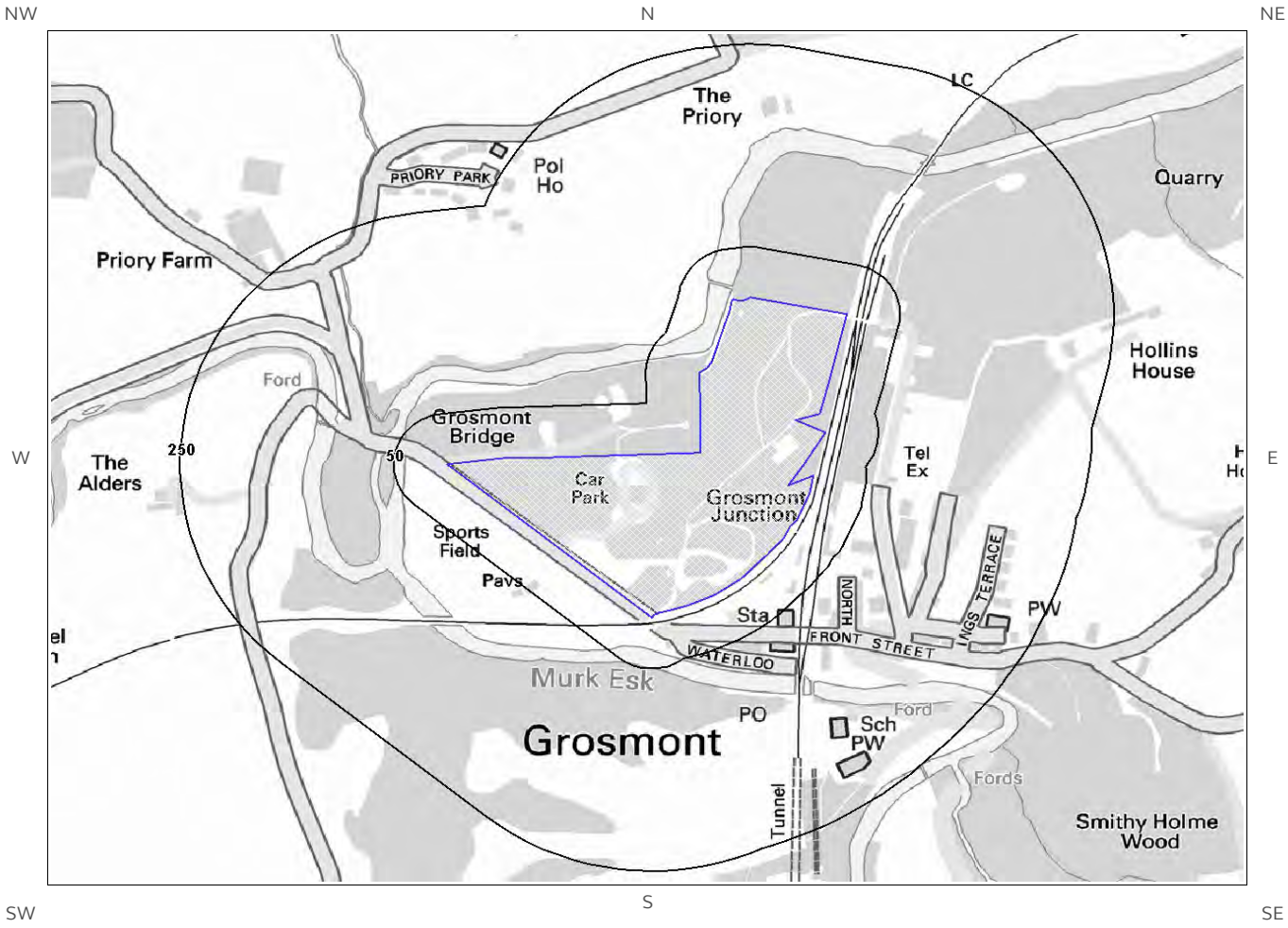
8. JBA Canal Break map



JBA Canal Break legend

8. JBA Reservoir and Canal Data

8.1 JBA Reservoir Failure Impact Modelling

Is the property located in an area identified as being at potential risk in the event of a reservoir failure? No

JBA consulting have modelled the flooding impact from 1,700 reservoirs in England and Wales, should there be a catastrophic failure of a reservoir wall or embankment. This data is not displayed on mapping.

Guidance: None required

Notes on Reservoir Failure Impact data:

This dataset identified areas that are most likely to flood following the sudden catastrophic failure of a reservoir and is provided by JBA Consulting. JBA has identified over 1,700 reservoirs that pose a risk to people and property. These maps identify properties that would flood in the unlikely event of the failure of the reservoir's dam or embankment. Empirical methods were used to predict the flow that would result from the failure which was then modelled onto high resolution Digital Terrain Models (DTM) using JBA's advanced 2D hydraulic modelling techniques. The model provides the maximum depth of flooding in each cell of the DTM.

8.2 JBA Canal Break Modelling

Is the property located within 500m of an area identified as being at potential risk in the event of a canal break? No

Database searched and no data found.

Notes on Canal Break modelling data

Canal failure mapping includes two types of failure:

- Breach of raised canal embankments - failure of the embankment due to weaknesses; these are typically caused by erosion or animal burrowing but can also arise from poor maintenance.
- Aqueduct failure - an aqueduct is where the canal passes over infrastructure such as roads, railways and subways, or over other canals and rivers. Failures of these are typically caused by the collapse of the underlying culvert.

A length of over 1,700km of canal covering England, Wales and Scotland was modelled. The canal modelling is restricted to the areas where LIDAR is available as the raised embankments are more defined in the LIDAR than in the Photogrammetry data. Each canal is categorised as part of the Merchant Shipping Notice (MSN 1776 (M)). The majority of the modelled canals are categorised as A, with a few exceptions, which fell under category B.

- Category A: narrow rivers and canals where the depth of water is generally less than 1.5m.
- Category B: wider rivers and canals where the depth of water is generally 1.5m or more and where the significant wave height could not be expected to exceed 0.6m at any time.
- Category C: tidal rivers and estuaries and large, deep lakes and lochs where the significant wave height could not be expected to exceed 1.2m at any time.
- Category D: tidal rivers and estuaries where the significant wave height could not be expected to exceed 2m at any time.

The canal map provides flood extent data only and show flooded areas with a depth greater than 0.1m.

Contact Details

Groundsure Helpline

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG

Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

Environment Agency

National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY

Web: www.environment-agency.gov.uk

JBA Risk Management

South Barn
Broughton Hall
Skipton
BD23 3AE

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Website: http://www.ordnancesurvey.co.uk/

Local Authority

Authority: Scarborough Borough Council

Web: http://www.scarborough.gov.uk/
Address: Town Hall, St Nicholas Street, Scarborough, North Yorkshir, YO11 2HG

Getmapping PLC

Virginia Villas, High Street, Hartley Witney
Hampshire RG27 8NW

Website: http://www1.getmapping.com/

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-may25-2018

Groundsure
LOCATION INTELLIGENCE

Dunelm Geotechnical & Environmental Ltd

FOUNDATION HOUSE, ST. JOHNS ROAD, DURHAM/MEADOWFIELD INDUSTRIAL ESTATE, DH7 8TZ

Groundsure Reference:	GS-5723236
Your Reference:	PO16155-D9255-TK
Report Date	3 Jan 2019
Report Delivery Method:	Email - pdf

Geo Insight

Address: FRONT STREET, GROSMONT, WHITBY

Dear Sir/ Madam,

Thank you for placing your order with Groundsure. Please find enclosed the **Groundsure Geo Insight** as requested.

If you need any further assistance, please do not hesitate to contact our helpline on 08444 159000 quoting the above Groundsure reference number.

Yours faithfully,

Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**FRONT STREET, GROSMONT, WHITBY**
Date:	**3 Jan 2019**
Reference:	**GS-5723236**
Client:	**Dunelm Geotechnical & Environmental Ltd**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	23-Aug-2015
Grid Reference:	482741,505399
Site Size:	5.00ha

Contents Page

Overview of Findings

The Groundsure Geo Insight provides high quality geo-environmental information that allows geo-environmental professionals and their clients to make informed decisions and be forewarned of potential ground instability problems that may affect the ground investigation, foundation design and possibly remediation options that could lead to possible additional costs.

The report is based on the BGS 1:50,000 and 1:10,000 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Non-coal mining data and Borehole Records, Coal Authority data including brine extraction areas, PBA non-coal mining and natural cavities database, Johnson Poole and Bloomer mining data and Groundsure's unique database including historical surface ground and underground workings.

For further details on each dataset, please refer to each individual section in the report as listed. Where the database has been searched a numerical result will be recorded. Where the database has not been searched '-' will be recorded.

Section 1: Geology 1:10,000 Scale		
1.1 Artificial Ground	1.1 Is there any Artificial Ground/ Made Ground present beneath the study site at 1:10,000 scale?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site at 1:10,000 scale?*	No
	1.2.2 Are there any records of landslip within 500m of the study site boundary at 1:10,000 scale?	No
1.3 Bedrock, Solid Geology and linear features	1.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	1.3.2 Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale?	No

Section 2: Geology 1:50,000 Scale		
2.1 Artificial Ground	2.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	2.1.2 Are there any records relating to permeability of artificial ground within the study site*boundary?	No
2.2 Superficial Geology and Landslips	2.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?*	Yes
	2.2.2 Are there any records of permeability of superficial ground within 500m of the study site?	Yes
	2.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	2.2.4 Are there any records relating to permeability of landslips within the study site* boundary?	No

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	Yes

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level.
	3.2Radon Protection	Basic radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	21	19	34	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	7	1	18	8	23
4.3 Current Ground Workings	2	0	8	6	14

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	7	1	11	7	23
5.2 Coal Mining	1	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	0	1	2	2	0
5.5 Non–Coal Mining Cavities	0	0	5	3	7
5.5 Natural Cavities	0	0	0	0	0

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Tin Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0

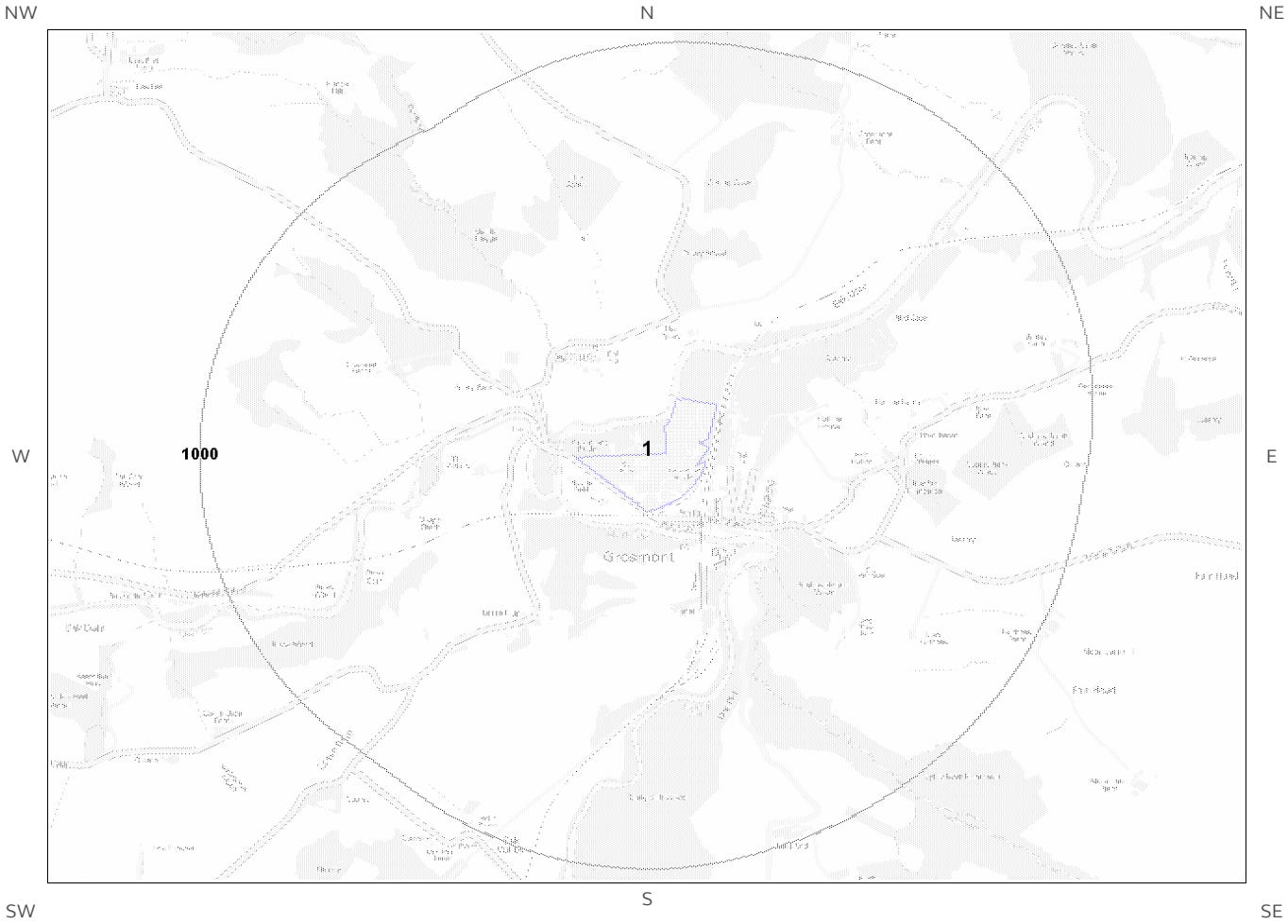
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Low
6.2 Landslides	Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Very Low
6.5 Running Sand	Low

Section 7: Borehole Records	On-site	0-50m	51-250
7 BGS Recorded Boreholes	0	0	1

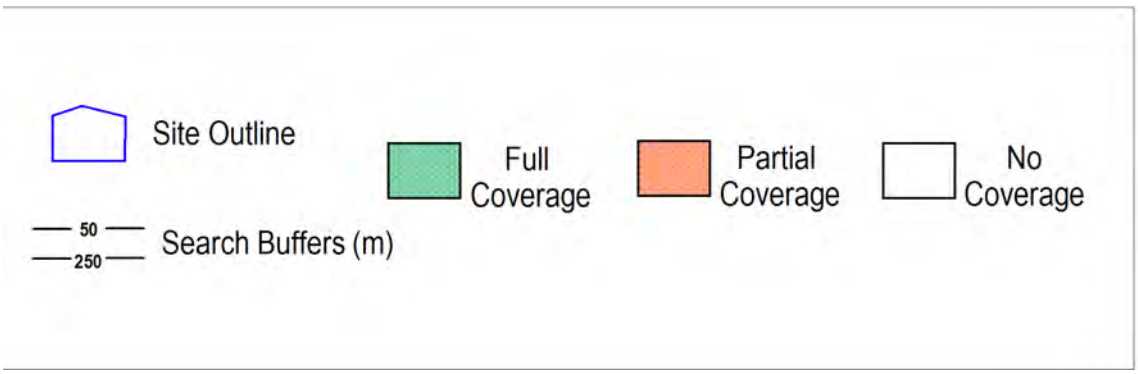
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	4	3	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	1	Not Searched
9.2 Historical Railway and Tunnel Features	11	5	18	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	26	24	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend



Availability of 1:10,000 Scale Geology Mapping

The following information represents the availability of the key components of the 1:10,000 scale geological data.

ID	Distance	Artificial Coverage	Superficial Coverage	Bedrock Coverage	Mass Movement Coverage
1	0.0	No deposits are mapped	No coverage	No coverage	No coverage

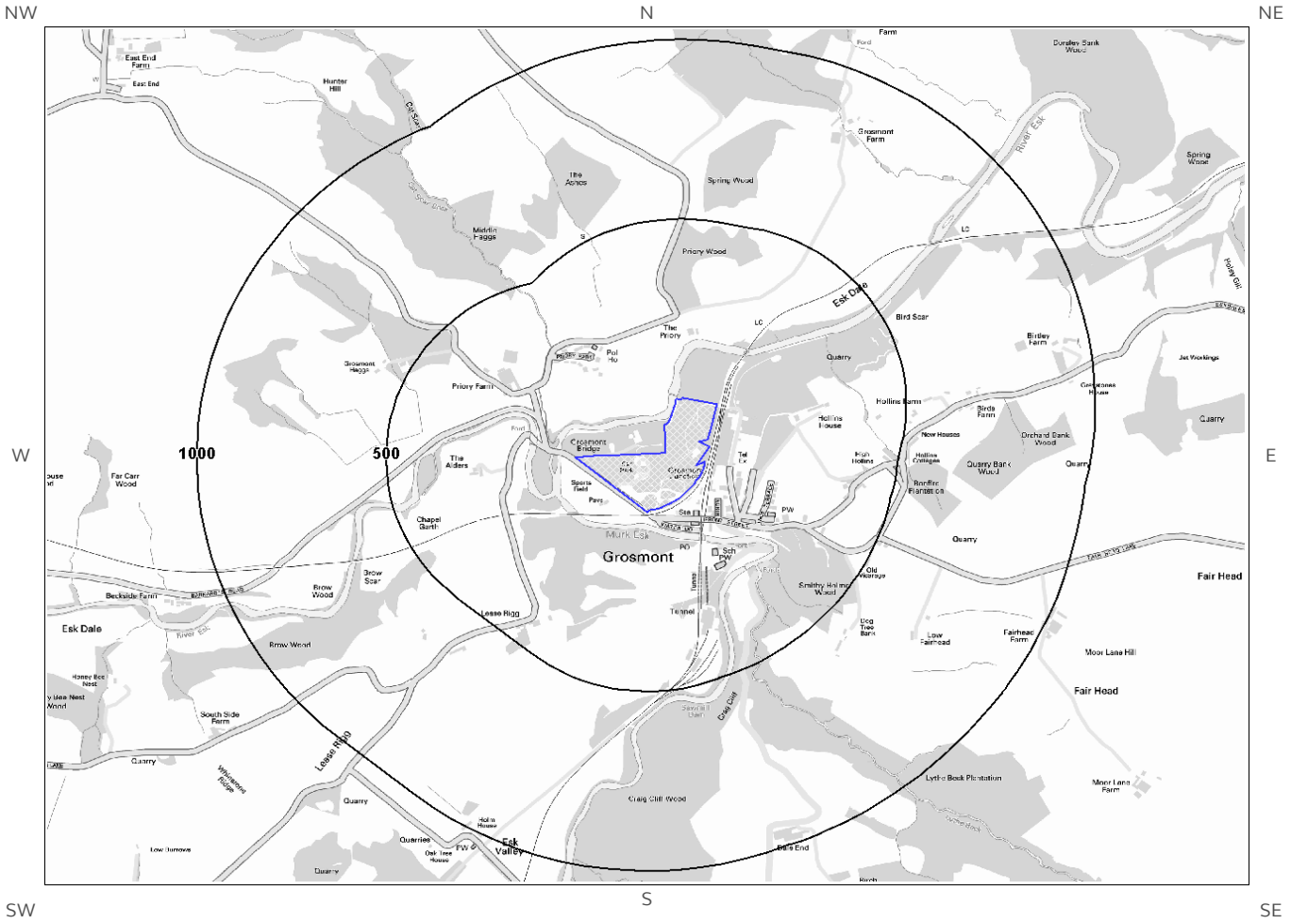
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not all themes are mapped or available on every map sheet. Therefore a coverage layer showing the availability of the four themes is presented above.

The definitions of coverage are as follows:

Geology	Full Coverage	Partial Coverage	No Coverage
Bedrock	The whole tile has been mapped	Some but not all the tile has been mapped	No coverage
Superficial	The whole tile has been mapped	Some but not all of the tile has been mapped	No coverage
Artificial	Some deposits are mapped on this tile	-	No deposits are mapped
Mass Movement	Some deposits are mapped on this tile	-	No coverage

1 Geology (1:10,000 scale).

1.1 Artificial Ground map (1:10,000 scale)



Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

1. Geology 1:10,000 scale

1.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

Are there any records of Artificial/ Made Ground within 500m of the study site boundary at 1:10,000 scale? No

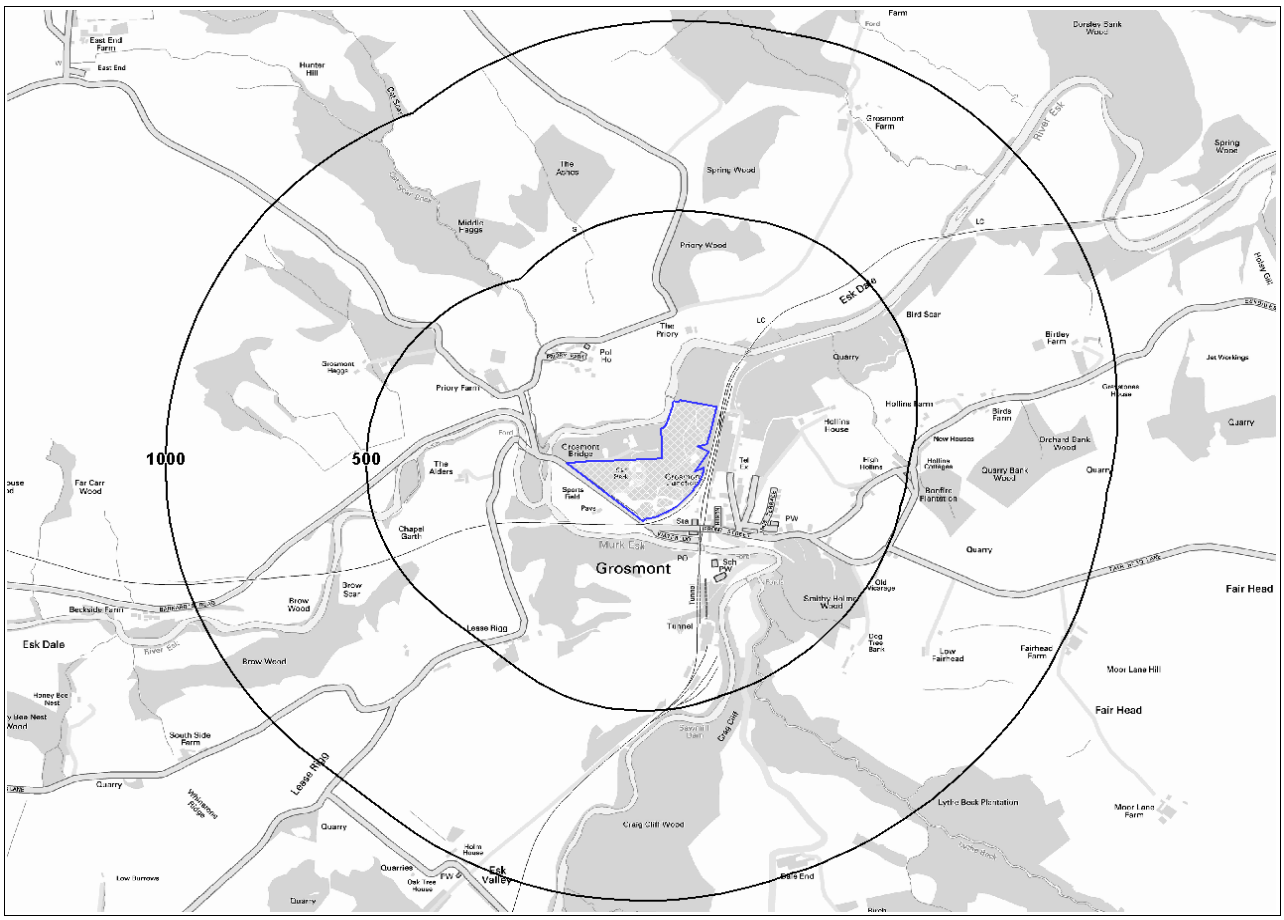
Database searched and no data found.

1.2 Superficial Deposits and Landslips map (1:10,000 scale)

NW N NE

W E

SW S SE



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

1.2.2 Landslip

Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale?

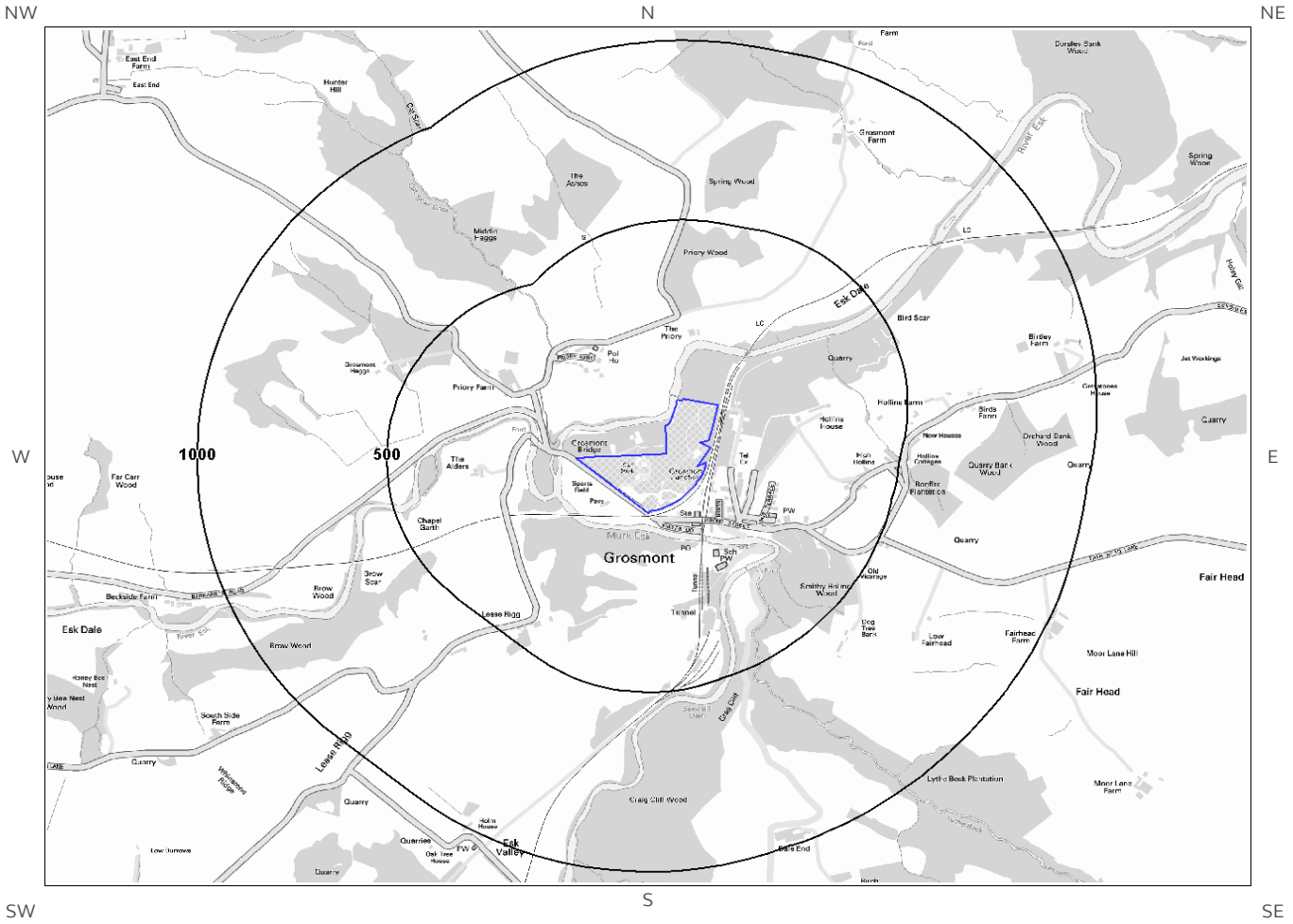
No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:10,000 scale

This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

1.3 Bedrock and linear features map (1:10,000 scale)



Bedrock and linear features Legend

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

The following geological information represented on the mapping is derived from 1:10,000 scale BGS Geological mapping.

1.3.1 Bedrock/ Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary at 1:10,000 scale.

Database searched and no data found at this scale.

1.3.2 Linear features

Are there any records of linear features within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found at this scale.

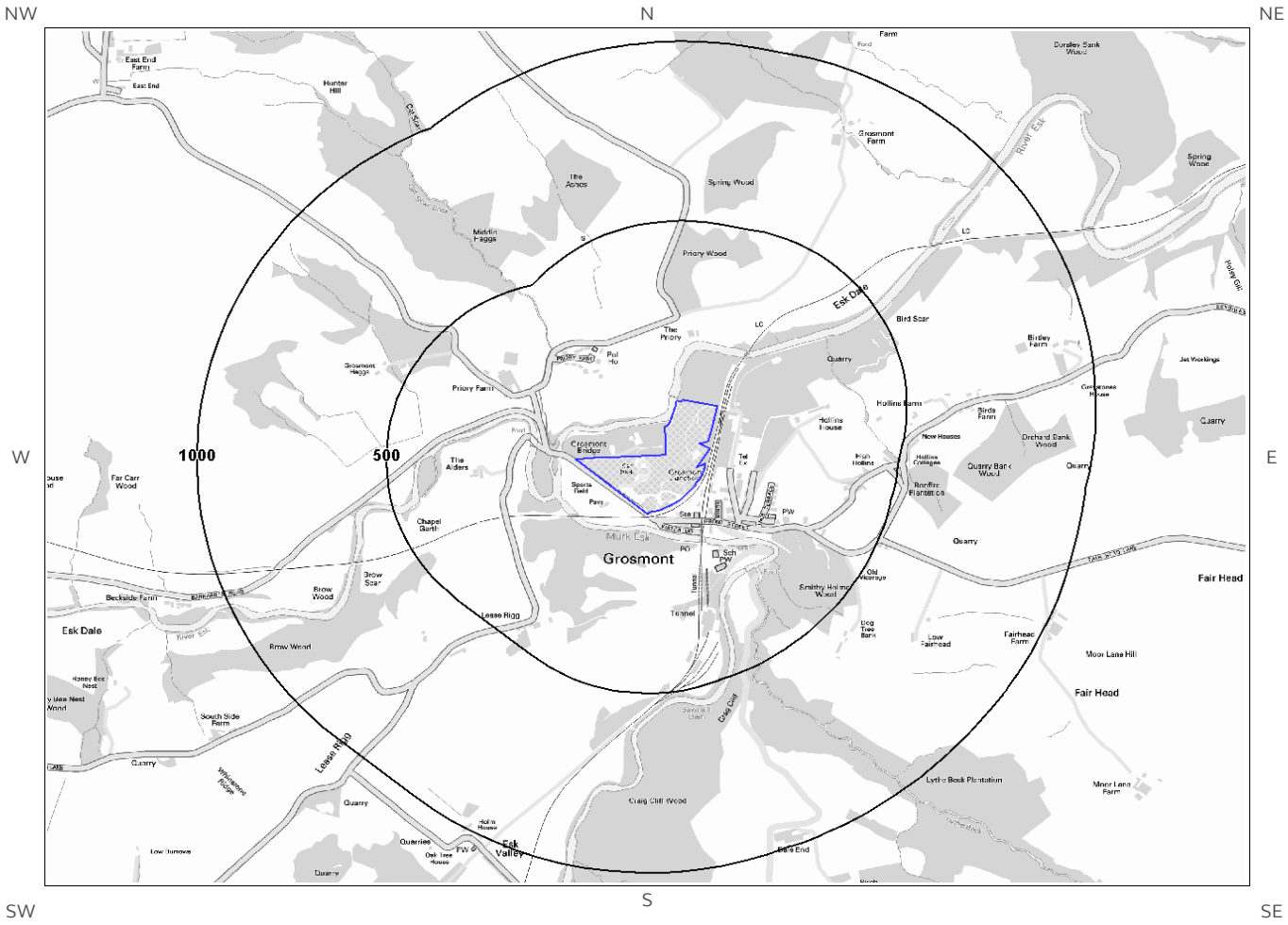
The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of great Britain at 1:10,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

---

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 043

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? No

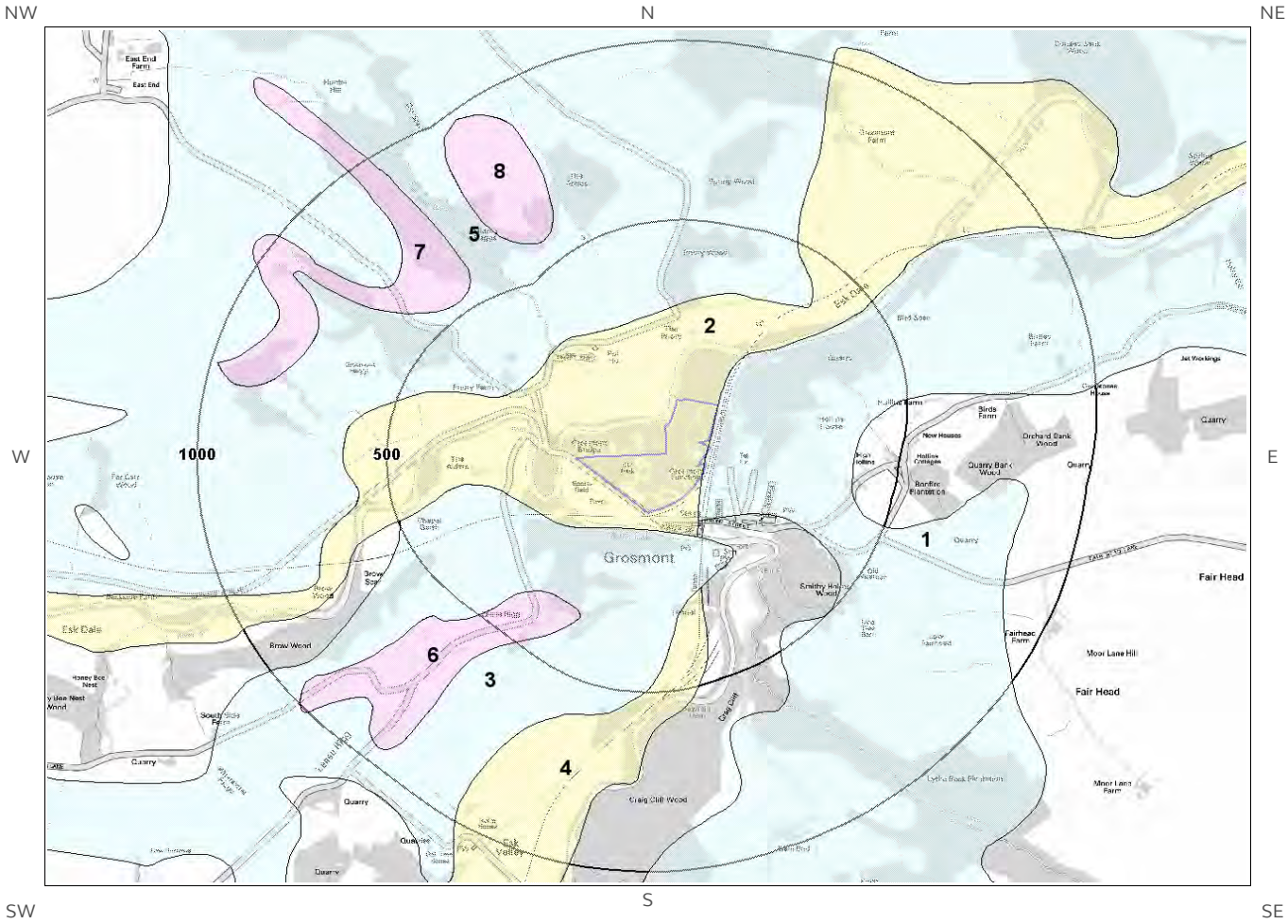
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

2.2 Superficial Deposits and Landslips map (1:50,000 scale)



Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary? Yes

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
2	0.0	On Site	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
3	46.0	S	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
4	241.0	S	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL
5	246.0	NW	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
6	326.0	SW	GFDUD-XSV	GLACIOFLUVIAL DEPOSITS, DEVENSIAN	SAND AND GRAVEL

2.2.2 Permeability of Superficial Ground

Are there any records relating to permeability of superficial ground within the study site boundary? Yes

Distance (m)	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	High	Low
0.0	On Site	Intergranular	High	Very Low
46.0	S	Mixed	High	Low

2.2.3 Landslip

Are there any records of Landslip within 500m of the study site boundary? No

Database searched and no data found.

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

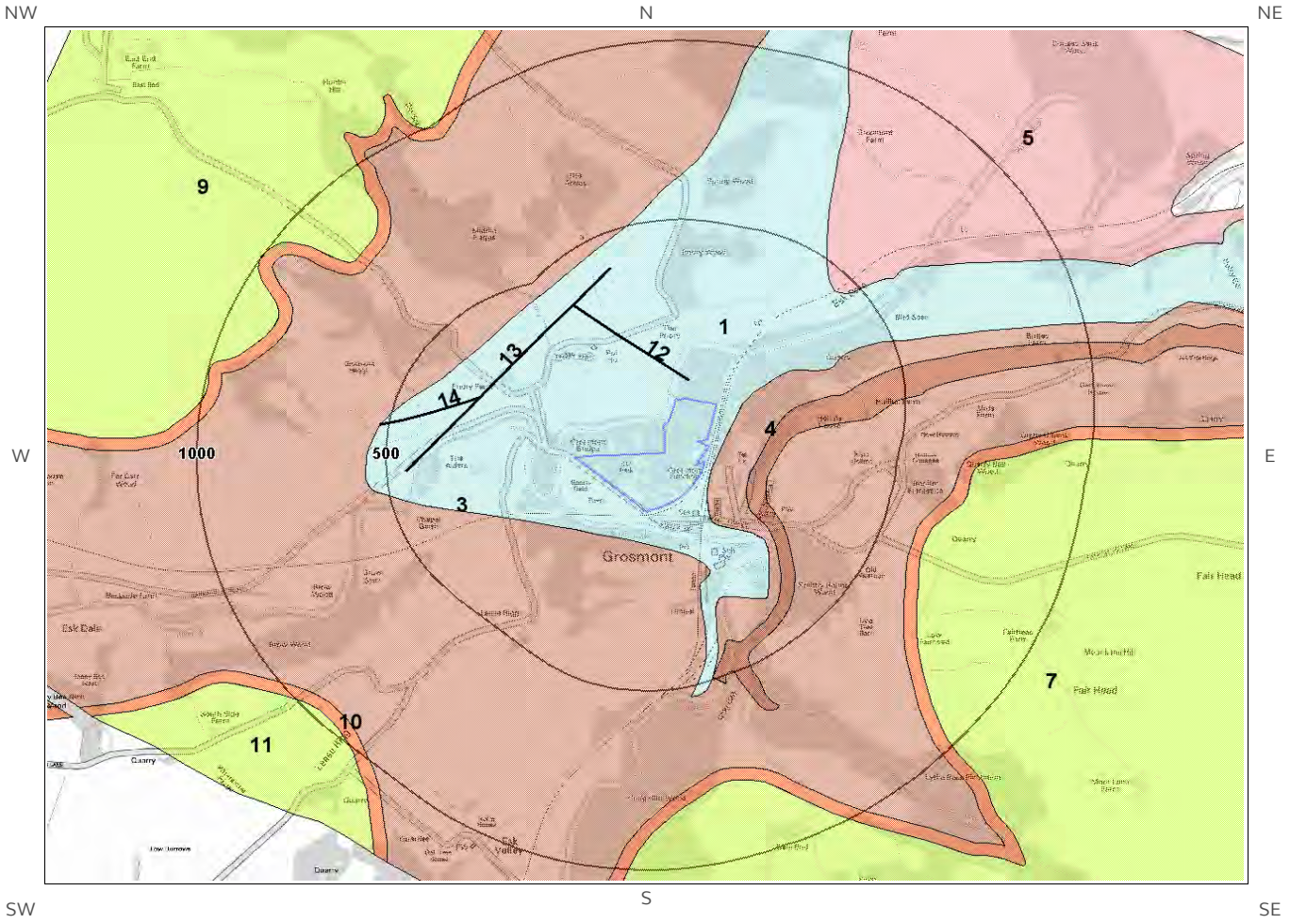
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

Are there any records relating to permeability of landslips within the study site boundary?	No

Database searched and no data found.

2.3 Bedrock and linear features map (1:50,000 scale)



Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 043

2.3.1 Bedrock/Solid Geology

Records of Bedrock/Solid Geology within 500m of the study site boundary:

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	CDI-MSDI	CLEVELAND IRONSTONE FORMATION - MUDSTONE, SANDSTONE AND IRONSTONE	PLIENSBACHIAN
2	22.0	E	WHM-MDST	WHITBY MUDSTONE FORMATION - MUDSTONE	TOARCIAN
3	88.0	S	WHM-MDST	WHITBY MUDSTONE FORMATION - MUDSTONE	TOARCIAN
4	123.0	E	MULG-MDST	MULGRAVE SHALE MEMBER - MUDSTONE	TOARCIAN
5	446.0	NE	STA-SDST	STAITHES SANDSTONE FORMATION - SANDSTONE	PLIENSBACHIAN

2.3.2 Permeability of Bedrock Ground

Are there any records relating to permeability of bedrock ground within the study site boundary? Yes

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Moderate	Low
22.0	E	Fracture	Low	Low

2.3.3 Linear features

Are there any records of linear features within 500m of the study site boundary? Yes

ID	Distance	Direction	Category Description	Feature Description
12	52.0	N	FAULT	Fault, observed, displacement unknown
13	298.0	NW	FAULT	Fault, observed, displacement unknown
14	302.0	NW	FAULT	Fault, observed, displacement unknown

The geology map for the site and surrounding area are extracted from the BGS Digital Geological Map of Great Britain at 1:50,000 scale.

This Geology shows the main components as discrete layers, these are: Bedrock/Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nation wide coverage.

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is in a Radon Affected Area, as between 3 and 5% of properties are above the Action Level.

The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, combined with geological data. The dataset is considered accurate to 50m to allow for the margin of error in geological lines, and the findings of this report supercede any answer given in the less accurate Indicative Atlas of Radon in Great Britain, which simplifies the data to give the highest risk within any given 1km grid square. As such, the radon atlas is considered indicative, whereas the data given in this report is considered definitive.

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? Basic radon protective measures are necessary.

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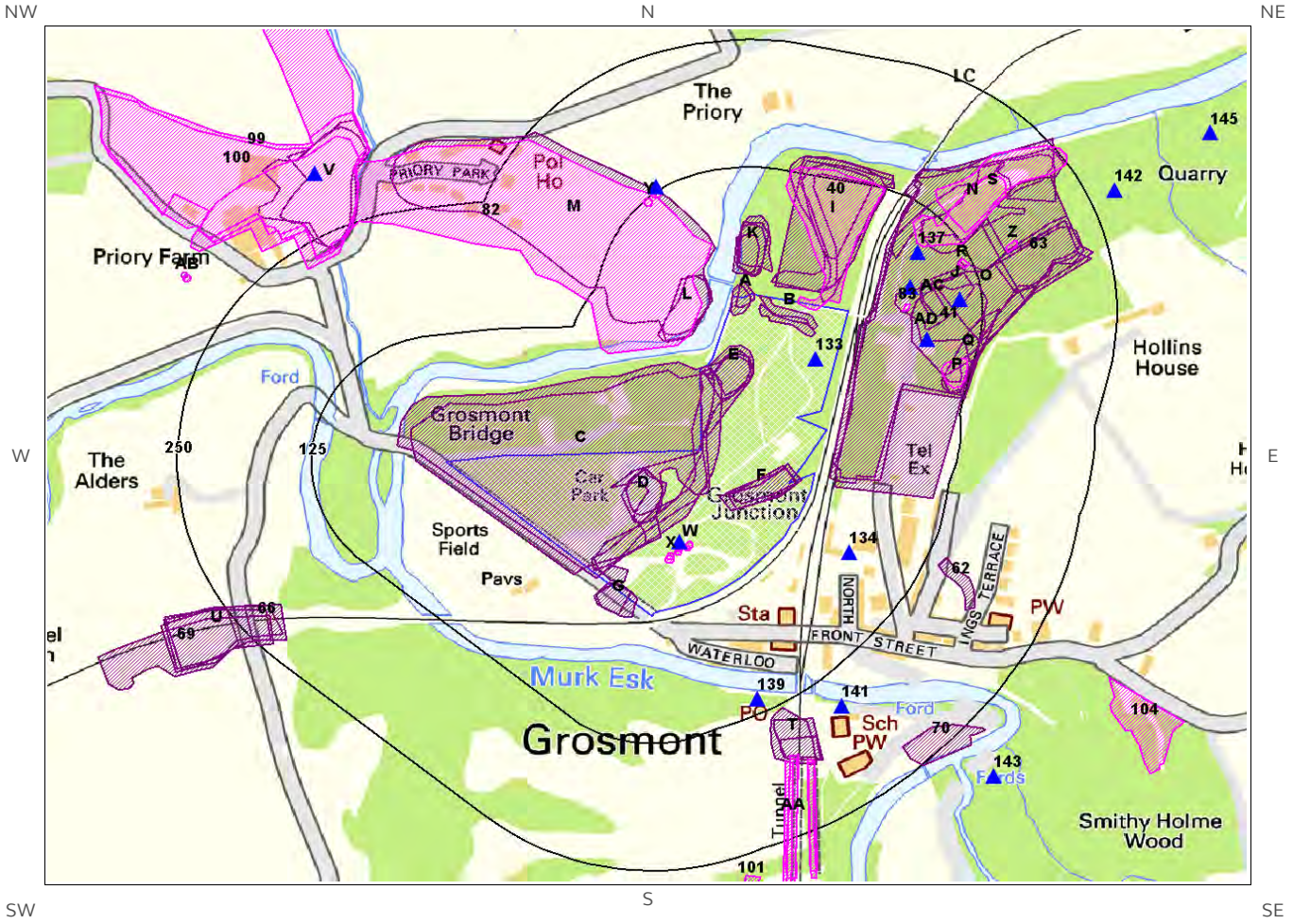
4 Ground Workings map



Ground Workings Legend

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

This dataset is based on Groundsure's unique Historical Land Use Database derived from 1:10,560 and 1:10,000 scale historical mapping

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Use	Date
1F	0.0	On Site	482768 505385	Cuttings	1916
2C	0.0	On Site	482597 505409	Refuse Heap	1916
3B	0.0	On Site	482796 505558	Refuse Heap	1916
4A	0.0	On Site	482756 505577	Unspecified Pit	1916
5A	0.0	On Site	482756 505577	Unspecified Pit	1916
6E	0.0	On Site	482745 505501	Refuse Heap	1950
7B	0.0	On Site	482796 505558	Refuse Heap	1916
8G	0.0	On Site	482636 505275	Cuttings	1950
9C	0.0	On Site	482597 505409	Refuse Heap	1916
10I	0.0	On Site	482839 505630	Unspecified Old Levels	1892
11B	0.0	On Site	482795 505551	Unspecified Ground Workings	1892
12C	0.0	On Site	482603 505411	Unspecified Ground Workings	1892
13H	0.0	On Site	482715 505398	Unspecified Ground Workings	1974
14D	0.0	On Site	482660 505378	Refuse Heap	1950
15D	0.0	On Site	482664 505381	Refuse Heap	1950
16E	0.0	On Site	482740 505496	Refuse Heap	1950
17F	0.0	On Site	482772 505385	Cuttings	1950
18F	0.0	On Site	482773 505390	Cuttings	1950
19G	0.0	On Site	482632 505277	Cuttings	1916
20A	0.0	On Site	482752 505570	Unspecified Quarry	1892
21H	0.0	On Site	482714 505402	Unspecified Ground Workings	1950

ID	Distance (m)	Direction	NGR	Use	Date
22I	5.0	N	482842 505640	Refuse Heap	1916
23I	5.0	N	482842 505640	Refuse Heap	1916
24I	12.0	N	482814 505643	Unspecified Ground Workings	1950
25AD	12.0	E	482925 505541	Brick and Tile Works	1892
26I	14.0	N	482837 505645	Unspecified Heap	1950
27J	17.0	E	482959 505557	Brick and Tile Works	1950
28K	18.0	N	482763 505620	Refuse Heap	1950
29J	18.0	E	482960 505559	Brick and Tile Works	1916
30J	18.0	E	482960 505559	Brick and Tile Works	1916
31K	18.0	N	482762 505619	Refuse Heap	1916
32K	18.0	N	482762 505619	Refuse Heap	1916
33L	18.0	W	482699 505562	Refuse Heap	1950
34L	20.0	W	482701 505565	Refuse Heap	1950
35M	20.0	W	482578 505631	Refuse Heap	1916
36M	20.0	W	482578 505631	Refuse Heap	1916
37K	21.0	N	482757 505615	Unspecified Heap	1892
38K	25.0	N	482766 505625	Refuse Heap	1950
39O	44.0	E	482983 505583	Unspecified Pit	1974
40	49.0	N	482841 505657	Unspecified Heap	1974
41	59.0	E	482945 505538	Unspecified Pit	1892
42N	68.0	NE	482966 505662	Refuse Heap	1916
43N	68.0	NE	482966 505662	Refuse Heap	1916
44J	69.0	E	482944 505569	Unspecified Ground Workings	1916
45J	69.0	E	482944 505569	Unspecified Ground Workings	1916
46AC	71.0	E	482931 505571	Refuse Heap	1950
47O	83.0	E	483000 505618	Cuttings	1950
48N	93.0	NE	482955 505657	Unspecified Old Levels	1892
49S	100.0	NE	482986 505674	Refuse Heap	1950
50P	101.0	E	482951 505494	Unspecified Pit	1950

ID	Distance (m)	Direction	NGR	Use	Date
51P	101.0	E	482951 505494	Unspecified Pit	1974
52Q	101.0	E	482965 505520	Unspecified Pit	1916
53Q	101.0	E	482965 505520	Unspecified Pit	1916
54R	110.0	NE	482957 505604	Unspecified Old Levels	1916
55R	110.0	NE	482957 505604	Unspecified Old Levels	1916
56Q	112.0	E	482967 505523	Unspecified Pit	1974
57Q	112.0	E	482967 505523	Unspecified Pit	1950
58R	112.0	NE	482959 505606	Unspecified Old Levels	1950
59T	129.0	SE	482801 505143	Cuttings	1892
60S	132.0	NE	482994 505679	Unspecified Old Levels	1950
61T	136.0	SE	482805 505139	Cuttings	1950
62	138.0	SE	482960 505292	Unspecified Ground Workings	1892
63	144.0	E	483027 505613	Cuttings	1916
64T	157.0	SE	482808 505130	Cuttings	1916
65Z	159.0	E	483003 505623	Unspecified Old Levels	1950
66	208.0	SW	482310 505253	Cuttings	1974
67U	217.0	SW	482270 505239	Cuttings	1950
68U	222.0	SW	482263 505235	Cuttings	1916
69	223.0	SW	482217 505223	Cuttings	1892
70	225.0	SE	482940 505133	Cemetery	1974
71V	233.0	NW	482365 505684	Refuse Heap	1974
72V	236.0	NW	482353 505681	Refuse Heap	1916
73V	236.0	NW	482353 505681	Refuse Heap	1916
74U	250.0	SW	482250 505237	Cuttings	1974

4.2 Historical Underground Working Features derived from Historical Mapping

This data is derived from the Groundsure unique Historical Land Use Database. It contains data derived from 1:10,000 and 1:10,560 historical Ordnance Survey Mapping and includes some natural topographical features (Shake Holes for example) as well as manmade features that may have implications for ground stability. Underground and mining features have been identified from surface features such as shafts. The distance that these extend underground is not shown.

Are there any Historical Underground Working Features within 1000m of the study site boundary? Yes

The following Historical Underground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
75I	0.0	On Site	482839 505630	Unspecified Old Levels	1892
76W	0.0	On Site	482704 505329	Unspecified Old Shafts	1950
77W	0.0	On Site	482694 505326	Unspecified Old Shafts	1950
78X	0.0	On Site	482686 505318	Unspecified Old Shafts	1950
79X	0.0	On Site	482702 505326	Unspecified Old Shafts	1950
80X	0.0	On Site	482693 505322	Unspecified Old Shafts	1950
81X	0.0	On Site	482685 505315	Unspecified Old Shafts	1950
82	26.0	W	482251 505625	Unspecified Old Mines	1892
83	51.0	E	482906 505562	Unspecified Shaft	1950
84N	93.0	NE	482955 505657	Unspecified Old Levels	1892
85P	98.0	E	482950 505498	Unspecified Shaft	1950
86R	112.0	NE	482959 505606	Unspecified Old Levels	1950
87Y	118.0	NW	482666 505666	Air Shaft	1892
88Y	120.0	NW	482673 505675	Air Shaft	1950
89Y	125.0	NW	482674 505680	Air Shaft	1950
90S	132.0	NE	482994 505679	Unspecified Old Levels	1950
91Z	159.0	E	483003 505623	Unspecified Old Levels	1950
92AA	174.0	SE	482800 505057	Tunnels	1950
93AA	177.0	SE	482799 505061	Tunnel	1974
94AA	177.0	SE	482799 505061	Tunnels	1950
95AA	178.0	SE	482795 505051	Tunnels	1892
96AA	185.0	SE	482818 505064	Tunnels	1950

ID	Distance (m)	Direction	NGR	Use	Date
97AA	188.0	SE	482818 505059	Tunnel	1974
98AA	188.0	SE	482818 505059	Tunnels	1950
99	232.0	NW	482176 505760	Unspecified Old Mines	1950
100	234.0	NW	482277 505697	Ironstone Old Mines	1950
101	269.0	S	482729 504840	Tunnel	1976
102AB	298.0	NW	482237 505591	Air Shaft	1950
103AB	302.0	NW	482234 505595	Air Shaft	1950
104	329.0	SE	483129 505152	Unspecified Old Workings	1950
Not shown	403.0	E	483248 505471	Air Shaft	1892
Not shown	406.0	E	483253 505475	Unspecified Disused Shaft	1974
Not shown	406.0	E	483253 505482	Air Shaft	1950
Not shown	407.0	E	483252 505479	Air Shaft	1950
Not shown	509.0	S	482443 504637	Unspecified Disused Mines	1950
Not shown	569.0	S	482401 504515	Disused Ironstone Mines	1892
Not shown	608.0	S	482370 504538	Disused Ironstone Mines	1950
Not shown	677.0	S	482426 504625	Unspecified Old Shaft	1950
Not shown	679.0	S	482426 504622	Unspecified Old Shaft	1950
Not shown	698.0	E	483500 505117	Unspecified Old Level	1892
Not shown	704.0	E	483530 505118	Old Ironstone Level	1950
Not shown	762.0	E	483583 505785	Air Shaft	1950
Not shown	762.0	E	483583 505785	Disused Air Shaft	1974
Not shown	765.0	E	483583 505791	Air Shaft	1950
Not shown	765.0	E	483571 505829	Unspecified Level	1892
Not shown	777.0	E	483582 505834	Unspecified Level	1950
Not shown	777.0	E	483582 505834	Unspecified Disused Level	1974
Not shown	788.0	NE	483587 505873	Ironstone Level	1950
Not shown	803.0	E	483576 505093	Unspecified Disused Level	1974
Not shown	803.0	E	483576 505093	Unspecified Old Level	1950
Not shown	876.0	NE	483657 505908	Unspecified Level	1950

ID	Distance (m)	Direction	NGR	Use	Date
Not shown	885.0	NE	483793 505960	Unspecified Disused Mine	1950
Not shown	945.0	SW	482194 504439	Unspecified Old Shaft	1950
Not shown	946.0	SW	482193 504438	Unspecified Old Shaft	1950
Not shown	953.0	SW	482179 504439	Unspecified Old Shaft	1950
Not shown	969.0	NE	483748 505945	Unspecified Level	1950
Not shown	970.0	NE	483750 505948	Unspecified Level	1950

4.3 Current Ground Workings

This dataset is derived from the BGS BRITPITS database covering active; inactive mines; quarries; oil wells; gas wells and mineral wharves; and rail deposits throughout the British Isles.

Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
132W	0.0	On Site	482694 505332	Ironstone	Grosmont West Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
133	0.0	On Site	482821 505512	Ironstone	Grosmont, Hays Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
134	58.0	SE	482852 505322	Ironstone	Grosmont Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
135AC	62.0	E	482909 505583	Ironstone	Grosmont, Hays Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
136AD	77.0	E	482924 505531	Ironstone	Grosmont, Hays Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
137	87.0	NE	482916 505617	Ironstone	Grosmont, Hays Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
138O	104.0	E	482955 505570	Clay & Shale	Grosmont Brickworks	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
139	111.0	SE	482767 505178	Ironstone	Grosmont Iron Holes	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
140Y	130.0	NW	482672 505681	Ironstone	Grosmont West Mine Air Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
141	157.0	SE	482845 505171	Ironstone	Grosmont Iron Holes	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
142	275.0	NE	483099 505678	Ironstone	Grosmont, Hays Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
143	303.0	SE	482986 505102	Jet	Smithy Holm Wood Jet Workings	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
144V	308.0	NW	482355 505694	Ironstone	Grosmont West Mine, No 3 Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
145	379.0	NE	483188 505734	Ironstone	East Grosmont Mines	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	412.0	E	483256 505481	Ironstone	Grosmont, Hays Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	426.0	E	483250 505710	Sand	Grosmont	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	613.0	NE	483392 505849	Ironstone	East Grosmont Mines Air Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	644.0	E	483425 505170	Sandstone	Fair Head	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	645.0	NE	483411 505881	Ironstone	East Grosmont Mines	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	679.0	S	482433 504623	Ironstone	Esk Valley Ironstone Mines	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	716.0	N	482229 506083	Clay & Shale	Middle Haggs	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	763.0	E	483579 505789	Ironstone	Birtley Farm Air Shaft	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	779.0	NE	483553 505898	Ironstone	Carr House Iron Hole	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	781.0	E	483619 505417	Sandstone	Quarry Bank Wood	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	785.0	E	483586 505837	Ironstone	Eskdale Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	797.0	E	483565 505108	Ironstone	Fair Head Lane Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	881.0	NE	483661 505908	Ironstone	Eskdale Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	891.0	NE	483623 506004	Ironstone	Eskdale Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	951.0	SW	482200 504432	Ironstone	Esk Valley Ironstone Mines	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased
Not shown	981.0	SW	481970 504561	Ironstone	Lease Rigg Trial Mine	Working is wholly underground, access by shaft, adit or drift. Working may be termed Colliery, Mine, Drift Mine, Slant, Level, Adit or Ingoing Eye (Ingaun Ee - Scots)	Ceased

5 Mining, Extraction & Natural Cavities map

NW N NE

W E

SW S SE

Mining, Extraction and Natural Cavities Legend

Site Outline

Search Buffers (m) — 250 — 500

Historical Mining

Non-Coal Mining Cavities

Natural Cavities (point data)

Natural Cavities (polygon data)

Non-Coal Mining

Highly likely

Likely

Unlikely

Highly unlikely

Rare

5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

This dataset is derived from Groundsure unique Historical Land-use Database that are indicative of mining or extraction activities.

Are there any Historical Mining areas within 1000m of the study site boundary? Yes

The following Historical Mining information is provided by Groundsure:

ID	Distance (m)	Direction	NGR	Details	Date
21B	0.0	On Site	482702 505326	Unspecified Old Shafts	1950
22B	0.0	On Site	482693 505322	Unspecified Old Shafts	1950
23B	0.0	On Site	482685 505315	Unspecified Old Shafts	1950
24	0.0	On Site	482839 505630	Unspecified Old Levels	1892
25B	0.0	On Site	482704 505329	Unspecified Old Shafts	1950
26B	0.0	On Site	482694 505326	Unspecified Old Shafts	1950
27B	0.0	On Site	482686 505318	Unspecified Old Shafts	1950
28	26.0	W	482251 505625	Unspecified Old Mines	1892
29	51.0	E	482906 505562	Unspecified Shaft	1950
30E	93.0	NE	482955 505657	Unspecified Old Levels	1892
31C	98.0	E	482950 505498	Unspecified Shaft	1950
32F	112.0	NE	482959 505606	Unspecified Old Levels	1950
33D	118.0	NW	482666 505666	Air Shaft	1892
34D	120.0	NW	482673 505675	Air Shaft	1950
35D	125.0	NW	482674 505680	Air Shaft	1950
36E	132.0	NE	482994 505679	Unspecified Old Levels	1950
37F	159.0	E	483003 505623	Unspecified Old Levels	1950
38G	232.0	NW	482176 505760	Unspecified Old Mines	1950
39G	234.0	NW	482277 505697	Ironstone Old Mines	1950
40H	298.0	NW	482237 505591	Air Shaft	1950

ID	Distance (m)	Direction	NGR	Details	Date
41H	302.0	NW	482234 505595	Air Shaft	1950
42	329.0	SE	483129 505152	Unspecified Old Workings	1950
43I	403.0	E	483248 505471	Air Shaft	1892
44I	406.0	E	483253 505475	Unspecified Disused Shaft	1974
45I	406.0	E	483253 505482	Air Shaft	1950
46I	407.0	E	483252 505479	Air Shaft	1950
47	509.0	S	482443 504637	Unspecified Disused Mines	1950
Not shown	569.0	S	482401 504515	Disused Ironstone Mines	1892
Not shown	608.0	S	482370 504538	Disused Ironstone Mines	1950
Not shown	677.0	S	482426 504625	Unspecified Old Shaft	1950
Not shown	679.0	S	482426 504622	Unspecified Old Shaft	1950
52J	698.0	E	483500 505117	Unspecified Old Level	1892
53J	704.0	E	483530 505118	Old Ironstone Level	1950
Not shown	762.0	E	483583 505785	Air Shaft	1950
Not shown	762.0	E	483583 505785	Disused Air Shaft	1974
Not shown	765.0	E	483583 505791	Air Shaft	1950
Not shown	765.0	E	483571 505829	Unspecified Level	1892
Not shown	777.0	E	483582 505834	Unspecified Disused Level	1974
Not shown	777.0	E	483582 505834	Unspecified Level	1950
Not shown	788.0	NE	483587 505873	Ironstone Level	1950
Not shown	803.0	E	483576 505093	Unspecified Disused Level	1974
Not shown	803.0	E	483576 505093	Unspecified Old Level	1950
Not shown	876.0	NE	483657 505908	Unspecified Level	1950
Not shown	885.0	NE	483793 505960	Unspecified Disused Mine	1950
Not shown	945.0	SW	482194 504439	Unspecified Old Shaft	1950
Not shown	946.0	SW	482193 504438	Unspecified Old Shaft	1950
Not shown	953.0	SW	482179 504439	Unspecified Old Shaft	1950
Not shown	969.0	NE	483748 505945	Unspecified Level	1950
Not shown	970.0	NE	483750 505948	Unspecified Level	1950

5.2 Coal Mining

This dataset provides information as to whether the study site lies within a known coal mining affected area as defined by the coal authority.

Are there any Coal Mining areas within 1000m of the study site boundary? Yes

The following Coal Mining information provided by the Coal Authority is not represented on Mapping:

Distance (m)	Direction	Details
0.0	On Site	The study site is located within the specified search distance of an identified mining area. Further details concerning this can be obtained from the Coal Authority Helpline on 0845 762 6848.

5.3 Johnson Poole and Bloomer

This dataset provides information as to whether the study site lies within an area where JPB hold information relating to mining.

Are there any JPB Mining areas within 1000m of the study site boundary? No

The following information provided by JPB is not represented on mapping: Database searched and no data found.

5.4 Non-Coal Mining

This dataset provides information as to whether the study site lies within an area which may have been subject to non-coal historic mining.

Are there any Non-Coal Mining areas within 1000m of the study site boundary? Yes

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	22.0	E	Not available	Jet	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
2	88.0	S	Not available	Jet	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
3	169.0	E	Not available	Jet	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered
4	259.0	S	Not available	Jet	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
5	308.0	SE	Not available	Jet	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

5.5 Non-Coal Mining Cavities

This dataset provides information from the Peter Brett Associates (PBA) mining cavities database (compiled for the national study entitled "Review of mining instability in Great Britain, 1990" PBA has also continued adding to this database) on mineral extraction by mining.

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? Yes

The following Non-Coal Mining Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
6C	93.0	E	482940 505530	Hollins/Bagnall & Cos Mines (3), Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation, Staithes Formation	Magnatite, Marcasite, Siderite, Ironstone
7A	111.0	SE	482900 505300	Hays, Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation, Staithes Formation	Magnatite, Marcasite, Siderite, Ironstone
8A	111.0	SE	482900 505300	California, Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation, Staithes Formation	Magnatite, Marcasite, Siderite, Ironstone
9	142.0	NE	482980 505620	Hollins/Bagnall & Cos Mines (1), Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation, Staithes Formation	Magnatite, Marcasite, Siderite, Ironstone
10	239.0	E	483080 505630	Hollins/Bagnall & Cos Mines (2), Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation, Staithes Formation	Magnatite, Marcasite, Siderite, Ironstone
11	339.0	NW	482300 505700	Haggs, Grosmont, North Yorkshire	Glacial Sand & Gravel, Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation, Staithes Formation	Magnatite, Marcasite, Siderite, Ironstone
12	376.0	E	483200 505700	Birds Mine, Grosmont, North Yorkshire	Glacial Till	Cleveland Ironstone Formation	Magnatite, Marcasite, Siderite, Ironstone
13	475.0	NW	482400 505900	WESTSIDE, North Yorkshire	-	-	Magnatite, Marcasite, Siderite, Ironstone
14	646.0	NE	483400 505900	Grosmont, North Yorkshire	Alluvium & River Terrace Deposits, Glacial Till	Cleveland Ironstone Formation, Staithes Sandstone	Magnatite, Marcasite, Siderite, Ironstone
Not shown	712.0	S	482400 504600	Esk Valley (2), Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation	Magnatite, Marcasite, Siderite, Ironstone
Not shown	782.0	E	483600 505300	FAIRHEAD, North Yorkshire	-	-	Potash

ID	Distance (m)	Direction	NGR	Address	Superficial Deposits	Bedrock Deposits	Extracted Mineral
Not shown	786.0	E	483600 505800	Birtley Mine, Grosmont, North Yorkshire	Glacial Till	Cleveland Ironstone Formation, Staithes Sandstone	Magnatite, Marcasite, Siderite, Ironstone
Not shown	833.0	E	483600 505100	Grosmont, North Yorkshire	Glacial Till	Saltwick Formation, Dogger Formation, Whitby Mudstone Formation	Magnatite, Marcasite, Siderite, Ironstone
Not shown	979.0	SW	482200 504400	Esk Valley (1), Grosmont, North Yorkshire	Glacial Till	Whitby Mudstone Formation, Cleveland Ironstone Formation	Magnatite, Marcasite, Siderite, Ironstone
Not shown	991.0	E	483770 505930	Eskdaleside Mine (1), Grosmont, North Yorkshire	Glacial Till	Cleveland Ironstone Formation, Staithes Sandstone	Magnatite, Marcasite, Siderite, Ironstone

5.6 Natural Cavities

This dataset provides information based on the Peter Brett Associates natural cavities database. The dataset is made up of points and polygons. Where polygons are used these represent an area in which it is expected the cavities could be found. It does not indicate that cavities are present everywhere within the polygon, and caution should be used in the interpretation of this data.

Are there any Natural Cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.7 Brine Extraction

This data provides information from the Cheshire Brine Subsidence Compensation Board.

Are there any Brine Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.8 Gypsum Extraction

This dataset provides information on Gypsum extraction from British Gypsum records.

Are there any Gypsum Extraction areas within 1000m of the study site boundary? No

Database searched and no data found.

5.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level..

Are there any Tin Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

Are there any Clay Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

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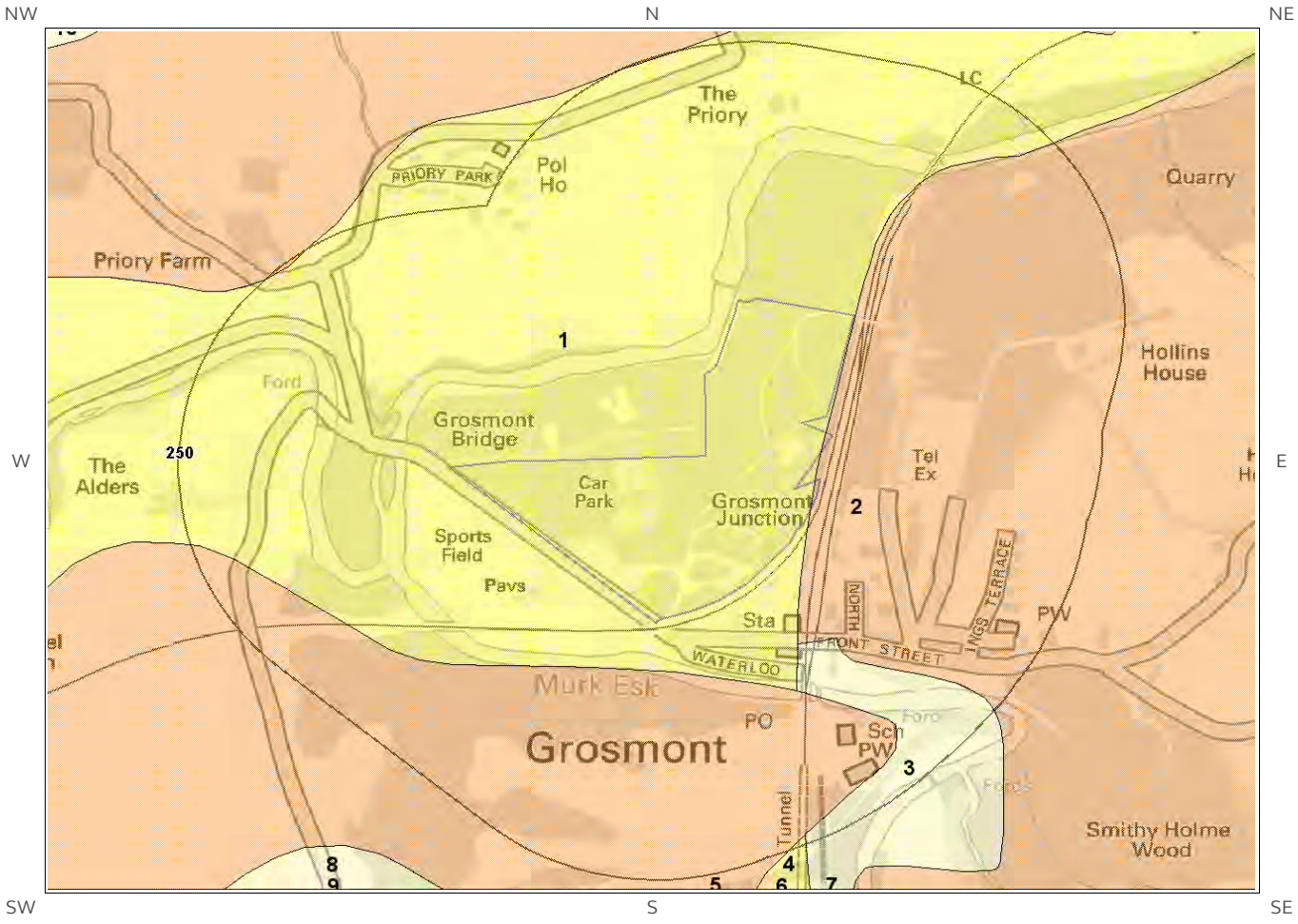
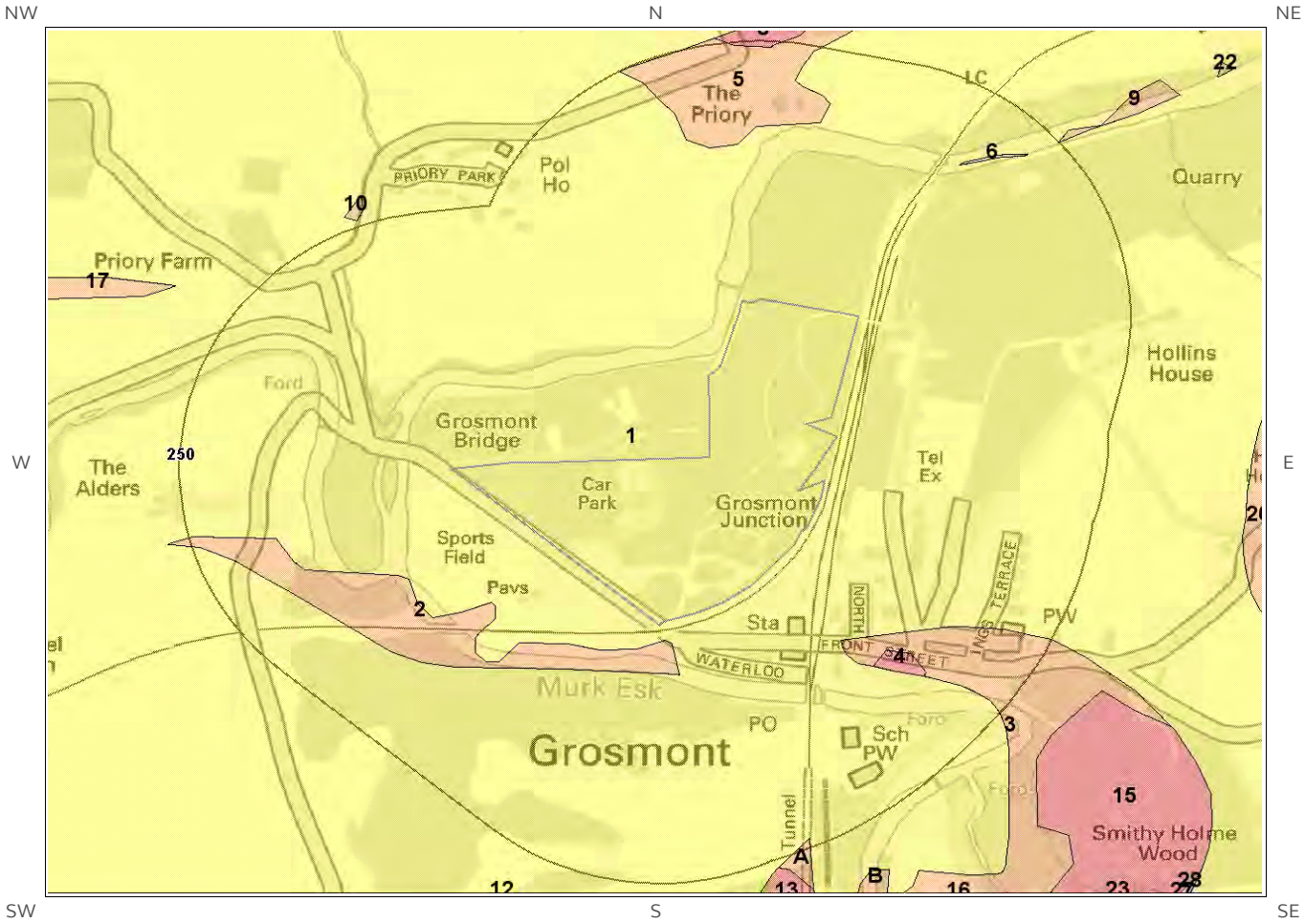
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



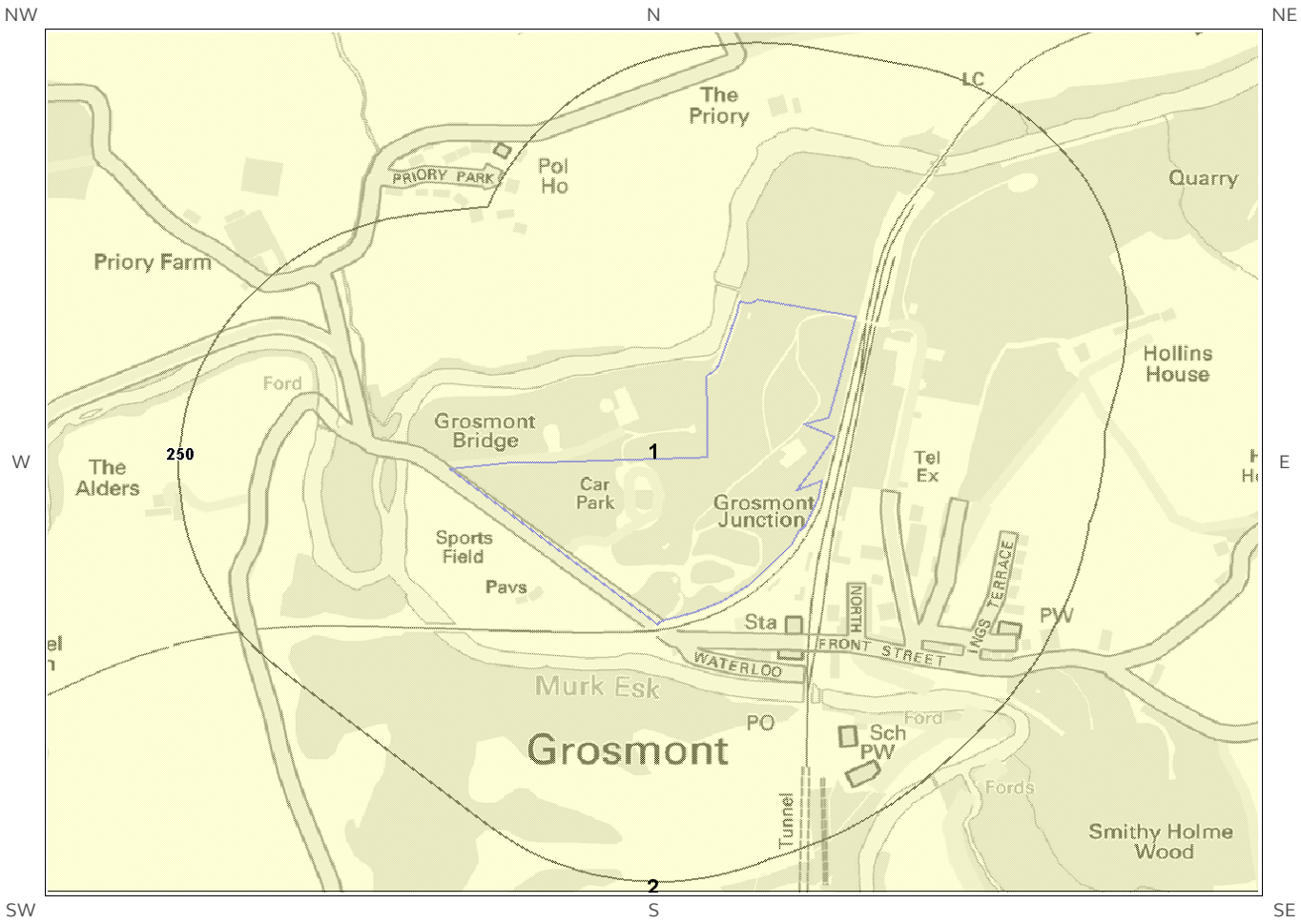
Shrink Swell Clay Legend

6.2 Landslides map



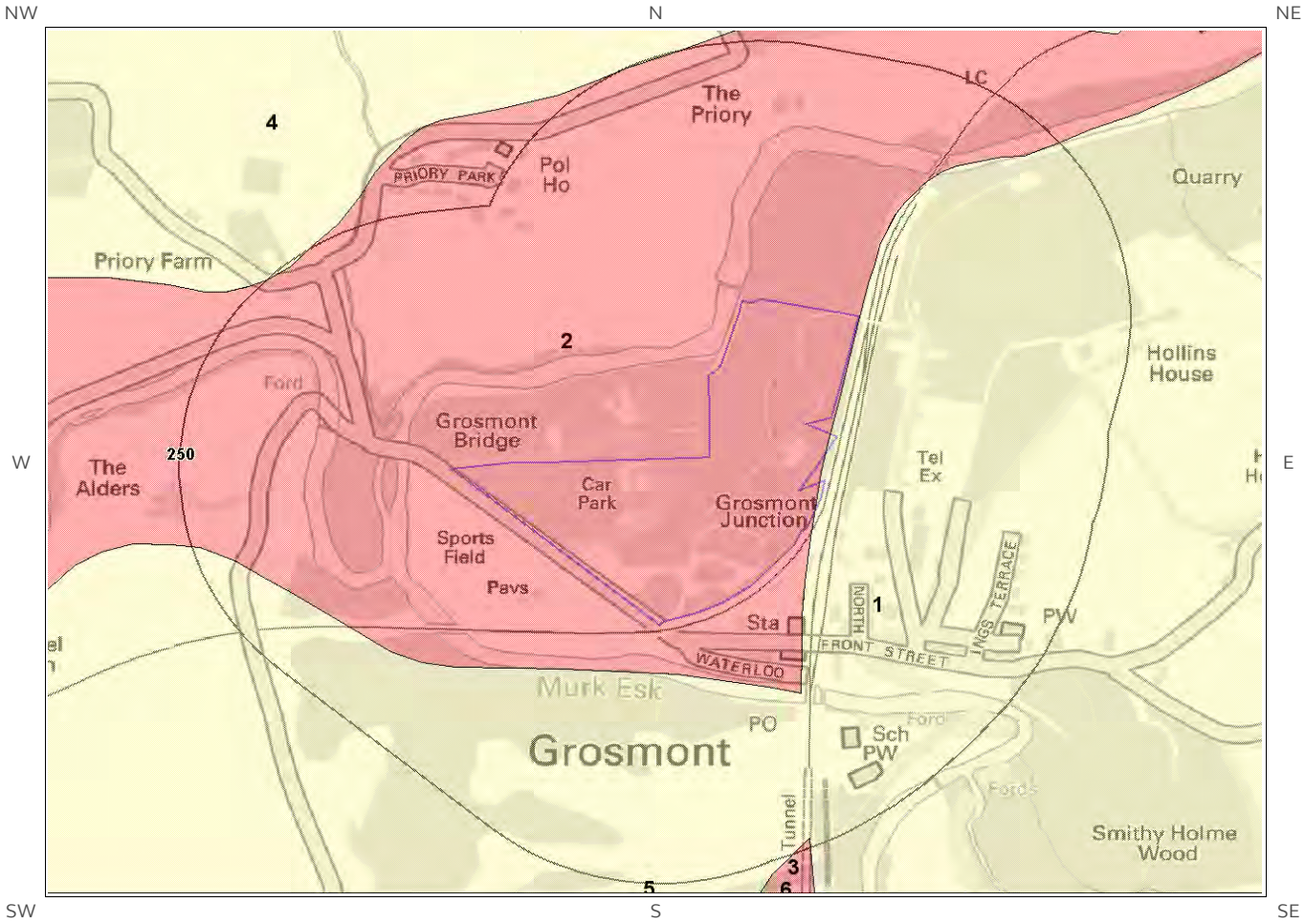
Landslides Legend

6.3 Ground Dissolution of Soluble Rocks map



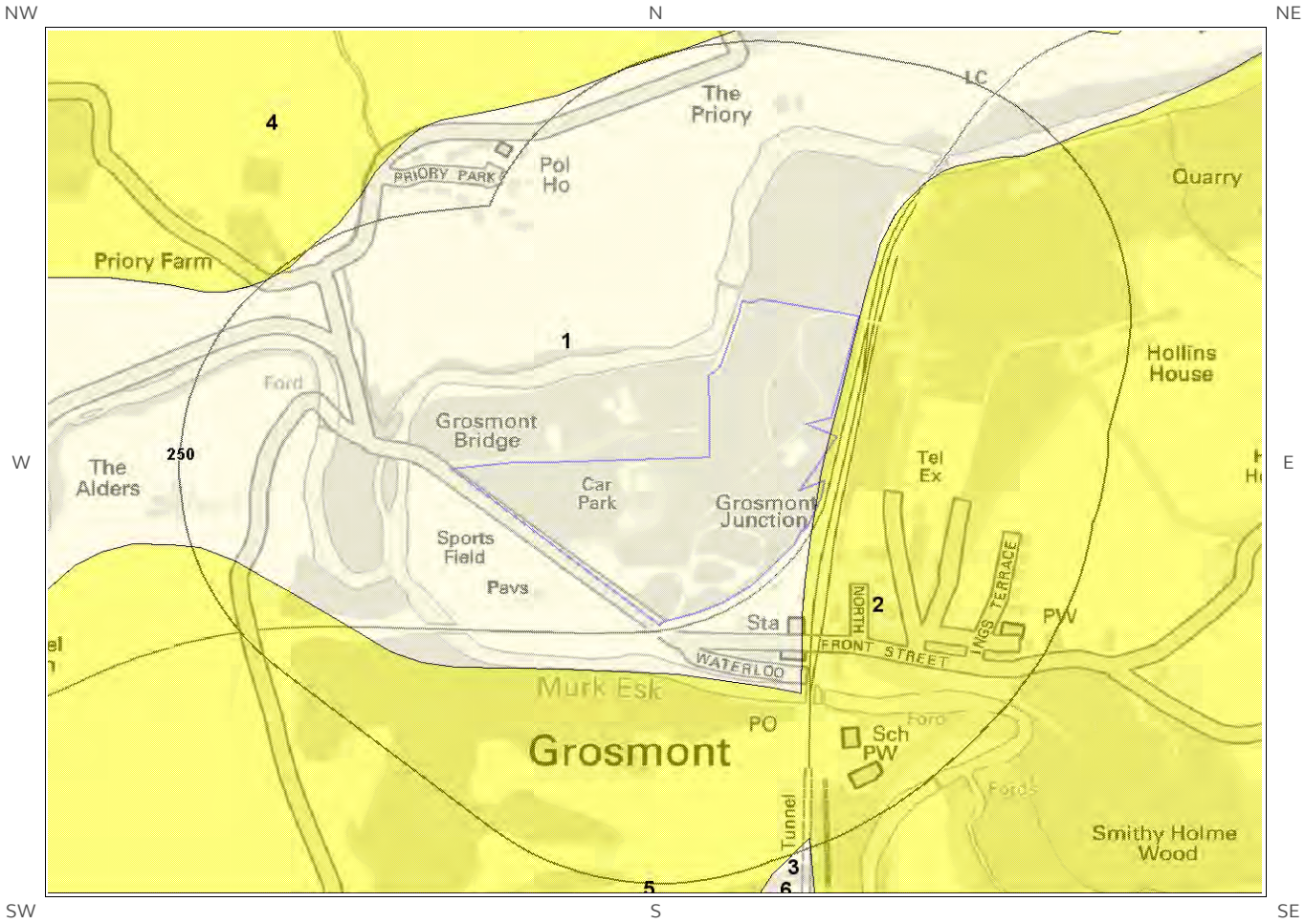
Ground Dissolution Soluble Rocks Legend

6.4 Compressible Deposits map



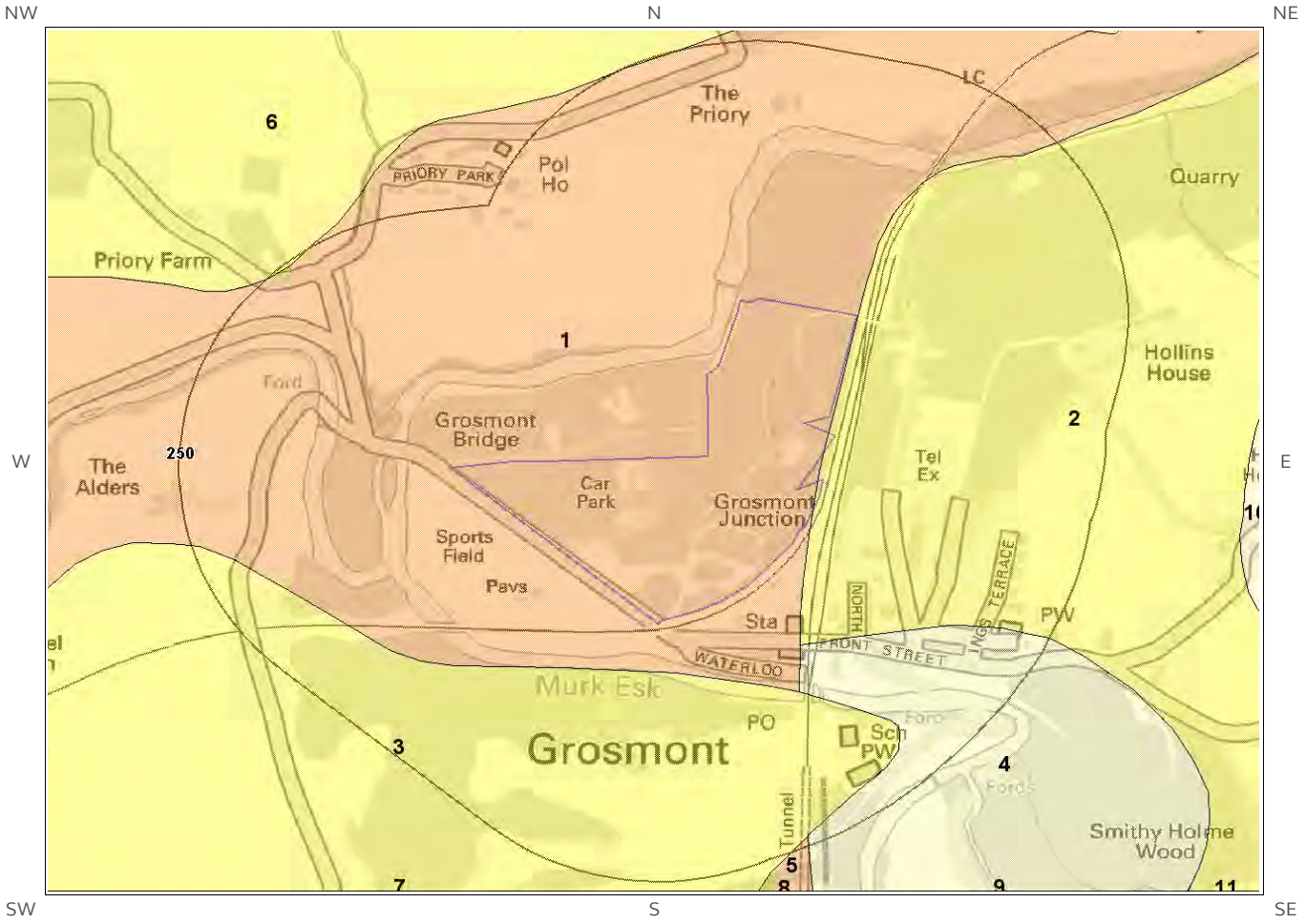
Compressible Deposits Legend

6.5 Collapsible Deposits map



Collapsible Deposits Legend

6.6 Running Sand map



Running Sand Legend

6 Natural Ground Subsidence

The National Ground Subsidence rating is obtained through the 6 natural ground stability hazard datasets, which are supplied by the British Geological Survey (BGS).

The following GeoSure data represented on the mapping is derived from the BGS Digital Geological map of Great Britain at 1:50,000 scale.

What is the maximum hazard rating of natural subsidence within the study site*[*] boundary? Moderate

6.1 Shrink-Swell Clays

The following Shrink Swell information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Ground conditions predominantly low plasticity. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.
2	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

* This includes an automatically generated 50m buffer zone around the site

ID	Distance (m)	Direction	Hazard Rating	Details
2	14.0	S	Low	Possibility of slope instability problems after major changes in ground conditions. Consideration should be given to stability if changes to drainage or excavations take place. Possible increase in construction cost to reduce potential slope stability problems. Existing property - no significant increase in insurance risk due to natural slope instability problems.

6.3 Ground Dissolution of Soluble Rocks

The following Ground Dissolution information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

6.4 Compressible Deposits

The following Compressible Deposits information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.
2	0.0	On Site	Moderate	Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build - consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property - possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

6.5 Collapsible Deposits

The following Collapsible Rocks information provided by the British Geological Survey:

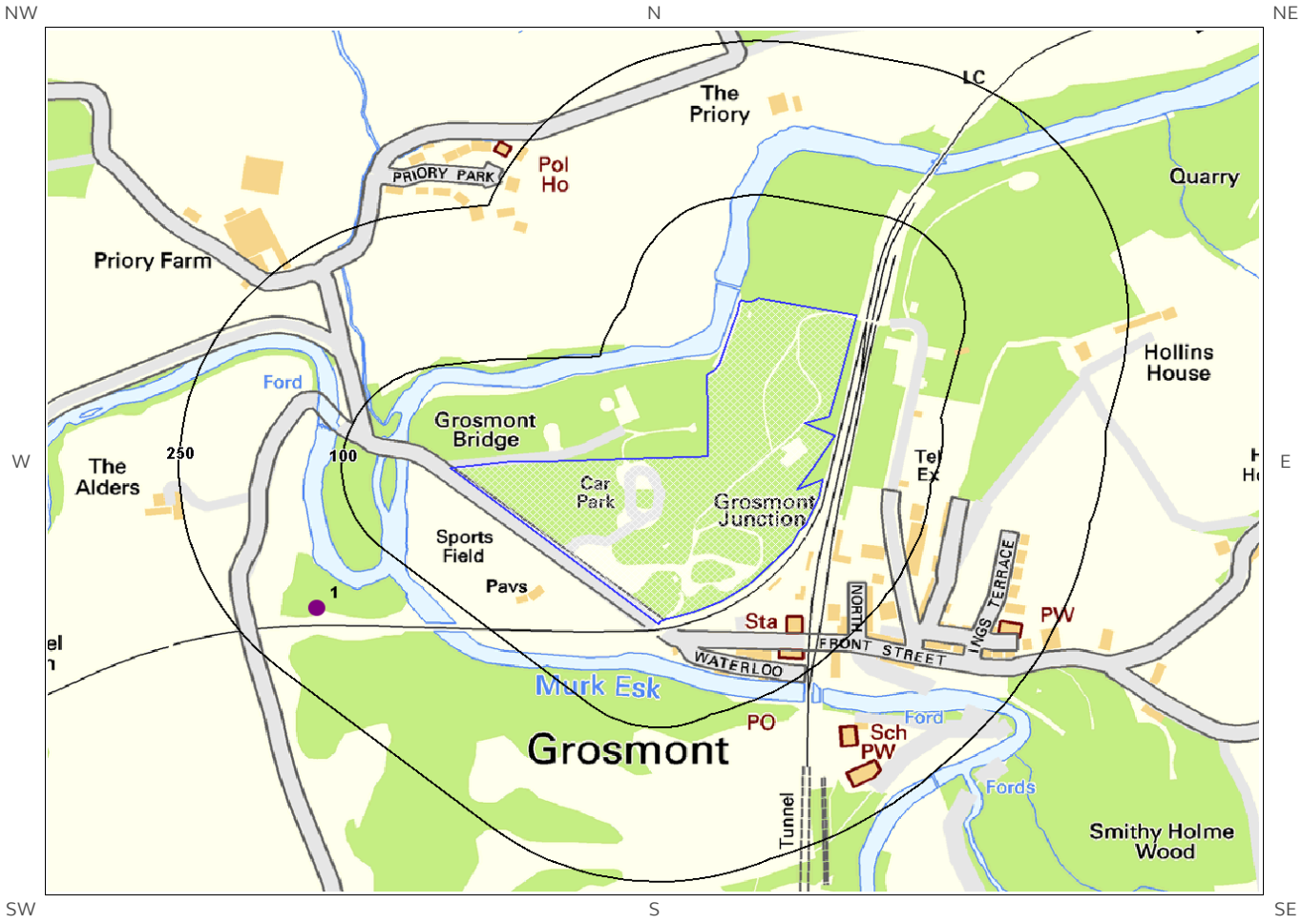
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.
2	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build - consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property - no significant increase in insurance risk due to running sand problems is likely.
2	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.
3	46.0	S	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

7 Borehole Records map



Borehole Records Legend

Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

The systematic analysis of data extracted from the BGS Borehole Records database provides the following information.

Records of boreholes within 250m of the study site boundary: 1

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	184.0	SW	482354 505275	NZ80NW18	-1.0	GROSMONT (SIDELONG SLIP)

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

8 Estimated Background Soil Chemistry

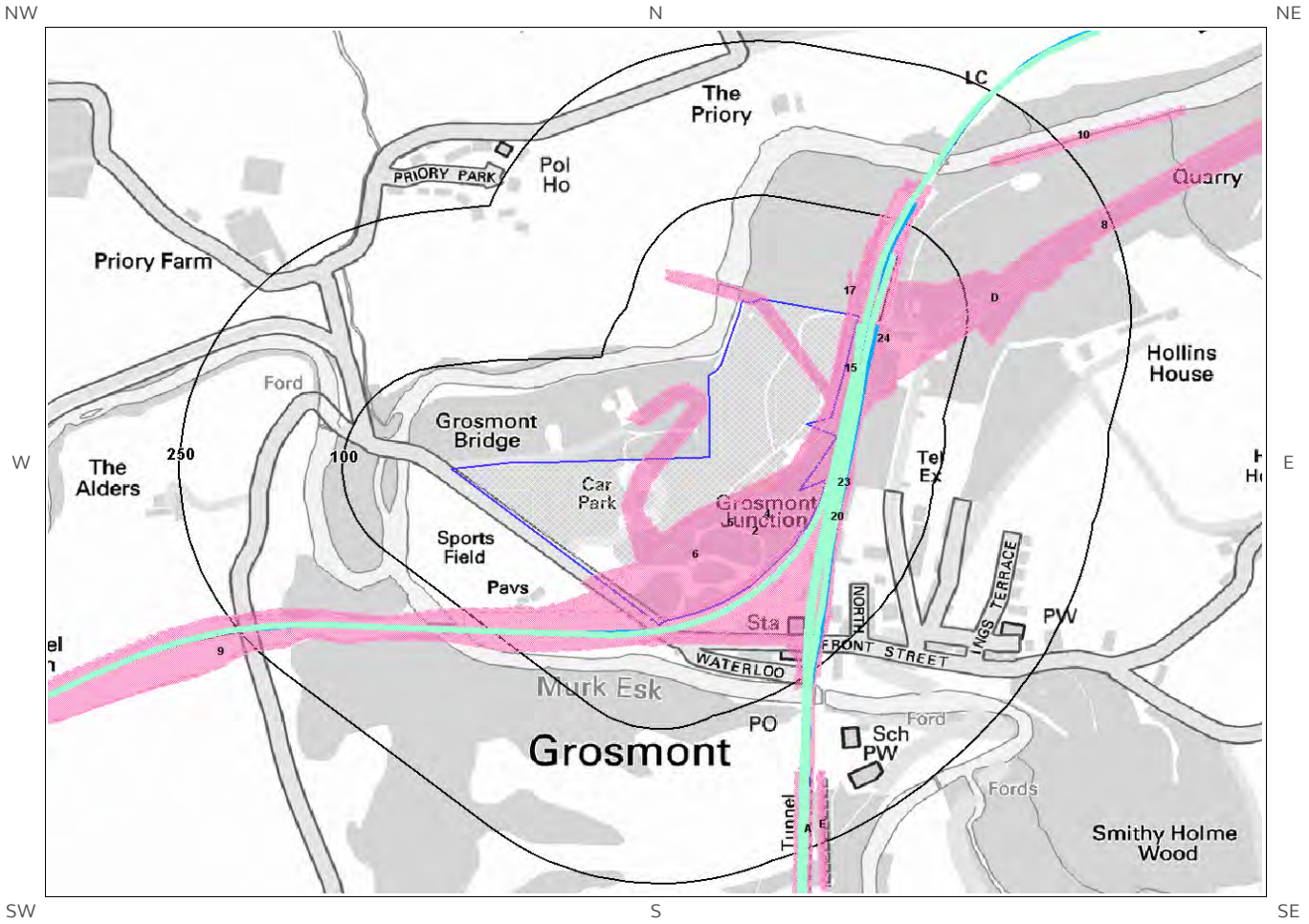
Records of background estimated soil chemistry within 250m of the study site boundary: 7

For further information on how this data is calculated and limitations upon its use, please see the Groundsure Geo Insight User Guide, available on request.

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg
1.0	E	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg
22.0	E	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg
46.0	S	Sediment	<15 mg/kg	<1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg	<100 mg/kg

*As this data is based upon underlying 1:50,000 scale geological information, a 50m buffer has been added to the search radius.

9 Railways and Tunnels map



Railways and Tunnels Legend

- Site Outline
- Search Buffers (m): 250, 500
- Underground or Partially Underground Railway / Subway System
- Railway Tunnel (OS Mapping)
- Abandoned or Dismantled Railway (OpenStreetMap)
- Railway Track (OS Mapping)
- Railway Track (OpenStreetMap)
- High Speed 2
- High Speed 2 Revised Proposed Route
- Crossrail 1
- Railway and/or Tunnel Feature from Historical Mapping

9 Railways and Tunnels

9.1 Tunnels

This data is derived from OpenStreetMap and provides information on the possible locations of underground railway systems in the UK - the London Underground, the Tyne & Wear Metro and the Glasgow Subway.

Have any underground railway lines been identified within the study site boundary? No

Have any underground railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Any records that have been identified are represented on the Railways and Tunnels map.

This data is derived from Ordnance Survey mapping and provides information on the possible locations of railway tunnels forming part of the UK overground railway network.

Have any other railway tunnels been identified within the site boundary? No

Have any other railway tunnels been identified within 250m of the site boundary? Yes

Distance (m)	Direction	Detail
177	SE	Railway Tunnel

Any records that have been identified are represented on the Railways and Tunnels map.

9.2 Historical Railway and Tunnel Features

This data is derived from Groundsure's unique Historical Land-use Database and contains features relating to tunnels, railway tracks or associated works that have been identified from historical Ordnance Survey mapping.

Have any historical railway or tunnel features been identified within the study site boundary? Yes

Have any historical railway or tunnel features been identified within 250m of the study site boundary? Yes

ID	Distance (m)	Direction	NGR	Details	Date
1	0	On Site	482842 505471	Railway Sidings	1950
2	0	On Site	482820 505420	Railway Sidings	1950
3B	0	On Site	482789 505534	Tramway Sidings	1916
4	0	On Site	482824 505445	Railway Sidings	1892

ID	Distance (m)	Direction	NGR	Details	Date
5	0	On Site	482675 505432	Railway Sidings	1916
6	0	On Site	482702 505325	Railway Sidings	1916
15	0	On Site	482830 505454	Railway Sidings	1913
16	0	On Site	482834 505460	Railway Sidings	1892
17	0	On Site	482843 505580	Railway Sidings	1892
18B	0	On Site	482792 505535	Tramway Sidings	1913
19	0	On Site	482644 505372	Railway Sidings	1913
20	6	E	482833 505401	Railway Sidings	1996
21C	8	E	482830 505381	Railway Sidings	1913
22C	8	E	482830 505381	Railway Sidings	1892
23	15	E	482837 505387	Railway Sidings	1971
24	20	E	482872 505532	Tramway Sidings	1913
7D	59	E	482972 505568	Tramway Sidings	1916
25D	61	E	482967 505567	Railway Sidings	1913
8	63	E	483069 505644	Railway Sidings	1950
9	102	SW	482198 505217	Railway Sidings	1916
26A	174	SE	482800 505057	Tunnels	1950
27A	175	SE	482798 505056	Tunnels	1916
11A	177	SE	482805 505061	Tunnel	1971
12A	177	SE	482804 505061	Tunnel	1996
28A	177	SE	482799 505061	Tunnel	1974
29A	177	SE	482799 505061	Tunnels	1950
30A	178	SE	482795 505051	Tunnels	1892
13A	179	SE	482800 505052	Tunnels	1892
14A	179	SE	482800 505052	Tunnels	1913
31E	185	SE	482818 505064	Tunnels	1950
32E	186	SE	482817 505062	Tunnels	1916
33E	188	SE	482818 505059	Tunnel	1974
34E	188	SE	482818 505059	Tunnels	1950

ID	Distance (m)	Direction	NGR	Details	Date
10	189	NE	483063 505733	Railway Sidings	1950

Any records that have been identified are represented on the Railways and Tunnels map.

9.3 Historical Railways

This data is derived from OpenStreetMap and provides information on the possible alignments of abandoned or dismantled railway lines in proximity to the study site.

Have any historical railway lines been identified within the study site boundary? No

Have any historical railway lines been identified within 250m of the study site boundary? No

Database searched and no data found.

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.4 Active Railways

These datasets are derived from Ordnance Survey mapping and OpenStreetMap and provide information on the possible locations of active railway lines in proximity to the study site.

Have any active railway lines been identified within the study site boundary? No

Have any active railway lines been identified within 250m of the study site boundary? Yes

Distance (m)	Direction	Name	Type
3	E	North Yorkshire Moors Railway	Preserved
3	E	Esk Valley Line	Rail
3	E	North Yorkshire Moors Railway	Preserved
3	E	Esk Valley Line	Rail
4	S	Not given	Multi Track
4	S	Not given	Multi Track
5	S	Esk Valley Line	Rail
5	S	Esk Valley Line	Rail
9	E	North Yorkshire Moors Railway	Preserved
9	E	Not given	Multi Track
9	E	Not given	Multi Track
9	E	Not given	Multi Track
9	E	Not given	Multi Track
9	E	North Yorkshire Moors Railway	Preserved
14	E	North Yorkshire Moors Railway	Preserved
14	E	Not given	Multi Track
14	E	Not given	Multi Track
14	E	North Yorkshire Moors Railway	Preserved
15	SW	Esk Valley Line	Rail
15	E	North Yorkshire Moors Railway	Preserved
15	SW	Esk Valley Line	Rail
15	E	North Yorkshire Moors Railway	Preserved
17	E	Not given	Multi Track

Distance (m)	Direction	Name	Type
17	E	Not given	Multi Track
45	SW	Esk Valley Line	Rail
45	SW	Esk Valley Line	Rail
103	SW	Esk Valley Line	Rail
103	SE	North Yorkshire Moors Railway	Preserved
103	SW	Esk Valley Line	Rail
103	SE	North Yorkshire Moors Railway	Preserved
105	SE	North Yorkshire Moors Railway	Preserved
105	SE	North Yorkshire Moors Railway	Preserved
116	SE	Not given	Multi Track
116	SE	Not given	Multi Track
125	SE	North Yorkshire Moors Railway	Preserved
125	SE	North Yorkshire Moors Railway	Preserved
127	SE	North Yorkshire Moors Railway	Preserved
127	SE	North Yorkshire Moors Railway	Preserved
132	SE	North Yorkshire Moors Railway	Preserved
132	SE	North Yorkshire Moors Railway	Preserved
133	NE	Esk Valley Line	Rail
133	NE	Esk Valley Line	Rail
145	SW	Esk Valley Line	Rail
145	SW	Esk Valley Line	Rail
175	SE	North Yorkshire Moors Railway	Preserved
175	SE	North Yorkshire Moors Railway	Preserved
176	SE	North Yorkshire Moors Railway	Preserved
176	SE	North Yorkshire Moors Railway	Preserved
203	NE	Esk Valley Line	Rail
203	NE	Esk Valley Line	Rail

Multiple sections of the same track may be listed in the detail above
Any records that have been identified are represented on the Railways and Tunnels map.

9.5 Railway Projects

These datasets provide information on the location of large scale railway projects High Speed 2 and Crossrail 1 .

Is the study site within 5km of the route of the High Speed 2 rail project? No

Is the study site within 500m of the route of the Crossrail 1 rail project? No

*Further information on proximity to these routes, the project construction status and associated works can be obtained through the purchase of a **Groundsure HS2 and Crossrail 1 Report**.*

The route data has been digitised from publicly available maps by Groundsure. The route as provided relates to the Crossrail 1 project only, and does not include any details of the Crossrail 2 project, as final details of the route for Crossrail 2 are still under consultation.

Please note that this assessment takes account of both the original Phase 2b proposed route and the amended route proposed in 2016. As the Phase 2b route is still under consultation, Groundsure are providing information on both options until the final route is formally confirmed. Practitioners should take account of this uncertainty when advising clients.

Contact Details

Groundsure Helpline

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG

Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

200 Lichfield Lane
Mansfield
Notts NG18 4RG

DX 716176 Mansfield 5
www.coal.gov.uk

Public Health England

Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england

Johnson Poole & Bloomer Limited

Harris and Pearson Building, Brettel Lane
Brierley Hill, West Midlands
DY5 3LH

Website: **www.jpb.co.uk**

Ordnance Survey

Adanac Drive, Southampton
SO16 0AS

Website: http://www.ordnancesurvey.co.uk/

Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW

Website:**http://www1.getmapping.com/**

Peter Brett Associates

Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN

Website:**http://www.peterbrett.com/home**

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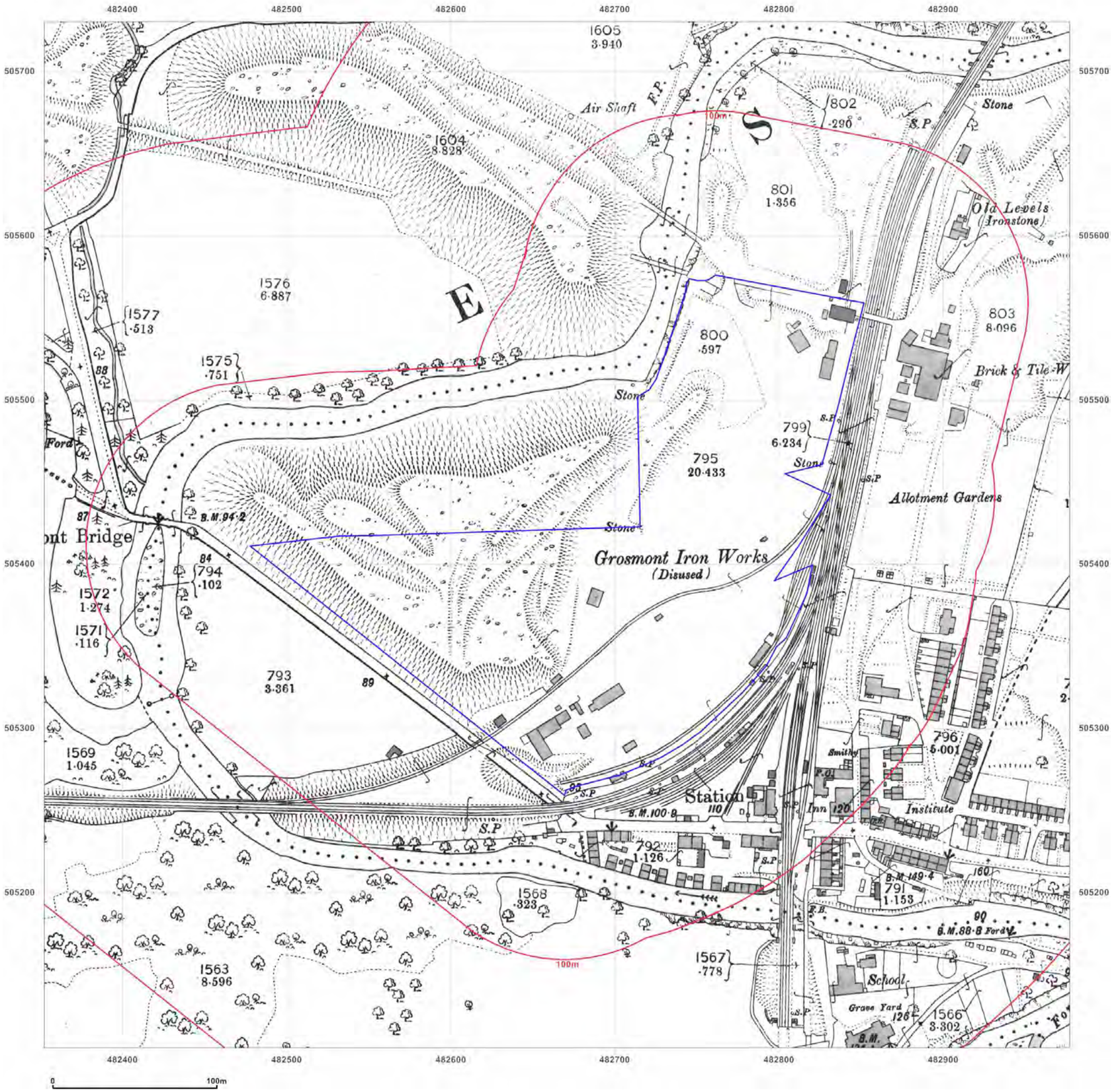
https://www.groundsure.com/terms-and-conditions-may25-2018



Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: County Series

Map date: **1892**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

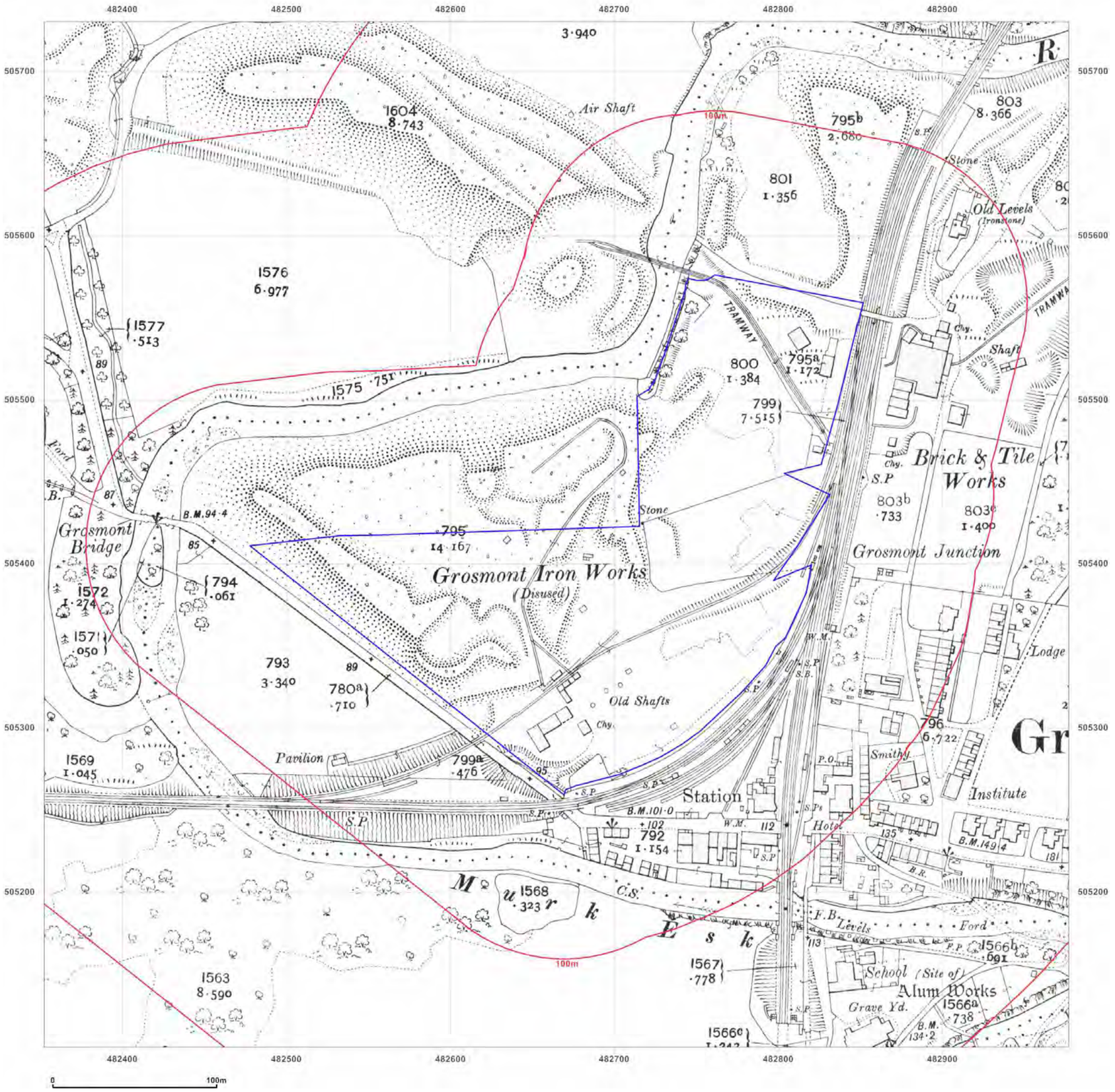
Powered by OS

Produced by
Groundsure Insights

W: www.groundsure.com

Production date: 03 January 2019

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: County Series

Map date: **1913**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1913
Revised 1913
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

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Groundsure Insights

W: www.groundsure.com

Production date: 03 January 2019

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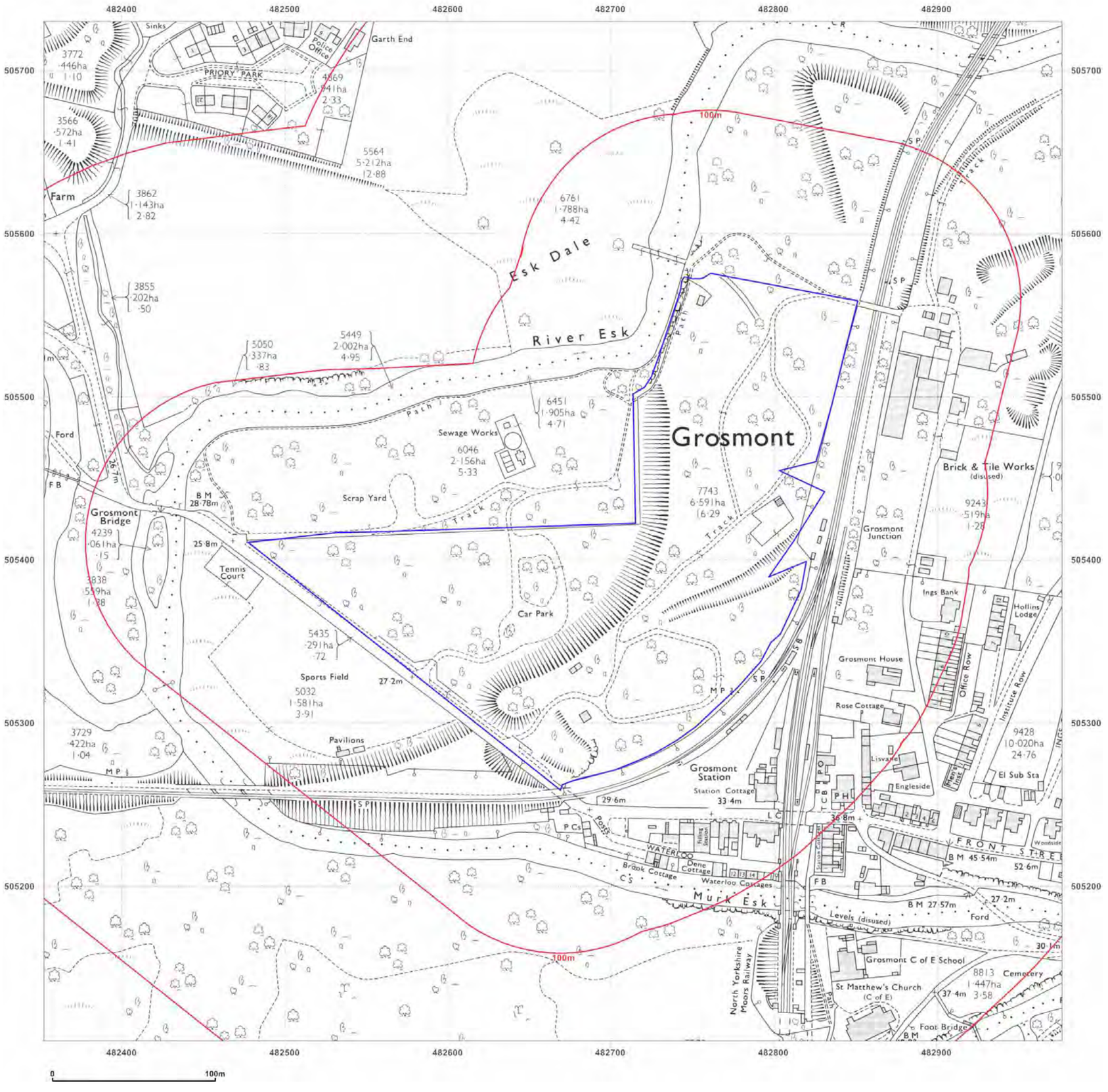
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: National Grid

Map date: **1971**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1971
Revised 1971
Edition N/A
Copyright 1973
Levelled 1953

Powered by

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Groundsure Insights

W: www.groundsure.com

Production date: 03 January 2019

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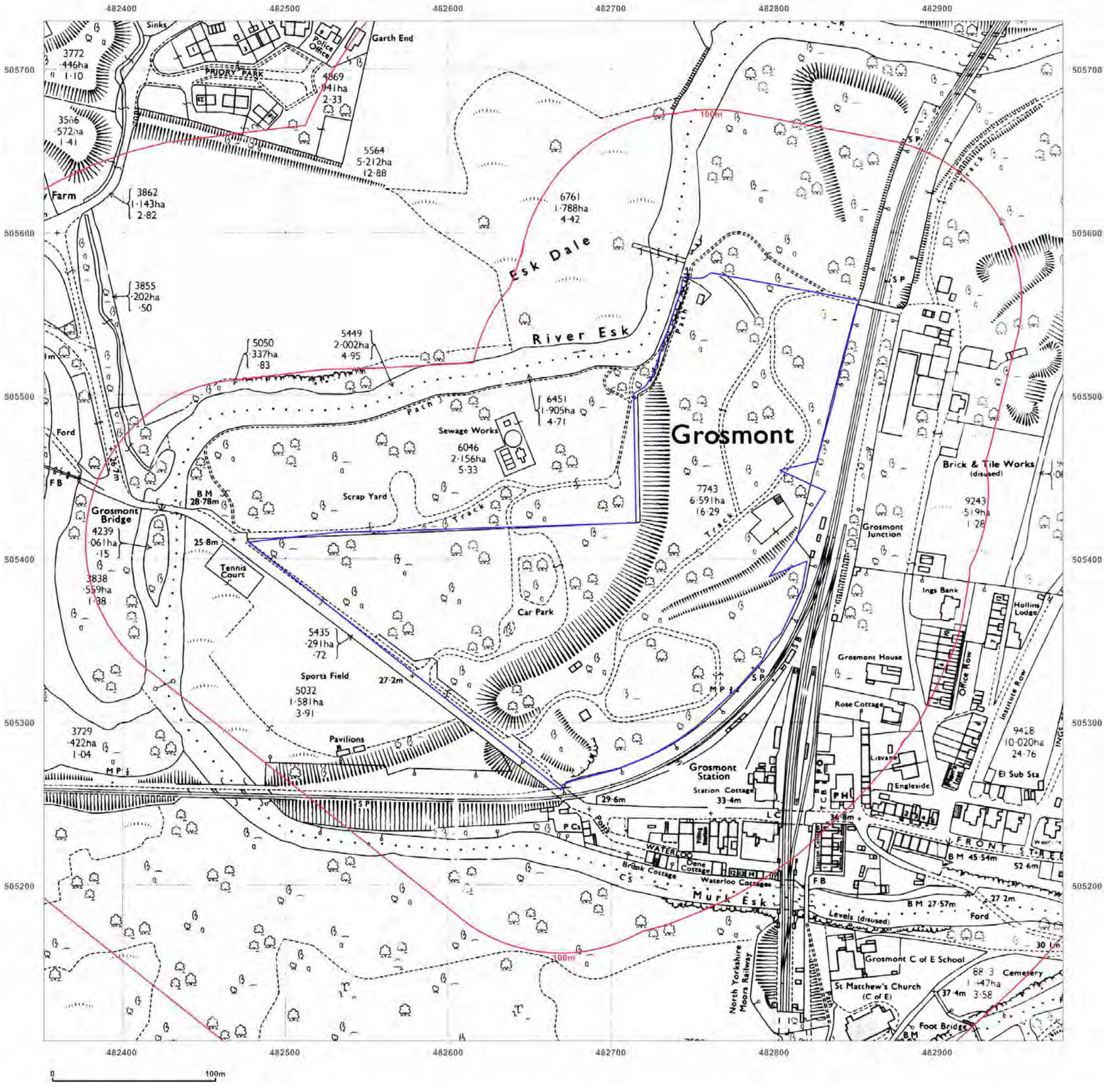

Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: National Grid

Map date: **1973**

Scale: 1:2,500

Printed at: 1:2,500

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Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Groundsure Insights

W: www.groundsure.com

Production date: 03 January 2019

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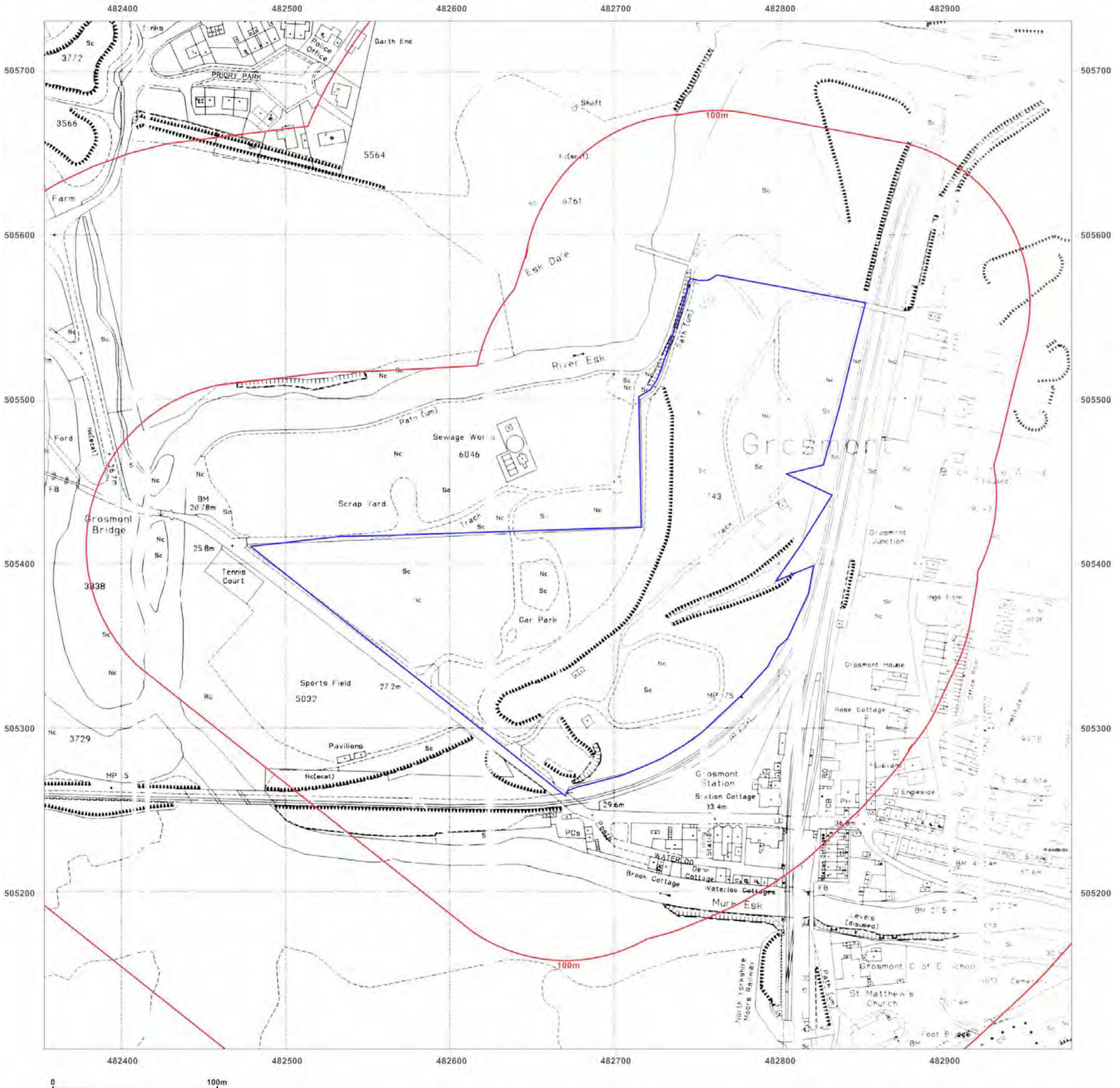

Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: National Grid

Map date: **1995**

Scale: 1:2,500

Printed at: 1:2,500

N
W E
S

Surveyed 1995
Revised N/A
Edition N/A
Copyright 1995
Levelled N/A

Powered by

Produced by
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W: www.groundsure.com

Production date: 03 January 2019

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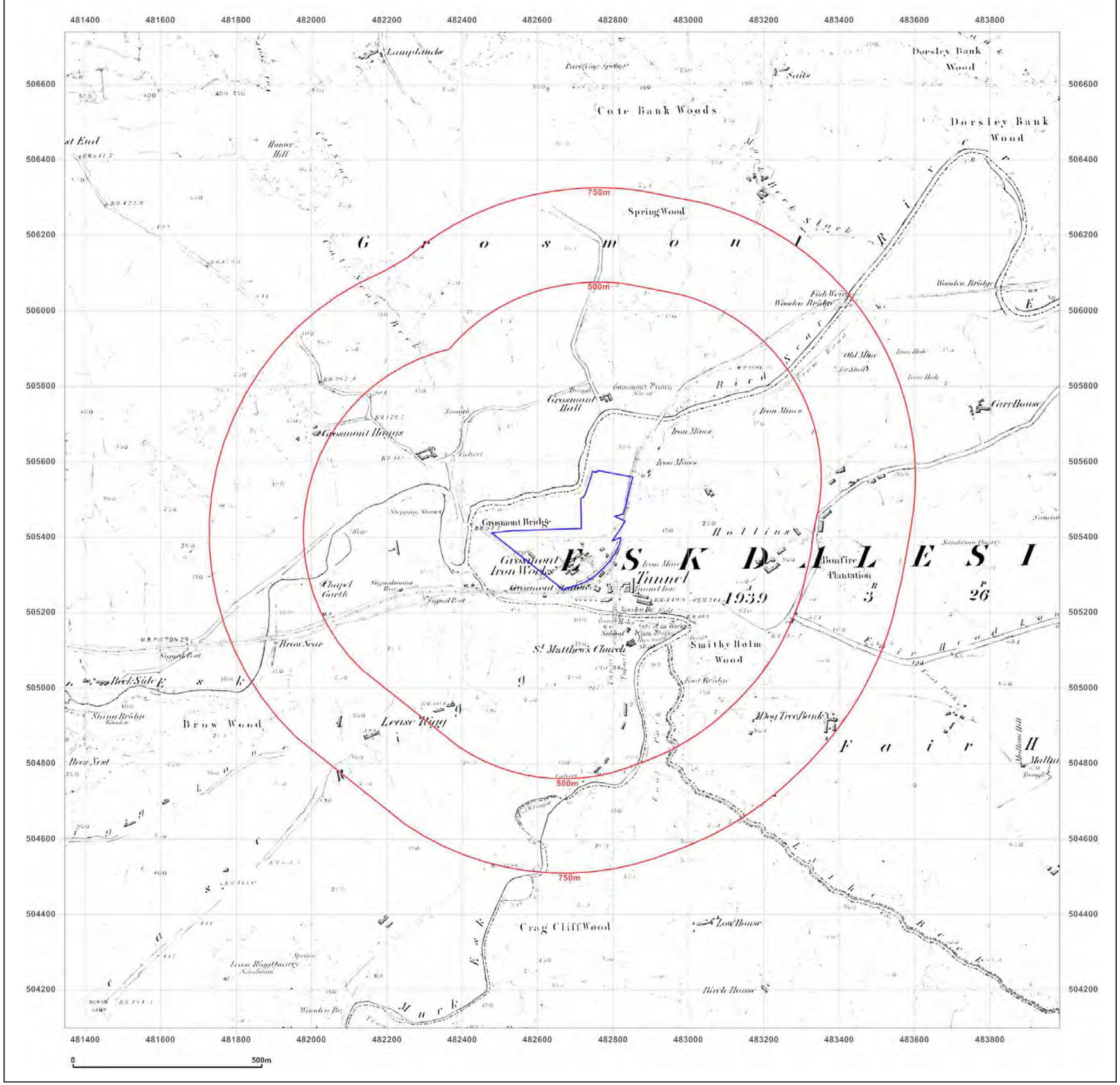
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: County Series

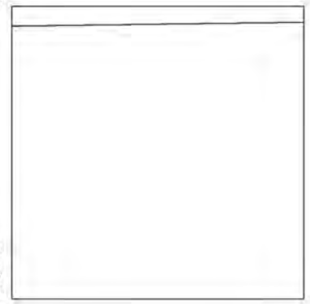
Map date: **1853-1854**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1849
Revised N/A
Edition 1853
Copyright N/A
Levelled N/A

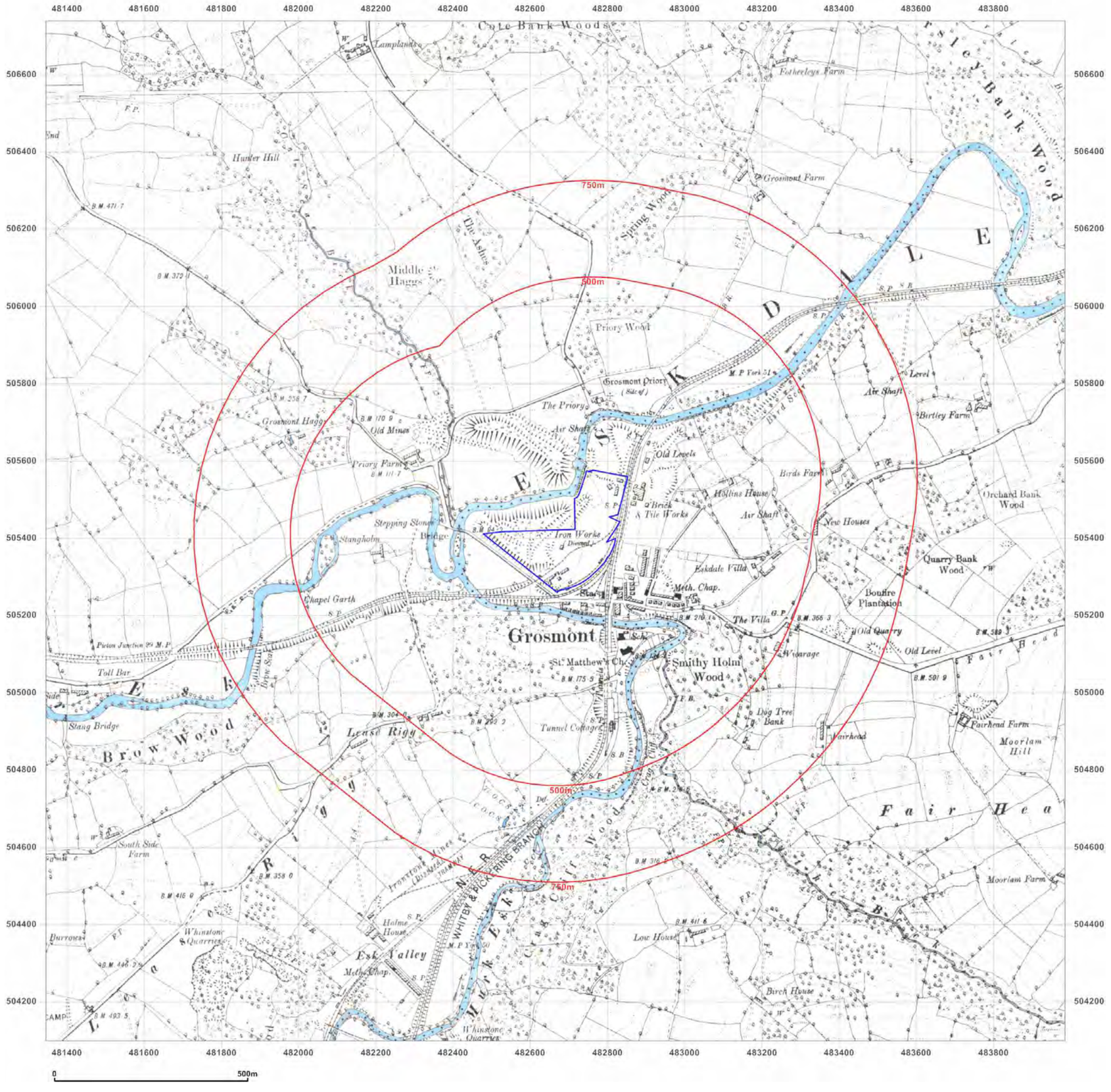
Powered by OS

Produced by
Groundsure Insights

W: www.groundsure.com

Production date: 03 January 2019

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: County Series

Map date: **1892-1893**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1893
Revised 1893
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1892
Revised 1892
Edition N/A
Copyright N/A
Levelled N/A

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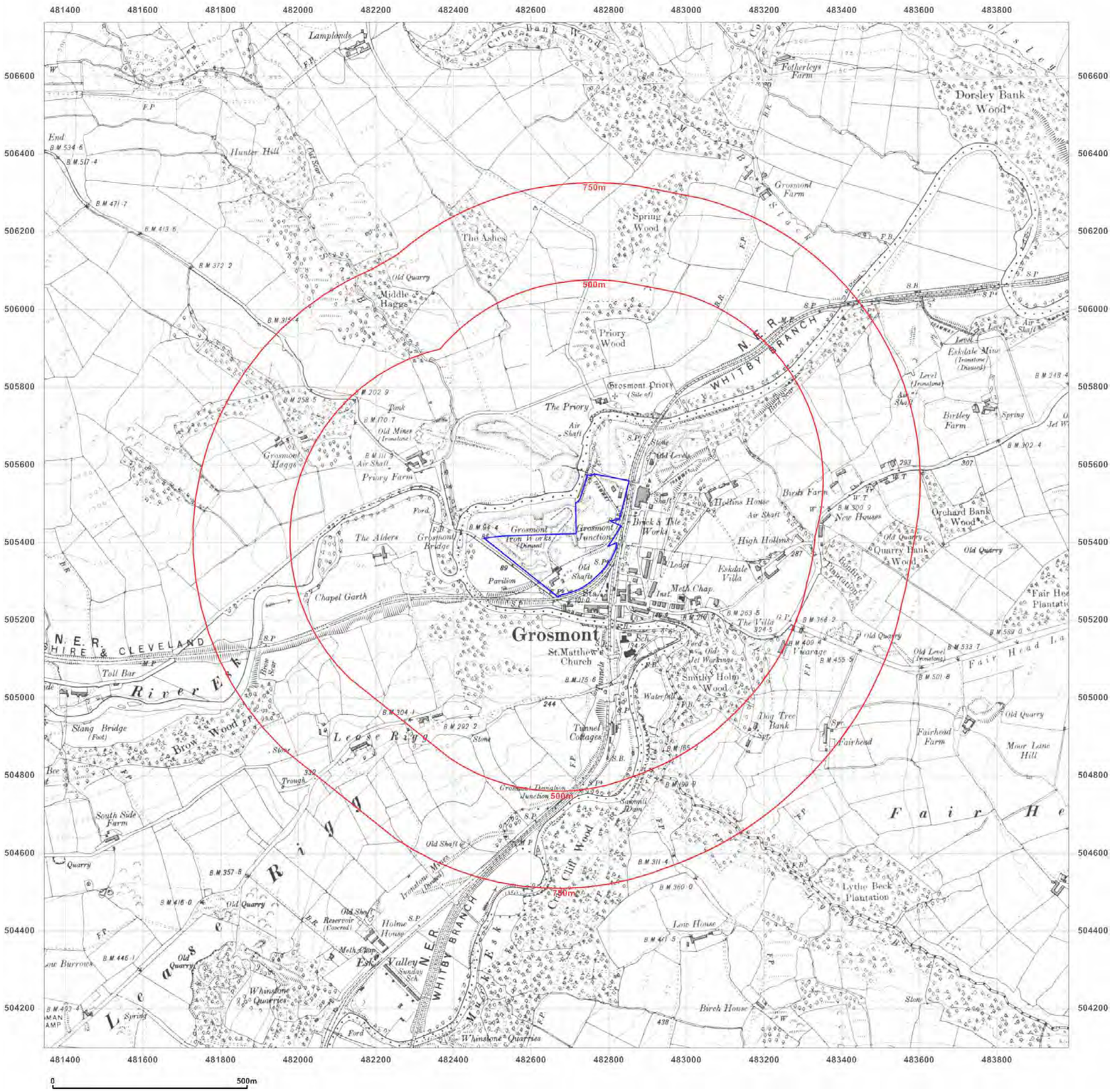
W: www.groundsure.com

Production date: 03 January 2019

Map legend available at:
www.groundsure.com/sites/default/files/groundsure_legend.pdf



Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: County Series

Map date: **1914-1916**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1914
Edition 1914
Copyright N/A
Levelled N/A

Surveyed 1849
Revised 1916
Edition 1916
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Production date: 03 January 2019

Map legend available at:
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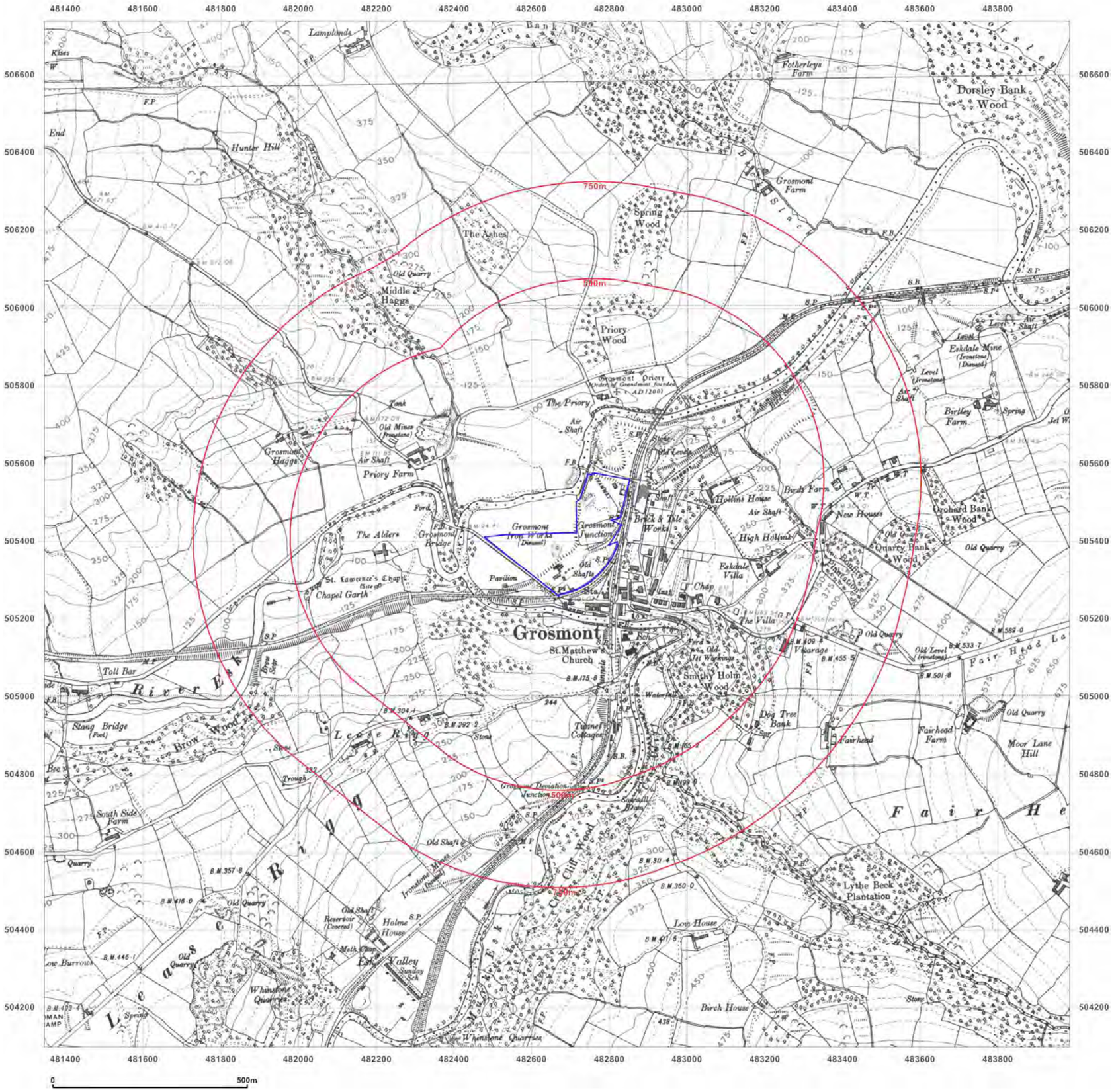

Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: County Series

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1849
Revised 1950
Edition N/A
Copyright N/A
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Surveyed 1849
Revised 1950
Edition N/A
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W: www.groundsure.com

Production date: 03 January 2019

Map legend available at:
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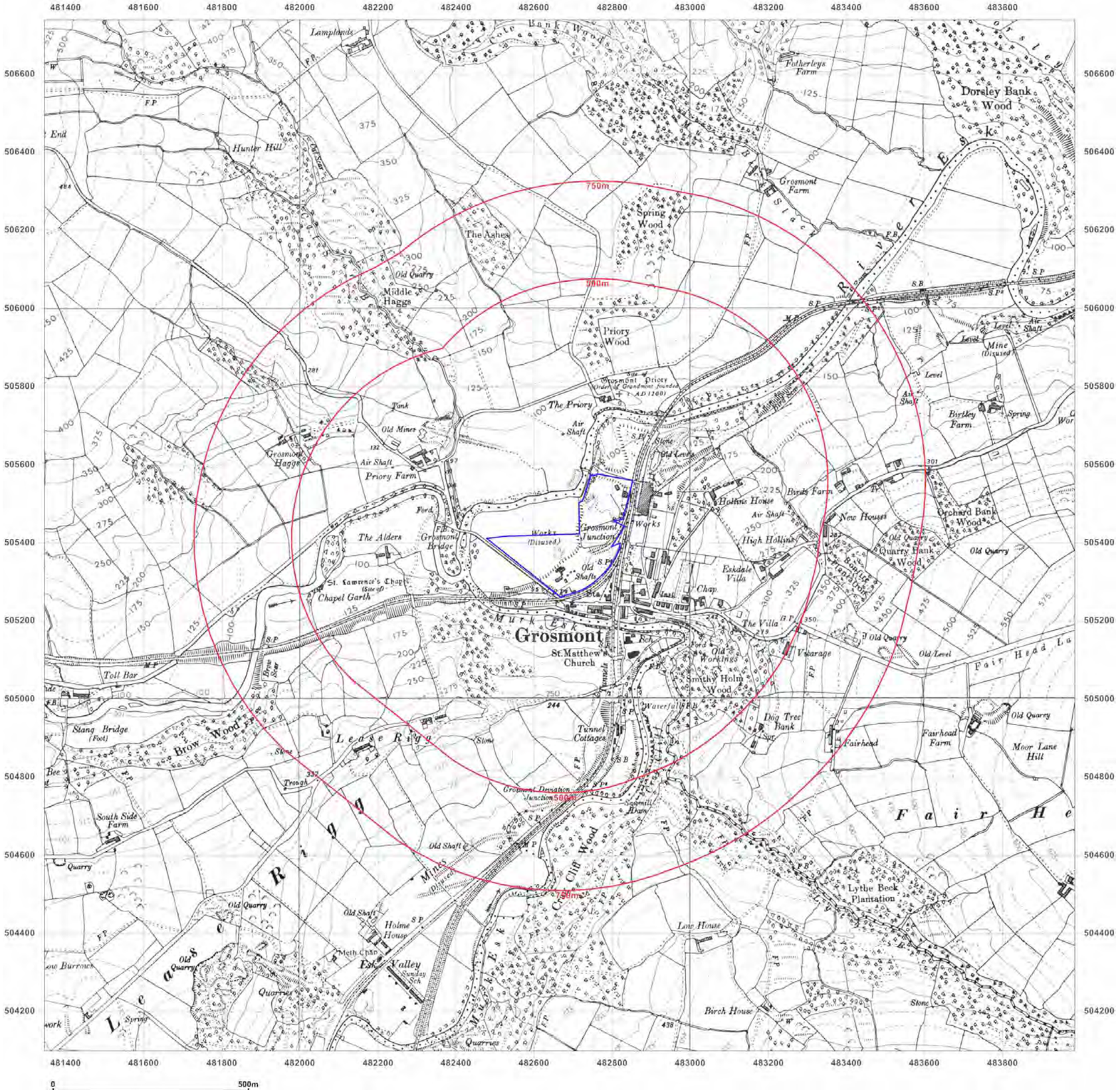

Groundsure INSIGHTS

Site Details:

FRONT STREET, GROSMONT,
WHITBY, YO22 5QE

Client Ref: PO16155-D9255-TK
Report Ref: GS-5723237
Grid Ref: 482664, 505418

Map Name: Provisional

Map date: **1950**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1950
Revised 1950
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1950
Revised 1950
Edition N/A
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