Castledine Environmental

LAND CONTAMINATION SURVEYS

Phase 3 Remediation Strategy and Verification Plan

for

Erection of 2 No. Dwellings with Vehicular Access

on land at

Marsh Road, Gedney Drove End, Spalding, Lincolnshire PE12 9PJ

Date: September 2022

Status:	Final Report
Reference:	3366K P3 Read - Spalding
Date:	01/09/2022

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1.0 QUALITY ASSURANCE

Castledine Environmental confirm that all reasonable efforts have been made to ensure that the information outlined within this report is accurate.

Castledine Environmental would further confirm that due care, attention and technical skill were used in the creation of this report.

For and on behalf of Castledine Environmental.

Kevin Castledine

(Proprietor)

2.0 LIMITATIONS

The conclusions and recommendations made in this report are limited to those based on the findings of the investigation. Where comments are made based on information obtained from third parties, Castledine Environmental assumes that all third-party information is true and correct. No independent action has been undertaken to validate the findings of third parties. The assessments and interpretation have been made in line with legislation and guidelines in force at the time of writing, representing best practice at the time.

This survey has not included asbestos within existing structures, invasive plant species, geotechnical considerations or any elements unconnected with potential ground contamination at the site. If required, such surveys should be undertaken by suitably accredited organisations.

There may be other conditions prevailing at the site which have not been disclosed by this investigation and which have not been taken into account by this report. Responsibility cannot be accepted for conditions not revealed by the investigation.

3.0 INTRODUCTION

Castledine Environmental have been appointed by Mr O. Read to undertake a Phase 3 remediation Strategy and Verification Plan on Marsh Road, Gedney Drove End, Spalding, Lincolnshire PE12 9PJ.

The following reports previous reports on the site are:

- 3134D P1 Read – Spalding – Produced by Castledine Environmental and dated May 2021

4.0 SCOPE

Castledine Environmental have prepared this report for the sole use and reliance of Mr O. Read and his appointees for the purpose of ensuring compliance with:

- Paragraph(s) 174, 179, 183 & 184 of the National Planning Policy Framework 2021
- part C1 of the building regulations.
- Condition No.6 of the South Holland District Council planning approval reference H06-0202-18

This report may not be used or relied upon by any unauthorised third party, or for any other proposed use than that specified above, without the explicit written agreement of Castledine Environmental.

The report consists of a Remediation Strategy and Verification Plan in accordance with

- BS10175:2011+A2:2017, Investigation of potentially contaminated sites. Code of practice
- BS 8485:2015+A1:2019 Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings
- CLR11 "Model Procedures for the Management of Land Contamination".
- LCRM "Land Contamination Risk Management".

The objectives of the report are:-

- Report the existing information relating to the soil contamination and the ground gas regime within the area of the site.
- Set out the remediation measures and validation processes to be followed on site to ensure the site development does not pose a risk to human health.

5.0 SITE DESCRIPTION

The site is located in Gedney Drove End, Spalding at National Grid Reference: 5464488,329145 and is approximately 0.06ha in area.

The site is rectangular in shape and is orientated north west to south east. The site is directly bounded by Marsh Road to the north west, adjacent and neighbouring dwellings and gardens to the south east and north west and agricultural field to the south west. The surrounding areas is predominantly agricultural with scattered residential.

The site interior comprises a vegetated plot of land. Trees are located along the roadside in the south eastern extent of site and a spoil pile of wood and vegetation cuttings was noted in the far north western extent of site. A telegraph pole was noted in the trees on site.

No potential sources of contamination were noted on the walkover. Topographically the site is level.

6.0 OVERVIEW OF FINDINGS AND RECOMMENDATIONS FROM PREVIOUS REPORTS

The following previous reports have been referred to and should be read in conjunction with this report:

- 3134D P1 Read – Spalding by Castledine Environmental and dated May 2021

The most pertinent information is summarised in the following sections.

6.1 SUMMARY OF GROUND GAS REGIME

The site is located in proximity to a sewage works (approx. 40m north) and a household wastes historical landfill (approx. 56m north west) and is known to be located in an area where they may be peat deposits in superficial geological deposits. Accordingly, it is considered prudent to install ground gas protective measures in the proposed development. No significant sources of hazardous ground vapours have been identified.

Accordingly, gas protection measures are required for the development, the extents of which are illustrated on the Gas Protection Plan in Appendix A.

7.0 GAS PROTECTION MEASURES DESIGN

As discussed in Section 6.1, gas protection measures are required for the proposed development. These have been designed in line with the current British Standard BS8485:2015+A1:2019 'Code of Practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings'.

7.1 DETERMINATION OF GAS PROTECTION SCORE

When determining the gas protection score, the Characteristic Situation and building type are taken into account. As discussed, the site has been characterised as CS2. The proposed development comprises private residential properties and so represents Type A buildings, as per Table 3 of BS8485:2015+A1:2019.

Taking into account the gas regime and the building type, using Table 4 in BS8485:2015+A1:2019, the minimum Gas Protection Score required for the site is 3.5 points.

7.2 DETERMINATION OF PROTECTION MEASURES

A combination of two or more of the following protection measures should be used to achieve the Gas Protection Score, as determined in Section 4.3.1 of BS8485:2015+A1:2019:

- Structural barrier, or basement slab and wall if present.
- Ventilation measures.
- Gas resistant membrane.

7.2.1 FLOOR SLAB

The residential properties are to have beam and block flooring. Based on Table 5 of BS8485:2015+A1:2019, this will achieve a Gas Protection Score of 0 points.

Notes:-

- There should be no movement joints in the substructure masonry below the membrane level and all perpends, gaps and openings should be sealed to avoid gas migration
- Before laying the membrane, the beam-and-block floor should be thoroughly wetted and all joints grouted with a 4:1 sand:cement grout brushed into all the joints. All projections that may puncture or damage the membrane must be removed. A layer of sacrificial polyethylene could be used.

7.2.2 VENTILATION MEASURES

The properties are to have a minimum 150mm clear ventilated sub floor void, with ventilation provided via telescopic air vents around the perimeter of each block at 2m centres.

The number of telescopic vents is to be confirmed but will meet or exceed the building regulations requirements of 1,500mm²/m run of wall.

The void should be well cross-ventilated (airbricks located on opposite walls) and if there are sleeper walls or other obstructions (change in levels etc) then there should be four or five times the area of the side vents provided in the obstruction.

This should be sufficient to provide very good performance. Based on Table 6 of BS8485:2015+A1:2019, this will achieve a gas protection score of 2.5 points.

7.2.3 GAS RESISTANT MEMBRANE

A gas resistant membrane which meets all of the requirements of Table 7 of BS8485:2015+A1:2019 (reproduced as Table 1) will achieve a score of 2 points.

TABLE 1. BS8485:2015 TABLE 7 GAS PROTECTION SCORE FOR THE GAS RESISTANT MEMBRANE REPRODUCED FROM BS8485:2015

Protection element/system	Score	Comments
Gas resistant membrane meeting all of the following criteria: • sufficiently impervious to the gases with a methane gas transmission rate <40.0 ml/day/m^2/atm (average) for sheet and joints (tested in accordance with BS ISO 15105-1 manometric method); • sufficiently durable to remain serviceable for the anticipated life of the building and duration of gas emissions; • sufficiently strong to withstand in-service stresses (e.g. settlement if placed below a floor slab); • sufficiently strong to withstand the installation process and following trades until covered (e.g. penetration from steel fibres in fibre reinforced concrete, penetration of reinforcement ties, tearing due to working above it, dropping tools, etc); • capable, after installation, of providing a complete barrier to the entry of the relevant gas; and • verified in accordance with CIRIA C735	2	The performance of membranes is heavily dependent on the quality and design of the installation, resistance to damage after installation and integrity of joints. For example, a minimum 0.4 mm thickness (equivalent to 370 g/m2 for polyethelene) reinforced membrane (virgin polymer) meets the performance criteria in Table 7 (see C.3). If a membrane is installed that does not meet all the criteria in column 1 then the score is zero.

As designers, Castledine Environmental have specified a membrane which is considered to be suitable for use as a gas barrier at the site and this is:

- Visqueen Gas Barrier

Suitable accessories are:

- Visqueen Doubled Sided Jointing Tape
- Visqueen Gas Resistant (GR) Foil Tape
- Visqueen Top Hat Units
- Visqueen TreadGUARD1500
- Visqueen Detailing Strip

If an alternative product is proposed, then the manufacturer, membrane name and specification sheet should be forwarded to Castledine Environmental and the EHO for assessment and approval prior to installation.

The membrane shall be extended across cavities and sealed around joints/service entries. Joints can be heat welded or taped with Double sided butyl joint tape. Joints are to be overlapped by min 100mm and if joint tape is being used then it must be applied using a silicone roller to remove trapped air. Visqueen self-adhesive Gas Membrane or Visqueen Top Hats and preformed corners should be used for sealing around protuberances.

If lap tape is to be used then it should not be fitted until the double sided jointing tape has been verified

7.2.4 GAS PROTECTION SCORE SUMMARY

By implementing the above measures, the Gas Protection Score would be

TABLE 2. CALCULATION OF GAS PROTECTION SCORE

Protection Measures	Score
Precast suspended beam and block floor	0
Ventilation measures	2.5
Gas resistant membrane	2
Total	**4.5**

7.3 OTHER ELEMENTS

The gas membrane is to be installed when the construction is at slab level and then the insulation and screed placed upon it. This will protect the membrane from on-going site activities.

The cavity should be filled to a level where it will support the membrane across the cavity. Any exposed sections across the cavity wall will be protected using sacrificial sheeting or DPM while any cavity work is undertaken.

Ground Gas Membrane is degraded by light and therefore if it is to be left exposed for two weeks or more it should be protected by covering with black plastic. Centre fold membranes must not be used.

8.0 VERIFICATION PLAN

8.1 GAS PROTECTION

In order to achieve the points claimed for the gas resistant membrane above, a validation procedure must be in place. The validation should be carried out by a suitably qualified and independent inspector and be undertaken in line with CIRIA C735. Membranes installed by a suitably qualified installer are more robust, require less verification (assuming that the work is to an acceptable standard) and are likely to be more cost effective. If the installation is to be carried out by a qualified and experienced installer then one visit should be carried out immediately following the fitting of the membrane. If the fitting is to be carried out by the builder / groundworker then an extra visit will be required when the site has been prepared for the membrane but before it is fitted.

On this basis, verification will be required as follows:

TABLE 3. REQUIRED VERIFICATION OF MEMBRANE

Gas regime /risk	Slab type	Installer experience	Suggested levels of verification and integrity testing
Low risk CS2 (*with venting) Basic radon protection area	Non reinforced All slabs	General builder/ groundworker / landfill operative (no relevant qualification)'	Verifier (consultant or qualified and experienced installer') to conduct a thorough verification (visual) inspection prior to all concrete pours. Contractor to supply sign off sheets (verification evidence) including photographs to independent verifier.
		Qualified and experienced installer (minimum one operative to hold qualification	Verifier (consultant' or third party qualified and experienced installer) to conduct a thorough verification (visual) inspection prior to 25 to 50 per cent of concrete pours (min one visit). Installer to supply sign off sheets (verification evidence) including photographs to independent verifier for all other pours.
Intermediate risk CS2 (no venting} or CS3 (*with venting) Full radon protection area		General builder/ groundworker/ landfill operative (no relevant qualification')	Verifier (consultant' or qualified and experienced installer}' to conduct a thorough verification (visual} inspection prior to all concrete pours. All joints, pipe penetrations etc. independently air lanced to ASTM 04437.Contractor to supply sign off sheets (verification evidence} including photographs to verifier. Consideration given to need for/scope of integrity testing (eg initially on say 25 to 50 per cent of pours then falling to 10 to 25 per cent if acceptable results obtained and no concerns raised by visual inspections}.
Intermediate risk CS2 (no venting} or CS3 (*with venting) Full radon protection area		Qualified and experienced installer (minimum one operative to hold qualification}	Verifier (consultant' or third party qualified and experienced installer'} to conduct a thorough verification (visual} inspection prior to 25 to 50 per cent of concrete pours (min two visits}. 25 per cent all joints, pipe penetrations etc. independently air lanced to ASTM D 4437. Remaining 75 per cent joints, pipe penetrations etc tested to recognised standard by installer (as detailed in method statement/CQA plan}. Installer to supply sign off sheets (verification evidence) to verifier for all other pours. Consideration given to need for/scope of integrity testing (eg initially on 10 to 25 per cent of pours then falling to 0 to 10 per cent if acceptable results obtained and no concerns raised by visual inspections).

If during the initial or subsequent inspections or based on the installer supplied information the quality of the installation is not deemed to be to a sufficient standard, then additional visits and integrity testing may be required.

9.0 WATCHING BRIEF

It remains possible that previously unexpected soil conditions may be encountered during the construction process. Examples may include oily pockets within the soil, potential for asbestos containing materials, black ashy materials, soils exhibiting strong odours, brightly coloured materials, and former demolition materials.

Should previously undiscovered contamination be encountered during the demolition/construction of the new buildings the following course of action should be adhered to:

1. The ground workers should report any suspected contamination immediately to the Client's site supervisor. The supervisor should contact the Client or their appointed agent who will in turn contact Castledine Environmental to request an engineer to visit the site to assess the extent of the 'contamination'.
2. Castledine Environmental shall make records of their inspection, and pass details of these to the Local Authority.
3. Where the conditions revealed differ from those previously anticipated, Castledine Environmental shall take samples as deemed appropriate to be dispatched for appropriate chemical testing.
4. Depending on the results of the testing either:
    a. no further work will be required;
    b. a further detailed risk assessment will be required; and/or
    c. Localised specific remedial measures will be necessary. Appraisal criteria will vary depending on the nature of the assessment.
5. The results of any such testing will be sent to the Local Authority Pollution Control Section, Local Authority development control

section, and the appointed building inspector. If remediation is required, the LA/Building inspector will be informed of the date and time of the proposed works.

6. Remediation will be undertaken in accordance with a method statement submitted for approval. The works shall be supervised where necessary by Castledine Environmental who shall provide a Verification Report for the Local Authorities.
7. A copy of the discovery strategy (Appendix C) should be lodged on site and provisions made to ensure that all workers are made aware of their responsibility to observe, report and act on any potentially suspicious or contaminated materials they may encounter.

10.0 REPORTING

10.1 GAS PROTECTION

Reporting of the verification activities will be completed after each inspection and will contain details of the verification activities undertaken. This should be carried out by a suitably qualified and *independent* inspector and details of the inspection results along with supporting documentation will be provided for each plot on an on-going basis. There will also be a single verification report submitted when the installation of the gas protection measures is complete on all of the relevant plots.

Each verification report will summarise the extent to which the remedial methods have been achieved and supporting documentation to include site plans and membrane photographs.

11.0 REFERENCES

11.1 LEGISLATION AND REGULATIONS

11.1.1 ACTS

[1] Environmental Protection Act 1990, Part IIA: inserted by Environment Act 1995, Section 57. See Environment Act 1995 for text of Part IIA.

11.1.2 PLANNING REGULATIONS

[2] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 SI1999/No.293

[3] The Town and Country Planning (Environmental Impact Assessment) (England and Wales) (Amendment) Regulations 2000 SI2000/No.2867

11.1.3 CONTAMINATED LAND REGULATIONS

[4] The Contaminated Land (England) Regulations 2000. SI2000/No.227

[5] The Contaminated Land (England) (Amendment) Regulations 2001 SI2001/No.663

[6] The Contaminated Land (England) Regulations 2006 SI2006/No.1380

11.2 STATUTORY GUIDANCE

[7] Department of Environment, Food and Rural Affairs. 2012. *Environmental Protection Act 1990: Part 2A Contaminated Land Statutory Guidance.* Department of Environment, Food and Rural Affairs

[8] Communities and local Government, 2012: National Planning Policy Framework.

11.2.1 CL:AIRE

[9] Card G, Wilson S, Mortimer S. 2012. *A Pragmatic Approach to Ground Gas Risk Assessment. CL:AIRE Research Bulletin RB17.* CL:AIRE, London, UK. ISSN 2047- 6450 (Online)

11.3 BRITISH STANDARDS

[10] BS 5930:2015 Code of practice for site investigations

[11] BS 10175:2011+A2:2017 Investigation of potentially contaminated sites - Code of practice

[12] BS 8485:2015 +A1:2019 - Code of practice for the design of protective measures for methane and carbon dioxide ground gases for new buildings

[13] BS 8576:2013 Guidance on investigations for ground gas. Permanent gases and Volatile Organic Compounds (VOCs)

11.4 NON STATUTORY TECHNICAL GUIDANCE

11.4.1 ENVIRONMENT AGENCY

[14] Cassella Stranger, 2002. Model Procedures for the Management of Contaminated Land, Contaminated Land Report (CLR) 11, Department for Environment, Food, and Rural Affairs.

11.4.2 CIRIA PUBLICATIONS

[15] Wilson, S., Oliver, S., Mallett, H., Hutchings, H., and Card, G.. 2007, *C 665 Assessing risks posed by hazardous ground gases to buildings* London: Construction Industry Research and Information Association

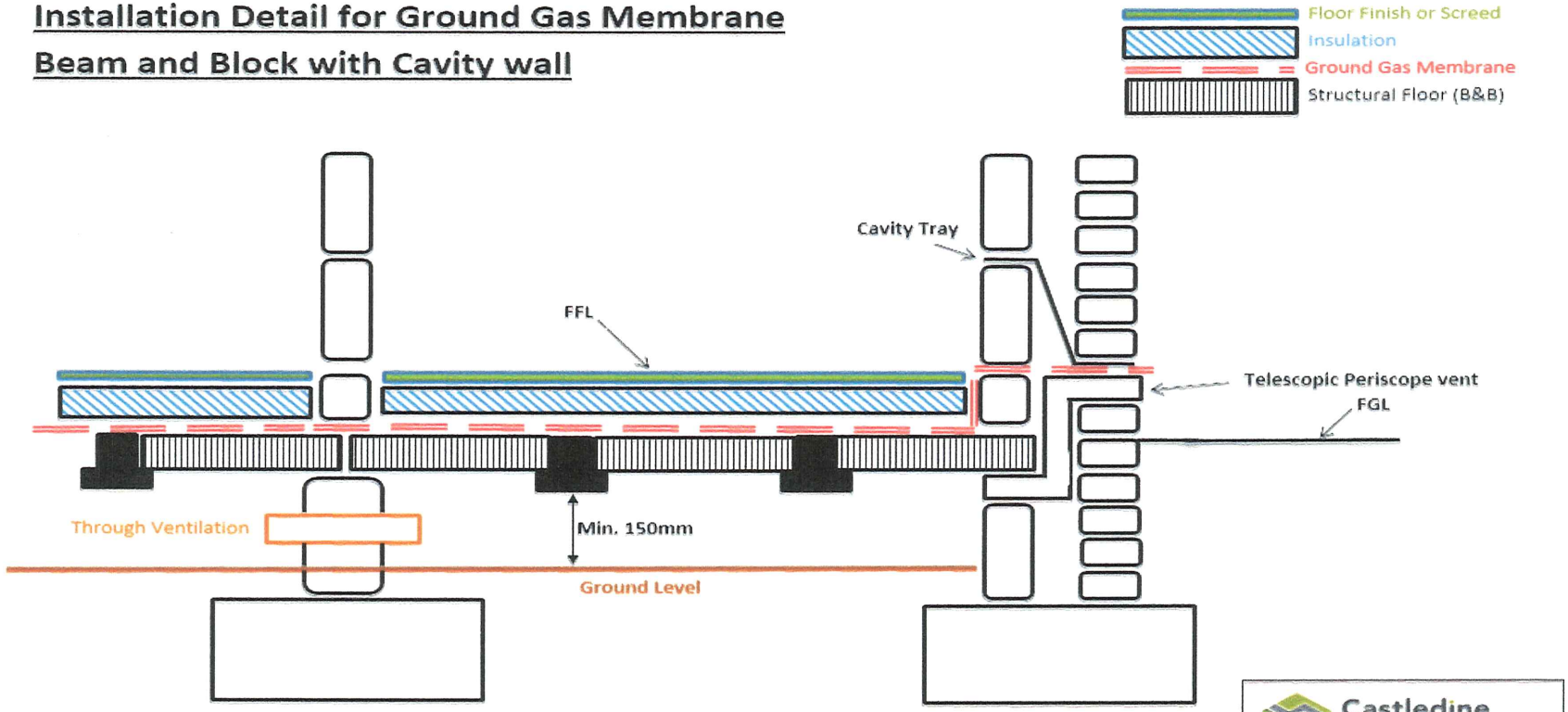
[16] Mallett, H., Cox, L., Wilson, S. and ,Corban M... 2014, *C 735 Good practice on the testing and verification of protection systems for buildings against hazardous ground gases* London: Construction Industry Research and Information Association

[17] Wilson, S., Sopp, G., Mallett, H., Happold, B., Card, C., CBCard & Partners...2020, CIRIA C795 *Retrofitting hazardous ground protection measures in existing or refurbished buildings.* London: Construction Industry Research and Information Association

12.0 APPENDICES

APPENDIX A GAS PROTECTION PLAN

Installation Detail for Ground Gas Membrane Beam and Block with Cavity wall



All structural detail to be confirmed by Architect

Note: All DPC / Membranes through masonry bed joints are required to be bedded both above and below with mortar

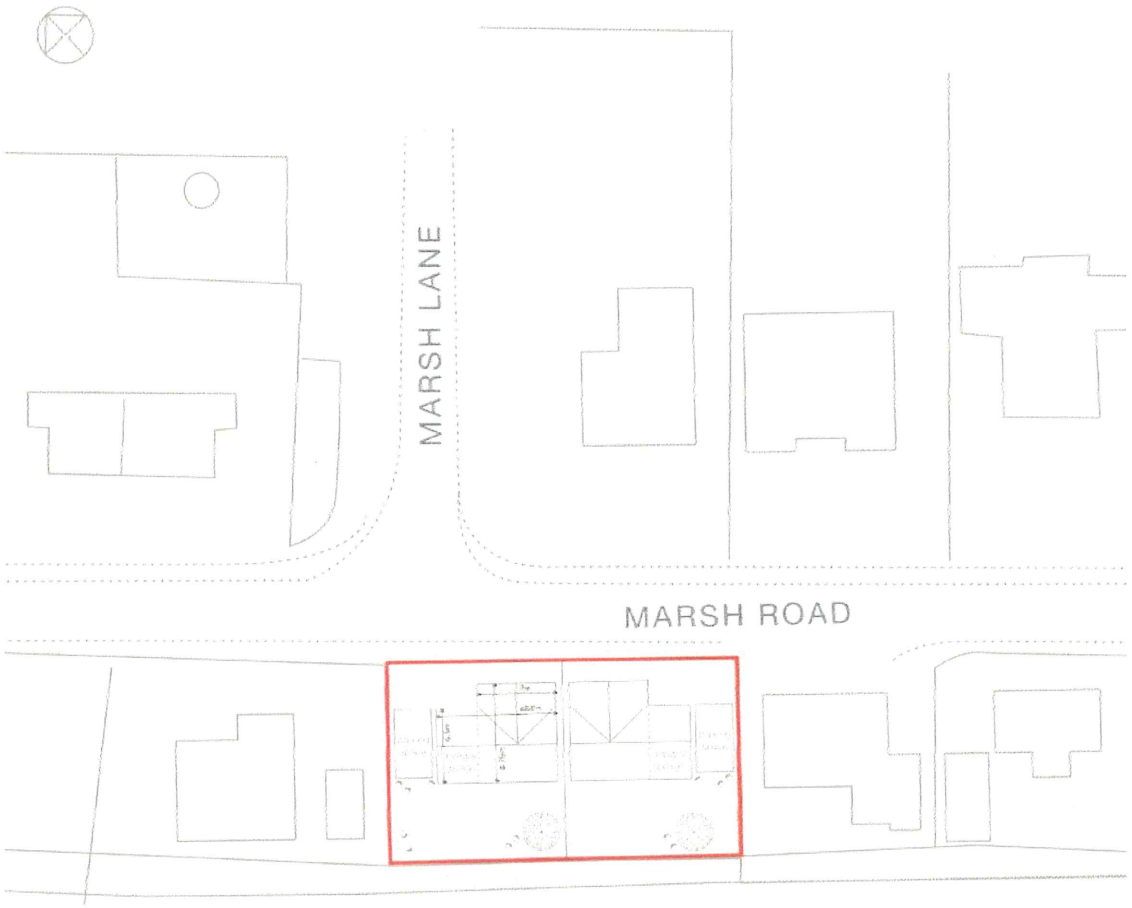
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LAND CONTAMINATION SURVEYS

Beam and Block over 150mm Void Space

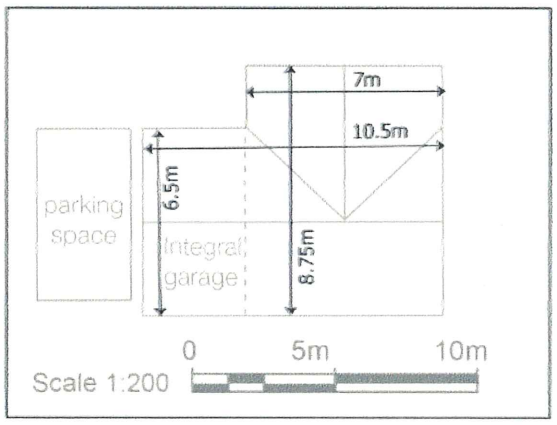
Drawing not to scale

APPENDIX B PROPOSED AND CURRENT SITE PLANS

Proposed site plan



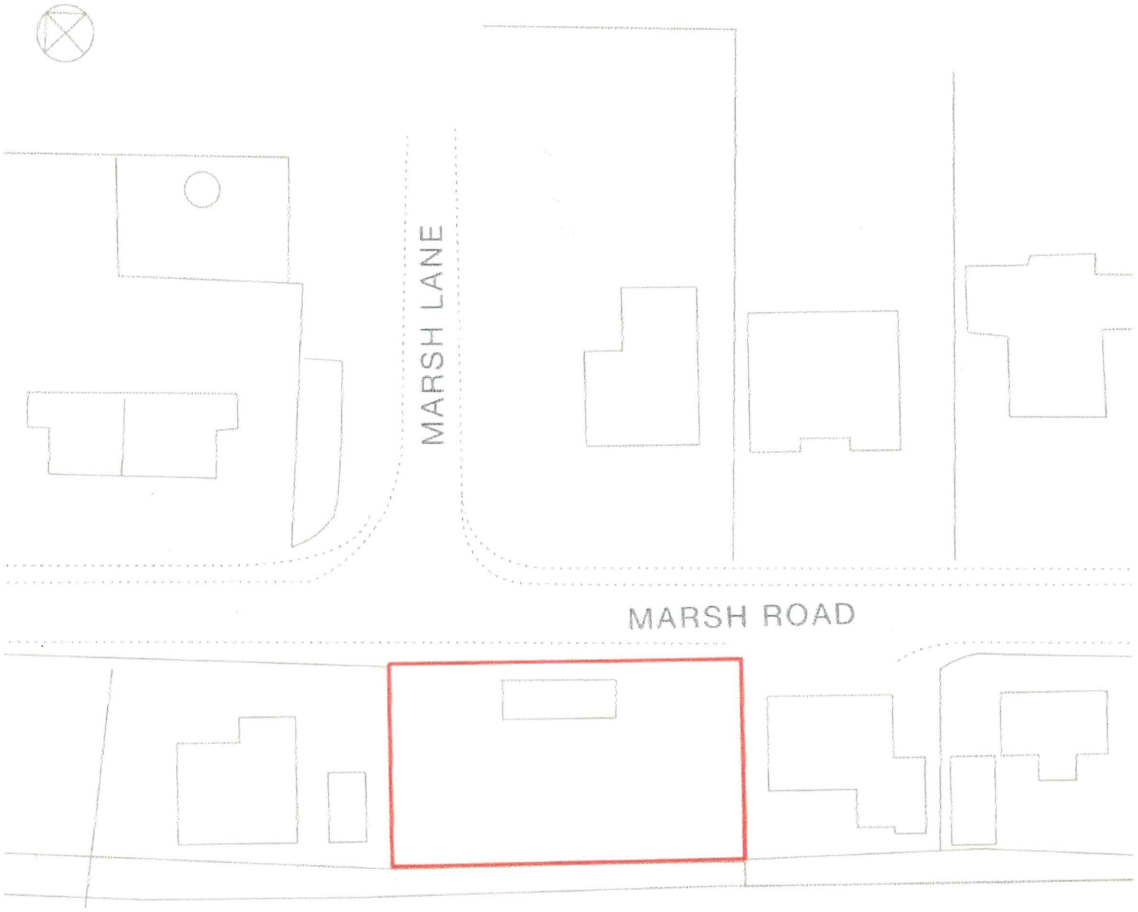
Scale 1:500 0 10m 20m



planning direct



Existing site block plan

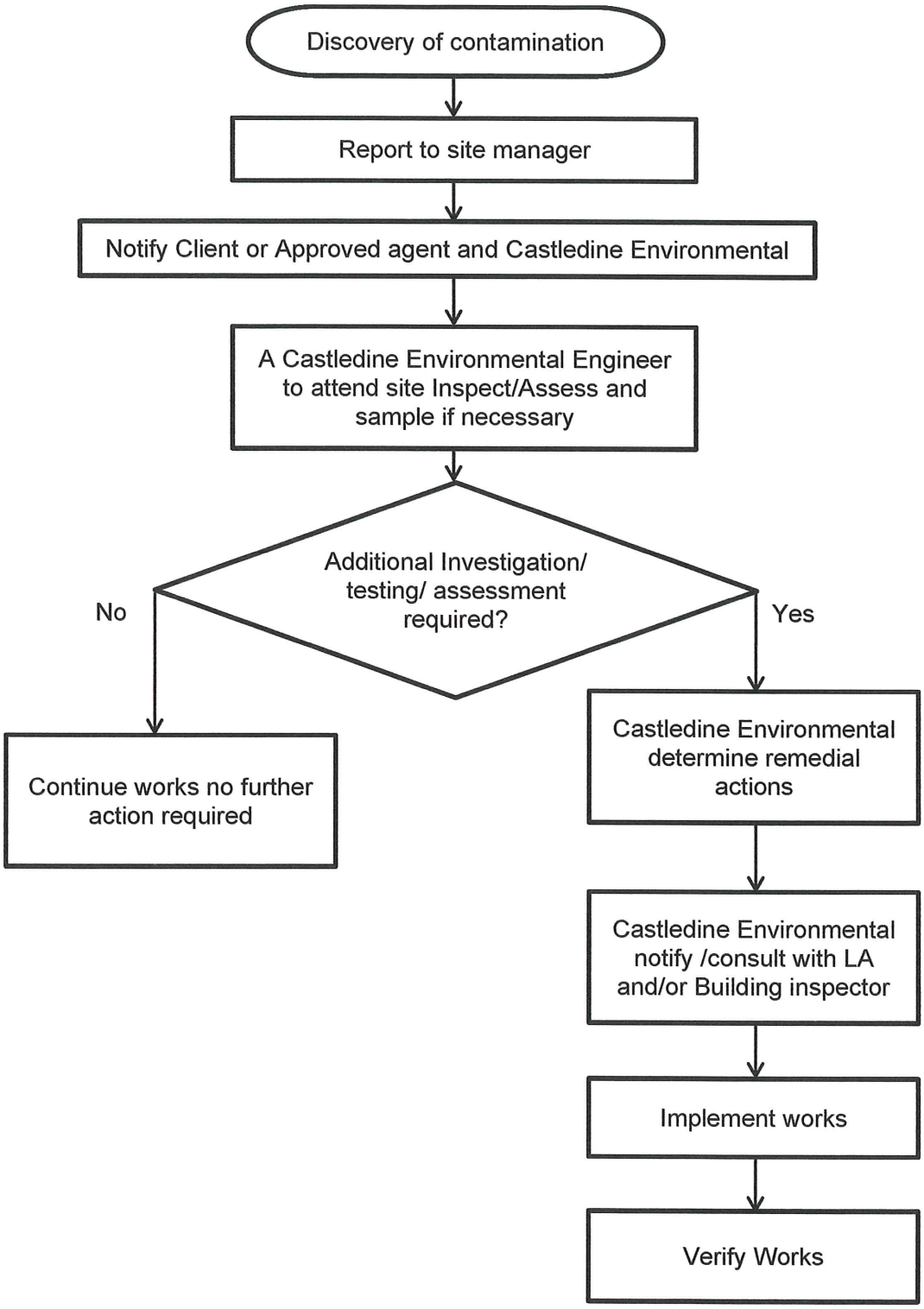


Scale 1:500



planning direct

APPENDIX C DISCOVERY STRATEGY



APPENDIX D VISQUEEN GAS BARRIER SPECIFICATIONS SHEET

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Technical Support: 0333 202 6800
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Page 1

VISQUEEN GAS BARRIER

Gas Barrier
CE Mark to EN 13967







- **BBA approved, fully complies with BS8485:2015**
- **Low permeability to methane, radon and carbon dioxide**
- **Approved for use in NHBC Amber 2 applications**
- **Multi-layer reinforced LDPE membrane with aluminium core**
- **High puncture and tear resistance**

Description
Visqueen Gas Barrier is a 400 gsm multi-layer reinforced polyethylene membrane with an integral 20 micron aluminium foil that is approved for use in BS8485:2015 and NHBC Amber 2 applications. For ease of identification on site Visqueen Gas Barrier is coloured blue on one side and silver on the reverse. The barrier combines strength and performance with flexibility and easy installation. Visqueen Gas Barrier also acts as a damp proof membrane.

BS8485:2015
When risk assessing under BS8485:2015 for sites which are effected by methane and carbon dioxide then the Visqueen Gas Barrier is an ideal solution.

The membrane has been modified to be 400 gsm with the multi layer structure greatly enhanced to improve its puncture and impact performance.

Visqueen utilise a 20 microns foil to avoid issues associated with thinner (12microns) foils.

Application
The Building Regulations require that proper precautions be taken to prevent danger to health and safety when building on contaminated land. Visqueen Gas Barrier offers a safe solution for the protection of buildings against methane, radon, stythe (a gas commonly found from disused mines, also known as blackdamp), and carbon dioxide, when installed in accordance with the relevant codes of practice such as BRE, CIRIA and the Chartered Institute of Environmental Health Ground Gas Handbook

Typically these are sites previously used as coalfields, landfill or are contaminated industrial sites.

The membrane should be installed blue side up

System components

- Visqueen Double Sided Jointing Tape
- Visqueen Gas Resistant (GR) Foil Tape
- Visqueen Top Hat Units
- Visqueen TreadGUARD1500
- Visqueen Detailing Strip

Installation Guidelines
Visqueen Gas Barrier and ancillary components must be installed in accordance with the recommendations of Building Research Establishment BRE 414 "Protective measures for housing on gas contaminated land" and CIRIA C665 "Assessing risks posed by hazardous ground gases to buildings", NHB C guidelines, and the Chartered Institute of Environmental Health Ground Gas Handbook. The product is not intended for use where there is a risk of hydrostatic pressure. **The membrane should be installed blue side up**

The membrane should be installed on a compacted sand blinding layer or smooth concrete float finish. In areas where high levels of unsupported membrane occur it is recommended that Visqueen Pre Applied Membrane is used. To avoid slip or shear planes and high compressive loadings it is not recommended

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VISQUEEN GAS BARRIER

Gas Barrier
CE Mark to EN 13967

to take the membrane through the wall. In order to provide a continuous barrier across the cavity Visqueen Gas Resistant DPC should be taken through the blockwork and incorporated below the damp proof course cavity tray in the outer leaf.

Laps can be joined together by either using the Visqueen Gas Barrier jointing system or welded by our specialist on-site contractors.

Jointing and Sealing
Visqueen Gas Barrier should be overlapped by at least 150mm (Welded membranes can be by less than 150mm as long as the joint integrity is not compromised) and bonded with Visqueen Double Sided Tape. The joint should be secured with Visqueen Foil Backed Girth Jointing Tape. Ensure that the membrane is clean and dry at the time of jointing

Airtight seals should be formed around all service entry points. Visqueen Pre-formed Top Hat Units must be used for sealing service entry pipes. The base of the top hat should be sealed using Visqueen Double Sided Tape and Visqueen Foil Backed Girth Jointing Tape is used to secured the joint

Punctures
If the membrane is punctured or perforated, then a patch of material with identical thickness should be lapped at least 150mm beyond the limits of the puncture and bonded with Visqueen Double Sided Jointing Tape and seal with Visqueen Foil Backed Jointing Tape. Alternatively a patch can be formed using Visqueen Detailing Strip and lapped at least 150mm beyond the limits of the puncture. External and Internal corners should be round and reinforced with Visqueen Detailing Strip. Where this is not possible and the 3 dimensional shapes are complex it is recommended a pre-formed unit is used.

NB. In demanding site conditions use Visqueen GR Lap Tape as a high performance alternative to Visqueen Foil Jointing Tape.

Ventilation
When medium to high levels of ground gases are present or when the generation of gases still occurs, then an open void beneath the ground floor should be constructed, as ventilation beneath the ground floor will dilute and disperse the gases to atmosphere. Open voids are normally restricted to beam and block floors or other precast concrete floor systems, an alternative for providing ventilation to in situ concrete floor slabs is to install a Visqueen Ventilation System.

Covering
Visqueen Gas Barrier should be covered by a protective layer as soon as possible after installation. Care should be taken to ensure that the membrane is not punctured, stretched or displaced when applying a screed or final floor covering. A minimum thickness of 50mm screed is recommended. When reinforced concrete is to be laid over the barrier the wire reinforcements and spacers must be prevented from contacting the barrier.

It is recommended that the barrier is covered with Visqueen Protection Boards or screed before positioning the reinforcement. When underfloor heating is being installed, it is recommended that the barrier is positioned between the blinded hardcore and insulation. This will protect the insulation from moisture and avoid any risk of overheating the membrane.

Storage and Handling
Visqueen Gas Barrier is classified as non-hazardous when used in accordance with the relevant Code of Practice (CP 1021973). The product is chemically inert and is not affected by acids and alkalis that may be present in the sub-soils. The material is not recommended for uses where it will be exposed to long periods of outdoor weathering as exposure to ultraviolet light will embrittle the product. Weathering will not occur when the membrane is installed in accordance with CP102 1973. Care should be taken to avoid accidental damage when handling the membrane on site. When the weather is cold, Visqueen Double Sided Jointing Tape and Visqueen Foil Backed Girth Jointing Tape should be kept in a warm, dry place until needed. Installation is not recommended below 5°C.



Technical Data and CE Mark

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VISQUEEN GAS BARRIER

Gas Barrier
CE Mark to EN 13967

Visqueen Gas Barrier complies with the requirements and clauses of EN 13967 - Flexible sheets for waterproofing - Plastic and rubber damp proof sheets including plastic rubber basement tanking sheet - Definitions and characteristics.

British Board of Agrement performed the initial inspection of the manufacturing plant and of factory production control and the continuous surveillance, assessment and evaluation of factory production control, and issued the certificate of constancy of conformity of the factory production control 0836–CPR–13/F060 applies.

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VISQUEEN GAS BARRIER

Gas Barrier
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Product Data

Product Data

heading	Characteristic	Test method	Units	Compliance criteria	Value or Statement
	Visible defects	EN 1850 -2	-	Pass/Fail	Pass
	Length	EN 1848-2	m	-0%/+10%	25 or 50
	Width	EN 1848-2	m	-0%/+10%	2
	Overall thickness including grid	EN 1849-2	mm		0.66
	Effective thickness in between scrim	EN 9863-1	mm		0.4
	Mass	EN 1849-2	g/m2	-0%/+5%	400
	Tensile Strength - MD	EN EN12311	N	MDV	391
	Tensile Strength - CD	EN EN12311	N/mm2	MDV	588
	Tensile Elongation - MD	EN EN12311	%	MDV	20
	Tensile Elongation - CD	EN EN12311	%	MDV	21
	Joint Strength	EN12317-2	N	>MLV	332
	Watertightness 2kPa	EN 1928	-	Pass/Fail	Pass
	Resistance to impact	EN 12691	mm	>MLV	200
	Dart Impact	BS 2782	g	MDV	731
	Low temperature flexibility	EN 495-5	oC	-40	Pass
	Durability against ageing	EN 1296 and EN 1928	-	Pass/Fail	Pass
	Durability Chemical Resistance	EN 1847	-	Pass/Fail	Pass
	Resistance to tearing (nail shank) CD	EN 12310-1	N	MDV	358
	Resistance to tearing (nail shank) MD	EN 12310-1	N	MDV	368
	Resistance to static loading	EN 12730	Kg	>MLV	Pass 20
	Water vapour transmission - resistance	EN 1931	MNs/g	MDV	7000
	Water vapour transmission - permeability	EN 1931	g/m2/d	MDV	0.03
	Reaction to Fire	EN 13501-1	Class	MDV	F
	BS8485:2015 testing requirements				
	Mass	EN 1849-2	g/m2	Average >370	400
	Methane Permeability	ISO15105-1	mls/m2/d/atm	Pass/Fail	<40 Pass
	Puncture CBR	BS EN ISO 12236	N	MDV	1114
	Impact resistance	EN12691	mm	MDV	1000
	Tensiles Yield strength MD	ASTM D4885-01	kN/m	MDV	12.5
	Tensiles Yield strength CD	ASTM D4885-02	kN/m	MDV	7.3
	Yield elongation MD	ASTM D4885-03	%	MDV	18
	Yield elongation CD	ASTM D4885-04	%	MDV	19
	Tear resistance - trouser method A - MD	BS ISO 34-1	kN/m	MDV	48.2
	Tear resistance - trouser method A - CD	BS ISO 34-1	kN/m	MDV	44.8
	Tear resistance - angle method B - MD	BS ISO 34-1	N	MDV	53.5
	Tear resistance - angle method B - CD	BS ISO 34-1	N	MDV	60.6

DATASHEET

Technical Support: 0333 202 6800
LAST UPDATED: 06.11.2019

Appendix A

VISQUEEN GAS BARRIER

Gas Barrier
CE Mark to EN 13967

About Visqueen

Visqueen is the market leader in the manufacture and supply of structural waterproofing and gas protection systems. Visqueen offers the complete package – a proven, reliable range backed by a technical support service that goes unmatched in the market - everything you would expect from a reputable and ethical company.

Complete Range, Complete Solution

- Structural Waterproofing
- Damp Proof Course
- Damp Proof Membranes
- Gas Protection and Gas Venting
- Vapour Control Layers
- Stormwater Protection

Download Library

- Technical Datasheet
- Standard Details
- Technical Service
- Visqueen Gas Protection Brochure
- NBS Clauses
- BBA Certificates
- Material Safety Datasheets
- Specification Guide

Find your local stockist

Search our directory of Visqueen specification Specialist Centres to locate your nearest Visqueen Partner.

Technical support throughout your project

We are specialists in our field and can help you specify the correct solutions with the necessary performance levels, in accordance with building regulations.

- Nationwide site support team
- Specification advice
- Installation guidance & project sign off
- System design including CAD details

CPD Seminars and Training Academy

Gas Protection CPD
The specification, technical design, and installation of gas protection systems, enabling the sustainable regeneration of brownfield sites.

Structural Waterproofing CPD
The specification, technical design, and installation of structural waterproofing systems for protection against water and damp ingress in both above and below ground projects.

Visqueen Training Academy
We are now able to offer exclusive in depth training opportunities on a wide variety of Visqueen products at our Training Academy.

Visqueen Special Projects
We provide high-level expertise, comprehensive support and experience in all types of waterproofing and gas protection.

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