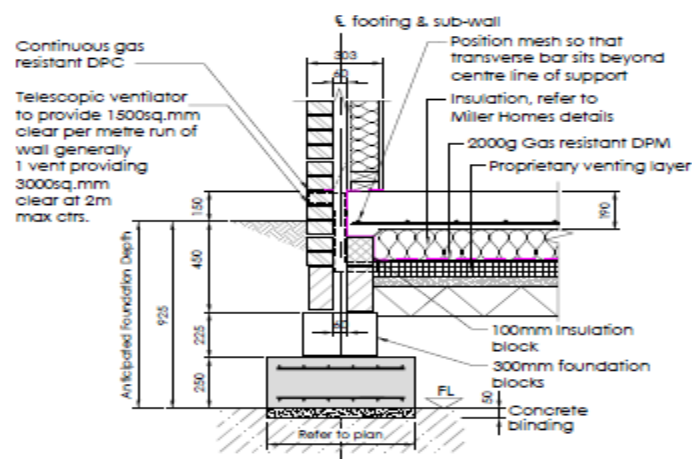
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

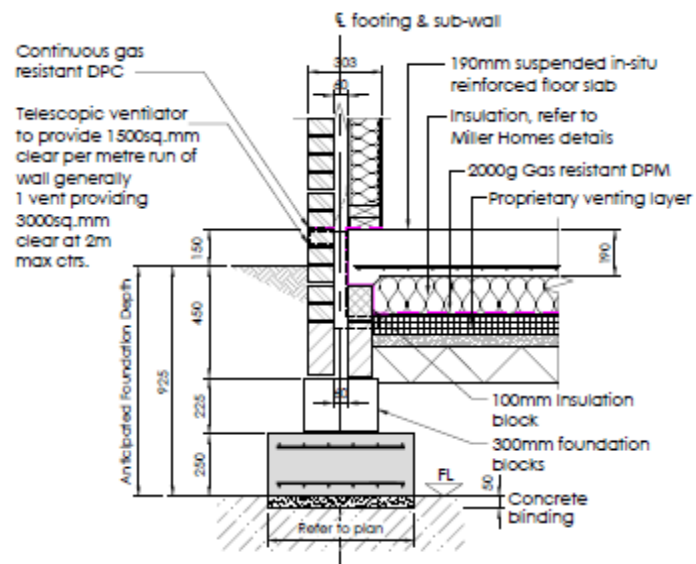
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 7 & 8** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

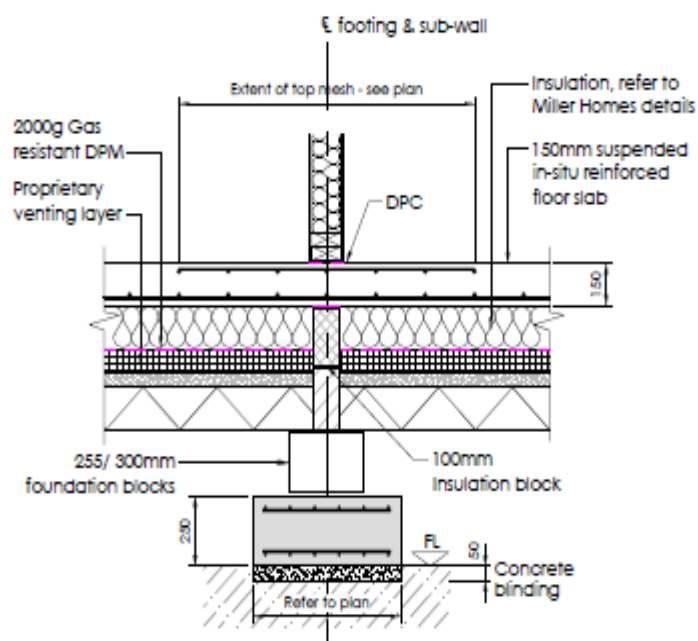


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25

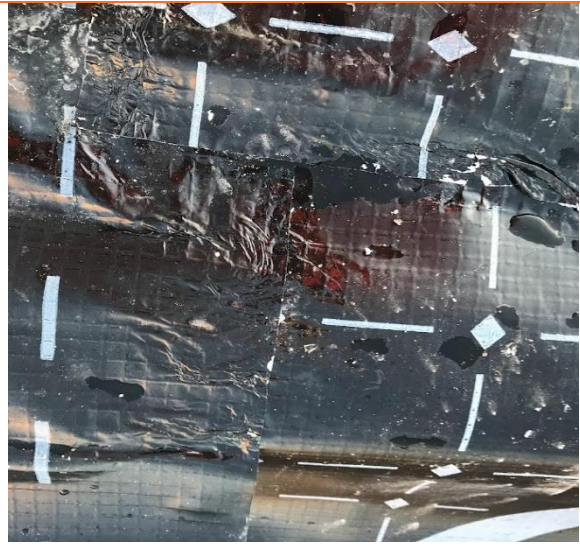


Plot - 7

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 8

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	12 th Jan	Inspected by:	[redacted]	Photographed:	✓/x ✓
Type of development:	Small C&S	Plot number:	7	Developer:	

Notes/recommendations	Comments
Membrane Type	Just a C&P
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)
Service entries - Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double-sided butyl tape been used?	yes
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

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: [redacted] Signed: [redacted]



Gas Protection Validation Site Record

Inspection date/time:	12 th Jan	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Small C&S	Plot number:	2	Developer:	

Notes/recommendations	Comments
Membrane Type	Juba C&P
Extent of Coverage	fully extend
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)
Service entries - Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double - sided butyl tape been used?	yes
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

This Plot has ~~RECEIVED~~/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: [Redacted] Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 28-01-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	E3P Engineer:

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

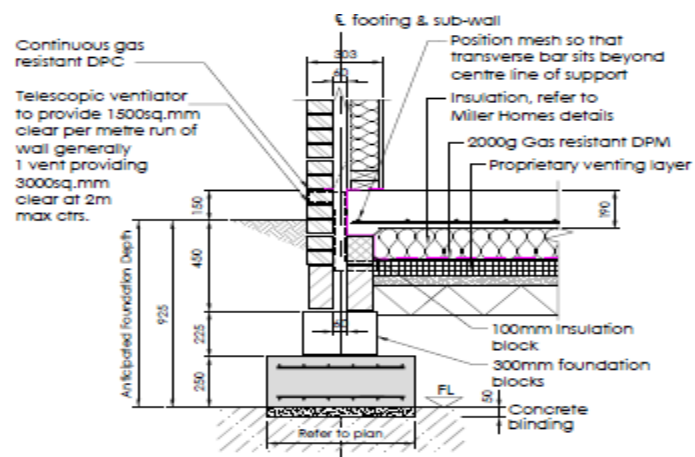
Overview:

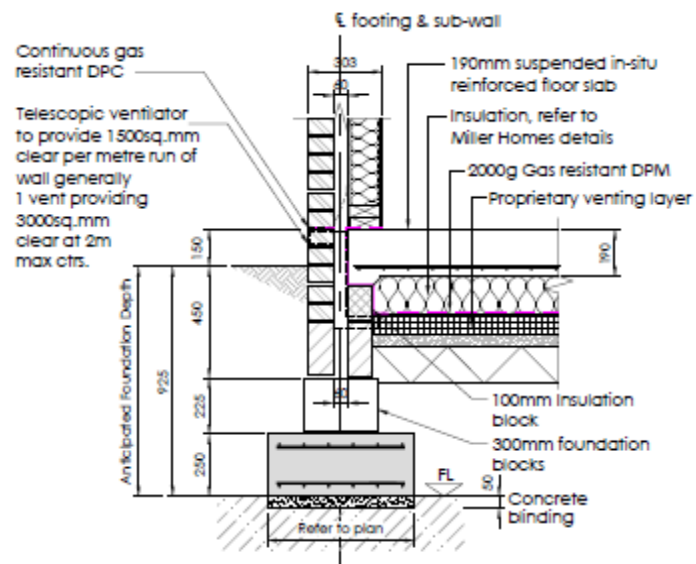
The membrane comprised a JUTA GP1 gas membrane (Black) resistant to radon, carbon dioxide and low levels of methane. E3P can confirm there were no holes or rips at the time of inspection. Upon being laid the membrane is to be covered with a Celotex (closed Cell) floor insulation material which is considered 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.

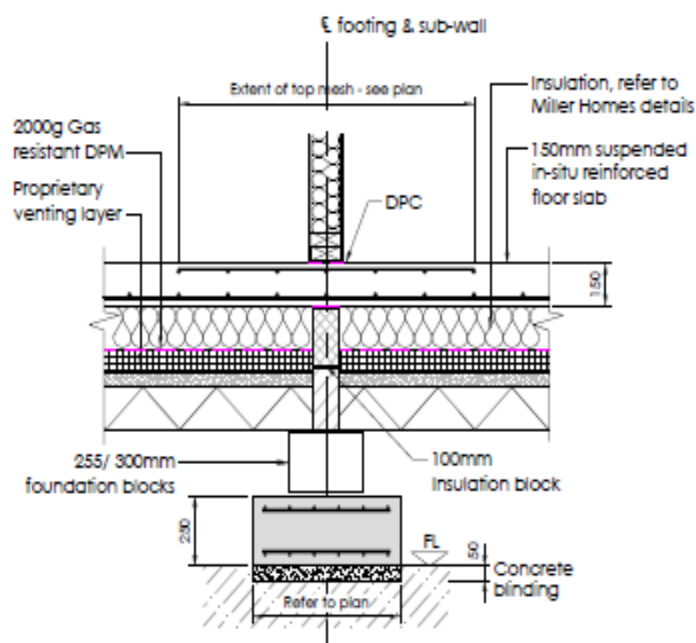
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 9, 16-19** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 9

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 16

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 17

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 18

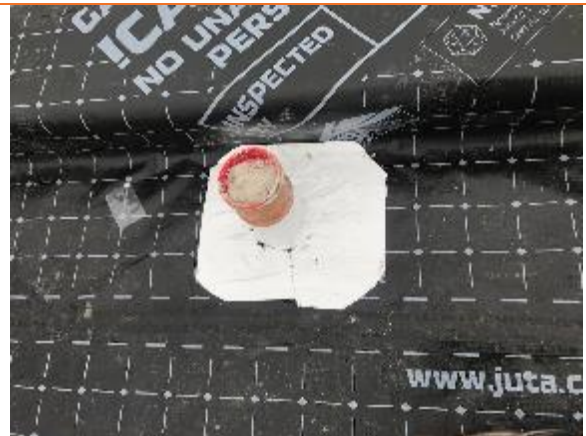
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 19

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Ventilation- Good Condition



Gas Protection Validation Site Record

Inspection date/time:	28th Jan	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Sonnet Gate	Plot number:	9	Developer:	

Notes/recommendations

Comments

Membrane Type	Jura GP1
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	No
Corners inspected?	yes
Membrane joints inspected has Double –sided butyl tape been used?	No
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

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: [Redacted] Signed: [Redacted]

Gas Protection Validation Site Record

Inspection date/time:	28th Jan	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Small Ctr	Plot number:	16	Developer:	
Notes/recommendations					
Membrane Type	Dura GFL				
Extent of Coverage	Fully extend				
Underside of Membrane	Good				
Slab / membrane condition (is membrane clear of debris or insulation)	Good				
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)				
Service entries - Jubilee clips, Top hats installed correctly	Yes				
External Wall Air bricks Present?	No				
Corners inspected?	Yes				
Membrane joints inspected has Double -sided butyl tape been used?	No				
Folds in membrane inspected?	Yes				
Has the membrane been installed as per the design detail drawing?	Yes				

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.

Inspected by: [Redacted] Signed: [Redacted]

Gas Protection Validation Site Record

Inspection date/time:	28th Jan	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Small Cate	Plot number:	17	Developer:	
Notes/recommendations					
Membrane Type	Dura GFL				
Extent of Coverage	fully extend				
Underside of Membrane					
Slab / membrane condition (is membrane clear of debris or insulation)	Good				
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)				
Service entries – Jubilee clips, Top hats installed correctly	yes				
External Wall Air bricks Present?	No				
Corners inspected?	yes				
Membrane joints inspected has Double – sided butyl tape been used?	No				
Folds in membrane inspected?	yes				
Has the membrane been installed as per the design detail drawing?	yes				

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: [Redacted] Signed: [Redacted]



Gas Protection Validation Site Record

Inspection date/time:	28th Jan	Inspected by:		Photographed:	v/x ✓					
Type of development:	Small Cx	Plot number:	18	Developer:						
Notes/recommendations	Comments									
Membrane Type	Dura GFI									
Extent of Coverage	Fully extends									
Underside of Membrane										
Slab / membrane condition (is membrane clear of debris or insulation)	Good									
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)									
Service entries – Jubilee clips, Top hats installed correctly	Yes									
External Wall Air bricks Present?	No									
Corners inspected?	Yes									
Membrane joints inspected has Double – sided butyl tape been used?	No									
Folds in membrane inspected?	Yes									
Has the membrane been installed as per the design detail drawing?	Yes									
This Plot has <u>PASSED</u> /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: [redacted] Signed [redacted]										



Gas Protection Validation Site Record

Inspection date/time:	28th Jan	Inspected by:	[Redacted]	Photographed:	V/x ✓
Type of development:	Small Cate	Plot number:	19	Developer:	
Notes/recommendations		Comments			
Membrane Type	Dura GFL				
Extent of Coverage	fully extend				
Underside of Membrane					
Slab / membrane condition (is membrane clear of debris or insulation)	Good				
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)				
Service entries - Jubilee clips, Top hats installed correctly	yes				
External Wall Air bricks Present?	yes				
Corners inspected?	yes				
Membrane joints inspected has Double - sided butyl tape been used?	No				
Folds in membrane inspected?	yes				
Has the membrane been installed as per the design detail drawing?	yes				

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: [Redacted] Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 14-02-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	E3P Engineer:

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

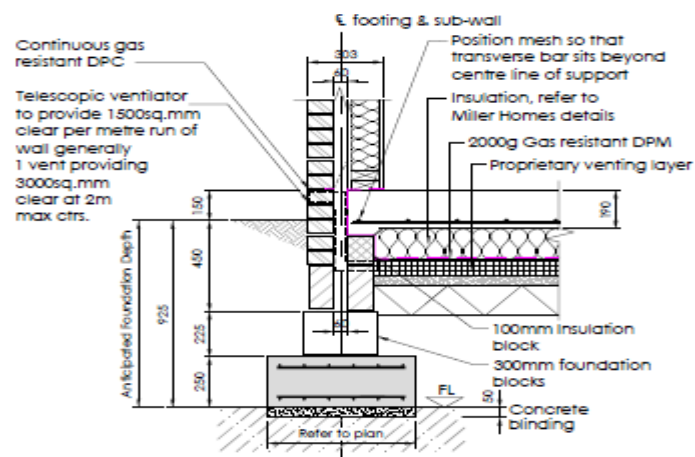
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

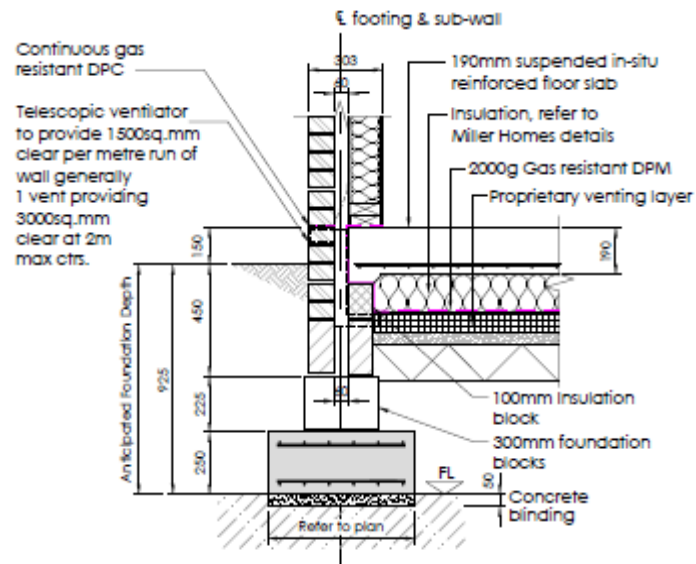
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 10-11** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

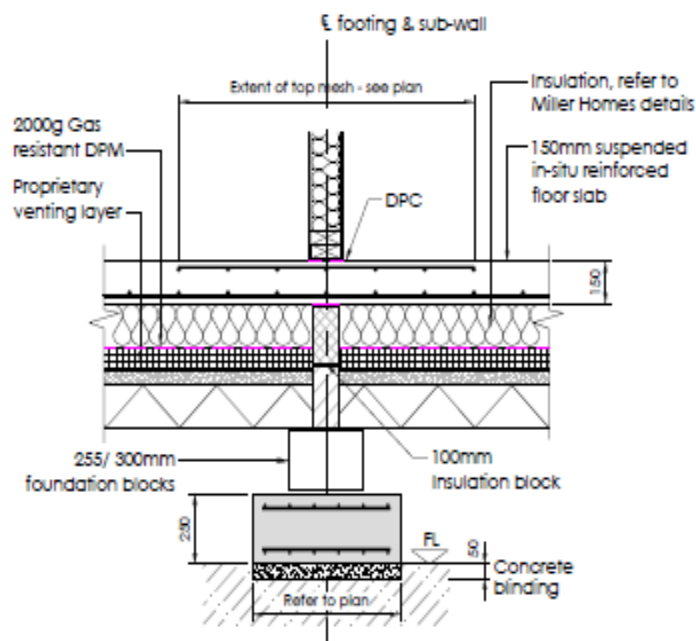


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 10

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 11

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	14th Feb	Inspected by:	[Redacted]	Photographed:	y/k ✓
Type of development:	Scrub	Plot number:	10	Developer:	

Notes/recommendations

Membrane Type

Extent of Coverage

Underside of Membrane

Slab / membrane condition (is membrane clear of debris or insulation)

Type of joints

Service entries - Jubilee clips, Top hats installed correctly

External Wall Air bricks Present?

Corners inspected?

Membrane joints inspected has Double -sided butyl tape been used?

Folds in membrane inspected?

Has the membrane been installed as per the design detail drawing?

Comments

Subs GP1
Fully exposed

Good

☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (during strip)

y/y

y/y

y/y

N/A

y/y

y/y

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.

Inspected by: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
Registered in England No. 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ




Gas Protection Validation Site Record

Inspection date/time:	14th Feb	Inspected by:	[Redacted]
Type of development:	Storage	Pilot number:	11
		Photographed:	1/1 ✓
		Developer:	

Notes/recommendations	Comments
Membrane Type	Subs CR1
Extent of Coverage	fully extend
Underside of Membrane	
Slab / membrane condition (Is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape joint ☒ Welded joint ☐ Other (please state) (detailing sheet)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double –sided butyl tape been used?	No
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

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.

Inspected by: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08720202 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ



GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 17-02-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	E3P Engineer:

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

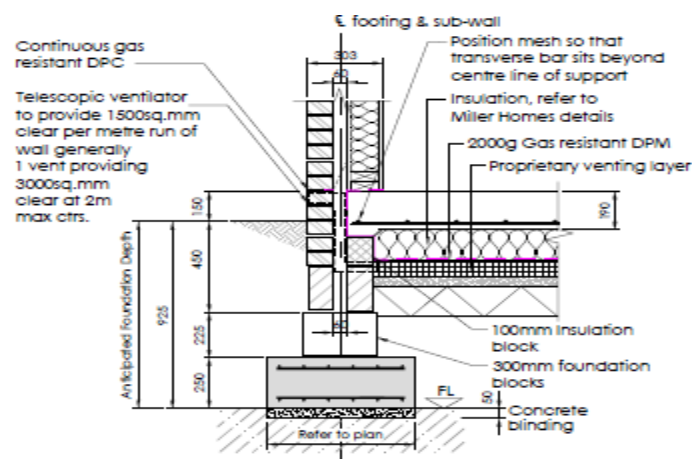
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

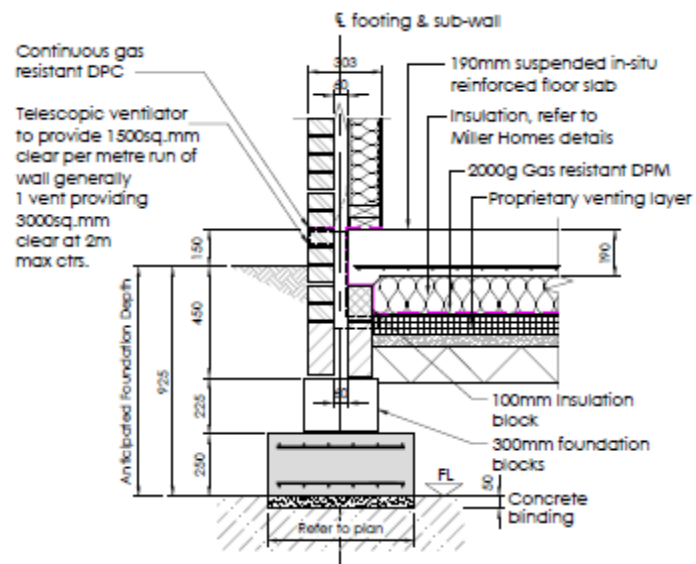
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 12-13** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

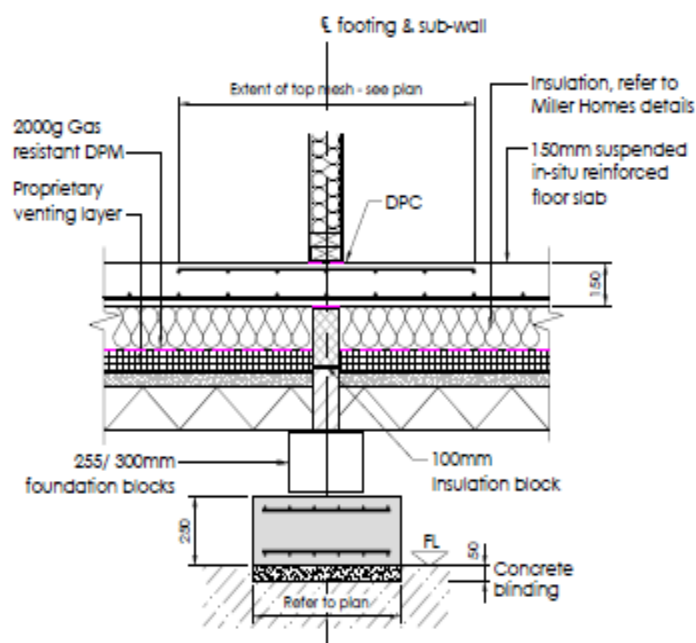


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 12

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 13

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	17/12/22	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Residential	Plot number:	12	Developer:	

Notes/recommendations	Comments
Membrane Type	Black BBA
Extent of Coverage	Foil Plot
Underside of Membrane	✓
Slab / membrane condition (is membrane clear of debris or insulation)	✓
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries - Jubilee clips, Top hats installed correctly	✓
External Wall Air bricks Present?	✓
Corners inspected?	✓
Membrane joints inspected has Double -sided butyl tape been used?	✓
Folds in membrane inspected?	✓
Has the membrane been installed as per the design detail drawing?	✓

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: [Redacted] Signed: [Redacted]



Gas Protection Validation Site Record

Inspection date/time:	17/12/22	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Residential	Plot number:	13	Developer:	
Notes/recommendations	Comments				
Membrane Type	Black BBA				
Extent of Coverage	Full Plot				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries - Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double -sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

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: [Redacted] Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 25-03-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	E3P Engineer:

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

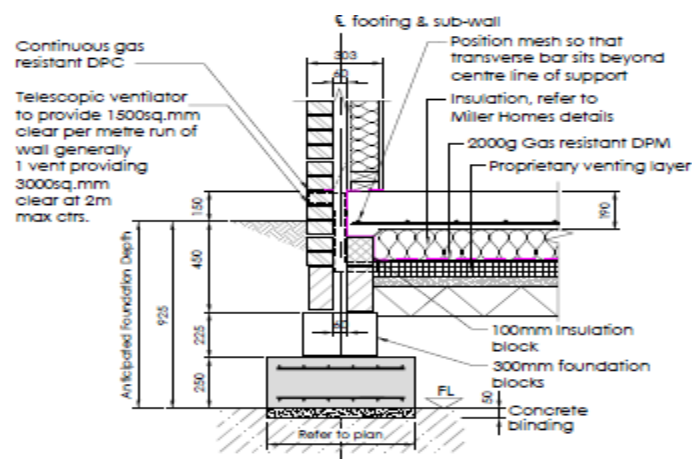
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

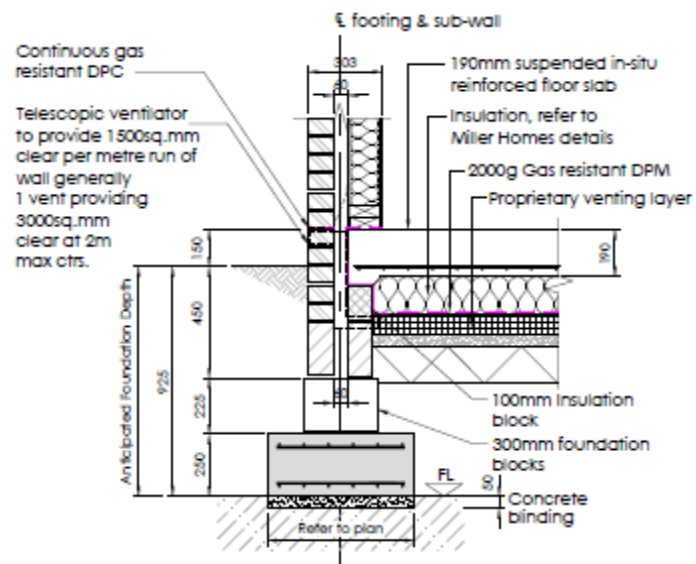
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 34-35** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

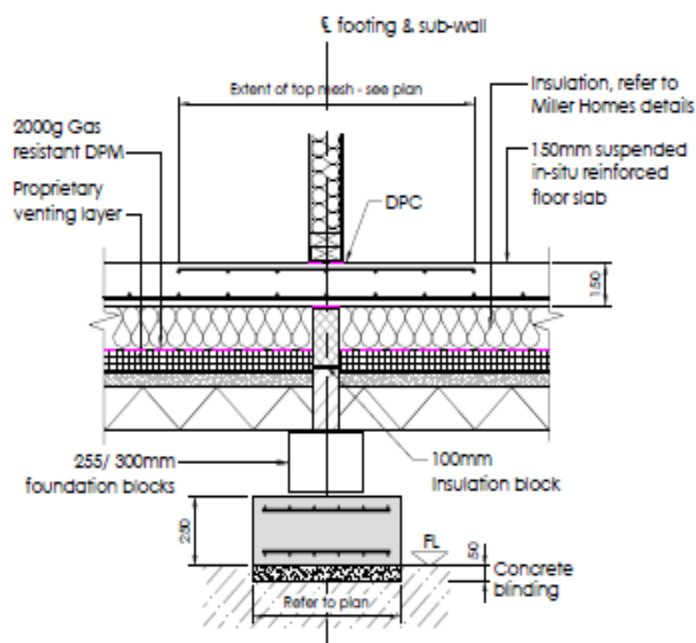


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 34

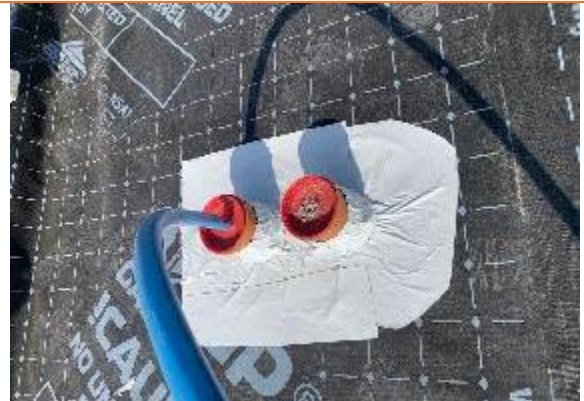
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 35

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Inspection date/time:	25/3/22	Inspected by:	[Redacted]	Photographed:	✓ 1x
Type of development:	Fluorising	Plot number:	34	Developer:	Miller Henry

Notes/recommendations	Comments
Membrane Type	Sutta (-P1)
Extent of Coverage	Full
Underside of Membrane	✓
Slab / membrane condition (is membrane clear of debris or insulation)	✓
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries - Jubilee clips, Top hats installed correctly	✓
External Wall Air bricks Present?	✓
corners inspected?	✓
Membrane joints inspected has Double-sided butyl tape been used?	✓
Welds in membrane inspected?	✓
Is the membrane been installed as per the design detail drawing?	✓

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 required for this Plot.

Inspected by: [Redacted] Signed: [Redacted]



Inspection date/time:	28/3/22	Inspected by:	[Redacted]	Photographed:	✓
Type of development:	Fluorising	Plot number:	35	Developer:	Miller Henry
Notes/recommendations	Comments				
Membrane Type	Subs (-P1)				
Extent of Coverage	Full				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries - Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Roofers inspected?	✓				
Membrane joints inspected has Double-sided butyl tape been used?	✓				
Welds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

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.

Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 05-04-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MEnvSc, CEnv	E3P Engineer:

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

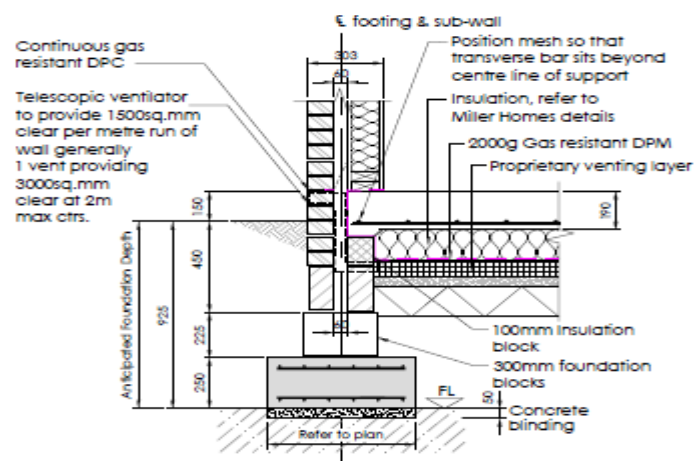
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

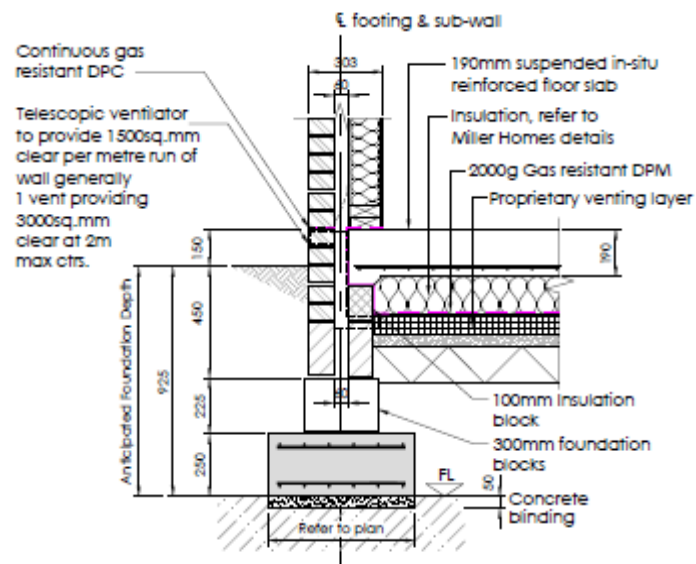
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 32-33** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

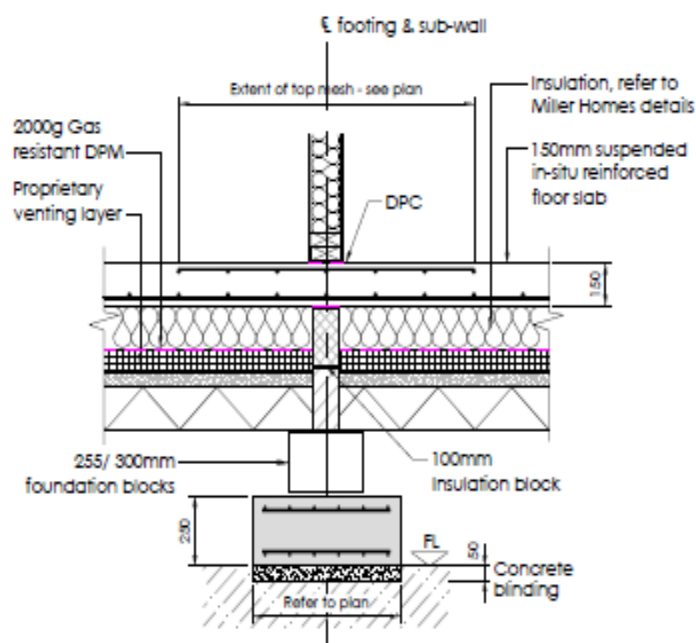


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 32

General Condition of Membrane-Good Condition



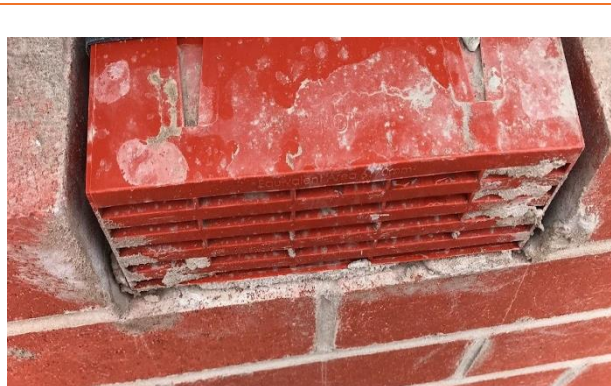
Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 33

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	5 th April	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Private	Plot number:	32	Developer:	

Notes/recommendations	Comments
Membrane Type	Juba GFI
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape joint ☒ Welded joint ☒ Other (please state) (detailing strips)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double –sided butyl tape been used?	No
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

This Plot has ~~PASS~~/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.

Inspected by: [Redacted] Signed: [Redacted]





Gas Protection Validation Site Record

Inspection date/time:	5 th April	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Percey	Plot number:	33	Developer:	

Notes/recommendations	Comments
Membrane Type	Juba GPl
Extent of Coverage	fully extends
Underside of Membrane	
Slab / membrane condition (is membrane clear of debris or insulation)	Good
Type of joints	☐ Tape Joint ☒ Welded Joint ☒ Other (please state) (detailing strips)
Service entries – Jubilee clips, Top hats installed correctly	yes
External Wall Air bricks Present?	yes
Corners inspected?	yes
Membrane joints inspected has Double –sided butyl tape been used?	No
Folds in membrane inspected?	yes
Has the membrane been installed as per the design detail drawing?	yes

This Plot has ~~PASS~~/FAILED* inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form). An additional inspection visit (S/S NOT required for this plot) [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
 Registered in England No: 08725262 Registered Office: E3P Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ



GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 25-04-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MEnvSc, CEnv	E3P Engineer

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

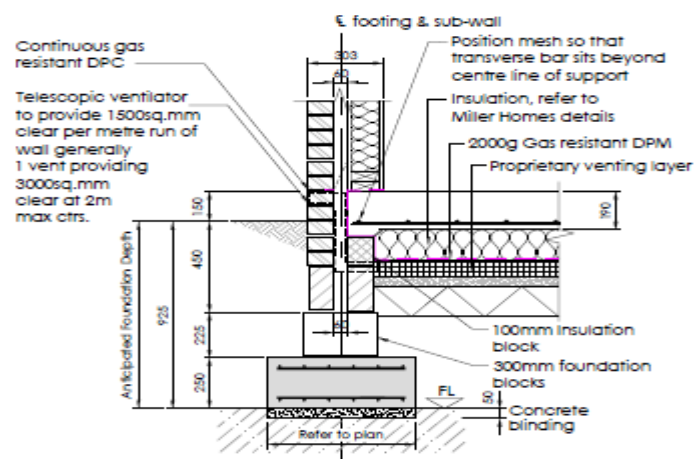
Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

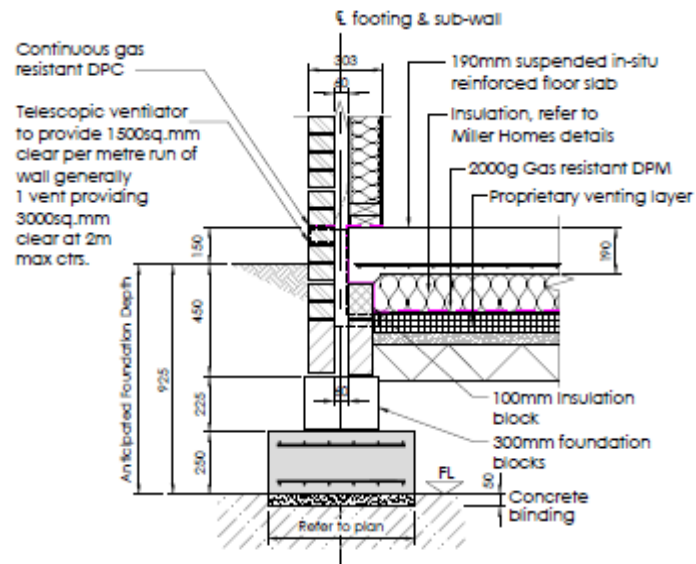
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 27-31** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

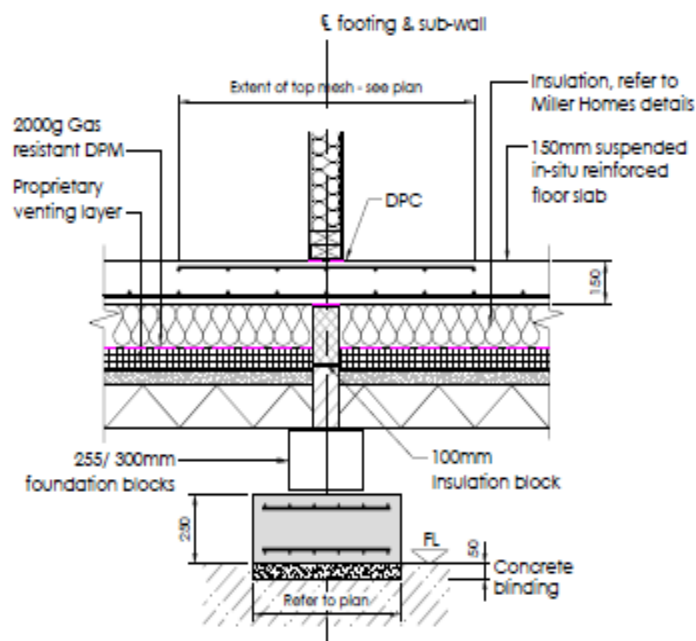


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 27

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 28

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 29

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 30

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 31

General Condition of Membrane-Good Condition



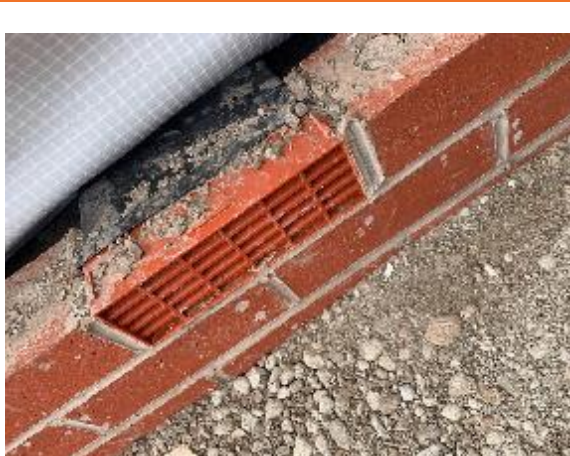
Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



e3p Gas Protection Validation Site Record

Inspection date/time: 28/4/22 Inspected by: [Redacted] Photographed: [Redacted]
 Name of development: Housing Plot number: 77 Developer: Miller Homes

Notes/recommendations	Comments
Membrane Type	50ft x 6ft
Extent of Coverage	Full
Integrity of Membrane	/
Sub / membrane condition (Is membrane clear of debris or contamination)	/
Seal of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	/
Internal Wall Air bricks Present?	/
Drains inspected?	/
Membrane joints inspected has Double-sided butyl tape been used?	/
Is membrane inspected?	/
Has the membrane been installed as per the design detail drawing?	/

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.

Inspected by: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
 Registered in England No: 08725362 Registered Office: E3P, 106/108 Road, Trivandrum Park, Lutterton, Leicestershire LE17 7JQ



e3p Gas Protection Validation Site Record

Inspection date/time: 25/4/22	Inspected by: [Redacted]	Photographed: ✓/x
Type of development: Housing	Plot number: 78	Developer: Miller Homes

Notes/recommendations

Comments	Type of joints	Welded joint	Other (please state)
Membrane Type			
Extent of Coverage			
Underside of Membrane			
Is membrane condition (is membrane clear of debris or insulation)			
Type of joints			
Twice entries - Jubilee clips, Top butts installed correctly			
Internal Wall Air bricks Present?			
Terminals inspected?			
Membrane joints inspected has Double-sided butyl tape been used?			
Is membrane inspected?			
Is the membrane been installed as per the design detail drawing?			

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

Inspected by: [Redacted] Signed: [Redacted]

Environmental Engineering Practice Limited trading as E3P
Registered in England No. 0872562 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ



Gas Protection Validation Site Record

Inspection date/time: 28/4/22	Inspected by: [Redacted]	Photographed: ✓
Type of development: Housing	Plot number: 29	Developer: Miller Homes

Notes/recommendations	Comments
Membrane Type	50% 6/11
Extent of Coverage	Full ✓
Underside of Membrane	✓
Sub / membrane condition (Is membrane clear of debris or insulation)	✓
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries - Jubilee clips, Top hats installed correctly	✓
Internal Wall Air Bricks Present?	✓
Terminals inspected?	✓
Membrane joints inspected has Double -sided butyl tape been used?	✓
Is membrane inspected?	✓
Is the membrane been installed as per the design detail showing?	✓

Plot has ~~PASSED~~ FAILED* Inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form). An additional inspection visit is/are required for this plot.

Inspected by: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
 Registered in England No: 08725582 Registered Office E3P: Teyate Road, Trafford Park, Urmston, Manchester M41 7JQ



e3p **Gas Protection Validation Site Record**

Inspection date/time: 25/4/22	Inspected by: [Redacted]	Photographed: ✓
Type of development: Housing	Plot number: 30	Developer: Miller Homes

Notes/recommendations	Comments
Membrane Type	5 x 2.6m
Extent of Coverage	Full
Underside of Membrane	✓
Sub / membrane condition (is membrane clear of debris or insulation)	✓
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)
Twice entries - Jubilee clips, Top hats installed correctly	✓
External Wall Air bricks Present?	✓
Terminals inspected?	✓
Membrane joints inspected has Double -sided butyl tape been used?	✓
Is membrane inspected?	✓
Is the membrane been installed as per the design detail drawing?	✓

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: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725202 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7AQ



e3p

Gas Protection Validation Site Record

Inspection date/time: 28/4/22	Inspected by: [Redacted]	Photographed: ✓	Developer: Miller Homes
Type of development: Housing	Plot number: 31		
Notes/recommendations			
Membrane Type	Sota 6/11		
Extent of Coverage	Full		
Underside of Membrane	✓		
Sub / membrane condition (Is membrane clear of debris or insulation)	✓		
Type of joints	✓		
Service entries – Jubilee clips, Top hats installed correctly	✓		
External Wall Air bricks Present?	✓		
Roofers inspected?	✓		
Membrane joints inspected Has Double – sided butyl tape been used?	✓		
Is membrane inspected?	✓		
Is the membrane been installed as per the design detail drawing?	✓		

☐ Tape Joint ☒ Welded Joint ☐ Other (please state)

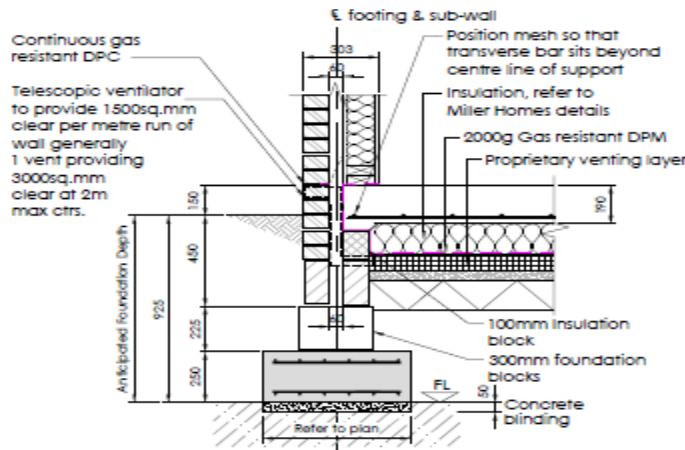
This Plot has PASSED/FAILED* inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form). An additional inspection visit IS/IS NOT required for this Plot.

Inspection by: [Redacted] Signed: [Redacted]

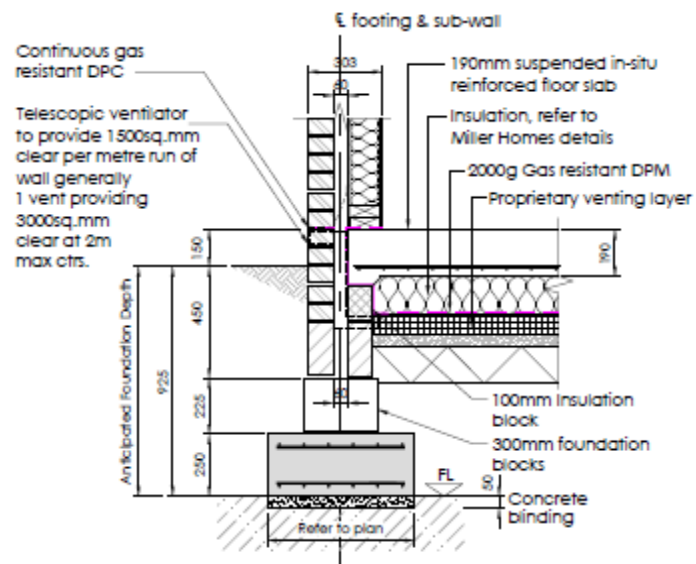
Environmental Engineering Partnership Limited trading as E3p
 Registered in England No: 08725262 Registered Office: E3p, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ



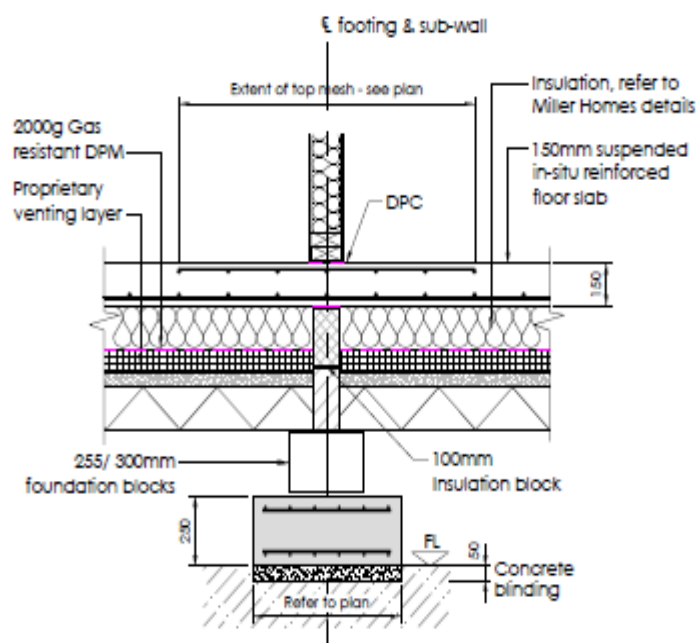
GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 01-06-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MEnvSc, CEnv	E3P Engineer:
Ground Gas Risk Assessment: Characteristic Situation 2	
Overview: The membrane comprised a visqueen gas membrane (Black) 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. 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 20 + 26 has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	
 Section 1-1 Scale 1:25	





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 20

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 26

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition

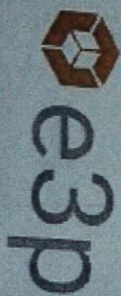


Verification of Service Penetrations-Good Condition



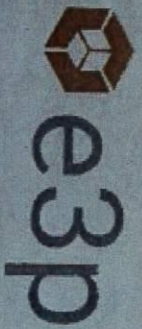
Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	11/6/22	Inspected by:	[redacted]	Photographed:	✓/x
Type of development:	Residential	Plot number:	20	Developer:	
Notes/recommendations		Comments			
Membrane Type	Black Visqueen				
Extent of Coverage	Full Plot				
Underside of Membrane	✓				
Slab / membrane condition (Is membrane clear of debris or insulation)	✓				
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries - Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double-sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				
This Plot has PASSED/FAILED inspection. (Any proposed remedial NOT required for this Plot)					
Inspected by:		Signed:			



Gas Protection Validation Site Record

Inspection date/time:	11/6/22	Inspected by:	[Redacted]	Photographed:	✓/x
Type of development:	Residential	Plot number:	26	Developer:	
Notes/recommendations					
Membrane Type	Comments				
Extent of Coverage	Black Visgiven				
Underside of Membrane	Full Plot				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries - Jubilee clips, Top hats installed correctly	✓				
Externat Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double ~sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

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

Inspection by: [Redacted] Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 08-06-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MEnvSc, CEnv	E3P Engineer:

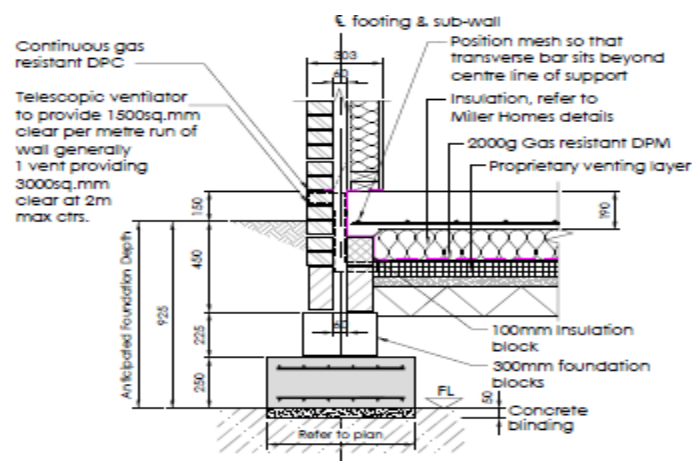
Ground Gas Risk Assessment: **Characteristic Situation 2**

Overview:

The membrane comprised a visqueen membrane (Black) 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.

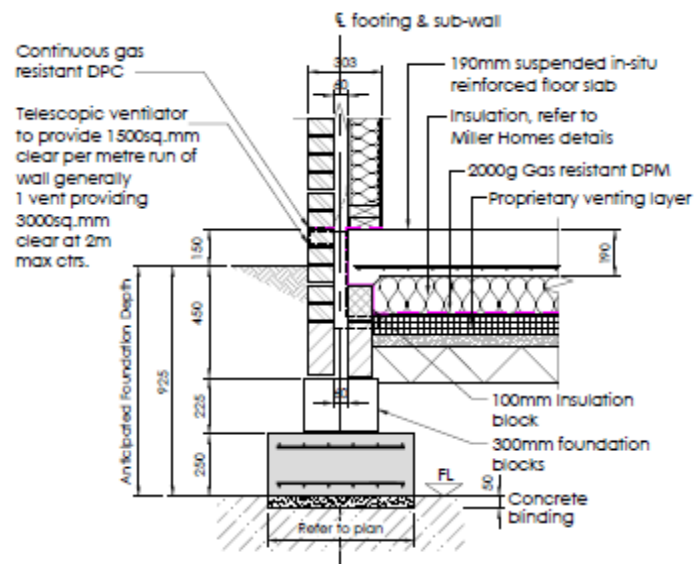
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plot 21** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

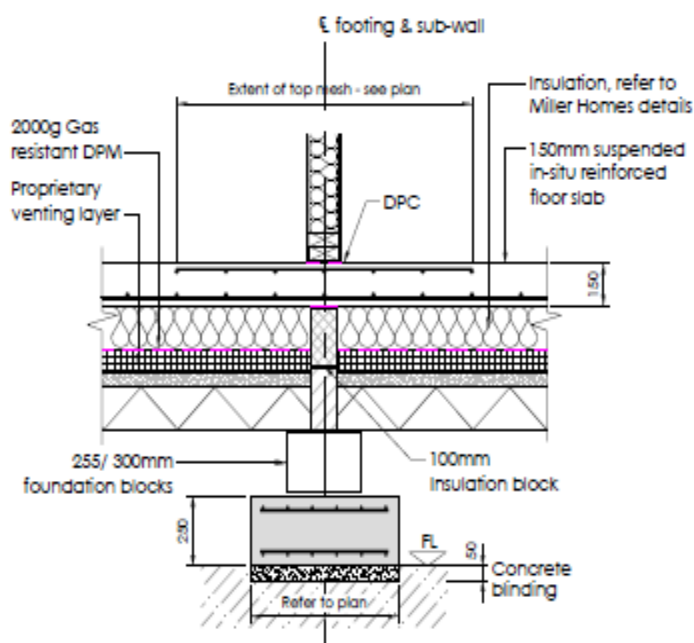


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 21

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	8/6/22	Inspected by:	[redacted]	Photographed:	✓/x
Type of development:	Residential	Plot number:	211	Developer:	
Notes/recommendations	Comments				
Membrane Type	Black Visqueen				
Extent of Coverage	Full Plot				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☐ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries - Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double-sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

This Plot has PASSED/FAILED inspection. (Any proposed remedial work to be completed in the "Remarks" column on this form). An additional inspection visit is NOT required for this Plot.

Inspection by: [redacted] Signed: [redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Project Manager:	Date: 09-06-2022
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MEnvSc, CEnv	E3P Engineer:

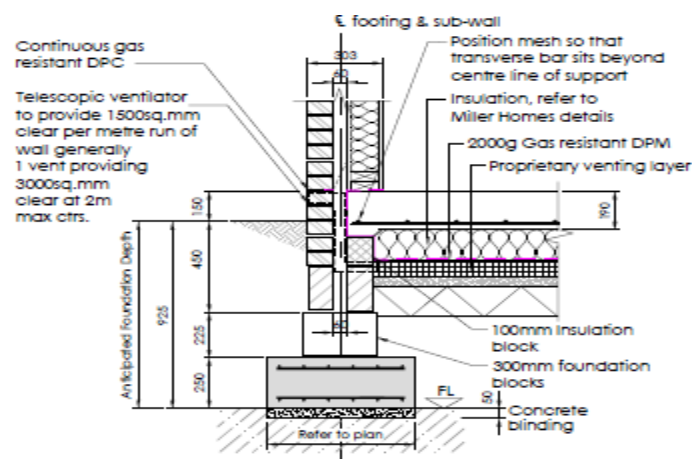
Ground Gas Risk Assessment: **Characteristic Situation 2**

Overview:

The membrane comprised a JUTA GP1 gas membrane (Black) 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.

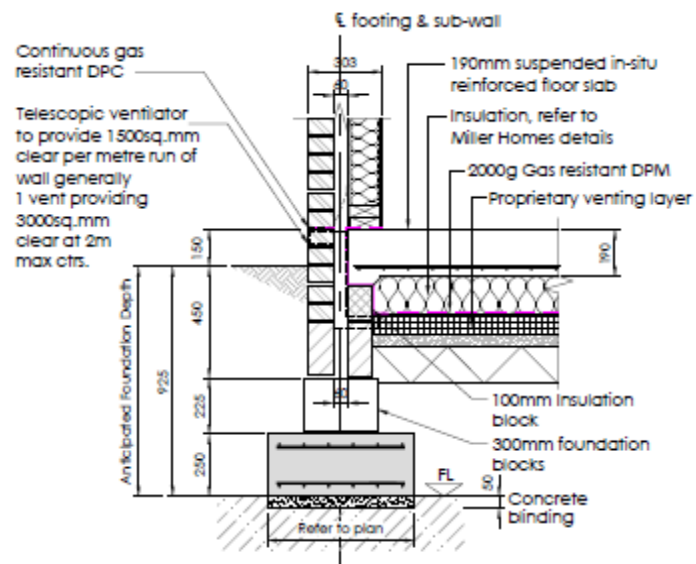
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 36-38** has been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

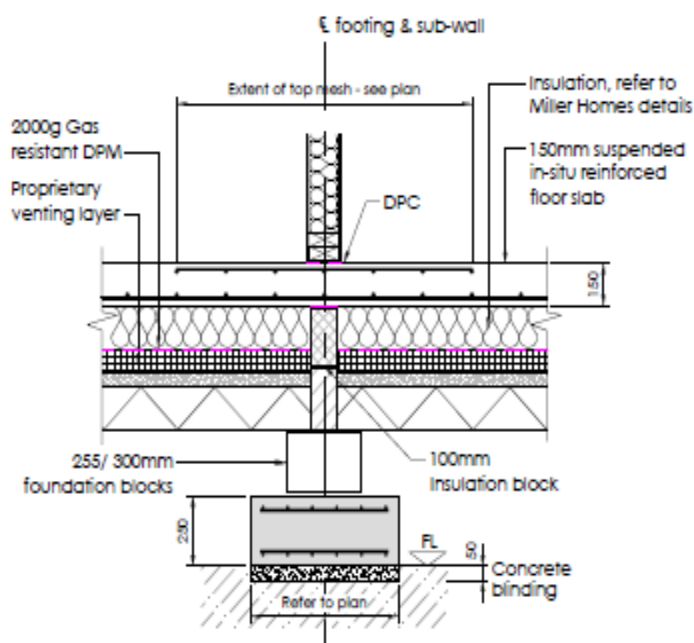


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 36

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 37

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Plot - 38

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition



Gas Protection Validation Site Record

e3p

Gas Protection Validation Site Record

Inspection date/time:	18/6/22	Inspected by:	[Redacted]	Photographed:	✓
Type of development:	Housing	Plot number:	36	Developer:	Miller/Hunter
Notes/recommendations					
Membrane Type	Sofix (-P1)				
Extent of Coverage	Full				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries – Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double – sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

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: [Redacted] Signed: [Redacted]

e3p

Gas Protection Validation Site Record

Type of development:	18/6/22	Inspected by:	J. J. SAMEL	Photographed:	✓
Notes/recommendations:	Howling	Plot number:	1.1		
Inspection date/time:	9/8/22	Inspected by:	[Redacted]	Photographed:	✓
Type of development:	Howling	Plot number:	307	Developer:	Miller & Hume
Notes/recommendations	Comments				
Membrane Type	Suta 6-11				
Extent of Coverage	Full				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)				
Service entries – Jubilee clips, Top hats installed correctly	✓				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double –sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

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. [Redacted]

Inspection by: [Redacted] Signed: [Redacted]

e3p

Gas Protection Validation Site Record

Inspection date/time:	18/6/22	Inspected by:	J. SAMES	Photographed:	✓
Type of development:	Housing	Plot number:	18	Developer:	✓
Notes/recommendations:					

e3p

Gas Protection Validation Site Record

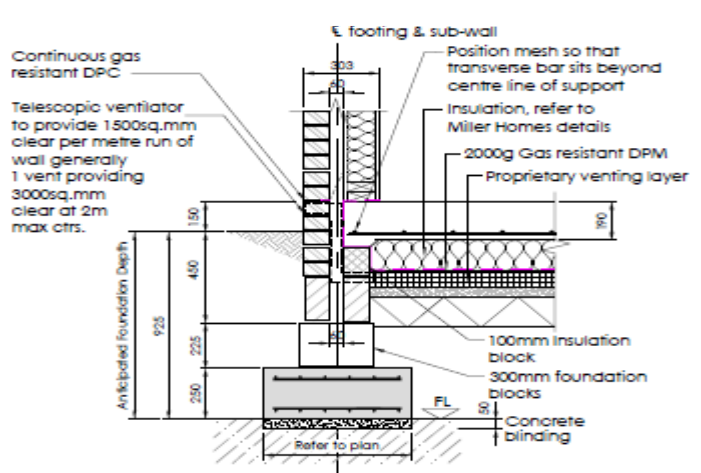
Inspection date/time:	9/8/22	Inspected by:	J. SAMES	Photographed:	✓
Type of development:	Housing	Plot number:	38	Developer:	✓
Notes/recommendations:					

Notes/recommendations	Comments
Membrane Type	Subs (P1)
Extent of Coverage	Full
Underside of Membrane	✓
Slab / membrane condition (Is membrane clear of debris or insulation)	✓
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries – Jubilee clips, Top hats installed correctly	✓
External Wall Air bricks Present?	✓
Corners inspected?	✓
Membrane joints inspected has Double –sided butyl tape been used?	✓
Folds in membrane inspected?	✓
Has the membrane been installed as per the design detail drawing?	✓

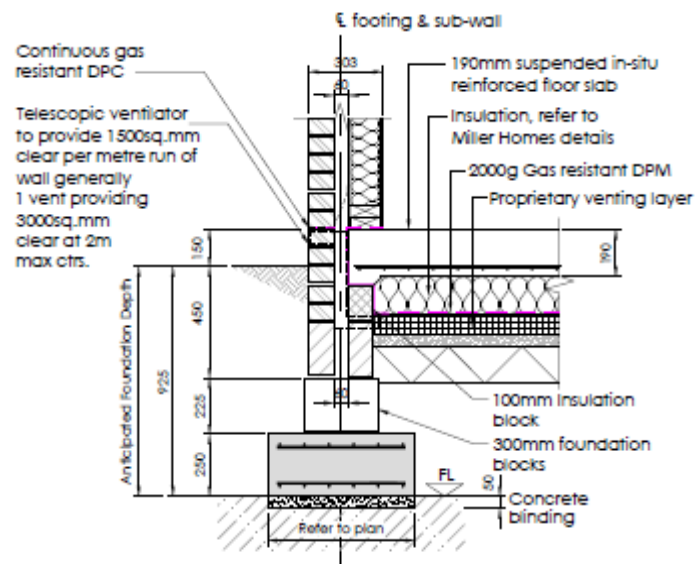
This Plot has **PASSED/FAILED** inspection. (Any proposed remedial works will be noted in the "Remarks" column on this form). An additional inspection visit IS/IS NOT required for this Plot. **IS/IS NOT**

Inspection by: *S. Jones* Signed: *[Signature]*

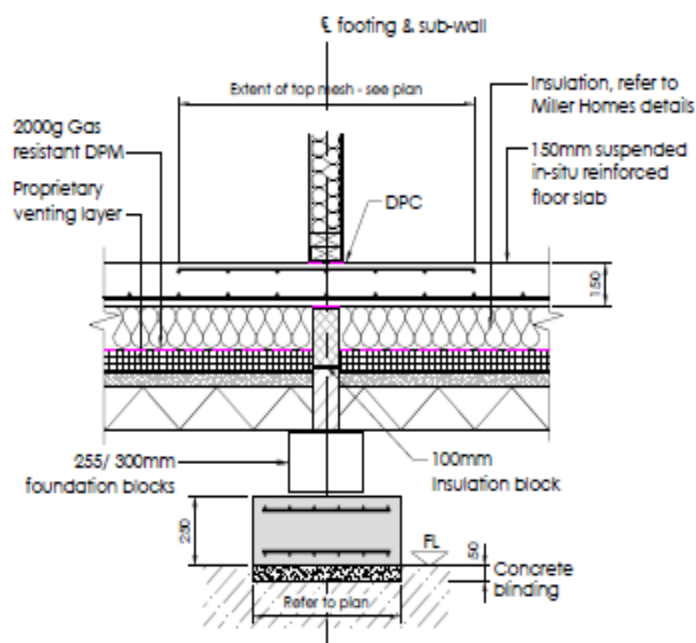
GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Company: Miller Homes	Date: 29-06-2022
Project Manager:	E3P Engineer:
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	Engineer Qualifications: Ground Gas Protection Training July 2018
Overview: The membrane comprised a visqueen gas resistant membrane (Blue) 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. 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.	
 Section 1-1 Scale 1:25	





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25

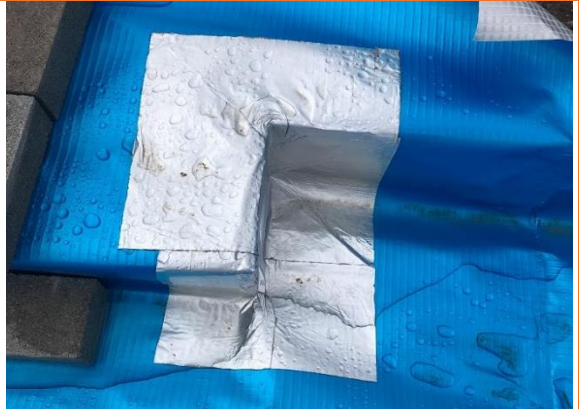


Plot - 47

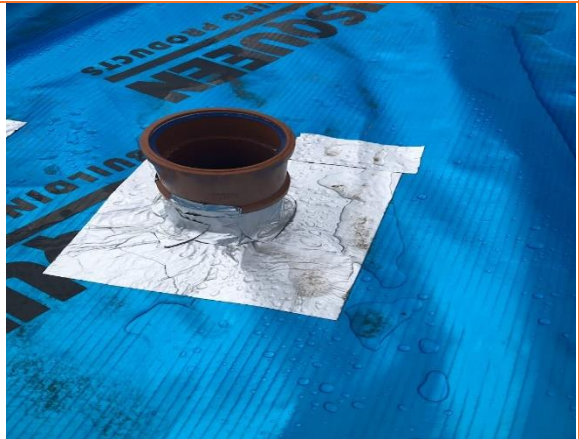
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition

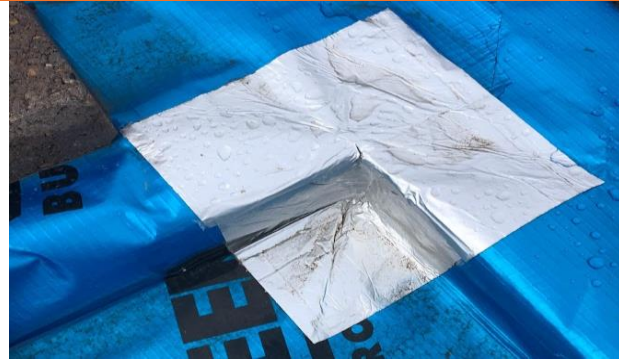


Plot – 48

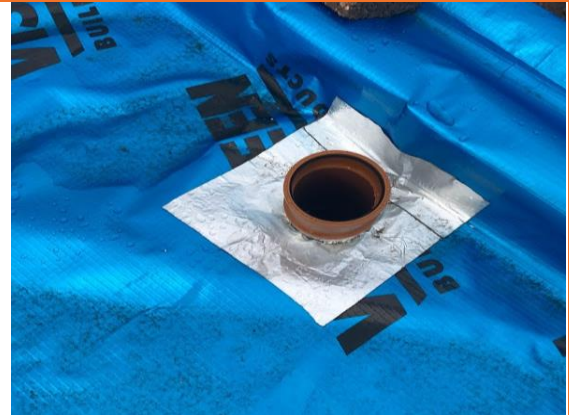
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition

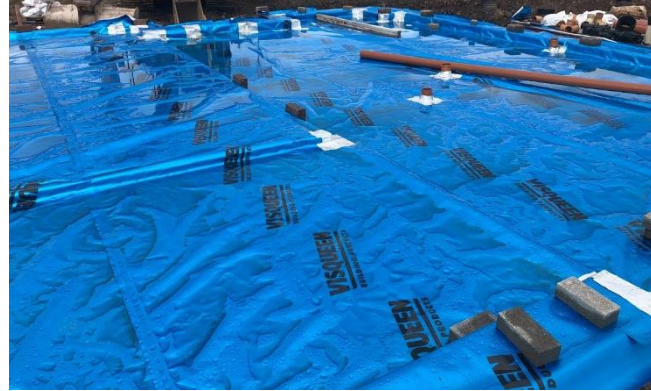


Verification of Service Penetrations-Good Condition



Plot - 49

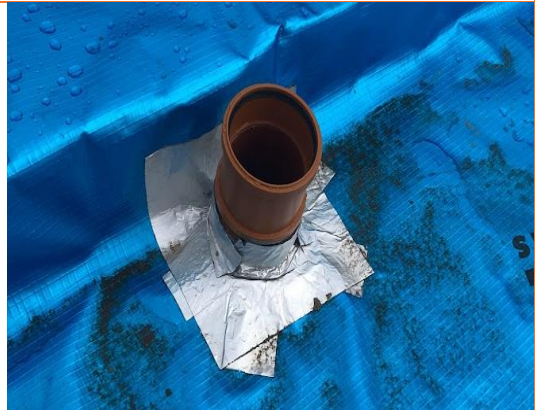
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition





Gas Protection Validation Site Record

Inspection date/time:	29/6/22	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Residential	Plot number:	47	Developer:	

Notes/recommendations

Comments

Membrane Type

Extent of Coverage

Underside of Membrane

Slab / membrane condition (is membrane clear of debris or insulation)

Type of joints

☐

Tape Joint

☒

Welded Joint

☐

Other (please state)

Service entries - Jubilee clips, Top hats installed correctly

External Wall Air bricks Present?

Corners inspected?

Membrane joints inspected has Double -sided butyl tape been used?

Folds in membrane inspected?

Has the membrane been installed as per the design detail drawing?

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: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ



Gas Protection Validation Site Record

Inspection date/time:	29/6/22	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Residential	Plot number:	49	Developer:	

Notes/recommendations

Comments

Membrane Type

Extent of Coverage

Underside of Membrane

Slab / membrane condition (is membrane clear of debris or insulation)

Type of joints

Service entries – Jubilee clips, Top hats installed correctly

External Wall Air bricks Present?

Corners inspected?

Membrane joints inspected has Double –sided butyl tape been used?

Folds in membrane inspected?

Has the membrane been installed as per the design detail drawing?

Blue Visqueen

Full Plot

✓

✓

☐

Tape Joint

☒

Welded Joint

☐

Other (please state)

✓

✓

✓

✓

✓

✓

✓

This Plot has PASSED / FAILED* inspection. (Any proposed remedial works will be recorded in the "Remarks" column on this form). An additional inspection visit IS/IS NOT required for this plot.
Inspection by: [Redacted] Signed: [Redacted]



Gas Protection Validation Site Record

Inspection date/time:	29/6/22	Inspected by:	[Redacted]	Photographed:	✓/x ✓
Type of development:	Residential	Plot number:	48	Developer:	

Notes/recommendations

Comments

Membrane Type

Extent of Coverage

Underside of Membrane

Slab / membrane condition (is membrane clear of debris or insulation)

Type of joints

Service entries - Jubilee clips, Top hats installed correctly

External Wall Air bricks Present?

Corners inspected?

Membrane joints inspected has Double -sided butyl tape been used?

Folds in membrane inspected?

Has the membrane been installed as per the design detail drawing?

Blue Visqueen
Full Plot

☐ Tape Joint ☒ Welded Joint ☐ Other (please state)

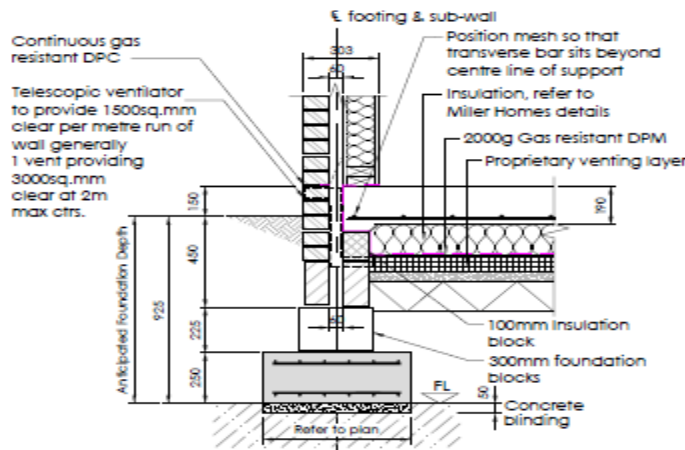
This Plot has PASSED ~~FAILED~~ inspection. (Any proposed remedial work should be recorded in the "Remarks" column on this form). An additional inspection visit IS/IS NOT required for this Plot.
Inspection by: [Redacted] Signed: [Redacted]

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ

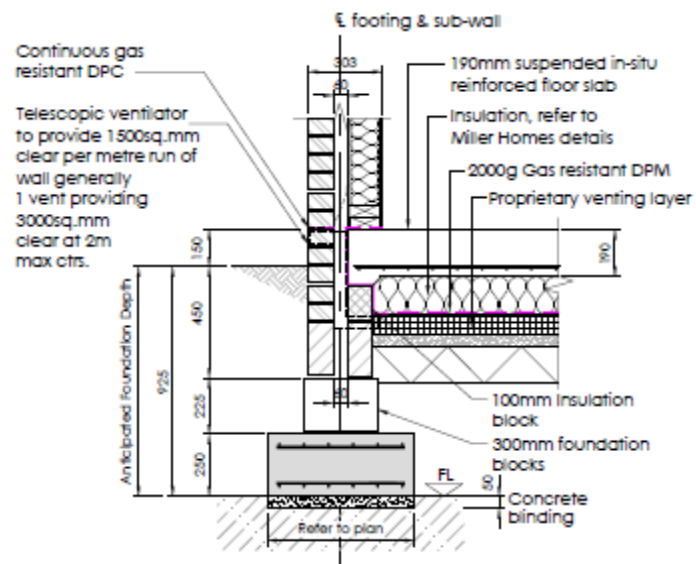
Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ

Environmental Engineering Partnership Limited trading as E3P
Registered in England No: 08725262 Registered Office: E3P, Taylor Road, Trafford Park, Urmston, Manchester M41 7JQ

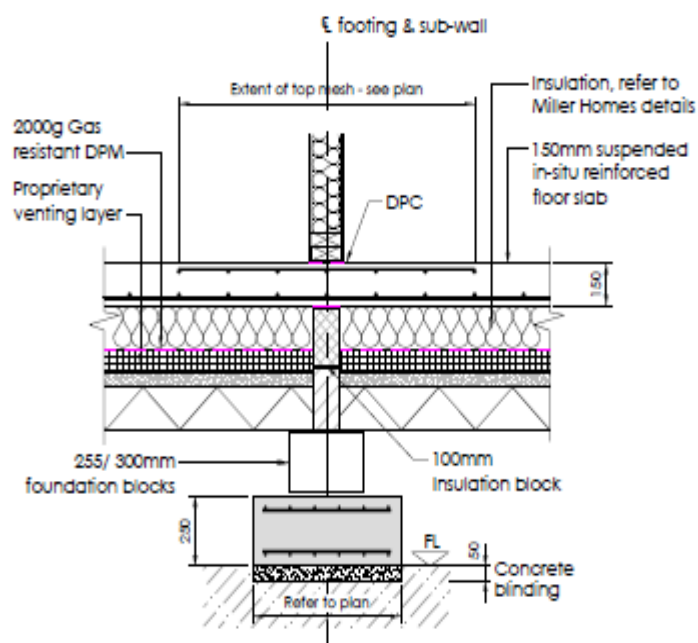
GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Company: Miller Homes	Date: 07-07-2022
Project Manager:	E3P Engineer:
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	Engineer Qualifications: GGS Gas Training Feb 22
Overview: The membrane comprised a visqueen gas resistant membrane (Blue) 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. 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 23 & 25 have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.	
 Section 1-1 Scale 1:25	





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 23

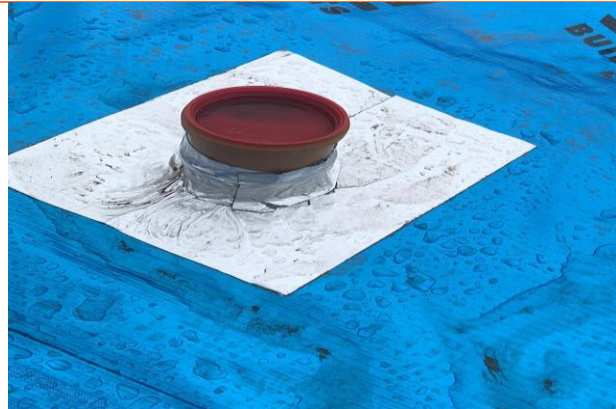
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition

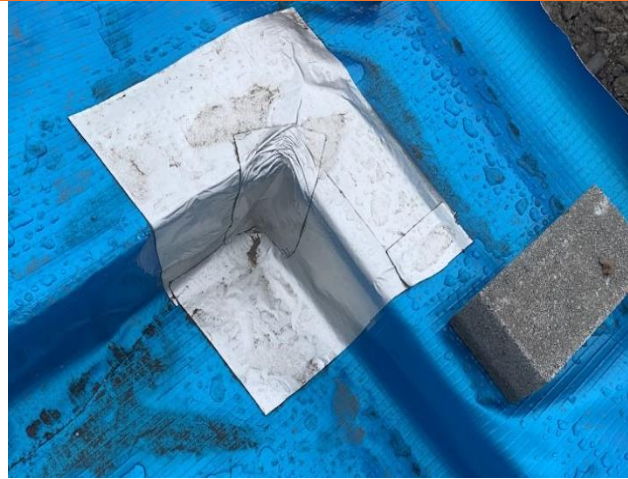


Plot – 25

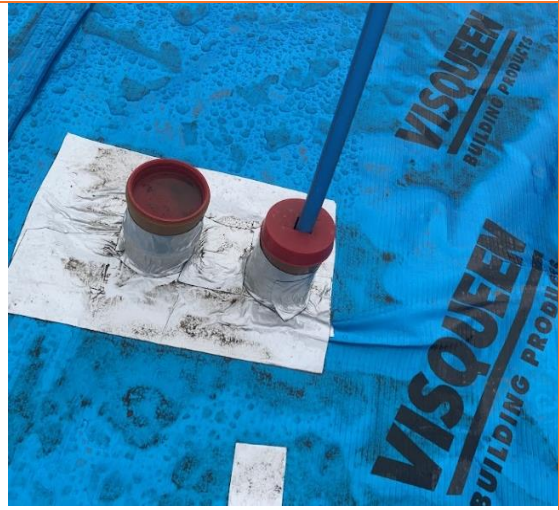
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Gas Protection Validation Site Record

Inspection date/time:	7/7/22	Inspected by:	[Redacted]	Photographed:	1/1x ✓
Type of development:	House	Plot number:	23	Developer:	Mellor

Notes/recommendations	Comments
Membrane Type	Rob Visgorn
Extent of Coverage	Full
Underside of Membrane	✓
Slab / membrane condition (is membrane clear of debris or insulation)	✓
Type of joints	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)
Service entries - Jubilee clips, Top hats installed correctly	✓
External Wall Air bricks Present?	✓
Corners inspected?	✓
Membrane joints inspected has Double-sided butyl tape been used?	✓
Folds in membrane inspected?	✓
Has the membrane been installed as per the design detail drawing?	✓

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: [Redacted] Signed: [Redacted]

Gas Protection Validation Site Record

Inspection date/time:	7/7/22	Inspected by:	[Redacted]	Photographed:	✓ Miller
Type of development:	Housing	Plot number:	25	Developer:	
Notes/recommendations					
Membrane Type	Comments				
Extent of Coverage	Full Visgorn				
Underside of Membrane	✓				
Slab / membrane condition (is membrane clear of debris or insulation)	✓				
Type of joints	✓				
Service entries - Jubilee clips, Top hats installed correctly	☒ Tape Joint ☒ Welded Joint ☐ Other (please state)				
External Wall Air bricks Present?	✓				
Corners inspected?	✓				
Membrane joints inspected has Double-sided butyl tape been used?	✓				
Folds in membrane inspected?	✓				
Has the membrane been installed as per the design detail drawing?	✓				

This Plot has PASSED/FAILED inspection. (Any proposed re-inspection will be noted in the "Remarks" column on this form). An additional inspection visit IS/IS NOT required for this Plot. Inspection by: [Redacted] Signed: [Redacted]

GAS MEMBRANE VALIDATION

Site Name: Parcel C, Prescott	Project Number: 15-292
Company: Miller Homes	Date: 15-06-2022
Project Manager:	E3P Engineer:
PM Qualifications: BSc (Hons) FGS, AIEMA, ICE, MIEEnvSc, CEnv	Engineer Qualifications: GGS Gas training Feb 22

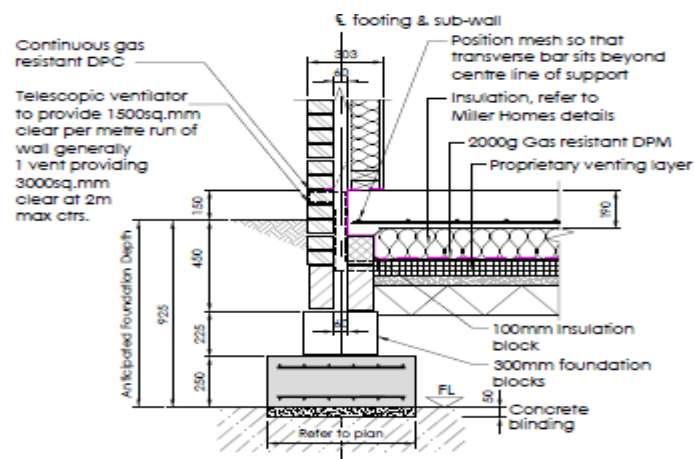
Overview:

The membrane comprised a Visqueen gas barrier (Blue) 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.

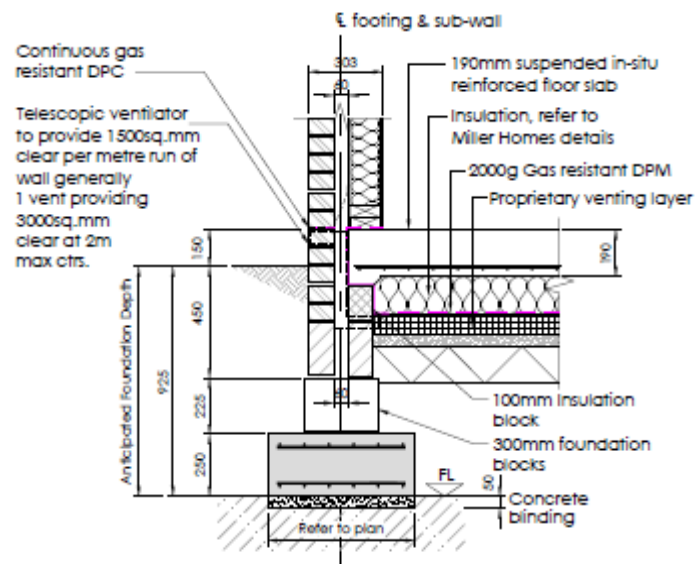
Each unit has a service duct located to the front and outer edge of the property. E3P inspected each one and can confirm that the top-hats have been adequately sealed against the membrane.

Based on the information provided within this report, the site inspections and validation checklists, E3P can confirm that **Plots 44-46** have been installed with gas protection measures in accordance with Characteristic Situation 2 to an acceptable level of workmanship.

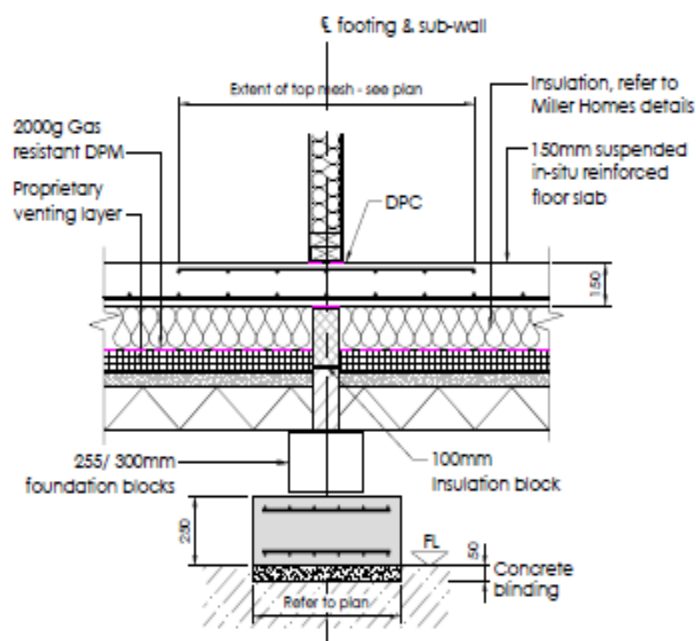


Section 1-1
Scale 1:25





Section 2-2
Scale 1:25



Section 3-3
Scale 1:25



Plot - 44

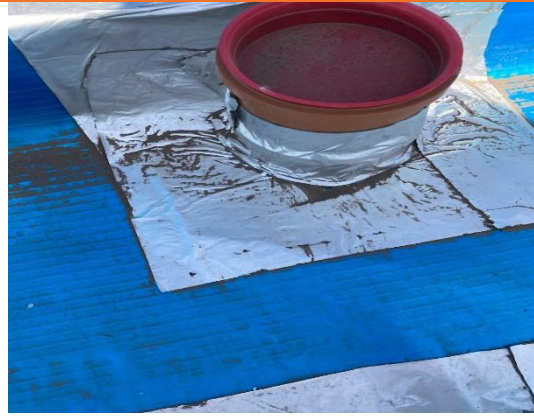
General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition

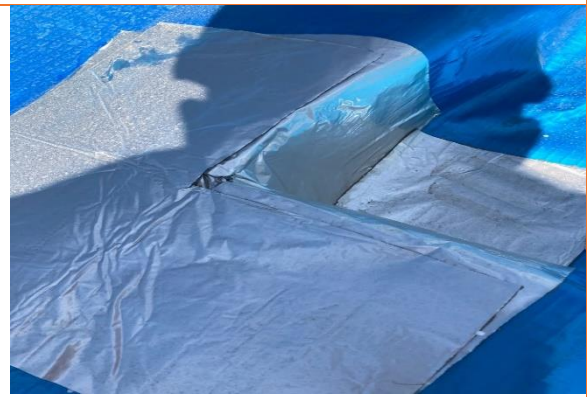
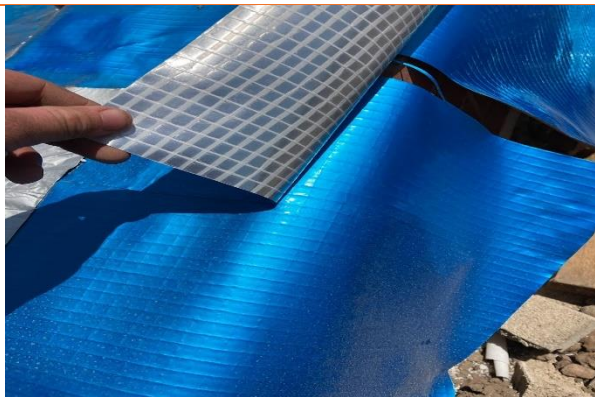


Plot – 45

General Condition of Membrane-Good Condition



Verification of Joints and Seals-Good Condition



Verification of Service Penetrations-Good Condition



Verification of Service Penetrations-Good Condition

