ID	Location	Land use	Dates present	Group ID
B	61m SE	Disused Colliery	1902 - 1905	1267260
B	63m SE	Brick and Tile Works	1913 - 1930	1233723
B	63m SE	Iron Works	1938	1271277
B	73m SE	Unspecified Ground Workings	1938	1227583
B	74m SE	Unspecified Ground Workings	1938	1198615
B	74m SE	Unspecified Ground Workings	1913 - 1930	1231030
B	81m SE	Unspecified Ground Workings	1938	1244854
B	91m S	Unspecified Works	1955 - 1963	1265996
B	97m S	Unspecified Ground Workings	1902	1223977
B	98m S	Unspecified Works	1967	1267904
C	108m E	Iron Works	1913	1217413
B	109m S	Unspecified Ground Workings	1905	1201625
C	123m SE	Brick and Tile Works	1883 - 1887	1197696
1	141m E	Engine Works	1887	1166185
B	154m S	Brick Works	1883 - 1887	1246361
B	159m S	Unspecified Pit	1883	1186419
B	162m S	Unspecified Ground Workings	1938	1255302
B	162m SW	Brick and Tile Works	1905	1203887
B	173m SE	Railway Sidings	1902 - 1905	1246509
B	177m SE	Brick and Tile Works	1902	1252543
B	178m S	Refuse Heap	1902 - 1905	1236711
B	182m S	Unspecified Ground Workings	1887	1209305
3	185m SE	Brick Kiln	1883 - 1887	1212081
C	207m SE	Unspecified Kiln	1883 - 1887	1219499
E	212m NE	Grave Yard	1973	1170771
B	214m SE	Railway Sidings	1913 - 1930	1232947
B	216m SE	Railway Sidings	1938	1210216
B	216m SE	Railway Sidings	1938	1255138

ID	Location	Land use	Dates present	Group ID
B	219m SE	Railway Sidings	1883	1242151
B	222m SE	Railway Sidings	1938	1226632
B	222m SE	Railway Sidings	1913	1267942
B	230m SW	Colliery	1883 - 1887	1266643
F	233m SE	Railway Sidings	1990	1257110
F	233m SE	Railway Sidings	1973	1259199
G	250m SE	Unspecified Works	1902 - 1905	1203791
G	250m SE	Unspecified Works	1938	1253561
H	254m E	Iron Works	1913 - 1930	1247682
G	256m SE	Unspecified Works	1913 - 1930	1190897
G	256m SE	Unspecified Heap	1913 - 1938	1194396
H	258m E	Iron Works	1902	1208914
G	260m SE	Umber, Barytes, Ochre and Oxides Works	1883 - 1887	1258659
H	261m E	Iron Works	1905	1243479
H	261m E	Engine Works	1883	1166186
G	262m SE	Unspecified Heap	1938	1268059
I	262m N	Colliery	1902	1253875
I	262m N	Colliery	1905	1221039
G	263m SE	Unspecified Heap	1905	1246313
G	263m SE	Unspecified Works	1913	1207730
G	263m SE	Unspecified Works	1938	1271976
I	266m N	Colliery	1887	1198517
F	272m S	Railway Sidings	1955 - 1963	1230081
I	281m N	Refuse Heap	1905	1225157
F	281m S	Railway Sidings	1967	1213355
I	290m N	Refuse Heap	1902	1238751
J	291m SE	Volunteer Rifle Range	1883	1241149
I	292m N	Unspecified Heap	1883 - 1887	1198324

ID	Location	Land use	Dates present	Group ID
I	292m N	Colliery	1883	1210180
F	293m S	Brick Works	1883 - 1887	1253827
G	304m SE	Refuse Heap	1905	1178451
J	307m S	Rifle Range	1887	1248684
I	317m N	Refuse Heap	1902	1249449
M	325m SE	Cemetery	1913 - 1930	1260006
M	325m SE	Cemetery	1887 - 1905	1250837
M	327m SE	Cemetery	1973 - 1990	1213680
M	327m SE	Cemetery	1938 - 1963	1264146
M	327m SE	Cemetery	1883	1222659
M	327m SE	Cemetery	1938	1245889
M	330m SE	Cemetery	1913	1232412
M	331m SE	Cemetery	1967	1246878
B	336m S	Magazine	1887	1177457
F	338m S	Unspecified Pit	1883	1246358
F	341m S	Unspecified Ground Workings	1887	1239907
8	347m NW	Unspecified Works	1883 - 1887	1271679
J	351m S	Rifle Range	1913 - 1930	1217702
I	354m N	Unspecified Tank	1955 - 1963	1232538
I	355m N	Unspecified Shafts	1887	1165430
I	361m N	Unspecified Ground Workings	1887	1160966
F	365m S	Cuttings	1902 - 1913	1228407
F	370m S	Cuttings	1913 - 1930	1242555
F	373m S	Cuttings	1938	1201610
F	375m S	Cuttings	1883	1233721
I	376m N	Unspecified Shafts	1883	1165432
F	378m S	Unspecified Pit	1905 - 1913	1202043
I	378m N	Unspecified Shafts	1887	1165431

ID	Location	Land use	Dates present	Group ID
N	386m SW	Sawmill	1883 - 1887	1193566
I	387m N	Lime Kilns	1887	1164039
F	391m S	Unspecified Pit	1938	1194436
F	394m S	Cuttings	1887	1271658
F	397m S	Unspecified Ground Workings	1930	1223041
I	405m N	Lime Kilns	1883 - 1887	1242919
S	419m SE	Unspecified Heap	1883 - 1887	1233829
S	432m SE	Unspecified Heap	1883	1219454
F	456m S	Cuttings	1913 - 1930	1258832
J	464m SE	Rifle Range	1902	1199267
11	465m SE	Unspecified Heap	1883	1163038
J	467m SE	Rifle Range	1905	1226969
12	471m S	Unspecified Works	1973 - 1990	1259739
13	471m N	Unspecified Ground Workings	1913	1160965
J	471m SE	Rifle Range	1883	1246727
J	495m SE	Unspecified Ground Workings	1938	1232777
15	496m SE	Unspecified Works	1990	1178994

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	**27**

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	77m W	Tanks	1966 - 1983	191226

ID	Location	Land use	Dates present	Group ID
B	193m S	Unspecified Tank	1952	173743
4	225m NE	Unspecified Tank	1964	173740
B	234m S	Unspecified Tank	1885	188132
B	235m S	Unspecified Tank	1885	180057
B	235m S	Unspecified Tank	1885	181966
B	236m S	Unspecified Tank	1952	173739
B	236m S	Tanks	1948	185065
B	241m S	Tanks	1948	185681
B	242m S	Unspecified Tank	1948 - 1952	189643
B	247m S	Unspecified Tank	1952	173738
G	286m SE	Tanks	1952	182694
G	286m SE	Tanks	1948	190865
G	286m SE	Tanks	1948	186995
G	288m SE	Unspecified Tank	1948	192629
B	322m S	Unspecified Tank	1989	183459
B	322m S	Unspecified Tank	1983	192850
B	323m S	Unspecified Tank	1947	182696
B	323m S	Unspecified Tank	1963	186984
I	368m N	Unspecified Tank	1885	173742
F	379m S	Unspecified Tank	1885	173720
F	381m S	Unspecified Tank	1885	191667
F	403m S	Unspecified Tank	1947 - 1963	182347
F	409m S	Unspecified Tank	1983 - 1993	184630
O	430m NE	Unspecified Tank	1990	173737
O	455m NE	Unspecified Tank	1948 - 1969	189342
T	490m NE	Unspecified Tank	1948	186190

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	25

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
D	130m W	Electricity Substation	1966 - 1989	103483
D	130m W	Electricity Substation	1996	108570
2	154m NE	Electricity Substation	1996	97815
L	301m SW	Electricity Substation	1996	112239
L	304m SW	Electricity Substation	1948 - 1989	112704
E	310m E	Electricity Substation	1996	97816
L	310m SW	Electricity Substation	1948	97822
6	310m W	Electricity Substation	1975	97809
7	346m S	Electricity Substation	1993	97821
P	372m NE	Electricity Substation	1992	97814
P	387m NE	Electricity Substation	1964 - 1989	112116
M	388m SE	Electricity Substation	1989	100245
M	388m SE	Electricity Substation	1989	101115
M	389m SE	Electricity Substation	1996	100537
P	389m NE	Electricity Substation	1973	103536
P	389m NE	Electricity Substation	1982 - 1994	105446
9	403m N	Electricity Works	1948	109860
Q	412m NE	Electricity Substation	1983 - 1992	109759
10	413m N	Electricity Substation	1983 - 1992	107126
Q	418m NE	Electricity Substation	1964	97813
T	448m NE	Electricity Substation	1973 - 1989	109562

ID	Location	Land use	Dates present	Group ID
T	449m NE	Electricity Substation	1990	105901
T	461m NE	Electricity Substation	1994	101118
U	494m W	Electricity Substation	1992	97808
U	495m W	Electricity Transformer	1975 - 1989	104346

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	**1**

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
K	297m NW	Filling Station	1989	1999

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	**25**

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 14**

ID	Location	Land use	Dates present	Group ID
A	23m W	Garage	1996	34230
A	23m W	Garage	1983 - 1989	36284
A	46m W	Garage	1966	35915

ID	Location	Land use	Dates present	Group ID
A	95m SW	Garage	1983 - 1996	35339
A	99m SW	Garage	1983 - 1996	36878
A	101m SW	Garage	1948 - 1966	36659
A	102m SW	Garage	1966	35074
K	293m NW	Garage	1964 - 1968	34882
5	299m NE	Garage	1983 - 1992	35981
K	325m NW	Garage	1948	34731
N	361m SW	Garage	1964 - 1975	36767
N	362m SW	Garage	1968	34412
O	364m NE	Garage	1982 - 1989	36319
O	370m NE	Garage	1964 - 1973	35561
O	381m NE	Garage	1982 - 1989	35929
O	381m NE	Garage	1969	34671
R	414m W	Garage	1975 - 1992	35496
R	416m W	Garage	1989	33718
R	417m W	Garage	1968	33668
O	419m NE	Garage	1982 - 1989	35711
O	420m NE	Garage	1973	33589
O	420m NE	Garage	1990	33785
O	420m NE	Garage	1994	32751
R	421m W	Garage	1964	34267
14	480m NE	Garage	1948 - 1952	36151

This data is sourced from Ordnance Survey / Groundsure.

1.6 Historical military land

Records within 500m	**0**

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

This data is sourced from Ordnance Survey / Groundsure / other sources.

Intégrale
Understanding Ground Conditions

Suite 7, Westway Farm Business Park
Wick Road, Bishop Sutton,
Somerset BS39 5XP United Kingdom

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Proposed Development
27 & 29 West Street
Bedminster
Bristol
BS3 3NS

PHASE 1 CONTAMINATED LAND DESK STUDY REPORT

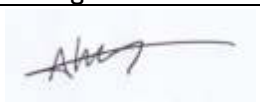
REPORT NO. 8916, March 2021

GEOLOGICAL • GEOTECHNICAL • ENVIRONMENTAL • ENGINEERING

Intégrale is a trading name of Integrale Limited
Registered Office: The Granary, Chewton Fields, Ston Easton,
Somerset, BA3 4BX, United Kingdom
Company Registration No. 2855366 England VAT Reg. No. 609 7402 37

Phase I Contaminated Land Desk Study Report
Proposed Development
27 & 29 West Street
Bedminster
Bristol
BS3 3NS
Client: Mase Construction Limited

Intégrale Report No. 8916, March 2021

		Signature/Date
Project Co-ordinator & Report Preparation:	Flinn Knowles	
Mentor Consultant & Advice:	Tom Foll & Andrew Harris	
Technical Director & Report Approved:	Dr. Kay Boreland	31.03.21
Final Check:	Flinn Knowles	

CONFIDENTIALITY STATEMENT

This report is addressed to and may be relied upon by the following:

Mase Construction Limited
38 Gores Park
High Littleton
Bristol
BS39 6YG

Integrale Limited has prepared this report solely for the use of the client named above. Should any other parties wish to use or rely upon the contents of this report, written approval must be sought from Integrale Limited. An assignment fee may then be charged.

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Intégrale
Understanding Ground Conditions

Suite 7, Westway Farm Business Park
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EXECUTIVE SUMMARY
Phase 1 Contaminated Land Desk Study Report
8915 – 27 & 29 West Street, Bedminster, Bristol BS3 3NS

Mase Construction Limited are proposing to redevelop this vacant site with 2 No. 2-storey terraced housing with associated limited areas of soft landscaping/planters. Bristol City Council have granted planning permission (Ref. 20/04263/F) and advised that a minimum of a Phase 1 Contamination Desk Study should be submitted with any future planning application.

The geology map reports the site is underlain by the Redcliffe Sandstone Member of Triassic age, comprising silty sands and weakly cemented sandstone. Typically, at shallow to moderate depth, the Redcliffe Sandstone Member is likely to have weathered to a medium dense and dense uncemented silty sand.

Historical maps show the site originally occupied by two terraced buildings located in the northern half of the site until 1953. After this time, the site became vacant. A 'ruin' was recorded c.10m east immediately following WWII, suggesting local bombing. The latest historical maps show a small building developed on the western boundary; however, this building has since been demolished.

No radon protective measures are required. A widespread abnormal ground gas regime is not anticipated, but localised anomalous conditions could be present due to former site usage.

The probability of a significant or widespread contamination risk occurring, which could affect the proposed residential usage, is considered Low. The consequence to human health can generally be classified as being Low. The combination of a Low probability and a Low consequence gives a Low Risk overall**.**

In terms of ground gas and vapours, although the ground gas regime is likely to be 'normal', hydrocarbon vapours may be present associated with former usage and therefore it is considered there is a Low to Moderate Risk.

It seems likely possible (and proportionate) to mitigate the need for intrusive contamination investigation and provide adequate protection for future site users, by adopting adequately conservative protective design measures within the proposed redevelopment. Such remedial design measures would include a combination of gas protection within the concrete floor slab to protect future site users from potential ground gases, and adequate thickness of capping externally in soft landscaped areas.

Alternatively, if a lesser degree of protection measures were preferred, intrusive contamination investigation will be required to demonstrate adequacy. Such investigation should include gas monitoring, contamination analyses and reporting to broadly confirm the Conceptual Exposure Model and range of remedial measures required.

A copy of this report should be provided by the client to the Local Authority to confirm their agreement with the findings and recommendations included in this report.

1.0 INTRODUCTION

Mase Construction Limited are proposing to develop this vacant site with 2 No. 2-storey terraced residential properties with associated limited areas of soft landscaping. The project architects are 105 West Architects.

Bristol City Council have granted planning permission, with conditions (*Ref. 20/04263/F*). Condition No. 4 states:

"No development shall take place until an investigation and risk assessment, in addition to any assessment provided with the planning application, and has been completed in accordance with a scheme to assess the nature and extent of any contamination on the site, whether or not it originates on the site. The contents of the scheme should be submitted to and be approved in writing by the Local Planning Authority. The investigation and risk assessment must be undertaken by competent persons and a written report of the findings must be produced. The written report is subject to the approval in writing of the Local Planning Authority. The report of the findings must include:

(i) a survey of the extent, scale and nature of contamination;
(ii) an assessment of the potential risks to: human health, property (existing or proposed) including buildings, crops, livestock, pets, woodland and service lines and pipes, adjoining land, groundwaters and surface waters, ecological systems, archaeological sites and ancient monuments;
(iii) an appraisal of remedial options, and proposal of the preferred option(s)."

Integrale Limited (*Intégrale*) are commissioned to undertake a Phase I Contaminated Land Desk Study report.

This report summarises findings of desk study information and develops a conceptual model. It suggests likely ground conditions, outlines potential sources of contamination and risks to human health, controlled waters, and other receptors, and concludes on appropriate remedial measures which are considered sufficient to mitigate the need for further intrusive assessment.

2.0 THE SITE

2.1 Location and Description

As shown in Appendix A, the site is located at 27 & 29 West Street in Bedminster, approximately 2km southwest of Bristol City Centre. It has an approximate central Ordnance Survey Grid Reference of E358254, N171303 and postcode BS3 3NS.

Notes describing the site were prepared during the site visit and are included as Appendix B, together with typical photographs. The main features and pertinent aspects on the site and immediately adjacent land are summarised below:

Current Use	2 No. Advertisement hoardings.
Site Area & Plan Shape	<0.01 Hectares.
Maximum Dimensions	c.15m N-S x 8m E-W.
Ground Slopes & Topography	Level – N half of site is raised c.0.2m from S half - c.22mAOD.
Buildings & Condition	None present on site. Adjacent terraced housing on the W boundary has minor cracking within rendering on its E gable walls.
Surfacings & Condition	Concrete and concrete brick from previous buildings. No evidence of basement being present.
Vegetation & Trees	Overgrown brambles and plants in N half of site.
Water Courses	None within or adjacent to site.
Site Boundary Features	N – West Street. E - Kent Street. S - Car Park. W – 2 No. terraced housing.
Potential Contamination Issues	None anticipated.

2.2 Published Geology

2.2.1 British Geological Survey (BGS) Mapping

BGS geological maps indicate the following strata beneath and adjacent to the site:

Map / Scale	Sheet 264 (Bristol) at 1:50,000. ST57SE at 1:10,560 scale.
BGS On-Line Viewer	Accessed 01/03/2021.
Artificial Ground	None Mapped.
Superficial Deposits and Landslips	None Mapped.
Solid Geology	Redcliffe Sandstone Member of the Triassic Period. The Mercia Mudstone Group of the Triassic Period outcrops c.80m S.
Geological Features	Mineral vein located c.20m E (ST57SE). Shaft of Malago Pit c. 300m S reported Made Ground to 6m over Triassic strata to 40m, below which coal measures strata and seams are noted. Highest seam (2ft seam' reported at 155m depth.

The BGS type description for the above are as follows:

Redcliffe Sandstone Member – "Sandstone, distinctive fine to medium-grained, deep red, calcareous and ferruginous. Commonly decalcified at shallow depths below the surface, giving rise to an uncemented sand."

Mercia Mudstone Group (Previous name: Keuper Marl) – "Dominantly red, less commonly green-grey, mudstones and subordinate siltstones with thick halite-bearing units in some basinal areas. Thin beds of gypsum/anhydrite widespread; sandstones are also present."

2.2.2 BGS Previous Investigation Records

There are relevant previous investigation records available on the BGS website under the Open Government License within 300m. The top 35m of a shaft record of the Malago Pit, located c.300m south, is summarised below:

GL to 4.0m	Masonry.
4.0-6.0m	'Mould' and Sand. (WEATHERED MERCIA MUDSTONE GROUP).
6.0-35m	Red Marl and Clay. (MERCIA MUDSTONE GROUP).

2.2.3 Previous Investigations

Intégrale have previously completed an investigation at 64-70 West Street (*Ref. 3802, dated February 2009*). Investigation records are included in Appendix D and the pertinent findings of the investigation are summarised below:

GL to 0.4/0.15	Asphalt/Concrete
0.4/0.15 to 0.25/0.5	MADE GROUND (comprising loosely to densely compact roadstone gravel in a coarse sandy matrix (sub-base) and locally gravelly Sand with concrete, flint, clinker, black staining, and slight hydrocarbon odour.
0.25/0.5 to 0.5/1.3	Loose rapidly becoming medium dense or dense reddish orange-brown clayey SAND. WEATHERED REDCLIFFE SANDSTONE MEMBER)
0.5/1.3 proven to 0.5/1.5	Weak to moderately strong orangish brown SANDSTONE. (REDCLIFFE SANDSTONE MEMBER)

2.2.4 Past Coal Mining

The site is within a coal mining referral area but beyond any Development High Risk Areas. The risk from coal mining is not considered further in this report.

2.3 Outline History

Historical maps obtained from a Groundsure report are included in Appendix C. These indicate the following pertinent information:

Map Date	Site Features/Land Use	Adjacent Features (distance from site)
1885	2 No. terraced buildings located in the northern half. 1 No. building intersects the S boundary in the SE corner of the site.	Residential & Industrial area, with Albert Works (Chemical) located c.50m SW, Candle Factory c.60m SE and Tarpaulin Factory c.80m E. Well located c.60m W.
1886	No significant changes.	Malago Vale Brick & Tile Works and associated open clay pits located c.120-200m SE. Malago Vale Brick Works and associated old clay pit c.200m S. Railway developed c.240m SE running NE-SW.
1904	No significant changes.	Tramway depot developed c. 110m NE. Printing & Stationary Works developed c.130m NE. Malago Vale Brick & Tile Works open clay pit extended to c.90m S.
1918	No significant changes.	Existing Malago Brick & Tile Works open clay pit backfilled. New pit c.130m S.

Map Date	Site Features/Land Use	Adjacent Features (distance from site)
1948	No significant changes.	'Ruin' c.10m E. Warehouse developed c.70m E. Malago Brick & Tile Works demolished and replaced by Smelting Works c. 140m S.
1952	No significant changes.	1 No. Warehouse of unknown use developed c.60m S. 2 No. Warehouses of unknown use developed c. 80m NW. Printing Works developed c.200m S.
1953	Buildings no longer mapped (post WWII). Ruin mapped 10m E (see 1948, above). It is inferred the buildings may have been damaged during bombing, or subject to slum clearance	Garage developed c.70m W. Unknown warehouses from 1952 map labelled as Electronic Equipment Works and Motor Body Works.
1969	No significant changes.	Warehouses and Candle Factory demolished c.70m E.
1983	No significant changes.	Building developed along S boundary.
1989	Small development located on W boundary in NW corner.	No significant changes.
2003	No significant changes.	Property along S boundary demolished.

2.4 Geological Information

The following pertinent information on activities within 250m of the site has been extracted from the Groundsure report.

2.4.1 Ground Working and Mining

	Details	Distance
Historical Surface and Underground Working Features	2 No. Disused Colliery (1902 & 1905).	61m SE, 64m SE.
	4 No. Brick & Tile Works (1913-1930).	63m SE, 123m SE, 162m SW, 177m SE.
	6 No. Unspecified Ground Workings (1887-1938).	73m SE, 81m SE, 97m S, 109m S, 162m S, 182m S.
	6 No. Ponds (1883-1905).	81m SE, 127m S, 135m S, 158m S, 161m S, 171m E.
	2 No. Brick Works (1883-1887).	154m S, 159m S.
	1 No. Refuse Heap (1905).	179m S.
	2. No. Brick Kiln (1883-1887).	185m SE, 186m SE.
	1 No. Graveyard (1973).	212m NE.
Current Ground Workings	--	--
Mining, Extraction and Natural Cavities	--	--

2.4.2 Natural Ground Subsidence

Ground Stability Hazard Potential	Hazard Rating
Ground Dissolution	Negligible.
Landslides	Very low.
Shrink Swell Clays	Negligible.
Compressible Deposits	Negligible.
Collapsible Deposits	Very low.
Running Sands	Low.

2.5 Background Soils Chemistry

The Groundsure report includes BGS estimated background soil chemistry for 5 metals within shallow soils. This indicates that naturally occurring arsenic / cadmium / chromium / nickel / lead are slightly raised in this area. However, interpretation suggests that at these levels, such metals would be unlikely to exceed generic assessment criteria for residential use.

2.6 Environmental Information

The following pertinent information on activities within 250m of the site has been extracted from the Groundsure report.

2.6.1 Historical Industrial Sites

	Details	Distance
Potentially Contaminative Past Land Use	3 No. Iron Works (1913 & 1938).	38m SE, 63m SE, 108m E.
	Disused Colliery (1902-1905).	61m SE.
	2 No. Brick & Tile Works (1905-1930).	63m SE, 162m SW.
	6 No. Unspecified Ground Workings (1887-1938).	73m SE, 74m SE, 81m SE, 97m S, 182m S.
	3 No. Unspecified Works (1902-1967).	91m S, 98m S, 250m SE.
	Engine Works (1887).	141m SE.
	Brick Works & Brick Kiln (1883-1887).	154m S, 185m SE.
	Railway Sidings (1883-1990).	173m SE, 214m SE-233m SE.
Tanks	3 No. Tanks (1948-1983).	77m W, 236m S, 241m S.
	4 No. Unspecified Tanks (1885-1964).	193m S, 225m NE, 234m S.
Energy Features	2 No. Electricity Substations (1966-1996).	130m W, 154m NE.
Historical Petrol Stations	--	--
Historical Garages	4 No. Garages (1948-1996).	23m W, 46m W, 95m SW, 101m SW.
Potentially Infilled Land	--	--

2.6.2 Environmental Permits, Incidents and Registers

	Details	Distance
Historic IPC Authorised sites	--	--
Part A(1) and IPPC Authorised Activities	--	--
Red List Discharge Consents	--	--
List 1 Dangerous Substances	--	--
List 2 Dangerous Substances	--	--
Part A(2) B Activities and Enforcements	--	--
Radioactive Substances Authorisations	--	--
Records of Licenced Discharge Consents	3 No. Licensed Discharge Consents.	159m NE, 166m NE, 238m N.
Discharges to public sewer	--	--
Planning Hazardous Substance Consents	--	--
COMAH & NIHHS Sites	--	--
Pollution Incidents	2 No. Pollution Incidents; 09/05/2003-Minor Land Impact (Pollutant not identified) & 20/11/2002-Minor Land Impact (Inert Construction and Demolition Materials and Wastes).	172m S, 204m SE.
Contaminated Sites - Part 2A EPA 1990	--	--

2.6.3 Landfill and Other Waste Sites

	Details	Distance
Historic and Current Landfill Sites	--	--
Waste Treatment/Transfer/Disposal Sites	3 No. Treatment sites related to 'Sorting and de-naturing of controlled drugs for disposal'.	99m E, 219m NE, 22m NE.

2.6.4 Current Land Uses

	Details	Distance
Current Industrial Sites	5 No. Vehicle Repair and Servicing.	30m SW, 70m SE, 83m SE, 184m E, 218m E.
	4 No. Industrial Products.	83m SE, 162m S, 169m S, 237m N.
	5 No. Electricity Substations.	106m SW, 125m E, 133m W, 157m NE, 225m NE.
Petrol and Fuel Sites	--	--
NG High Voltage Underground Electricity Transmission cables and High-Pressure Gas Transmission Pipelines	--	--

2.6.5 Railways & Tunnels

	Details
Tunnels	--
Historical Railway & Tunnel Features	2 No. Tramway Sidings (1903) 84m NE & (1904) 95m NE. 16 No. Railway sidings (1883-1990) 173m SE - 246m SE.
Historical Railways	--

	Details
Active Railways	10. No active rails 234m SE – 244m SE.
Railway Projects	--

2.7 Hydrogeology & Hydrology

2.7.1 Aquifers

	Details
Aquifer within Superficial Deposits	--
Aquifer within Bedrock Deposits	Secondary A Aquifer.

Aquifer Definitions	Details
Secondary A Aquifers	Permeable layers capable of supporting water supplies at a local rather than strategic scale and in some cases forming important source of base flow to rivers.

2.7.2 Surface and Groundwater Abstraction Licences

	Number	Distance
Surface Water Abstraction licences	--	--
Groundwater Abstraction licences	--	--
Potable Water Abstraction Licences	--	--

2.7.3 Source Protection Zones

	Number	Distance
Source Protection Zones	--	--
Source Protection Zones within Confined Aquifer	--	--

2.7.4 Groundwater Vulnerability and Soil Leaching Potential

	Details
Soils Permeability	Flow Type: Fracture – Low to High Permeability. Intermediate Leaching Potential.
Anticipated Groundwater Table Depth	>3-5m depth.
Anticipated Groundwater Flow Direction	E-W.
Environment Agency Soils Classification	Secondary Bedrock Aquifer – High Vulnerability.
Hydraulic Continuity	Unlikely.
Soluble Rock Risk	Locally (4% of grid square), significant soluble rocks are likely to be present. Problems unlikely except with considerable surface or subsurface water flow.

2.7.5 Detailed River Network and River Quality

	Details
Surface Water Course & Flow Direction	1 No. inland river (non-tidal) located 83m E.
Ecological River Quality	--
Chemical River Quality	--
Overall Rating	--
Surface Water Features	--

2.7.6 Flood Risk

	Details
River & Coastal Flooding – Zones 2 & 3	--
Risk of Flooding from Rivers and Sea	--
Flood Defences	--
Areas benefiting from Defence & Storage	--
Groundwater Flooding Susceptibility	Negligible risk.

2.8 Environmentally Sensitive Sites

The Groundsure report highlights the following sites on or within influencing distance of the site, which could have an impact within the planning process for this site.

	Details
Nitrate Vulnerable Zones	--
Nitrate Sensitive Areas	--
Other	--

2.9 Visual and Cultural Designations

The Groundsure report highlights the following designations on or within influencing distance of the site, which could have an impact within the planning process for this site.

	Details	Distance
Listed Buildings	4 No. Listed buildings.	73m N, 131m N, 142m NW, 213m NW.

2.10 Groundsure Radon Risk Information

The Groundsure report (Appendix C) indicates that the specific site does not lie within a Radon Affected Area, as less than 1% of the properties are above the action level.

Where Groundsure conclude that no radon gas protection methods are needed, the Local Authority may have more conservative requirements, based on the indicative maps, and this aspect should be confirmed with their Building Control department.

2.11 Unexploded Ordnance (UXO)

This area of Bristol is known to have been bombed during WWII. A preliminary screening for the site was therefore requested and completed by 1st Line Defence. A copy of the report is included in Appendix D.

Ruins and a potential bomb strike have been noted on old mapping c.10m east. The preliminary screening assessment considers that further assessment should be completed.

This can be either a detailed risk assessment which allows study of detailed aerial WWII photographic information and incident reports. Alternatively, UXO clearance assistance should be on site during any site investigation or ground works.

3.0 CONCEPTUAL EXPOSURE MODEL

3.1 General

This section draws together desk study information, outlines an initial conceptual exposure model, and provides a qualitative assessment of potential contamination via a source-pathway-receptor framework for the proposed redevelopment.

3.1.1 Proposed Redevelopment

The proposed redevelopment is the subject of planning conditions *Ref. 20/04263/F*. Details of the proposed redevelopment are shown on drawings included in Appendix E and can be summarised as:

Buildings	2 No. 2-storey terraced residential properties.
Car Parking	None.
Access Roads	None proposed.
Landscaping	External small, paved courtyards (max. 4m x 3m) with smaller areas of planting (1.5 x 1.5m).
Building Level	At existing grade.

3.1.2 Potential Sources of Contamination

The desk study has been used to identify the likely remnant contaminant sources and distribution. The potential current and historical on- and off-site sources and the contaminants associated with these, derived using CLR8 Potential Contaminants for the Assessment of Land, and through experience of industrial land use, are detailed below.

Those below are only examples:

Potential Contaminants Associated with On-Site Sources			
Description	Metals, semi-metals, non-metals, inorganic chemicals and others	Organic chemicals	Ground Gases & Vapours
Previous residential usage (demolished)	Range of metals and inorganics potentially present depending on composition. Asbestos.	Range of organics potentially present depending on composition.	Carbon dioxide possible if deep Made Ground

Potential Relevant Contaminants Associated with Off-Site Sources			
Description	Metals, semi-metals, non-metals, inorganic chemicals and others	Organic chemicals	Ground Gases & Vapours
Garages & Road vehicle services and repairs (23m W, 46m W, 95m SW, 101m SW).	Cr, Cu, Pb, Zn, asbestos, pH	Oil/Fuel Hydrocarbons, Aromatic Hydrocarbons, PAHs, Chlorinated Aliphatic Hydrocarbons, Organolead Compounds.	Petroleum Hydrocarbon Vapours.
Iron Works (38m SE, 63m SE, 108m E).	Cr, Pb, Ni, V, Zn, As, S_0, CN^-, SO_4^{2-}, S^{2-}, Asbestos, pH.	Phenol, Oil/Fuel Hydrocarbons, Aromatic Hydrocarbons, PCBs.	Petroleum hydrocarbon Vapours.
Disused Colliery (61m SE).	Heavy Metals, Asbestos.	PAHs.	Methane, Carbon Dioxide.

Potential Relevant Contaminants Associated with Off-Site Sources			
Description	Metals, semi-metals, non-metals, inorganic chemicals and others	Organic chemicals	Ground Gases & Vapours
Brick & Tile Works with associated backfilled brick and sand pits (63m SE, 123m SE, 162m SW, 177m SE).	Heavy Metals, Asbestos.	PAHs.	Methane, Carbon Dioxide.
Industrial Products (83m SE, 162m S, 169m S, 237m N)	Range of metals and inorganics potentially present.	Range of organics potentially present.	Hydrocarbon Vapours, Methane, Carbon Dioxide.
Electricity substation (130m W, 154m NE).	As, B, Cd, Cr, Cu, Pb, Hg, Ni, Zn, NO^{3-}, SO_4^{2-}, S^{2-}, asbestos, pH	Aromatic hydrocarbons, Chlorinated Aliphatic Hydrocarbons, PCBs	Petroleum Hydrocarbon Vapours.
Unspecified Works (91m S, 98m S, 250m SE).	Range of metals and inorganics potentially present.	Range of organics potentially present.	Hydrocarbon Vapours, Methane, Carbon Dioxide.
Railway Sidings (173m SE - 246m SE).	Cd, Cr, Cu, Pb, Ni, V, SO_4^{2-}, Asbestos.	PAHs, Chlorinated Aliphatic Hydrocarbons, PCBs.	Hydrocarbon Vapours.

3.1.3 Potential Pathways

To understand the potential risks posed by the contaminants to human receptors, the possible contaminant pathways need identified. The CLEA model (DEFRA & EA 2002) indicates potential exposure routes for assessing risks to human health for a residential setting (without home-grown produce uptake; the limited areas of planting (1.5m x 1.5m) being considered too small to be sensibly used as conventional 'garden') as follows:

- Dermal exposure (during groundworks).
- Inhalation of particulates (during groundworks).
- Inhalation of soil vapour (indoor and outdoor).
- Inhalation of groundwater vapour (indoor and outdoor).
- Direct ingestion of soil (during groundworks).

The potential pathways with respect to Controlled Waters will include:

- Downward migration through Made Ground and to underlying Secondary A Aquifer.
- Lateral migration through Made Ground to surface water.
- Lateral migration through groundwater to surface water.
- Lateral migration via man-made pathways (e.g. services) to surface water.

3.1.4 Potential Receptors

For a residential end use and the known neighbouring land uses, the potential receptors to contamination (if present on site) are:

- Immediately adjacent residents – critical receptor female child.
- Construction workers – critical receptor female adult.
- Future site users – critical receptor female child.

The likely sensitive Controlled Waters receptors are considered to be:

- Aquifer
- Inland river (non-tidal) 83m E.

Due to the topography of the site and surroundings the Secondary A Aquifer is considered the most likely receptor.

3.1.5 Conceptual Site Model with Respect to Human Health

The conceptual site model has been developed based upon the source-pathway-receptor linkages.

SOURCE		PATHWAY		RECEPTOR
Contaminated soils	→	Dermal exposure (during groundworks)	→	On-site female adult
Contaminated soils	→	Inhalation of soil dust (during groundworks)	→	On-site female adult
Contaminated soils	→	Indoor/Outdoor inhalation of soil vapour	→	On-site female child
Contaminated groundwater	→	Inhalation of groundwater vapours	→	On-site female child
Combustible/toxic ground gases	→	Indoor inhalation	→	On-site female child
Contaminated Soils	→	Direct ingestions of soil (during groundworks)	→	On-site female adult

3.1.6 Conceptual Site Model with Respect to Controlled Waters

The conceptual site model has been developed based upon the source-pathway-receptor linkages.

SOURCE		PATHWAY		RECEPTOR
Contaminated soils	→	Leaching from soils or migration of liquid contaminants through the unsaturated zone.	→	Secondary A Aquifer
Contaminated soils	→	Leaching from soils or migration of liquid contaminants through service runs	→	Secondary A Aquifer
Perched water contamination	→	Transport in groundwater	→	Secondary A Aquifer
Groundwater contamination	→	Transport in groundwater	→	Secondary A Aquifer

4.0 ANTICIPATED GROUND & GROUNDWATER CONDITIONS

Based on the desk study information available to date, the following ground conditions could be anticipated at this site, these should be confirmed by appropriate site investigation:

Depth (m)	Description
GL to 0.5/2.0	Hardstanding over MADE GROUND (comprising variably compact building rubble and extraneous material)
0.5/2.0 to 1.0/3.0	Soft to firm and firm red brown very sandy CLAY. (HIGHLY WEATHERED REDCLIFFE SANDSTONE MEMBER)
1.0/3.0 to 2.0/5.0	Medium dense and dense orangish brown silty SAND/ weakly cemented SANDSTONE. (HIGHLY WEATHERED REDCLIFFE SANDSTONE MEMBER)
Below 2.0/5.0	Weak to moderately strong orangish brown SANDSTONE. (WEATHERED REDCLIFFE SANDSTONE MEMBER)

4.1 Anticipated Groundwater Conditions

It is anticipated that while the true groundwater table could be greater than 3-5m depth, perched groundwater could be encountered at shallow depth within Made Ground or above any more clayey Highly Weathered strata.

It is anticipated that the true groundwater table could be at greater depth (over 5m) within the more sandy or rocky Redcliffe Sandstone Member.

4.2 Anticipated Ground Gas Regime

BGS mapping suggests there is an expanse of worked ground c.120m and made ground c.200m southwest.

The site was previously occupied by residential buildings. The site visit did not suggest there was former/covered/backfilled basements.

While a significantly anomalous abnormal ground gas regime is not anticipated, slightly elevated carbon dioxide or methane could be present if thick Made Ground is present.

5.0 CONTAMINATED LAND CONSIDERATIONS

5.1 General

The desk study has indicated that the site has historically had a residential usage. Ruins noted on historical maps adjacent to site indicate that property was likely destroyed via bombing, the properties onsite may have been damaged/destroyed at that time. The site has remained undeveloped since, and the possibility of fly tipping cannot be discounted.

The local area has had a long history of industrial use and a number of potential sources of contamination have been identified nearby including Iron Works, Colliery, Brick & Tile Works and Unspecified Ground Workings within 75m of site.

Localised areas of Made Ground and sources of ground gas contamination could be present across the site.

5.2 Qualitative Risk Assessment

5.2.1 Human Health

Based on the initial conceptual model outlined in Section 3, there are potential source-pathway-receptor linkages at this site relating to human health. A risk assessment framework has therefore been used to evaluate the potential risk in descriptive terms.

The probability of a significant or widespread contamination risk occurring, which could affect the proposed residential (without plant uptake) usage (with almost total hardstanding or buildings coverage), is considered low. The consequence to human health can generally be classified as being Low.

The combination of a Low probability and Low consequence gives a **Low Risk** overall with respect to soils contamination.

In terms of ground gas, it is considered there is a moderate probability and moderate consequence, giving a **Medium Risk** overall with respect to ground gas.

It will therefore be necessary to either adopt a precautionary approach to design measures to ensure future site users are protected, or investigation should be completed to investigate further.

5.2.2 Controlled Waters

It has been confirmed that there are potential source-pathway-receptor linkages at this site relating to controlled waters, and the underlying Secondary A is considered to represent the most likely receptor. A risk assessment framework has therefore been used to evaluate the potential risk in descriptive terms.

The probability of a significant contamination risk occurring (from this site) which could affect the Secondary A Aquifer is considered Very Low. The consequent risk to the underlying aquifers can be classified as Very Low. The combination of a Very Low probability and Very Low consequence gives a **Very Low Risk to Negligible** overall, requiring no further consideration.

5.3 Conclusions

In view of the potential risks identified in this report from off-site sources, predominantly from the nearby industrial usage, it is considered that a precautionary approach is adopted.

Given the nature and scale of the proposed redevelopment, it is considered that adopting adequately conservative design measures can successfully mitigate the risks identified above. Such remedial design measures would likely include:

- Gas protection within the floor slabs to protect future site users from potential ground gases, the inclusion of carbon dioxide and methane proof membranes.
- Areas of hard paving to be constructed in such a way so as to be adequately permanent and robust (e.g. concrete paving/sub-base), the details of which should be agreed with the Local Authority. Adequate thickness of topsoil/subsoil in the limited areas of soft landscaping areas.

- Imported certified clean topsoil/subsoil to provide 450mm clean cover.

Should this approach be acceptable to the LPA, then further details can be set out in a stand-alone Remedial Method Statement, which can then the monitored and confirmed in a Verification Report in due course.

If a lesser degree of protection measures were preferred, intrusive contamination investigation would be required to demonstrate adequacy. Such investigation would likely include a minimum of 3-4 No. window sample boreholes or shallow trial pitting. Preliminary gas monitoring of standpipes in at least 2 No. locations should be completed on 3 No. occasions. Contamination analyses should also be completed on soil samples.

The number of contamination tests required for analyses will largely depend on the materials encountered across the site. Generic soils suites, TPH CWG suites and asbestos screens should be concentrated on Made Ground, or within the upper horizons of the natural ground if visual or olfactory signs of contamination are present.

The investigation would then be used to broadly confirm the Conceptual Exposure Model and range of remedial measures required. Depending on findings, a stand-alone Remedial Method Statement could then be required. This should be completed based on the findings of the site investigation and appropriate Remedial Design Measures specified and confirmed in a Verification Report in due course.

If off-site disposal of soils is required, it will be necessary to categorise these and possibly complete Waste Acceptance Criteria (WAC) testing.

Following intrusive investigations, the conceptual model can be updated, and a generic quantitative risk assessment made. That will identify any specific strata or areas of concern and the need for any further investigation, remedial measures and design.

It would also be prudent to allow a suitable contingency for dealing with any unexpected contamination found during the groundworks phase and if contamination is found allowance should be made for preparation of Remediation Strategies and subsequent Validation reporting.

5.4 Regulators

A copy of this report should be provided to the Local Authority to confirm their agreement with the findings and recommendations included in this report.

Appendix A

Site Location

Integrale Limited, Suite 7, Westway Farm Business Park, Wick Road, Bishop Sutton, Somerset, BS39 5XP United Kingdom
Tel: 01275 333 036 www.integrale.uk.com

Registered Office: The Granary, Chewton Fields, Ston Easton, Somerset, BA3 4BX United Kingdom VAT Reg. No. 609 7402 37

N

Responsibility is not accepted for errors made by others scaling from this drawing. All construction information should be taken from figured dimensions only.

Site Outline

REV	Note	Date
/	ISSUED FOR PLANNING	07/09/2020

105 WEST ARCHITECTS Ltd
107 Lower Redland Road, Redland
Bristol. BS6 6SW

T 0117 3737596
E info@105west.co.uk

Project: Corner of West and Kent Street, Bedminster, Bristol BS3 3NW

Drawing Title: Location Plan

Drawing No.: 1691(L)00

0 50m @1:1250

Scale @A4	drawn by	Date	Rev
1:1250	LR	04/06/20	/

Appendix B

Site Description & Photographs

Integrale Limited, Suite 7, Westway Farm Business Park, Wick Road, Bishop Sutton, Somerset, BS39 5XP United Kingdom
Tel: 01275 333 036 www.integrale.uk.com

Registered Office: The Granary, Chewton Fields, Ston Easton, Somerset, BA3 4BX United Kingdom VAT Reg. No. 609 7402 37

Intégrale
Understanding Ground Conditions

Suite 7, Westway Farm Business Park
Wick Road, Bishop Sutton, Somerset,
BS39 5XP, United Kingdom

Tel: 01275 333036
www.integrale.uk.com

REFERENCES	
Project No.	8916.
Site Address	27 & 29 West Street, Bedminster, Bristol, BS3 3NS.
Grid Reference	E358254, N171303
Date of Visit	05/03/2021.
Names of developer	Mase Construction Limited.
Prepared by	Flinn Knowles.
SITE – GENERAL	
Plan of site	See Figure 1.
Site size (area)	<0.01 Hectares.
Current use	2 No. Advertisement hoardings.
Site Area	<0.05 hectares.
Maximum Dimensions	c.15m N-S x 8m E-W.
Boundaries	Hedges, fences, and brick walls.
Any access limitations	Gate – width restriction.
Any specific working hours for SI/keys	08:00-17:00.
Any specific Health and Safety hazards	None.
Water/Power supply on site?	None noted.
SITE – BUILDINGS	
Age of building(s)	None present on site.
Building appearance	Adjacent buildings have minor cracking in gable end rendering.
State of buildings	Adjacent buildings in good condition.
Tanks	None noted.
Chemical storage	None noted.
Gas control measures	None noted.
Other evidence of industrial activity	None.
Asbestos / deleterious materials	None noted.
SITE – EXTERNAL	
Hard surfacings	100% Concrete slab.
Landscaped areas/ soft landscaping:	None noted.
Invasive species noted	None noted.
Can investigation be in landscaped areas.	Yes.
Site topography	Level – step running E-W through centre of the site c.0.20m tall.
Evidence of filling or raising, earthworks etc.	Concrete blocks from previous building.
Soil drainage	No soft landscaping present.
Trees	None noted.
Rock/ soil exposures	None noted.
Drainage	Drainage in road on NW corner of Kent Street.
Other evidence of Service	None noted.

Waste	None noted.
Sub-stations	None noted.
Ecological features of note	None noted.
Any seepages on or adjacent to site.	None noted.
Watercourses	None noted.
Other features of note within site.	None noted.
SURROUNDING LAND USES	
General site context	Residential and commercial.
Land use – North	West Street.
Land use – South	Car park with postal office beyond.
Land use – East	Kent Street.
Land use – West	Terraced housing.
Nearby sources of pollution	None noted.
Nearby river / surface water features.	None noted.
Local ground profiles and signs of instability.	None noted.
Evidence of structural distress on nearby buildings.	None noted.
Evidence of mining history	In a known coal mining area of Bristol.

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Intégrale
Understanding Ground Conditions

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www.integrale.uk.com

Job No:	8916	**Site Photographs**	Date
Job Name:	27 & 29 West Street, Bedminster		09/03/2021
Client:	Mase Construction Limited		

Plate 1 View of site facing N.

Plate 2 View of site facing W.

Plate 3 View of site facing S.

Plate 4 Wall of W boundary slightly tilting W.

Plate 5 Existing concrete block foundations run E-W.

Plate 6 S corner of site.

Intégrale
Understanding Ground Conditions

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BS39 5XP
Tel: 01275 333 036
www.integrale.uk.com

Job No:	8916
Job Name:	27 & 29 West Street, Bedminster
Client:	Mase Construction Limited

Site Photographs

Date

09/03/2021

Plate 7 Excavation along W boundary.

Plate 8 Cracking in adjacent properties to W.

Plate 9 NW corner of site.

Plate 10 W site boundary.

Plate 11 W boundary facing E.

Plate 12 No Structural distress at front of adjacent property.

Appendix C

Desk Study Information

Integrale Limited, Suite 7, Westway Farm Business Park, Wick Road, Bishop Sutton, Somerset, BS39 5XP United Kingdom
Tel: 01275 333 036 www.integrale.uk.com

Registered Office: The Granary, Chewton Fields, Ston Easton, Somerset, BA3 4BX United Kingdom VAT Reg. No. 609 7402 37

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

West Street, Bedminster, BS3 3NW

Order Details

Date: 01/03/2021

Your ref: 13238

Our Ref: CMAPS-CM-942382-13238-010321EDRGEO

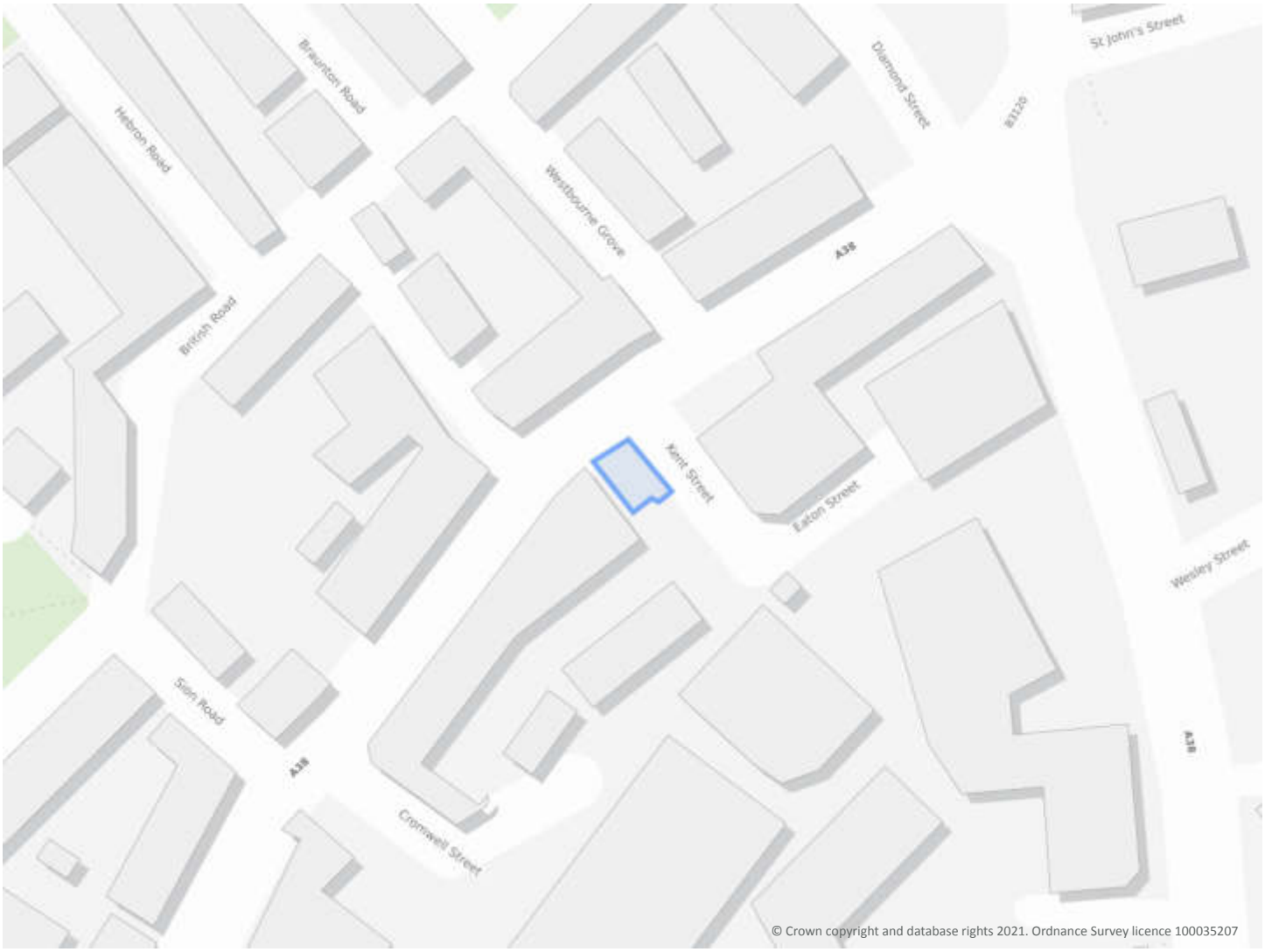
Client: CENTREMAPS

Site Details

Location: 358254 171303

Area: 0.01 ha

Authority: Bristol City Council



Contact us with any questions at:
info@groundsure.com
08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
14	1.1	Historical industrial land uses	0	1	36	65	-
18	1.2	Historical tanks	0	0	11	16	-
20	1.3	Historical energy features	0	0	3	22	-
21	1.4	Historical petrol stations	0	0	0	1	-
21	1.5	Historical garages	0	3	4	18	-
22	1.6	Historical military land	0	0	0	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
23	2.1	Historical industrial land uses	0	1	50	97	-
29	2.2	Historical tanks	0	0	17	23	-
31	2.3	Historical energy features	0	0	5	42	-
33	2.4	Historical petrol stations	0	0	0	1	-
33	2.5	Historical garages	0	5	12	33	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
36	3.1	Active or recent landfill	0	0	0	0	-
36	3.2	Historical landfill (BGS records)	0	0	0	0	-
37	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
37	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
37	3.5	Historical waste sites	0	0	0	0	-
37	3.6	Licensed waste sites	0	0	0	0	-
37	3.7	Waste exemptions	0	0	4	1	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
39	4.1	Recent industrial land uses	0	1	21	-	-
41	4.2	Current or recent petrol stations	0	0	0	1	-
41	4.3	Electricity cables	0	0	0	0	-
41	4.4	Gas pipelines	0	0	0	0	-
42	4.5	Sites determined as Contaminated Land	0	0	0	0	-

42	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	1	-
42	4.7	Regulated explosive sites	0	0	0	0	-
42	4.8	Hazardous substance storage/usage	0	0	0	0	-
43	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
43	4.10	Licensed industrial activities (Part A(1))	0	0	0	0	-
43	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
43	4.12	Radioactive Substance Authorisations	0	0	0	0	-
43	4.13	Licensed Discharges to controlled waters	0	0	3	4	-
45	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
45	4.15	Pollutant release to public sewer	0	0	0	0	-
45	4.16	List 1 Dangerous Substances	0	0	0	0	-
45	4.17	List 2 Dangerous Substances	0	0	0	0	-
45	4.18	Pollution Incidents (EA/NRW)	0	0	2	9	-
47	4.19	Pollution inventory substances	0	0	0	0	-
47	4.20	Pollution inventory waste transfers	0	0	0	0	-
47	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
48	5.1	Superficial aquifer	Identified (within 500m)				
49	5.2	Bedrock aquifer	Identified (within 500m)				
51	5.3	Groundwater vulnerability	Identified (within 50m)				
52	5.4	Groundwater vulnerability- soluble rock risk	Identified (within 0m)				
52	5.5	Groundwater vulnerability- local information	None (within 0m)				
53	5.6	Groundwater abstractions	0	0	0	0	3
54	5.7	Surface water abstractions	0	0	0	0	16
58	5.8	Potable abstractions	0	0	0	0	4
59	5.9	Source Protection Zones	0	0	0	0	-
59	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
60	6.1	Water Network (OS MasterMap)	0	0	1	-	-

61	6.2	Surface water features	0	0	0	-	-
61	**6.3**	**WFD Surface water body catchments**	1	-	-	-	-
61	**6.4**	**WFD Surface water bodies**	0	0	0	-	-
62	**6.5**	**WFD Groundwater bodies**	2	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
63	7.1	Risk of Flooding from Rivers and Sea (RoFRaS)	None (within 50m)				
63	7.2	Historical Flood Events	0	0	0	-	-
63	7.3	Flood Defences	0	0	0	-	-
63	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
64	7.5	Flood Storage Areas	0	0	0	-	-
65	7.6	Flood Zone 2	None (within 50m)				
65	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
66	**8.1**	**Surface water flooding**	1 in 1000 year, 0.1m - 0.3m (within 50m)				
Page	Section	Groundwater flooding					
68	**9.1**	**Groundwater flooding**	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
69	**10.1**	**Sites of Special Scientific Interest (SSSI)**	0	0	0	0	1
70	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
70	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
70	10.4	Special Protection Areas (SPA)	0	0	0	0	0
70	10.5	National Nature Reserves (NNR)	0	0	0	0	0
71	**10.6**	**Local Nature Reserves (LNR)**	0	0	0	0	4
71	10.7	Designated Ancient Woodland	0	0	0	0	0
71	10.8	Biosphere Reserves	0	0	0	0	0
72	10.9	Forest Parks	0	0	0	0	0
72	10.10	Marine Conservation Zones	0	0	0	0	0
72	**10.11**	**Green Belt**	0	0	0	0	6
72	10.12	Proposed Ramsar sites	0	0	0	0	0

73	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
73	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
73	10.15	Nitrate Sensitive Areas	0	0	0	0	0
73	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
74	**10.17**	**SSSI Impact Risk Zones**	1	-	-	-	-
75	**10.18**	**SSSI Units**	0	0	0	0	1
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
77	11.1	World Heritage Sites	0	0	0	-	-
78	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
78	11.3	National Parks	0	0	0	-	-
78	**11.4**	**Listed Buildings**	0	0	4	-	-
79	**11.5**	**Conservation Areas**	1	0	0	-	-
79	11.6	Scheduled Ancient Monuments	0	0	0	-	-
79	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
80	**12.1**	**Agricultural Land Classification**	Urban (within 250m)				
81	12.2	Open Access Land	0	0	0	-	-
81	12.3	Tree Felling Licences	0	0	0	-	-
81	12.4	Environmental Stewardship Schemes	0	0	0	-	-
81	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
82	13.1	Priority Habitat Inventory	0	0	0	-	-
82	13.2	Habitat Networks	0	0	0	-	-
82	13.3	Open Mosaic Habitat	0	0	0	-	-
82	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
83	**14.1**	**10k Availability**	Identified (within 500m)				
84	**14.2**	**Artificial and made ground (10k)**	0	0	4	5	-
86	**14.3**	**Superficial geology (10k)**	0	0	1	1	-

87	14.4	Landslip (10k)	0	0	0	0	-
88	14.5	Bedrock geology (10k)	1	0	1	4	-
89	14.6	Bedrock faults and other linear features (10k)	0	0	0	1	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
90	15.1	50k Availability	Identified (within 500m)				
91	15.2	Artificial and made ground (50k)	0	0	3	3	-
92	15.3	Artificial ground permeability (50k)	0	0	-	-	-
93	15.4	Superficial geology (50k)	0	0	1	1	-
94	15.5	Superficial permeability (50k)	None (within 50m)				
94	15.6	Landslip (50k)	0	0	0	0	-
94	15.7	Landslip permeability (50k)	None (within 50m)				
95	15.8	Bedrock geology (50k)	1	0	1	5	-
96	15.9	Bedrock permeability (50k)	Identified (within 50m)				
96	15.10	Bedrock faults and other linear features (50k)	0	0	0	1	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
97	16.1	BGS Boreholes	0	0	1	-	-
Page	Section	Natural ground subsidence					
98	17.1	Shrink swell clays	Negligible (within 50m)				
99	17.2	Running sands	Low (within 50m)				
100	17.3	Compressible deposits	Negligible (within 50m)				
101	17.4	Collapsible deposits	Very low (within 50m)				
102	17.5	Landslides	Very low (within 50m)				
103	17.6	Ground dissolution of soluble rocks	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
105	18.1	Natural cavities	0	0	0	0	-
106	18.2	BritPits	0	0	2	1	-
106	18.3	Surface ground workings	0	0	36	-	-
108	18.4	Underground workings	0	0	2	5	1
108	18.5	Historical Mineral Planning Areas	0	0	0	0	-

109	**18.6**	**Non-coal mining**	0	0	0	0	2
109	18.7	Mining cavities	0	0	0	0	0
109	18.8	JPB mining areas	None (within 0m)				
110	**18.9**	**Coal mining**	Identified (within 0m)				
110	18.10	Brine areas	None (within 0m)				
110	18.11	Gypsum areas	None (within 0m)				
110	18.12	Tin mining	None (within 0m)				
110	18.13	Clay mining	None (within 0m)				

Page	Section	Radon	
111	**19.1**	**Radon**	Less than 1% (within 0m)

Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
112	**20.1**	**BGS Estimated Background Soil Chemistry**	1	0	-	-	-
112	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
112	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-

Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
113	21.1	Underground railways (London)	0	0	0	-	-
113	21.2	Underground railways (Non-London)	0	0	0	-	-
114	21.3	Railway tunnels	0	0	0	-	-
114	**21.4**	**Historical railway and tunnel features**	0	0	24	-	-
115	21.5	Royal Mail tunnels	0	0	0	-	-
115	21.6	Historical railways	0	0	0	-	-
115	**21.7**	**Railways**	0	0	10	-	-
116	21.8	Crossrail 1	0	0	0	0	-
116	21.9	Crossrail 2	0	0	0	0	-
116	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 14/06/2017

Site Area: 0.01ha

Recent site history - 2016 aerial photograph

Capture Date: 05/10/2016

Site Area: 0.01ha

Recent site history - 2009 aerial photograph

Capture Date: 01/06/2009

Site Area: 0.01ha

Recent site history - 2006 aerial photograph

Capture Date: 08/06/2006

Site Area: 0.01ha

Recent site history - 1999 aerial photograph

Capture Date: 24/07/1999

Site Area: 0.01ha