Tween Bridge Solar Farm

Environmental Statement
Appendix 9.1: Phase 1 Ground Conditions Desk Study reports for Land Parcels A to E
Part 8

Planning Act 2008
Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009

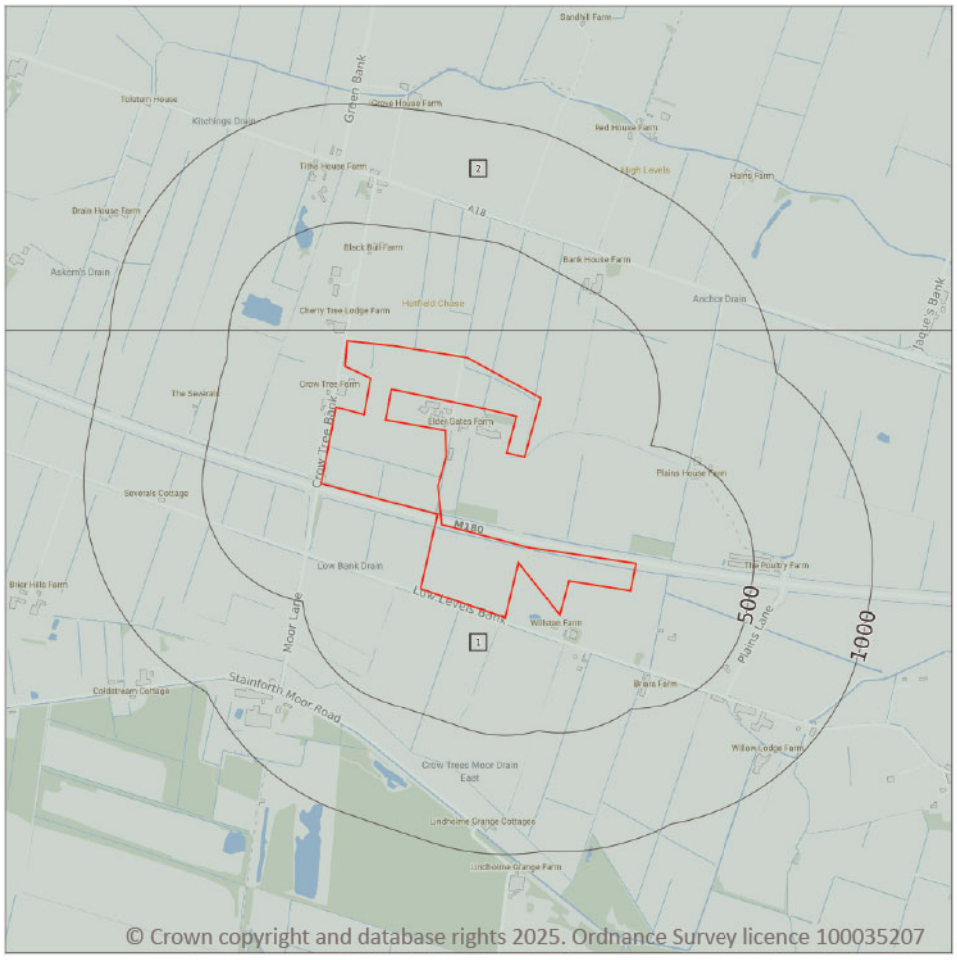
APFP Regulation 5(2)(a)

Document Reference: 6.3.9.1

August 2025

Revision 1

14 Geology 1:10,000 scale - Availability



Site Outline

Search buffers in metres (m)

- Full coverage
- Partial coverage
- No coverage

14.1 10k Availability

Records within 500m	2

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on page 92 >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	**On site**	**No coverage**	**Full**	**Full**	**No coverage**	**SE70NW**
2	43m NW	No coverage	Full	Full	No coverage	SE71SW

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

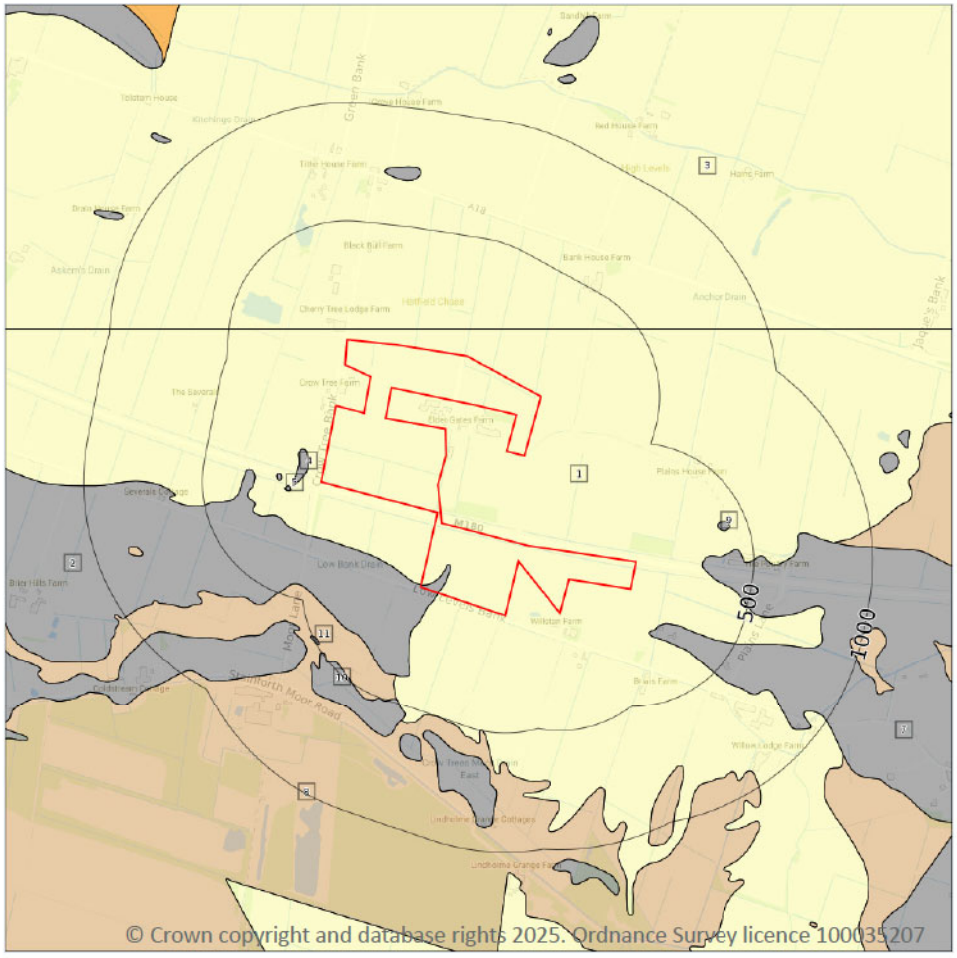
14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (10k)

Superficial geology (10k)
Please see table for more details.

14.3 Superficial geology (10k)

Records within 500m **11**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 94 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**ALV-XCZSV**	**Alluvium - Clay, Silt, Sand And Gravel**	**Clay, Silt, Sand And Gravel**
2	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
3	43m NW	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
4	67m W	BSA1-S	Blown Sand, 1 - Sand	Sand

ID	Location	LEX Code	Description	Rock description
5	132m W	BSA1-S	Blown Sand, 1 - Sand	Sand
6	168m W	BSA1-S	Blown Sand, 1 - Sand	Sand
7	195m SE	BSA1-S	Blown Sand, 1 - Sand	Sand
8	331m SW	PEAT-P	Peat - Peat	Peat
9	376m E	BSA1-S	Blown Sand, 1 - Sand	Sand
10	476m SW	BSA1-S	Blown Sand, 1 - Sand	Sand
11	488m SW	BSA1-S	Blown Sand, 1 - Sand	Sand

This data is sourced from the British Geological Survey.

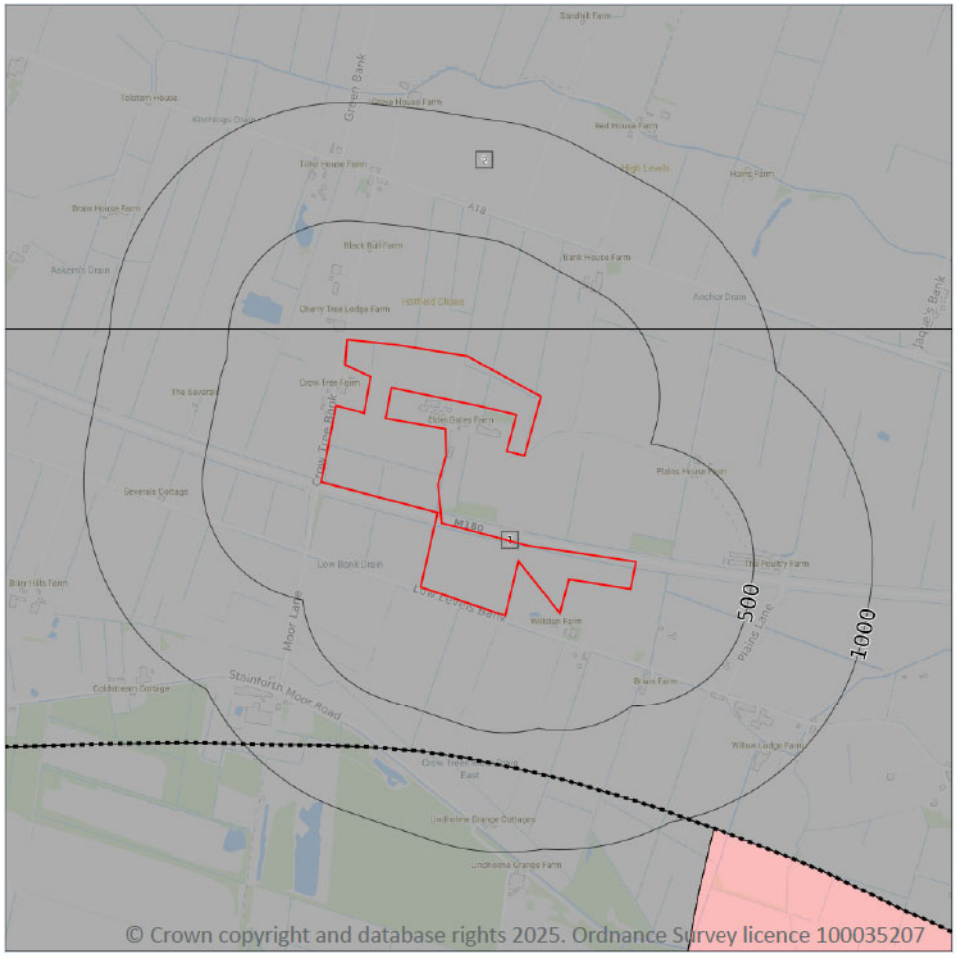
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	2

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 96 >**

ID	Location	LEX Code	Description	Rock age
1	**On site**	**NTC-SDST**	**Nottingham Castle Sandstone Formation - Sandstone**	**Early Triassic Epoch**
2	43m NW	NTC-SDST	Nottingham Castle Sandstone Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

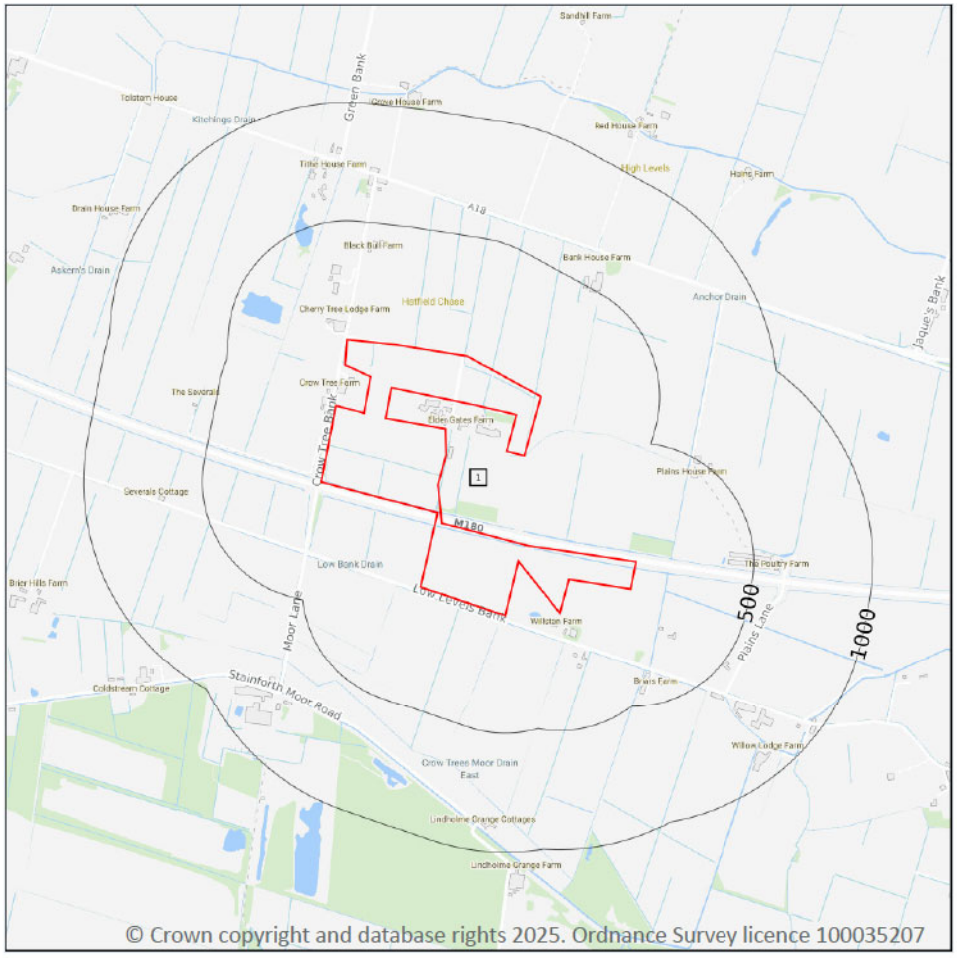
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



Site Outline

Search buffers in metres (m)

Geological map tile

15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on page 98 >

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW088_doncaster_v4

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

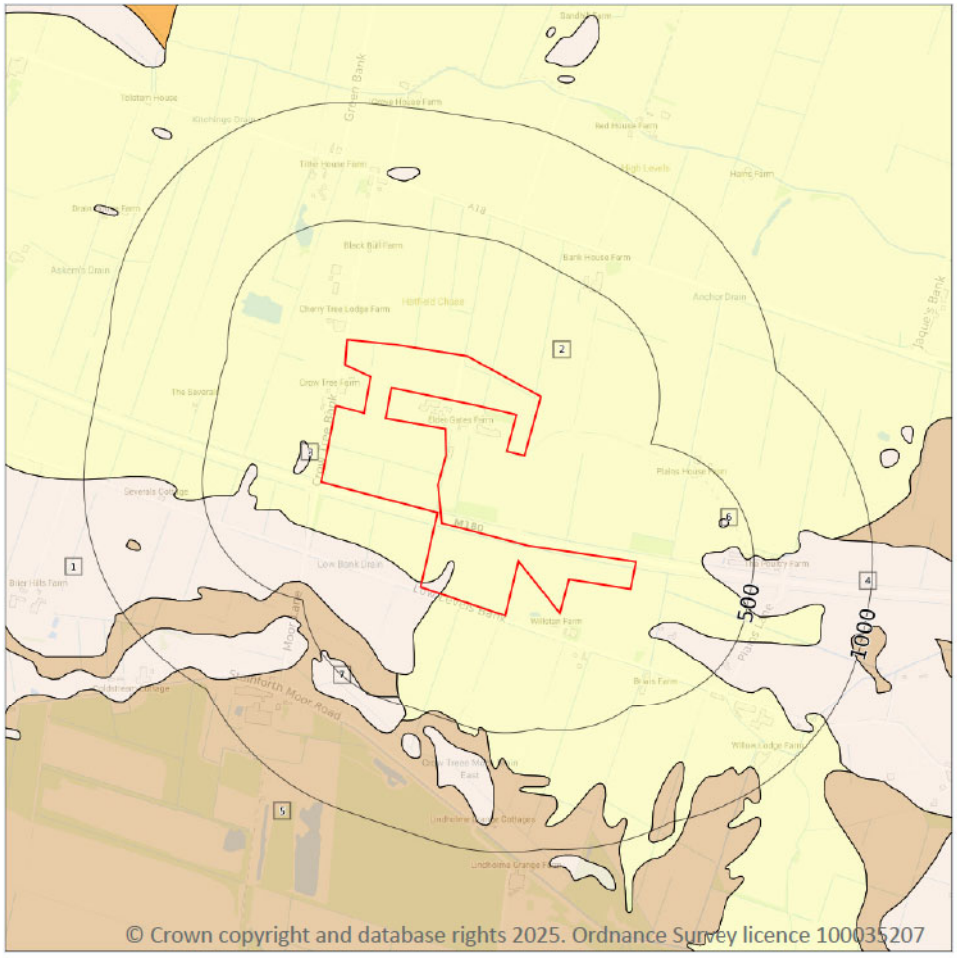
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **7**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 100 >**

ID	Location	LEX Code	Description	Rock description
1	**On site**	**SUTN-S**	**SUTTON SAND FORMATION**	**SAND**
2	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
3	66m W	SUTN-S	SUTTON SAND FORMATION	SAND
4	187m SE	SUTN-S	SUTTON SAND FORMATION	SAND

ID	Location	LEX Code	Description	Rock description
5	320m SW	PEAT-P	PEAT	PEAT
6	383m E	SUTN-S	SUTTON SAND FORMATION	SAND
7	455m SW	SUTN-S	SUTTON SAND FORMATION	SAND

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m	3

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**High**	**Very Low**
On site	**Intergranular**	**High**	**High**
43m NW	Intergranular	High	Very Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

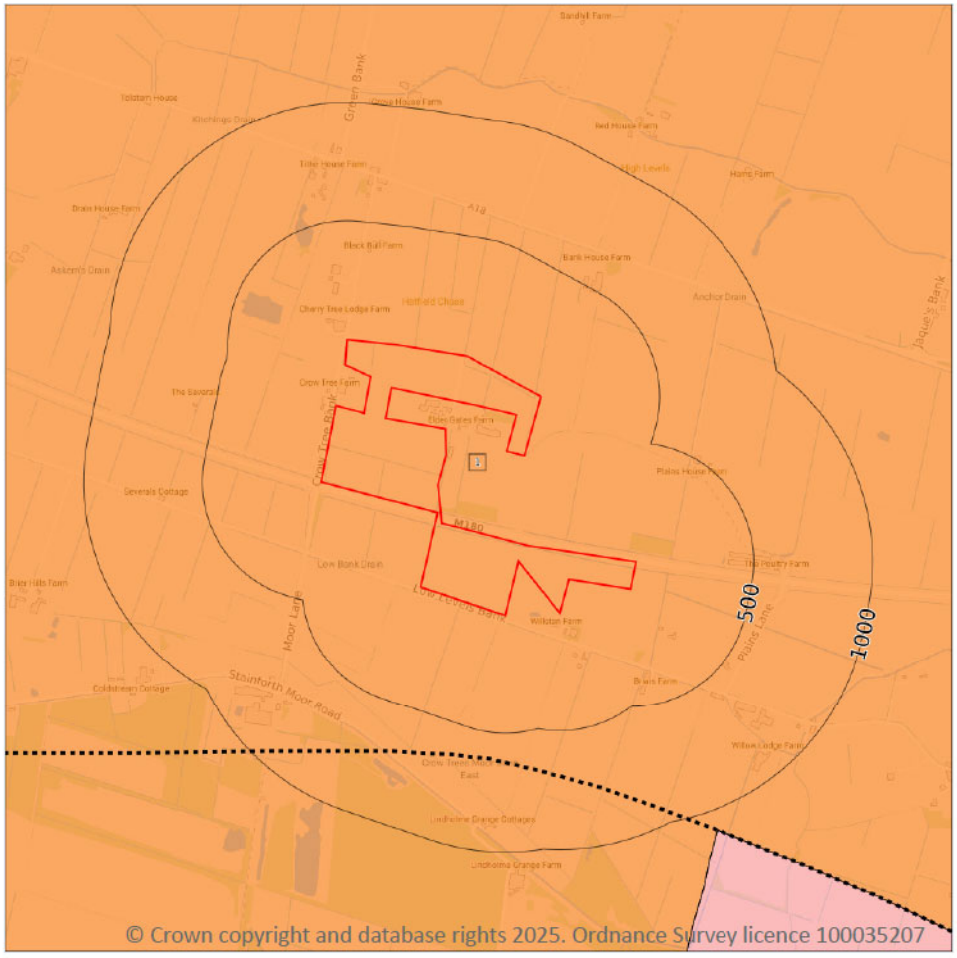
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	1

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 102 >**

ID	Location	LEX Code	Description	Rock age
1	On site	CHES-PESST	CHESTER FORMATION - SANDSTONE, PEBBLY (GRAVELLY)	OLENEKIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	2

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Moderate**
43m NW	Mixed	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes

Site Outline

Search buffers in metres (m)

- Confidential
- 0 - 10m
- 10 - 30m
- 30m+
- Unknown

16.1 BGS Boreholes

Records within 250m	5

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

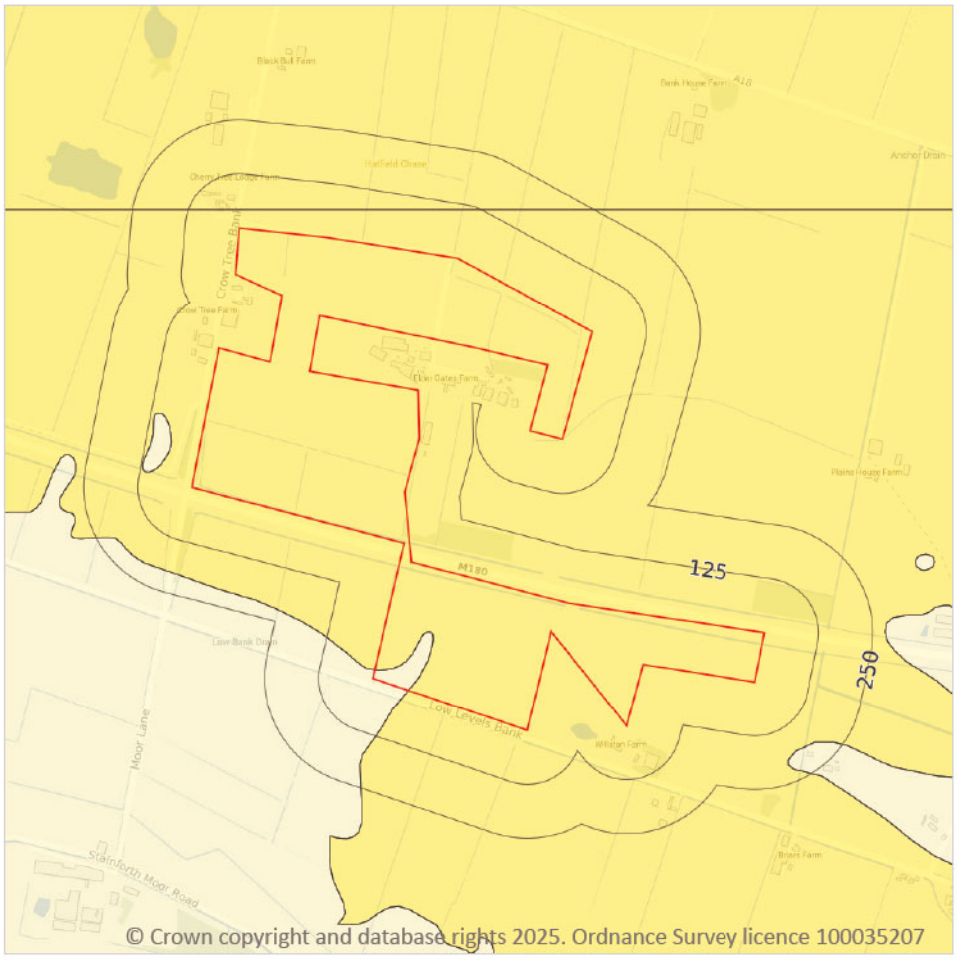
Features are displayed on the Boreholes map on **page 104 >**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	30m NE	472180 409640	A18 THORNE/SCUNTHORPE 37	7.62	N	124540 ↗
2	42m SE	472460 408780	A18 THORNE/SCUNTHORPE 84	9.14	N	124547 ↗
3	62m NW	471508 409723	CROW TREE FARM THORNE LEVELS	33.53	N	124519 ↗

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	72m NW	471540 410000	CHERRY TREE FARM	34.14	N	124818 ↗
5	91m NE	472470 409580	A18 THORNE/SCUNTHORPE 37A	10.66	N	124541 ↗

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.1 Shrink swell clays

Records within 50m	3

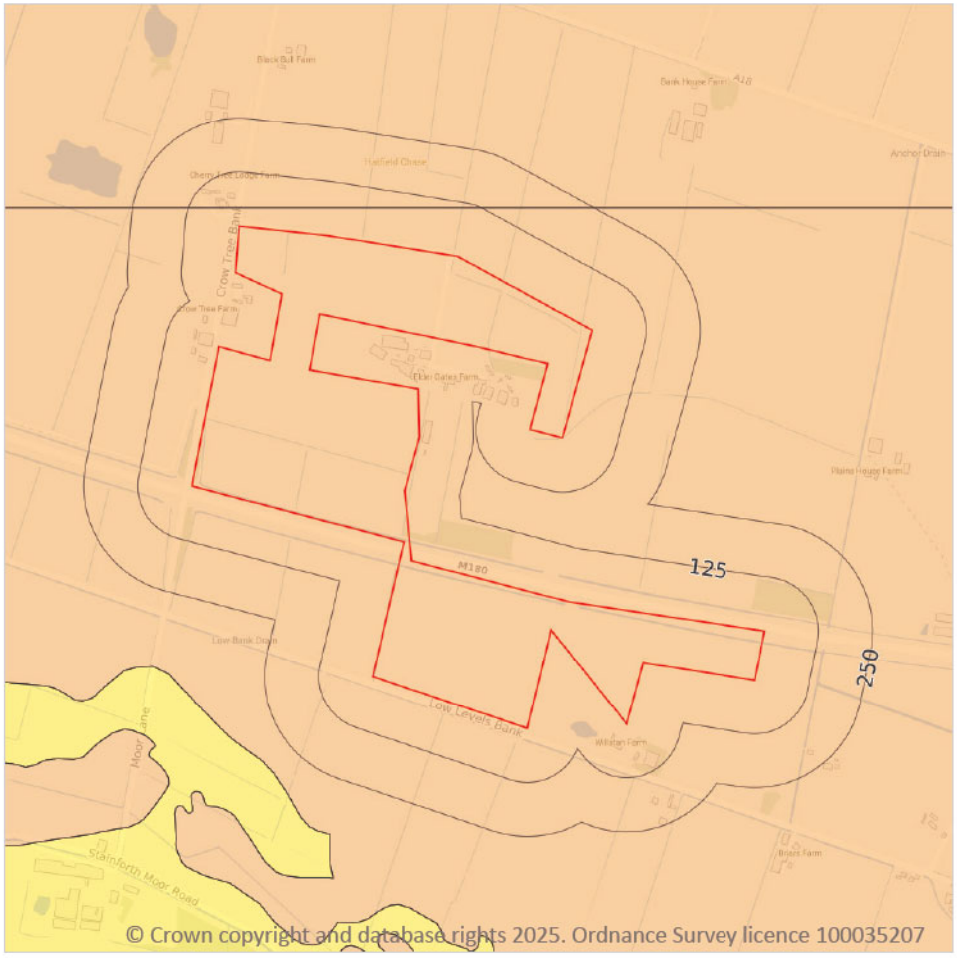
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 106 >**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Very low**	**Ground conditions predominantly low plasticity.**
43m NW	Very low	Ground conditions predominantly low plasticity.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	2

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

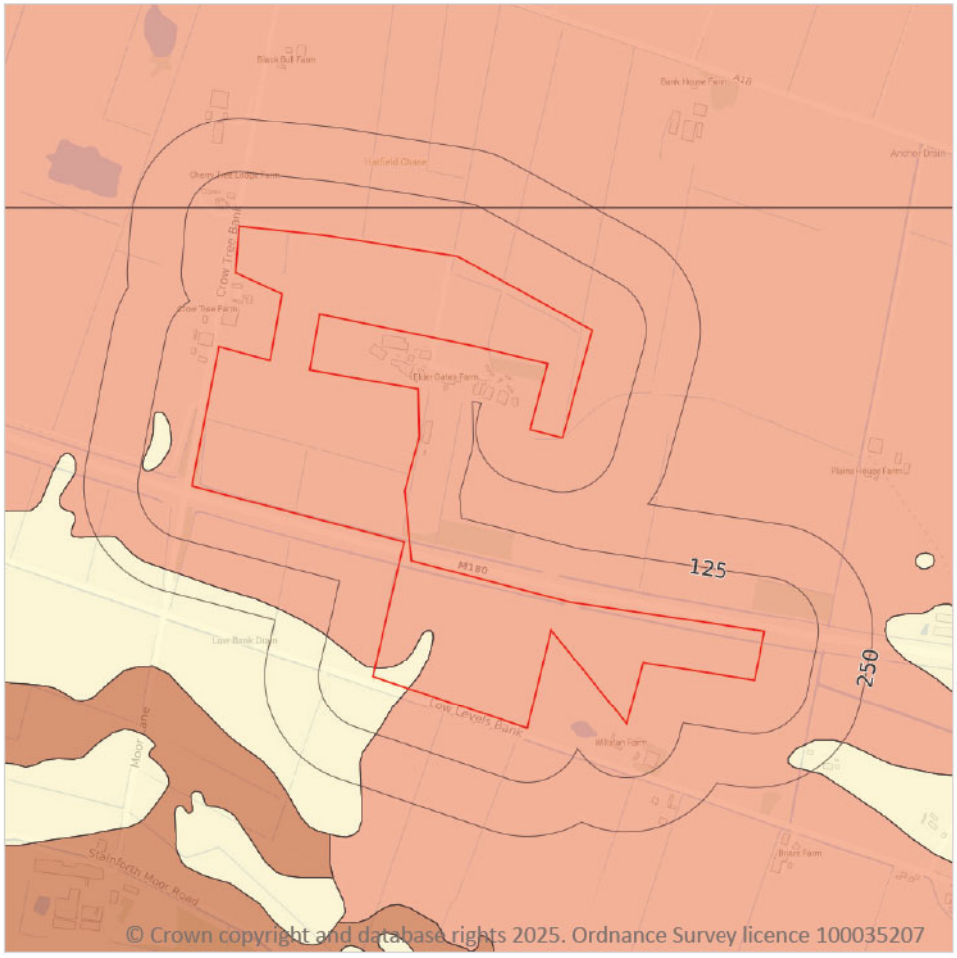
Features are displayed on the Natural ground subsidence - Running sands map on **page 108 >**

Location	Hazard rating	Details
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

Location	Hazard rating	Details
43m NW	Low	Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	3

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

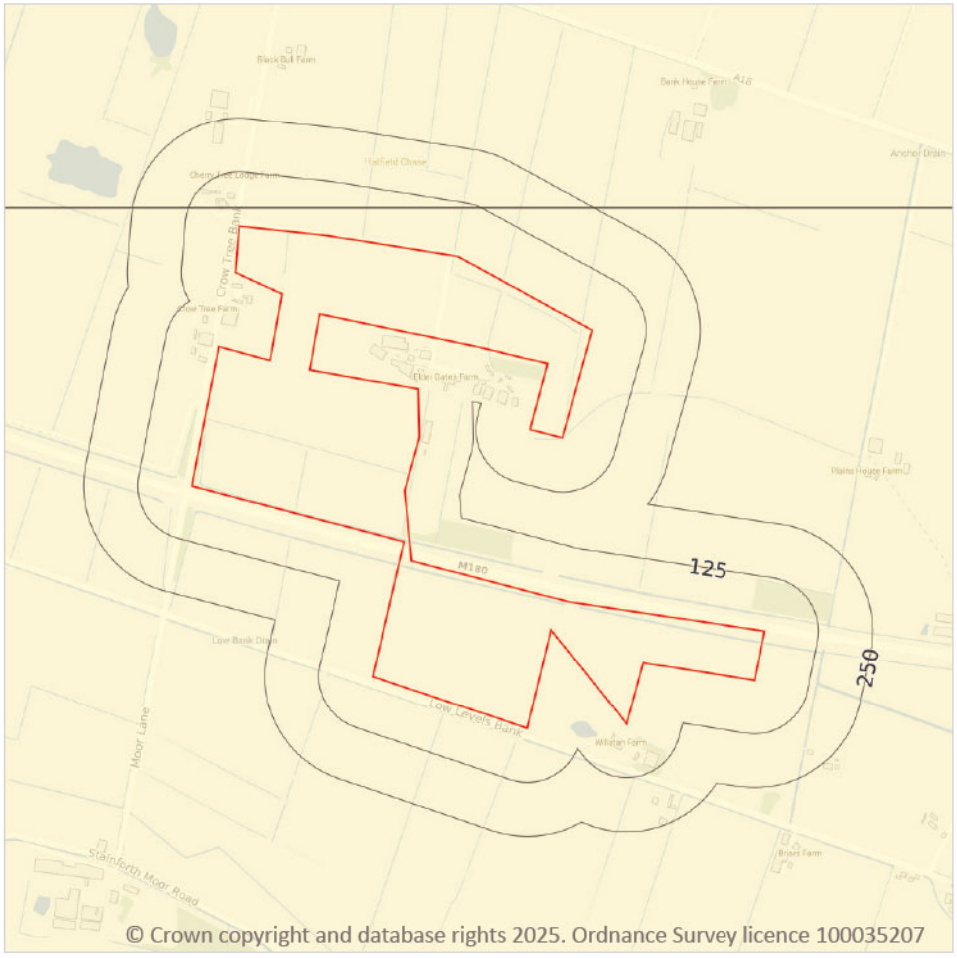
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 110 >**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

Location	Hazard rating	Details
43m NW	Moderate	Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	2

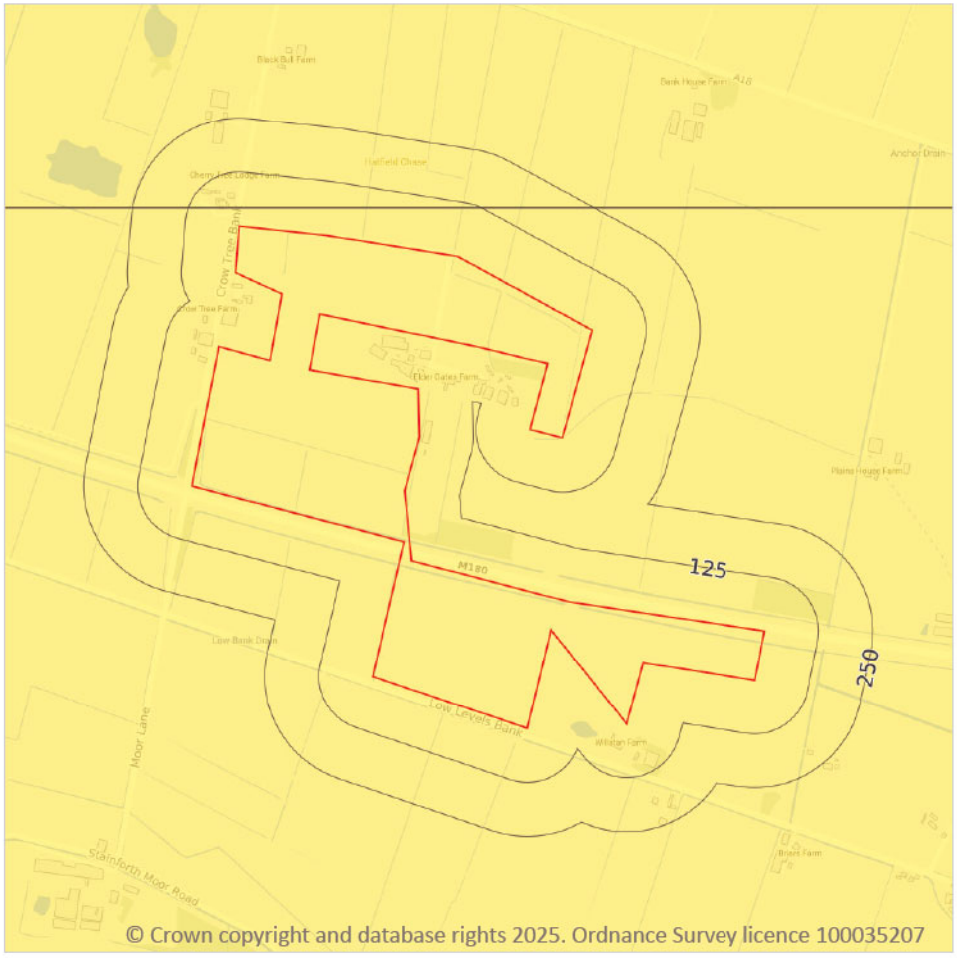
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 112 >**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
43m NW	Negligible	Deposits with potential to collapse when loaded and saturated are believed not to be present.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	2

The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

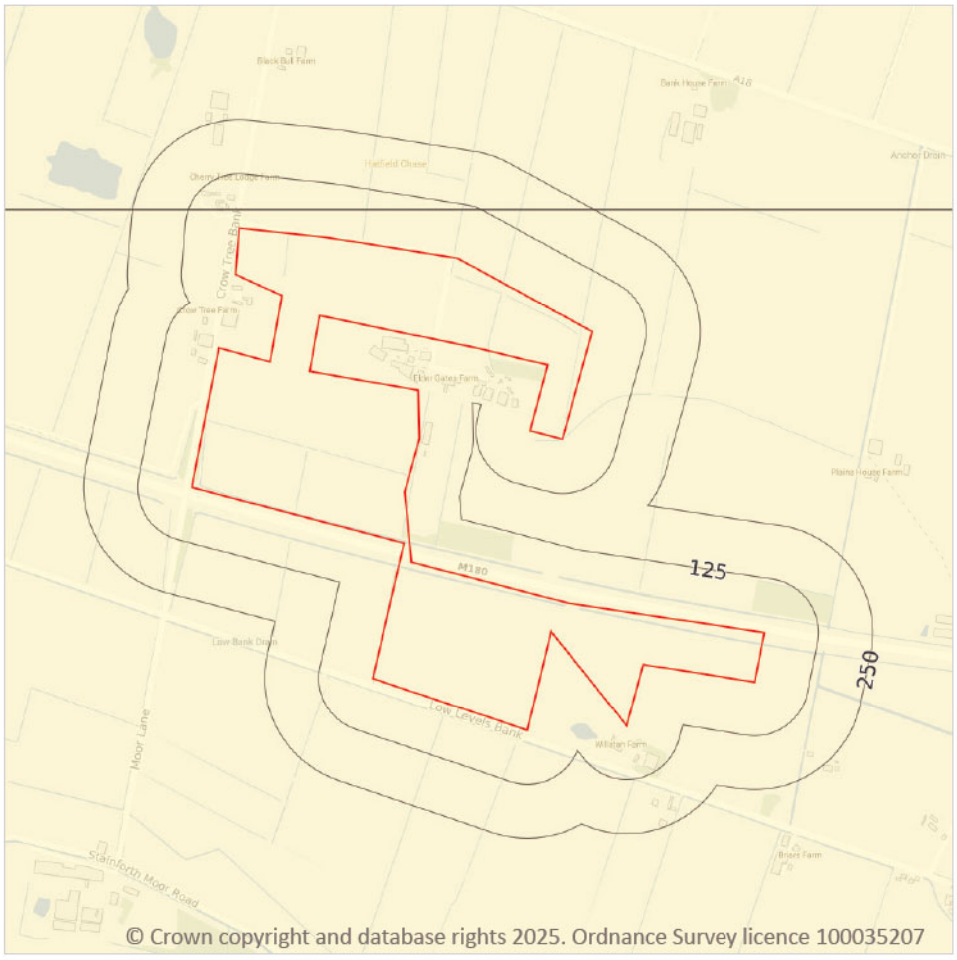
Features are displayed on the Natural ground subsidence - Landslides map on **page 113 >**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

Location	Hazard rating	Details
43m NW	Very low	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	2

The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

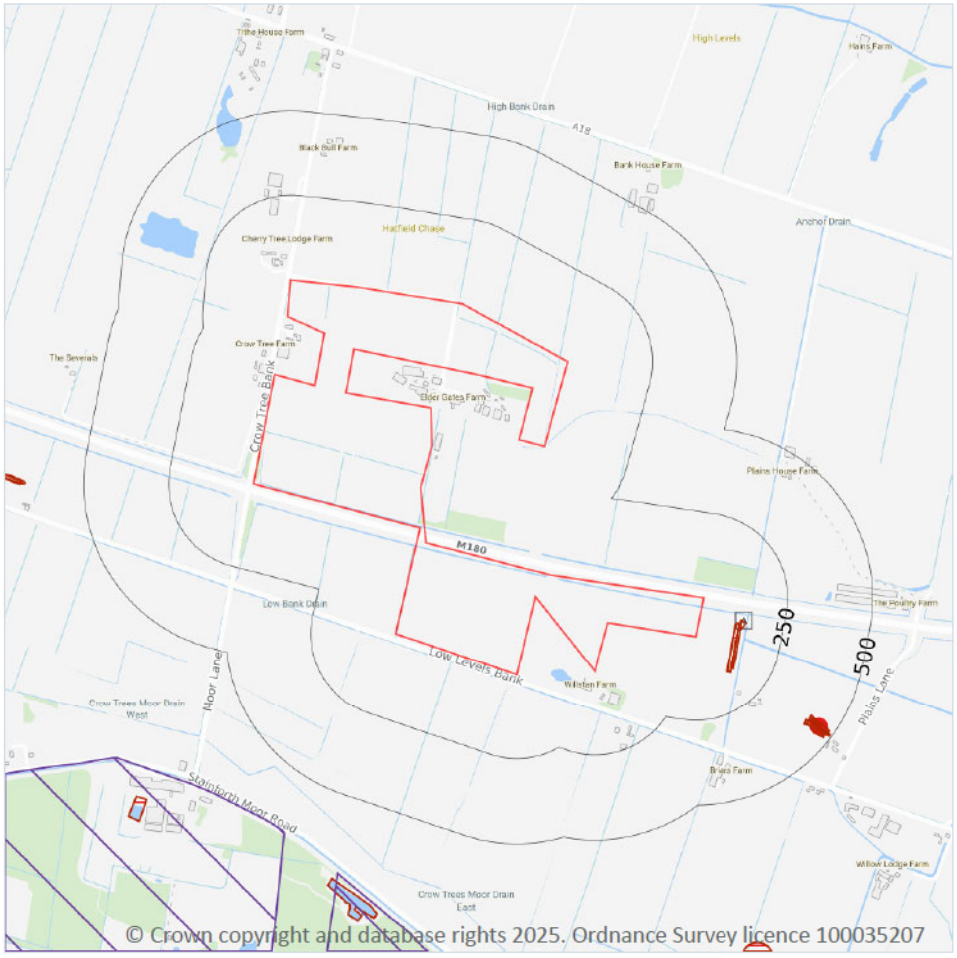
Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 115 >**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

Location	Hazard rating	Details
43m NW	Negligible	Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.

This data is sourced from the British Geological Survey.

18 Mining and ground workings



Site Outline

Search buffers in metres (m)

- BritPits
- Surface ground workings
- Underground workings
- Underground mining extents
- Historical mineral planning areas
- TCA non-coal mining

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 BritPits

Records within 500m	1

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

Features are displayed on the Mining and ground workings map on page 117 >

ID	Location	Details	Description
B	453m SE	Name: Brier Farm Sand Pit Address: Sandtoft, ISLE OF AXHOLME, Lincolnshire Commodity: Sand Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.2 Surface ground workings

Records within 250m	3

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining and ground workings map on **page 117 >**

ID	Location	Land Use	Year of mapping	Mapping scale
A	110m SE	Unspecified Ground Workings	1948	1:10560
A	110m SE	Unspecified Ground Workings	1904	1:10560
A	120m SE	Unspecified Ground Workings	1951	1:10560

This is data is sourced from Ordnance Survey/Groundsure.

18.3 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground mining extents

Records within 500m	0

This data identifies underground mine workings that could present a potential risk, including adits and seam workings. These features have been identified from BGS Geological mapping and mine plans sourced from the BGS and various collections and sources.

This data is sourced from Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	0

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.8 The Coal Authority non-coal mining

Records within 500m	0

This data provides an indication of the potential zone of influence of recorded underground non-coal mining workings. Any and all analysis and interpretation of Coal Authority Data in this report is made by Groundsure, and is in no way supported, endorsed or authorised by the Coal Authority. The use of the data is restricted to the terms and provisions contained in this report. Data reproduced in this report may be the copyright of the Coal Authority and permission should be sought from Groundsure prior to any re-use.

This data is sourced from The Coal Authority.

18.9 Researched mining

Records within 500m	0

This data indicates areas of potential mining identified from alternative or archival sources, including; BGS Geological paper maps, Lidar data, aerial photographs (from World War II onwards), archaeological data services, websites, Tithe maps, and various text/plans from collected books and reports. Some of this data is approximate and Groundsure have interpreted the resultant risk area and, where possible, specific areas of risk have been captured.

This data is sourced from Groundsure.

18.10 Mining record office plans

Records within 500m	0

This dataset is representative of Mining Record Office and/or plan extents held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.11 BGS mine plans

Records within 500m	0

This dataset is representative of BGS mine plans held by Groundsure and should be considered approximate. Where possible, plans have been located and any specific areas of risk they depict have been captured.

This data is sourced from Groundsure.

18.12 Coal mining

Records on site	1

Areas which could be affected by past, current or future coal mining.

Location	Details
On site	**The site is located within a coal mining area as defined by the Coal Authority. A Consultants Coal Mining Report is recommended to further assess coal mining issues at the site. This can be ordered directly through Groundsure or your preferred search provider.**

This data is sourced from the Coal Authority.

18.13 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.14 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.15 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

18.16 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Ground cavities and sinkholes

19.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

19.2 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

19.3 Reported recent incidents

Records within 500m	0

This data identifies sinkhole information gathered from media reports and Groundsure's own records. This data goes back to 2014 and includes relative accuracy ratings for each event and links to the original data sources. The data is updated on a regular basis and should not be considered a comprehensive catalogue of all sinkhole events. The absence of data in this database does not mean a sinkhole definitely has not occurred during this time.

This data is sourced from Groundsure.

19.4 Historical incidents

Records within 500m	0

This dataset comprises an extract of 1:10,560, 1:10,000, 1:2,500 and 1:1,250 scale historical Ordnance Survey maps held by Groundsure, dating back to the 1840s. It shows shakeholes, deneholes and other 'holes' as noted on these maps. Dene holes are medieval chalk extraction pits, usually comprising a narrow shaft with a number of chambers at the base of the shaft. Shakeholes are an alternative name for suffusion sinkholes, most commonly found in the limestone landscapes of North Yorkshire but also extensively noted around the Brecon Beacons National Park.

Not all 'holes' noted on Ordnance Survey mapping will necessarily be present within this dataset.

This data is sourced from Groundsure.

20 Radon

Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

20.1 Radon

Records on site	1

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 124 >**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

21 Soil chemistry

21.1 BGS Estimated Background Soil Chemistry

Records within 50m	28

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
16m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
43m NW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
43m NW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.

21.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

21.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

22 Railway infrastructure and projects

22.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

22.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

22.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

22.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

22.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

22.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

22.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

22.8 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

22.9 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference ↗.

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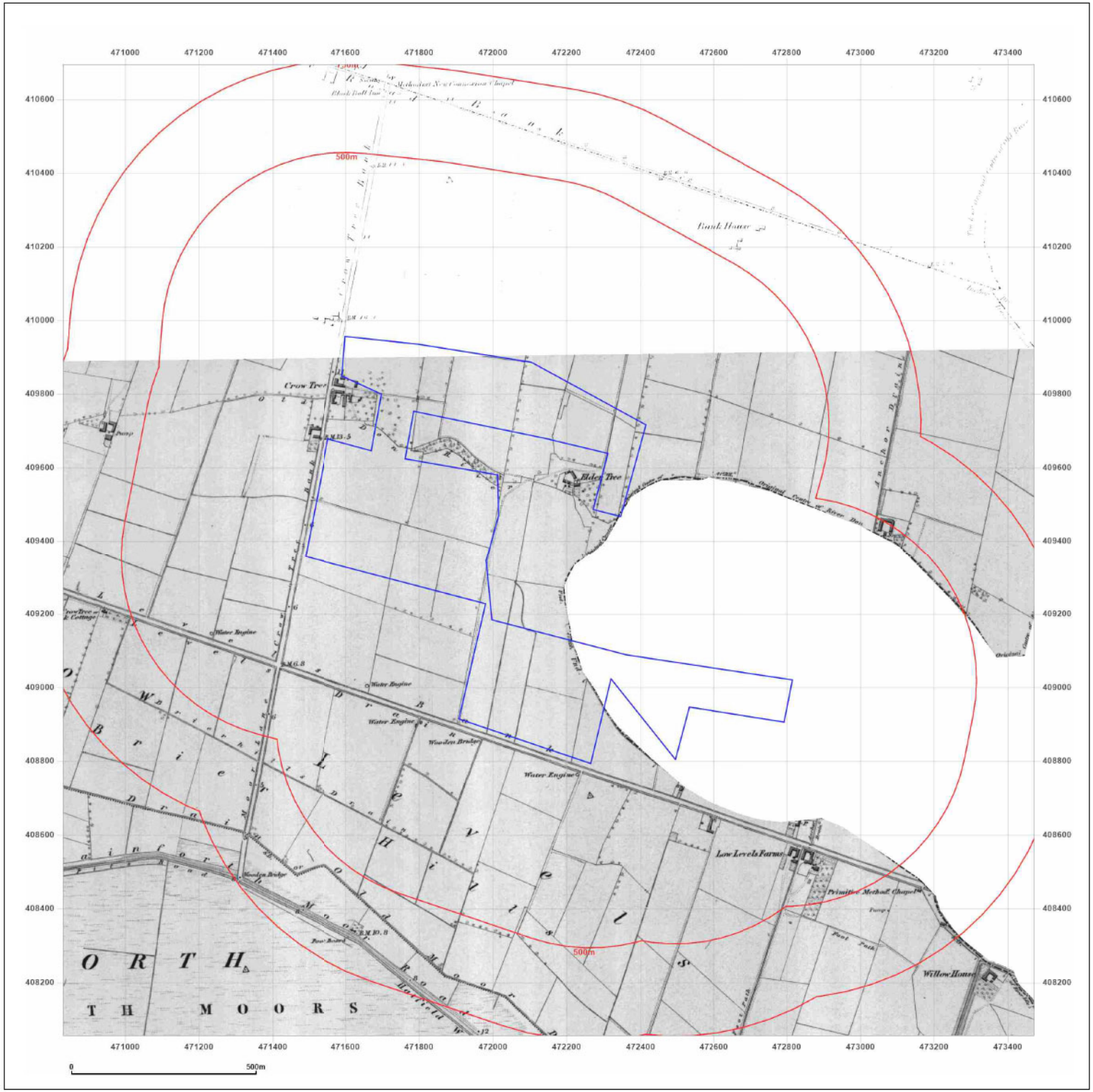

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Site Details:

Tween Bridge Area D East

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Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: **1853**
Scale: 1:10,560
Printed at: 1:10,560

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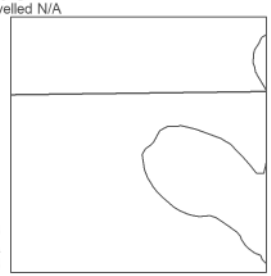
Surveyed 1849
Revised N/A
Edition 1853
Copyright N/A
Levelled N/A



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Edition 1853
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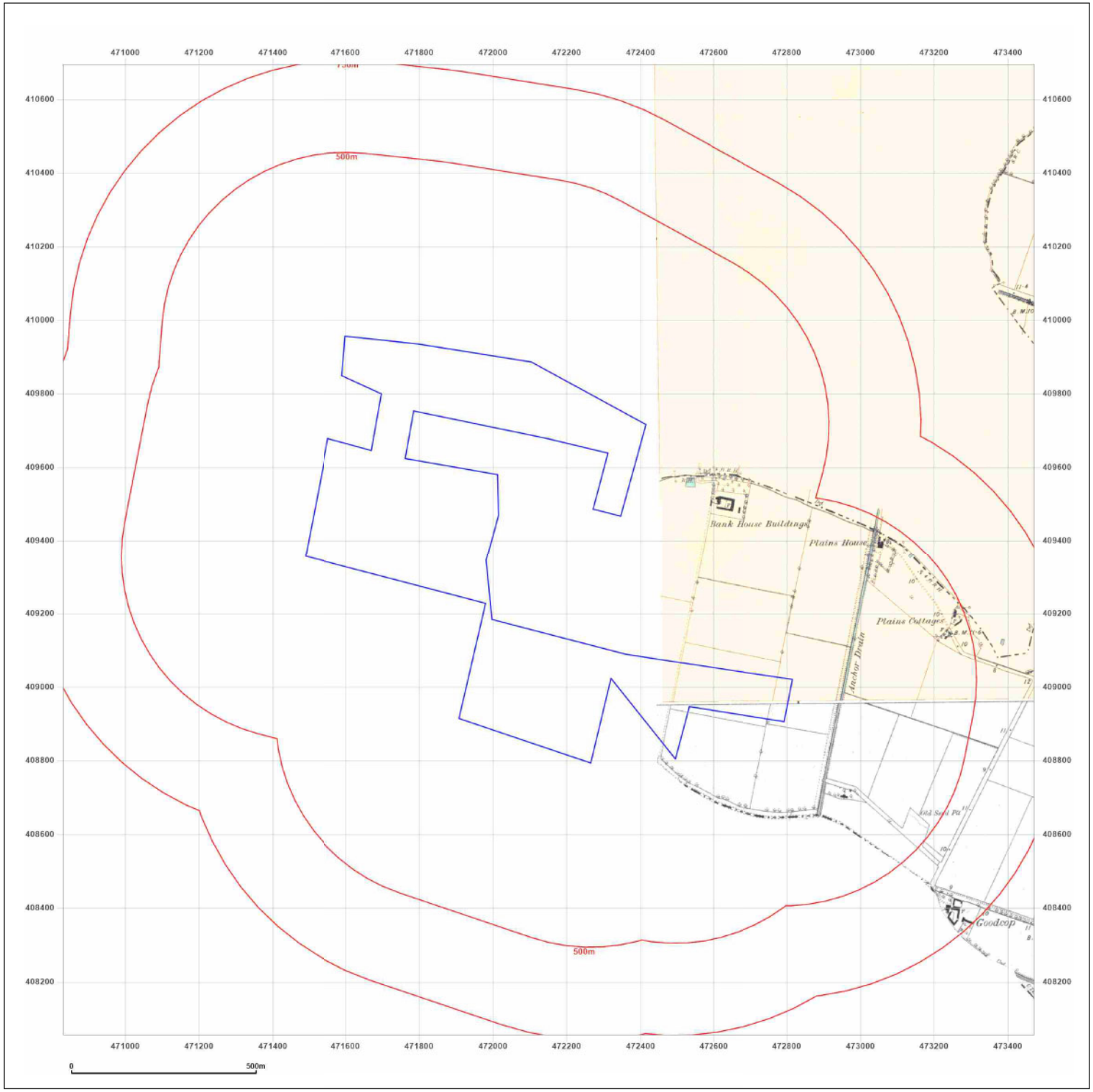

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

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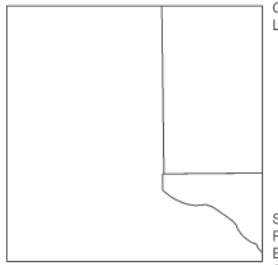

Surveyed 1005
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Edition N/A
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Surveyed 1885
Revised 1885
Edition N/A
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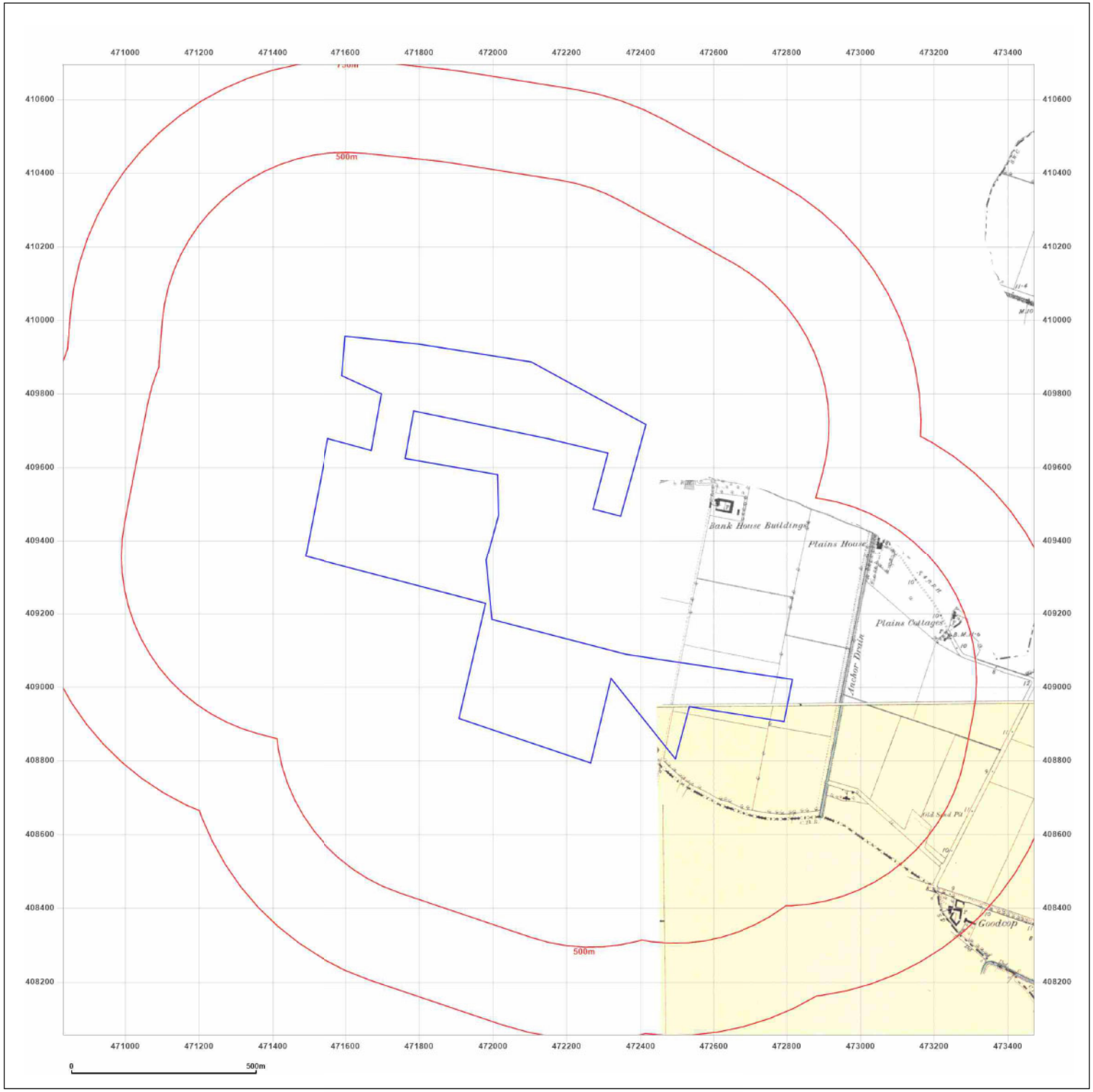

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Site Details:

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Map Name: County Series
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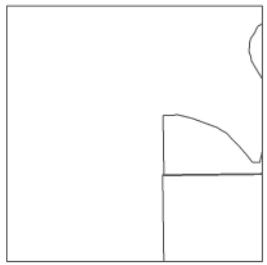

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Edition N/A
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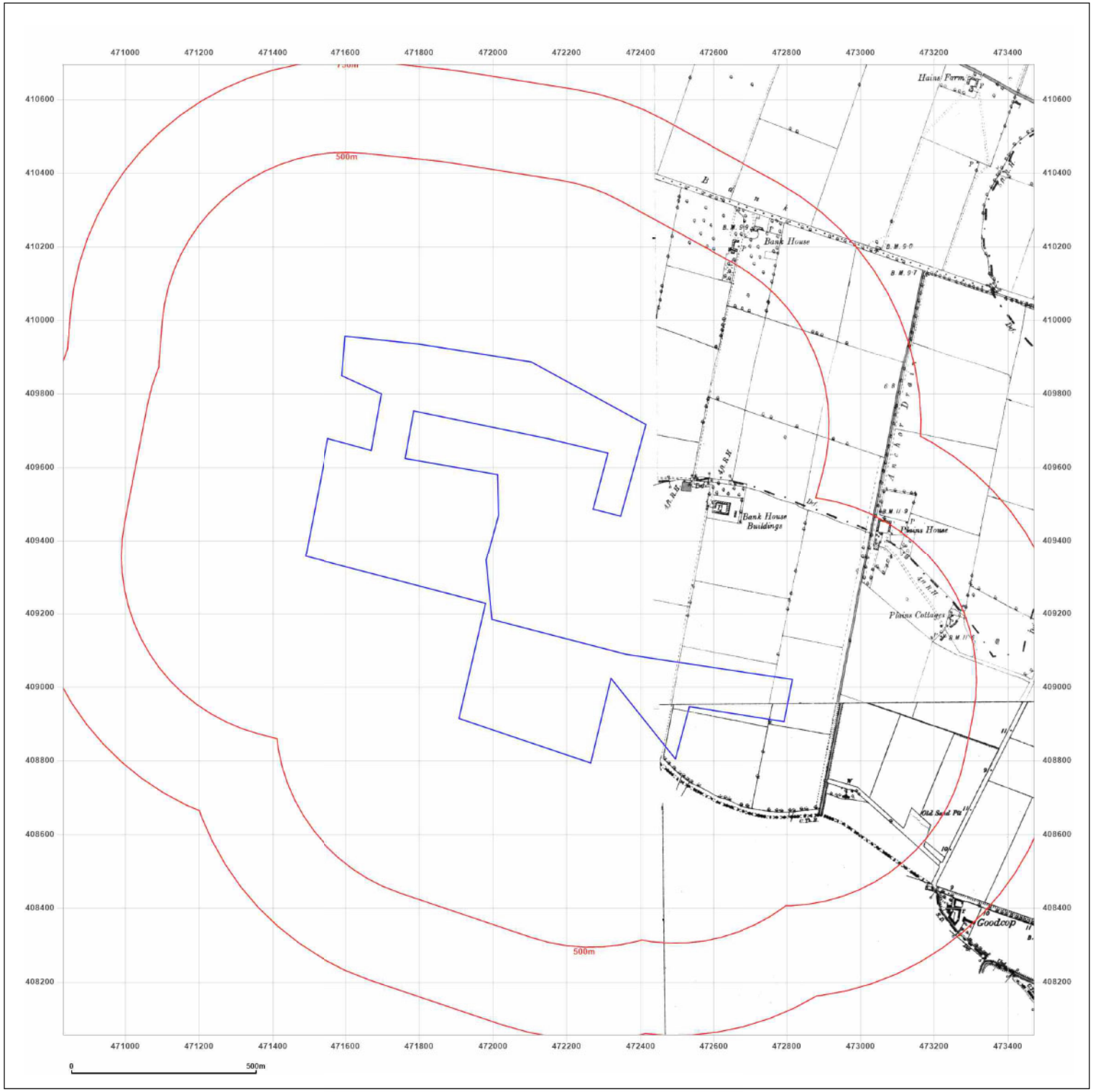

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
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Printed at: 1:10,560

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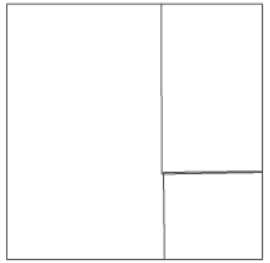

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Revised N/A
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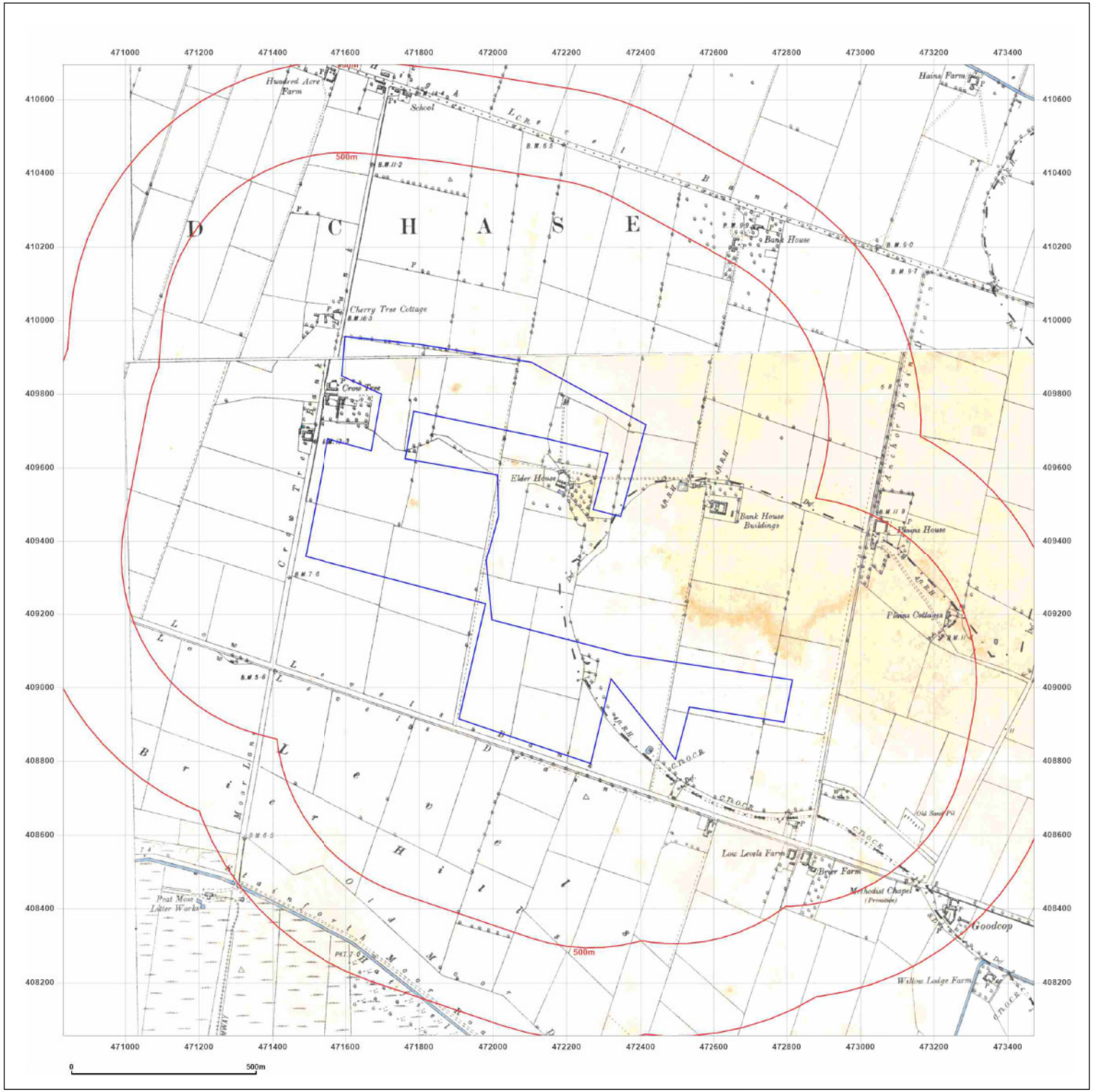

Groundsure INSIGHTS

Site Details:

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Report Ref: GS-6L8-INY-3J1-OUT
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Map Name: County Series
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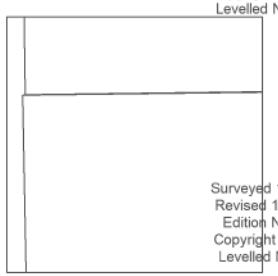

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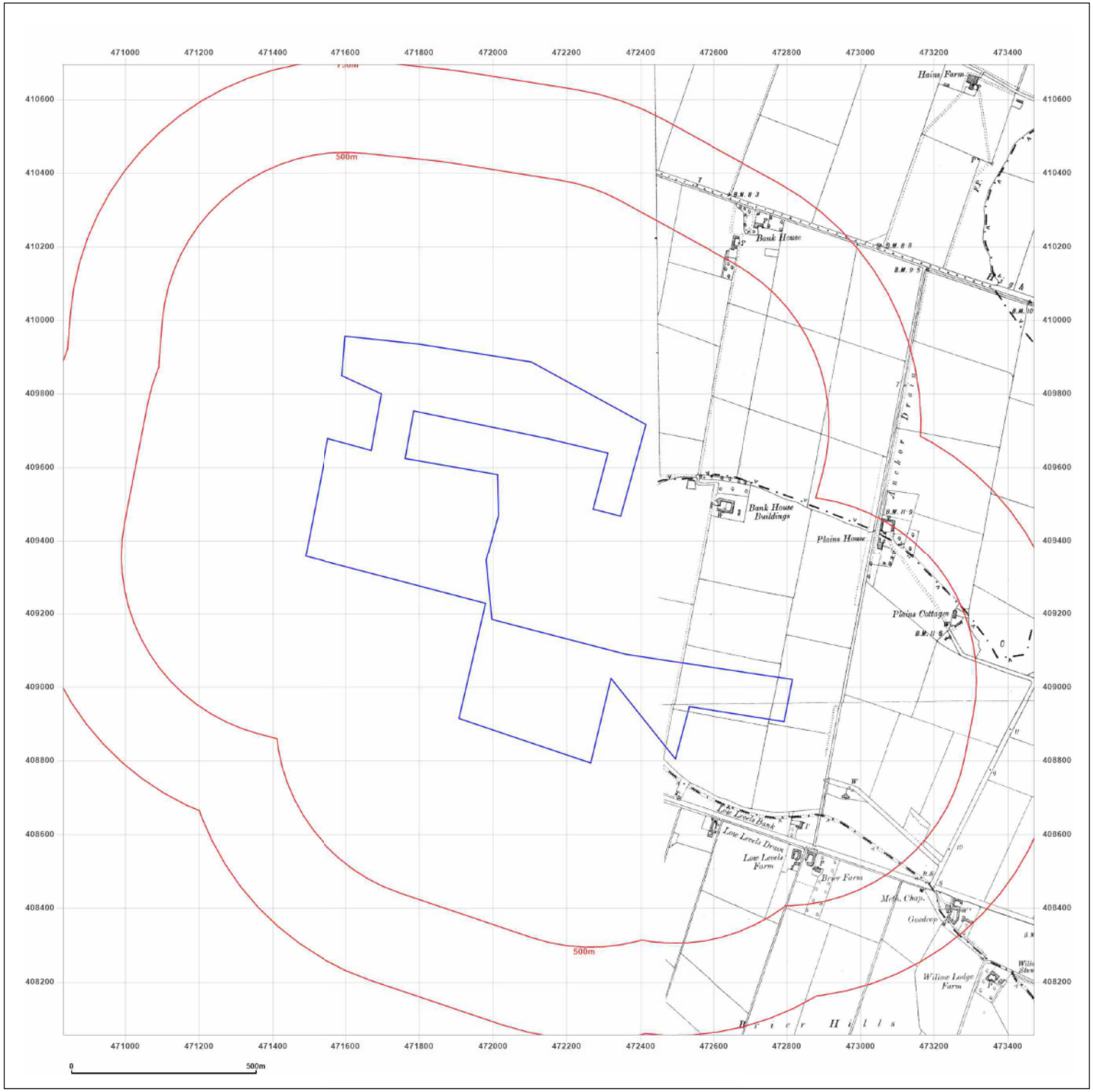

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: **1904**
Scale: 1:10,560
Printed at: 1:10,560

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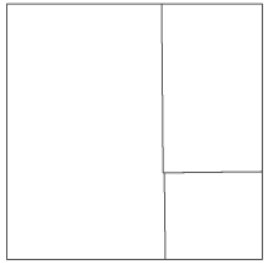

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Edition N/A
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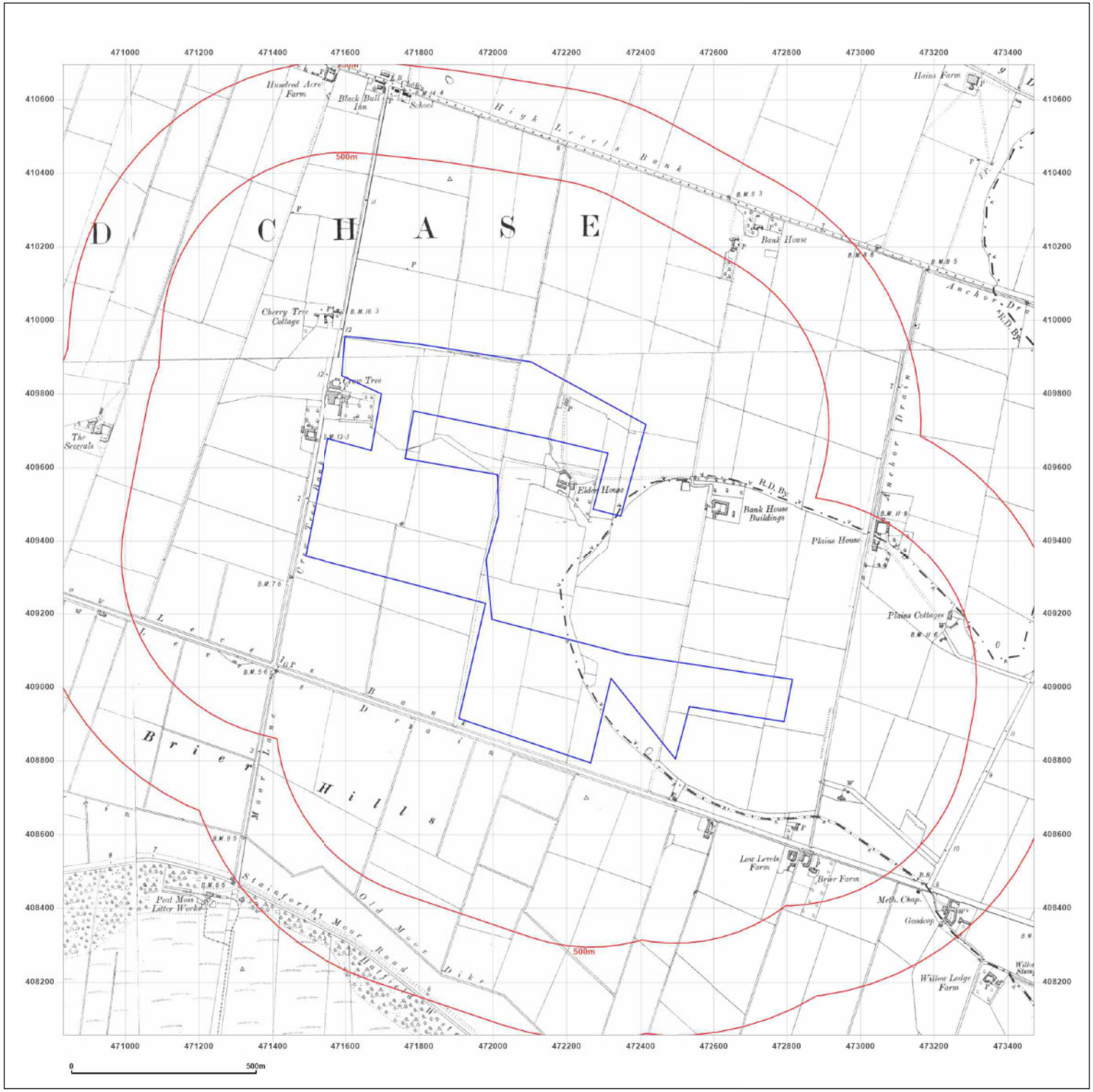

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: **1904-1907**
Scale: 1:10,560
Printed at: 1:10,560

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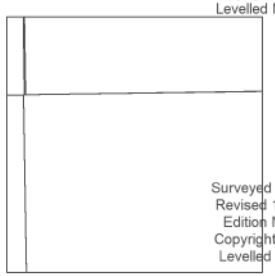
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1891
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A



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Edition 1907
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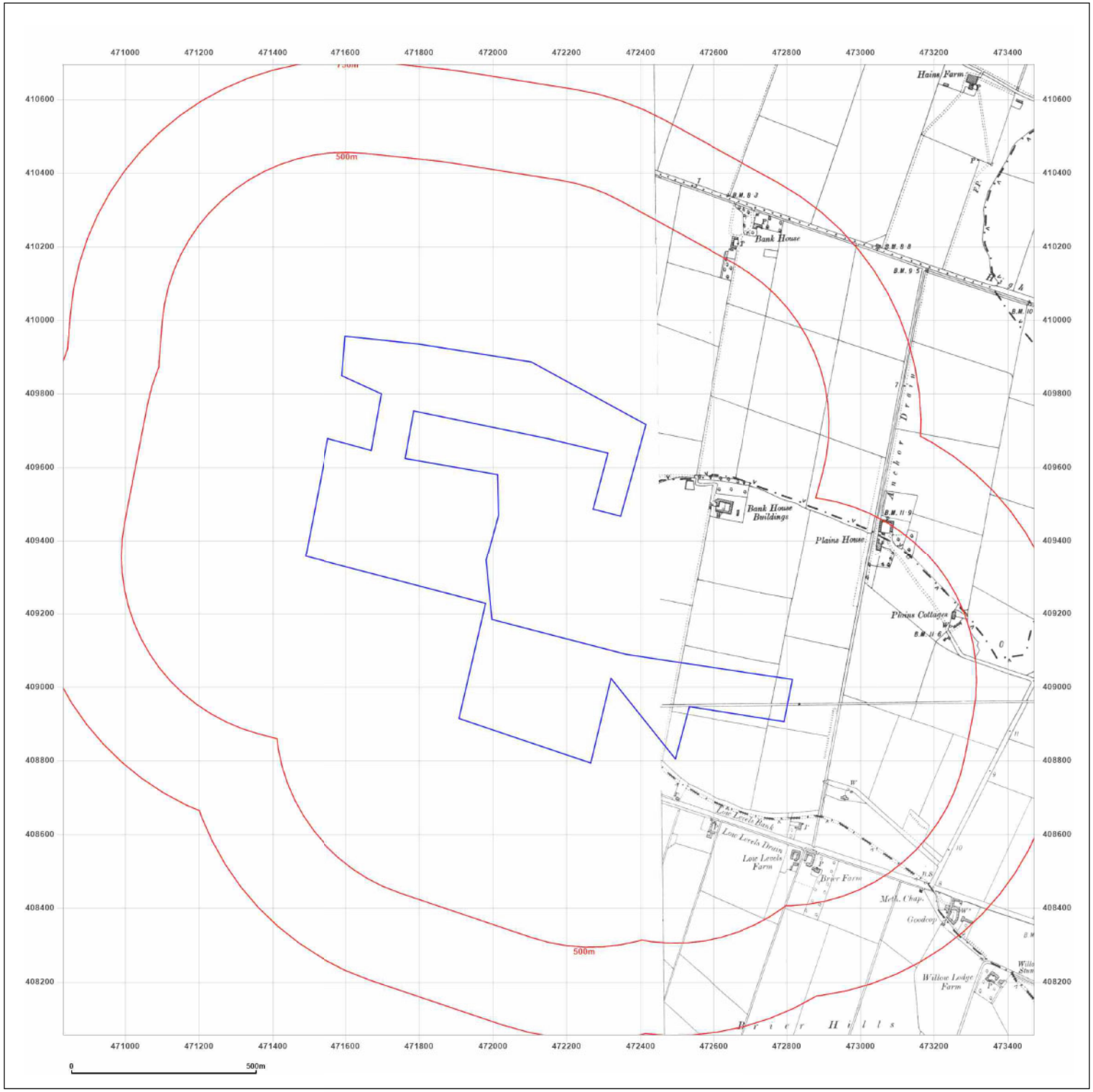

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: **1905-1908**
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Printed at: 1:10,560

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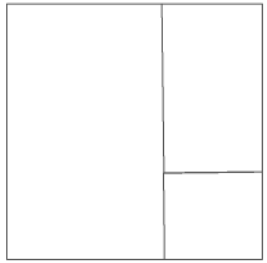

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Revised 1908
Edition 1908
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Levelled N/A

Surveyed 1885
Revised 1905
Edition N/A
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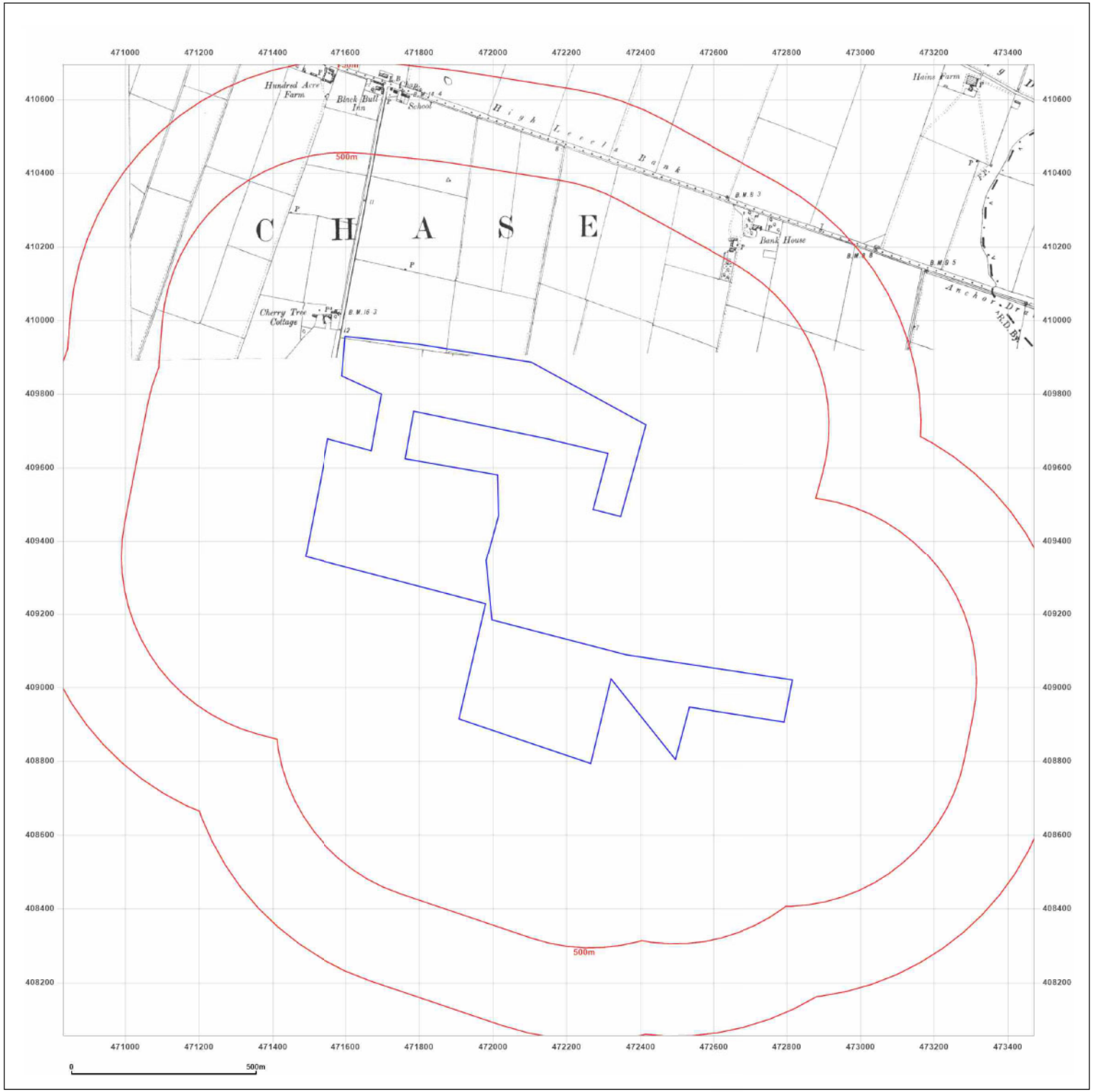

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: 1908
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1850
Revised 1908
Edition 1908
Copyright N/A
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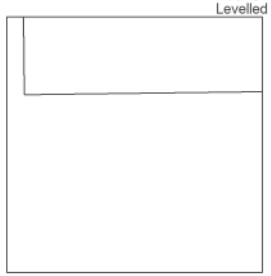

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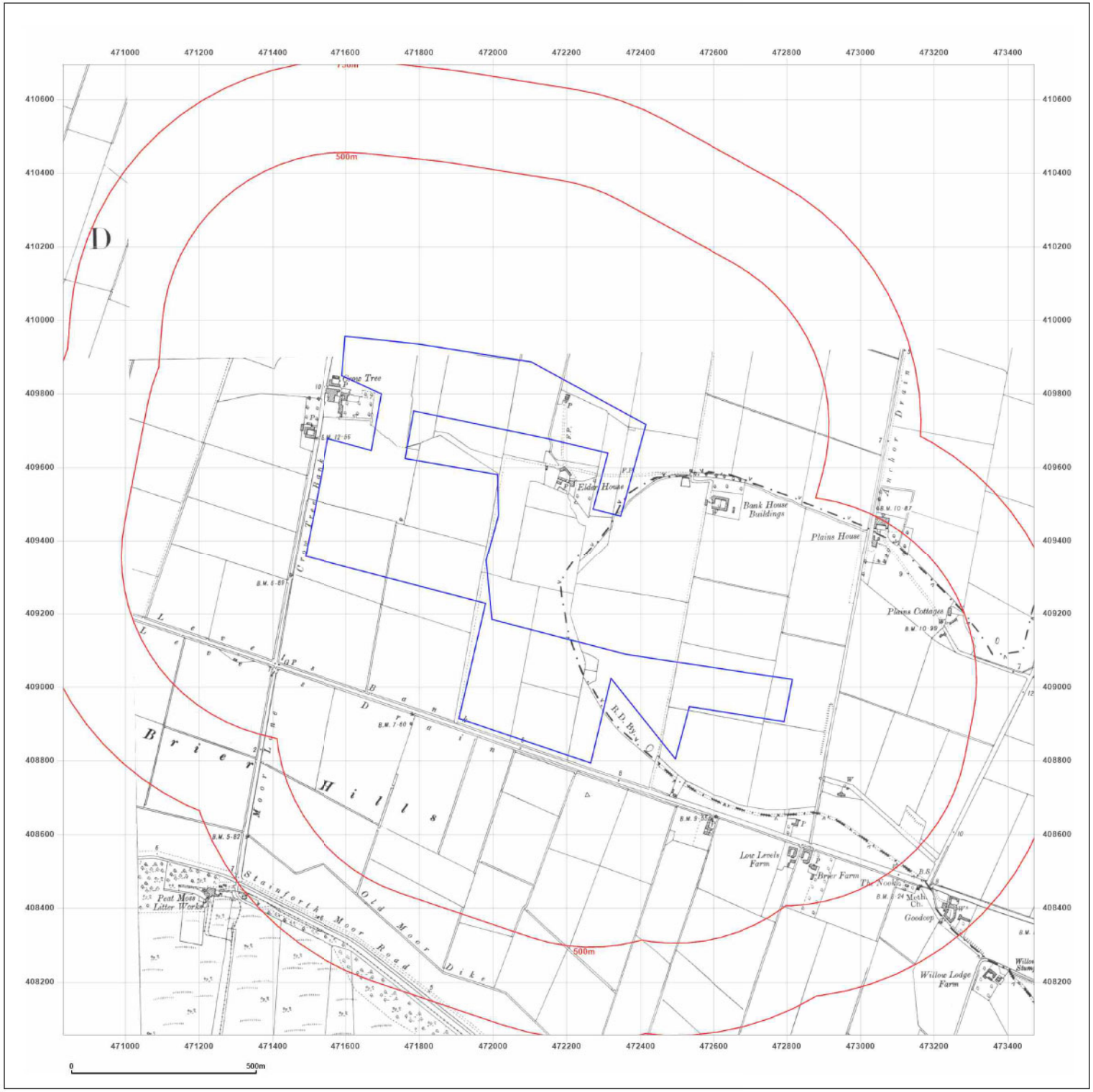

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: **1930-1932**
Scale: 1:10,560
Printed at: 1:10,560

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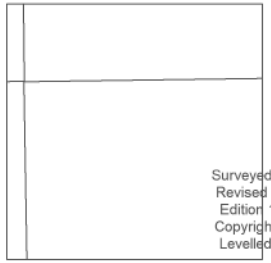
Surveyed 1850
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A



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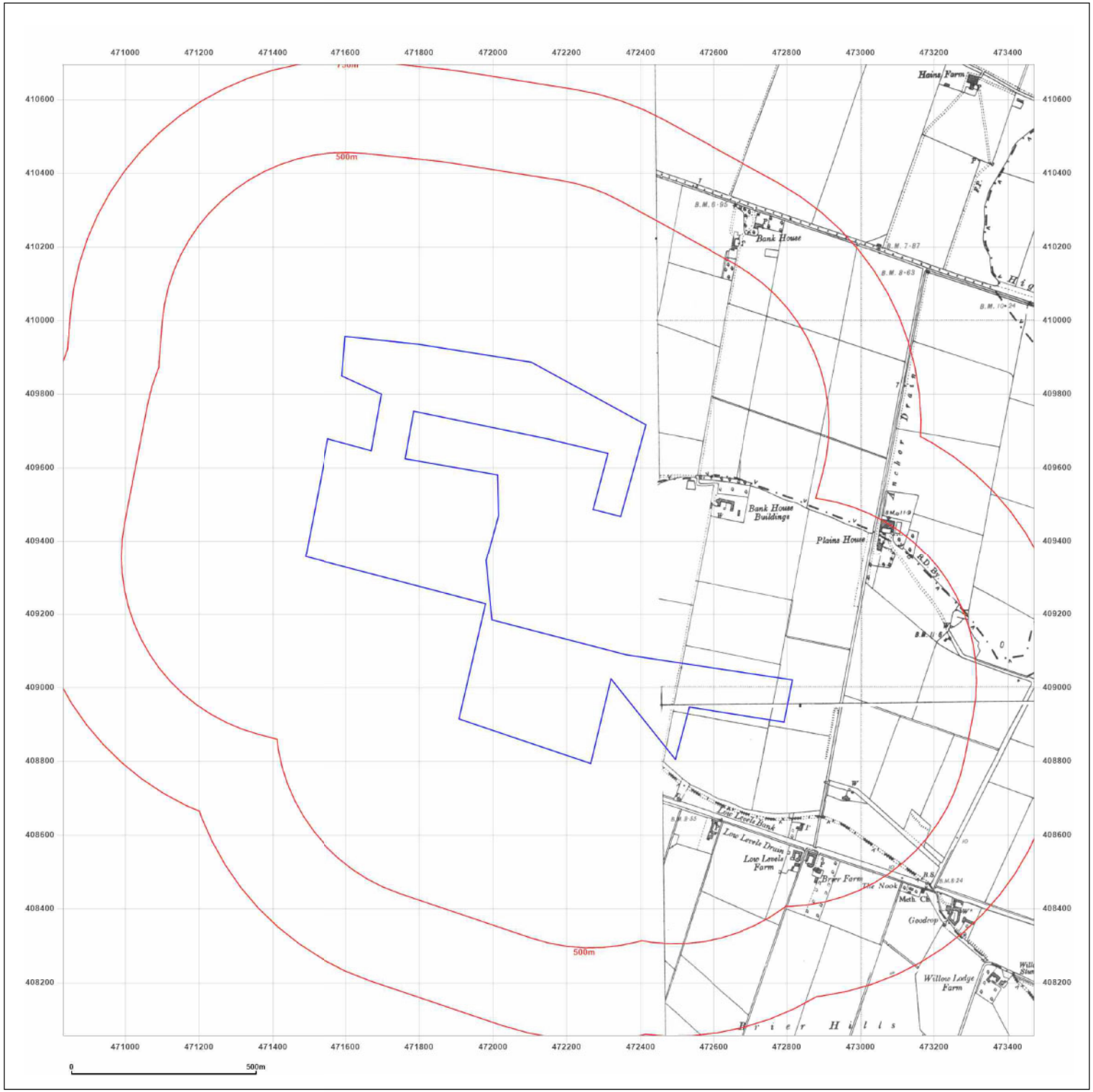
Production date: 04 March 2025

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



Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: **1948**
Scale: 1:10,560
Printed at: 1:10,560

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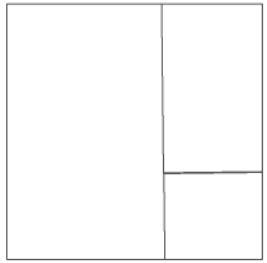

Surveyed 1885
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

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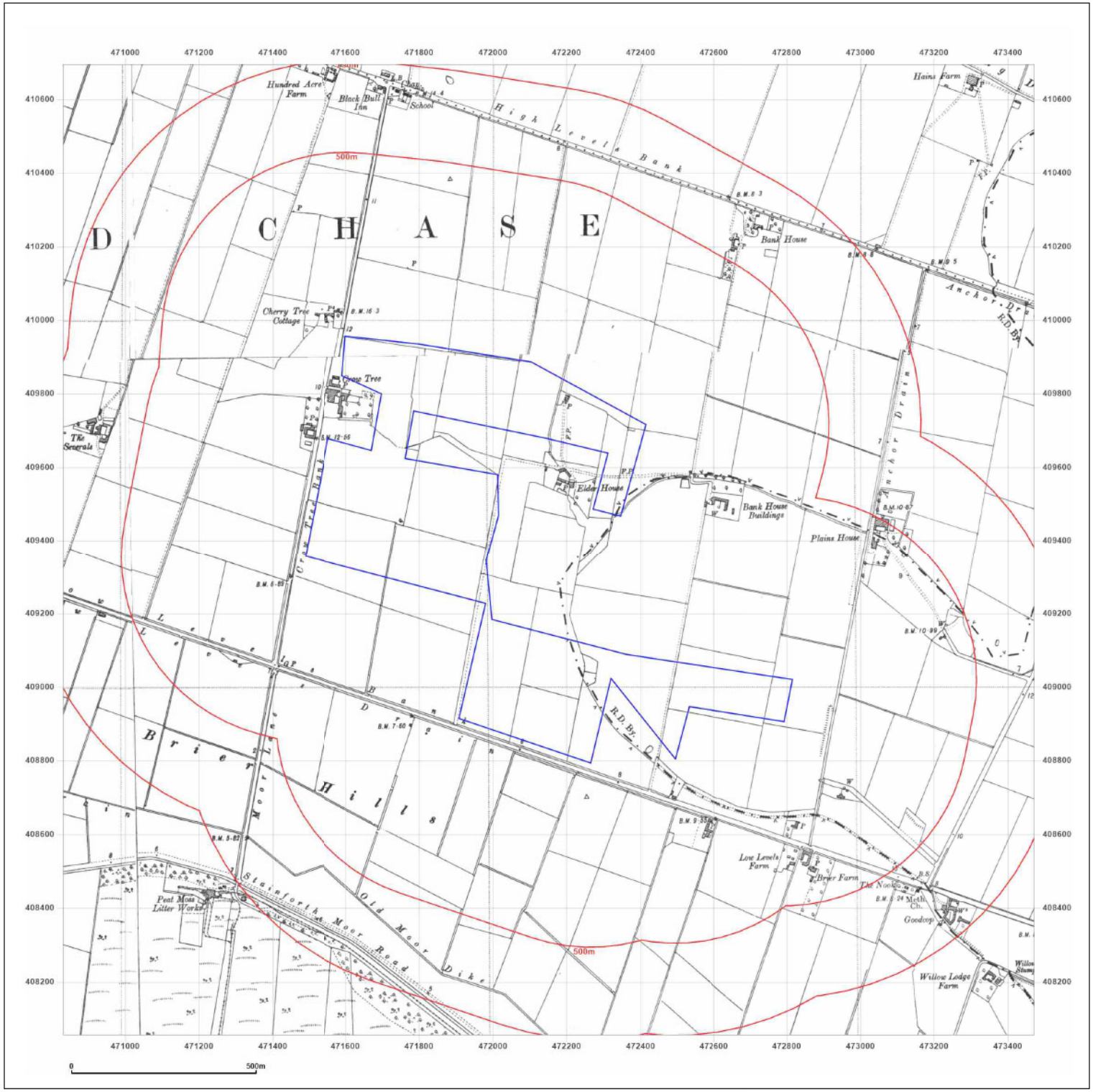

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: County Series
Map date: 1948
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

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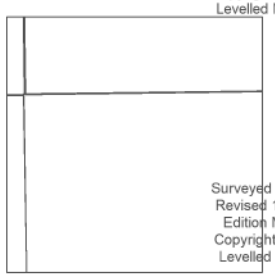
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1850
Revised 1948
Edition N/A
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Levelled N/A

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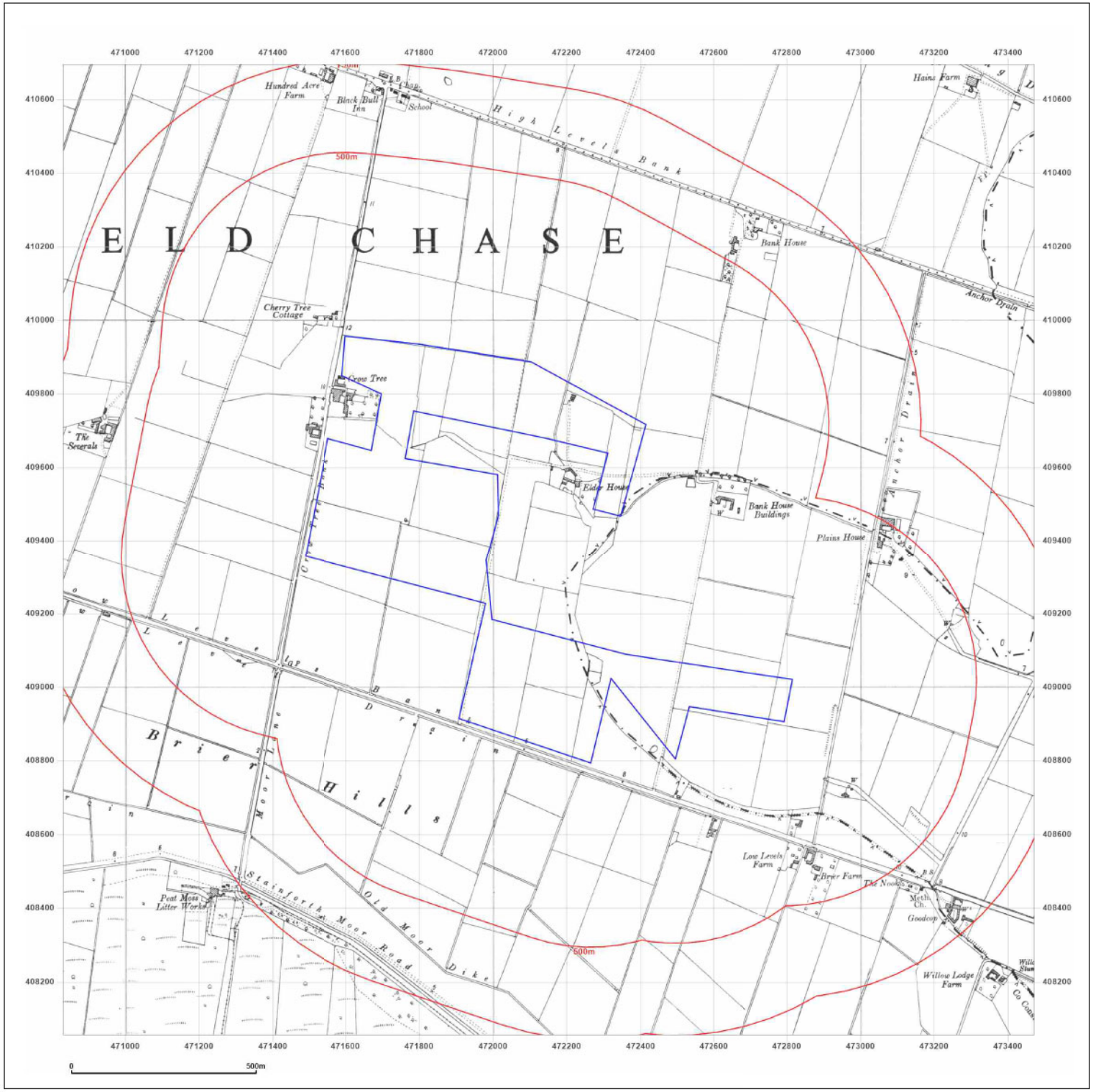

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: Provisional
Map date: **1951-1955**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed N/A
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1951
Revised 1951
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 04 March 2025

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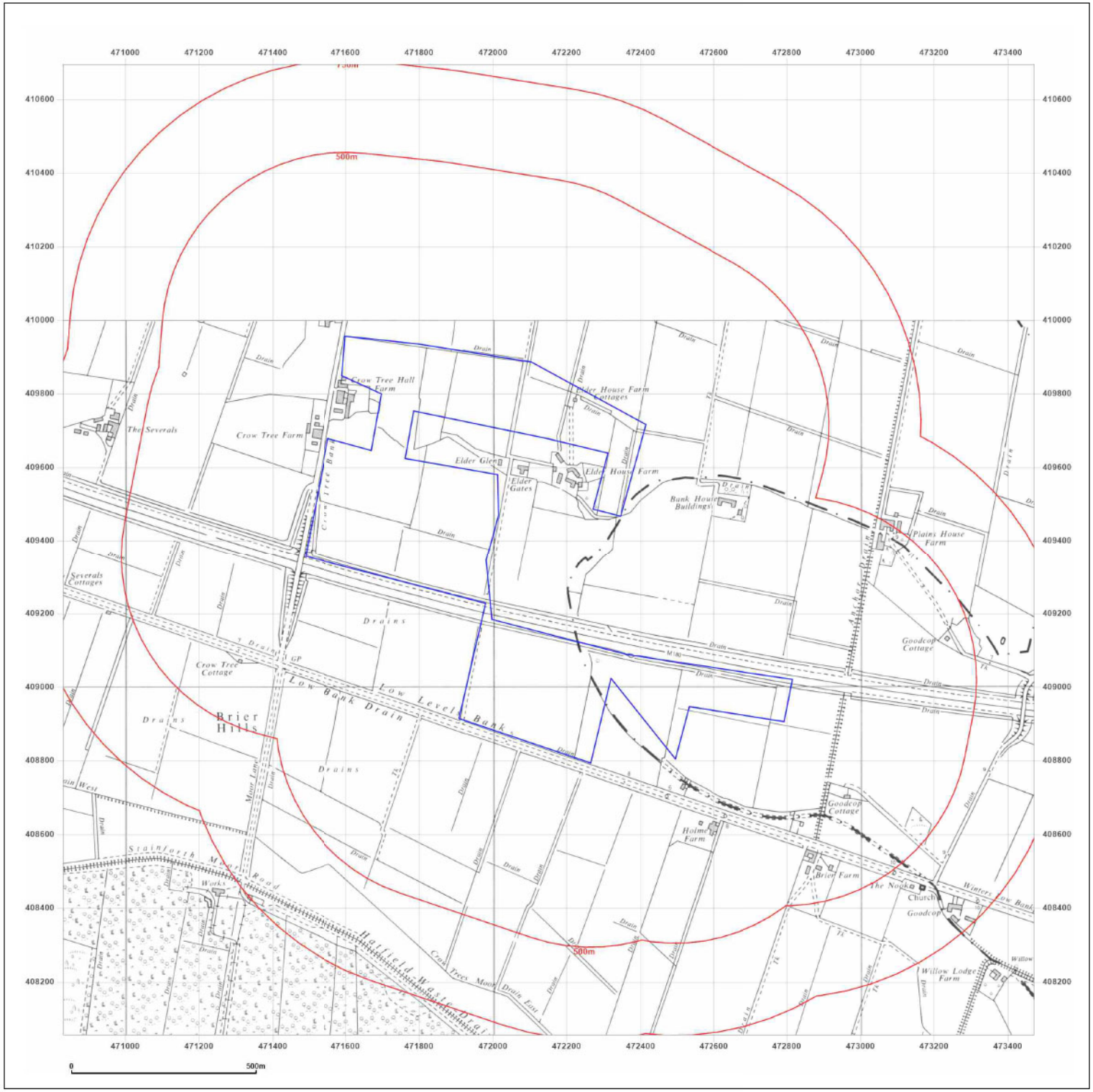

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: Provisional
Map date: 1969
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1969
Revised 1969
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 04 March 2025

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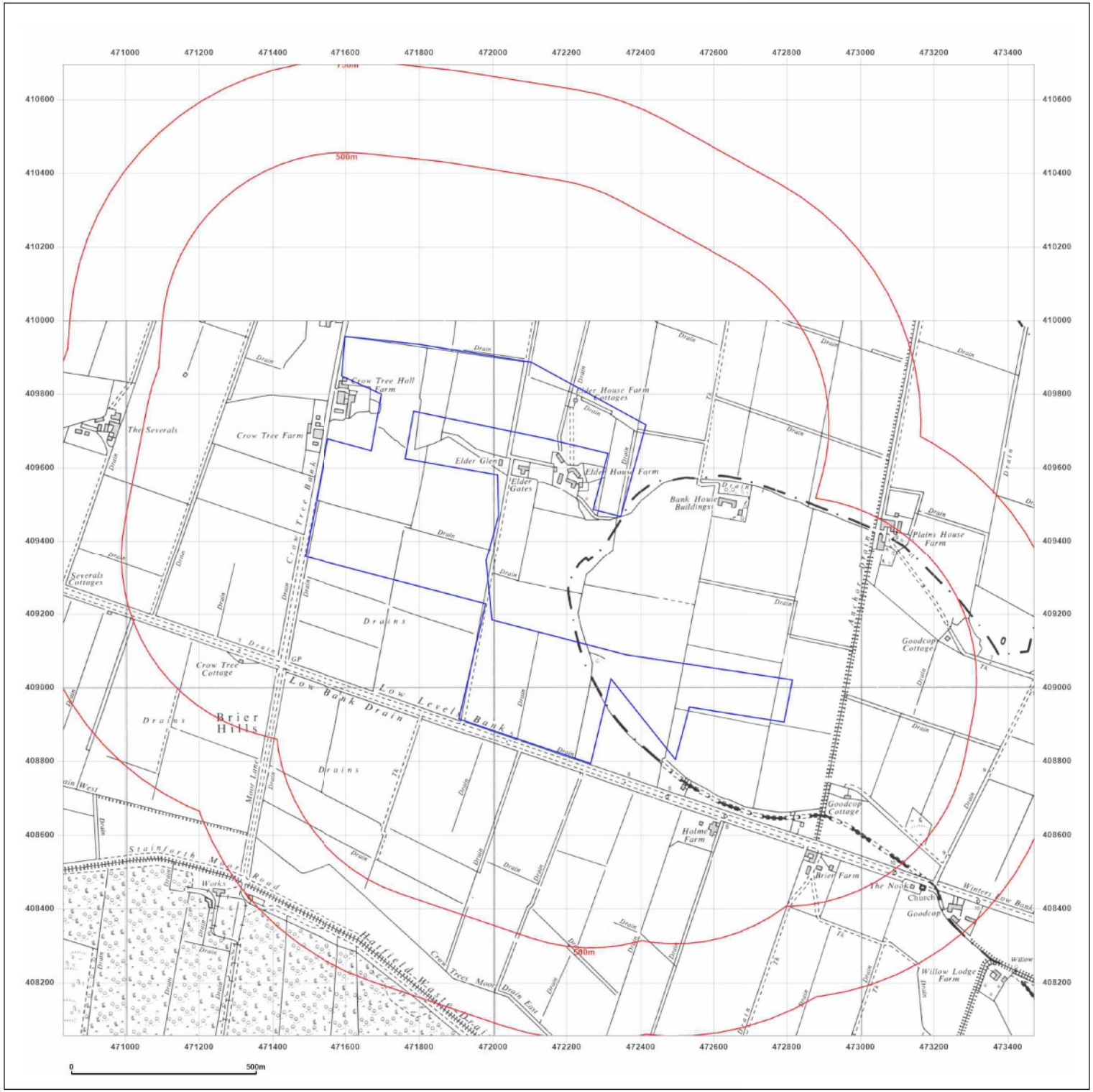

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: Provisional
Map date: 1969
Scale: 1:10,560
Printed at: 1:10,560

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Revised 1969
Edition N/A
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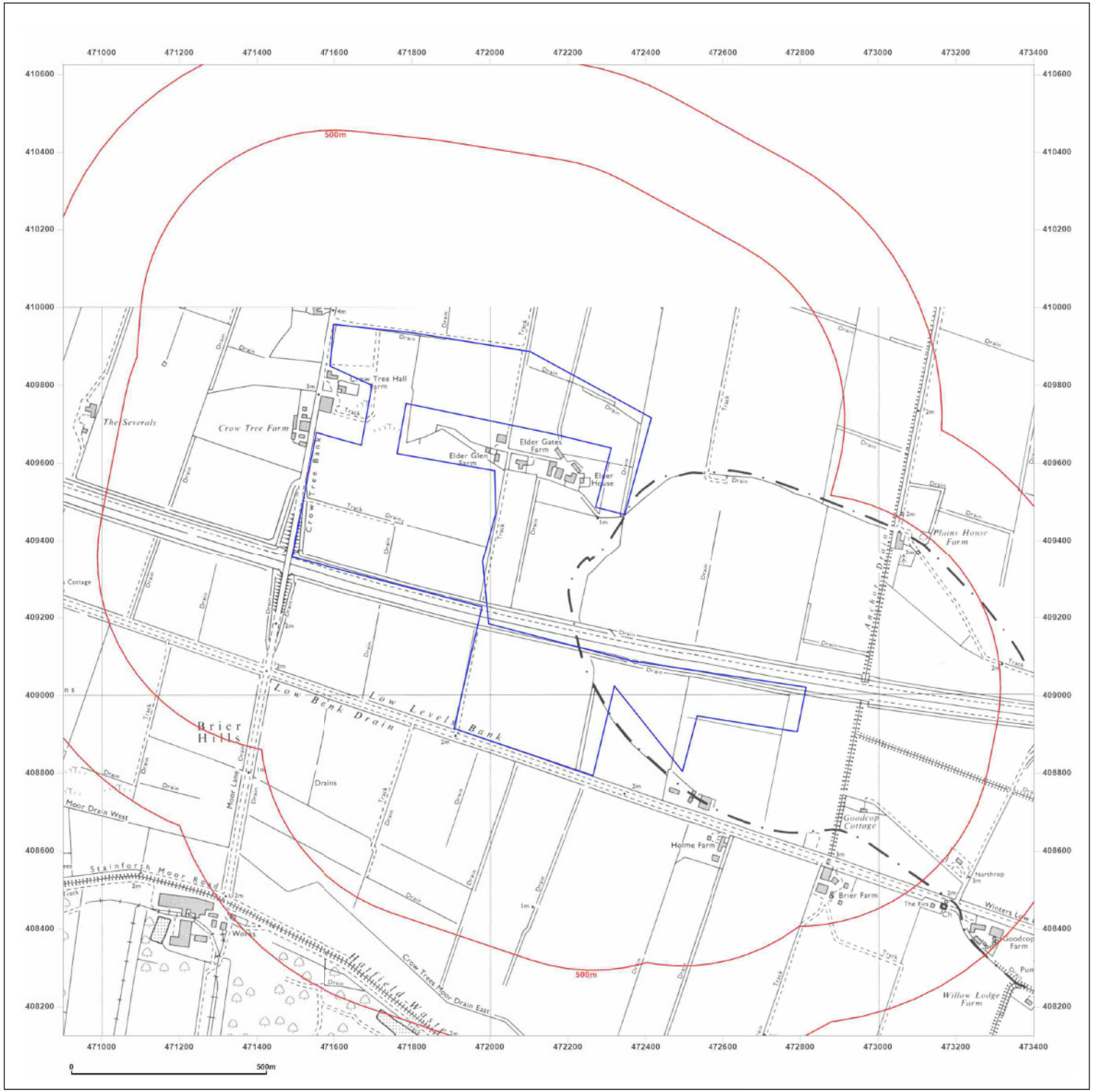

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: National Grid
Map date: **1981**
Scale: 1:10,000
Printed at: 1:10,000

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Surveyed 1966
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 04 March 2025

Map legend available at:
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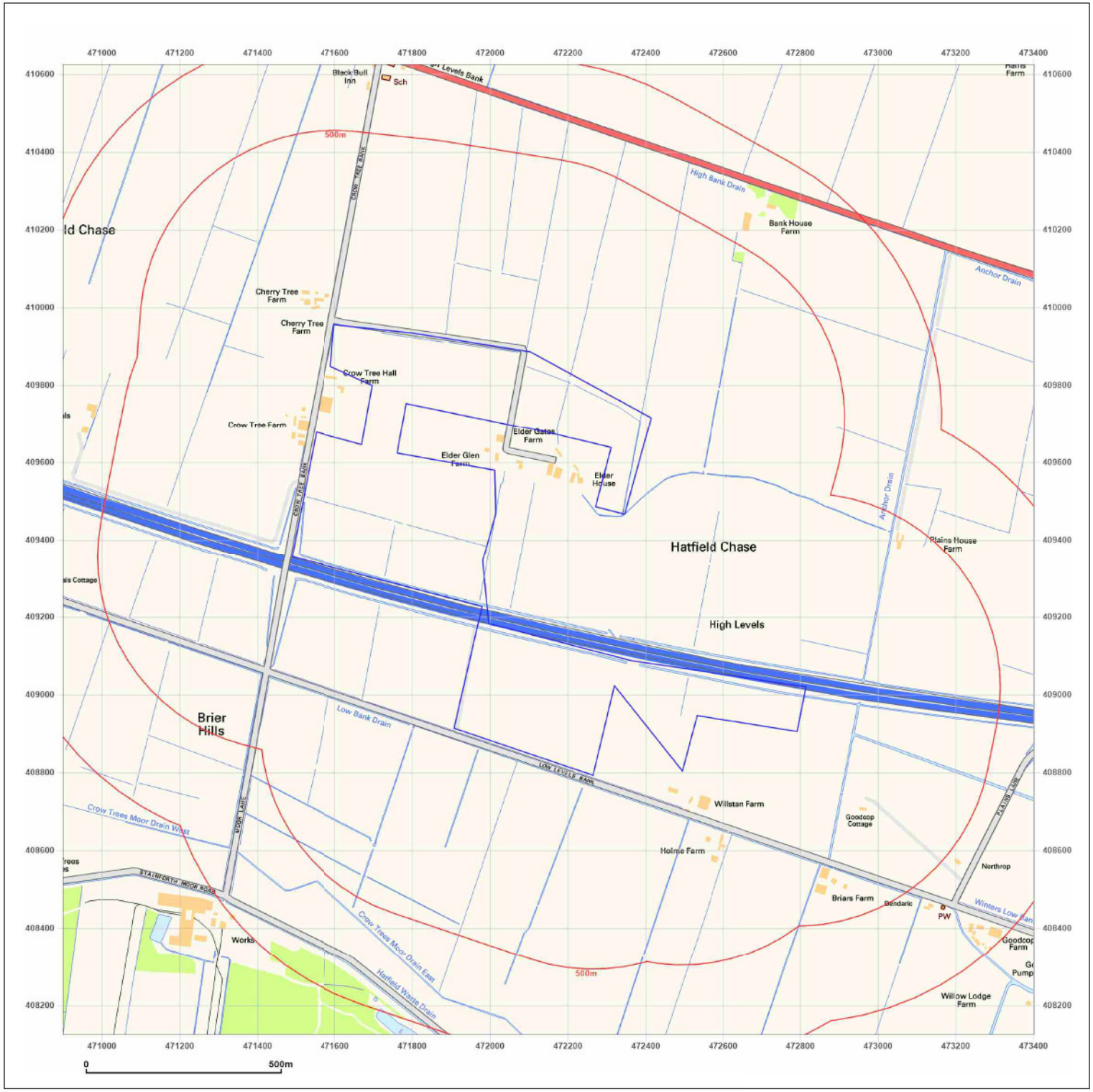

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

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Map legend available at:
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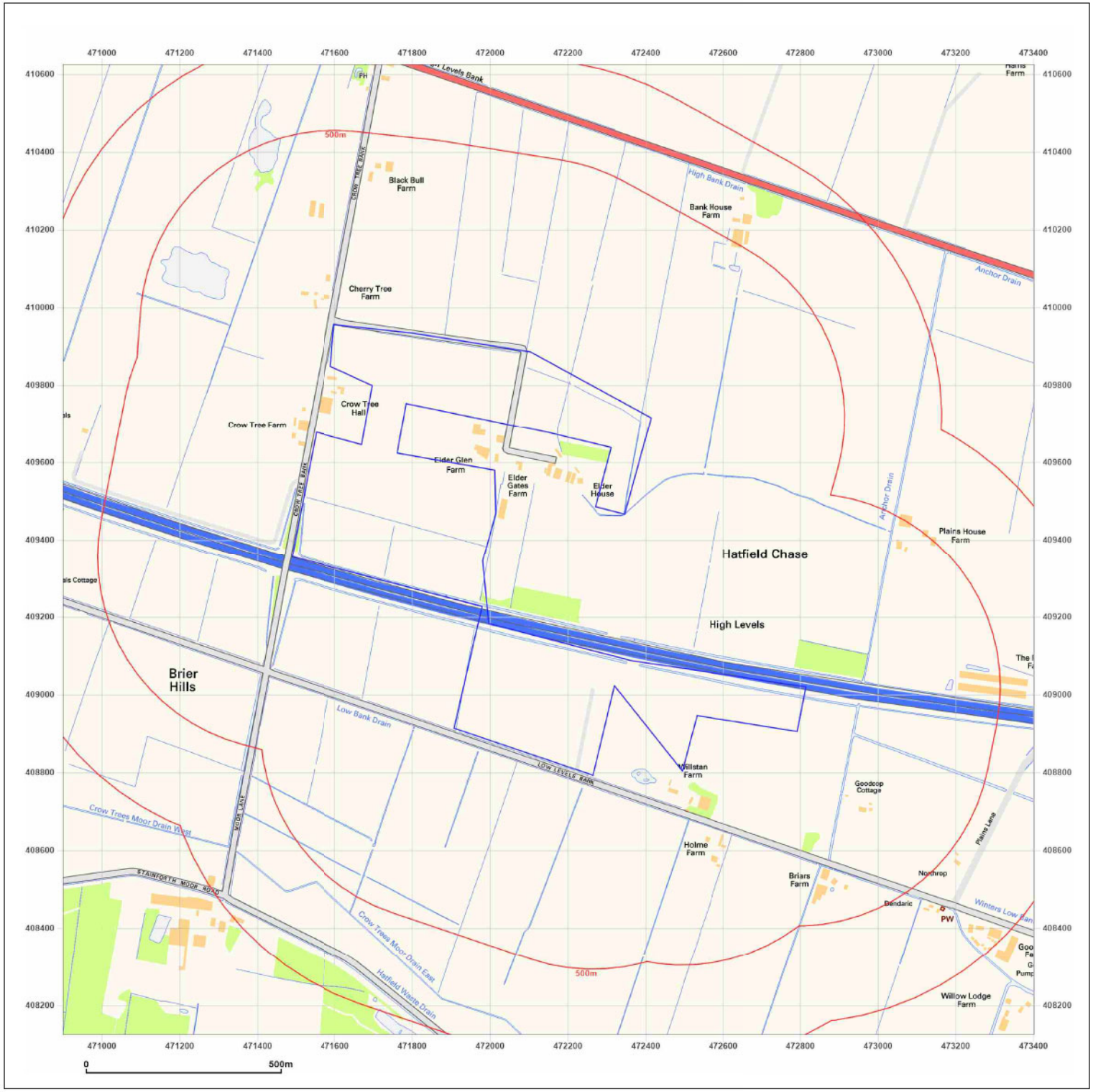

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

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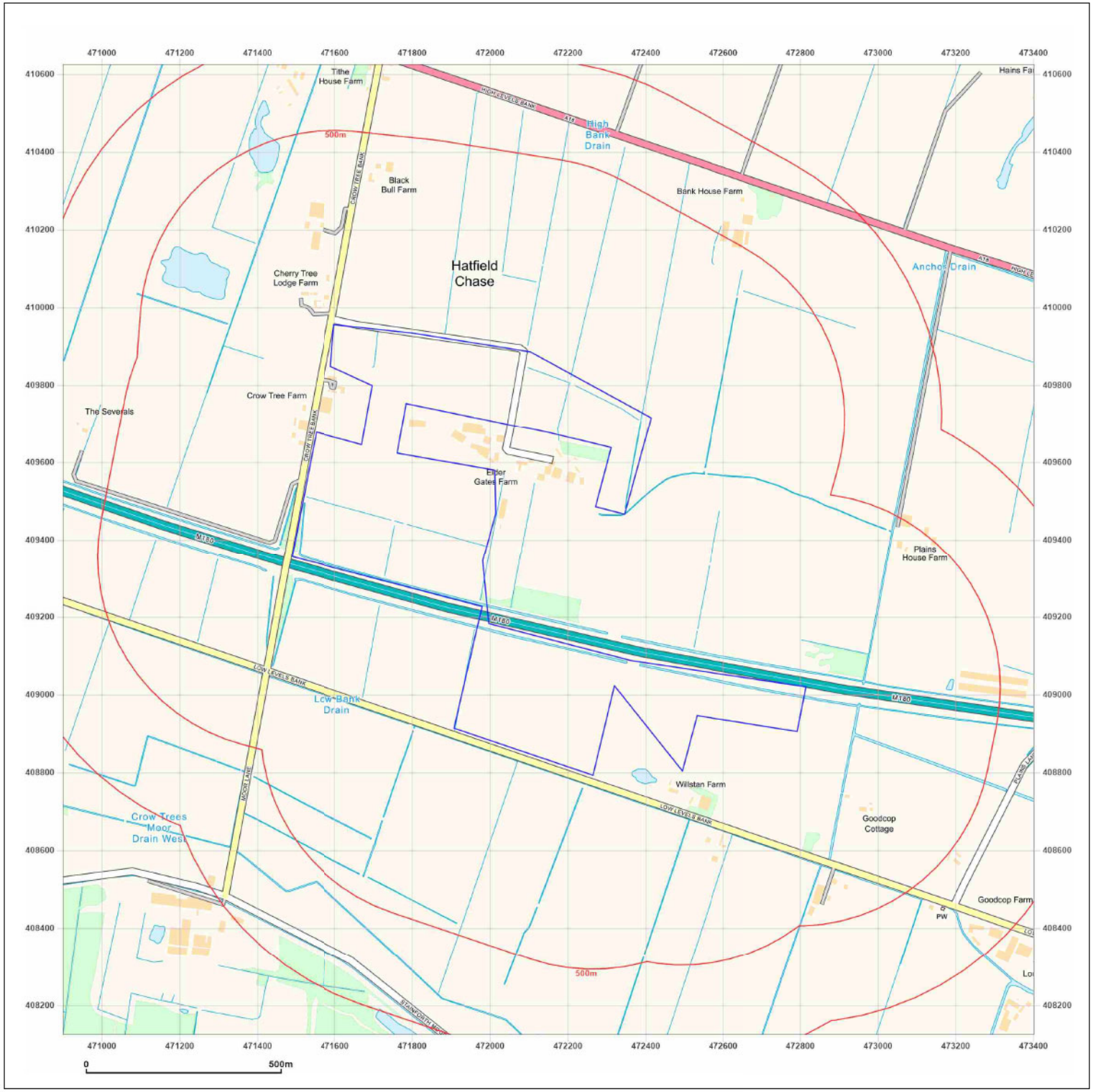

Groundsure INSIGHTS

Site Details:

Tween Bridge Area D East

Client Ref: P02159615
Report Ref: GS-6L8-INY-3J1-OUT
Grid Ref: 472151, 409375

Map Name: National Grid
Map date: **2025**
Scale: 1:10,000
Printed at: 1:10,000

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Production date: 04 March 2025

Map legend available at:
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APPENDIX E
CONSULTANTS COAL MINING REPORT

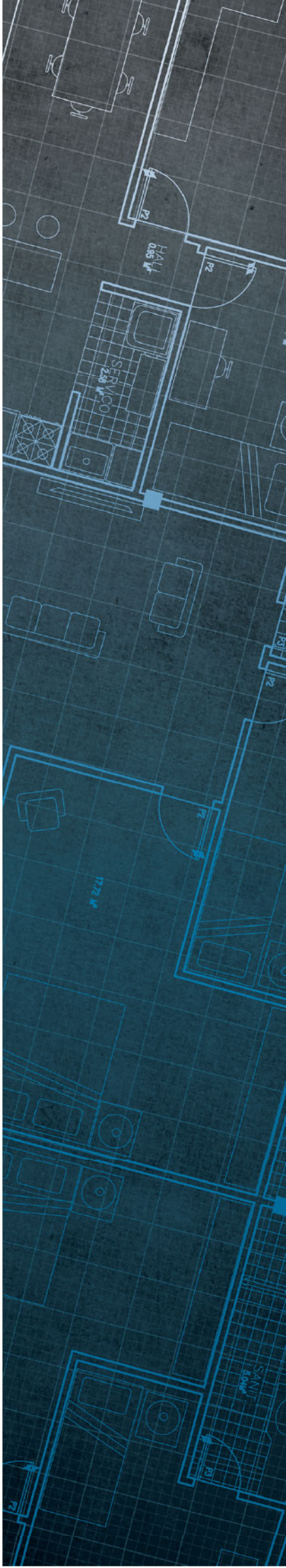
The Coal Authority

Consultants

Coal Mining Report

Tween Bridge Area D East
South Yorkshire

Date of enquiry:	13 June 2025
Date enquiry received:	13 June 2025
Issue date:	13 June 2025
Our reference:	51003505034001
Your reference:	GS-WWB-WXQ-W83-2VN



Consultants

Coal Mining Report

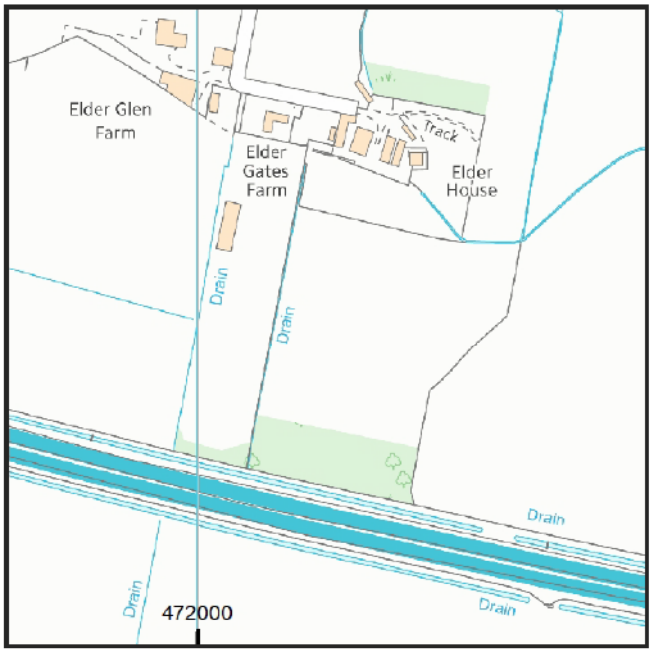
This report is based on and limited to the records held by the Coal Authority at the time the report was produced.

Client name

GROUNDSURE LIMITED

Enquiry address

Tween Bridge Area D East
South Yorkshire



Approximate position of property

Map data

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How to contact us

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200 Lichfield Lane
Mansfield
Nottinghamshire
NG18 4RG

www.groundstability.com

@coalauthority
/company/the-coal-authority
/thecoalauthority
/thecoalauthority

Section 1 – Mining activity and geology

Past underground mining
No past mining recorded.

Probable unrecorded shallow workings
None.

Spine roadways at shallow depth
No spine roadway recorded at shallow depth.

Mine entries
None recorded within 100 metres of the enquiry boundary.

Abandoned mine plan catalogue numbers
None available.

Outcrops
No outcrops recorded.

Geological faults, fissures and breaklines
No faults, fissures or breaklines recorded.

Opencast mines
None recorded within 500 metres of the enquiry boundary.

Coal Authority managed tips
None recorded within 500 metres of the enquiry boundary.

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Section 2 – Investigative or remedial activity

Please refer to the 'Summary of findings' map (on separate sheet) for details of any activity within the area of the site boundary.

Site investigations

None recorded within 50 metres of the enquiry boundary.

Remediated sites

None recorded within 50 metres of the enquiry boundary.

Coal mining subsidence

There is a claim within 50 metres of the property boundary that does not match the property address. This is shown on the enquiry boundary plot.

There is no current Stop Notice delaying the start of remedial works or repairs to the property.

The Coal Authority is not aware of any request having been made to carry out preventive works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991.

If further subsidence damage claims information is required, please visit www.groundstability.com.

See Section 4 for further information.

Mine gas

None recorded within 500 metres of the enquiry boundary.

Mine water treatment schemes

None recorded within 500 metres of the enquiry boundary.

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Section 3 – Licensing and future mining activity

Future underground mining
None recorded.

Coal mining licensing
None recorded within 200 metres of the enquiry boundary.

Court orders
None recorded.

Section 46 notices
No notices have been given, under section 46 of the Coal Mining Subsidence Act 1991, stating that the land is at risk of subsidence.

Withdrawal of support notices
The property is in an area where a notice to withdraw support was given in 1986.

The property is not in an area where a notice has been given under section 41 of the Coal Industry Act 1994, cancelling the entitlement to withdraw support.

Payments to owners of former copyhold land
The property is not in an area where a relevant notice has been published under the Coal Industry Act 1975/Coal Industry Act 1994.

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Section 4 – Further information

The following potential risks have been identified and as part of your risk assessment should be investigated further.

Future development

If development proposals are being considered, technical advice relating to both the investigation of coal and former coal mines and their treatment should be obtained before beginning work on site. All proposals should apply specialist engineering practice required for former mining areas. No development should be undertaken that intersects, disturbs or interferes with any coal or coal mines without first obtaining the permission of the Coal Authority.

MINE GAS: Please note, if there are no recorded instances of mine gas within 500m of the enquiry boundary, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded. Developers should be aware that the investigation of coal seams, mine workings or mine entries may have the potential to generate and/or displace underground gases. Associated risks both to the development site and any neighbouring land or properties should be fully considered when undertaking any ground works. The need for effective measures to prevent gases migrating onto any land or into any properties, either during investigation or remediation work, or after development must also be assessed and properly addressed. In these instances, the Coal Authority recommends that a more detailed Gas Risk Assessment is undertaken by a competent assessor.

Coal mining subsidence

The site is within an area of previous interest. It is close to where the Coal Authority or licensed mine operator has investigated and where necessary remediated issues relating to coal mining subsidence.

The site requires further investigation and may influence your risk assessment. We recommend that you order the appropriate **Coal Authority Subsidence Claims Report**, which will include more information about the hazard.

For further information on specific site or ground investigations in relation to any issues raised in Section 4, please call us on 0345 762 6848 or email us at groundstability@coal.gov.uk.

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Section 5 – Data definitions

The datasets used in this report have limitations and assumptions within their results. For more guidance on the data and the results specific to the enquiry boundary, please **call us on 0345 762 6848** or **email us at groundstability@coal.gov.uk.**

Past underground coal mining

Details of all recorded underground mining relative to the enquiry boundary. Only past underground workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination, will be included.

Probable unrecorded shallow workings

Areas where the Coal Authority believes there to be unrecorded coal workings that exist at or close to the surface (less than 30 metres deep).

Spine roadways at shallow depth

Connecting roadways either, working to working, or, surface to working, both in-seam and cross measures that exist at or close to the surface (less than 30 metres deep), either within or within 10 metres of the enquiry boundary.

Mine entries

Details of any shaft or adit either within, or within 100 metres of the enquiry boundary including approximate location, brief treatment details where known, the mineral worked from the mine entry and conveyance details where the mine entry has previously been sold by the Authority or its predecessors British Coal or the National Coal Board.

Abandoned mine plan catalogue numbers

Plan numbers extracted from the abandoned mines catalogue containing details of coal and other mineral abandonment plans deposited via the Mines Inspectorate in accordance with the Coal Mines Regulation Act and Metalliferous Mines Regulation Act 1872. A maximum of 9 plan extents that intersect with the enquiry boundary will be included. This does not infer that the workings and/or mine entries shown on the abandonment plan will be relevant to the site/property boundary.

Outcrops

Details of seam outcrops will be included where the enquiry boundary intersects with a conjectured or actual seam outcrop location (derived by either the British Geological Survey or the Coal Authority) or intersects with a defined 50 metres buffer on the coal (dip) side of the outcrop. An indication of whether the Coal Authority believes the seam to be of sufficient thickness and/or quality to have been worked will also be included.

Geological faults, fissures and breaklines

Geological disturbances or fractures in the bedrock. Surface fault lines (British Geological Survey derived data) and fissures and breaklines (Coal Authority derived data) intersecting with the enquiry boundary will be included. In some circumstances faults, fissures or breaklines have been known to contribute to surface subsidence damage as a consequence of underground coal mining.

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Opencast mines
Opencast coal sites from which coal has been removed in the past by opencast (surface) methods and where the enquiry boundary is within 500 metres of either the licence area, site boundary, excavation area (high wall) or coaling area.

Coal Authority managed tips
Locations of disused colliery tip sites owned and managed by the Coal Authority, located within 500 metres of the enquiry boundary.

Site investigations
Details of site investigations within 50 metres of the enquiry boundary where the Coal Authority has received information relating to coal mining risk investigation and/or remediation by third parties.

Remediated sites
Sites where the Coal Authority has undertaken remedial works either within or within 50 metres of the enquiry boundary following report of a hazard relating to coal mining under the Coal Authority's Emergency Surface Hazard Call Out procedures.

Coal mining subsidence
Details of alleged coal mining subsidence claims made since 31 October 1994 either within or within 50 metres of the enquiry boundary. Where the claim relates to the enquiry boundary confirmation of whether the claim was accepted, rejected or whether liability is still being determined will be given. Where the claim has been discharged, whether this was by repair, payment of compensation or a combination of both, the value of the claim, where known, will also be given.

Details of any current 'Stop Notice' deferring remedial works or repairs affecting the property/site, and if so the date of the notice.

Details of any request made to execute preventative works before coal is worked under section 33 of the Coal Mining Subsidence Act 1991. If yes, whether any person withheld consent or failed to comply with any request to execute preventative works.

Mine gas
Reports of alleged mine gas emissions received by the Coal Authority, either within or within 500 metres of the enquiry boundary that subsequently required investigation and action by the Coal Authority to mitigate the effects of the mine gas emission. Please note, if there are no recorded instances of mine gas reported, this does not mean that mine gas is not present within the vicinity. The Coal Authority Mine Gas data is limited to only those sites where a Mine Gas incident has been recorded.

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Mine water treatment schemes
Locations where the Coal Authority has constructed or operates assets that remove pollutants from mine water prior to the treated mine water being discharged into the receiving water body.

These schemes are part of the UK's strategy to meet the requirements of the Water Framework Directive. Schemes fall into 2 basic categories: Remedial – mitigating the impact of existing pollution or Preventative – preventing a future pollution incident.

Mine water treatment schemes generally consist of one or more primary settlement lagoons and one or more reed beds for secondary treatment. A small number are more specialised process treatment plants.

Future underground mining
Details of all planned underground mining relative to the enquiry boundary. Only those future workings where the enquiry boundary is within 0.7 times the depth of the workings (zone of likely physical influence) allowing for seam inclination will be included.

Coal mining licensing
Details of all licenses issued by the Coal Authority either within or within 200 metres of the enquiry boundary in relation to the under taking of surface coal mining, underground coal mining or underground coal gasification.

Court orders
Orders in respect of the working of coal under the Mines (Working Facilities and Support) Acts of 1923 and 1966 or any statutory modification or amendment thereof.

Section 46 notices
Notice of proposals relating to underground coal mining operations that have been given under section 46 of the Coal Mining Subsidence Act 1991.

Withdrawal of support notices
Published notices of entitlement to withdraw support and the date of the notice. Details of any revocation notice withdrawing the entitlement to withdraw support given under Section 41 of the Coal Industry Act 1994.

Payment to owners of former copyhold land
Relevant notices which may affect the property and any subsequent notice of retained interests in coal and coal mines, acceptance or rejection notices and whether any compensation has been paid to a claimant.

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The Coal Authority

Summary of findings

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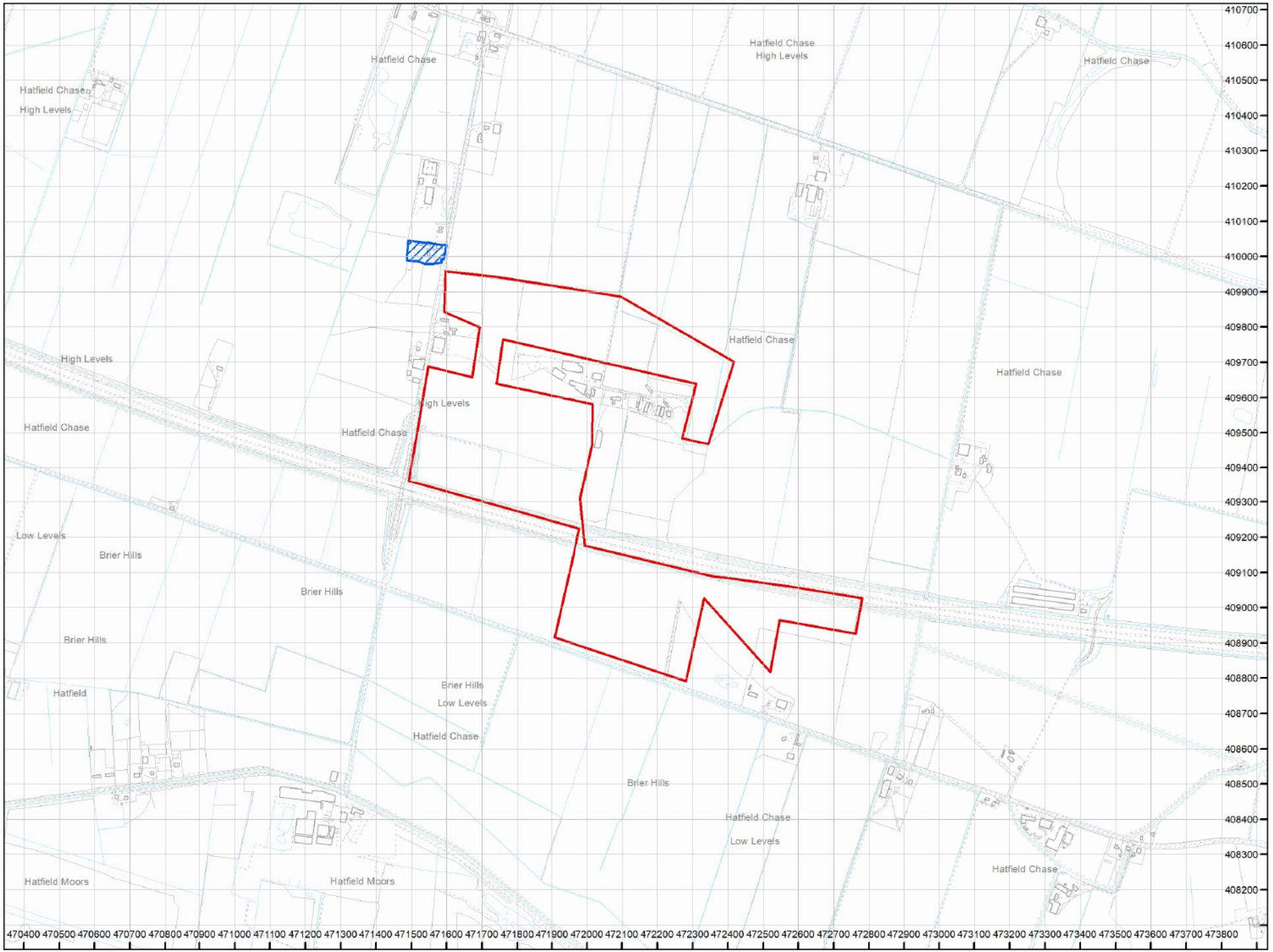
The map highlights any specific surface or subsurface features within or near to the boundary of the site.

Key

Approximate position of the enquiry boundary shown

Coal claim



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APPENDIX F
THIRD PARTY DATA

British Geological Survey

BGS ID: 121119 : BGS Reference: SE61SE64
British National Grid (27700) : 469823,410935

I.G.S.

31 AUG 1979 SE61SE/64, 64A COMMERCIAL IN CONFIDENCE

6-INCH MAP: Yorks. 266 SW (County, Sheet and Qtr.)

SE 61 SE (Nat. Grid, Sheet & Qtr.)

Attach tracing from a map or sketch map if possible

Section of HATFIELD COLLIERY – No.52 Underground Borehole and No. 52A Underground Borehole

Purpose To prove Kent's Thick and Barnsley Seams

Exact Site No. 52 Borehole – O.S. N.G.R. SE/69836/10932

No. 52A Borehole – O.S.N.G.R. SE/69835/10929

U/G Location – H.71's Main Gate Junction with 61's Main Gate heading.

Level at which bore commenced relative to O.D. No.52 Borehole 671.70 ft. B.O.D. 671.78

No. 52A Borehole – 2204.00 ft. B.O.D.

Date of sinking or boring No. 52 Borehole – April – June, 1978
No. 52A Borehole – August, 1978

Sinker or borer Arc Drilling Team [redacted]

Cores, other than coal, examined [illegible] 177'3" – 215'6" No. 52A Borehole [illegible] 2"to *Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft	THICKNESS in	DEPTH ft	DEPTH in
	OPEN HOLE	69	21.96	69	621.18
	Siltstone, grey with many contorted sandy laminae, becoming less sandy down	20.63	1	71	721.82
	Sandstone, pale grey, some vague silty wisps	0.20	8	72	322.0
	Siltstone, grey, fine-grained, some pale sandy laminae	0.28	11	73	2 22.36
	Sandstone, pale grey, medium-grained iron-staining at 75'3" becoming silty to base	8 2.5	3	81	5 24.52
	Mudstone, silty, grey, occasional plant fragments, vague ironstone at base	10.53	9	83	2 29.35
	Siltstone, grey, fine-grained with sandy laminae	0.25	10	84	025.60
	Ironstone	0.13	3	84	325.68
	Mudstone, silty, grey with ironstone at base	10.41	4	85	726.06
	Mudstone, grey, with many thin ironstone bands	20.89	11	88	626.94
	Ironstone	0.08	3	88	92.02
	Mudstone, grey, slightly silty	0.28	11	89	8 27.38
	Ironstone	0.06	2	89	10 27.38
	Mudstone, grey, slightly silty, becoming smoother and shaley down	6 2.01	7	96	529.31
	Ironstone	0.05	2	96	729.44
	Mudstone, grey, smooth, large mussels at 96'10" and below	0.13	5	97	029.57
	Mudstone, black, smooth, irony to base, large well preserved mussels	0.10	4	97	429.66
	Mudstone, grey, slightly silty with occasional plant fragments	0.23	9	98	129.89
	Mudstone, dark grey, smooth becoming darker down	10.46	6	99	730.35
	COAL, inferior with quartzitic lenses 0.19 7½"				
	COAL 0.19 7½"				
KENT'S THICK	COAL, inferior 0.04 1½"	3 1.04	5	103	031.39
	COAL 0.58 1'11"				
	Mudstone, coaly 0.01 0½"				
	COAL, inferior 0.03 1"				
	Mudstone-seatearth, dark grey, carbonaceous	0.05	2	103	231.45
	Mudstone-seatearth, grey, slightly silty with rootlets	0.20	8	103	103.65
	Mudstone-seatearth, silty, grey with many rootlets	0.25	10	104	831.90
	Siltstone-seatearth, grey, with many contorted sandy laminae	0.08	3	104	113.98
	Siltstone-seatearth, grey, fine-grained with well preserved rootlets	10.43	5	106	4 32.44
	Siltstone, grey, laminated with large ironstone nodules and large Stigmaria	31.07	6	109	1033.48
	Ironstone	0.05	2	110	033.53
	Sandstone, pale grey, fine-grained	30.97	2	113	2 34.49
	CORE NOT ACCOUNTED FOR	0.10	4	113	6 34.59

VPU.917

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 121119 : BGS Reference: SE61SE64
British National Grid (27700) : 469823,410935

SE 61 SE/64, 64A

FORM F 71
SERIES 680

31 AUG 1979

COMMERCIAL IN CONFIDENCE

6-INCH MAP	6 IN
Yorks. 266 SW	
SE 61 SE	

*Delete as appropriate

Section of HATFIELD COLLIERY - No. 2 Underground
Borehole and No. 52A Underground Borehole

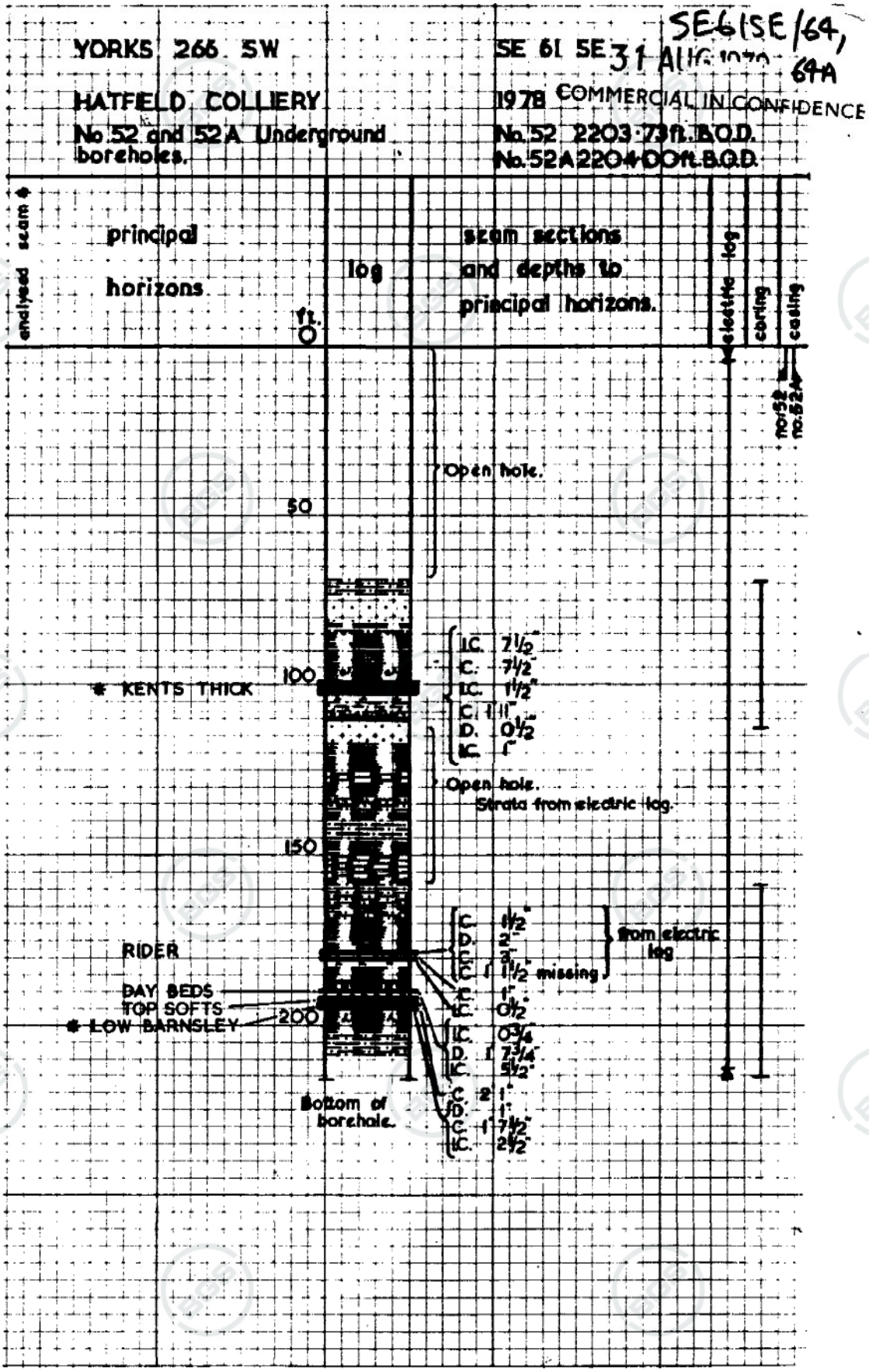
GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft	THICKNESS in	DEPTH ft	DEPTH in	
	34·60					
	OPEN HOLE - NO CORES 113'6" to 158'9" 48·38					
	strata deduced from electric log					
	Sandstone	30	9 10	116	6 35	52
	Mudstone	9	2·79 2	125	8 38	30
	Silty mudstone	4	1·30 3	129	11 39	40
	Mudstone	3	0·99 3	133	2 40	59
	Siltstone	3	1·09 7	136	9 41	67
	Mudstone	2	0·71 4	139	1 42	89
	Siltstone	6	1·90 3	145	4 44	30
	Mudstone	3	1·19 11	149	3 45	49
	Mudstone, silty	7	2·49 2	157	5 47	98
	Mudstone	1	0·41 4	158	9 48	38
	Coring starts again at 158'9" 48·38					
	Siltstone, grey, very fine-grained with some plant debris and rootlets, no rootlets below 163'3" 49·76	5	1·65 5	164	2 50	04
	Mudstone, silty, grey, some muddier flecks and laminae	1	0·48 7	165	9 50	51
	Ironstone		0·08 3	166	0 50	60
	Siltstone, grey, medium-grained with occasional small ironstone patches	1	0·30 0	167	0 50	90
	Ironstone		0·05 2	167	2 50	95
	Mudstone, silty, grey		0·25 10	168	0 51	21
	Ironstone		0·05 2	168	2 51	26
	CORE LOSS		0·05 2	168	4 51	31
	Mudstone, grey, strong, smooth in places, slightly silty in others 2" ironstone at 172'3" and at 175'0" 53·34	8	2·49 2	176	6 53	81
	Mudstone, dark grey, smooth with listrics		0·19 7½	177	1½ 53	99
	COAL 1½" 0·04					
	Mudstone-seatearth 0·05 2" from					
RIDER	COAL, fragmented 0·08 3" electric	1	0·51 8	178	9½ 54	48
	COAL missing 0·34 1'1½" log					
	Mudstone-seatearth, badly fragmented, weak and flaky towards base		0·16 6½	179	4 54	66
	COAL, fragmented 0·03 1"					
	COAL, inferior 0·01 0½"		0·04 1½	179	5½ 54	70
	Mudstone-seatearth, very listricated		0·21 8½	180	2 54	91
	Mudstone-seatearth, shaly, carbonaceous, stronger than above		0·03 1	180	3 54	94
	Mudstone-seatearth, darker grey, carbonaceous in places		0·10 4	180	7 55	04
	COAL, very inferior		0·04 1½	180	8½ 55	08
	Mudstone-seatearth, carbonaceous at top		0·09 3½	181	0 55	17
	Mudstone-seatearth, shaly with rootlets		0·13 5	181	5 55	30
	Mudstone, grey, strong planty, some rootlets 55·46					
	irregular ironstone at 181'11" to 182'2" 55·52					
	plants include Neuropteris, a softer shaley					
	band between 183'2" and 183'4", 1" ironstone					
	at 183'11". Plants still abundant and 55·83 55·88					
	include Pinnularia, slightly darker below					
	184'5" with occasional impersistent					
	ironstones		5 1·57 2	186	7 56	87
	Ironstone		0·08 3	186	10 56	94
	Mudstone, dark grey shaley carbonaceous with fine coal threads planty, becoming					
	listricated and weak down		0·28 11	187	9 57	22
	COAL, inferior 0·02 0¾"					
	Mudstone-seatearth, grey, coal streaks 0·13 5"					
DAY BEDS	Mudstone-seatearth, grey 0·29 11¼"	1	0·66 2	189	11 57	90
	Mudstone-seatearth, black, coaly 0·09 3½"					
	COAL, inferior 0·14 5½"					
	Mudstone-seatearth		0·28 11	190	10 58	16

YPU.918

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 121119 : BGS Reference: SE61SE64
British National Grid (27700) : 469823,410935



Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 121125 : BGS Reference: SE61SE69
British National Grid (27700) : 469817,410016

SE 61 SE/69

N.G.Sheet	Regd. No.
SE 61 SE	237
County Sheet	
Yorks. W.R. 266 SW	

DETAILS OF Underground Borehole at Hatfield Colliery, No.56

PURPOSE To prove fault in High Hazel Seam.

Exact site Lat. N.
Long. W.

N.G. Co-ords 469830 m E
410014 m N

Level at which bore commenced relative to O.D. 2157.82

Date of sinking or boring 4/2/80

Sinker or borer [redacted]

Depth of hole 37' 6" 11.43 .

Casing and Sealing Details

not sealed.

Verticality Details

Borehole Logging

Seam Horizons passed through

All seams between "In seam" borehole.

and

Remarks

This is an "In seam" borehole rising at 1 in 7. Grey flush at 30' 0". The core was examined by the Geologist who decided the dirt was from the roof of the High Hazel Seam.

9·14

[redacted]

N.C.B. DONCASTER AREA
- 5 JUN 1980
AREA CHIEF SURVEYOR & MINERALS MANAGER

Contact BGS: ngdc@bgs.ac.uk

Notification of Intention to Bore.								
Water Authority								
Planning Authority								
I.G.S.								
Location Details								
Plans								
I.G.S.	Y.R.G.S.	Unit Surv.	Seam Studies	Planners	Mines Records	I.G.S. Leeds	Nat. Exp.	
Sealing Report								
Journal								
Section								
Plotted								
Record Sheet	1/25000	1/5000	6"					

British Geological Survey

BGS ID: 121125 : BGS Reference: SE61SE69
British National Grid (27700) : 469817,410016

SE 61 SE/69a

N.G.Sheet	Regd. No.
SE 61 SE	237
County Sheet	
Yorks W.R. 266SW	

DETAILS OF Underground Borehole at Hatfield Colliery, No. 56A

PURPOSE To prove fault in High Hazel Seam.

Exact site Lat. N.
Long. W.

N.G. Co-ords 469830 m E
410014 m N

Level at which bore commenced relative to O.D. 2157.82

Date of sinking or boring 5/2/1980

Sinker or borer [redacted]

Depth of hole 150' 9" 45.95.

Casing and Sealing Details

Not sealed.

Verticality Details

Borehole Logging

Seam Horizons passed through

All seams between "In seam" borehole.

and

Remarks

43·13

This is an "In seam" borehole rising at 1 in 80. Grey flush at 141' 6". No core was recovered, it is assumed that the hole has run into the floor of the High Hazel Seam.

[redacted]

N.C.B. DONCASTER AREA
5 JUN 1980
AREA CHIEF SURVEYOR & MINERALS MANAGER

Contact BGS: ngdc@bgs.ac.uk

Notification of Intention to Bore.								
Water Authority								
Planning Authority								
I.G.S.								
Location Details								
Plans								
I.G.S.	Y.R.G.S.	Unit Surv.	Seam Studies	Planners	Mines Records	I.G.S. Leeds	Nat. Exp.	
Sealing Report								
Journal								
Section								
Plotted								
Record Sheet	1/25000	1/5000	6"					

British Geological Survey

BGS ID: 121125 : BGS Reference: SE61SE69
British National Grid (27700) : 469817,410016

SE 61 SE/69b

N.G.Sheet	Regd. No.
SE 61 SE	237
County Sheet	
Yorks. W.R. 266SW	

DETAILS OF Underground Borehole at Hatfield Colliery , No.56B

PURPOSE To prove fault in High Hazel Seam

Exact site Lat. N.
Long. W.

N.G. Co-ords 469830 m E
410014 m N

Level at which bore commenced relative to O.D. 2157.82

Date of sinking or boring 11/2/1980

Sinker or borer [redacted]

Depth of hole 243' 6" 74.22

Casing and Sealing Details

not sealed

Verticality Details

Borehole Logging

Seam Horizons passed through

All seams between "In seam" borehole.

and

Remarks

73.15

This is an "In seam" borehole rising at 1 in 40 Grey flush at 240' 0". The core was examined by the Geologist who decided the dirt was from the floor of the High Hazel Seam [redacted]

N.C.B. DONCASTER AREA
- 5 JUN 1980
AREA CHIEF SURVEYOR & MINERALS MANAGER

Contact BGS: ngdc@bgs.ac.uk

Notification of Intention to Bore.								
Water Authority								
Planning Authority								
I.G.S.								
Location Details								
Plans								
I.G.S.	Y.R.G.S.	Unit Surv.	Seam Studies	Planners	Mines Records	I.G.S. Leeds	Nat. Exp.	
Sealing Report								
Journal								
Section								
Plotted								
Record Sheet	1/25000	1/5000	6"					

British Geological Survey

BGS ID: 121125 : BGS Reference: SE61SE69
British National Grid (27700) : 469817,410016

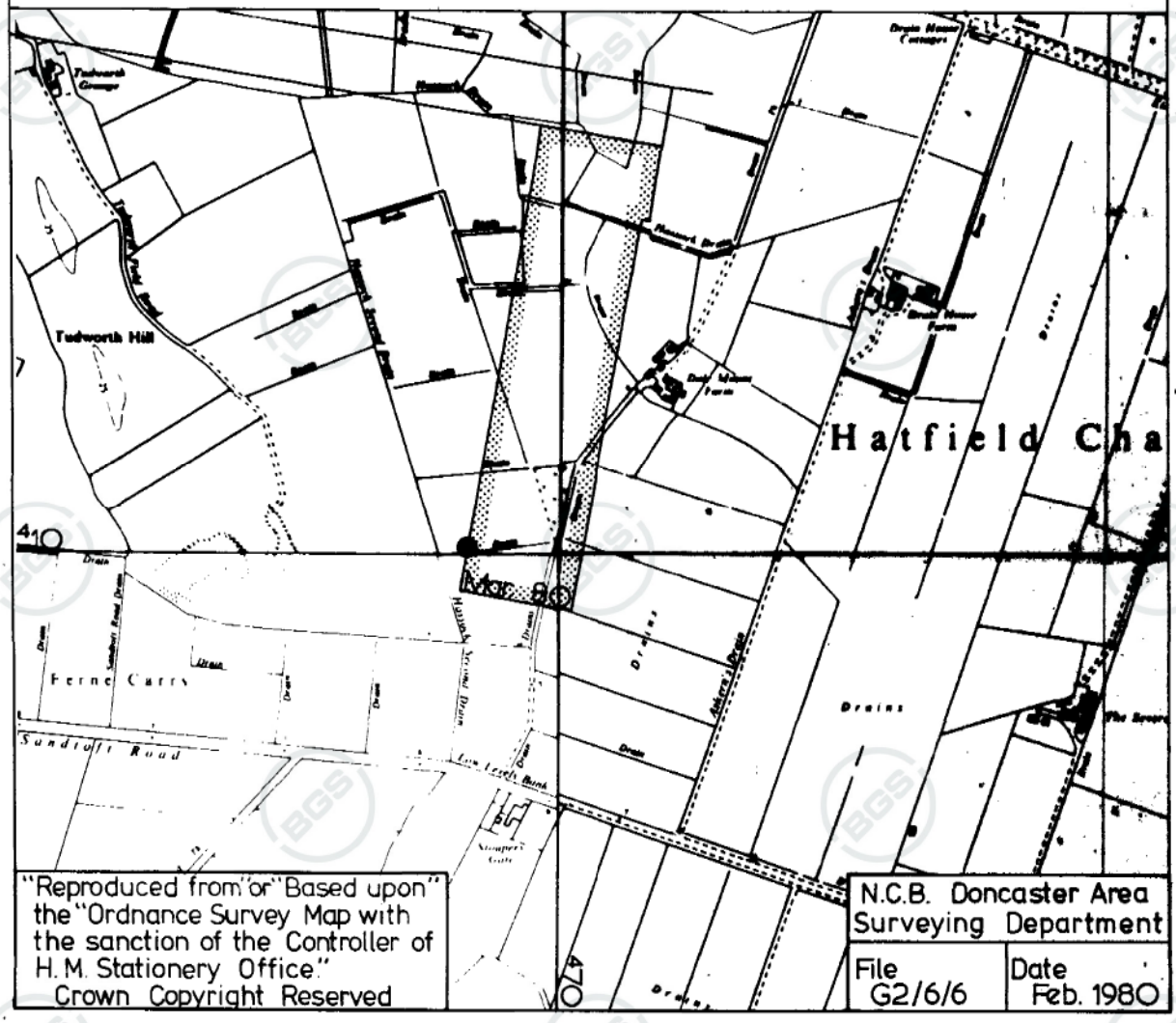
NATIONAL COAL BOARD — DONCASTER AREA

UNDERGROUND BOREHOLES Nos. 56, 56A & B

HATFIELD COLLIERY

SE 61 SE / 69, 69a + 69b

SCALE :- 1/10560 — SHEET SE 61 SE



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N.C.B. Doncaster Area Surveying Department

File G2/6/6 — Date Feb. 1980

Bored from High Hazel seam to prove fault

National Grid Coordinates E 469830 m N 410014 m

Levels: 2157·82 (657·10) ft. B.O.D

High Hazel seam workings shown stippled at edge

6 inch Map	B.H. regd. No.	6 inch Map	B.H. regd. No.
Yorks. W.R. 266 SW (County, Sheet & Qtr.)	—	SE 61 SE (Nat. Grid Sheet & Qtr.)	237

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 121151 : BGS Reference: SE61SE95
British National Grid (27700) : 469640,410340

FIG 15

Soil Mechanics

Log for Borehole No 15

Location No. 5881 TUDWORTH HALL SE61SE 95 6964 1034 **sheet** 1 **of** 1

Carried out for Department of the Environment

Date 15th to 16th November 1971

200 mm dia. Cable Tool Boring

© Soil Mechanics Limited 65 Old Church Street London SW3

Description	Reduced Level: m	Depth (metres)	Thickness (metres)	Standard Penetration test: Depth and Penetration	Standard Penetration test: No. of Blows (N)	Remarks
Ground Level (m. above N.D.)	2.25	0.00				
Brown, sandy, silty CLAY with roots (Topsoil)	1.85	0.40	0.40			bentonite
Grey and orange brown, mottled, sandy silty CLAY becoming mainly loose sand to base. Zones of orange brown sand			1.50	1.65		33 blows to U100 - recov as disturbed sample
Orange brown sand	0.35	1.90		0.300	5	Double SPT
Loose, grey-brown and grey, clayey fine and medium SAND with laminations of silty, sometimes very sandy clay				0.300	5	
			0.90			pea gravel
	-0.55	2.80				
Firm, faintly laminated, brown, silty CLAY			1.40			24 blows to drive U100
	-1.95	4.20		4.15		
				0.300	15	
Medium dense, red-brown and grey-brown, sandy, clayey SILT, fine SAND and angular to rounded, fine to coarse GRAVEL			2.10			Piezometer
				5.65		
				0.300	13	
	-4.05	6.30				
				6.65		
Very dense, red-brown silty, fine becoming fine and medium SAND				0.200	(62)	93 extrapolate 'N' value
			3.78	8.00		
				0.150	(86)	initial penetration
				9.00		
				0.100	(59)	initial penetration
	-7.83	10.08		10.00		
				0.075	(48)	initial penetration
END OF BOREHOLE						

PIEZOMETER READINGS

Date	Time	Depth to water
17.11.71	14.30	2.05 m
18.11.71	10.00	1.55
19.11.71	11.30	1.34
20.11.71		1.25
26.11.71	15.00	1.24
27.11.71	15.00	1.22

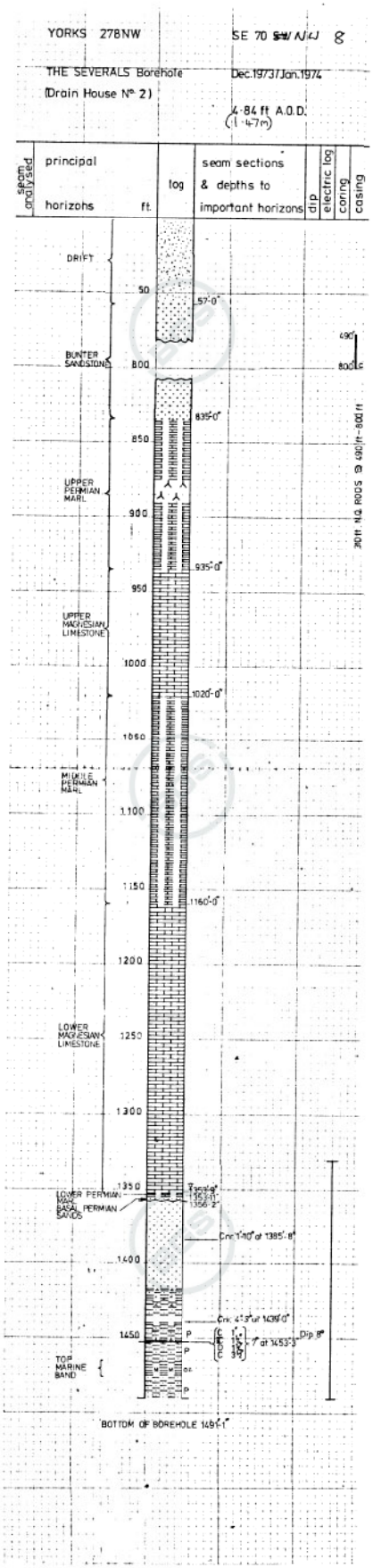
● Disturbed Sample Bulk Sample Tube or Core Sample (Length to scale) W Water Sample

Scale 20 mm = 1 m

Contact BGS: ngdc@bgs.ac.uk

ALTERNATIVE LOCATION OF ON SITE SEWAGE DISPOSAL WORKS
SE61SE
81-103
15
FOOTBALL
FOOTBALL
17
18
RUGBY
REDGRA
HOCKEY
19
20
A
B
C
D
E
F
G
H
J
K
L
M
2
3
4
5
6
7
8
9
10
12
13
14
22
469640
410340

SE61SE
81-103
FOOTBALL
FOOTBALL
REDGRA
RUGBY
HOCKEY
M
EXISTING STAFF HOUSING
A1(M)
LEGE
A
B
C
D
E
F
G
H


YORKS 27BNW
SE 70 SW NJ 8
THE SEVERALS Borehole
Dec.1973/Jan.1974
(Drain House N° 2)
484 ft A.O.D.
(147m)
seam analysed
principal horizons
ft
log
seam sections & depths to important horizons
dip
electric log
coring
casing
DRIFT
50
57·0'
BUNTER SANDSTONE
800
490'
800 ft
835'·0'
850
UPPER PERMIAN MARL
900
935'·0'
950
UPPER MAGNESIAN LIMESTONE
1000
1020'·0'
1050
MIDDLE PERMIAN MARL
1100
1150
1160'·0'
1200
LOWER MAGNESIAN LIMESTONE
1250
1300
1350
LOWER PERMIAN MARL
BASAL PERMIAN SANDS
1356'·2'
Cmr 1'·10" at 1385'·8"
1400
Cmr 4'·3" at 1436'·0"
1450
Dip 8°
TOP MARINE BAND
BOTTOM OF BOREHOLE 1491'·1"

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

AFS

FORM P 70
SERIES 680

6-INCH MAP	B/H REGD. No.
Yorks 278 NW (County, Sheet and Qtr.)	
SE 70 ~~SW~~ NW/8 (Nat. Grid, Sheet & Qtr.)	

Attach tracing from a map or sketch map if possible

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

Purpose Structural Borehole

Exact Site O.S. N.G.R. SE.70341/09756

Level at which ~~bore~~ bore commenced relative to O.D. 4.84 A.O.D. ~~ft~~ ft*

Date of sinking or boring December 1973/January 1974

Sinker or borer D.P.I. Ltd

Cores examined by [redacted]

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft	THICKNESS in	DEPTH ft	DEPTH
	No cores taken from surface to 1330ft				
	OPEN HOLE to 1330ft, data obtained from cutting samples.				
	Soil	2	0	2	0
Drift *	Sand, fine, pale brownish grey, some coal flecks	8	0	10	0
	Sand, brown, medium-grained	5	0	15	0
	Sand, fine reddish brown with some dark grey clay below 20ft	10	0	25	0
	Sand, fine reddish brown with some coarse pale sand	32	0	57	0
Bunter Sandstone	Sandstone, reddish brown, some quartz pebble fragments and traces of red marl more evident below 700ft	778	0	835	0
	Red Marl with much reddish brown sand (Bunter)	40	0	875	0
Upper Permian Marl	Anhydrite (poor samples with much red marl and reddish brown sand (from Bunter and Upper Marl))	15	0	890	0
	Red Marl	45	0	935	0
Upper Magnesian Limestone	Limestone, grey and buff	85	0	1020	0
Middle Permian Marl	Marl, reddish brown and grey, gypsum, brownish grey anhydrite conspicuous below 1090ft	145	0	1160	0
	Limestone, buff and grey	170	0	1330	0
	Limestone, medium/dark grey, hard, dense with bands of softer dark grey calcareous mudstone, scattered brachiopods shells below 1338ft	11	0	1341	0
	Limestone, rather nodular structure with wavy mudstone partings, small solution cavities around 1343ft 3in	3	6	1344	6
	Limestone, rather patchy grey/lighter grey, some darker calcareous mudstone bands; occasional brachiopod shells (Productids), irregular stylolitic sutured bedding plane partings below 1348ft 9in. Limestone, paler softer (silty texture) below 1349ft 0in	7	1	1351	7
	* Base of drift uncertain due to circulation losses, could possibly be at 20ft, sample at 60ft clearly Bunter Sandstone.				

YPU.917

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

Form P 71
SERIES 680

Section of THE SEVERALS BOREHOLE (Drain House No. 2)

6 - INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~NW~~ NW 8	

* Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
Lower Magnesian Limestone	Limestone, pale grey becoming darker with laminated appearance due to darker carbonaceous inclusions on bedding planes and some impure limestone partings towards base	1	11	1353	6
	Limestone, cream, coarse granular speckled becoming darker down		3	1353	9
Lower Permian Marl	Mudstone, silty, dark grey		1	1353	10
	Siltstone, coarse, greenish grey speckling		1	1353	11
Basal Permian Sands	Sandstone, dark grey, calcareous passing down into		2	1354	1
	Sandstone, blue, grey, becoming softer down with very fine conglomerate in bottom 1in	2	1	1356	2
	Sandstone, pale grey, coarse, rather massive slight reddish staining in silty layer at 1358ft, joint staining below 1360ft, some purple staining between 1364ft 3in/1364ft 9in, then coarse pale grey sandstone	11	10	1368	0
	Sandstone, coarse with very dark purple stained bands, only faintly and patchily stained below 1369ft 3in. Sub-vertical fracture running through core 1371ft to 1374ft and sandstone rather cemented around this level. Coarse, occasionally stained sandstone continues to 1378ft 3in. Purple stained cross bedded sandstone below 1378ft 6in	15	10	1383	10
	Core Lost	1	10	1385	8
	Sandstone, pale grey, coarse with purplish staining continuing to 1397ft 0in (deep purple around 1386ft 6in)	1	4	1397	0
	Sandstone, coarse, still rather soft, faint staining in bottom 2in	13	2	1410	2
	Sandstone, very coarse, purplish staining		6	1411	8
	Sandstone, coarse to very coarse, feebly stained with occasional more deeply stained bands	5	7	1417	3
	Mudstone-seatearth, purple		3	1417	6
	Mudstone-seatearth, silty, purple, some ironstone nodules		11	1418	5
	Siltstone/silty mudstone, purplish, some scattered rootlets, some ironstone nodules, some sandy laminae below 1420ft 6in	2	4	1420	9
	Mudstone, dark grey, purplish, plant debris, some pale mudstone fragments at base		3	1421	0
	Mudstone-seatearth, grey, purplish tinge, very eroded core	4	5	1425	5
	Mudstone, silty, less seatearthy character, purple, rather strong, some rootlets, sphaerosiderite showing purple spotting	1	6	1426	11
	Siltstone, strong, coarse purplish with sandy laminae		5	1427	4
	Haematitic core, deep purple (after ironstone)		3	1427	7
	Mudstone-seatearth, silty, rubbly eroded purple core, with deep purple sphaerosiderite specks, rootlets	1	5	1429	0
	Mudstone, silty, purple strong with sphaerosiderite and rootlets		6	1429	6

YPU. 918

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

FORM P 71
SERIES 680

6-INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~NE~~ NW 8	

*Delete as appropriate

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS xxx ft*	THICKNESS xxx in*	DEPTH xxx ft*	DEPTH xxx in*
	Siltstone/silty mudstone, purplish grey with occasional rootlets, less silty (silty mudstone) at 1432ft 0in. Irregular patchy texture of siltstone/ silty mudstone, purplish staining continuing to 1432ft 5in	4	1	1433	7
	Mudstone, smooth	1	2	1434	9
	Core not Recovered (horizon of loss uncertain and could have occurred in part around 1417ft 3in, or 1427ft 7in)	4	3	1439	0
	Mudstone, purplish grey, slightly silty with vague plant impressions		6	1439	6
	Mudstone, purplish grey, slightly silty, faint rootlet markings with much deeper red/purple patches of sphaerosiderite especially between 1439ft 2in and 1439ft 6in. Mudstone, flat bedded below 1439ft 10in still vaguely 'planty', mottled purplish grey with occasional rootlets below 1439ft 11in, and very slightly silty with occasional listrica	1	7	1441	1
	Mudstone, silty, stronger grey with purplish tinge only, core breaking readily in top 6in due to joint slip surfaces, core sound below 1441ft 8in	1	5	1442	6
	Mudstone, grey, slightly silty becoming more silty down		6	1443	0
	Siltstone, grey, some purplish zoning near top less silty below 1443ft 9in, then coarse at 1444ft 0in still with purplish stain	1	9	1444	9
	Mudstone, silty, purplish, only slightly silty below 1445ft 0in, with fine alternations of mudstone, silty mudstone and siltstone to 1445ft 6in, but predominently silty mudstone with vague planty impressions	1	6	1446	3
	Siltstone, purplish		2	1446	5
	Sphaerosiderite as deep purple/chocolate haematite		1	1446	6
	Siltstone, purplish grey		5	1446	11
	Core not Recovered		11	1447	10
	Siltstone/fine sandstone, quartzitic deeper grey, very tough		2	1448	0
	Siltstone, coarse, micaceous, purplish		4	1448	4
	Mudstone, silty, purplish with abundant plants including Neuropteris		2	1448	6
	Siltstone, micaceous, very coarse, purplish, much plant debris		4	1448	10
	Siltstone, purple, variable coarse to fine, mainly rather fine with plants, e.g. Neuropteris, Sphenopteris	1	4	1450	2
	Mudstone, silty, purplish passing down into mudstone all with plants Dip 8°		11	1451	1
	Siltstone, laminated with fine purple ironstone streaks		0¾	1451	1¾
	Mudstone, black, carbonaceous with ironstone streak		0¼	1451	2
	Mudstone-seatearth, purplish grey		1	1451	3
	Mudstone, slightly silty, grey, a few rootlet impressions		4	1451	7
	Mudstone-seatearth, purplish grey dark at base		8	1452	3

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Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

FORM P 71
SERIES 680

6-INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~SW~~ NW 8	

*Delete as appropriate

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
	Mudstone, black, coaly		0½	1452	3½
	Mudstone-seatearth, grey		1	1452	4½
	Mudstone-seatearth, black and carbonaceous mudstone (fragmented core)		3½	1452	8
	COAL, dull, strong 1in COAL, dull, inferior 1¼in Siltstone, quartzitic, black very strong 1½in COAL, mainly bright 1½in COAL, bright, fragmented 1½in		7	1453	3
	Siltstone-seatearth, dark, carbonaceous		2	1453	5
	Siltstone-seatearth, grey	1	5	1454	10
	Mudstone, silty with sandy laminae, ironstone nodules around 1456ft 9in	3	0	1457	10
	Siltstone, speckled, white/grey, occasional rootlets		5	1458	3
	Siltstone, grey, speckled		2	1458	5
	Mudstone, silty, scattered rootlets		3	1458	8
	Siltstone, pale grey with plant debris		5	1459	1
	Siltstone, becoming less silty down, fine pale laminae, some plant debris	1	7	1460	8
	Siltstone, coarse		4	1461	0
	Mudstone, silty/siltstone variable laminated, some comminuted plant debris	1	2	1462	2
	Siltstone, coarse, speckled, rather strong with some darker silty mudstone layers		7	1462	9
	Siltstone, coarse, speckled rather pale grey becoming darker down with much comminuted plant debris	1	3	1464	0
	Mudstone, silty, grey, a few fine silty laminae and comminuted plant debris	1	0	1465	0
	Mudstone, silty, grey with some more silty layers	1	1	1466	1
	Mudstone, smooth, grey with some paler more silty layers, Planolites		4	1466	5
	Mudstone, grey with some dark spotting at 1468ft 1in, some more silty bands, with 'fucoid' like ?planty debris to 1418ft 3in	1	10	1468	3
TOP MARINE BAND	Mudstone, rather laminated, lighter/darker grey with ironstone streaks, 1in ironstone at 1470ft 0in, 'fucoid' like planty debris again at 1468ft 8in good Planolites at 1469ft 6in, occasional 'fucoids' and Planolites, sparse but continue down to 1470ft 8in, occasional ironstone lenses below 1471ft 0in ?Dunbarella at 1471ft 7in in smooth grey mudstone, Planolites below	4	8	1472	11
	Siltstone, strong band		1	1473	0
	Mudstone, grey with fucoids		4	1473	4
	Ironstone		1	1473	5
	Core not Recovered		3	1473	8
	Mudstone, medium/dark grey, some more silty layers, some ironstone Lingula at 1473ft 8in and 1475ft 5in, scattered generally fine 'fucoids'	1	10	1475	6
	Mudstone, dark grey with ironstone and sandy lenses		2	1475	8
	Siltstone with sandy laminae, much comminuted plant debris, becoming paler at base	3	4	1479	0

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British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

Form P 71
SERIES 680

6 - INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~SW~~ NW 8	

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

* Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
	Sandstone, fine-grained, grey		7	1479	7
	Siltstone with sandy laminae, comminuted plant debris		4	1479	11
	Sandstone, fine-grained with silty laminae		4	1480	3
	Siltstone, grey, a few fine sandy laminae, much comminuted plant debris		8	1481	11
	Siltstone with sandy laminae, comminuted plant debris	2	7	1484	6
	Siltstone, grey with some plant debris	1	6	1486	0
	Mudstone, silty, grey with track markings		7	1486	7
	Siltstone/silty mudstone alternations	1	2	1487	9
	Sandstone, fine-grained, some irregular silty layers, carbonaceous laminae around 1488ft 3in	1	3	1489	0
	Siltstone with sandy laminae, "burrowed"		3	1489	3
	Sandstone		2	1489	5
	Sandstone, fine-grained with grey silty laminae		6	1489	11
	Siltstone with sandy laminae		3	1490	2
	Sandstone, fine-grained, grey		5	1490	7
	Siltstone with sandy laminae		8	1491	1
	BOTTOM OF BOREHOLE			1491	1
	N.B. 310ft of NQ rods left fast in hole between 490ft and 800ft				

YPU. 918

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

15 JAN 1974

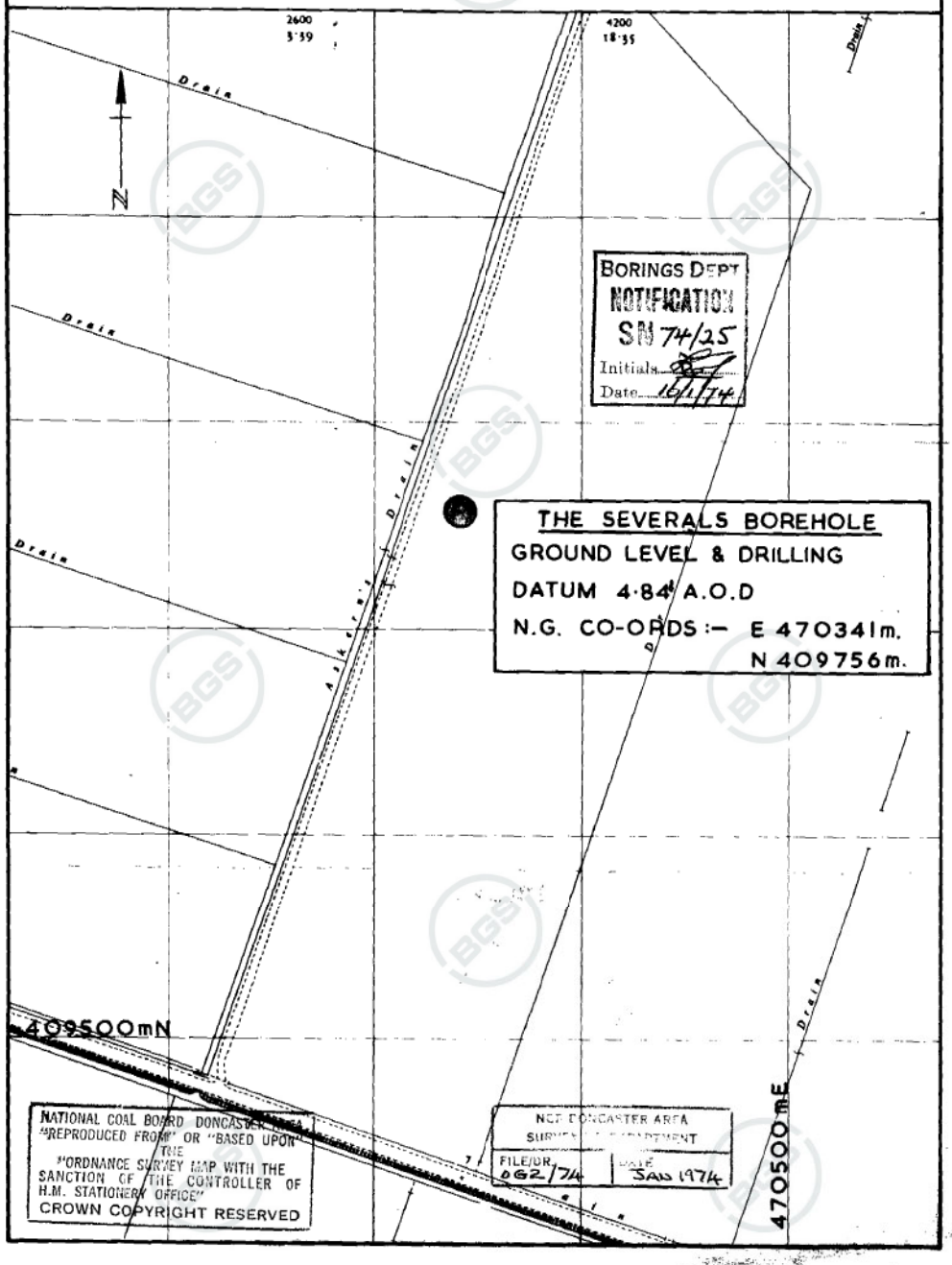
NATIONAL COAL BOARD DONCASTER AREA

BOREHOLE LOCATION PLAN

THE SEVERALS (DRAIN HOUSE No2) BOREHOLE.

SCALE :- 1/2500

SHEET SE 7009



Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

WATER RESOURCES BOARD
WELL RECORD

DECLASSIFIED
27 AUG 1999

SHEET 1

W.R.B. REF. No. SE 70/4

R.A. LICENCE No.

1. WELL IDENTITY

NATIONAL GRID REFERENCE 7035 0975

RECEIVED

Well at The Severals : Haltpieket

N.G.S. REF. No.

RIVER AUTHORITY Trent

Town

HYDROMETRIC AREA

County

SUB-CATCHMENT

Owner of well N.C.B.

Well made by [redacted]

Date of sinking

Information from [redacted]

Date received 26 July 1973

2. WELL DESCRIPTION

Level of ground surface ..... m. / ..... ft. above sea level (O.D.)

If well top is not at above* ground level how far below ..... m. / ..... ft.

Shaft ..... m. / ..... ft. deep; Diameter at top ..... m. / ..... ft.; at bottom ..... m. / ..... ft.

Bore ..... m. / ..... ft. deep; Diameter at top ..... m. / ..... ft.; at bottom ..... m. / ..... ft.

Details of headings .....

DETAILS OF PERMANENT LINING TUBES

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Details of well screen .....

DETAILS OF REST WATER LEVELS DURING CONSTRUCTION

Water struck at depths of ..... below well top

Rest level of water ..... m. / ..... ft. above* / below O.D.* / well top when bore ..... m. / ..... ft. deep. Date

Rest level of water ..... m. / ..... ft. above* / below O.D.* / well top when bore ..... m. / ..... ft. deep. Date

Rest level of water on completion of bore ..... m. / ..... ft. above* / below O.D.* / well top when bore ..... m. / ..... ft. deep. Date

Method of drilling .....

Brief details of well development e.g. acid treatment etc. .....

* delete as applicable

(9494/1)

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DETAILS OF PUMPING TEST

Water level depressed from ..... m. / ..... ft. above* / below well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Water level depressed from ..... m. / ..... ft. above* / below well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Water level depressed from ..... m. / ..... ft. above* / below well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Suction at ..... ft. below well top. Capacity of pump ..... . Test from ..../..../19.... to ..../../19 ....

DETAILS OF PERMANENT PUMPING EQUIPMENT

Make and/or type ..... Motive Power .....

Capacity ..... galls/hr. Suction at ..... m. / ..... ft. below well top.

Amount pumped ..... m^3/day* / galls/day. Pumping for ..... hrs./day.

Estimated consumption ..... $m^3/week$* / galls/week ..... $m^3/year$* / galls/year

3. WELL DATA

WELL USE. Abstraction ☐, Recharge ☐, Observation ☐, Disused ☐, Filled-in ☐ exploration

WATER USE. Public Supply ☐, Industrial ☐, Irrigation ☐, Agriculture ☐. Domestic ☐, Unused ☐, Misc. ☐

WATER LEVEL OBSERVATIONS

	Rest Water Level	Pumping Water Level	Depression	Rate of Pumping	Date
(1)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(2)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(3)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(4)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....

GEOPHYSICAL DATA AVAILABLE

Resistivity ☐ Conductivity ☐ Temperature ☐ Any other logs .....

PARTIAL ANALYSIS DETAILS In milligrams per litre

Date	TDS	Tot H	Carb H	Non-Carb H	Alk	SO4	Cl	E.C.

Site marked on: 1 inch (print) ..... , 1 inch (master) ..... , 2½ inch ..... (use symbol and give data)

(9494/1)

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

WATER RESOURCES BOARD

WELL RECORD

SHEET 2

W.R.B. REF NO.

R.A. LICENCE NO.

DECLASSIFIED
27 AUG 1999
RECEIVED

4. HYDROGEOLOGY

Topography AT WELL SITE

Local depression ☐, Flat surface ☐, Hill top ☐, Hillside ☐, Valley bottom ☐, Terrace ☐

MAJOR AQUIFER ..... Lithology .....

Depth to top of aquifer ..... m. ..... ft. Thickness penetrated ..... m. ..... ft.

Top of aquifer ..... m. ..... ft. AOD* / BOD Total thickness of aquifer ..... m. ..... ft.

Coefficient of storage ..... Transmissivity ..... m^2/day* / gals/day/ft.

MINOR AQUIFER ..... Lithology .....

Depth to top of aquifer ..... m. ..... ft. Thickness penetrated ..... m. ..... ft.

Top of aquifer ..... m. ..... ft. AOD* / BOD Total thickness of aquifer ..... m. ..... ft.

Coefficient of storage ..... Transmissivity ..... m^2/day* / gals/day/ft.

ADDITIONAL NOTES:

* delete as applicable

RR 18127/1/2173 5m 5/71 TP

Contact BGS: ngdc@bgs.ac.uk

5. STRATA					
GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS	DEPTH	DEPTH	
		METRES	METRES	FEET	IN

British Geological Survey

BGS ID: 124528 : BGS Reference: SE70NW12
British National Grid (27700) : 470038,409876

SE 70 NW/12.

MEMORANDUM.

FROM: Unit Surveyor

TO: F.A. Paling Esq., Area Surveyor & Minerals Manager

Subject: UNDERGROUND BOREHOLE NO. 50

Our Ref: ----------

Your Ref: /G2/6/

Date: 9/11/77

10 SEP 1973

Attached are details of a borehole drilled at this colliery.

Colliery: HATFIELD / THORNE

Seam: HIGH HAZEL

Seam bored to: TO PROVE THROW OF FAULT

O.S. 6" Sheet No.: SE 70 NW.

National Grid Co-Ordinates LL/7009/038.871

Level of borehole datum 2166.LL B.O.D.

~~Level of Seam~~ at borehole FLOOR LEVEL 2173 76 B.O.D.

NOTE!

THIS IS AN UP HOLE 60° TO HORIZONTAL

APPROX BEARING 196° 15' 50"S

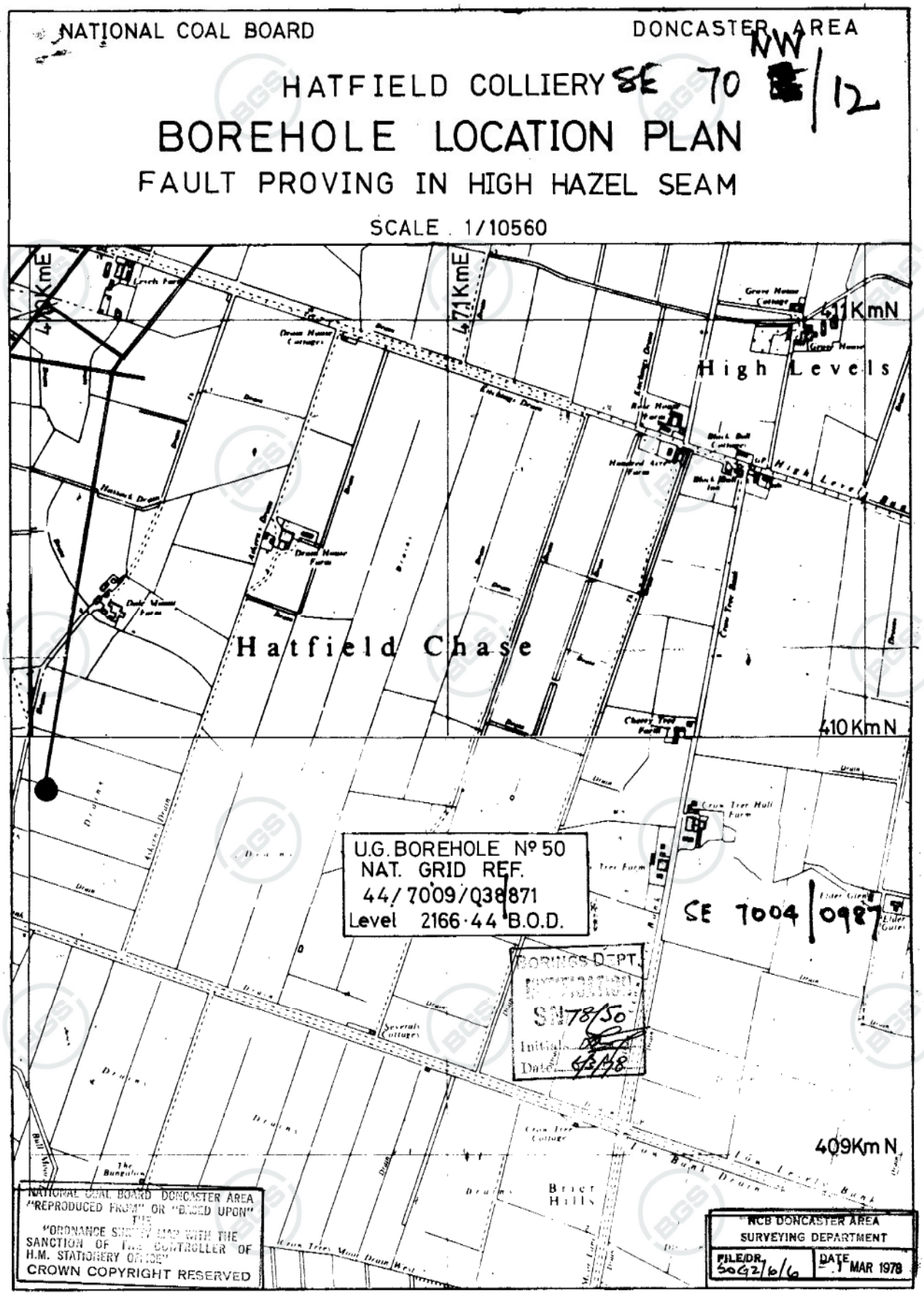
UNIT SURVEYOR

[redacted]

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124528 : BGS Reference: SE70NW12
British National Grid (27700) : 470038,409876



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British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

BGS

Section of DALE MOUNT FARM BOREHOLE
(Drain House No. 1)

Purpose Structural Borehole

Exact Site O.S. N.G.R. SE.70464/10131

Level at which ~~stxxx~~ bore ~~dxxxx~~ commenced relative to O.D. +2·13m 7014 ~~xxxx~~ ft* A.O.D.

Date of sinking or boring November/December 1973

Sinker or borer D.P.I. Ltd

Cores examined [redacted]

Yorks 266 SW
(County, Sheet and Qtr.)

SE 70/71 SW 11
(Nat. Grid, Sheet & Qtr.)

Attach tracing from a map or sketch map if possible

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ~~xxx~~ ft*	THICKNESS ~~xxx~~ in*	DEPTH ~~xxx~~ ft*	DEPTH ~~xxx~~	
	No cores taken from surface to 1314ft 5in					
	OPEN HOLE to 1314' 5", data obtained from cutting samples					
Drift	Soil	2	0	2	0	0·61
	Clay, brownish grey with some peat	6	6	8	6	2·59
	Peat	6	6	15	0	4·57
	Peat, some clay	6	0	21	0	6·40
	Sand, grey, becoming yellowish down, some peat	5	0	26	0	7·92
	Sand, grey with some yellow/orange sand and some fine gravel	19	0	45	0	13·72
Bunter Sandstone	Sandstone, pale reddish brown, rather fine from 170ft to 210ft, rather coarse 210ft to 260ft, occasional red marl, some quartz pebble fragments mainly between 370ft and 420ft	565	0	610	0	185·9
	Sandstone, rather fine-grained, pale reddish brown	130	0	740	0	
	Sandstone, reddish brown, fine-grained, marly	90	0	830	0	
Upper Permian Marl	Marl, red	35	0	865	0	
	Anhydrite	20	0	885	0	
	Marl, red with some gypsum/anhydrite below 925ft	45	0	930	0	
Upper Magnesian Limestone	Limestone	90	0	1020	0	
Middle Permian Marl	Marl, reddish brown	80	0	1100	0	
	Marl, reddish brown and grey	30	0	1130	0	
	Marl, reddish brown and grey with gypsum and anhydrite	20	0	1150	0	
	Limestone	164	5	1314	5	
	Limestone, medium/dark grey, dense, very hard with some dark grey less hard more muddy bands with some shell fragments. Mat of Pinnularia like fibres on bedding planes with other planty debris	7	3	1321	8	
	Limestone, darker grey more muddy, some lighter grey bands, occasional shell fragments and stylolites	3	10	1325	6	
	Mudstone, medium/dark grey, softer calcareous		10	1326	4	
	Limestone, fairly soft, muddy, banded (1in) light/dark grey	3	1	1329	5	

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

Form P 71
SERIES 680

Section of DALE MOUNT FARM BOREHOLE
(Drain House No. 1)

6 - INCH MAP	B/H
Yorks 266 SW	
SE ~~70~~ 71 SW 11	

* Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft	THICKNESS in	DEPTH ft	DEPTH in
Lower Magnesian Limestone	Limestone, mainly medium grey, dense with some softer darker (1in) bands at 6in intervals, some small solution cavities below 1331ft 6in	5	4	1334	9
	Limestone, paler grey in colour, with softer more frequent irregular bands of calcareous mudstone, limestone becoming lenticular, occasional shells, small solution cavities below 1345ft 6in	11	9	1346	6
	Limestone, mainly darker grey, muddy with lighter grey bands, some brachiopods, some plant debris	7	0	1353	6
Lower Permian Marl	Mudstone, silty, dark flecked greenish grey with coarse 1in band at base		7	1354	1
	Siltstone, coarser greenish grey, speckled fish scale at 1354ft 4in, Lingula at 1354ft 7in		7	1354	8
	Limestone, pale grey, some dark 'sand' grains c. 0.5mm, numerous shell fragments, irregular thickness		0½	1354	8½
	'Limestone', brownish grey with patchy 'sandy' texture, abundant dark grey sand grains 0.5mm, occasional thin edge sections of valves c. 1cm		2½	1354	11
	Limestone mainly, light grey, compact with dispersed fine dark grey 'sand' grains, scattered pale grey edge sections of brachiopod valves. Large (5cm x 2cm max.) clasts of blue grey dark/light speckled sand (Basal Sands)		4	1355	3
	Limestone impure, darker brownish grey with occasional large irregular speckled blue grey clasts (max. 5mm) of Basal Sands and sections of larger brachiopods (max. 2.5cm) mainly in lower part		4½	1355	7½
	Limestone, paler brownish grey with abundant brachiopods usually 2cm (rare to 5cm) sometimes not disarticulated. This passes at base into		2¾	1355	10¼
Basal Permian Sands	Sandstone, brownish to grey speckled, with bluish tinge with very occasional edge sections of shells and brownish black casts/moulds of brachiopods		0¾	1355	11
	Sandstone, soft 'dirty', coarse grey with a few small pebbles at base		5	1356	3
	Mudstone, smooth, grey	1	1	1357	4
	Mudstone, red/grey		1	1357	5
TOP MARINE BAND	Mudstone, purple with Lingula, ?Planolites and ?foraminifera at base	1	4	1358	9
	Siltstone, purple/chocolate, sandy with very prominent track markings		2	1358	11
	Siltstone, purple with sandy laminae, much plant debris	6	9	1365	8

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

Form P 71
SERIES 680

6 - INCH MAP	B/H
Yorks 266 SW	
SE ~~70~~ 71 SW 11	

* Delete as appropriate

Section of DALE MOUNT FARM BOREHOLE
(Drain House No. 1)

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS		DEPTH	
		~~XXX~~ ft*	~~XXX~~ in*	~~XXX~~ ft*	~~XXX~~ in*
	Siltstone, mainly purplish grey with sandy laminae, much comminuted plant debris, joint crosses core below 1360ft	2	0	1367	8
	Mudstone, silty, purplish grey with some fine sandy laminae, burrows, persistent track markings especially towards base, thin bright red ironstone bands. Joint crosses core around 1370ft	2	7	1370	3
	Sandstone, purplish, some mudstone layers, plants at top and sand filled rootlets		11	1371	2
	Siltstone, reddish with micaceous sandy layers, coarse rootlets and plant debris	1	10	1373	0
	Siltstone, mainly grey, fine purple laminae, sandstone bands below 1374ft	1	4	1374	4
	Sandstone with finely rippled silty laminae		7	1374	11
	Siltstone with sandy laminae		5	1376	4
	Interlaminated mudstone/silty mudstone with sandy laminae and thicker layers, plants	1	2	1377	6
	Sandstone/siltstone, finely interlaminated, rippled, plant debris		6	1378	0
	Siltstone, dark grey with purplish tinge mainly laminated much comminuted plant debris, sandy laminae below 1379ft	?	9	1380	9
	Siltstone/silty mudstone, olive green, some very fine sandy laminae, plant debris		10	1381	7
	Mudstone, silty, purplish grey, some sandy laminae, comminuted plant debris		5	1382	0
	Siltstone, purple with occasional sandy laminae, becoming finer down, comminuted plant debris	9	9	1391	9
	Mudstone, silty, purplish grey		9	1392	6
	Mudstone, grey, smooth, purplish tinge, some silty laminae near base	1	3	1393	9
	Mudstone, silty with plant debris	1	11	1395	8
	Mudstone, smooth, grey with Estheria and fine track markings throughout, shaly at base	2	4	1398	0
	Mudstone, grey, smooth with Estheria, becoming darker down, dark grey and listricated in bottom 2in	1	4½	1399	4½
	Mudstone, black, very carbonaceous, canneloid in top ½in, some iron rich streaks and lenses with pyrites		7½	1400	0
	CANNEL, very inferior		1	1400	1
	COAL, bright with ?fish scale		0¾	1400	1¾
	COAL, bright with dull inferior bands, grey quartzitic lenses up to 1cm, between 1400' 3" to 1400' 4"		4	1400	5¾
	Mudstone, carbonaceous with vitrain streaks		0¼	1400	6
	Mudstone, dark grey and fawn grey showing very irregular texture of flakes/wedges, mainly fawn grey below 1400' 7½"		2¼	1400	8¼
	Mudstone, black, carbonaceous		0½	1400	8¾

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

Form P 71
SERIES 680

Section of DALE MOUNT FARM BOREHOLE
(Drain House No. 1)

6 - INCH MAP	B/H
Yorks 266 SW	
SE ~~20~~ 71 SW 11	

* Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
	Mudstone-seatearth		1 1/2	1400	10 1/4
	Mudstone-seatearth, silty, grey, strong	1	2 3/4	1402	1
	Mudstone-seatearth with ironstone nodules		6	1402	7
	COAL, very inferior		1	1402	8
	Mudstone-seatearth with rootlets, planty		2	1402	10
	Silts/sand finely interlaminated, scattered rootlets, plant debris below 1404ft 4in	2	0	1404	10
	Sandstone, fine with very fine silty and carbonaceous laminae		8	1405	6
	Sandstone, pale grey with fine carbonaceous wisps below 1407ft 9in	2	9	1408	3
	Siltstone, grey, fine sandy laminae in top 3in, becoming finer down		11	1409	2
	Mudstone, silty		5	1409	7
	Mudstone, grey with thin ironstone bands, with ?Estheria at 1409ft 9in, scattered plants, very smooth towards base	1	9	1411	4
	COAL, bright 0 1/4 in				
	COAL, inferior 1 in				
	COAL, inferior, strong dull 0 1/2 in				
	Seatearth, silty, dark grey, carbonaceous 0 1/2 in		11	1412	3
	COAL, strong, dull 0 1/4 in				
	Mudstone-seatearth, strong, silty 4 in				
	COAL, bright 1 in				
	COAL, inferior, mainly dull 3 in				
	Mudstone-seatearth, medium/dark grey		9	1413	0
	Mudstone-seatearth, silty with ironstone nodules near base	1	4	1414	4
	Mudstone, silty with some sandy laminae, rootlets	2	2	1416	6
	Mudstone, grey, smooth with small ironstone nodules, rootlets, more seatearthy towards base		9	1417	3
	Mudstone, dark grey with white sandy streaks and lenses, mudstone becoming black and rather silty, rootlets, abundant Estheria in ferruginous siltstone lens at 1417ft 4 1/2 in		1 3/4	1417	4 3/4
	Mudstone, black with irregular bioturbated structure, white sandy lenses and laminae, sandy lens at base		0 1/4	1417	5
	Mudstone/silty mudstone black, some sandy lenses and irregular laminae, rootlets, large dark 'sandy' ironstone masses in bottom 6in		10	1418	3
	Mudstone, silty, black, carbonaceous with rootlets at top becoming less silty down, ?'fucoid' like markings at 1418ft 4in, Estheria at 1418ft 5in, planty		11 1/4	1419	2 1/4
	COAL, inferior/very carbonaceous flaky mudstone		1	1419	3 1/4
	Mudstone, dark grey with pale streaks		0 3/4	1419	4
	Mudstone, black, carbonaceous with bright coal threads		3 1/2	1419	7 1/2

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

Form P 71
SERIES 880

Section of DALE MOUNT FARM BOREHOLE
(Drain House No. 1)

6 - INCH MAP	B/H
Yorks 266 SW	
SE ~~50~~ 71 SW 11	

* Delete as appiopriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS xxx ft*	THICKNESS xxxxin*	DEPTH xxx ft*	DEPTH xxx in*
	Mudstone-seatearth, silty, dark grey with carbonaceous mudstone wedge at 1420ft 0in, passing down into siltstone-seatearth	2	4½	1422	0
	Mudstone-seatearth, purple	1	3	1423	3
	Mudstone, silty, mottled green/purple, more silty in part, some rootlets	1	3	1424	6
	Siltstone, purple, variable coarse/fine, deep red ironstone lenses, a few sandy laminae, scattered rootlets, plants towards base	7	3	1431	9
	Siltstone, purple, sandy laminae in lower part, plant debris	5	3	1432	0
	Mudstone, silty with Pinnularia		9	1432	9
	Siltstone, purple, mainly fine with only scattered plants	2	3	1440	0
	Siltstone, purple, coarse with comminuted plant debris	1	6	1441	6
	Siltstone, purple with irregular sandy laminae in upper part and comminuted plant debris, more coarse and sandy at some levels	12	2	1453	8
	Sandstone, mainly pale grey, coarse with purple banding in top 5ft, mainly coarse, purple below 1462ft with lighter grey banding below 1469ft 7in	16	11	1470	7
	Sandstone, pale grey, mainly coarse with some coal scars, fine conglomerate at 1463ft 3in mainly pale grey below with some purple banding and laminae	12	11	1483	6
	Mudstone, purple, smooth, some silty laminae below 1484ft, some track markings	3	9	1487	3
	Mudstone, slightly silty, grey		3	1487	6
	Mudstone, grey with purplish tinge, smooth occasional chocolate ironstone bands, occasional pale sandy laminae, a little planty material at 1490ft 5in, sparse below. ?Planolites at 1490ft 6in. ?Estheria at 1493ft 8in, fine pale laminae and fine planty material more evident below 1496ft 0in	9	3	1496	9
	Mudstone, silty, purplish grey (2in siltstone at 1497ft 2in), Alethopteris at 1497ft 10in	2	0	1498	9
	Mudstone, purplish with silty alternations, scattered fine plant debris	2	7	1501	4
	Mudstone, purplish grey, smooth, rather fissile, listricated and planty towards base	1	8	1503	0
	Mudstone, medium/dark grey, smooth, purplish tinge	1	0	1504	0

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

Form P 71
SERIES 680

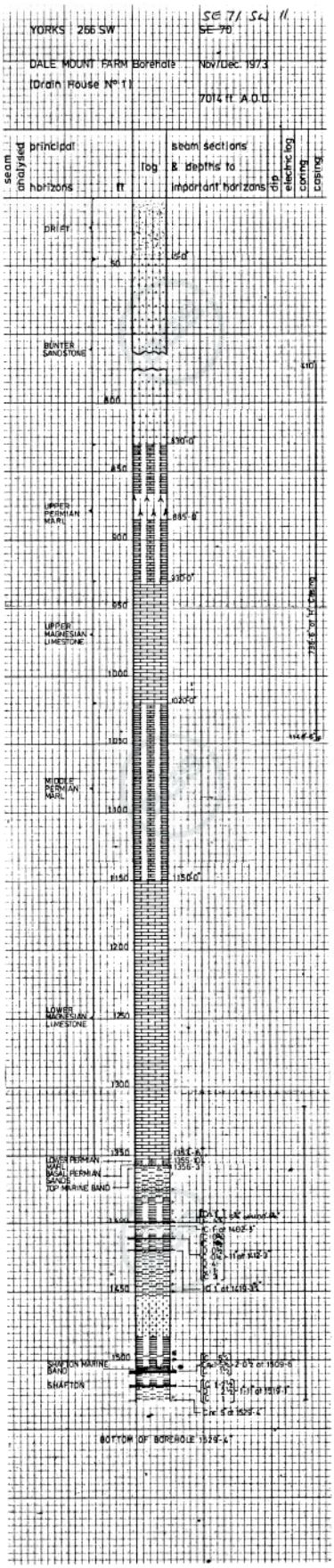
6 - INCH MAP	B/H
Yorks 266 SW	
SE ~~39~~ 71 SW 11	

* Delete as appropriate

Section of DALE MOUNT FARM BOREHOLE
(Drain House No. 1)

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
SHAFTON MARINE BAND	Shale, dark purplish grey with Lingula Planolites, and 'fucoids', burrowed ironstone at 1506ft 1in, shale, lighter grey below 1506ft 10in, fish scale at 1506ft 11in, euhedral pyrite crystals in bottom 3in	3	3	1507	3
	Mudstone, carbonaceous, shaly		2½	1507	5½
	COAL, inferior 2 in COAL, inferior, very pyritic 3¼in COAL, pyritic 1ft 3¼in COAL, dull pyritic 2½in COAL 1½in	2	0½	1509	6
	Mudstone-seatearth, dark grey	1	0	1510	6
	Mudstone-seatearth, grey, silty with occasional small ironstone nodules	1	6	1512	0
	Mudstone, silty, greenish grey, rather massive structureless with sphaerosiderite patches, rootlet markings	1	0	1513	0
	Mudstone, mottled greenish dark and lighter grey, 2in ironstone at 1516ft 0in, pale lens at base	4	1	1517	1
	Mudstone, coaly with streaks of ironstone and pyrite		1	1517	2
SHAFTON	COAL, inferior, pyritic 4½in COAL, inferior, very pyritic 1½in COAL, inferior, pyritic 1ft 1½in Mudstone, grey planty 2½in COAL, very inferior, pyritic 1 in	1	11	1519	1
	Mudstone-seatearth, slightly silty, medium/dark grey		5	1519	6
	Mudstone-seatearth, silty, strong		2	1519	8
	Siltstone with rootlets		10	1520	6
	Siltstone, grey		11	1521	5
	Siltstone, sandy, grey	3	7	1525	0
	Sandstone with silty laminae		10	1525	10
	Siltstone, grey with sandy laminae, plant debris	2	11	1528	9
	Mudstone, grey with abundant plants, carbonaceous at base		2	1528	11
	Core not Recovered		5	1529	4
	BOTTOM OF BOREHOLE			1529	4
	N.B. 738ft 6in of 'H' casing left in hole between 410ft and 1148ft 6in				

Contact BGS: ngdc@bgs.ac.uk


YORKS 266 SW
SE 71 SW 11
SE 70
DALE MOUNT FARM Borehole
Nov/Dec. 1973
Drain House N° 11
701.4 ft A.O.D.
seam analysed
principal horizons
ft
log
seam sections & depths to important horizons
dip
electric log
coring
casing
DRIFT
BUNTER SANDSTONE
UPPER PERMIAN MARL
UPPER MAGNESIAN LIMESTONE
MIDDLE PERMIAN MARL
LOWER MAGNESIAN LIMESTONE
LOWER PERMIAN SAND
BASAL PERMIAN SANDS
TOP MARINE BAND
SEATON MARINE BAND
BRAFTON
BOTTOM OF BOREHOLE 1529-4'

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

NATIONAL COAL BOARD DONCASTER AREA

SE71SW/11

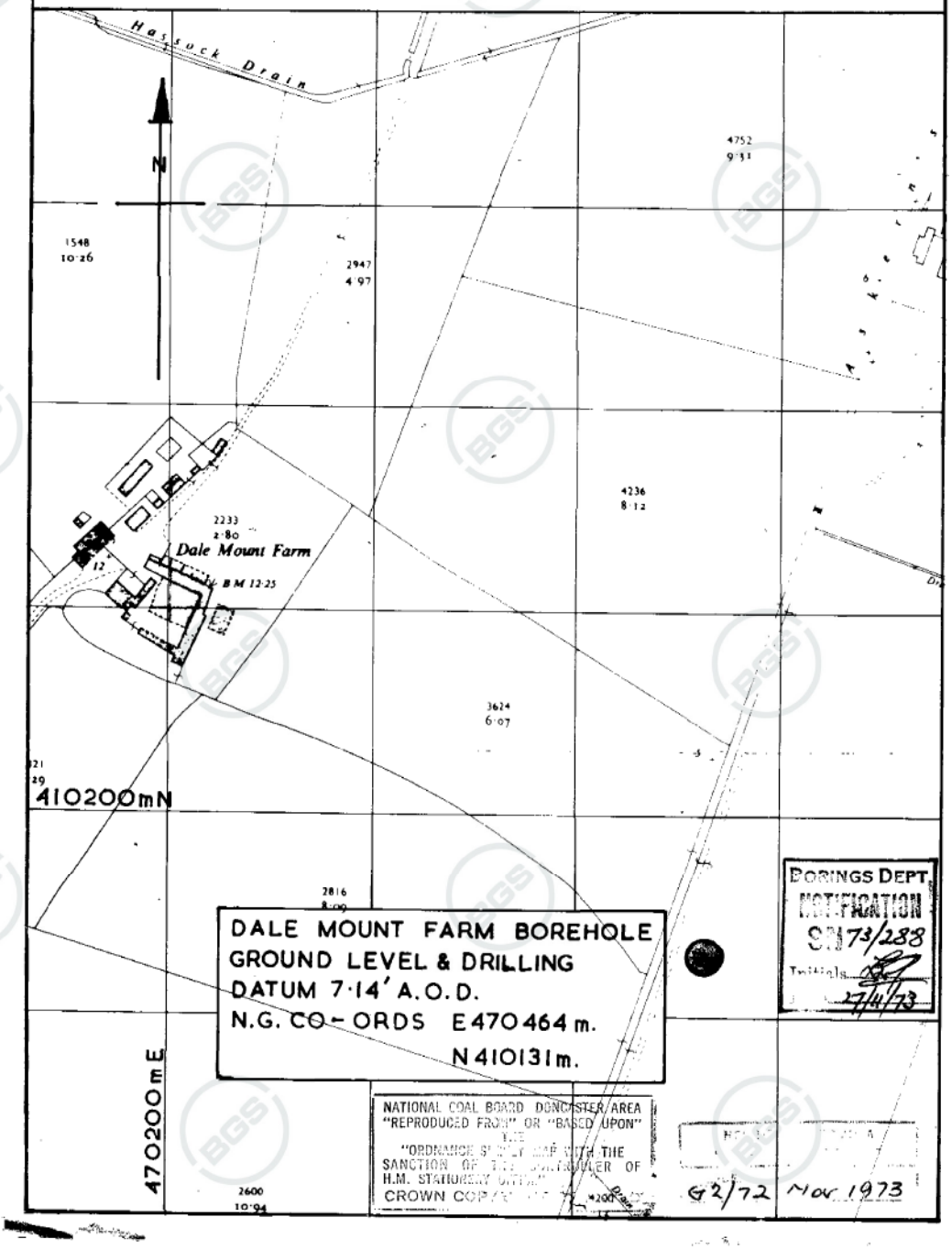
BOREHOLE LOCATION PLAN

DALE MOUNT FARM BOREHOLE

SCALE. 1/2500

[= DRAIN HOUSE No 8, C.C.G.]

SHEET SE 7010



DALE MOUNT FARM BOREHOLE
GROUND LEVEL & DRILLING
DATUM 7·14' A.O.D.
N.G. CO-ORDS E 470464 m.
N 410131 m.

BORINGS DEPT.
NOTIFICATION
SE 73/288
Initials
27/4/73

NATIONAL COAL BOARD DONCASTER AREA
"REPRODUCED FROM" OR "BASED UPON"
THE
"ORDNANCE SURVEY MAP WITH THE
SANCTION OF THE CONTROLLER OF
H.M. STATIONERY OFFICE"
CROWN COPYRIGHT

62/72 Nov 1973

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

WATER RESOURCES BOARD
WELL RECORD

SHEET 1

W.R.B. REF. No. SE 71/4

R.A. LICENCE No.

1. WELL IDENTITY

NATIONAL GRID REFERENCE 7050 1014

Well at Dale Mount Farm

I.G.S. REF. No.

RIVER AUTHORITY Trent

Town Hatfield

HYDROMETRIC AREA

County

SUB-CATCHMENT

Owner of well N C B.

Well made by [redacted]

Date of sinking

Information from [redacted]

Date received 26th July 1973.

DECLASSIFIED
31 AUG 1999
RECEIVED

2. WELL DESCRIPTION

Level of ground surface ..... m. If well top is not at above* ..... m.
above sea level (O.D.) ..... ft. ground level how far below ..... ft.

Shaft ..... m. / ..... ft. deep; Diameter at top ..... m. / ..... ft.; at bottom ..... m. / ..... ft.

Bore ..... m. / ..... ft. deep; Diameter at top ..... m. / ..... ft.; at bottom ..... m. / ..... ft.

Details of headings .....

DETAILS OF PERMANENT LINING TUBES

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Details of well screen .....

DETAILS OF REST WATER LEVELS DURING CONSTRUCTION

Water struck at depths of ..... below well top

Rest level of water ..... m. / ..... ft. above* / below O.D.* well top when bore ..... m. / ..... ft. deep. Date

Rest level of water ..... m. / ..... ft. above* / below O.D.* well top when bore ..... m. / ..... ft. deep. Date

Rest level of water on completion of bore ..... m. / ..... ft. above* / below O.D.* well top when bore ..... m. / ..... ft. deep. Date

Method of drilling .....

Brief details of well development e.g. acid treatment etc. .....

* delete as applicable

(9494/1)

Contact BGS: ngdc@bgs.ac.uk

DETAILS OF PUMPING TEST

Water level depressed from ..... m. / ..... ft. above* / below* well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Water level depressed from ..... m. / ..... ft. above* / below* well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Water level depressed from ..... m. / ..... ft. above* / below* well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Suction at ..... ft. below well top. Capacity of pump ..... . Test from ../../19.... to ../../19 ....

DETAILS OF PERMANENT PUMPING EQUIPMENT

Make and/or type ..... Motive Power .....

Capacity ..... galls/hr. Suction at ..... m. / ..... ft. below well top.

Amount pumped ..... m^3/day* / galls/day. Pumping for ..... hrs./day.

Estimated consumption ..... $m^3/week$* / galls/week ..... $m^3/year$* / galls/year

3. WELL DATA

WELL USE. Abstraction ☐, Recharge ☐, Observation ☐, Disused ☐, Filled-in ☐

WATER USE. Public Supply ☐, Industrial ☐, Irrigation ☐, Agriculture ☐, Domestic ☐, Unused ☐, Misc. ☐

WATER LEVEL OBSERVATIONS

	Rest Water Level	Pumping Water Level	Depression	Rate of Pumping	Date
(1)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(2)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(3)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(4)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....

GEOPHYSICAL DATA AVAILABLE

Resistivity ☐ Conductivity ☐ Temperature ☐ Any other logs .....

PARTIAL ANALYSIS DETAILS in milligrams per litre

Date	TDS	Tot H	Carb H	Non-Carb H	Alk	SO4	Cl	E.C.

Site marked on: 1 inch (print) ....., 1 inch (master) ....., 2½ inch ..... (use symbol and give data)

(9494/1)

British Geological Survey

BGS ID: 124795 : BGS Reference: SE71SW11
British National Grid (27700) : 470458,410129

WATER RESOURCES BOARD

WELL RECORD

SHEET 2

W.R.B. REF NO.

R.A. LICENCE NO.

4. HYDROGEOLOGY

DECLASSIFIED
31 AUG 1999
RECEIVED

Topography AT WELL SITE

Local depression ☐, Flat surface ☐, Hill top ☐, Hillside ☐, Valley bottom ☐, Terrace ☐

MAJOR AQUIFER ..... Lithology .....

Depth to top of aquifer ..... m. ..... ft. Thickness penetrated ..... m. ..... ft.

Top of aquifer ..... m. ..... ft. AOD* / BOD Total thickness of aquifer ..... m. ..... ft.

Coefficient of storage ..... Transmissivity ..... $\frac{m^2/day^*}{galls/day/ft.}$

MINOR AQUIFER ..... Lithology .....

Depth to top of aquifer ..... m. ..... ft. Thickness penetrated ..... m. ..... ft.

Top of aquifer ..... m. ..... ft. AOD* / BOD Total thickness of aquifer ..... m. ..... ft.

Coefficient of storage ..... Transmissivity ..... $\frac{m^2/day^*}{galls/day/ft.}$

ADDITIONAL NOTES:

* delete as applicable

RR 18127/1/2173 5m 5/71 TP

Contact BGS: ngdc@bgs.ac.uk

5. STRATA

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS	DEPTH	DEPTH	
		METRES	METRES	FEET	IN

British Geological Survey

BGS ID: 124797 : BGS Reference: SE71SW13
British National Grid (27700) : 470940,410763

Cementation Ground Engineering — **soil mechanics department** — BOREHOLE No. 35

CONTRACT A.18 - Scunthorpe — REPORT No. 7468/SEQ

Bored for North Eastern Road Construction Unit — Ground Level 4.3 O.D. +1.31m

Site Address Thorne, Yorkshire. — Boring Commenced 18.7.69 / Boring Completed 18.7.69.

Type and Dia. of Boring: Shell and auger 8 ins. dia. — SE71SW 13

Water Strikes	Water Levels Recorded During Boring									
1. 8'6"	Hole Depth	-	16'0"	26'0"						
2.	Casing Depth	24'0"	15'0"	24'0"						
3.	Water Level	-	None	None						

Remarks: 7094 1076

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
	Scale 1 inch = 5 ft.		Samples & S.P.T.			
Topsoil Medium dense brown silty sand.	1'0" (0.30)		+1.01			
			5861	J	5'0"	22
Firm brown silty clay with some silty laminations.	8'0" 2.44		-1.13 5862	J	8'6"	
			5863	D	12'0"	
			5864	U	14'0"-15'6"	
			5865	J	18'0"	
			5866	U	19'6"-21'0"	
			5867	J	23'0"	
			5868	U	24'6"-26'0"	
	26'0" 7.92		-6.61			
Core 58'7" to 68'7" at Kippax Store			5869	W	(8'9")	

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124810 : BGS Reference: SE71SW26
British National Grid (27700) : 470503,410532

SE 71 SW 26

24th October 1988.

ACCESSION NUMBER 95

SCUN 528/88

Report on the Horizon Sample of the High Hazel Seam taken on H07's Face Start Line - Chock 202, Hatfield Colliery, South Yorkshire Area

(SE 71 SW)

RECEIVED N.C.B. DATE: SIG:

[redacted]

RECEIVED DATE: 01-11-88 SIG:

Distribution:- (Collieries)

Deputy Director (Mining)
Deputy Director (Admin.)
Chief Mining Engineer
Area Coal Preparation Engineer
Area Planning Engineer
Area Marketing Manager
Chief Geologist
Area Geologist
Area Surveyor
Colliery Production Manager
Colliery Manager
Colliery Surveyor
Regional Marketing (Planning)
British Geological Survey
General File
Seam Studies File

DD30(e24)

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124810 : BGS Reference: SE71SW26
British National Grid (27700) : 470503,410532

SE 71 SW 26

Yorkshire Regional Laboratory

SCLN REPORT NO.328/88 — Seam Studies Report No:- 6501 — Nat.Grid Ref. E 470503 N 410532

AREA South Yorkshire — Date Received: 19-SEP-88

COLLIERY HATFIELD, MO7's FACE START LINE - Chask 202 — Depth below O.D. 684.000m

SEAM HIGH HAZEL — 25.120.210 (SE 71 SW) — Cover 688.000m

Subsection	Thickness cm	Sp.Gr. (lump)	Air dried (%) Ash	Sulphur	Chlorine	Visual Examination
Roof	-	2.70	90.4	0.22	0.15	MUDSTONE, PALE GREY WITH SOME IRONSTONE, 60cm EXAMINED
I	20	1.30	4.1	0.92	0.70	COAL, BRIGHT WITH A LITTLE ANNERITE
H	18	1.33	5.5	1.04	0.85	COAL, BRIGHT WITH THIN DULL BANDS
G	17	1.29	4.0	1.56	0.88	COAL, BRIGHT WITH A FEW THIN DULL BANDS AND SOME ANNERITE
F	6	2.48	85.8	0.11	0.33	MUDSTONE SEATEARTH, DARK GREY
E	27	1.27	2.8	0.78	0.95	COAL, BRIGHT WITH A LITTLE ANNERITE
D	26	1.26	2.4	0.73	0.76	COAL, BRIGHT
C	25	1.32	5.5	1.35	0.85	COAL, BRIGHT WITH SOME PYRITES LENSES, ANNERITE AND FUSAIN
B	7	1.32	3.4	0.90	0.85	COAL, DULL WITH BRIGHT STREAKS
A	21	1.30	4.8	1.56	0.77	COAL, BRIGHT WITH A LITTLE ANNERITE
Floor	-	2.62	90.4	0.17	0.15	MUDSTONE SEATEARTH, GREY, SOFT, 10cm EXAMINED

166 cm

Scale = 10cm

THE CHLORINE CONTENT IS HIGHER THAN USUAL (0.1%)

A-I	166	1.34	9.6	1.10	0.80	Whole seam
A-E,G-I	100	1.20	4.1	1.17	0.84	Clean coal

Bright | Dull | Fusain | Cannel | Inferior Bright (15.1-44.8% Ash) | Inferior Dull | Dirt (>44.8% Ash) (<15% Ash)

SE 71 SW 26

HATFIELD, MO7's FACE START LINE
HIGH HAZEL
CLEAN COAL COMPOSITE

Analyses of Composite Sample	
Subsections	A-E,G-I
Thickness	160cm
Specific Gravity (Lump)	1.29
Moisture in air dried coal %	8.5
Mineral Matter % (BCURA)	5.3
Air Dried Basis %	
Analysis Moisture	8.5
Ash	4.1
Volatile Matter	32.6
Fixed Carbon	54.8
Total Sulphur	1.17
Chlorine	0.84
Gross Calorific Value (kJ/kg)	29600
Carbon	72.5
Hydrogen	4.56
Nitrogen	1.5
Carbon Dioxide	0.78
Phosphorus	0.002
Dry Ash Free Basis %	
Volatile Matter	37.3
Carbon	83.0
Hydrogen	5.22
Nitrogen	1.8
Gross Calorific Value (kJ/kg)	33860
Dry Mineral Matter Free Basis % (BCURA)	
Volatile Matter	36.0
Carbon	83.9
Hydrogen	5.25
Nitrogen	1.8
Oxygen (by difference)	7.8
Calorific Value (kJ/kg)	34280
Caking Tests	
Gray King	D
B.S.Swelling Number	1.5
Coal Rank Code	801
Ash Fusion Temperature (degrees C)	
(in reducing atmosphere)	
Deformation	1100
Hemisphere	1130
Flow	1160
Elemental Analysis of Ash	
Ash (Air Dried)	4.1
Subsections	A-E,G-I
Ash Composition %	
Silica as SiO2	20.5
Iron as Fe2O3	24.6
Magnesium as MgO	5.3
Calcium as CaO	13.2
Aluminium as Al2O3	13.3
Titanium as TiO2	0.4
Sodium as Na2O	7.9
Potassium as K2O	0.8
Phosphorus as P2O5	0.1
Sulphate as SO3	12.0
Silica Ratio	32.2
Slagging Index	1.9 (Medium)
Fouling Index	12.0 (Severe)

The seam at this location, as sampled, consists of clean coal with a thin dirt band above the middle.

Overall the clean coal has a low ash content and a moderately low sulphur content. The chlorine content is very high and the Ash Fusion Temperature indicates a fusible ash.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124815 : BGS Reference: SE71SW31
British National Grid (27700) : 470000,410050

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 81

CONTRACT A.18 – Scunthorpe	REPORT No. 7468/SEQ
Bored for North Eastern Road Construction Unit	Ground Level 6.1 O.D. +1.86m
Site Address Thorne, Yorkshire	Boring Commenced 17.7.69 Boring Completed 17.7.69
Type and Dia. of Boring Shell and Auger 8 ins. diameter	SE 71 SW 31

Water Strikes	Water Levels Recorded During Boring									
1. None 2. 3.	Hole Depth Casing Depth Water Level	– 10'0" –								

Remarks

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
	Scale 1 inch = 5 ft		Samples & S.P.T.			
Topsoil	1'0" (0.30)		+1.56			
Firm grey/brown silty clay with traces of peat			5847	J	2'0"	
	3'6" (1.07)		5848 +0.79	U	3'0"–4'6"	
Dense brown clayey sand						
	7'6" (2.29)		-0.63 5849	J	8'0"	
Stiff brown silty clay with occasional silty laminations						
			5850 -2.05	U	11'0"–12'6"	
	12'6" (3.81)					

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard Code of Practice CP 2001 (1957) Site Investigations. To ensure agreement as to interpretation, clients are requested to check the descriptions against the samples submitted.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 120073 : BGS Reference: SE60NE122
British National Grid (27700) : 469790,409870

FIG 16

Soil Mechanics

Log for Borehole No 16

Location No. 5861 TUDWORTH HALL SE60NE 122 sheet 1 of 1

Carried out for Department of the Environment

Date 17th to 18th November 1971 6979 0987 200 mm dia. Cable Tool Boring

© Soil Mechanics Limited 65 Old Church Street London SW3

Description	Reduced Level: m	Legend	Sample	Depth (metres)	Thickness (metres)	Standard Penetration test: Depth and Penetration	Standard Penetration test: No. of Blows (N)	Remarks and UICO blows
Ground Level (m. above N.D.) Brown, sandy CLAY with a trace of fine gravel and a few rootlets (Topsoil)	2.94			0.00				
	2.44		1	0.50	0.50			
Probably loose, grey-brown, slightly silty, fine and medium SAND			2		1.80			30 Bentonite plug
			3					
	0.64		4	2.30		2.15 0.300	10	
Soft, laminated brown, very silty CLAY varying to clayey silt, with some brown, fine and medium sand horizons			5		2.00			Water seepage at 2.7 m
			6	10 pcf				12 no recovery for 100 23
slightly clayey silt								
Brown clayey SAND and fine to coarse GRAVEL	-1.36		7	4.30	0.30			Bentonite plug
	-1.66			4.60				
			8			4.70 0.300	40	
Dense and very dense, red-brown, silty, fine and medium SAND becoming weakly cemented SANDSTONE with pellets and bands of red-brown mudstone			9					
			10		5.63 (penetrated)	7.55 0.075	(50)	200
			11					
			12					
			13			8.40 0.300	86	
			14					
			15			9.15 0.150 NIL	(99) (46)	198 *
			16					
	-7.29		17	10.23		10.15 0.075	(60)	200 *
	END OF BOREHOLE							* extrapolated 'N' value

Piezometer

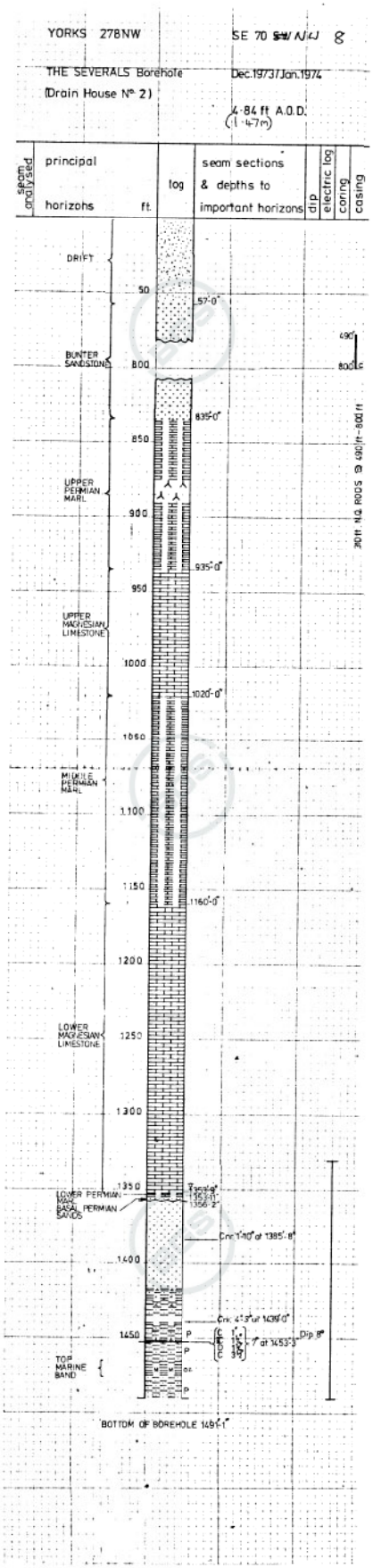
PIEZOMETER READINGS

Date	Time	Depth to Water
20.11.71		1.45m
26.11.71	15.00	1.08m
27.11.71	15.00	1.07

● Disturbed Sample ♦ Bulk Sample ▮ Tube or Core Sample (Length to scale) W Water Sample

Scale 20 mm = 1 m

Contact BGS: ngdc@bgs.ac.uk


YORKS 27BNW
SE 70 SW NJ 8
THE SEVERALS Borehole
Dec.1973/Jan.1974
(Drain House N° 2)
484 ft A.O.D.
(147m)
seam analysed
principal horizons
ft
log
seam sections & depths to important horizons
dip
electric log
coring
casing
DRIFT
50
57·0'
BUNTER SANDSTONE
800
490'
800 ft
835'·0'
850
UPPER PERMIAN MARL
900
935'·0'
950
UPPER MAGNESIAN LIMESTONE
1000
1020'·0'
1050
MIDDLE PERMIAN MARL
1100
1150
1160'·0'
1200
LOWER MAGNESIAN LIMESTONE
1250
1300
1350
LOWER PERMIAN MARL
BASAL PERMIAN SANDS
1356'·2'
Cmr 1'·10" at 1385'·8"
1400
Cmr 4'·3" at 1436'·0"
1450
Dip 8°
TOP MARINE BAND
BOTTOM OF BOREHOLE 1491'·1"

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

AFS

FORM P 70
SERIES 680

6-INCH MAP	B/H REGD. No.
Yorks 278 NW (County, Sheet and Qtr.)	
SE 70 ~~SW~~ NW/8 (Nat. Grid, Sheet & Qtr.)	

Attach tracing from a map or sketch map if possible

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

Purpose Structural Borehole

Exact Site O.S. N.G.R. SE.70341/09756

Level at which ~~bore~~ bore commenced relative to O.D. 4.84 A.O.D. ~~ft~~ ft*

Date of sinking or boring December 1973/January 1974

Sinker or borer D.P.I. Ltd.

Cores examined by [redacted]

*Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft	THICKNESS in	DEPTH ft	DEPTH
	No cores taken from surface to 1330ft				
	OPEN HOLE to 1330ft, data obtained from cutting samples.				
	Soil	2	0	2	0
	Sand, fine, pale brownish grey, some coal flecks	8	0	10	0
Drift *	Sand, brown, medium-grained	5	0	15	0
	Sand, fine reddish brown with some dark grey clay below 20ft	10	0	25	0
	Sand, fine reddish brown with some coarse pale sand	32	0	57	0
Bunter Sandstone	Sandstone, reddish brown, some quartz pebble fragments and traces of red marl more evident below 700ft	778	0	835	0
	Red Marl with much reddish brown sand (Bunter)	40	0	875	0
Upper Permian Marl	Anhydrite (poor samples with much red marl and reddish brown sand (from Bunter and Upper Marl))	15	0	890	0
	Red Marl	45	0	935	0
Upper Magnesian Limestone	Limestone, grey and buff	85	0	1020	0
Middle Permian Marl	Marl, reddish brown and grey, gypsum, brownish grey anhydrite conspicuous below 1090ft	145	0	1160	0
	Limestone, buff and grey	170	0	1330	0
	Limestone, medium/dark grey, hard, dense with bands of softer dark grey calcareous mudstone, scattered brachiopods shells below 1338ft	11	0	1341	0
	Limestone, rather nodular structure with wavy mudstone partings, small solution cavities around 1343ft 3in	3	6	1344	6
	Limestone, rather patchy grey/lighter grey, some darker calcareous mudstone bands; occasional brachiopod shells (Productids), irregular stylolitic sutured bedding plane partings below 1348ft 9in. Limestone, paler softer (silty texture) below 1349ft 0in	7	1	1351	7
	* Base of drift uncertain due to circulation losses, could possibly be at 20ft, sample at 60ft clearly Bunter Sandstone.				

YPU.917

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British Geological Survey

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British National Grid (27700) : 470341,409756

Form P 71
SERIES 680

Section of THE SEVERALS BOREHOLE (Drain House No. 2)

6 - INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~NW~~ NW 8	

* Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
Lower Magnesian Limestone	Limestone, pale grey becoming darker with laminated appearance due to darker carbonaceous inclusions on bedding planes and some impure limestone partings towards base	1	11	1353	6
	Limestone, cream, coarse granular speckled becoming darker down		3	1353	9
Lower Permian Marl	Mudstone, silty, dark grey		1	1353	10
	Siltstone, coarse, greenish grey speckling		1	1353	11
Basal Permian Sands	Sandstone, dark grey, calcareous passing down into		2	1354	1
	Sandstone, blue, grey, becoming softer down with very fine conglomerate in bottom 1in	2	1	1356	2
	Sandstone, pale grey, coarse, rather massive slight reddish staining in silty layer at 1358ft, joint staining below 1360ft, some purple staining between 1364ft 3in/1364ft 9in, then coarse pale grey sandstone	11	10	1368	0
	Sandstone, coarse with very dark purple stained bands, only faintly and patchily stained below 1369ft 3in. Sub-vertical fracture running through core 1371ft to 1374ft and sandstone rather cemented around this level. Coarse, occasionally stained sandstone continues to 1378ft 3in. Purple stained cross bedded sandstone below 1378ft 6in	15	10	1383	10
	Core Lost	1	10	1385	8
	Sandstone, pale grey, coarse with purplish staining continuing to 1397ft 0in (deep purple around 1386ft 6in)	1	4	1397	0
	Sandstone, coarse, still rather soft, faint staining in bottom 2in	13	2	1410	2
	Sandstone, very coarse, purplish staining		6	1411	8
	Sandstone, coarse to very coarse, feebly stained with occasional more deeply stained bands	5	7	1417	3
	Mudstone-seatearth, purple		3	1417	6
	Mudstone-seatearth, silty, purple, some ironstone nodules		11	1418	5
	Siltstone/silty mudstone, purplish, some scattered rootlets, some ironstone nodules, some sandy laminae below 1420ft 6in	2	4	1420	9
	Mudstone, dark grey, purplish, plant debris, some pale mudstone fragments at base		3	1421	0
	Mudstone-seatearth, grey, purplish tinge, very eroded core	4	5	1425	5
	Mudstone, silty, less seatearthy character, purple, rather strong, some rootlets, sphaerosiderite showing purple spotting	1	6	1426	11
	Siltstone, strong, coarse purplish with sandy laminae		5	1427	4
	Haematitic core, deep purple (after ironstone)		3	1427	7
	Mudstone-seatearth, silty, rubbly eroded purple core, with deep purple sphaerosiderite specks, rootlets	1	5	1429	0
	Mudstone, silty, purple strong with sphaerosiderite and rootlets		6	1429	6

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British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

FORM P 71
SERIES 680

6-INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~NE~~ NW 8	

*Delete as appropriate

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS xxx ft*	THICKNESS xxx in*	DEPTH xxx ft*	DEPTH xxx in*
	Siltstone/silty mudstone, purplish grey with occasional rootlets, less silty (silty mudstone) at 1432ft 0in. Irregular patchy texture of siltstone/ silty mudstone, purplish staining continuing to 1432ft 5in	4	1	1433	7
	Mudstone, smooth	1	2	1434	9
	Core not Recovered (horizon of loss uncertain and could have occurred in part around 1417ft 3in, or 1427ft 7in)	4	3	1439	0
	Mudstone, purplish grey, slightly silty with vague plant impressions		6	1439	6
	Mudstone, purplish grey, slightly silty, faint rootlet markings with much deeper red/purple patches of sphaerosiderite especially between 1439ft 2in and 1439ft 6in. Mudstone, flat bedded below 1439ft 10in still vaguely 'planty', mottled purplish grey with occasional rootlets below 1439ft 11in, and very slightly silty with occasional listrica	1	7	1441	1
	Mudstone, silty, stronger grey with purplish tinge only, core breaking readily in top 6in due to joint slip surfaces, core sound below 1441ft 8in	1	5	1442	6
	Mudstone, grey, slightly silty becoming more silty down		6	1443	0
	Siltstone, grey, some purplish zoning near top less silty below 1443ft 9in, then coarse at 1444ft 0in still with purplish stain	1	9	1444	9
	Mudstone, silty, purplish, only slightly silty below 1445ft 0in, with fine alternations of mudstone, silty mudstone and siltstone to 1445ft 6in, but predominently silty mudstone with vague planty impressions	1	6	1446	3
	Siltstone, purplish		2	1446	5
	Sphaerosiderite as deep purple/chocolate haematite		1	1446	6
	Siltstone, purplish grey		5	1446	11
	Core not Recovered		11	1447	10
	Siltstone/fine sandstone, quartzitic deeper grey, very tough		2	1448	0
	Siltstone, coarse, micaceous, purplish		4	1448	4
	Mudstone, silty, purplish with abundant plants including Neuropteris		2	1448	6
	Siltstone, micaceous, very coarse, purplish, much plant debris		4	1448	10
	Siltstone, purple, variable coarse to fine, mainly rather fine with plants, e.g. Neuropteris, Sphenopteris	1	4	1450	2
	Mudstone, silty, purplish passing down into mudstone all with plants Dip 8°		11	1451	1
	Siltstone, laminated with fine purple ironstone streaks		0¾	1451	1¾
	Mudstone, black, carbonaceous with ironstone streak		0¼	1451	2
	Mudstone-seatearth, purplish grey		1	1451	3
	Mudstone, slightly silty, grey, a few rootlet impressions		4	1451	7
	Mudstone-seatearth, purplish grey dark at base		8	1452	3

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British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

FORM P 71
SERIES 680

6-INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~SW~~ NW 8	

*Delete as appropriate

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
	Mudstone, black, coaly		0½	1452	3½
	Mudstone-seatearth, grey		1	1452	4½
	Mudstone-seatearth, black and carbonaceous mudstone (fragmented core)		3½	1452	8
	COAL, dull, strong 1in COAL, dull, inferior 1¼in Siltstone, quartzitic, black very strong 1½in COAL, mainly bright 1½in COAL, bright, fragmented 1½in		7	1453	3
	Siltstone-seatearth, dark, carbonaceous		2	1453	5
	Siltstone-seatearth, grey	1	5	1454	10
	Mudstone, silty with sandy laminae, ironstone nodules around 1456ft 9in	3	0	1457	10
	Siltstone, speckled, white/grey, occasional rootlets		5	1458	3
	Siltstone, grey, speckled		2	1458	5
	Mudstone, silty, scattered rootlets		3	1458	8
	Siltstone, pale grey with plant debris		5	1459	1
	Siltstone, becoming less silty down, fine pale laminae, some plant debris	1	7	1460	8
	Siltstone, coarse		4	1461	0
	Mudstone, silty/siltstone variable laminated, some comminuted plant debris	1	2	1462	2
	Siltstone, coarse, speckled, rather strong with some darker silty mudstone layers		7	1462	9
	Siltstone, coarse, speckled rather pale grey becoming darker down with much comminuted plant debris	1	3	1464	0
	Mudstone, silty, grey, a few fine silty laminae and comminuted plant debris	1	0	1465	0
	Mudstone, silty, grey with some more silty layers	1	1	1466	1
	Mudstone, smooth, grey with some paler more silty layers, Planolites		4	1466	5
	Mudstone, grey with some dark spotting at 1468ft 1in, some more silty bands, with 'fucoid' like ?planty debris to 1418ft 3in	1	10	1468	3
TOP MARINE BAND	Mudstone, rather laminated, lighter/darker grey with ironstone streaks, 1in ironstone at 1470ft 0in, 'fucoid' like planty debris again at 1468ft 8in good Planolites at 1469ft 6in, occasional 'fucoids' and Planolites, sparse but continue down to 1470ft 8in, occasional ironstone lenses below 1471ft 0in ?Dunbarella at 1471ft 7in in smooth grey mudstone, Planolites below	4	8	1472	11
	Siltstone, strong band		1	1473	0
	Mudstone, grey with fucoids		4	1473	4
	Ironstone		1	1473	5
	Core not Recovered		3	1473	8
	Mudstone, medium/dark grey, some more silty layers, some ironstone Lingula at 1473ft 8in and 1475ft 5in, scattered generally fine 'fucoids'	1	10	1475	6
	Mudstone, dark grey with ironstone and sandy lenses		2	1475	8
	Siltstone with sandy laminae, much comminuted plant debris, becoming paler at base	3	4	1479	0

YPU.918

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British Geological Survey

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British National Grid (27700) : 470341,409756

Form P 71
SERIES 680

6 - INCH MAP	B/H
Yorks 278 NW	
SE 70 ~~SW~~ NW 8	

Section of THE SEVERALS BOREHOLE
(Drain House No. 2)

* Delete as appropriate

GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS ft*	THICKNESS in*	DEPTH ft*	DEPTH in*
	Sandstone, fine-grained, grey		7	1479	7
	Siltstone with sandy laminae, comminuted plant debris		4	1479	11
	Sandstone, fine-grained with silty laminae		4	1480	3
	Siltstone, grey, a few fine sandy laminae, much comminuted plant debris		8	1481	11
	Siltstone with sandy laminae, comminuted plant debris	2	7	1484	6
	Siltstone, grey with some plant debris	1	6	1486	0
	Mudstone, silty, grey with track markings		7	1486	7
	Siltstone/silty mudstone alternations	1	2	1487	9
	Sandstone, fine-grained, some irregular silty layers, carbonaceous laminae around 1488ft 3in	1	3	1489	0
	Siltstone with sandy laminae, "burrowed"		3	1489	3
	Sandstone		2	1489	5
	Sandstone, fine-grained with grey silty laminae		6	1489	11
	Siltstone with sandy laminae		3	1490	2
	Sandstone, fine-grained, grey		5	1490	7
	Siltstone with sandy laminae		8	1491	1
	BOTTOM OF BOREHOLE			1491	1
	N.B. 310ft of NQ rods left fast in hole between 490ft and 800ft				

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British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

15 JAN 1974

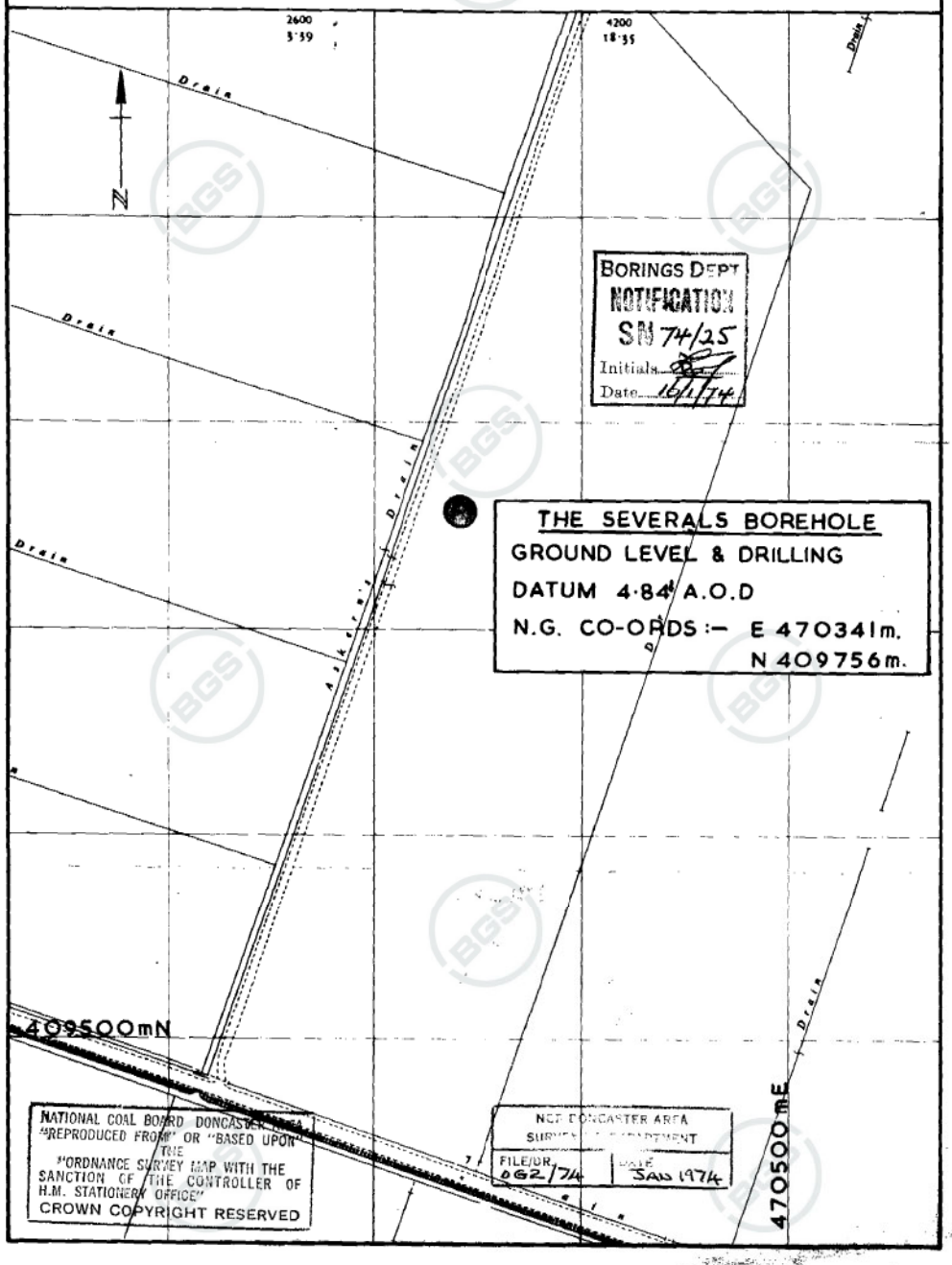
NATIONAL COAL BOARD DONCASTER AREA

BOREHOLE LOCATION PLAN

THE SEVERALS (DRAIN HOUSE No2) BOREHOLE.

SCALE :- 1/2500

SHEET SE 7009



Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

WATER RESOURCES BOARD
WELL RECORD

DECLASSIFIED
27 AUG 1999

SHEET 1

W.R.B. REF. No. SE 70/4

R.A. LICENCE No.

1. WELL IDENTITY

NATIONAL GRID REFERENCE 7035 0975

RECEIVED

Well at The Severals : Haltpieket

N.G.S. REF. No.

RIVER AUTHORITY Trent

Town

HYDROMETRIC AREA

County

SUB-CATCHMENT

Owner of well N.C.B.

Well made by [redacted]

Date of sinking

Information from [redacted]

Date received 26 July 1973

2. WELL DESCRIPTION

Level of ground surface ..... m. / ..... ft. above sea level (O.D.)

If well top is not at above* ground level how far below ..... m. / ..... ft.

Shaft ..... m. / ..... ft. deep; Diameter at top ..... m. / ..... ft.; at bottom ..... m. / ..... ft.

Bore ..... m. / ..... ft. deep; Diameter at top ..... m. / ..... ft.; at bottom ..... m. / ..... ft.

Details of headings .....

DETAILS OF PERMANENT LINING TUBES

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Length ..... m. / ..... ft.; Diam. ..... m. / ..... ft.; Plain ..... m. / ..... ft.; Slotted ..... m. / ..... ft.; Top ..... m. / ..... ft. above* / below surface

Details of well screen .....

DETAILS OF REST WATER LEVELS DURING CONSTRUCTION

Water struck at depths of ..... below well top

Rest level of water ..... m. / ..... ft. above* / below O.D.* / well top when bore ..... m. / ..... ft. deep. Date

Rest level of water ..... m. / ..... ft. above* / below O.D.* / well top when bore ..... m. / ..... ft. deep. Date

Rest level of water on completion of bore ..... m. / ..... ft. above* / below O.D.* / well top when bore ..... m. / ..... ft. deep. Date

Method of drilling .....

Brief details of well development e.g. acid treatment etc. .....

* delete as applicable

(9494/1)

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DETAILS OF PUMPING TEST

Water level depressed from ..... m. / ..... ft. above* / below well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Water level depressed from ..... m. / ..... ft. above* / below well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Water level depressed from ..... m. / ..... ft. above* / below well top to ..... m. / ..... ft. below well top, pumping at ..... $m^3/s.$ / ..... galls/hr.

Suction at ..... ft. below well top. Capacity of pump ..... . Test from ..../..../19.... to ..../../19 ....

DETAILS OF PERMANENT PUMPING EQUIPMENT

Make and/or type ..... Motive Power .....

Capacity ..... galls/hr. Suction at ..... m. / ..... ft. below well top.

Amount pumped ..... m^3/day* / galls/day. Pumping for ..... hrs./day.

Estimated consumption ..... $m^3/week$* / galls/week ..... $m^3/year$* / galls/year

3. WELL DATA

WELL USE. Abstraction ☐, Recharge ☐, Observation ☐, Disused ☐, Filled-in ☐ exploration

WATER USE. Public Supply ☐, Industrial ☐, Irrigation ☐, Agriculture ☐. Domestic ☐, Unused ☐, Misc. ☐

WATER LEVEL OBSERVATIONS

	Rest Water Level	Pumping Water Level	Depression	Rate of Pumping	Date
(1)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(2)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(3)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....
(4)	..... m. O.D. / ..... ft.	..... m. O.D. / ..... ft.	..... m. / ..... ft.	..... $m^3/s.$ / ..... galls/hr.	.....

GEOPHYSICAL DATA AVAILABLE

Resistivity ☐ Conductivity ☐ Temperature ☐ Any other logs .....

PARTIAL ANALYSIS DETAILS In milligrams per litre

Date	TDS	Tot H	Carb H	Non-Carb H	Alk	SO4	Cl	E.C.

Site marked on: 1 inch (print) ..... , 1 inch (master) ..... , 2½ inch ..... (use symbol and give data)

(9494/1)

British Geological Survey

BGS ID: 124524 : BGS Reference: SE70NW8
British National Grid (27700) : 470341,409756

WATER RESOURCES BOARD

WELL RECORD

SHEET 2

W.R.B. REF NO.

R.A. LICENCE NO.

DECLASSIFIED
27 AUG 1999
RECEIVED

4. HYDROGEOLOGY

Topography AT WELL SITE

Local depression ☐, Flat surface ☐, Hill top ☐, Hillside ☐, Valley bottom ☐, Terrace ☐

MAJOR AQUIFER ..... Lithology .....

Depth to top of aquifer ..... m. ..... ft. Thickness penetrated ..... m. ..... ft.

Top of aquifer ..... m. ..... ft. AOD* / BOD Total thickness of aquifer ..... m. ..... ft.

Coefficient of storage ..... Transmissivity ..... m^2/day* / gals/day/ft.

MINOR AQUIFER ..... Lithology .....

Depth to top of aquifer ..... m. ..... ft. Thickness penetrated ..... m. ..... ft.

Top of aquifer ..... m. ..... ft. AOD* / BOD Total thickness of aquifer ..... m. ..... ft.

Coefficient of storage ..... Transmissivity ..... m^2/day* / gals/day/ft.

ADDITIONAL NOTES:

* delete as applicable

RR 18127/1/2173 5m 5/71 TP

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5. STRATA					
GEOLOGICAL CLASSIFICATION	NATURE OF STRATA	THICKNESS	DEPTH	DEPTH	
		METRES	METRES	FEET	IN

British Geological Survey

BGS ID: 124528 : BGS Reference: SE70NW12
British National Grid (27700) : 470038,409876

SE 70 NW/12.

MEMORANDUM.

FROM: Unit Surveyor

TO: F.A. Paling Esq., Area Surveyor & Minerals Manager

Subject: UNDERGROUND BOREHOLE NO. 50

Our Ref: ----------

Your Ref: /G2/6/

Date: 9/11/77

10 SEP 1973

Attached are details of a borehole drilled at this colliery.

Colliery: HATFIELD / THORNE

Seam: HIGH HAZEL

Seam bored to: TO PROVE THROW OF FAULT

O.S. 6" Sheet No.: SE 70 NW

National Grid Co-Ordinates 4414/7009/038.871

Level of borehole datum 2166.44 B.O.D.

~~Level of Seam~~ at borehole FLOOR LEVEL 2173 76 B.O.D.

NOTE!

THIS IS AN UP HOLE 60° TO HORIZONTAL

APPROX BEARING 196° 15' 50" S

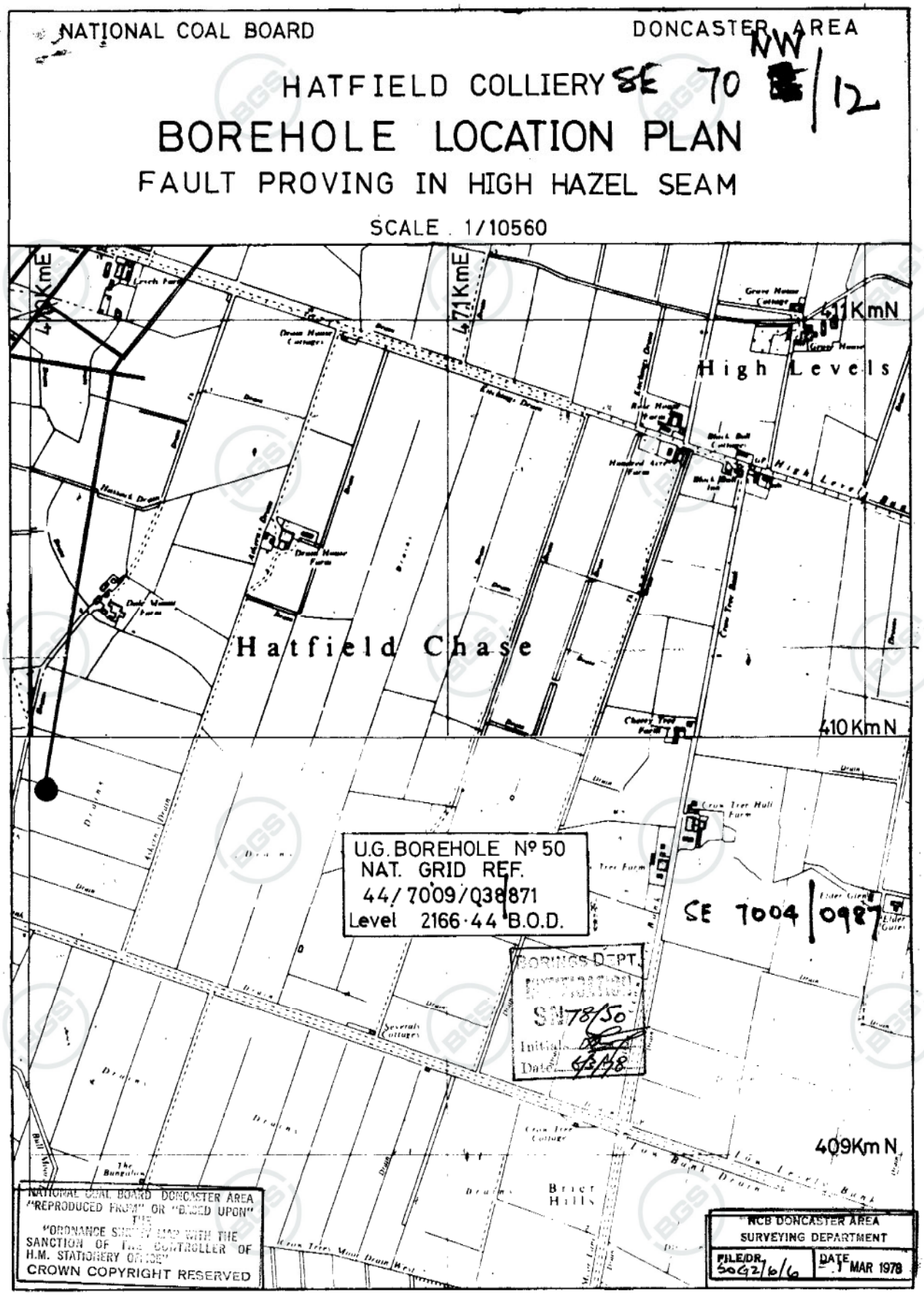
UNIT SURVEYOR

[redacted]

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124528 : BGS Reference: SE70NW12
British National Grid (27700) : 470038,409876



Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124545 : BGS Reference: SE70NW29
British National Grid (27700) : 470870,409430

Cementation Ground Engineering — soil mechanics department

BOREHOLE No. 82

CONTRACT A.18 Scunthorpe

REPORT No. 7468/SEQ

Bored for North Eastern Road Construction Unit.

Ground Level 6.4 O.D.

Site Address Thorne, Yorkshire.

Boring Commenced 17.7.69
Boring Completed 17.7.69

Type and Dia. of Boring Shell and Auger 8 ins. diameter.

SE70NW 29

Water Strikes	Water Levels Recorded During Boring									
1. None	Hole Depth	-								
2.	Casing Depth	13'6"								
3.	Water Level	-								

Remarks

Description	Scale 1 inch = 5ft. Depth	Legend	Samples & S.P.T. Ref. No.	Type	Depth	N blows/ft
Topsoil.	1'0"					
Medium dense grey/brown fine sand.			5844	J	5'0"	21
Firm brown very silty clay.	7'6"		5845	J	8'0"	
Soft grey/brown laminated clay with silt in partings.	14'0"		5846	U	14'0"-15'6"	
	17'6"					

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard Code of Practice CP 2001 (1957) Site Investigations. To ensure agreement as to interpretation, clients are requested to check the descriptions against the samples submitted.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124546 : BGS Reference: SE70NW30
British National Grid (27700) : 471400,409090

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 83

CONTRACT	A.18 - Scunthorpe
REPORT No.	7468/SEQ
Bored for	North Eastern Road Construction Unit
Ground Level	6.0 O.D.
Site Address	Thorne, Yorkshire
Boring Commenced	21.7.69
Boring Completed	21.7.69
Type and Dia. of Boring	Shell and Auger 8 ins. diameter

SE70NW 30

Water Strikes	Water Levels Recorded During Boring									
1. None	Hole Depth	–								
2.	Casing Depth	17'6"								
3.	Water Level	–								

Remarks

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
Topsoil	1'0"					
Medium dense grey/brown silty sand			5886	J	5'0"	14
			5887	J	7'0"	
			5888	J	9'0"	20
	12'3"		5889	J	12'6"	
Soft brown laminated clay with some silt in partings			5890	U	13'6"-15'0"	
			5891	J	17'6"	
	20'0"		5892	U	18'6"-20'0"	

Scale 1 inch = 5 ft.

Samples & S.P.T.

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard Code of Practice CP 2001 (1957) Site Investigations. To ensure agreement as to interpretation, clients are requested to check the descriptions against the samples submitted.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124547 : BGS Reference: SE70NW31
British National Grid (27700) : 472460,408780

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 84

CONTRACT	A.18 Scunthorpe.
REPORT No.	7468/SEQ
Bored for	North Eastern Road Construction Unit.
Ground Level	4.7 O.D.
Site Address	Thorne, Yorkshire.
Boring Commenced	11.7.69
Boring Completed	11.7.69
Type and Dia. of Boring	Shell and Auger 8 ins. diameter.

SE 70 NW 31

Water Strikes	Water Levels Recorded During Boring			
1. 11'6"	Hole Depth	-	16'0"	30'0"
2.	Casing Depth	30'0"	15'0"	30'0"
3.	Water Level	-	None	None

Remarks

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
Topsoil.						
Stiff grey and brown mottled silty clay with traces of organic matter.	1'0"		5801	U	2'0"-3'6"	
			5802	J	4'0"	
Soft grey/brown organic or peaty clay.	5'6"		5803	U	6'0"-7'6"	
			5804	J	10'0"	
			5805	U	11'0"-12'6"	
Dense grey/brown fine sand with silty laminations.	15'6"		5806	J	15'0"	
			5807	U	16'0"-17'6"	
Soft grey organic silty clay.	19'0"		5808	J	20'0"	
			5809	U	20'0"-21'6"	
			5810	J	22'6"	
Stiff grey/brown sandy clay with inclined silty partings.	25'0"		5811	U	26'0"-27'6"	
			5812	J	27'6"	
	30'0"		5813	W	(11'6")	

Scale 1 inch = 5ft.

Samples & S.P.T.

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Notes.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard *Code of Practice* CP 2001 (1957) Site Investigations. To ensure agreement as to interpretation, clients are requested to check the descriptions against the samples submitted.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124567 : BGS Reference: SE70NW51
British National Grid (27700) : 470110,409510

SE 70 NW 37-54

SEDIMENTOLOGICAL TEST BOREHOLES

73720520	√ DONCASTER 24	SE70NW-37		
	Sand		10	3.05
73520554	√ DONCASTER 25	SE70NW-38		
	Sand		40	12.19
73280586 (26) 73020619 (27) 72790658 (28)	√ DONCASTER 26-8	SE70NW - 39/40/41		
	Sand and peat		40	12.19
	√ DONCASTER29	SE70NW-42		
72550683	Sand		40	12.19
72400719	√ DONCASTER 30	SE70NW-43		
	Sand and clay		40	12.19
72280758	√ DONCASTER 31	SE70NW-44		
	Sand		40	12.19
72080798 (32) 71750826 (33) 71430852 (34)	√ DONCASTER 32-4	SE70NW-45/46/47		
	Sand and clay		40	12.19
71080880 (35) 70780903 (36)	√ DONCASTER 35-6	SE70NW-48/49		
	Sand		40	12.19
	√ DONCASTER 37	SE70NW-50		
70440931	Sand and clay		40	12.19
70110951	√ DONCASTER 38	SE70NW-51		
	Sand		30	9.14
	Shale		40	12.19
70270622	√ DONCASTER 99	SE70NW-52		
	Peat		10	3.05
70660643	√ DONCASTER 100	SE70NW-53		
	Sand with stones		30	9.14
70970658	√ DONCASTER 101	SE70NW-54		
	Clay		4	1.22
	Peat		12	3.66
	Sand		30	9.14

/Doncaster 102

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124519 : BGS Reference: SE70NW3
British National Grid (27700) : 471508,409723

(1)

Copy sent to [illegible] 3. 5. 61

RECORD OF WELL (SHAFT OR BORE)

SE 70 NW 3

For Survey use only
SE 70 NW 7696
88/141
Licence No 91222/16/2710

EXACT SITE OF WELL

At Crow tree Fm., Thorne Levels,

Town or Village Thorne, Nr Doncaster

County Yorkshire. Six-inch quarter sheet 278 NE/W. SE 70 NW/3

For [redacted] State whether owner, tenant, builder, contractor, consultant, etc.:—

Address (if different from above) 71510972

Level of ground surface above sea-level (O.D.) ..... ft. If well-top is not at ground level, state how far ... {above: / below;} ..... ft.

SHAFT ..... ft.; diameter ..... ft.; Full details of headings (dimensions and directions)

BORE 110 ft.; diameter of bore: at top 6 ins.; at bottom 6 ins. 33.53m.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)

59 1-6" x 6" 1/0 x 5/16" Th'k tubes top 1'-6" A.G.L.
Grouted from 34'-6" to 3'-6" B.G.L.

Water struck at depths of ..... ft. below well-top.

TEST CONDITIONS

Rest level of water 9 ft. ~~above~~ below well-top. Suction at ..... ft. Yield on 8 hours' ~~days'~~ test pumping at 1100 galls. per hour with depression to 15'-4" ft. below well-top.

Recovery to rest-level in 2 mins. ~~hours~~ Capacity of pump ..... g.p.h. Date of measurements .....

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:

Make and/or type Sumo sub pump type 981. Motive power electric

Capacity ..... gallons per hour. Suction at ..... ft.

Amount pumped ..... galls. per day. Estimated consumption ..... galls. per week.

Well made by F. Smith & Son (Cf) Ltd. Date of well Augst 56.

Information from .....

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

Sited by O on 6" York. 278 NE/W. JS. 4 61.

LOG OF STRATA OVERLEAF.

Geological Survey and Museum, South Kensington, London, S.W.7.		Section 6.	Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symbo on 6" Map
			17.4.61		⊙	⊙

(1527) Dd574/W537583 12,000 8/54 JC&S Gp669

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

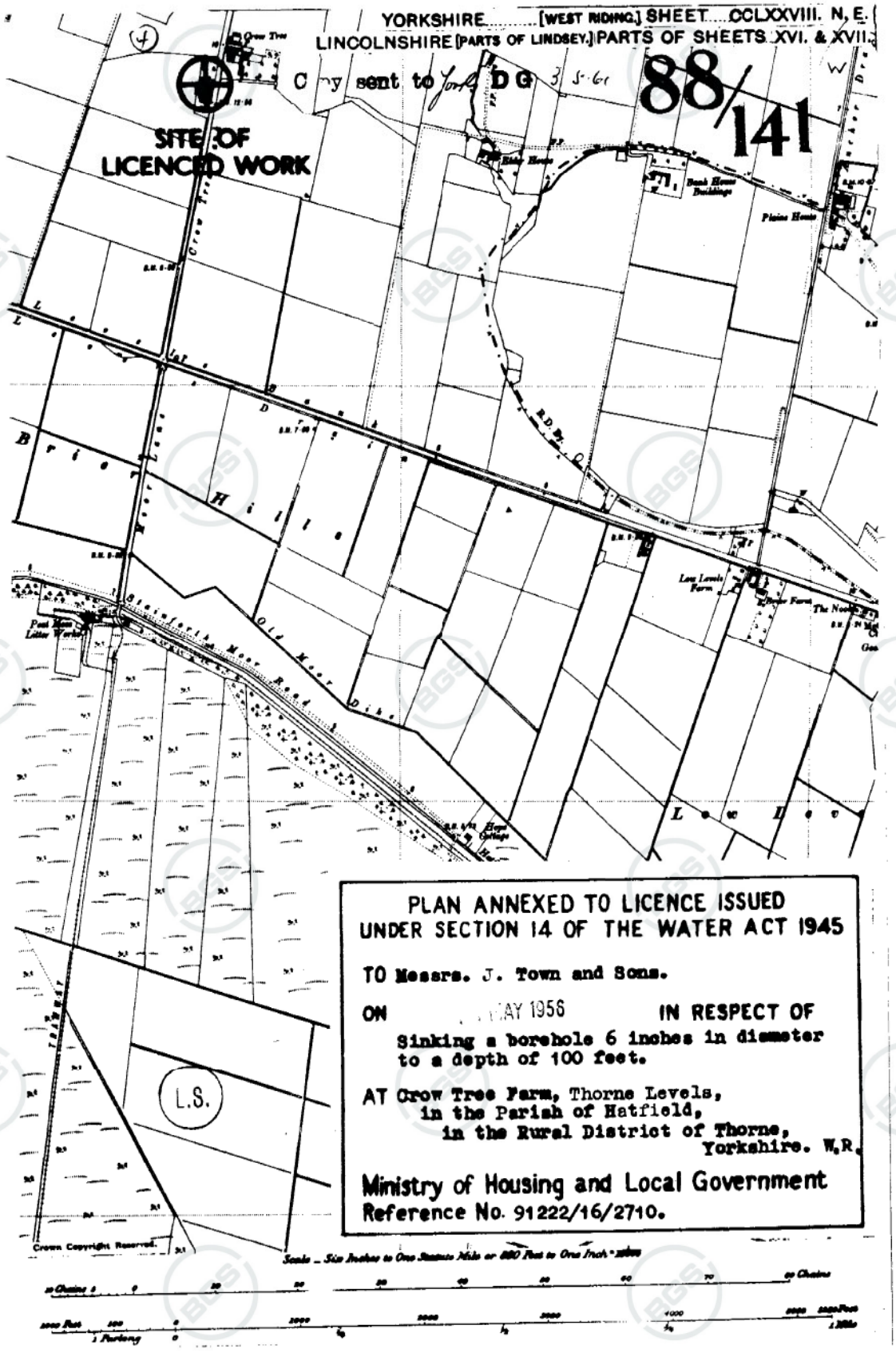
BGS ID: 124519 : BGS Reference: SE70NW3
British National Grid (27700) : 471508,409723

(For Survey use only) Geological Classification	NATURE OF STRATA If measurements start below ground surface, state how far ..	SE 70 NW 3 Thickness Feet	Thickness Inches	Depth Feet	Depth Inches
Soil	top soil	1	0.46 6	1	1.46 6
Alluvium Blown Sand and 25' Drift	Brown clay	5	1.52 0	6	1.98 6
	Dark brown silt.	29	8.79 6	36	10.97 0
	Dark brown sand.	3	0.91 0	39	11.89 0
	Sand & small gravel.	10	3.05 0	49	14.94 0
Bunter Sandstone	Soft red sandstone.	61	18.59 0	110	33.53 0

RSB
13/2/76.

Contact BGS: ngdc@bgs.ac.uk

SE 70 NW 3


YORKSHIRE [WEST RIDING.] SHEET CCLXXVIII. N, E.
LINCOLNSHIRE [PARTS OF LINDSEY.] PARTS OF SHEETS XVI. & XVII.
Copy sent to York DG 3.5.61
88/141
SITE OF LICENCED WORK
Crow Tree
Black House
Beach House Buildings
Plains House
Briery Hill
Greenfields Moor Road
Old Moor Drain
Low Levels Farm
Upper Farm
The Nook
Post Office Letter Box
Hazel Cottage
L.S.
PLAN ANNEXED TO LICENCE ISSUED
UNDER SECTION 14 OF THE WATER ACT 1945
TO Messrs. J. Town and Sons.
ON MAY 1956 IN RESPECT OF
Sinking a borehole 6 inches in diameter to a depth of 100 feet.
AT Crow Tree Farm, Thorne Levels, in the Parish of Hatfield, in the Rural District of Thorne, Yorkshire. W.R.
Ministry of Housing and Local Government
Reference No. 91222/16/2710.
Crown Copyright Reserved.
Scale – Six Inches to One Statute Mile or 880 Feet to One Inch
20 Chains
1 Furlong

YORKSHIRE WATER AUTHORITY – Survey of Existing Boreholes

I.G.S. Ref. No ..SE.70.NW3. 98/141 N.G.R.SE. 714097.....

Licence No.

OWNERS NAME .....J. Town & Sons.....

ADDRESS ..Cow Tree Farm.....
.....Thorne Levels.....

App No

Authorised Abstraction

g.p.h.
g.p.d.
m.g.a.

Depth	Thickns	STRATA DETAILS
1½	1½	Top Soil
2½	1	Brown clay
4½	2	Dark brown sand
5½	1	Light brown sand
10	4½	Sand & small gravel
11	1	Sherwood Sandstone

Dia. 6"
Depth 110'
Lining 6"x5½"
Well sinker Smiths
Date August 56
R.W.L. 9'
F.W.L. 15'6" v. 100gph.

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:- Access (Yes or No) ..... ½" Probe ..... 3" Instruments ..... Landrover ..... Access Agreed	Date pH ..... Total hard ..... Temp.hard ..... Alk. ..... Ca ..... Mg ..... Na ..... K	Other Comments:- Sketch Plan of Location
Water Level at time of insp. ..... metres below ..... Date ..... Datum above O.D. ..... R.W.L. above O.D. ..... Date	HCO_3 ..... SO_4 ..... Cl ..... NO_3 ..... Fe	

British Geological Survey

BGS ID: 124519 : BGS Reference: SE70NW3
British National Grid (27700) : 471508,409723

Copy sent to York DG 3. Sr. 61.

RECORD OF WELL (SHAFT OR BORE)

For Survey use only
SE70/8 N 7696
88/141
Licence No 91222/16/2710

EXACT SITE OF WELL

At Crow tree Fm.,
Thorne Levels,
Town or Village Thorne, Nr Doncaster
County Yorkshire. Six-inch quarter sheet 278 NE/W.
For J. Town & Sons. State whether owner, tenant, builder, contractor, consultant, etc.:— SE70NW 71520973
Address (if different from above)
Level of ground surface above sea-level (O.D.) ..... ft. If well-top is not at ground level, state how far .. above: / below; ..... ft.

SHAFT ..... ft.; diameter ..... ft.; Full details of headings (dimensions and directions)

BORE 110 ft.; diameter of bore: at top 6 ins.; at bottom 6 ins.

Full details of permanent lining tubes (position, length, diameter, plain, slotted etc.)
59 1-6" x 6" 1/0 x 5/16" Hi'k tubes. Top 1'-6" A.G.L.
Grouted from 34'-6" to 3'-6" B.G.L.

Water struck at depths of ..... ft. below well-top.

TEST CONDITIONS

Rest level of water 9 ft. ~~above~~ below well-top. Suction at ..... ft. Yield on 8 hours' ~~days'~~ test pumping at 1100 galls. per hour with depression to 15'-1" ft. below well-top.
Recovery to rest-level in 2 mins. ~~hours~~ Capacity of pump ..... g.p.h. Date of measurements .....

NORMAL CONDITIONS

DESCRIPTION OF PERMANENT PUMPING EQUIPMENT:
Make and/or type Sumo sub pump type 981. Motive power electric
Capacity ..... gallons per hour. Suction at ..... ft.
Amount pumped ..... galls. per day. Estimated consumption ..... galls. per week.
Well made by F. Smith & Son (Cyf) Ltd. Date of well August 56.
Information from — u —

ADDITIONAL NOTES

ANALYSIS (please attach copy if available)

Sited by O on 6" York. 278 NE/W 25. 4. 61.

LOG OF STRATA OVERLEAF.

Geological Survey and Museum, South Kensington, London, S.W.7.		Section 6.	Date Received	1" O.S. Map No.	Site marked on 1" Map	(use symbol) on 6" Map
			17.4.61		⊙	⊙

(1527) Dd574/Wt37583 12,000 8/54 JC&S Gp689

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124519 : BGS Reference: SE70NW3
British National Grid (27700) : 471508,409723

(7)

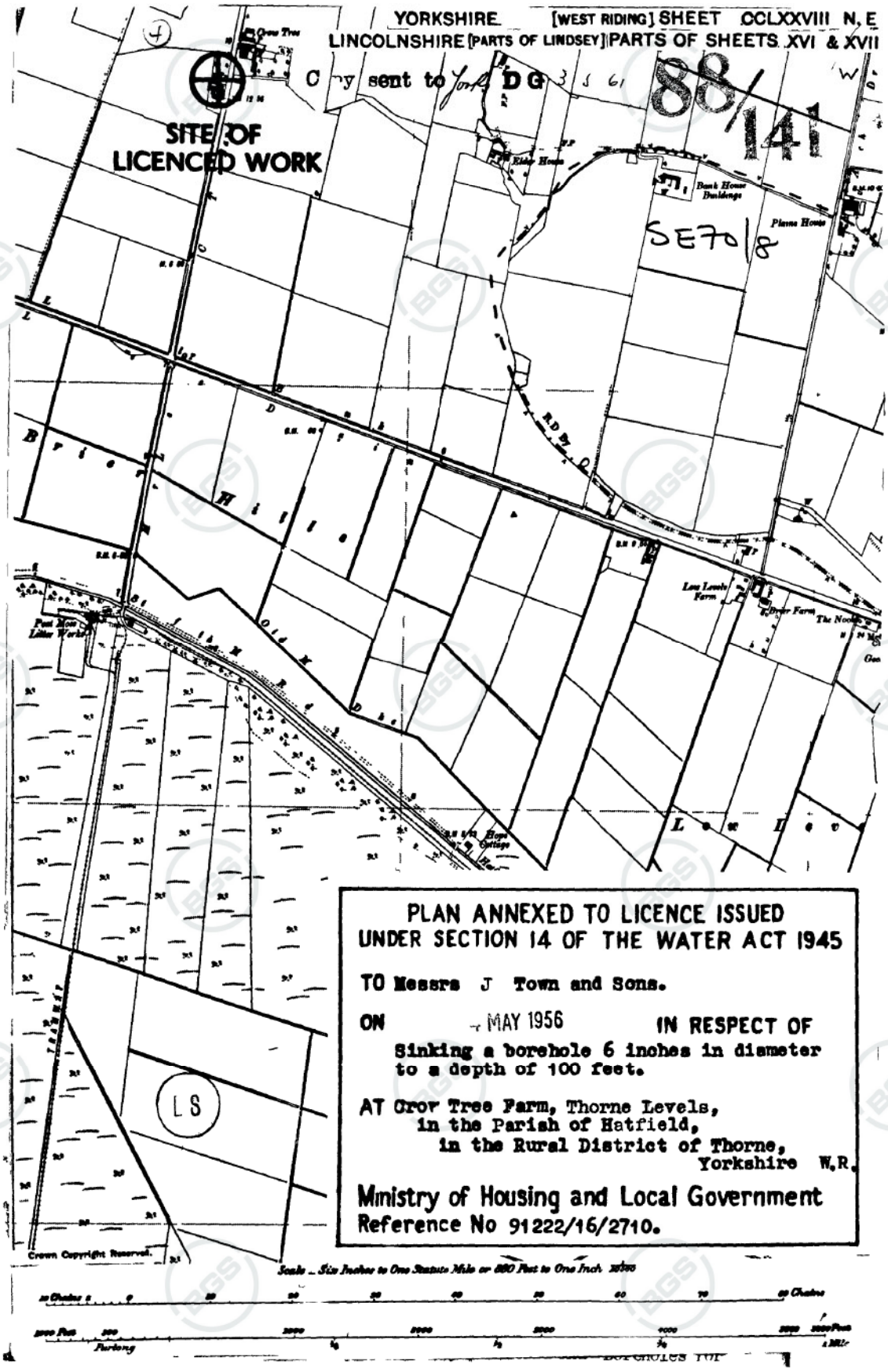
(For Survey use only) Geological Classification	Nature of Strata. If measurements start below ground surface, state how far ..	Thickness Feet	Thickness Inches	Depth Feet	Depth Inches
Soil	top soil	1	6	1	6
Alluvium Blown Sand & 25' Drift	Brown clay	5	0	6	6
	Dark brown silt.	29	6	36	0
	Dark brown sand.	3	0	39	0
	Sand & small gravel.	10	0	49	0
Bunter Sst.	Soft red sandstone.	61	0	110	0

RJB 13/2/76.

(42)

(For Survey Geolog Classific

Contact BGS: ngdc@bgs.ac.uk


YORKSHIRE [WEST RIDING] SHEET CCLXXVIII N, E
LINCOLNSHIRE [PARTS OF LINDSEY] PARTS OF SHEETS XVI & XVII
Copy sent to York DG 3 5 61
88/14
SE70/8
SITE OF LICENCED WORK
Crow Tree
Elder House
Bank House Buildings
Plane House
Low Lamb Farm
Dyer Farm
The Nook
Old Dyke
Hope Cottage
LS
PLAN ANNEXED TO LICENCE ISSUED
UNDER SECTION 14 OF THE WATER ACT 1945
TO Messrs J Town and Sons.
ON 7 MAY 1956 IN RESPECT OF
Sinking a borehole 6 inches in diameter to a depth of 100 feet.
AT Cror Tree Farm, Thorne Levels,
in the Parish of Hatfield,
in the Rural District of Thorne,
Yorkshire W.R.
Ministry of Housing and Local Government
Reference No 91222/16/2710.
Crown Copyright Reserved.
Scale .. Six Inches to One Statute Mile or 880 Feet to One Inch 1/5280
Furlong

British Geological Survey

BGS ID: 124519 : BGS Reference: SE70NW3
British National Grid (27700) : 471508,409723

Copy sent to York DG 3 5 61 91222/16/2710

N 7696

88/141 SE70/8

[illegible] 1945

[illegible]

to construct works in the area defined in the Cradle Syke (Amendment of Order) Order, 1949, made under section 14 (1) of the Water Act, 1945.

THE [illegible], on the application of [illegible] Farmer and one of Crowtree Farm, Burne Levels, Burne, Yorks. (hereinafter called the "applicants") and in pursuance of the powers under section 14(6) of the Water Act, 1945, hereby licenses the said applicants, to execute the work of constructing a borehole having a diameter of 6 to a depth of 400 feet at Crowtree Farm, Burne Levels, Burne, the situation of which is more particularly shown in the plan annexed hereto and thereon marked "A", subject to the condition that the maximum abstraction in any day shall be 2,000 gallons.

GIVEN under the official seal of the Minister of Housing and Local Government this 14 MAY 1956 day of 1956.

[redacted]

Assistant Secretary,

Ministry of Housing and Local Government.

(17)

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124540 : BGS Reference: SE70NW24
British National Grid (27700) : 472180,409640

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 37

CONTRACT A.18 Scunthorpe	REPORT No. 7468/SEQ
Bored for North Eastern Road Construction Unit	Ground Level 5.4 O.D.
Site Address Thorne, Yorkshire.	Boring Commenced 16.7.69. Boring Completed 16.7.69.
Type and Dia. of Boring Shell and Auger 8" diameter.	SE70NW 24

Water Strikes	Water Levels Recorded During Boring									
1.	Hole Depth	-								
2.	Casing Depth	20'0"								
3.	Water Level	-								

Remarks

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
Topsoil	1'0"					
Soft dark brown peat.			5833	J	2'0"	
	3'6"		5834	J	3'6"	
Medium-dense grey/brown silty sand with traces of organic matter.			5835	J	5'0"	22
	8'0"		5836	J	8'0"	
Stiff brown silty clay.			5837	U	8'6" - 10'0"	
			5838	J	12'6"	
			5839	U	13'6" - 15'0"	
			5840	J	17'6"	
	18'0"		5841	U	18'6" - 20'0"	
Firm brown laminated clay with silt in partings.						
			5842	J	22'6"	
			5843	U	23'6" - 25'0"	
	25'0"					

Scale 1 inch = 5 ft.

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard Code of Practice CP 2001 (1957) Site Investigations.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124541 : BGS Reference: SE70NW25
British National Grid (27700) : 472470,409580

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 37A

CONTRACT	A.18 - Scunthorpe
REPORT No.	7468/SEQ
Bored for	North Eastern Road Construction Unit
Ground Level	5.7 O.D.
Site Address	Thorne, Yorkshire
Boring Commenced	26.9.69
Boring Completed	26.9.69
Type and Dia. of Boring	Shell and Auger 8 ins. diameter

SE70NW 25

Water Strikes	Water Levels Recorded During Boring		
1. 8'0"	Hole Depth	-	35'0"
2.	Casing Depth	35'0"	35'0"
3.	Water Level	-	32'0"

Remarks

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
Topsoil	1'9"		8539	J	1'0"	
Stiff grey and brown mottled clay	3'9"		8540	U	1'9"-3'3"	
			8541	U	3'9"-5'3"	
Very soft grey/brown clayey peat	7'6"		8542	U	5'3"-6'9"	
Soft grey silty clay with pockets of fine sand and traces of organic matter			8543	J	8'6"	4
			8544	D	10'0"	
			8545	J	13'6"	4
			8546	D	15'0"	
			8547	J	18'6"	6
			8548	D	20'0"	
			8549	J	23'6"	8
			8550	J	28'0"	12
			8551	D	30'0"	
	35'0"		8552	J	34'0"	12
			8553	D	35'0"	
			8554	W	(8'0")	

Scale 1 inch = 5 ft.

Samples & S.P.T.

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard Code of Practice CP 2001 (1957) Site Investigations. To ensure agreement as to interpretation, clients are requested to check the descriptions against the samples submitted.

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124798 : BGS Reference: SE71SW14
British National Grid (27700) : 471655,410279

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 36

CONTRACT A.18 - Scunthorpe

REPORT No. 7408/SEQ

Bored for North Eastern Road Construction Unit

Ground Level 7.1 O.D. +2.16m

Site Address Thorne, Yorkshire.

Boring Commenced 19.7.69.
Boring Completed 19.7.69.

Type and Dia. of Boring: Shell and Auger 8 " diameter.

SE71SW 14

Water Strikes	Water Levels Recorded During Boring									
1. 4'6"	Hole Depth	-	14'0"	40'0"						
2.	Casing Depth	37'6"	13'0"	37'6"						
3.	Water Level		None	None						

Remarks: 7166 1028

Description	Depth	Legend	Ref. No.	Type	Depth	N blows/ft
Topsoil	1'0" (0.30)		+1.86			
Soft dark grey peat			5870	J	2'0"	
	3'0" (0.91)		+1.25			
Medium dense grey/brown silty sand			5871	J	5'0"	17
			5872	J	6'0"	
			5873	J	10'0"	
	12'0" (3.66)		-1.50			
Firm brown silty clay with some silty laminations, and lenses of fine brown silty sand.			5874	U	13'6" - 15'0"	
			5875	J	17'6"	
			5876	U	18'6" - 20'0"	
			5877	J	22'6"	
			5878	U	23'6" - 25'0"	
			5879	J	27'6"	
			5880	U	28'6" - 30'0"	
			5881	J	32'6"	
			5882	U	33'6" - 35'0"	

Scale 1 inch = 5 ft.

Samples & S.P.T.

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Notes.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124798 : BGS Reference: SE71SW14
British National Grid (27700) : 471655,410279

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 36 — Continuation Sheet No. 1

CONTRACT A.18 Scunthorpe

REPORT No. 7468/SBQ OD + 2·16 m

SE71SW14

Scale 1 inch = 5 ft.

Description	Depth	Legend	Samples & S.P.T. Ref. No.	Type	Depth	N blows/ft
Firm brown silty clay with some silty laminations, and lenses of fine brown silty sand (cont.)			5883	J	37'6"	
			5884	U	38'6" - 40'0"	
	40'0" 12·19 m		-10·03 5885	W	(4'6")	

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection

Contact BGS: ngdc@bgs.ac.uk

British Geological Survey

BGS ID: 124804 : BGS Reference: SE71SW20
British National Grid (27700) : 472300,410460

Cementation Ground Engineering — **soil mechanics department**

BOREHOLE No. 86

CONTRACT A.18 Scunthorpe

REPORT No. 7408/SEQ

Bored for North Eastern Road Construction Unit.

Ground Level 8.9 O.D. +2.71 m

Site Address Thorne, Yorkshire.

Boring Commenced 17.7.69.
Boring Completed 17.7.69.

Type and Dia. of Boring Shell and Auger 8" diameter.

SE71SW 20

Water Strikes	Water Levels Recorded During Boring									
1. 5'6"	Hole Depth	-	9'0"	20'0"	20'0"					
2.	Casing Depth	18'0"	8'0"	18'0"	None					
3.	Water Level	-	None	None	5'6"					

Remarks

7230 1046

Description	Scale 1 inch = 5 ft. Depth	Legend	Samples & S.P.T. Ref. No.	Type	Depth	N blows/ft
Topsoil			8212	J	1'0"	
Soft brown and grey mottled very sandy clay.	2'0" (0.61)		+2.40 8213	J	3'0"	
			8214	U	5'6"-5'0"	
Yellow/brown clayey sand.	5'0" (1.52)		+1.09 8215	J	5'6"	
Firm brown silty clay with pockets of silt and some silty laminations.	6'0" (1.83)		+0.88 8216	J	7'0"	
			8217	U	8'6"-10'0"	
			8218	J	12'0"	
			8219	U	13'6"-15'0"	
			8220	J	17'0"	
			8221	U	18'6"-20'0"	
	20'0" (6.10)		-3.39 8222	W	(5'6")	

Code: U—Undisturbed Sample D—Large Disturbed Sample J—Jar Sample W—Water Sample

Note.—Unless classification tests have been made and the results are included in this Report, the descriptions of strata given above have been obtained by inspection in accordance with British Standard Code of Practice CP 2001 (1957) Site Investigations. To ensure agreement as to interpretation, clients are requested to check the descriptions against the samples submitted.

Contact BGS: ngdc@bgs.ac.uk

YORKSHIRE RIVER AUTHORITY – Survey of Existing Boreholes

Severn-Trent. Wheldrake Area.

I.G.S. Ref. No ..... N.G.R. SE 716 400

Licence No. 83/40

OWNERS NAME .....

ADDRESS Cherry Tree
W. Thorne

App No

Authorised Abstraction

g.p.h.
g.p.d.
m.g.a.

0.50 Ml/d.

Depth	Thickns	STRATA DETAILS
		No details

Dia. .....
Depth .....
Lining .....
Well sinker .....
Date .....
R.W.L. 3.18 ... 28.5.75
~~Date~~ .....

11.28' OD 3.42m
R.W.L. 0.24 m AOD. 28.5.75

INSPECTION REPORT	WATER QUALITY	DATE OF INSPECTION:-
Present Owner:- Access (Yes or No) ..... ½" Probe ..... 3" Instruments ..... Landrover ..... Access Agreed	Date pH ..... Total hard ..... Temp.hard ..... Alk. ..... Ca ..... Mg ..... Na ..... K	Other Comments:- Sketch Plan of Location
Water Level at time of insp. 3.18 metres below ..... Date 28/5/75..... Datum above O.D. 11.23' 3.42m. R.W.L. above O.D. 0.24m..... Date	HCO_3 ..... SO_4 ..... Cl ..... NO_3 ..... Fe	

British Geological Survey

BGS ID: 124818 : BGS Reference: SE71SW34
British National Grid (27700) : 471540,410000

W.R.B. Ref. No. SE 71/5.

OBSERVATION WELLS:- WELL DATA SHEET

LOCATION

Site: Cherry Tree Farm, Thorne Levels, Doncaster.

G.S.M. Ref. No.: 8[illegible] NGR: SE 7154, 1000

Hydrometric area: 28

O.D. of surface:

WELL DETAILS

Depth: 34·1 (metres) 112 (feet) Diameter: 152·4 mms 6 (inches) Length of NK (metres) solid lining: NK (feet)

Geological succession: Alluvium / Bunter Sandstone.

Aquifer: Bunter Sandstone.

MEASUREMENT

Automatic recorder: type _____ : _____ operated

gauge scale _____ / _____ : time traverse _____ inches per day

Manual measurements: frequency weekly. :

Measuring authority: Trent R.A.

Recorder charts changed by:

Measuring point:

O.D. of measuring point: 3.42 m.

REMARKS

Records available from: 20 August 1968

Interference effects: (Tick) from adjacent discharging wells ; barometric ; river influence ; tidal ; earthquakes ; miscellaneous ; (add details on accompanying sheet)

Disused or used (_____ hours pumped per _____) Sunk as observation well: _____

Surface run-off gauging stations:

Nearest rainfall stations:

WATER LEVELS (metres / feet above or below Ordnance Datum; state, if not)

	Feet	Metres		Feet	Metres
Highest recorded RWL			Lowest recorded RWL		
(date)			(date)		
Highest recorded RWL			Lowest recorded RWL		
(date)			(date)		
Highest recorded RWL			Lowest recorded RWL		
(date)			(date)		

Data to go to Jarrett

402a/10/7/68

Contact BGS: ngdc@bgs.ac.uk

UNEXPLODED BOMB RISK MAP

zeticaUXO

SITE LOCATION

Location: DN7 6HB,
Map Centre: 469945,409611

This map principally indicates a hazard from Unexploded Bombs (UXB) due to WWII bombardment. Other sources of Unexploded Ordnance (UXO) may be present. It should be noted that this map does not represent UXO risk and should not be reported as such when reproduced.

LEGEND

- **High:** Areas indicated as having a bombing density of 50 bombs per 1000acre or higher.
- **Moderate:** Areas indicated as having a bombing density of 15 to 49 bombs per 1000acre.
- **Low:** Areas indicated as having 15 bombs per 1000acre or less.

Miltary | **Industry** | **UXO find** | **Other**
Transport | **Docks** | **Luftwaffe targets**
Utilities | **Bombing decoy** | **Airfields**

How to use your Unexploded Bomb (UXB) risk map?

This map indicates the potential for UXBs to be present because of World War Two (WWII) bombing. It can be incorporated into a technical report, such as a Phase 1 Desk Study, or similar document as an indication of the potential for UXO encounter on a Site. Other sources of UXO may also be indicated, although note that these are not comprehensive and more detailed research is required to confirm their presence.

What if my Site is in a moderate or high density area?

We typically recommend that a detailed UXO desk study and risk assessment is undertaken for sites in an area with a moderate or high bombing density.
Additionally, if your site is in close proximity to a strategic target, military establishment, airfield or bombing decoy, then additional detailed research is recommended.

If my site is in a low risk area, do I need to do anything?

If both the map and other research confirm that there is a low potential for UXO to be present on your site, then, subject to your own comfort and risk tolerance, works can proceed with no special precautions.

If you are unsure whether other sources of UXO may be present, you can request one of our pre-desk study assessments (PDSA) by emailing a site boundary and location to pdsa@zetica.com.

You should never plan site work or undertake a risk assessment using these maps alone. More detail is required, to include an assessment of the likelihood of a source of UXO hazard from other military activity not reflected on these maps.

If I have any questions, who do I contact?

tel: +44 (0) 1993 886682 **email:** uxo@zetica.com **web:** www.zeticauxo.com

The information in this UXB risk map is derived from a range of sources and should be used with the accompanying notes on our website.

Zetica cannot guarantee the accuracy or completeness of the information or data used and cannot accept any liability for any use of the maps. These maps can be used as part of a technical report or similar publication, subject to acknowledgement. The copyright remains with Zetica Ltd.

APPENDIX G
TECHNICAL BACKGROUND

Desk Study

Aquifer designation and Source protection zones (England and Wales)

Principal aquifer: layers of rock or drift deposit that have high intergranular and/or fracture permeability (usually providing a high level of water storage). They may support water supply and/or river base flow on a strategic scale.

Secondary A aquifer: permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.

Secondary B aquifer: predominantly lower permeability layers that may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering.

Secondary undifferentiated aquifer: it has not been possible to attribute either a category A or B to a rock type. In most cases this means that it was previously designated as both a minor and non-aquifer in different locations owing to the variable characteristics.

Unproductive strata: low permeability with negligible significance for water supply or river base flow.

The EA generally adopts a three-fold classification of source protection zones (SPZ) surround abstractions for public water supply. The Site is situated in an area defined as follows:

- Zone 1 or the 'inner protection zone' is located immediately adjacent to the groundwater source and is based on a 50-day travel time from any point below the water table to the source. It is designed to protect against the effects of human activity and biological/chemical contaminants that may have an immediate effect on the source
- Zone 2 or the 'outer protection zone' is defined by a 400-day travel time from a point below the water table to the source. The travel time is designed to provide delay and attenuation of slowly degrading pollutants
- Zone 3 or the 'total catchment' is the area around the source within which all groundwater recharge is presumed to be discharged at the source.

Future climate change considerations

Several data sources, based on UKCP18 data, are available with which climate change projections can be viewed. These are detailed in the following table. In order to enable a consistent approach in our risk assessment we have based our initial assessment on data available for RCP8.5 data for the far future (2080s) for an initial conservative risk screen.

Climate change induced effect	Source	Notes	Comment
Temperature	**https://uk-cri.org**	RCP 8.5 average temperature maps for far future (2071-2100), UKCP18 Regional, median, 12 x 12 km spatial resolution	Anticipated to be conservative. It has been assumed that a change of +/- 5% is unlikely to have a significant impact
Rainfall/ recharge	**https://uk-cri.org**	RCP 8.5 annual rainfall for far future (2017-2100), UKCP18 Regional, median, 12 x	Anticipated to be conservative. It is anticipated that a change of +/- 5% is unlikely to have a significant impact for all sites. If a site is located in an urban

Climate change induced effect	Source	Notes	Comment
		12 km or Local Authority spatial resolution	area away from sensitive dependent receptors then a change of +/- 10% is unlikely to have a significant impact.
Flood risk maps for England/ Wales/ Scotland	https://check-long-term-flood-risk.service.gov.uk/risk (England), **https://flood-map-for-planning.naturalresources.wales** (Wales), https://map.sepa.org.uk/floodmaps/FloodRisk/FutureFloodMaps (Scotland)	Future flood maps are only available for England and Scotland.	Identify areas likely to be affected or at an increased risk from future flooding
Coastal erosion	**https://www.gov.uk/check-coastal-erosion-management-in-your-area** (England), **https://naturalresources.wales/flooding/check-your-coastal-erosion-risk-national-coastal-erosion-risk-management-map/?lang=en** (Wales), https://www.dynamiccoast.com/webmaps (Scotland)		Predicted coastal erosion rates. Includes for potential future scenarios to show how erosion may increase with rising sea levels because of climate change based on UKCP18 projections for a high missions scenario.
Shrink and swell potential	BGS Geoindex layer for GeoClimate UKCP18	GeoClimate UKCP18 (2030 to 2070)	Impossible, possible or probable that foundations will be affected by increased clay-shrink-swell

Preliminary risk assessment methodology

LCRM outlines the framework to be followed for risk assessment in the UK. The framework is designed to be consistent with UK legislation and policies including planning. An outline conceptual model should be formed at the preliminary risk assessment stage that collates all the existing information pertaining to a site in text, tabular or diagrammatic form. The outline conceptual model identifies potentially complete (termed possible) contaminant linkages (contaminant–pathway–receptor) and is used as the basis for the design of the site investigation. The outline conceptual model is updated as further information becomes available, for example as a result of the site investigation.

Production of a conceptual model requires an assessment of risk to be made. Risk is a combination of the likelihood of an event occurring and the magnitude of its consequences. Therefore, both the likelihood and the consequences of an event must be taken into account when assessing risk. RSK has adopted guidance provided in CIRIA C552 for use in the production of conceptual models.

The likelihood of an event can be classified on a four-point system using the following terms and definitions based on CIRIA C552:

- highly likely: the event appears very likely in the short term and almost inevitable over the long term or there is evidence at the receptor of harm or pollution
- likely: it is probable that an event will occur or circumstances are such that the event is not inevitable, but possible in the short term and likely over the long term

- low likelihood: circumstances are possible under which an event could occur, but it is not certain even in the long term that an event would occur and it is less likely in the short term
- unlikely: circumstances are such that it is improbable the event would occur even in the long term.

RSK also adopt a 'very unlikely' probability to account for where there may be increased certainty over whether an event is probable in the long term.

The severity can be classified using a similar system also based on CIRIA C552. The terms and definitions relating to severity are:

- severe: short term (acute) risk to human health likely to result in 'significant harm' as defined by the Environment Protection Act 1990, Part IIA. Short-term risk of pollution of sensitive water resources. Catastrophic damage to buildings or property. Short-term risk to an ecosystem or organism forming part of that ecosystem (note definition of ecosystem in 'Draft Circular on Contaminated Land', DETR 2000)
- medium: chronic damage to human health ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000), pollution of sensitive water resources, significant change in an ecosystem or organism forming part of that ecosystem
- mild: pollution of non-sensitive water resources. Significant damage to crops, buildings, structures and services ('significant harm' as defined in 'Draft Circular on Contaminated Land', DETR 2000). Damage to sensitive buildings, structures or the environment
- minor: harm, not necessarily significant, but that could result in financial loss or expenditure to resolve. Non-permanent human health effects easily prevented by use of personal protective clothing. Easily repairable damage to buildings, structures and services.

Once the probability of an event occurring and its consequences have been classified, a risk category can be assigned according to the following:

		Consequences			
		Severe	**Medium**	**Mild**	**Minor**
Probability	**Highly likely**	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low
	Very Unlikely	Low	Very Low	Negligible	Negligible

Definitions of these risk categories are as follows together with an assessment of the further work that may be required:

- very high: there is a high probability that severe harm could occur or there is evidence that severe harm is currently happening. This risk, if realised, could result in substantial liability; urgent investigation and remediation are likely to be required

- high: harm is likely to occur. Realisation of the risk is likely to present a substantial liability. Urgent investigation is required. Remedial works may be necessary in the short term and are likely over the long term
- moderate: it is possible that harm could arise, but it is unlikely that the harm would be severe and it is more likely that the harm would be relatively mild. Investigation is normally required to clarify the risk and determine the liability. Some remedial works may be required in the longer term
- low: it is possible that harm could occur, but it is likely that if realised this harm would at worst normally be mild
- very low: there is a low possibility that harm could occur and if realised the harm is unlikely to be severe.

Pegasus Group

Tween Bridge Solar Farm – Area E

Phase 1 Desk Study

12081-R05(01)

RSK GEOSCIENCES

August 2025

RSK GENERAL NOTES

Project No.: 12081

Title: Phase 1 Desk Study: Tween Bridge Solar Farm – Area E, Thorne , South Yorkshire, DN8 5TF

Client: Pegasus Group

Date: August 2025

Office: RSK Environment Limited, Fourways House, 57 Hilton Street, Manchester, M1 2EJ. Tel 0161 2362757

Status: Final Version

Author [redacted]

Signature

Project manager

Signature

Revision control sheet				
Revision ref.	**Date**	**Reason for revision**	**Amended by:**	**Approved by:**
00	26/06/25	First issue	n/a	see above
01	22/08/25	Amends to drawings	[redacted]	

RSK Environment Limited (RSK) has prepared this report for the sole use of the client, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client and RSK. No other warranty, expressed or implied, is made as to the professional advice included in this report.

Where any data supplied by the client or from other sources have been used, it has been assumed that the information is correct. No responsibility can be accepted by RSK for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report are based on the assumption that all relevant information has been supplied by those bodies from whom it was requested.

This work has been undertaken in accordance with the quality management system of RSK Environment Ltd. No part of this report may be copied or duplicated without the express permission of RSK and the party for whom it was prepared.

Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

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Figure 2 Site layout plan

APPENDICES

Appendix A	Service constraints
Appendix B	Project-related sustainability considerations
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1 EXECUTIVE SUMMARY

Commissioning and purpose of assessment	RSK Environment Limited (RSK) was commissioned by Pegasus Group to carry out a Phase 1 Desk Study of the land at Tween Bridge, Thorne, South Yorkshire DN8 5TF, at approximate grid reference 471579 413695. The overall aim of the project was to assess geo-environmental and geotechnical constraints to the proposed development to inform the Ground Conditions element of an Environmental Impact Assessment (EIA).
DESK-BASED ASSESSMENT	
Site description and proposed development	The Area E site spans 470 hectares of agricultural land, intersected by an extensive drainage network. The Hatfield Waste Drain crosses the east of the site from south to north. The proposed development is for a ground mounted solar photovoltaic electricity generating scheme covering approximately 1300 hectares over six 'areas' labelled Area A to Area E. This report presents information relating to Area E of the development.
History of site and surrounding area	Since the 1850s, Area E has been drained by parallel north-south ditches, which discharge into the North Engine Ditch which flows from west to east along the northern site boundary. Although historical maps show no direct evidence of peat extraction on site, peat extraction is shown on historic mapping adjacent to the southeast of the site and therefore peat possibly also extends onto Area E and may have been extracted historically. The site has remained primarily as agricultural land since the earliest historic mapping with the only development other than occasional farm buildings being a series of tracks in the southeast of the eastern area of the, likely site associated with the former RAF Sandtoft airfield. The airfield was operational in the 1940s and 1950s before being left disused for a period of time and then redeveloped as the Sandtoft industrial estate in the 1990s/2000s.
Previous site investigation (SI) reports	There are no previous SI reports available
Geology and environmental setting	The superficial deposits comprise alluvium, the Sutton Sand Formation and peat. The bedrock geology consists of Sherwood Sandstone Group beneath the west of the site and Mercia Mudstone underlying the eastern area. Environmental receptors identified comprise: • Groundwater within alluvium and Sutton Sand Formation classified as a secondary A aquifer, groundwater within the underlying Chester Sandstone formation classified as a Principal aquifer. • Surface water within the multiple drainage ditches located on site and the River Thorne 7 m to the southeast. • The site is located near two Site of Special Scientific Interest (SSSI) associated with adjacent ditches.

Geotechnical constraints assessment	• Made ground i.e., fill material anticipated to be present on site (within isolated locations associated with historical ponds, farm buildings and airfield land use in the south). • Made ground present offsite (associated with historic airfield and industrial estate to the south). • Worked peat deposits (condition and stability remain uncertain at this stage). • Unknown extent of existing buried services. • Highly compressible strata anticipated in areas of peat and soft alluvium clay of which may affect ground engineering and foundation design and construction of substation compounds. • Silt-rich soils such alluvial deposits and warp material susceptible to rapid loss of strength in wet conditions of which may affect ground engineering and foundation design of larger structures. • High groundwater tables are unlikely to impact temporary or permanent works in well-drained areas of the site however, they may pose a consideration in peatland zones. Potential made ground present in isolated areas of the site may be susceptible to differential settlement, which could impact ground engineering, foundation design, and construction stability.
Initial conceptual site model (CSM) and preliminary risk assessment (PRA)	Potentially complete contaminant linkages with a potential risk of moderate to low or higher comprise: • Moderate/Low: On-site made ground, usage of agricultural chemicals and airfield tracks/usage – Groundwater in the underlying Principal and Secondary A aquifers – Leaching to groundwater. • Moderate/Low: On-site made ground, usage of agricultural chemicals and airfield tracks/usage – Surface water within drainage ditches and River Thorne – Migration via runoff through drainage and lateral migration of groundwater. Uncertainties and data gaps have been identified in the CSM at desk study stage and should be considered in the design of future intrusive investigation if proposed.
INTRUSIVE INVESTIGATION AND ASSESSMENT	
The information given in this summary is necessarily incomplete and is provided for initial briefing purposes only. The summary must not be used as a substitute for the full text of the report.	

2 INTRODUCTION

2.1 Commissioning

RSK Environment Limited (RSK) were engaged by Pegasus Group, herein referred to as the 'Client', to carry out a phase 1 Desk Study at the land at Area E Tween Bridge, Thorne, South Yorkshire DN8 5TF.

The proposed development is for a ground mounted solar photovoltaic electricity generating scheme covering approximately 1300 hectares over six land parcels labelled Area A to Area E. This report presents information relating to Area E of the development.

The works were undertaken by means of RSK fee proposal reference 12081 TL01 (01) dated 19 March 2025 including RSK Standard Terms and Conditions which forms the appointment between ourselves and the Client.

References in this report to 'we', 'us', or 'our' shall mean RSK Geosciences a trading name of RSK Environment Limited (company no.SC115530) at registered address 65 Sussex Street, Glasgow, G41 1DX.

The site location is provided in **Figure 1** and the site layout boundary to which this report refers is presented in **Figure 2**.

The report should be read and used in accordance with the limitations and constraints identified in the report text, and at **Appendix A – Service Constraints**.

2.2 Objectives

The site is being considered for development for industrial use as a solar farm.

The objective of the work is:

- To identify contamination and geotechnical constraints to the proposed development.
- To develop a baseline assessment of contamination and geotechnical data to support the Ground Condition elements of an Environmental Impact Assessment (EIA).

2.3 Scope of works

The scope of works has been developed in accordance with relevant British Standards and authoritative technical guidance as referenced through the report. The assessment of the contamination status of the site is in line with the technical approach presented in Land Contamination Risk Management (LCRM) (Environment Agency, 2023) and in general accordance with BS 10175: 2011 + A2 2017 (BSI, 2017). It is also compliant with relevant planning policy and guidance, i.e. national planning frameworks and policies.

The scope of works for the assessment has included the following:

- Obtain and review all historical, local authority, geological, permitting and other statutory records for the site via the purchase of a Groundsure site report.

- Review and summarise the most salient points from these records into a factual account of site conditions such that an appreciation of the sites history, environmental setting and geological characteristics can be obtained.
- Where available, review and briefly summarise any ground investigation information for the site.
- Collate a preliminary conceptual model of the site within which geo-environmental and geotechnical risks are considered and rated in accordance with the EA LCRM methodology.
- Recommendations for further investigations, if required.
- Produce factual and interpretive Preliminary Risk Assessment Report (this report).

2.4 Existing reports

No existing reports relating to the site were made available to RSK for this assessment.

2.5 Sustainability considerations

One of RSK's guiding principles is 'promoting the concept of sustainability in all that we do'. The RSK Group Second Nature 2030 Sustainability Strategy (RSK, 2023) confirms our commitment to embedding sustainability throughout our business and creating lasting positive impact for our planet and its people by delivering sustainability in all that we do.

This is supported by RSK Geosciences' Sustainability Policy, which sets our aspiration to provide industry-leading site assessment services to our clients to achieve more sustainable and climate resilient development and to support circular economy, decarbonisation and nature-based solutions. We also recognise that we have a responsibility to reduce our own business-related emissions. In this way our business activities are aligned with and contribute to meeting several of the UN Sustainable Development Goals (SDGs), as well as supporting pathways to net zero and circular economy.

Sustainability considerations have therefore been taken into account during the design, planning and implementation stages of the project as described in this report. Our approach prioritises sustainability by integrating Sustainable Management Practices (SMPs) across the project lifecycle, to reduce our project-related emissions and help our client achieve more sustainable outcomes for their projects. SMPs were originally published by CL:AIRE (CL:AIRE, 2021a) and further developed by RSK Geosciences as an in-house tool. Further detail is provided in **Appendix B**.

Where applicable, consideration has been made throughout this report to align the recommendations with circular economy, sustainable development and climate resilience.

2.6 Limitations

This report is subject to the RSK service constraints given in **Appendix A** and limitations that may be described below and throughout this document.

This report was prepared in accordance with good practice guidance and available datasets at the time of issue. Consideration should be considered in the light of changes in legislation, statutory requirements, or industry practices subsequent to the date of issue.

The opinions expressed in this report, and the comments and recommendations given, are based on the information obtained from the desk assessment. No intrusive investigations have been undertaken to confirm the actual ground conditions and hence the environmental status of the site.

The study aims to principally identify and assess the potential risks and liabilities associated with contamination of the ground, on and in the vicinity of the site. While this includes consideration of current operations and housekeeping on the site, the report does not constitute a comprehensive environmental audit of the site, as covered under ISO 14001.

Although asbestos may not have been encountered as part of these works, asbestos could be present in soil in discrete areas and may be encountered in future ground investigation.

A detailed survey of invasive plant species is outside the scope of this investigation therefore detailed comments with regards to such species have been omitted from this report.

The comments given in this report and the opinions expressed are primarily based on third party data and investigations, while RSK have undertaken a review of the information provided RSK cannot be held liable for the quality of the data provided. There may be conditions pertaining to the site that have not been disclosed by the investigations and therefore could not be taken into account.

3 SITE DETAILS

3.1 Site location

Site location details are presented in **Table 1** and a site location plan is provided on **Figure 1**.

Table 1 Site location details

Site name	Tween Bridge Solar Farm
Full site address and Post code	Thorne, South Yorkshire, DN8 5TF
National Grid reference (centre of site)	473379 409757

3.2 Site description

The site boundary and current site layout are shown on **Figure 2**. The site is irregular in shape and lies east of Thorne and west of Sandtoft. It is bounded to the north by the A18 and to the south by the M180 in a primarily agricultural area.

Covering approximately 470 hectares, the site - Area E - is predominantly agricultural land interspersed with isolated farmsteads.

The land lies at 1 – 4 meters Above Ordnance Datum (AOD) and is extensively drained by numerous ditches/land drains indicated to flow from the south to the north before entering a larger drain close to the northern site boundary which flows in an east/northeast direction.

3.3 Surrounding land uses

The site is located in Doncaster, within a predominantly agricultural setting. Immediate surrounding land uses are described in **Table 2**.

Table 2 Surrounding land uses

North	The A18 with agricultural land and canal beyond
East	Hirst Priory and former golf course (Site Area E)
South	M180 with agricultural land, Sandtoft village and the former RAF Sandtoft now the Sandtoft industrial estate beyond
West	Agricultural land and Site Area D

3.4 Proposed development plans

The proposed development comprises the construction, operation, maintenance and decommissioning of a ground mounted solar farm with an intended design capacity of over 50 MWp (megawatts peak), and a battery energy storage facility with an export/import connection to the National Grid.

The scheme is likely to include the following key works, the indicative locations of some of which are shown on RWE Figure 2.2: Indicative Operational Layout Plan (Rev 1) dated August 2025 included in **Appendix C**.

- Solar PV modules and associated mounting structures.
- On-site supporting equipment including inverters, transformers and switchgear.
- A battery energy storage system (BESS), indicatively split into four separate compounds. They would each be located next to one of the seven on-site 33 kv/132 kV substations.
- The solar PV modules and BESS would be connected to one of the seven on-site 33 kV/132 kV substation compounds. These are necessary to step up the voltage of the electricity delivered by the solar PV modules from 33 kV to 132 kV for onward transmission to the RWE on-site 400 kV Substation.
- Works to establish environmental and ecological mitigation and enhancement measures.
- Upgrades to existing tracks/roads and creation of new access tracks and site entrances.
- Directional drilling for cable works for various crossing including: drainage ditches, canal, railway, and the M180.
- Culverts and upgrades to existing culverts.
- Fencing and Security Measures.
- Permissive pathways and bird viewing gallery.
- Temporary development during the construction phase of the Scheme including construction compounds, parking and temporary access roadways to facilitate access to all parts of the site.

No details of the proposed ground levels have been provided therefore for the purpose of this report it has been assumed that the current levels will remain unchanged.

4 DESK-BASED ASSESSMENT

The desk-based assessment was designed to generally meet the objectives of a preliminary or Phase 1 investigation, as defined by BS 10175:2011+A2:2017 (BSI, 2017) and BS 5930:2015, and is set in context of a Tier 1 preliminary risk assessment as defined in LCRM.

The "vicinity" of the site for the purposes of this report is defined as locations situated within an approximate 250 m radius of the site, although certain sources and/or sensitive targets further than 250 m distance from the site may also have been considered.

4.1 Site history

4.1.1 Historical development record

The development history of the site and surrounding area based upon assessment of historical plans and records is detailed in **Table 3** and **Table 4**, respectively.

The historical maps reviewed are shown within the environmental database report in **Appendix D**.

Table 3 Summary of historical development on site

Date from	Date to	Historical Land Use (on-site)	Area of site
1853	Present	Agricultural fields and drains, sparse farm buildings and lanes/tracks	Encompasses Area E
1973	Present	Hatfield Waste Drain crosses onto the southeast of the site running close to the southern site boundary before crossing the site from south to north and entering the North Engine drain adjacent to the northern site boundary	East of Area E
1973	1982	Tracks from the former Sandtoft Airfield adjacent to the south of the eastern portion of Area E extend into the south of the site	East of Area E

Table 4 Summary of historical development in the vicinity of the site

Date from	Date to	Historical Land Use (off-site)	Distance (m) and orientation
1885	Present	Canal and adjacent South Soak and North Soak Drains	200 m N of eastern area
1885	1973	Brick and tile works including pits and ponds	250 m N of eastern area
1885	Present	North Idle later North Engine Drain adjacent to the west and north of the eastern area of site and North Levels Engine (later Dirtness Pumping Station) associated with the drain adjacent to the north	<10 m west and north of eastern area

Date from	Date to	Historical Land Use (off-site)	Distance (m) and orientation
1885	1951	Turbary (peat cutting)	50 m S of the southeast of the site
2001	Present	Works (in location of former brickworks)	250 m N of eastern area
1951	1955 (shown as disused from 1969)	Airfield RAF Sandtoft	Adjacent south of the eastern area
1969	Present	M180 road	Adjacent to southern boundary
2001	Present	Works shown on location of former airfield	Adjacent to the south beyond the M180
2010	2023	Golf course	Adjacent to the east

Since the 1850s, Areas E has been drained by parallel north-south ditches, which discharge into the North Engine Ditch which flows from west to east along the northern site boundary. The Hatfield Waste Drain crosses onto the southeast of the site running close to the southern site boundary before crossing the site from south to north also entering the North Engine drain adjacent to the northern site boundary.

Although historical maps show no direct evidence of peat extraction on site, peat extraction is shown on historic mapping adjacent to the southeast of the site and therefore peat possibly also extends onto Area E and may have been extracted historically.

The site has remained primarily as agricultural land since the earliest historic mapping with the only development, other than occasional farm buildings, being a series of tracks in the southeast of the eastern area of the, likely associated with the former RAF Sandtoft airfield. The airfield was operational in the 1940s and 1950s before being left disused for a period of time and then redeveloped as the Sandtoft industrial estate in the 1990s/2000s.

The key potential contaminative land uses identified from the available historical maps include:

- On-Site:
  - Possible made ground associated with the numerous farmsteads dispersed across site.
  - Use and storage of chemicals across farmsteads.
  - Former tracks and land use in the southeast of the site likely associated with the historic airfield adjacent to the south.
- Off-Site:
  - Former wartime airfield located to the south of the site including likely associated made ground.

The brickworks located 250 m to the north of the site is unlikely to impact conditions on site due to the distance over which contaminations would need to migrate.

4.1.2 Unexploded ordnance

A review of publicly available unexploded ordnance (UXO) risk maps indicates that the site is located in an area with low potential for wartime bombs to be present (Zetica, 2025).

An on-line Unexploded Ordnance risk search has identified a WWII Decoy Site in the vicinity of Area E. There is no evidence of this on current satellite imagery, or historical maps. A bomb store Area Eor the WWII Sandtoft airfield extended north to Woodcarr Small Drain, lying within the southwestern extension of Area E. RAF aerial photographs of 1946 and 1948 and maps of 1967-1968 indicate layout of small mounds (likely ordnance storage bunkers) and huts centred on 475550 409150. This area is shown as taxi routes only on the 1973-1986 maps.

Although these airfields are some distance from the site, anecdotal reports suggest several WWII air crashes occurred in the vicinity, including a Lancaster bomber, though its exact location remains unclear. Heritage Environment Records indicate two possible crash sites west of Crowle (Area B), with accounts suggesting the wreckage sank into the peat.

Given these historical factors, a detailed UXO risk assessment is recommended prior to construction.

4.2 Information from environmental database report

Relevant environmental permits and incidents detailed within the environmental database report (see **Appendix D**) are summarised below in **Table 5**.

Table 5 Summary of environmental permits, landfills and incidents

Data type	Entries on-site	Entries <250 m from site	Entries >250 m from site of relevance	Details
Agency and hydrological				
Environmental permits – incorporating Environmental Permitting Regulations (EPR) and/ or Pollution Prevention and Control (PPC) permits; former Integrated Pollution Controls (IPC), Local Authority Pollution Control (LAPC)	0	0	0	-
Enforcement and prohibition notices	0	0	0	-
Pollution incidents to controlled waters, Prosecutions relating to controlled waters, Substantiated pollution incident register, Water Industry Act referrals	1	3	6	On site Eastern area incident identification: 149568 dated 08/04/2003. Oil and fuel. Land impact: Cat 3 (minor)
Discharge consents	0	2	7	Nearest 158 m west Bank House Farm – trade discharges, site drainage

Data type	Entries on-site	Entries <250 m from site	Entries >250 m from site of relevance	Details
Registered radioactive substances	0	0	0	-
Landfill and waste				
Active landfills	0	0	0	-
Historic/closed landfills	0	0	0	-
Other waste management licences	0	0	0	-
Potentially in-filled land (pit, quarry, pond, marsh, river, stream, dock etc)	0	0	0	-
Hazardous substances/industrial land uses				
Control of Major Accident Hazards (COMAH) sites	0	0	0	-
Explosives sites, Notification of Installations Handling Hazardous Substances (NIHHS), Planning hazardous substance consents/enforcements	0	0	0	-
Contaminated land Part 2A register entries and notices	0	0	0	-
Fuel station entries	0	0	0	-

4.2.1 Contemporary trade directory entries

Active potentially contaminative land uses identified in the contemporary trade directory and with potential to affect the site are identified as:

- Poultry farm 75 m south.

Inactive potentially contaminative land uses identified in the contemporary trade directory includes:

- Airfield extending onto the south of the site.
- Engine 23 m northwest.

4.3 Information from regulatory authorities

4.3.1 Planning records

There are no other registered planning applications relevant for the site listed with the local planning authority.

4.3.2 Site services

Obtaining a full set of service plans was outside the scope of this report.

Buried utility services and their backfill can represent a constraint to development and act as preferential migration pathways for gas, vapour or groundwater towards a receptor.

4.4 Site geology

4.4.1 Anticipated geological sequence

Published records (British Geological Survey, 2025) for the area and available historical borehole logs indicate the geology of the site to be characterised by the succession recorded in **Table 6**.

There are more than 50 publicly available BGS historical boreholes located on or within 250 m of the site, a selection of which are presented in **Appendix E**.

Table 6 Site geology

Strata	Strata	Description	Depth (m)
Area E - West	Topsoil	Topsoil	GL to 0.4
	North, eastern and central area - Alluvium - Clay, silt, sand and gravel	Stiff brown silty clay	4.5 – 10.1
	Southeastern area - Sutton Sand Formation - Sand	Medium dense brown sand	0.4 – >11
	Peat (recorded in the west and mapped near the eastern boundary)	Soft brown peat	0.4 – 7.0
	Chester Formation - Sandstone	Red brown sandstone	Top 8 - >11 Base 356
Area E - East	Topsoil	Topsoil	GL to 0.4
	Mapped localised in the east - Alluvium - Clay,	Red sandy clay	4.0 – 11.0

Strata	Strata	Description	Depth (m)
	silt, sand and gravel		
	Eastern area - Sutton Sand Formation - Sand	Medium dense brown sand	0.2 - 4.0
	Western area - Peat	Soft brown peat	Localised not shown on logs
	Western area - Chester Formation - Sandstone	Red brown sandstone	8.0 - 356
	Central and eastern area - Mercia Mudstone	Red marl with gypsum layers	11.0 – 63.0
Relevant information sources: BGS Geoindex ☒ BGS borehole logs ☒ Previous SI reports ☐			

4.4.2 Peat

Thick peat deposits occur to the south on Hatfield Moor (south of Area C) and to the north on Thorne Moors (north of Area A), which were exploited for centuries by block cutting, and more recently by surface milling. Peat working has also taken place at Crowle Moor (east of Area A).

The range of near surface (i.e. at less than 1 – 3 m depth) peat thickness therefore anticipated within Area E is likely less than 1.5 m. In the east of Area E it is likely that peaty soils are present in former river channels and the remainder is likely degraded or masked by alluvium.

The deposits are the remains of lowland raised bog, or raised mire fenland, extending beyond the designated conservation moorland. The deposits lie both within and beneath the Alluvium, in areas flanking the deep incised river courses, in particular due to poor drainage and waterlogging in the late Flandrian period.

Peat stability will therefore require consideration during detailed design at any specific locations where intrusive investigation proves a sufficient peat thickness would be intersected by the proposed construction (e.g. new accesses, structures).

4.4.3 Radon

A radon 'Affected Area' is where 1% or more homes are estimated to be above the radon Action Level of 200 Bq m^{-3}. Although the radon data used in production of the radon atlas comes from measurements in homes, the maps indicate the likely extent of the local radon hazard and is thus applied in all buildings.

The environmental database report indicates that the site is not located within a radon 'Affected Area' and therefore radon protection measures are not considered to be necessary in the construction of non-domestic buildings.

4.5 Mining and quarrying

A review has been conducted to identify past and present mining, quarrying, landfilling, and land reclamation activities within 1 km of the site. The initial site appraisal is based on information from the Mining Remediation Authority Interactive Viewer (UK Coalfield areas) and a commercial environmental database report detailing non-coal mining activities.

4.5.1 Coal mining area

The western area of Site E is located within the Mining Remediation Coal Reporting Area. However, it does not fall within the Development High Risk Area, indicating that there are no recorded coal mining legacy hazards at shallow depths that could pose risks to public safety or surface land stability.

There are no reported shafts/mine entries in the vicinity of the site, and therefore there is no requirement under the current planning framework to complete a Coal Mining Risk Assessment (CMRA).

4.5.2 Areas of other (rock or mineral) mining

There is localised evidence of small scale near surface workings where extractable deposits occur at the surface. The following details on aggregate workings, ponds and peat workings have been summarised in **Table 7**.

Table 7 Summary of Non-Coal Mining and Quarrying

Location	Surface Working Type	Comment
On-site in eastern area	Pond	1885
375 m southwest of the western area of site	Sand pit	-
Approx 100 m south of the western area of site	Unspecified ground workings	1904 - 1951 maps

4.6 Hydrogeology

A summary of the hydrogeological setting of the site, with respect to the anticipated geological sequence set out in Section 4.5 is presented below in **Table 8**.

Table 6 Summary of hydrogeological setting

Condition	Description
Aquifer characteristics	The Sutton Sand Formation and permeable Alluvium superficial deposits typically form Secondary A Aquifers, whilst the peat and laminated silt/clay deposits are Unproductive. The Chester Formation at depth forms a Principle Bedrock Aquifer and the Mercia Mudstone forms a Secondary B aquifer. The Secondary Superficial Aquifers are typically of medium to high groundwater vulnerability in areas within the western and southeastern areas of Area E. An area of low groundwater vulnerability is mapped in the northeast of Area E.

Condition	Description
Depth to groundwater and flow	Based on BGS logs along the M180 adjacent to the south of the site, localised shallow groundwater is present between 1.5 and 2.0 m bgl other boreholes were reported to be dry to depths of 6 m bgl. Overall, groundwater flow is anticipated to flow west to east across the site, following a rectilinear drainage pattern, with limited or negligible local flow variations.
Rising groundwater levels	Areas within the site are expected to contain peat, as indicated by the BGS map viewer. Groundwater levels in these areas may fluctuate due to several influencing factors, including increased precipitation, land management practices such as blocking drainage ditches or rewetting initiatives, and natural hydrological changes that alter flow patterns into the peatland.
Groundwater recharge/ attenuation	As the site is largely unsurfaced, water is expected to drain directly into the ground. The high organic content and fibrous nature of peat naturally slows water movement, functioning as a buffer that regulates flow, stabilises groundwater levels, and helps mitigate downstream flooding.
Historical implications for hydrogeology	The site may have been shaped by historical peat workings, an extensive drainage network, and active water pumping stations. Peat extraction can reduce groundwater retention, leading to lower water tables and a heightened risk of subsidence. The numerous drainage ditches, designed to manage water flow, facilitate rapid surface runoff, limiting groundwater recharge and influencing local hydraulic gradients. However, pumping stations play a critical role in regulating water levels, maintaining surface stability, and preventing localised flooding or prolonged saturation.
Licensed groundwater abstractions	The environmental database report indicates that the nearest licensed groundwater abstraction is located 451 m northwest of the site for farming and domestic usage
Source protection zones	Information available in the Envirocheck report indicates that the west of the site lies within Zone 3 of the groundwater Source Protection Zone (SPZ). Details of the SPZ designation are contained in **Appendix D**.

4.7 Hydrology

A summary of the hydrology within the site area is summarised in **Table 9**.

Table 9 Summary of hydrology in site area

Condition	Description
Surface watercourses/ features	Mapping indicates numerous drainage ditches forming a rectilinear grid of interconnected water channels across Area E. Key watercourses include: • Hatfield Waste Drain crosses the east of the site from south to north. • North Engine Drain runs adjacent to the north of the site. • River Thorne is located 7 m to the southeast of the eastern area of site.
Surface water abstractions	The environmental database report identifies numerous active licensed surface water abstractions within a 1 km radius of the site including several located on site used for spray irrigation from the North Idle Drain, the Woodcar Drain and the Hatfield Waste Drain.

Condition	Description
Site drainage	This low-lying district has undergone continuous artificial modifications to its natural drainage system for centuries, as widely documented in historical records. The landscape is characterised by an extensive network of drainage ditches, forming a rectilinear grid of interconnected water channels. Over time, significant alterations, including the excavation of additional drainage ditches and dykes and localised field drainage enhancements, have been necessary to manage flooding, regulate surface water runoff, and support agricultural productivity, both historically and in modern land use.
Preliminary flood risk assessment	According to EA Flood Map for Planning data, the majority of the site is classified as Flood Zone 3 for river and sea flooding, indicating a high annual probability of flooding, exceeding 3.3%. A small area of the eastern area of the site is classified as Flood Zone 2 with a reduced probability of flooding (0.1%) While a flood risk assessment is not included in this report, considerations for long-term flood risks are addressed in Section 4.10.

4.8 Sensitive land uses

Table 10 provides a summary of any environmentally sensitive areas identified within 250 m of the site based on the environmental database report.

Table 7 Environmentally sensitive areas

Feature	Present within 250 m of site?	Details	Likely pathways from site?
International designations – Ramsar wetland, Special Area of Conservation (SAC), Special Protection Area (SPA)	No	-	-
National designations – Site of Special Scientific Interest (SSSI), National Nature Reserve (NNR), ancient woodland	Yes	SSSI - Hatfield Chase Ditches within 15 m of the site	Yes located anticipated down hydraulic gradient
Local designations – Local Nature Reserve, Site of Importance for Nature Conservation (SINC)	No	-	-
Nearest high sensitivity development, e.g. residential	Yes	Localised residential/farm buildings located on/ adjacent to site	Yes

4.9 Future climate change impacts

In accordance with planning policies and guidance (e.g. LCRM), there is a need to consider the effects of future climate change and associated extreme weather events (EWE) on the CSM and

identified potential contaminant linkages, along with the implications for risk assessment and remediation. Further background details are provided in **Appendix B**.

Table 11 contains a preliminary assessment of future projected climate change impacts that may be relevant to the site. As all parts of the UK are projected to experience temperature rises so this is not included in the table. Cascading effects of temperature rise are considered via changes in precipitation, flood, heatwaves and drought. This is based on a 'reasonable worse case' scenario. Where considered necessary, qualitative consideration of climate change is provided for specific linkages in the risk assessment and as an uncertainty in the CSM.

Extreme weather has historically occurred and will always occur in the UK. Extreme weather can include extremes of precipitation, heat, drought and cold. As a result of climate change extreme is anticipated to become more intense and frequent across the UK.

RSK considers that sites that are likely to be more susceptible to climate change effects to be those located on or near to the coast and at risk of coastal flooding, or erosion and those located within the flood plain.

Table 8 Potentially relevant future projected climate change and EWE site impacts

Climate impact risk factors	Relevant to site?	Discussion
Projected significant changes in annual infiltration rates (+/- 5%)	Y	• Ground cover (the majority of the site is covered by soft standing) • Network of drainage ditches transecting across the site
Future flood risk areas due to river and/or coastal flooding	Y	The nearest waterbodies are the various ditches on site including the Hatfield Waste Ditch and the River Thorne located 7 m to the southeast of the site. The yearly chance of flooding based on current climate is assessed as high. The yearly chance of flooding projected between 2036 and 2069 as a result of climate change is assessed to be high. The overall long term flood risk is anticipated to increase as a result of climate change.
Future surface water flood risk (i.e. due to inundation of drainage systems)	Y	The yearly chance of flooding based on current climate is assessed as very low. The yearly chance of flooding projected between 2040 and 2060 as a result of climate change is assessed to be very low. The overall long term flood risk is anticipated to stay the same as a result of climate change.

5 SITE RECONNAISSANCE FINDINGS

A site reconnaissance survey has not been undertaken by RSK, as a previous survey was conducted by Intégrale in early November 2022. Using desk based information, it is evident that the majority of the site has remained unchanged since that time. Additionally, time constraints associated with the current project scope limited the feasibility of conducting an updated survey.

6 PRELIMINARY GEOTECHNICAL CONSTRAINTS

6.1 Design class

BS EN 1997-1 defines three different Geotechnical Categories that structures may fall into, which are summarised as follows:

- Category 1: Small and relatively simple structures for which it is possible to ensure that the fundamental requirements will be satisfied on the basis of experience and qualitative geotechnical investigations; with negligible risk.
- Category 2: Conventional types of structure and foundation with no exceptional risk or difficult ground or loading conditions.
- Category 3: Structures or part of structures, which fall outside limits of Geotechnical Categories 1 and 2. Examples include very large or unusual structures; structures involving abnormal risks, or unusual or exceptionally difficult ground or loading conditions; structures in highly seismic areas; structures in areas of probable site instability or persistent ground movements that require separate investigation or special measures.

Based on the information provided above on the proposed development and in view of the anticipated ground conditions, a Geotechnical Category of Category 1 has been assumed for the purposes of designing the geotechnical investigation. This should be reviewed at all stages of the investigation and revised where necessary.

6.2 Preliminary geotechnical hazards assessment

A summary of commonly occurring geotechnical hazards associated with the anticipated geology outlined in Section 4.5 above is given in **Table 12** together with an assessment of whether the site may be affected by each of the stated hazards.

Table 9 Summary of preliminary geotechnical risks that may affect site

Hazard category	Hazard status based on desk study findings and proposed development		Engineering considerations if hazard affects site
	Could be present and/or affect site	Unlikely to be present and/or affect site	
Sudden lateral changes in ground conditions	☐	☒	Unlikely to affect ground engineering and foundation design and construction
Shrinkable clay soils [1)]	☐	☒	Ground conditions low to medium plasticity resulting in the hazard rating being low

Hazard category	Hazard status based on desk study findings and proposed development		Engineering considerations if hazard affects site
	Could be present and/or affect site	Unlikely to be present and/or affect site	
Highly compressible and low bearing capacity soils, (including peat and soft clay)	☒	☐	Highly compressible strata anticipated in areas of peat and therefore may affect ground engineering and foundation design and construction
Silt-rich soils susceptible to rapid loss of strength in wet conditions [1)]	☒	☐	Alluvium reported and presence of warp material may affect ground engineering and foundation design and construction
Running sand at and below water table	☒	☐	Sutton Sand Formation present in the majority of the site and localised shallow groundwater possible
Karstic dissolution features (including 'swallow holes' in Chalk terrain) [1)]	☐	☒	Chalk not encountered on site
Evaporite dissolution features and/or subsidence [1)]	☐	☒	Dissolution features are unlikely to be present on the site
Ground subject to or at risk from landslides [1)]	☐	☒	Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered
Ground subject to peri-glacial valley cambering with gulls possibly present	☐	☒	Unlikely to affect ground engineering and foundation design and construction
Ground subject to or at risk from coastal or river erosion [1)]	☐	☒	Unlikely to require special protection/stabilisation measures
High groundwater table (including waterlogged ground) [1)]	☒	☐	High groundwater tables are unlikely to impact temporary or permanent works in well-drained areas of the site. However, they may pose a consideration in peatland zones, where water retention and seasonal fluctuations could influence ground conditions.
Rising groundwater table due to diminishing abstraction in urban areas [1)]	☐	☒	Unlikely to affect deep foundations, basements and tunnels
Geological faults, fissures and break lines	☐	☒	Unlikely to affect ground engineering and foundation design and construction

Hazard category	Hazard status based on desk study findings and proposed development		Engineering considerations if hazard affects site
	Could be present and/or affect site	Unlikely to be present and/or affect site	
Underground mining including shafts and adits (e.g. coal, mineral)	☐	☒	No coal mining features are reported in the vicinity of the site
Effects of extreme temperature (e.g. cold stores or brick kilns/furnaces)	☐	☒	Unlikely to affect ground engineering and foundation design and construction
Existing sub-structures (e.g. tunnels, foundations, basements, and adjacent sub-structures)	☐	☒	Unlikely to affect ground engineering and foundation design and construction
Filled and made ground (including embankments, infilled ponds and quarries)	☒	☐	Potential for historic ponds on site to have been filled which may affect ground engineering and foundation design and construction
Adverse ground chemistry (including expansive slags and weathering of sulphides to sulphates)	☐	☒	Unlikely to affect ground engineering and foundation design and construction
Site topography, including presence of steep slopes	☐	☒	Very low or negligible gradients and therefore its unlikely to affect ground engineering and foundation design and construction
Note: Seismicity is not included in the above table as this is not normally a design consideration in the UK. [1)] The potential for these geohazards to impact the site may be exacerbated by climate change related fluctuations in temperature and precipitation.			

7 INITIAL CONCEPTUAL SITE MODEL

In the UK land contamination is assessed using a risk-based approach taking account of the magnitude (severity of the hazard) and likelihood (probability) of occurrence. A 'receptor' is something that could be adversely affected by contamination (e.g. people, an ecological system, property or a water body). A 'pathway' is a route or means by which a receptor is or could be exposed to or affected by a contaminant. A 'contaminant source' is a hazard but it can only pose a risk to a receptor where a pathway is present.

The relationship between sources, pathways and receptors are referred to as a conceptual site model. A risk can only be realised where a contaminant source, pathway and receptor are all in place, referred to as a 'contaminant linkage'.

In line with LCRM (Environment Agency, 2023) and BS 10175: 2011 + A2 2017 (BSI, 2017), RSK has used information in the preceding sections to identify hazards (sources of contaminants), receptors that may be impacted and plausible linking pathways. Where all three are present this is termed a potentially complete contaminant linkage and a qualitative risk estimation is made.

The conceptual site model has been considered in context of the proposed development as understood at the time of writing this report. Should the site development proposals change, the CSM and the associated contaminant linkages identified may need to be revised.

7.1 Potential soil, soil vapour and groundwater linkages

7.1.1 Potential sources of contamination

Potential sources of soil and groundwater contamination identified from current activities and the history of the site and surrounding area are presented in **Table 13**.

Note on table: include significant potential sources of contamination here. Some example sources are shown below – add, delete or amend as needed for each site. [Ground gas linkages are dealt with separately].

Table 10 Potential sources of soil and groundwater contamination

Potential sources	Contaminants of concern
On-site	
Made ground (i.e. fill material associated with farm buildings and historic ponds)	Unknown fill material but potentially including brick, concrete, rubble, ash and burnt debris and containing toxic and phytotoxic metals, inorganics, polycyclic aromatic hydrocarbons (PAHs), asbestos
Storage of oils/chemicals within farmsteads situated on-site	Lube oil, diesel, kerosene, chlorinated solvents, ammonium nitrate, lime, gypsum, herbicides and pesticides
Airfield tracks in the south of the eastern area unknown usage	Lube oil, diesel, kerosene, chlorinated solvents, ammonium nitrate, lime, gypsum, herbicides and pesticides
Off-site	
Historic Airfield/RAF Sandtoft and current industrial estate adjacent to the south of the eastern area	Heavy metals, Lube oil, diesel, kerosene, chlorinated solvents, asbestos, ammonium nitrate, lime, gypsum, herbicides and pesticides

Potential sources	Contaminants of concern
Pumping Station (20 m adjacent to the north of the eastern area)	Heavy metals, microbial bacteria, polychlorinated biphenyls (PCBs), persistent organic pollutants (POPs), treatment chemicals

7.1.2 Sensitive receptors

The proposed future use of the site as a solar energy scheme, alongside the continued agricultural use of the surrounding land, has been considered in identifying potential sensitive receptors. Given the minimal ground disturbance required for the installation of solar panels, along with the shallow depth of service trenches, access tracks/roadways and areas designated for substations and battery storage, it is anticipated that the primary receptors potentially exposed to any contamination present in the soils on site, or migrating from adjacent land, include:

- Construction workers (during installation or maintenance, and eventually decommissioning).
- Groundwater in the secondary A superficial aquifers (Sutton Sand Formation and Alluvium).
- Groundwater in the Principal Bedrock Aquifer (Sherwood Sandstone Group and Chester Formation).
- Surface water within the drainage ditches and watercourses throughout the site.
- Solar scheme infrastructure (including solar array cabling throughout the site, substations and inverter stations at specific locations, battery energy storage system compound and building materials i.e., buried concrete and services).

7.1.3 Potential contaminant pathways

Exposure pathways applicable to human health receptors include:

- Direct ingestion, inhalation and dermal contact with soil and soil-derived dust.
- Vapour migration followed by outdoor inhalation.

Pathways applicable to environmental receptors include:

- Direct contact of foundations/services with contamination in soil and/or groundwater.
- Leaching from soil followed by migration in groundwater.
- Migration via run-off through drainage.
- Discharge to surface water.

7.2 Potential ground gas linkages

7.2.1 Ground gas generation potential

Potential ground gas sources identified for the site and surrounding are shown in **Table 14**.

Table 11 Potential ground gas sources (excludes mine gas)

Potential sources	Indicative ground gas generation potential (CIEH, 2008)	Additional information
On-site		
Natural soil strata with a low degradable organic content (alluvium and peat)	Low	Alluvium and peat suspected on site
Infilled ponds (early1900s)	Very Low	Very low due to age of deposits
Off-site		
Made ground with low degradable organic content (e.g. up to 5% organic material and no easily degradable waste).	Very low	Made ground associated with historic airfield to the south

Given the anticipated ground conditions set out above, potential sources of ground gas generation have been identified associated with the suspected alluvium, peat and infilled ponds on site. While the potential for gas generation is classified as very low to low, the composition and quality of the natural soil strata and infilled material remains uncertain.

7.2.2 Sensitive receptors and ground gas linking pathways

Sensitive receptors identified at or in the vicinity of the site that could be affected by the potential ground gas sources identified above comprise:

- Construction/maintenance workers - migration and ingress of ground gases into confined spaces (i.e., substations, control rooms) followed by explosion/asphyxiation.
- Future structures and services - migration and ingress of ground gases into confined spaces followed by explosion.

The assessment has identified receptors to include building structures and current/proposed end-users.

It is understood that the site will not be permanently staffed and structures will not be manned apart from infrequent and short duration maintenance use. Therefore, excavations during the construction works, and any service trenches and manholes, are the only viable spaces that could permit the build-up of any ground gases present and present a risk to human health.

Construction workers should undertake appropriate risk assessments and risks should be managed through health and safety procedures and the use of PPE.

7.3 Preliminary risk assessment

The preliminary risk assessment findings and potentially complete contaminant linkages are shown in **Table 15**.

The risk classification is based on the combination of hazard consequence and probability using a risk matrix from CIRIA C552 (Rudland et al., 2001). The requirement for a preliminary qualitative

risk assessment is in accordance with LCRM (Environment Agency, 2023). A summary of the risk assessment process is in **Appendix F**.

Table 12 Risk estimation for potentially complete contaminant linkages

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Risk Rating	Justification
Made ground (i.e. fill material associated with historic ponds) Use and storage of oils/chemicals within farmsteads Tracks associated with adjacent airfield in the southeast of the site Naturally occurring peat and alluvium	Current and future construction/ maintenance workers	Direct oral ingestion, inhalation and dermal contact with soil and soil-derived dust	Unlikely	Medium	Low	Exposure to chemical constituents over short timeframes is considered to pose a medium severity risk. Although the presence of contamination is uncertain, it is likely limited to specific areas of the site, with potential agricultural chemicals expected to be present only at low concentrations due to surface exposure, rainfall and their typically intermittent application. Given the shallow nature of the proposed earthworks and the use of appropriate PPE during construction, the overall risk to site workers is considered to be low.
		Accumulation of ground gas leading to explosion or asphyxiation	Very unlikely	Severe	Low	The potential for ground gas generation from both infilled materials and natural soils on-site remains uncertain; however, the low degradable organic content anticipated within the natural soil strata suggests a limited capacity for significant gas production. Additionally, the historic infilling of former ponds, estimated to have occurred over 50 years ago, further reduces the likelihood of ongoing gas generation, as most degradable material would have decomposed or stabilised over time. While the potential consequences of hazardous ground gas can be severe, the site's predominantly outdoor usage, coupled with the nature of the proposed development - which involves solar panel installations with shallow construction depths - minimises the risk of gas accumulation. Furthermore, access to site structures is expected to be infrequent and short in duration, significantly

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Risk Rating	Justification
						limiting the possibility of a viable pathway for gas migration.
	Groundwater (Principal and Secondary A aquifer)	Leaching to groundwater and vertical migration to deeper aquifer	Low Likelihood	Medium	Moderate/low	Groundwater within the Principal and secondary A aquifers are classified as having medium to high vulnerability, with one active licensed groundwater abstraction identified within 1 km of the site. Additionally, the site lies within a Zone 3 SPZ. Despite this, the minimal groundworks required for the installation of the solar arrays are considered to pose a negligible risk of causing or increasing leaching, even if contaminated soils are present at shallow depths. Any contamination present in the south of the site associated with the historic airfield has been present on site for many years and is therefore likely to have already leached to underlying groundwater.
	Surface water (various ditches on site and River Thorne 7 m southeast)	Leaching to groundwater followed by migration in groundwater and migration via runoff through drainage	Low Likelihood	Medium	Moderate/low	The extensive network of drainage ditches across the site presents a potential pathway for the migration of contaminants from shallow soils and fine sediment-laden surface water runoff, particularly during periods of heavy rainfall or ground disturbance associated with solar construction activities. However, during future use, runoff is unlikely throughout the array area due to the presence of topsoil. Any contamination from historic airfield has been present on site for many years and is therefore likely to have already leached to underlying groundwater and migrated.
	Solar scheme infrastructure	Direct contact with soils/groundwater and migration of combustible	Unlikely	Medium	Low	It is considered unlikely that the chemical constituents present within the sites shallow soils would exist in concentrations significant enough to result in damage to the infrastructure positioned

Potential source	Potential receptor	Possible pathway	Likelihood	Severity	Risk Rating	Justification
						beneath the site. Furthermore, given the sites primarily outdoor use and its wasted peat regime, the potential for the creation of a viable pathway is low. While the likelihood of an adverse event occurring is minimal, the potential severity of impact is classified as medium. As a result, the overall risk is assessed as low.
Off-site sources						
Historic airfield/RAF Sandtoft and current industrial estate to the south Pumping station (to the north of the eastern area	Current and future construction/ maintenance workers	Direct oral ingestion, inhalation and dermal contact with soil and soil-derived dust	Unlikely	Medium	Low	Potential residual contaminants may remain from historical industrial activities however buried and compacted soil reduce dust generation. Vegetation cover further minimises dermal contact and inhalation risks.
		Accumulation of ground gas leading to explosion or asphyxiation	Very Unlikely	Severe	Low	The potential for ground gas generation from offsite sources remains uncertain; however, the low degradable organic content anticipated within the natural soil strata suggests a limited capacity for significant gas production. While the potential consequences of hazardous ground gas can be severe, the site's predominantly outdoor usage, coupled with the nature of the proposed development - which involves solar panel installations with shallow construction depths - minimises the risk of gas accumulation. Furthermore, access to site structures is expected to be infrequent and short in duration, significantly limiting the possibility of a viable pathway for gas migration.

Risk matrix		Consequences			
		Severe	Medium	Mild	Minor
Probability	Highly likely	Very high	High	Moderate	Moderate/low
	Likely	High	Moderate	Moderate/low	Low
	Low likelihood	Moderate	Moderate/low	Low	Very low
	Unlikely	Moderate/low	Low	Very low	Very low
	Very Unlikely	Low	Very Low	Negligible	Negligible

Potentially complete contaminant linkages with a potential risk of moderate to low or higher comprise:

- Moderate/Low: On-site made ground, usage of agricultural chemicals and airfield tracks/usage – Groundwater in the underlying Principal and Secondary A aquifers – Leaching to groundwater.
- Moderate/Low: On-site made ground, usage of agricultural chemicals and airfield tracks/usage – Surface water within drainage ditches and River Thorne – Migration via runoff through drainage and lateral migration of groundwater.

In line with LCRM, these potentially complete contaminant linkages need to be assessed further through an appropriate scope of site investigation and/or mitigation incorporated into the development as may be appropriate.

7.4 Data gaps and uncertainties

Key data gaps and uncertainties identified in the CSM at desk study stage include:

- There may have been other previous uses of the site that have not been specified.
- There are no previous investigations available for the site, therefore no information on actual ground conditions and the contamination status within this location at this stage.
- Gaps in multiple historic OS maps.
- A site reconnaissance survey was not undertaken due to the availability of recent survey data from an assessment conducted in November 2022. Additionally, time constraints associated with the current project scope limited the feasibility of conducting an updated survey.
- Potential uncertainties relating to climate change/EWE impacts and potential effects on contaminant sources, including changes to chemical properties/behaviour in solid, liquid, vapour or gaseous phases, physical changes to source zone, changes to microbial behaviour or deposition of contaminants from off-site sources.
- Potential uncertainties relating to climate change/EWE impacts and potential effects on pathways and receptors, including changes to hydrogeological or hydrological conditions.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 Geo-environmental assessment

The key findings of the geo-environmental assessment are as follows:

- The site is irregularly shaped, covering approximately 470 hectares of predominantly agricultural land, interspersed with isolated farmsteads. It is bounded to the north by the A18 and to the south by the M180 in a primarily agricultural area. The land lies at 1 – 4 m AOD and is extensively drained by numerous ditches/land drains indicated to flow from the south to the north before entering a larger drain close to the northern site boundary which flows in an east/northeast direction.
- The site has remained primarily as agricultural land since the earliest historic mapping with the only development, other than occasional farm buildings, being a series of tracks in the southeast of the eastern area of the, likely associated with the former RAF Sandtoft airfield. Since the 1850s, Areas E has been drained by parallel north-south ditches, which discharge into the North Engine Ditch which flows from west to east along the northern site boundary. The Hatfield Waste Drain crosses onto the southeast of the site running close to the southern site boundary before crossing the site from south to north also entering the North Engine drain adjacent to the northern site boundary.
- Although historical maps show no direct evidence of peat extraction on site, peat extraction is shown on historic mapping adjacent to the southeast of the site and therefore peat possibly also extends onto Area E and may have been extracted historically.
- No previous site investigations have been carried out at the site. Geology at the site is anticipated to be topsoil overlying firm to stiff clay and medium dense sand to approximately 4 – 11 m bgl, further underlain by localised peat deposits. Although not confirmed, it is anticipated that peat is less than 1.5 m thick and located within former river channels and masked by alluvium. Sandstone bedrock is anticipated to be present at depths between 8.0 – 11.0 m bgl.
- Groundwater flow is anticipated to flow west to east across the site, following a rectilinear drainage pattern, with limited or negligible local flow variations.
- The site is situated within a moderate/low risk environmental setting, with several designated sensitive land uses in close proximity, including a Site of Special Scientific Interest (SSSI) to Area E. While these designations indicate ecological sensitivity, the limited disturbance associated with the proposed solar farm development significantly reduces the potential for viable contamination pathways affecting these areas. However, a potential contaminant linkage has been identified concerning contaminants migrating via runoff through the site's extensive network of drainage ditches. To mitigate this risk, appropriate recommendations will be provided to manage surface water runoff and minimise any potential environmental impact.

8.2 Geotechnical assessment

The key findings of the geotechnical assessment are as follows:

- Made ground i.e., fill material anticipated to be present on site (within isolated locations associated with historical ponds and farmsteads).

- Worked peat deposits (condition and stability remain uncertain at this stage).
- Unknown extent of existing buried services.
- Highly compressible strata anticipated in areas of peat and soft alluvium clay of which may affect ground engineering and foundation design and construction of substation compounds.
- Silt-rich soils such as glaciolacustrine deposits and warp material susceptible to rapid loss of strength in wet conditions of which may affect ground engineering and foundation design of larger structures.
- High groundwater tables are unlikely to impact temporary or permanent works in well-drained areas of the site however, they may pose a consideration in peatland zones.
- Potential made ground present in isolated areas of the site may be susceptible to differential settlement, which could impact ground engineering, foundation design, and construction stability.

8.3 Recommendations

The following recommendations are made for further assessment of the site to investigate the risks identified above and/or to address remaining uncertainties:

- Targeted peat probing at selected locations where peat deposits are anticipated, carried out along transverse alignment to assess geotechnical stability and environmental characteristics to help determine foundation requirements if necessary.
- Targeted low-level intrusive investigation in areas of suspected made ground to investigate the spatial extent of made ground and depth profile of any deposits and the natural strata. Associated soil and groundwater sampling to take place as part of the investigation.
- Development of a Construction Environmental Management Plan (CEMP) to effectively control and manage surface water runoff during construction activities. The scheme design should incorporate buffer zones and restricted access areas along drainage ditches and watercourses to reduce the potential for contamination migration.
- Implementation of best working practices to minimise ground disturbance, particularly in critical areas where soil conditions may be susceptible to degradation. Heavy traffic movement should be limited during unfavourable weather conditions to prevent soil poaching, over-compaction, rutting, and sediment-laden runoff mobilisation. To mitigate these risks, the use of protective cover systems or track matting on primary haulage routes should be integrated into construction planning.

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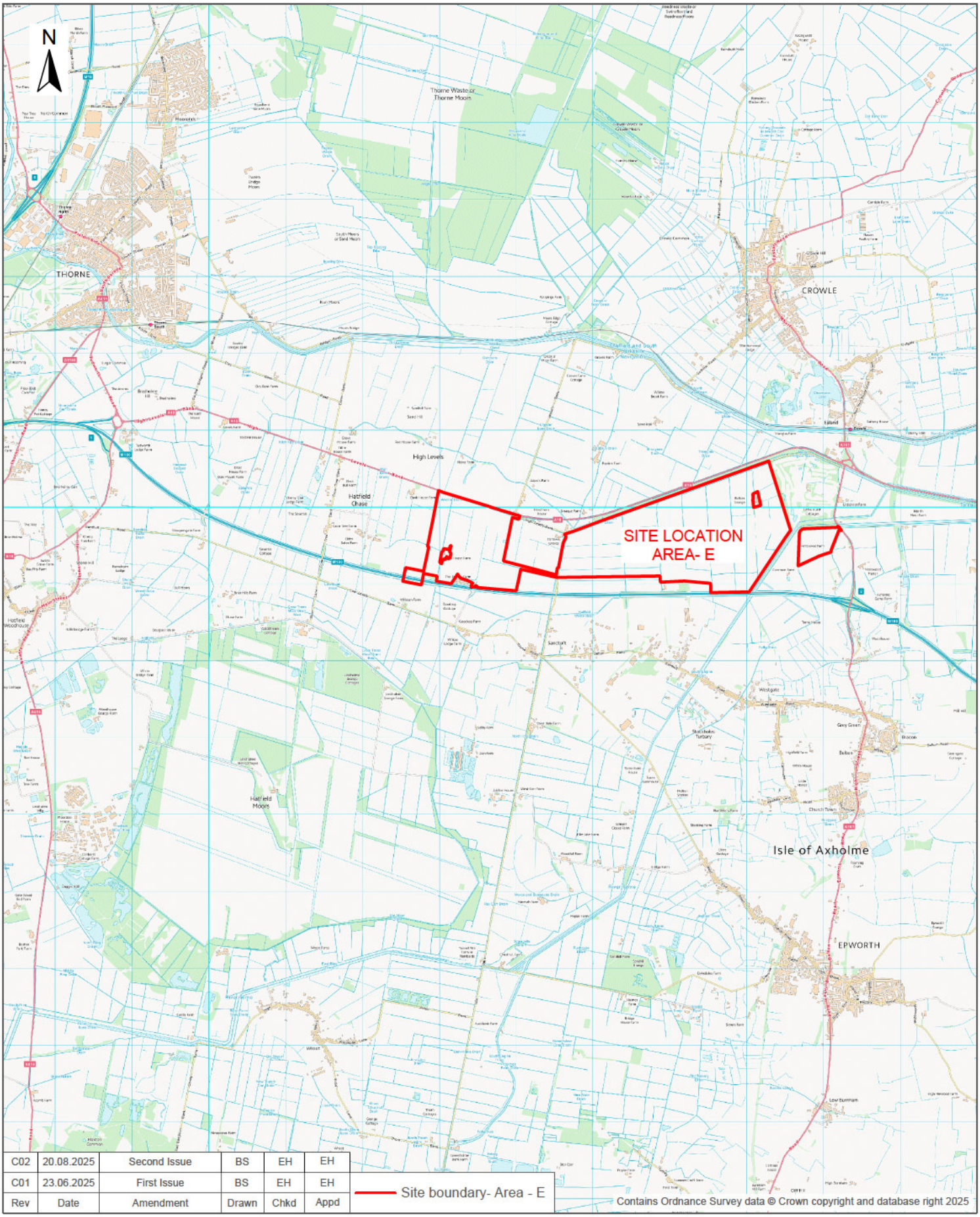
FIGURES

Figure 1 SITE LOCATION PLAN



Rev	Date	Amendment	Drawn	Chkd	Appd
C02	20.08.2025	Second Issue	BS	EH	EH
C01	23.06.2025	First Issue	BS	EH	EH

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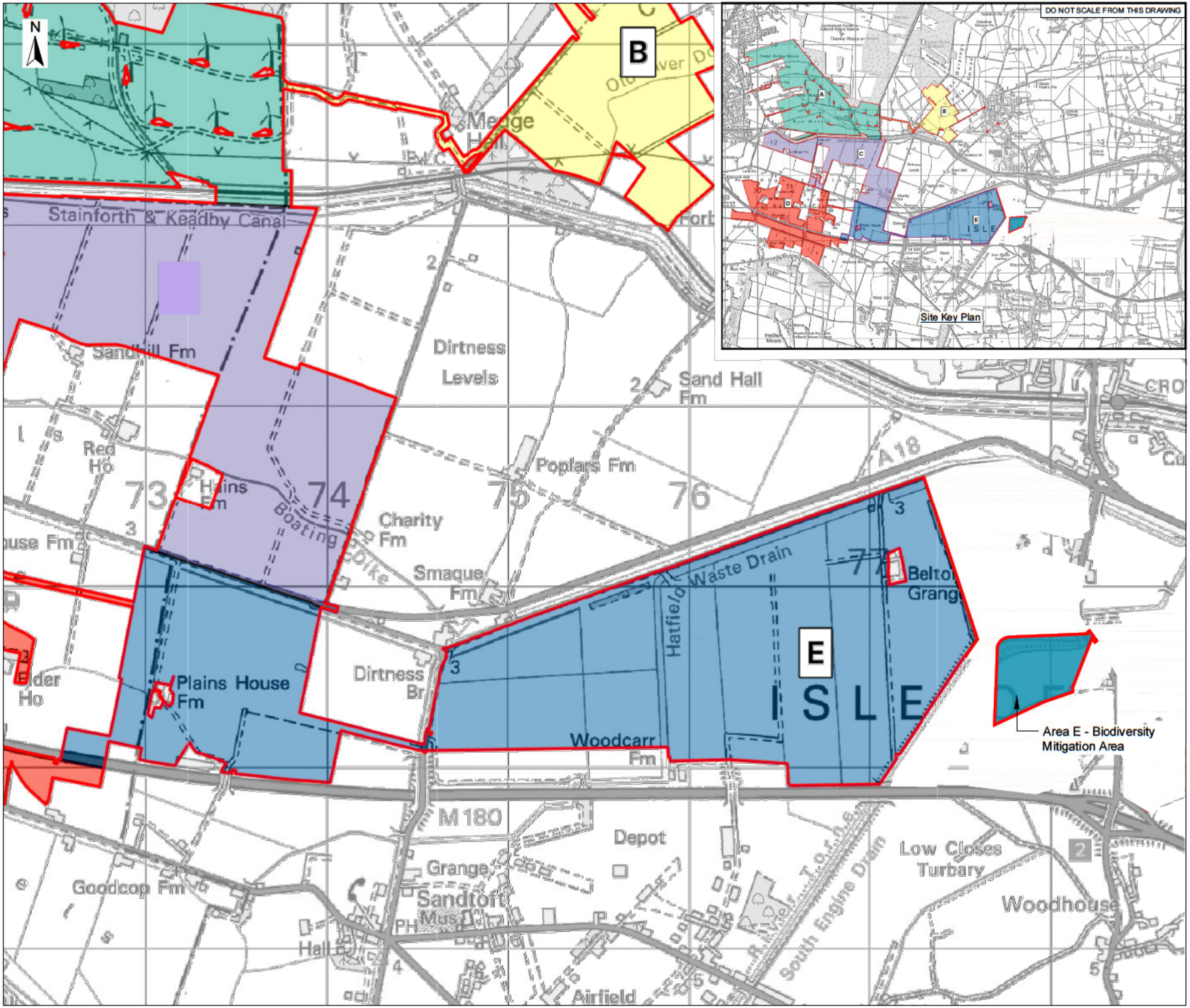
Client: Pegasus Group

Project Name: Tween Bridge Solar Farm

Description: Site Location - Area - E

Dimension	Size	Scale	Geolocation	Project ID	Drawing no.	Rev	File name
m	A4	NTS	475875,409645	12081	11104	C02	12081-MA-111-XX-D-G-11104-C02

Figure 2 SITE LAYOUT PLAN



LEGEND

Site boundary

Notes:

Base plan provided by Client
Drawing Ref.: P21-3484_EN_0024_C - LAND PARCEL PLAN.pdf

Rev	Date	Amendment	Drawn	Chkd	Appd
C02	20.08.2025	Second Issue	BS	EH	EH
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Client: Pegasus Group

Project Name: Tween Bridge Solar Farm

Description: Area Boundary Plan - Area - E

Project ID	Drawing no.	Revision
12801	11204	C02

File name: 12081-MA-112-XX-D-G-11204-C02

Dimensions	Scale	Size
m	NTS	A3

APPENDICES

APPENDIX A
SERVICE CONSTRAINTS

1. Service Constraints

1.1. This Report (the "Report") and any study, inspection, investigation, sampling, testing and or interpretation carried out in connection with the Report (together the "Services") were compiled and carried out by RSK Environment Limited (RSK) trading as Carbon Zero Consulting, Leap Environmental or RSK Geosciences, for the Client named in the first paragraph of the Report (the "Client") in accordance with the terms of an RSK Fee Proposal including RSK Environment Standard Terms and Conditions (the "Appointment") between RSK and the Client, unless otherwise stated in the first paragraph of the Report. The Services were performed by RSK with the reasonable skill and care ordinarily exercised by a geo-environmental consultant at the time the Services were performed. Nothing in this Report shall be construed as imposing any fitness for purpose obligation. Further, and in particular, the Services were performed by RSK taking into account the limits of the scope of works required by the Client, the time scale involved and the resources, including financial and manpower resources, agreed between RSK and the Client.

1.2 Other than that, expressly contained in paragraph 1 above, RSK provides no other representation or warranty whether express or implied, in relation to the Services. RSK shall not be liable in respect of any action or proceedings arising out of or in connection with this Report whether in contract, in tort, for breach of statutory duty or otherwise after the expiry of six (6) years from either (i) the date of the Report or (ii) such earlier date as prescribed by law, unless varied in the terms of the Appointment.

1.3 Unless otherwise agreed in writing, the Services were performed by RSK exclusively for the purposes of the Client. RSK is not aware of any interest of or reliance by any party other than the Client in or on the Services. Unless expressly provided in writing, RSK does not authorise, consent, or condone any party, other than the Client relying upon the Services. Should this Report or any part of this Report, or details of the Services or any part of the Services, be made known to any such party, and such party relies thereon, that party does so wholly at its own and sole risk, and RSK disclaims any liability to such parties. Any such party would be well advised to seek independent advice from a competent geo-environmental consultant and/or lawyer.

1.4 The Client shall not, without the prior written consent of RSK, assign, transfer, charge, mortgage, subcontract, or deal in any other manner with all or any of the benefits provided in this Report. Unless specified in the Appointment, RSK shall not be obliged to assign the benefit of the Report whether by collateral warranty, third party rights pursuant to the Contracts (Rights of Third Parties) Act 1999, letter of reliance or otherwise. If RSK agrees to any assignment of the benefit of this Report, in whatever form, benefits to third parties through collateral warranties, third party rights or letters of reliance shall not be provided unless a fee for each right, warranty or letter is agreed. The form of wording used in the warranty or letter shall be provided by RSK for agreement by the Client. Any reasonable changes to the form of wording will be implemented by mutual agreement, however the terms in the warranty or letter cannot offer the third party any greater benefit than the Appointment offered to the Client.

1.5 It is the understanding of RSK that this Report is to be used for the purpose described in the introduction to the Report. That purpose was a significant factor in determining the scope and level of the Services. Should the purpose for which the Report is used, or the proposed use of the site change, this Report may no longer be valid and any further use of or reliance upon the Report in those circumstances by the Client without the review and advice of RSK shall be at the Client's sole and own risk. RSK shall not be liable for any use of this Report for any purpose other than that for which it was provided.

1.6 The passage of time may result in changes in site conditions, regulatory or other legal provisions, technology or economic conditions which could render the Report inaccurate or unreliable. The information and conclusions contained in this Report should not be relied upon in the future without the written advice of RSK. In the absence of such written advice of RSK, reliance on the Report in the future shall be at the Client's own and sole risk.

1.7 The observations and conclusions described in this Report are based solely upon the Services which were provided pursuant to the agreement between the Client and RSK. RSK has not performed any observations, investigations, studies or testing not specifically set out, or required by the Appointment between the Client and RSK. RSK is not liable for the existence of any condition, the discovery of which would require performance of services not otherwise contained in the Services. For the avoidance of doubt, unless otherwise expressly referred to in the introduction to this Report, RSK did not seek to evaluate the presence on or off site of asbestos, invasive plants, electromagnetic fields, lead paint, heavy metals, radon gas, fuel storage, persistent bio-accumulative or toxic chemicals (including PFAS and related compounds) or other radioactive or hazardous materials, unless specifically identified in the Services.

1.8 The Services are based upon RSK's observations of existing physical conditions at the Site gained from a visual inspection of the site together with RSK's interpretation of desk based publicly available information, including documentation, obtained from third parties and from the Client on the history and usage of the site, unless specifically identified in the Services and the limitations below:

a. The Services were based on information and/or analysis provided by independent testing and information services or laboratories upon which RSK was reasonably entitled to rely.

b. The Services were limited by the accuracy of the information, including documentation, reviewed by RSK and the observations possible at the time of the visual inspection.

c. The Services did not attempt to independently verify the accuracy or completeness of information, documentation or materials received from the Client or third parties, including laboratories and information services, during the performance of the Services.

d. The Client has identified in writing to RSK, the information, reports, findings, surveys and preliminary works RSK may not rely upon when providing the Services.

RSK is not liable for any inaccurate information or conclusions, the discovery of which inaccuracies required the doing of any act including the gathering of any information which was not reasonably available to RSK, and including the doing of any independent investigation of the information provided to RSK, save as otherwise provided in the terms of the Appointment between the Client and RSK.

1.9 Any site drawing(s) provided in this Report is (are) not meant to be an accurate base plan for scale measurement but is (are) used to present the general relative locations of features on, and surrounding, the site. Features (intrusive and sample locations etc) annotated on site plans are not drawn to scale but are centred over the approximate location. Such features should not be used for accurate setting out and should be considered indicative only.

1.10 Should RSK be requested to review the Report after the date of issue of this Report, RSK shall be entitled to additional payment at the existing rates, or such other terms as agreed between RSK and the Client.

2. Service Constraints where the Report provides an intrusive assessment of ground conditions:

2.1 The intrusive environmental ground investigation aspects of the Services are a limited sampling of soil from the site, at pre-determined locations based on the known historic / operational configuration of the site. The conclusions given in this Report are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around those locations. The extent

of the limited area depends on the properties of the materials adjacent and local conditions, together with the position of any current structures and underground utilities and facilities, and natural and other activities on site. In addition, chemical analysis was carried out for a limited number of parameters (as stipulated in the scope agreed between the Client and RSK, based on an understanding of the available operational and historical information) and it should not be inferred that other chemical species (not tested) are not present.

2.2 The comments given in this Report and the opinions expressed are based on the ground conditions encountered during the site work and on the results of tests made in the field and in the laboratory. The extent of the exploratory holes, laboratory testing and monitoring undertaken may have been restricted due to a number of factors including accessibility, the presence of buried or overhead services, current development, site usage, timescales or the Client's specification. The exploratory holes only assess a small proportion of the site area with respect to the site as a whole, and as such may only provide an indicative assessment of ground conditions on site. There may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account. In particular, it should be noted that there may be areas of made ground not detected due to the limited nature of the investigation or the thickness and quality of made ground across the site may be variable. In addition, groundwater levels and ground gas concentrations and flows, may vary from those reported due to seasonal, or other, effects and the limitations stated in the data should be recognised. The presence of hotspots of undisclosed contamination or exceptional and unforeseen ground conditions cannot be discounted.

2.3 Where the Services include Investigation of an exploratory nature or relating to physical ground works, any costings and prices provided in the Report are estimated and provided for guidance purposes only. The actual cost and time quantities shall be remeasured and shall be dependent upon the ground or other conditions, constraints present, and number and depth of the investigation locations, which shall influence the number of samples and tests required, and the quantities of soil being classified.

2.4 Asbestos is often observed to be present in soils in discrete areas. Whilst asbestos-containing materials may have been locally encountered during the fieldworks or supporting laboratory analysis, the history of brownfield and demolition sites indicates that asbestos fibres may be present more widely in soils and aggregates, which could be encountered during more extensive ground works. However, this Report does not constitute an asbestos survey. On this basis, the presence of asbestos on site cannot be discounted and a full asbestos survey should be undertaken.

2.5 Unless stated otherwise, only preliminary geotechnical recommendations are presented in this Report and these should be verified in a Geotechnical Design Report, once proposed construction and structural design proposals are confirmed. Eurocode 7 gives guidance on the type of sampling, sample quality, number and spacing of intrusive investigations, and number of laboratory tests required. It is intended that the Geotechnical Information section of this Report will fulfil the general requirements of the Ground Investigation Report as set out in section 6 of Eurocode7, although this is subject to the restrictions imposed on the investigation, as listed above. For geotechnical design, Eurocode 7 requires the Geotechnical Design Report to address both the geotechnical and structural aspects of the geotechnical design for both the limit and serviceability states. The Geotechnical Appraisal section of this Report will not meet the requirements of a Geotechnical Design Report (GDR) and should therefore be used for preliminary guidance only.

3. Service Constraints where the Report relates to Surface Water Management:

3.1 The Surface Water Management Inspection (SWMI) Report, documents provided, observations, actions, and recommendations, with respect to the management of potential pollution issues to surface waters, made during the site Inspection visit, are those present at the time of the visit, and may not represent those recorded by others on the same day.

3.2 The comments given in this Report and the opinions expressed are based on the weather, ground and ground water conditions encountered during the site work and on the results of tests made in the field and in the laboratory. However, there may be conditions pertaining to the site that have not been disclosed by the inspection and therefore could not be taken into account. In addition, groundwater levels and flows, may vary from those Reported due to seasonal, or other, effects and the limitations stated in the data should be recognised.

3.3 RSK places a degree of dependence upon oral information provided by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this Report was prepared.

3.4 This Report is a live document, to be continually reviewed and updated as the development progresses or other changes occur on site. RSK can only maintain the currency of this Report through the Client requesting support with supplementary site visits or attendance at meetings ahead of key stages of the development in relation to surface water management. Our risk rating assesses a number of risk factors in line with the source-pathway- receptor model and is therefore subject to constant change.

3.5 Standard design drawings are indicative. Material types, dimensions and construction details will need to be adjusted by the Client to suit the specific conditions / flows on Site.

3.6 The full responsibly for implementing the site-specific protection and maintenance measures to protect the surface water system as stated in this Report, remains with the Client and their site management team. Additional control measures may be required to achieve the objectives set out in the Surface Water Management Plan to be implemented and financed by the Client.

4. Service Constraints where the Report relates to Waste Management:

4.1 In accordance with the definition provided in the Waste Framework Directive (WFD), materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Naturally occurring soils are not considered waste if re-used on the site of origin for the purposes of development. Soils such as made ground that are not of clean and natural origin (irrespective of whether they are contaminated or not) and other materials such as recycled aggregate, do not necessarily become waste until the criteria above are met. Excavation arisings from the development may therefore be classified as waste if surplus to requirements and/or unsuitable for re-use.

4.2 It is the duty of the waste producer, to ensure that all waste is accurately classified prior to waste disposal. Technical Guidance WM3 (EA, 2018) sets out in its Appendix D requirements for waste sampling. It is a legal requirement to correctly assess and classify waste. The level of sampling should be proportionate to the volume of waste and its heterogeneity. Unless otherwise stated, the waste assessment presented in this Report should be considered as preliminary and further testing and assessment of the waste under the provisions of a Waste Sampling Plan may be required to obtain the necessary level of data required for basic characterisation of the waste in support of disposal.

4.3 Unless stated otherwise in the Report, information relating to historical operations at the site was not reviewed as part of the assessment by RSK. In addition, unless otherwise stated in the Services, RSK was not present during the collection of the samples nor had any input on the chemical testing suite. Therefore, the waste assessment and classification detailed in this Report are based solely on any information that were provided to RSK (e.g., laboratory chemical data, exploratory hole records) and were completed without prejudice for our Client.

4.4 RSK's assumes that any ground investigation data, chemical testing results etc., that were provided by the Client to inform the waste assessment and supporting review were carried out in accordance with current best practice and relevant guidance/ standards, where applicable. Thus, the

comments given in this Report and the opinions expressed are based solely on the information provided by the Client. However, it is noted that there may be conditions pertaining to the site that have not been disclosed by the investigation and therefore could not be taken into account as part of the RSK assessment.

5. Service Constraints for Construction Environmental Management Plan Reports:

5.1 This Report should be considered in the light of any changes in legislation, statutory requirement or industry practices that may have occurred subsequent to the date of issue.

5.2 The measures and comments outlined in this Report and any opinions expressed are based on the plans provided at the time and discussions with relevant parties. However, there may be conditions pertaining to the site that have not been disclosed by investigations and therefore could not be taken into account.

5.3 This CEMP is a live document and is subject to change throughout the project, as and when necessary, to ensure management of environmental aspects remains relevant, and to ensure continued compliance with legislation and commitments as they may change. RSK understands that this CEMP will be reviewed by the Client every six months and updated as and when necessary.

5.4 It is the full responsibility of the Principal Contractor/ Client to ensure that their works do not contravene legal requirements, and adherence to this CEMP alone cannot be a full defence regarding legal action against the Principal Contractor.

6. Service Constraints where the Report relates to Ground Gas Membrane Verification:

6.1 This Report is limited to the verification of the gas resistant membrane/vapour membrane/ radon barrier after installation and no inspections were undertaken of the substrate (i.e. prepared ground). The Report therefore does not constitute as a full verification of ground gas protection system.

6.2 The comments given in this Report and the opinions expressed, are based on the condition of the ground gas membrane as encountered at the time of inspection by suitably qualified personnel. RSK cannot accept liability for any subsequent change to the status of the gas membrane by follow-on trades or other construction activity.

6.3 Where not designed by RSK, the verification of protection measures is carried out with reference to the gas protection design provided by the Client. RSK assume the scope of gas protection measures as determined by third parties to be correct and to have achieved any required approval from authorities.

6.4 The Ground Gas Design Report/Remediation Strategy and Verification Plan contains details of the procedures to be adopted for inspection and validation of the works. However, it should be noted that responsibility for the correct implementation of the strategy lies with the appointed contractor. RSK cannot be held responsible for any remedial works that are carried out without the agreed procedures involving either direct supervision by RSK, or inspection and validation of the works by a representative from RSK.

7. Service Constraints for Environmental Due Diligence (EDD)Reports:

7.1 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the site, therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information.

7.2 This Report describes the results of the EDD exercise. The scope of this EDD Report, where appropriate, covers legal or regulatory compliance with respect to UK or international regulations associated with environmental matters.

7.3 As with any EDD exercise, there is a certain degree of dependence upon information provided by the target company. The EDD does not include a site walkover / visit or liaison with site representatives unless identified in the Services. Therefore, the assessment is based on the available desk study information. Also, there is a certain degree of dependence upon oral information provided by site representatives, which is not readily verifiable through visual inspection, or supported by any available written documentation. RSK shall not be held responsible for conditions or consequences arising from relevant facts that were not fully disclosed by facility or site representatives at the time this EDD exercise was performed.

7.4 This Report, including all supporting data and notes (collectively referred to hereinafter as "information"), was prepared or collected by RSK for the benefit of its Client.

7.5 The comments given in this Report and the opinions expressed are based on the information obtained and reviewed as part of the desk-based assessment and the site inspection visit. However, there may be conditions pertaining to the Site that have not been disclosed by the assessment and therefore could not be taken into account. Furthermore, no intrusive investigations, monitoring or sampling have been undertaken to confirm the environmental status of the Site therefore any comments relating to ground conditions and subsurface contamination are based solely on a review of desk-based information and observations collected during the site inspection visit.

8. Service Constraints for Ground source heat energy Reports:

8.1 It is understood that this is a desktop survey only and that there are no requirements for a site walkover, service utility survey, or provision of service plans. These services can be provided upon request if required.

8.2 At a later stage, it is possible that a thermal response test (TRT) will need to be completed, for which a test borehole will have to be drilled, and these would be costed at the time. RSK can provide all aspects of subsequent site work for a GSHP system if required.

9. Service Constraints for Water Abstraction Borehole Reports:

9.1 The Report aims principally to only identify and assess the suitability of the site for a water abstraction borehole. This Report should be considered in the light of any changes in legislation, statutory requirements, and industry practices, that have occurred subsequent to the date of the Report.

9.2 Unless stated in the Report, the opinions expressed in this Report including all comments and recommendations provided are on the basis of the information obtained from a desk-based assessment.

Appendix B
PROJECT-RELATED SUSTAINABILITY CONSIDERATIONS

As introduced in Section 2.5, sustainability considerations have been taken into account during the design, planning and implementation stages of the project. We manage and monitor this using the RSK Geosciences Sustainable Management Practices (SMP) tool. More detail is provided on this below.

Sustainable management practices (SMPs)

Note: delete this sub-section if SMP tool not applied to the project

The UK Sustainable Remediation Forum (SuRF-UK) was established to develop a sustainable remediation framework that allows assessors to identify remediation strategies and techniques that are more explicitly linked to the goals of sustainable development. However, it was recognised that the same sustainability principles discussed in the framework underpin all aspects of land contaminated management and can be applied across the full range of activities. These include aspects such as site characterisation that would not normally have a formal sustainability assessment, but where sustainability-related benefits may be gained.

SuRF-UK defines Sustainable Management Practices (SMPs) as 'relatively simple, common sense actions that can be implemented at any stage in a land contamination management project to improve its environmental, social and/or economic performance. SMPs can be used to improve the benefits (e.g. resource efficiency, community satisfaction) or reduce the negative impacts (e.g. spillages, complaints, cost) of a project, leading to project 'sustainability gains', without requiring a formal sustainability assessment. SMPs may also be used where sustainability gains are sought at a programme of work level using generic criteria or standards that can apply to a range of project types' (CL:AIRE, 2021a).

RSK Geosciences has developed these SMPs further to identify those that are relevant to each phase of geo-environmental and geotechnical site assessment, along with methods of measurement and reporting. Some of the SMPs are mandatory as they an intrinsic requirement of our ISO-certified Safety, Health, Environment and Quality management system (SHEQMS) or of other procedures. In addition, for each project, optional items are selected either to:

- identify opportunities to reduce emissions during project delivery, and/or
- support achievement of more sustainable outcomes for clients.

Further details are available on request.

Sustainability-related considerations relevant to the project

The following sustainability-related considerations have been identified to be relevant to this project. Relevant aspects have been included in the appropriate section of the report.

Note: delete any of the following sub-sections that are not applicable

Effective site investigation

Undertaking effective site investigations in accordance with standards, technical standards and good practice informs a better understanding of below ground issues. Where applicable, RSK recommends the application of geophysical surveys to optimise and supplement data from intrusive

investigations. These aspects contribute to the overall sustainability of the development and reductions in associated carbon emissions.

For geo-environmental assessments, effective site investigation informs more site-specific land contamination risk assessment. This means that where remediation is required, it is targeted to have the greatest benefit in mitigating identified risks to human health and the environment, and avoids emissions and other negative environmental impacts associated with unnecessary remediation. Effective site assessment undertaken in accordance with good practice supports the achievement of wider sustainability goals including:

- Supporting the beneficial reuse of brownfield and other degraded land, or the development of nature-based solutions.
- Reducing risks from historical land contamination or on-going releases to groundwater, surface waters and ecological receptors.
- Supporting decarbonisation of the energy and other sectors through undertaking effective site assessment and providing advice on mitigation of ground-based risks.

For geotechnical assessments, effective site investigation informs lean, optimal design of foundations and structures ensuring efficient use of materials, long-term performance and stability including climate resilience, and a reduction in community disruption during construction. It also allows for early identification of geotechnical hazards to aid in the prevention of environmentally damaging issues during construction, for example, soil erosion and landslips. In earthworks, site investigations aid in confirming the material types and properties allowing for their reuse in construction. Furthermore, early identification of materials enables better planning and management of site resources, reducing waste and promoting retention and reuse of soils and other excavated materials.

Reuse and disposal of excavated materials *(Note this section applies in England and Wales only)*

Reuse and disposal of excavated materials is a key issue on many development or construction projects. In accordance with the definition provided in the Waste Framework Directive (WFD), materials are only considered waste if 'they are discarded, intended to be discarded or required to be discarded, by the holder'. Naturally occurring soils are not considered waste if reused on the site of origin for the purposes of development.

Excavated materials that are not of 'clean and natural origin' (irrespective of whether they are contaminated or not), such as made ground and other anthropogenic materials, may be considered waste after excavation. This means that they cannot be reused unless 'recovered' through use of waste licensing controls, such as exemptions, or a waste recovery permit. Alternatively, in limited circumstances, the CL:AIRE Definition of Waste Code of Practice (DoWCoP; CL:AIRE, 2011)) can be applied, in specific scenarios, to support suitable reuse on or off-site using materials management plans (MMPs). Otherwise, disposal is required, typically off-site, under an appropriate landfill permit. This has important implications for the assessment, excavation, temporary storage, reuse and disposal of excavated materials.

In accordance with the waste hierarchy (Ref. Defra, 2011) and circular economy principles, there are a range of approaches to reduce the volume of waste materials created from development projects with the following order of preference:

- Prevention – designing out the need for excavation and identifying during the development planning phase the potential for surplus soils to be generated during construction.

- Minimisation – implementing effective segregation, stockpile and materials management during construction.
- Reuse – assessing potential for reuse without treatment, either on or off-site.
- Recycling/recovery – processing of materials to allow reuse and support waste recovery.
- Disposal – the last resort, either on or off-site.

The potential for the generation of waste materials through land redevelopment must therefore be considered as part of any construction activity. Reuse of excavated materials, including topsoil, subsoil, aggregates and rock, generated through the works may also offer opportunities to reduce the amount of waste created, diverting it away from landfill, resulting in a more sustainable development. The materials may have reuse potential on the site of origin or at other development sites. In some instances, generated waste materials have the potential for beneficial reuse, with some non-waste materials needing to be disposed of to landfill.

Early consideration, planning and effective implementation are all needed to maximise the reuse of materials. As well as reducing cost for off-site disposal, sustainability-related benefits include reducing the volumes of materials for transport and disposal, quality and import of virgin materials and associated carbon emissions.

Assessment of the potential for reuse materials is essential, with information on the soil quality being collected and understood as part of the intrusive investigation phases where relevant.

Soil as a resource

Soil forms an important sub-category of excavated material. Soil contains approximately three times as much carbon as the atmosphere. As well as avoiding the generation of waste, minimising the disturbance of soils on site minimises the loss of carbon during soil handling and storage. Retaining as much soil as possible without damage also reduces flooding, dust and silt management risks, nutrient retention, and supports biodiversity net gain. Soil is therefore a valuable resource in its own right, requiring careful planning at an early stage in the project lifetime to ensure that it can be successfully retained or reused. Defra has published a Code of Practice for the sustainable use of soil on construction sites (Defra, 2009). This is intended to be a practical guide to assist anyone involved in the construction industry to protect the soil resources with which they work, with a focus on England.

Site-won topsoil should, where possible, be left in situ or handled carefully to prevent damage to the soil structure. Where topsoil is to be stripped, stockpiled and re-used such activities should be undertaken during dry weather (generally August to September). Once stockpiled, topsoil should be kept dry. Significant working of topsoil whilst wet can damage the soil structure, reducing the soils' ability to drain and resulting in anaerobic rather an aerobic soil conditions.

Anaerobic soil conditions can have a negative impact on plants and their roots, which will impact the ability of plants to take root once the soil has been placed for its proposed end use. Machinery tracking over recently placed topsoil should be avoided. Should prolonged poor storage result in degradation of the soil some treatment is likely to be required. This may include sand amelioration to improve the soil structure or the addition of composts to reduce nutrient deficiency.

Where site-won topsoil cannot be reused on site, it may then be classed as a waste and consideration should be given to the donation of this material to another construction site where a deficit of topsoil material has been calculated. This would need to be carried out under an MMP. Alternatively, to prevent a valuable resource from going to landfill, consideration could be given to

donating topsoil to a Soil Treatment Facility (STF) where it can be treated, processed and reused on other sites, assuming the STF has an appropriate Environmental Permit.

Where relevant, the presence of topsoil and subsoil is considered in site investigation interpretative reports, and how it may be valuable to retain this within the development. By assessing the quality of soils at the investigation phase, together with the anticipated volumes generated from the project, the potential for reuse of excavated soils can also be considered. This may include identifying opportunities for the reuse of surplus soils and minimising the generation of materials classified as waste. Where improvements in soil quality are needed or possible, recommendations can be given to assist in the reuse of this valuable resource.

DoWCoP and MMPs (note this section applies in England and Wales only)

DoWCoP was developed in consultation with the Environment Agency and the development industry to enable the reuse of materials under certain scenarios subject to demonstrating that specific criteria are met. The current re-use scenarios covered by DoWCoP comprise:

- Reuse on the site of origin (with or without treatment).
- Direct transfer of clean and natural soils between sites.
- Use in the development of land other than the site of origin following treatment at an authorised Hub site (including a fixed Soil Treatment Facility).

The importation of made ground soils (irrespective of contamination status) or crushed demolition materials is not permitted under the CoP and requires either a standard rules environmental permit or a U1 waste exemption.

In the context of excavated materials used on sites undergoing development, four factors are considered to be of particular relevance in determining if the material is a waste or when it ceases to be waste:

- The aim of the Waste Framework Directive is not undermined, i.e. if the use of the material will create an unacceptable risk of pollution of the environment or harm to human health it is likely to be waste.
- The material is certain to be used.
- The material is suitable for use both chemically and geotechnically.
- Only the required quantity of material will be used.

DoWCoP requires the preparation of a MMP that confirms the above factors will be met. This plan needs to be reviewed by a 'Qualified Person' (QP) who will then issue a declaration form to the EA. As the project progresses, data must be collated and on completion a verification report produced that shows the MMP was followed and describes any changes. The MMP establishes whether specific materials are classified as waste and how excavated materials will be treated and/or re-used in line with the CoP. The MMP is likely to form part of the site waste management plan (SWMP), where applicable.

Future climate change considerations

Future global climate change has been numerically modelled by the Intergovernmental Panel on Climate Change (IPCC) to the year 2100 based on potential anthropogenic greenhouse gas emissions scenarios. The modelling output results in projections, which the Met Office has used to determine the potential impacts of climatic change for the UK. 'UKCP18' is the most up to date set of climate projections for the UK and are based on Representative Concentration Pathways (RCP)

greenhouse gas emission scenarios. All scenarios project warming with RCP 8.5 being the most extreme scenario with global temperatures increasing by 4.3°C. Typically projections indicate changes will increase in magnitude with time. It is noted that RCPs have been superseded by Shared Socioeconomic Pathways (SSP) which were published by the IPCC in 2021, although the Met Office has yet to publish updated projections based on SSP data.

The Met Office defines climate change as the large-scale, long-term shift in average weather patterns and average temperatures and is assessed by averaging data over a 30-year period. The most recent reference period is 1991-2020. The UKCP18 data indicate that the UK climate is changing resulting in hotter drier summers and warmer wetter winters, with an increase in the frequency and intensity of extreme weather and significant weather events with a higher likelihood of heat waves, flash floods and droughts. Sea level is also rising.

The key pieces of legislation associated with climate change are the Climate Change Act (2008) and the Climate Change (Scotland) Act 2009. They established the Committee on Climate Change (CCC) and require a UK Climate Change Risk Assessment (CCRA) to be published every five years to assess 'the risks for the UK from the current and predicted impacts of climate change', combined with a National Adaptation Programme. The adaptation programmes place requirements on the planning regime to incorporate the effects of climate change within their decision making. This is implemented through national planning frameworks and planning policy.

The need to incorporate the predicted effects of future climate change and associated extreme weather events (EWE) into qualitative and quantitative land contamination risk assessments is set out within Land Contamination Risk Management (LCRM) LCRM Stage 1 risk assessment (Environment Agency, 2023). BS 21365:2020 'Soil Quality: Conceptual site models for potentially contaminated sites' (BSI, 2020) includes the requirement to identify possible foreseeable events that could affect contaminant impacts or create new exposure pathways including potential for flooding (rivers, sea, groundwater), rising groundwater or seawater levels, extreme weather conditions and change of use. While there is currently no statutory guidance detailing how the effects of future climate change should be considered within land contamination assessments, several industry-led publications have been produced which provide details on how this can be incorporated, including:

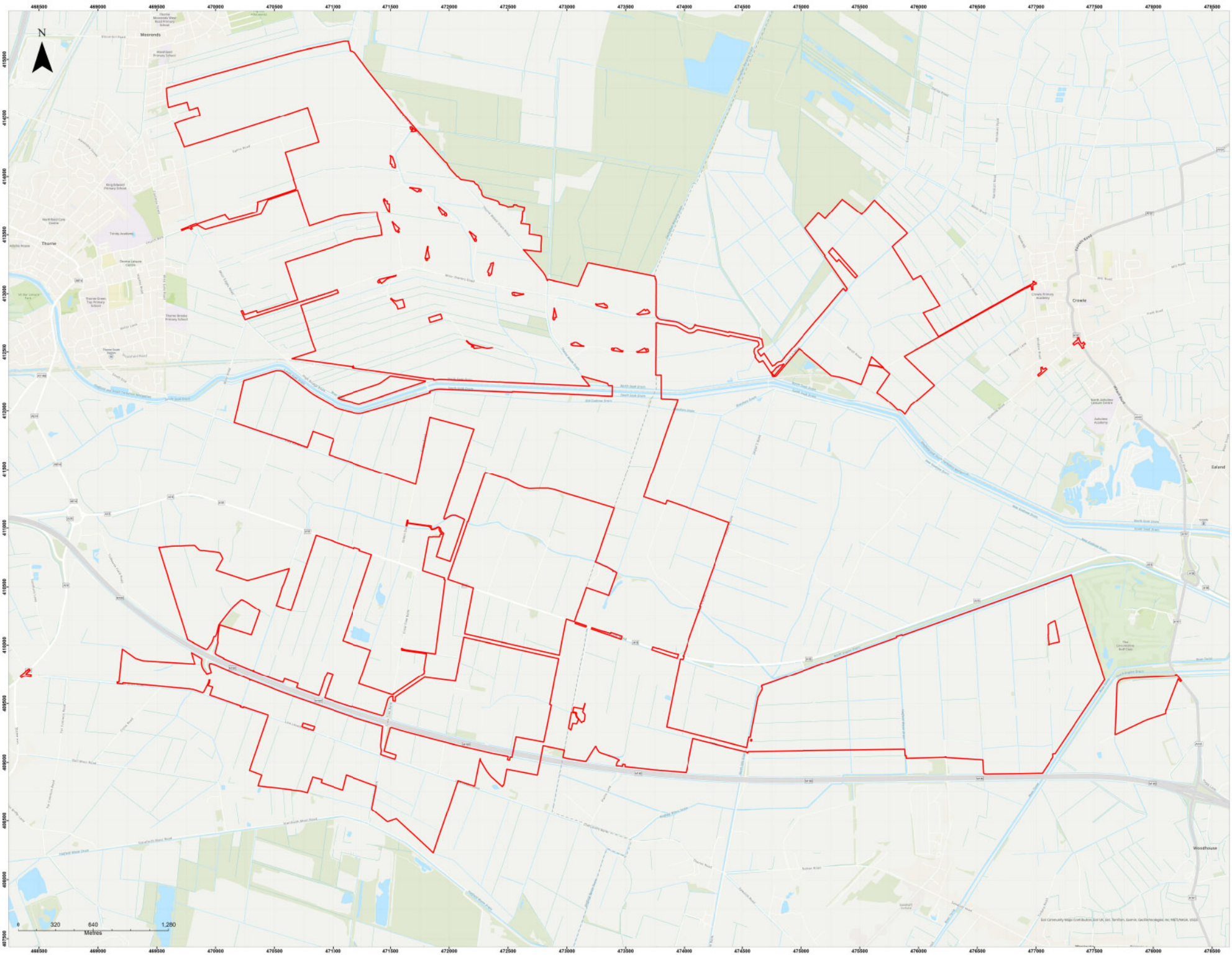
- CL:AIRE, March 2007. Climate Change, Pollutant Linkage and Brownfield Regeneration (CL:AIRE, 2007).
- CL:AIRE, October 2021. Good Practice for Risk Assessment for Coal Mine Gas Emissions (CL:AIRE, 2021a).
- SoBRA, August 2022. Guidance on Assessing Risk to Controlled Waters from UK Land Contamination Under Conditions of Future Climate Change" version 1.0, (SoBRA, 2022)
- NHBC, 2023. NF94: Hazardous ground gas – an essential guide for housebuilders (NHBC, 2023).

Climate change-related impacts on the CSM and land contamination risk assessment are considered at each stage of the site assessment as per LCRM.

Climate change and EWE also have substantial implications for future geotechnical ground conditions, influencing the stability and durability of geotechnical structures, such as foundations, retaining walls, slopes and pavements to mention but a few. Therefore climate change will significantly impact the design of land development projects going forward over their lifecycle and beyond. Furthermore, climate change will significantly impact the future performance of existing

land development projects that have not been designed taking into account these issues. Relevant standards and guidance are referred to in the relevant sections of the report.

Appendix C
DEVELOPMENT DRAWINGS



Tween Bridge Solar Farm

LEGEND

OrderLimits_Rev_AJ

Site Location Plan - Rev AJ

Coordinate System: British National Grid
Projection: Transverse Mercator
Datum: OSGB 1936

© Crown copyright and database rights 2025 Ordinance Survey AC0000808123

Scale: 1:10,808 | Paper Size: A0 | DCO Application

RWE

Revision: 1

Drawing Status: Final

Drawn: EH | Checked: AD | Approved: MB | Date: 20/08/2025

Appendix D
ENVIRONMENTAL DATABASE REPORT

Groundsure
LOCATION INTELLIGENCE

Enviro+Geo Insight

Thorne

Order Details

Date: 03/03/2023

Your ref: Thorne

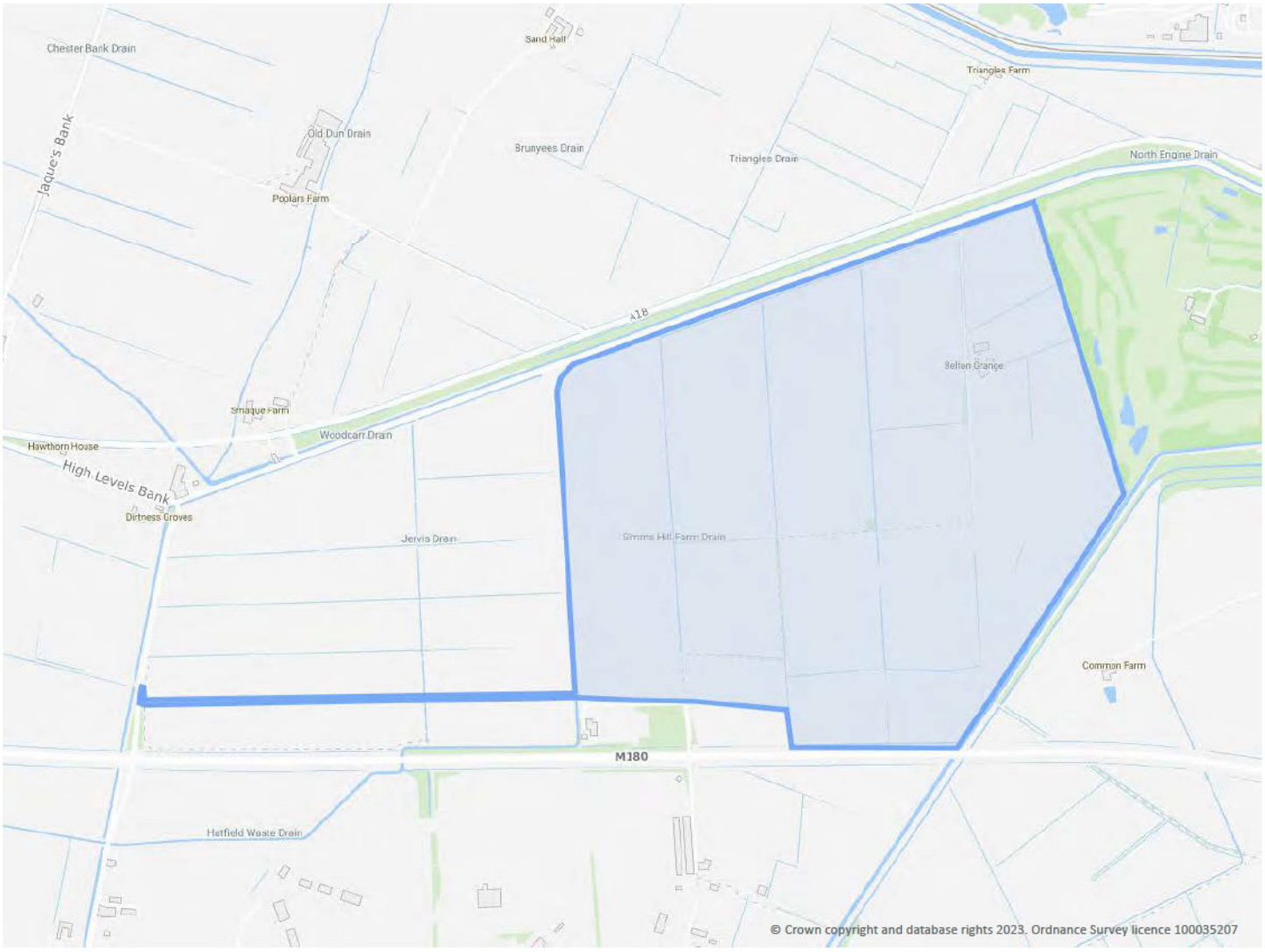
Our Ref: GSIP-2023-13386-12980_a

Site Details

Location: 475874 409435

Area: 213.87 ha

Authority: North Lincolnshire Council



Summary of findings p. 2

OS MasterMap site plan N/A: >10ha

Aerial image p. 8

groundsure.com/insightuserguide

Contact us with any questions at:
info@groundsure.com
01273 257 755

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	**1.1**	**Historical industrial land uses**	3	0	0	11	-
14	1.2	Historical tanks	0	0	0	0	-
14	1.3	Historical energy features	0	0	0	0	-
15	1.4	Historical petrol stations	0	0	0	0	-
15	1.5	Historical garages	0	0	0	0	-
15	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
16	**2.1**	**Historical industrial land uses**	3	0	0	14	-
17	2.2	Historical tanks	0	0	0	0	-
17	2.3	Historical energy features	0	0	0	0	-
18	2.4	Historical petrol stations	0	0	0	0	-
18	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
19	3.1	Active or recent landfill	0	0	0	0	-
19	3.2	Historical landfill (BGS records)	0	0	0	0	-
20	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
20	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
20	3.5	Historical waste sites	0	0	0	0	-
20	3.6	Licensed waste sites	0	0	0	0	-
20	**3.7**	**Waste exemptions**	13	0	1	8	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
23	**4.1**	**Recent industrial land uses**	1	0	1	-	-
24	4.2	Current or recent petrol stations	0	0	0	0	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
24	4.5	Sites determined as Contaminated Land	0	0	0	0	-

24	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
25	4.7	Regulated explosive sites	0	0	0	0	-
25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
25	**4.10**	**Licensed industrial activities (Part A(1))**	0	0	0	2	-
26	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
26	4.12	Radioactive Substance Authorisations	0	0	0	0	-
26	**4.13**	**Licensed Discharges to controlled waters**	0	0	0	2	-
27	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
27	4.16	List 1 Dangerous Substances	0	0	0	0	-
27	4.17	List 2 Dangerous Substances	0	0	0	0	-
27	**4.18**	**Pollution Incidents (EA/NRW)**	1	2	1	0	-
28	**4.19**	**Pollution inventory substances**	0	0	0	2	-
29	**4.20**	**Pollution inventory waste transfers**	0	0	0	1	-
30	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
31	**5.1**	**Superficial aquifer**	Identified (within 500m)				
34	**5.2**	**Bedrock aquifer**	Identified (within 500m)				
36	**5.3**	**Groundwater vulnerability**	Identified (within 50m)				
44	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
44	5.5	Groundwater vulnerability- local information	None (within 0m)				
45	**5.6**	**Groundwater abstractions**	0	0	0	0	1
46	**5.7**	**Surface water abstractions**	12	12	6	3	55
64	5.8	Potable abstractions	0	0	0	0	0
64	**5.9**	**Source Protection Zones**	1	0	0	0	-
65	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
66	**6.1**	**Water Network (OS MasterMap)**	79	32	80	-	-

81	6.2	Surface water features	1	24	50	-	-
82	6.3	WFD Surface water body catchments	2	-	-	-	-
82	6.4	WFD Surface water bodies	1	1	0	-	-
83	6.5	WFD Groundwater bodies	2	-	-	-	-

Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
84	7.1	Risk of flooding from rivers and the sea	High (within 50m)				
85	7.2	Historical Flood Events	0	0	0	-	-
85	7.3	Flood Defences	2	2	5	-	-
86	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
86	7.5	Flood Storage Areas	0	0	0	-	-
87	7.6	Flood Zone 2	Identified (within 50m)				
88	7.7	Flood Zone 3	Identified (within 50m)				

Page	Section	Surface water flooding	
89	8.1	Surface water flooding	1 in 30 year, 0.3m - 1.0m (within 50m)

Page	Section	Groundwater flooding	
91	9.1	Groundwater flooding	High (within 50m)

Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
92	10.1	Sites of Special Scientific Interest (SSSI)	0	5	1	1	8
93	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
93	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
94	10.4	Special Protection Areas (SPA)	0	0	0	0	0
94	10.5	National Nature Reserves (NNR)	0	0	0	0	0
94	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
94	10.7	Designated Ancient Woodland	0	0	0	0	0
95	10.8	Biosphere Reserves	0	0	0	0	0
95	10.9	Forest Parks	0	0	0	0	0
95	10.10	Marine Conservation Zones	0	0	0	0	0
95	10.11	Green Belt	0	0	0	0	0
95	10.12	Proposed Ramsar sites	0	0	0	0	0

96	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
96	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
96	10.15	Nitrate Sensitive Areas	0	0	0	0	0
96	**10.16**	**Nitrate Vulnerable Zones**	1	0	1	1	2
98	**10.17**	**SSSI Impact Risk Zones**	9	-	-	-	-
102	**10.18**	**SSSI Units**	0	6	1	1	10
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
109	11.1	World Heritage Sites	0	0	0	-	-
109	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
109	11.3	National Parks	0	0	0	-	-
109	11.4	Listed Buildings	0	0	0	-	-
110	11.5	Conservation Areas	0	0	0	-	-
110	11.6	Scheduled Ancient Monuments	0	0	0	-	-
110	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
111	**12.1**	**Agricultural Land Classification**	Grade 3a (within 250m)				
112	**12.2**	**Open Access Land**	0	0	1	-	-
113	**12.3**	**Tree Felling Licences**	1	9	70	-	-
116	**12.4**	**Environmental Stewardship Schemes**	1	0	0	-	-
116	**12.5**	**Countryside Stewardship Schemes**	3	4	4	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
118	**13.1**	**Priority Habitat Inventory**	0	10	13	-	-
119	13.2	Habitat Networks	0	0	0	-	-
120	13.3	Open Mosaic Habitat	0	0	0	-	-
120	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
121	**14.1**	**10k Availability**	Identified (within 500m)				
122	14.2	Artificial and made ground (10k)	0	0	0	0	-
123	**14.3**	**Superficial geology (10k)**	23	0	9	6	-

125	14.4	Landslip (10k)	0	0	0	0	-
126	**14.5**	**Bedrock geology (10k)**	4	0	0	0	-
127	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
128	**15.1**	**50k Availability**	Identified (within 500m)				
129	15.2	Artificial and made ground (50k)	0	0	0	0	-
129	15.3	Artificial ground permeability (50k)	0	0	-	-	-
130	**15.4**	**Superficial geology (50k)**	11	0	3	4	-
131	**15.5**	**Superficial permeability (50k)**	Identified (within 50m)				
132	15.6	Landslip (50k)	0	0	0	0	-
132	15.7	Landslip permeability (50k)	None (within 50m)				
133	**15.8**	**Bedrock geology (50k)**	2	0	0	0	-
134	**15.9**	**Bedrock permeability (50k)**	Identified (within 50m)				
134	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
135	**16.1**	**BGS Boreholes**	1	6	22	-	-
Page	Section	Natural ground subsidence					
137	**17.1**	**Shrink swell clays**	Very low (within 50m)				
138	**17.2**	**Running sands**	Low (within 50m)				
140	**17.3**	**Compressible deposits**	High (within 50m)				
142	**17.4**	**Collapsible deposits**	Very low (within 50m)				
143	**17.5**	**Landslides**	Very low (within 50m)				
144	**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
146	18.1	Natural cavities	0	0	0	0	-
147	18.2	BritPits	0	0	0	0	-
147	**18.3**	**Surface ground workings**	1	1	0	-	-
147	18.4	Underground workings	0	0	0	0	0
147	**18.5**	**Historical Mineral Planning Areas**	0	0	0	1	-

148	18.6	Non-coal mining	0	0	0	0	0
148	18.7	Mining cavities	0	0	0	0	0
148	18.8	JPB mining areas	None (within 0m)				
148	18.9	Coal mining	None (within 0m)				
149	18.10	Brine areas	None (within 0m)				
149	18.11	Gypsum areas	None (within 0m)				
149	18.12	Tin mining	None (within 0m)				
149	18.13	Clay mining	None (within 0m)				
Page	**Section**	**Radon**					
150	**19.1**	**Radon**	Between 1% and 3% (within 0m)				
Page	**Section**	**Soil chemistry**	**On site**	**0-50m**	**50-250m**	**250-500m**	**500-2000m**
152	**20.1**	**BGS Estimated Background Soil Chemistry**	93	27	-	-	-
158	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
159	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**
160	21.1	Underground railways (London)	0	0	0	-	-
160	21.2	Underground railways (Non-London)	0	0	0	-	-
160	21.3	Railway tunnels	0	0	0	-	-
160	21.4	Historical railway and tunnel features	0	0	0	-	-
160	21.5	Royal Mail tunnels	0	0	0	-	-
161	21.6	Historical railways	0	0	0	-	-
161	21.7	Railways	0	0	0	-	-
161	21.8	Crossrail 1	0	0	0	0	-
161	21.9	Crossrail 2	0	0	0	0	-
161	21.10	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 19/04/2021

Site Area: 213.87ha

Recent site history - 2019 aerial photograph

Capture Date: 20/10/2019

Site Area: 213.87ha

Recent site history - 2013 aerial photograph

Capture Date: 07/06/2013

Site Area: 213.87ha

Recent site history - 2009 aerial photograph

Capture Date: 11/09/2009

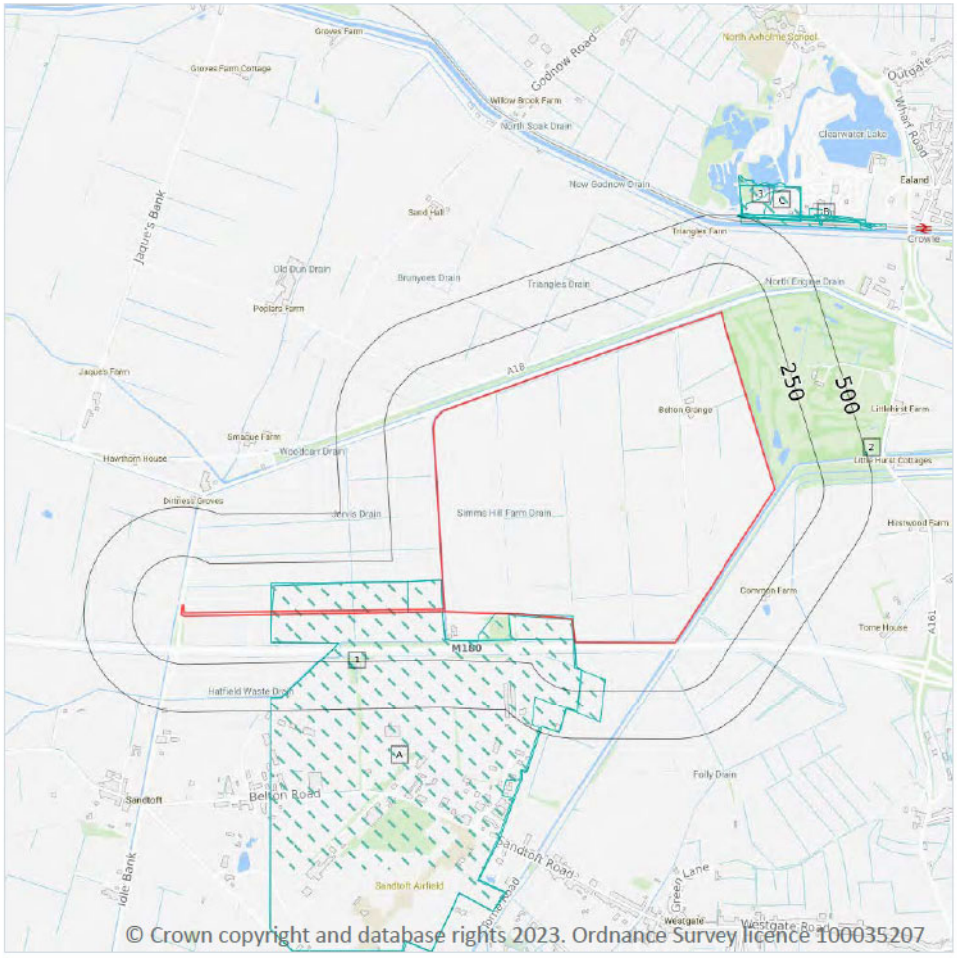
Site Area: 213.87ha

Recent site history - 1999 aerial photograph

Capture Date: 03/05/1999

Site Area: 213.87ha

1 Past land use



1.1 Historical industrial land uses

Records within 500m	14

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 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 13**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Airfield**	**1951**	**1420339**

ID	Location	Land use	Dates present	Group ID
A	**On site**	**Disused Airfield**	**1973**	**1515280**
A	**On site**	**Disused Airfield**	**1982**	**1515583**
1	264m SW	Pumping Station	1982	1431657
B	466m NE	Railway Sidings	1951	1558251
2	492m E	Unspecified Tank	1906 - 1948	1505308
C	493m NE	Brick and Tile Works	1951	1540721
3	495m NE	Brick and Tile Works	1885	1554706
B	498m NE	Railway Sidings	1890 - 1948	1494427
C	498m NE	Brick and Tile Works	1906	1463081
C	498m NE	Brick and Tile Works	1948	1541861
B	498m NE	Railway Sidings	1885	1463940
C	498m NE	Brick and Tile Works	1890	1545461
B	499m NE	Railway Sidings	1885	1530390

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m	0

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'.

This data is sourced from Ordnance Survey / Groundsure.

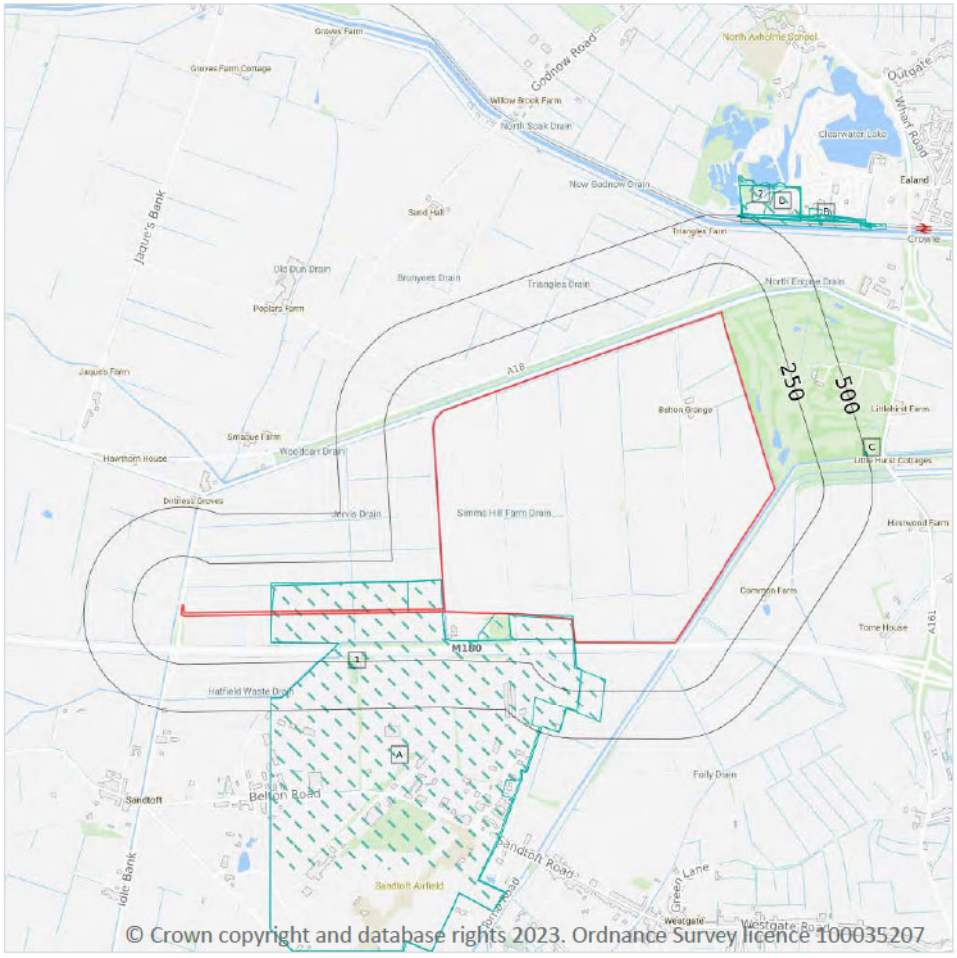
1.6 Historical military land

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.

2 Past land use - un-grouped



2.1 Historical industrial land uses

Records within 500m	17

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. 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 - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
A	On site	Airfield	1951	1420339
A	On site	Disused Airfield	1973	1515280
A	On site	Disused Airfield	1982	1515583

ID	Location	Land Use	Date	Group ID
1	264m SW	Pumping Station	1982	1431657
B	466m NE	Railway Sidings	1951	1558251
C	492m E	Unspecified Tank	1948	1505308
C	492m E	Unspecified Tank	1906	1505308
D	493m NE	Brick and Tile Works	1951	1540721
2	495m NE	Brick and Tile Works	1885	1554706
B	498m NE	Railway Sidings	1948	1494427
B	498m NE	Railway Sidings	1906	1494427
D	498m NE	Brick and Tile Works	1948	1541861
D	498m NE	Brick and Tile Works	1906	1463081
B	498m NE	Railway Sidings	1885	1463940
B	498m NE	Railway Sidings	1890	1494427
D	498m NE	Brick and Tile Works	1890	1545461
B	499m NE	Railway Sidings	1885	1530390

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m	0

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m	0

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m	0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

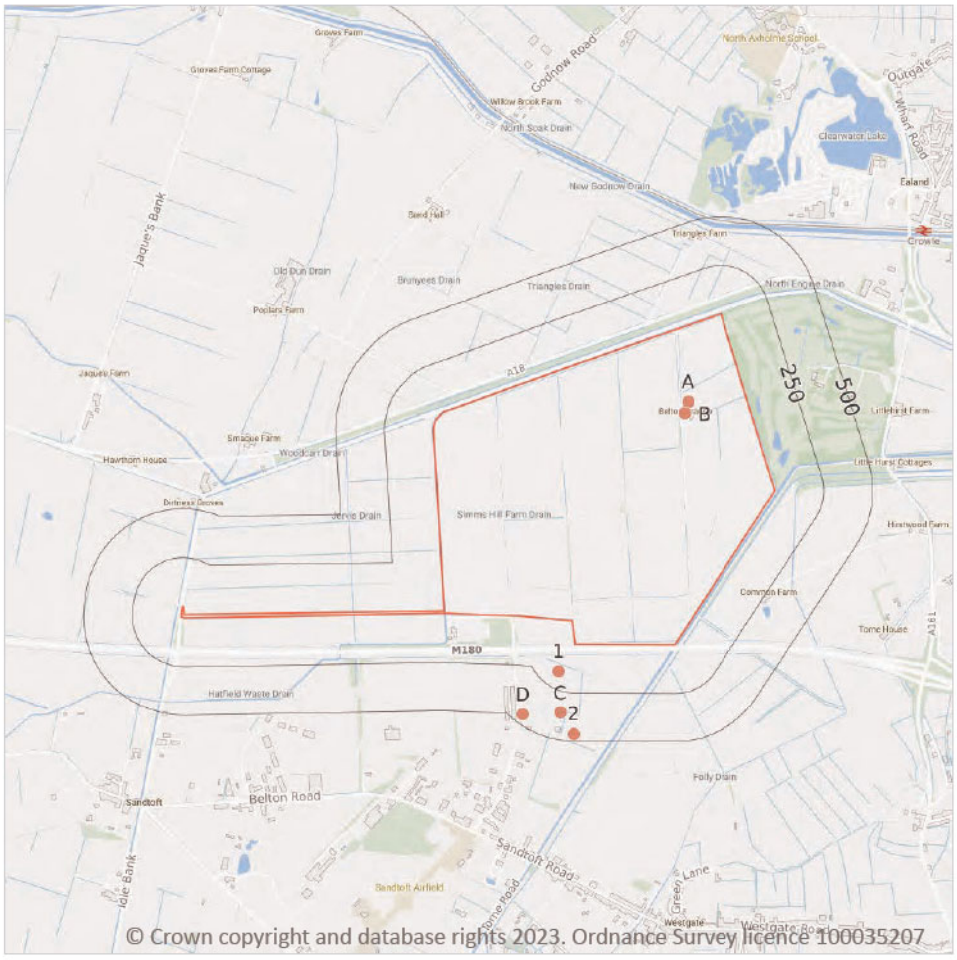
2.5 Historical garages

Records within 500m	0

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

3 Waste and landfill



3.1 Active or recent landfill

Records within 500m	0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.2 Historical landfill (BGS records)

Records within 500m	0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m	0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m	0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.5 Historical waste sites

Records within 500m	0

Waste site records derived from Local Authority planning records and high detail historical mapping.

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.

3.6 Licensed waste sites

Records within 500m	0

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

This data is sourced from the Environment Agency and Natural Resources Wales.

3.7 Waste exemptions

Records within 500m	22

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 19**

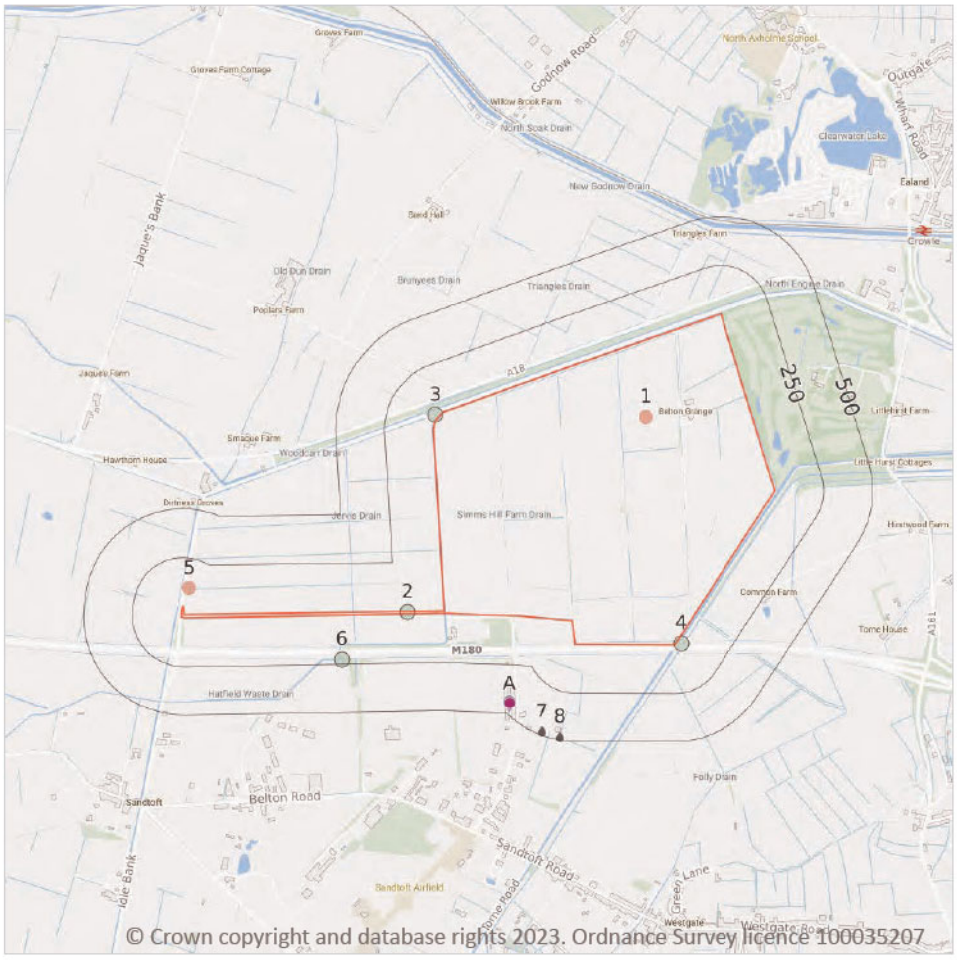
ID	Location	Site	Reference	Category	Sub-Category	Description
A	**On site**	**BELTON GRANGE, CROWLE, SCUNTHORPE, DN17 4BT**	**WEX010107**	**Disposing of waste exemption**	**On a farm**	**Deposit of waste from dredging of inland waters**

ID	Location	Site	Reference	Category	Sub-Category	Description
A	On site	BELTON GRANGE, CROWLE, SCUNTHORPE, DN17 4BT	WEX010107	Disposing of waste exemption	On a farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	On site	BELTON GRANGE, CROWLE, SCUNTHORPE, DN17 4BT	WEX010107	Disposing of waste exemption	On a farm	Burning waste in the open
A	On site	BELTON GRANGE, CROWLE, SCUNTHORPE, DN17 4BT	WEX010107	Using waste exemption	On a farm	Use of waste in construction
A	On site	BELTON GRANGE, CROWLE, SCUNTHORPE, DN17 4BT	WEX010107	Using waste exemption	On a farm	Spreading waste on agricultural land to confer benefit
A	On site	BELTON GRANGE, CROWLE, SCUNTHORPE, DN17 4BT	WEX010107	Using waste exemption	On a farm	Use of waste for a specified purpose
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of waste from dredging of inland waters
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Disposing of waste exemption	Agricultural Waste Only	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Using waste exemption	Agricultural Waste Only	Spreading of plant matter to confer benefit
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Disposing of waste exemption	Both agricultural and non-agricultural waste	Burning waste in the open
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste in construction
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Using waste exemption	Both agricultural and non-agricultural waste	Spreading waste on agricultural land to confer benefit
B	On site	Belton Grange SCUNTHORPE South Humberside DN17 4BT	EPR/PH0976SK/A001	Using waste exemption	Both agricultural and non-agricultural waste	Use of waste for a specified purpose

ID	Location	Site	Reference	Category	Sub-Category	Description
1	166m S	Unit 15 Sandtoft Industrial Estate Belton South Yorkshire DN9 1PN	EPR/WF0433EB/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
C	365m S	-	WEX253048	Using waste exemption	Not on a farm	Use of waste for a specified purpose
C	365m S	-	WEX253048	Treating waste exemption	Not on a farm	Screening and blending of waste
C	365m S	-	WEX253048	Treating waste exemption	Not on a farm	Crushing and emptying waste vehicle oil filters
C	365m S	-	WEX253048	Disposing of waste exemption	Not on a farm	Burning waste in the open
C	365m S	-	WEX253048	Storing waste exemption	Not on a farm	Storage of waste in a secure place
D	452m S	Unit 17 Sandtoft Industrial Estate Sandtoft Road DONCASTER DN9 1PN	EPR/JF0108WG/A001	Treating waste exemption	Non-Agricultural Waste Only	Screening and blending of waste
D	452m S	Unit 17 Sandtoft Industrial Estate Sandtoft Road DONCASTER DN9 1PN	EPR/JF0108WG/A001	Using waste exemption	Non-Agricultural Waste Only	Use of waste in construction
2	464m S	-	WEX284236	Disposing of waste exemption	Not on a farm	Burning waste in the open

This data is sourced from the Environment Agency and Natural Resources Wales.

4 Current industrial land use



4.1 Recent industrial land uses

Records within 250m	2

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 23**

ID	Location	Company	Address	Activity	Category
1	**On site**	**Wind Turbine**	**Lincolnshire, DN17**	**Energy Production**	**Industrial Features**
5	100m W	Mast (Telecommunication)	Lincolnshire, DN9	Telecommunications Features	Infrastructure and Facilities

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m	0

Open, closed, under development and obsolete petrol stations.

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m	0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m	0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.

4.5 Sites determined as Contaminated Land

Records within 500m	0

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m	0

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m	0

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m	0

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.

4.9 Historical licensed industrial activities (IPC)

Records within 500m	0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.10 Licensed industrial activities (Part A(1))

Records within 500m	2

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 23**

ID	Location	Details	
A	451m SW	Operator: P D HOOK (BREEDERS) LTD Installation Name: SANDTOFT FARM POULTRY UNIT - EPR/VP3536UQ Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: KP3806SZ Original Permit Number: VP3536UQ	EPR Reference: - Issue Date: 22/01/2021 Effective Date: 22/01/2021 Last date noted as effective: 01/12/2022 Status: EFFECTIVE
A	451m SW	Operator: P D HOOK (BREEDERS) LTD Installation Name: SANDTOFT FARM EPR/VP3536UQ Process: INTENSIVE FARMING; > 40,000 POULTRY Permit Number: VP3536UQ Original Permit Number: VP3536UQ	EPR Reference: - Issue Date: 14/12/2007 Effective Date: 14/12/2007 Last date noted as effective: 01/12/2022 Status: SUPERCEDED

This data is sourced from the Environment Agency and Natural Resources Wales.

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m	0

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m	0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.13 Licensed Discharges to controlled waters

Records within 500m	2

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

Features are displayed on the Current industrial land use map on **page 23**

ID	Location	Address	Details	
7	479m S	SANDTOFT INDUSTRIAL ESTATE, BELTON, DONCASTER, SOUTH YORKSHIRE, DN9 1PN	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRYB3899NT Permit Version: 1 Receiving Water: TRIBUTARY OF RIVER TORNE	Status: NEW ISSUED UNDER EPR 2010 Issue date: 21/01/2014 Effective Date: 21/01/2014 Revocation Date: -
8	483m S	UNIT 17 SANDTOFT IND EST, UNIT 17 SANDTOFT INDUSTRIAL EST, BELTON, DONCASTER, DN9 1PN	Effluent Type: SEWAGE DISCHARGES - FINAL/TREATED EFFLUENT - NOT WATER COMPANY Permit Number: EPRGB3898RW Permit Version: 1 Receiving Water: RIVER TORNE	Status: NEW ISSUED UNDER EPR 2010 Issue date: 01/11/2017 Effective Date: 01/11/2017 Revocation Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

4.14 Pollutant release to surface waters (Red List)

Records within 500m	0

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.15 Pollutant release to public sewer

Records within 500m	0

Discharges of Special Category Effluents to the public sewer.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.16 List 1 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.17 List 2 Dangerous Substances

Records within 500m	0

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.18 Pollution Incidents (EA/NRW)

Records within 500m	4

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

Features are displayed on the Current industrial land use map on **page 23**

ID	Location	Details	
2	**On site**	**Incident Date: 08/04/2003** **Incident Identification: 149568** **Pollutant: Oils and Fuel** **Pollutant Description: Other Oil or Fuel**	**Water Impact: Category 4 (No Impact)** **Land Impact: Category 3 (Minor)** **Air Impact: Category 4 (No Impact)**
3	20m NW	Incident Date: 01/04/2003 Incident Identification: 147865 Pollutant: Specific Waste Materials Pollutant Description: Household Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)
4	22m SE	Incident Date: 06/08/2002 Incident Identification: 98004 Pollutant: Pollutant Not Identified Pollutant Description: Not Identified	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
6	224m SW	Incident Date: 25/06/2021 Incident Identification: 1960130 Pollutant: Organic Chemicals/Products Pollutant Description: Paints and Varnishes	Water Impact: Category 2 (Significant) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m	**2**

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

Features are displayed on the Current industrial land use map on **page 23**

ID: A, Location: 451m SW, Permit: VP3536UQ
Operator: P D Hook (Breeders) Limited
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Sandtoft Farm Poultry Unit Sandtoft Industrial Estate Belton Lincolnshire DN9 1PW
Sector: Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Air	Particulate matter - PM10	1000kg	1333kg

ID: A, Location: 451m SW, Permit: VP3536UQ
Operator: P D Hook (Breeders) Limited
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Sandtoft Farm Poultry Unit Sandtoft Industrial Estate Belton Lincolnshire DN9 1PW
Sector: Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Substance	Reporting threshold (kg)	Quantity (kg)
Air	Ammonia	1000kg	11596kg

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m	1

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

Features are displayed on the Current industrial land use map on **page 23**

ID: A, Location: 451m SW, Permit: VP3536UQ
Operator: P D Hook (Breeders) Limited
Activity: INTENSIVE FARMING; > 40,000 POULTRY
Address: Sandtoft Farm Poultry Unit Sandtoft Industrial Estate Belton Lincolnshire DN9 1PW
Sector: Agriculture, Sub-sector: Intensive Farming
Releases:

Route	Route description	Quantity (tonnes)	Release level	EWC code	EWC description	Hazardous waste
R3	Recycling/Reclamation of organic substances which are not used as solvents (including composting and other biological transformatin processes)	-	Below Reporting Threshold	15 01 01	paper and cardboard packaging	0
R3	Recycling/Reclamation of organic substances which are not used as solvents (including composting and other biological transformatin processes)	-	Below Reporting Threshold	15 01 02	plastic packaging	0

Route	Route description	Quantity (tonnes)	Release level	EWC code	EWC description	Hazardous waste
R3	Recycling/Reclamation of organic substances which are not used as solvents (including composting and other biological transformatin processes)	-	Below Reporting Threshold	15 01 03	wooden packaging	0
D1	Deposit into or onto land (eg landfill, etc.)	-	Below Reporting Threshold	15 02 03	absorbents, filter materials, wiping cloths and protective clothing other than those mentioned in 15 02 02	0
D1	Deposit into or onto land (eg landfill, etc.)	-	Below Reporting Threshold	20 03 01	mixed municipal waste	0

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

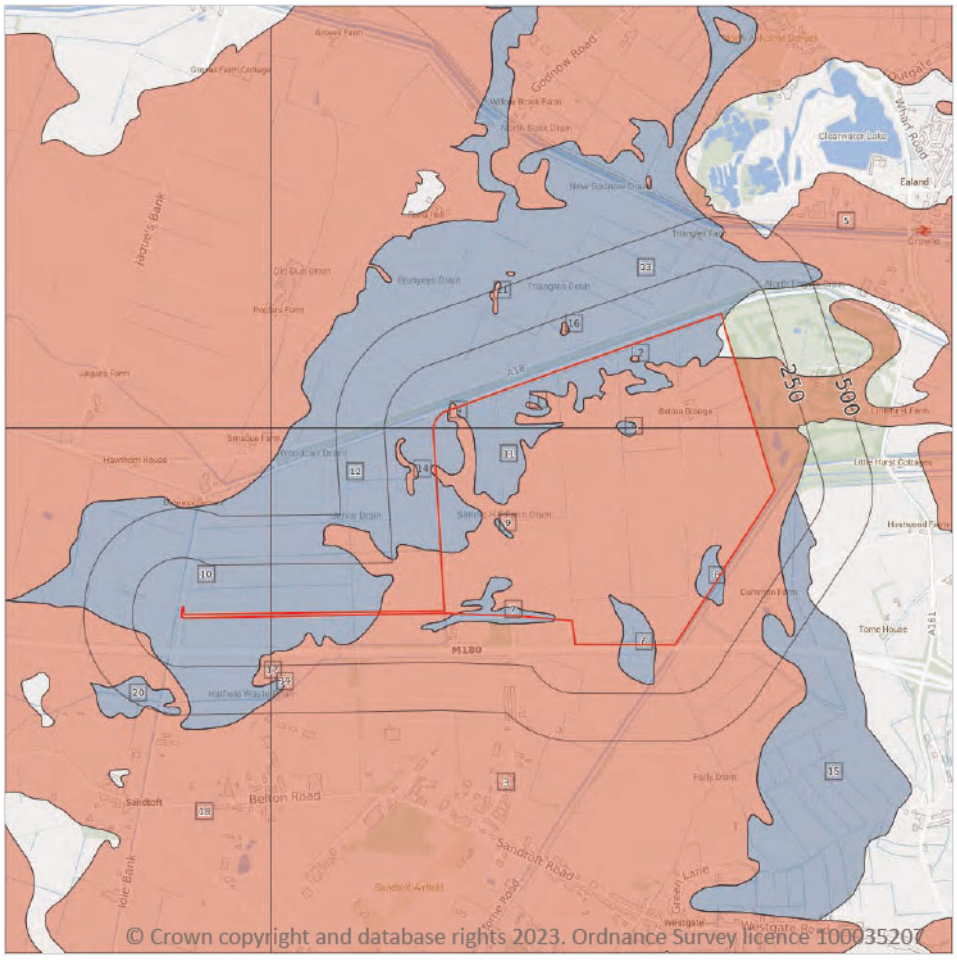
4.21 Pollution inventory radioactive waste

Records within 500m	0

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

5 Hydrogeology - Superficial aquifer



5.1 Superficial aquifer

Records within 500m	22

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 31**

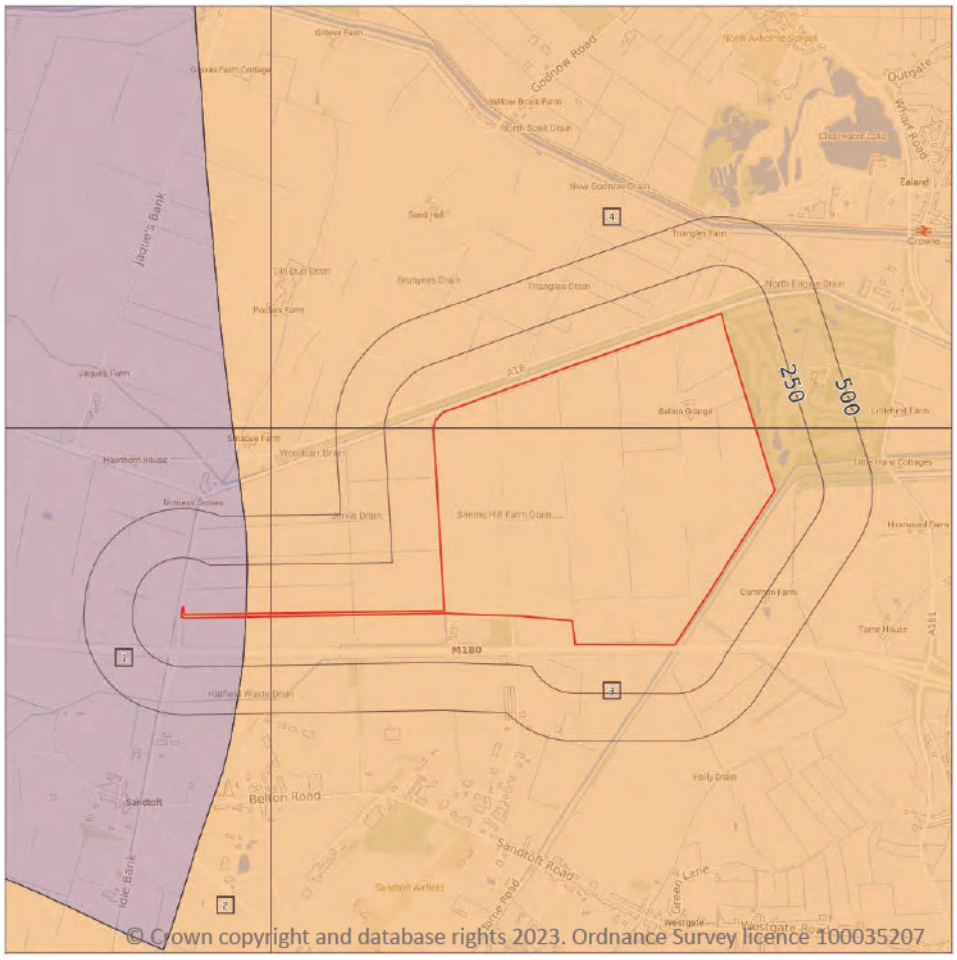
ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

ID	Location	Designation	Description
3	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
4	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
5	**On site**	**Secondary A**	**Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers**
6	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
7	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
8	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
9	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
10	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
11	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
12	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
13	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
A	**On site**	**Unproductive**	**These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow**
14	92m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
15	96m E	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
16	161m N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
17	191m SW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

ID	Location	Designation	Description
18	196m W	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
19	328m SW	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
20	369m W	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
21	382m NW	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Bedrock aquifer



Site Outline

Search buffers in metres (m)

- Principal
- Secondary A
- Secondary B
- Secondary Undifferentiated
- Unproductive

5.2 Bedrock aquifer

Records within 500m	4

Aquifer status of groundwater held within bedrock geology.

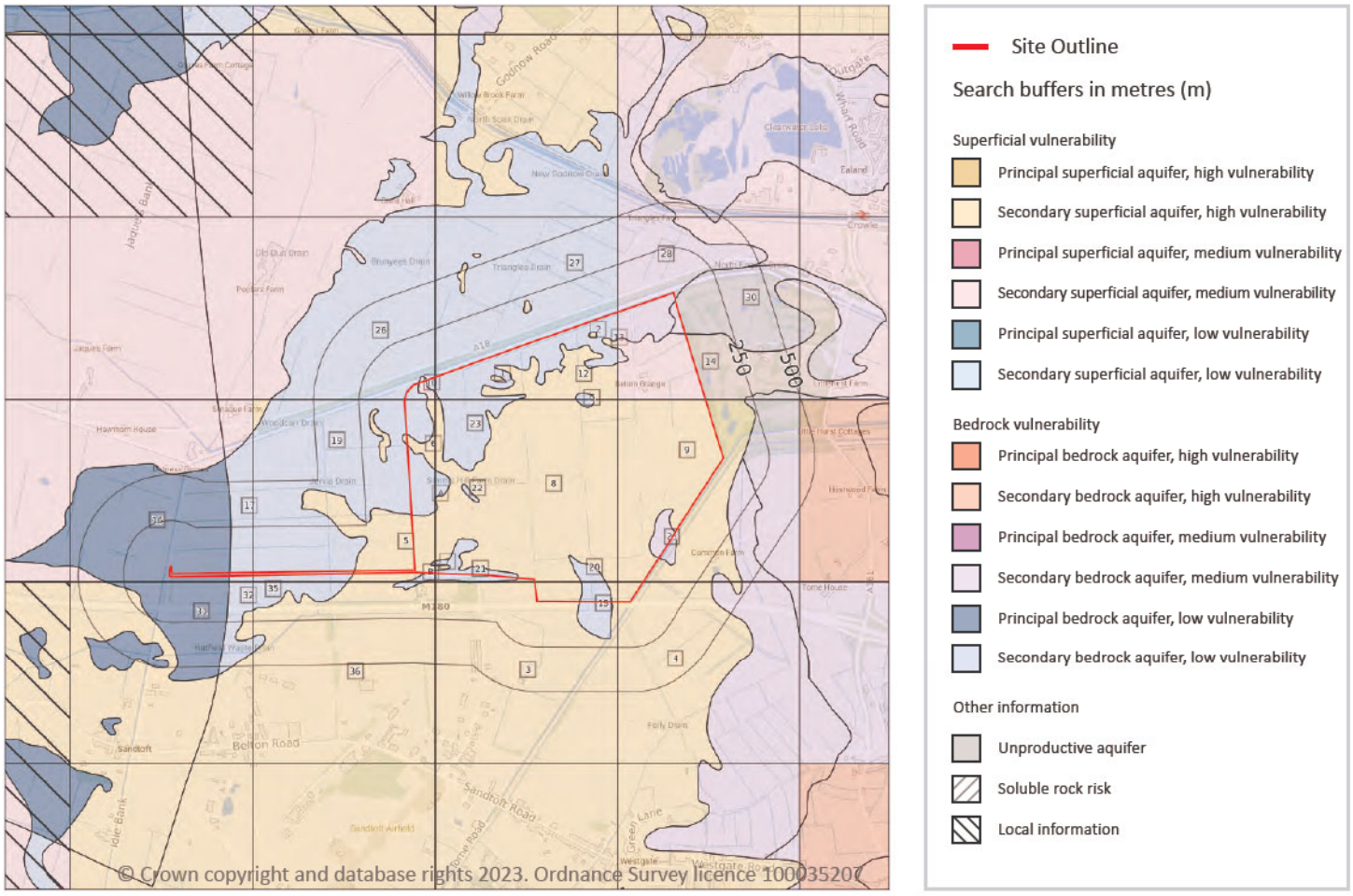
Features are displayed on the Bedrock aquifer map on **page 34**

ID	Location	Designation	Description
1	On site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

ID	Location	Designation	Description
3	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers
4	On site	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m	42

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 36**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
2	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
3	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
4	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
5	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
6	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
7	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
8	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
9	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: 3-10m Patchiness value: >90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
10	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
11	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
12	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
13	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
14	On site	Summary Classification: Secondary superficial aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Medium Aquifer type: Secondary Thickness: 3-10m Patchiness value: <90% Recharge potential: Medium	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
15	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
16	On site	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Low Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures
17	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Low Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: High	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
18	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
19	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
20	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
21	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
22	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
23	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
24	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
25	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: 3-10m Patchiness value: >90% Recharge potential: No Data	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
26	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Intermediate Infiltration value: 40-70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
27	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
28	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: 3-10m Patchiness value: <90% Recharge potential: Medium	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
29	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: 3-10m Patchiness value: <90% Recharge potential: Medium	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures
30	On site	Summary Classification: Secondary bedrock aquifer - Medium Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: Low Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: - Aquifer type: - Thickness: 3-10m Patchiness value: <90% Recharge potential: Medium	Vulnerability: Medium Aquifer type: Secondary Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
A	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
A	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
B	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
C	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
C	On site	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
31	28m W	Summary Classification: Principal bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Principal Flow mechanism: Well connected fractures

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
32	34m W	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
33	34m SW	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
B	34m SW	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: Intermediate Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Low	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
34	36m SW	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
35	36m W	Summary Classification: Secondary bedrock aquifer - Low Vulnerability Combined classification: Productive Bedrock Aquifer, Unproductive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: Unproductive Aquifer type: Unproductive Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures
36	45m SW	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: <300mm/year	Vulnerability: High Aquifer type: Secondary Thickness: >10m Patchiness value: >90% Recharge potential: Medium	Vulnerability: Low Aquifer type: Secondary Flow mechanism: Well connected fractures

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site	0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

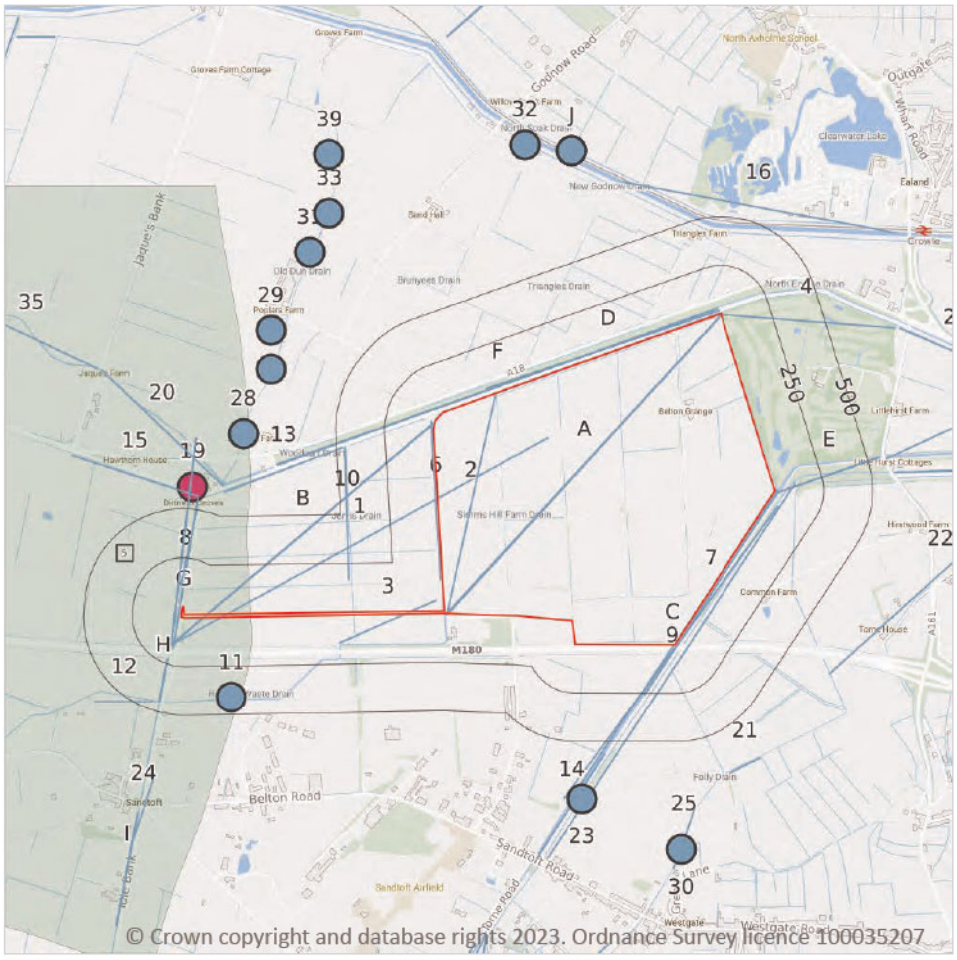
5.5 Groundwater vulnerability- local information

Records on site	0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.

Abstractions and Source Protection Zones



5.6 Groundwater abstractions

Records within 2000m	1

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 45**

ID	Location	Details	
19	616m W	Status: Historical Licence No: 03/28/83/0090 Details: General Farming & Domestic Direct Source: Groundwater Midlands Region Point: DIRTNESS BRIDGE FARM,CROWLE - BOREHOLE Data Type: Point Name: CUNDALL Easting: 474600 Northing: 409700	Annual Volume (m^3): 5727.96 Max Daily Volume (m^3): 81.828 Original Application No: - Original Start Date: 07/04/1966 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2008 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m	88

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 45**

ID	Location	Details	
1	**On site**	**Status: Historical** **Licence No: 03/28/83/0197** **Details: Spray Irrigation - Direct** **Direct Source: Surface Water Midlands Region** **Point: EPWORTH & BELTON - NORTH IDLE DRAIN (3)** **Data Type: Line** **Name: Maw** **Easting: 474490** **Northing: 408890**	**Annual Volume (m^3): 36363** **Max Daily Volume (m^3): 2273** **Original Application No: -** **Original Start Date: 07/02/1995** **Expiry Date: 31/03/2014** **Issue No: 103** **Version Start Date: 29/07/2010** **Version End Date: -**
2	**On site**	**Status: Active** **Licence No: 03/28/83/0201** **Details: Spray Irrigation - Direct** **Direct Source: Surface Water Midlands Region** **Point: BELTON - HATFIELD WASTE DRAIN** **Data Type: Line** **Name: H BARKER & SONS** **Easting: 475900** **Northing: 409040**	**Annual Volume (m^3): 45,000** **Max Daily Volume (m^3): 2,945** **Original Application No: -** **Original Start Date: 21/03/1994** **Expiry Date: -** **Issue No: 100** **Version Start Date: 30/05/1995** **Version End Date: -**

ID	Location	Details	
3	On site	Status: Active Licence No: 03/28/83/0147 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SMAQUE FARM - CATALINE DRAIN Data Type: Line Name: J S BROOKE AND SONS Easting: 475350 Northing: 408900	Annual Volume (m^3): 15,450 Max Daily Volume (m^3): 1,100 Original Application No: - Original Start Date: 02/09/1985 Expiry Date: - Issue No: 101 Version Start Date: 27/01/2000 Version End Date: -
4	On site	Status: Active Licence No: 03/28/83/0188 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: HIRST PRIORY - HATFIELD WASTE DRAIN Data Type: Line Name: HIRST PRIORY PARK GOLF COURSE LTD Easting: 477290 Northing: 410580	Annual Volume (m^3): 1,455 Max Daily Volume (m^3): 153 Original Application No: A/28/83/73 Original Start Date: 28/05/1983 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2008 Version End Date: -
A	On site	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - HATFIELD WASTE DRAIN Data Type: Line Name: Maw Easting: 475900 Northing: 409050	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
A	On site	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - HATFIELD WASTE DRAIN Data Type: Line Name: Maw Easting: 475903 Northing: 409046	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
A	On site	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - HATFIELD WASTE DRAIN Data Type: Line Name: Maw Easting: 475903 Northing: 409046	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -

ID	Location	Details	
B	On site	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - WOODCARR DRAIN Data Type: Line Name: Maw Easting: 474490 Northing: 408890	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
B	On site	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - WOODCARR DRAIN Data Type: Line Name: Maw Easting: 474491 Northing: 408890	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
B	On site	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - WOODCARR DRAIN Data Type: Line Name: Maw Easting: 474491 Northing: 408890	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -
C	On site	Status: Active Licence No: MD/028/0083/059 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: RIVER TORNE NEAR BELTON Data Type: Line Name: Bramhall Farming Ltd Easting: 476517 Northing: 408072	Annual Volume (m^3): 31,000 Max Daily Volume (m^3): 818 Original Application No: NPS/WR/035925 Original Start Date: 18/02/1966 Expiry Date: - Issue No: 1 Version Start Date: 01/04/2022 Version End Date: -
D	On site	Status: Active LIcence No: 03/28/83/0057 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: HATFIELD WASTE DRAIN NEAR SANDTOFT Data Type: Line Name: Bramhall Farming Ltd Easting: 476150 Northing: 410175	Annual Volume (m^3): 31,000 Max Daily Volume (m^3): 818 Original Application No: NPS/WR/034997 Original Start Date: 18/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2022 Version End Date: -

ID	Location	Details	
6	8m SW	Status: Active Licence No: 03/28/83/0114 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS BRIDGE FARM - HATFIELD WASTE DRAIN Data Type: Line Name: CUNDALL Easting: 475870 Northing: 409220	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 545.50 Original Application No: - Original Start Date: 30/11/1976 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -
C	10m SE	Status: Historical Licence No: 03/28/83/0057 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: BELTON GRANGE - DOUBLE RIVERS Data Type: Line Name: Bramhall Farming Ltd Easting: 476500 Northing: 408100	Annual Volume (m^3): 34,095 Max Daily Volume (m^3): 818 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -
7	11m SE	Status: Active Licence No: 03/28/83/0195 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - RIVER TORNE (4) Data Type: Line Name: Bramhall Farming Ltd Easting: 476910 Northing: 408630	Annual Volume (m^3): 22,727 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/031462 Original Start Date: 07/02/1995 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -
8	13m W	Status: Active Licence No: 03/28/83/0066 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS GROVES,CROWLE - NORTH IDLE DRAIN Data Type: Line Name: J S BROOKE & SONS Easting: 474500 Northing: 408870	Annual Volume (m^3): 15,274.56 Max Daily Volume (m^3): 545.52 Original Application No: - Original Start Date: 04/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/10/1999 Version End Date: -
D	17m NE	Status: Historical Licence No: 03/28/83/0057 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: BELTON GRANGE - RIVER TORNE Data Type: Line Name: Bramhall Farming Ltd Easting: 476100 Northing: 410200	Annual Volume (m^3): 34,095 Max Daily Volume (m^3): 818 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -

ID	Location	Details	
E	18m E	Status: Active Licence No: 03/28/83/0189 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: HIRST PARK PRIORY GOLF COURSE - RIVER TORNE Data Type: Line Name: HIRST PRIORY PARK GOLF COURSE LTD Easting: 477600 Northing: 409670	Annual Volume (m^3): 12,955 Max Daily Volume (m^3): 3,993 Original Application No: A/28/83/73 Original Start Date: 28/05/1983 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2021 Version End Date: -
E	18m E	Status: Active Licence No: 03/28/83/0189 Details: Spray Irrigation - Storage Direct Source: Surface Water Midlands Region Point: HIRST PARK PRIORY GOLF COURSE - RIVER TORNE Data Type: Line Name: HIRST PRIORY PARK GOLF COURSE LTD Easting: 477600 Northing: 409670	Annual Volume (m^3): 12,955 Max Daily Volume (m^3): 3,993 Original Application No: A/28/83/73 Original Start Date: 28/05/1983 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2021 Version End Date: -
F	26m N	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH ENGINE DRAIN Data Type: Line Name: Maw Easting: 475030 Northing: 409810	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
F	27m N	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH ENGINE DRAIN Data Type: Line Name: Maw Easting: 475030 Northing: 409811	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
F	27m N	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH ENGINE DRAIN Data Type: Line Name: Maw Easting: 475030 Northing: 409811	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -

ID	Location	Details	
G	33m W	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (3) Data Type: Line Name: Maw Easting: 474491 Northing: 408890	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
G	33m W	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (3) Data Type: Line Name: Maw Easting: 474491 Northing: 408890	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -
9	61m SE	Status: Active Licence No: 03/28/83/0195 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - SOUTH ENGINE DRAIN (3) Data Type: Line Name: Bramhall Farming Ltd Easting: 476420 Northing: 407800	Annual Volume (m^3): 22,727 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/031462 Original Start Date: 07/02/1995 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -
G	104m W	Status: Active Licence No: 03/28/83/0114 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS BRIDGE FARM - NORTH IDLE DRAIN Data Type: Line Name: CUNDALL Easting: 474540 Northing: 409190	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 545.50 Original Application No: - Original Start Date: 30/11/1976 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -
10	162m W	Status: Active Licence No: 03/28/83/0114 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS BRIDGE FARM - ANCHOR DYKE Data Type: Line Name: CUNDALL Easting: 475400 Northing: 409220	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 545.50 Original Application No: - Original Start Date: 30/11/1976 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -

ID	Location	Details	
H	226m W	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (2) Data Type: Line Name: Maw Easting: 474430 Northing: 408600	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
H	230m W	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (2) Data Type: Line Name: Maw Easting: 474429 Northing: 408596	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
H	230m W	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (2) Data Type: Line Name: Maw Easting: 474429 Northing: 408596	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -
11	412m SW	Status: Active Licence No: 03/28/83/0138 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SANDTOFT GRANGE - HATFIELD WASTE DRAIN Data Type: Point Name: T A WHITE & SONS Easting: 474800 Northing: 408620	Annual Volume (m^3): 4,546 Max Daily Volume (m^3): 655 Original Application No: - Original Start Date: 27/05/1983 Expiry Date: - Issue No: 101 Version Start Date: 31/01/2007 Version End Date: -
12	456m SW	Status: Active Licence No: 03/28/83/0060 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SANDTOFT,YORKS - CATALINE DRAIN Data Type: Line Name: DENT Easting: 474100 Northing: 408600	Annual Volume (m^3): 3,636.80 Max Daily Volume (m^3): 454.60 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -

ID	Location	Details	
13	467m W	Status: Active Licence No: 03/28/83/0114 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS BRIDGE FARM - ANCHOR DRAIN Data Type: Line Name: CUNDALL Easting: 475370 Northing: 409900	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 545.50 Original Application No: - Original Start Date: 30/11/1976 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -
14	563m S	Status: Active Licence No: 03/28/83/0195 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - RIVER TORNE (3) Data Type: Line Name: Bramhall Farming Ltd Easting: 476370 Northing: 407810	Annual Volume (m^3): 22,727 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/031462 Original Start Date: 07/02/1995 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -
15	569m W	Status: Active Licence No: 03/28/83/0066 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS GROVES,CROWLE - UNNAMED DRAIN (1) Data Type: Line Name: J S BROOKE & SONS Easting: 474630 Northing: 409650	Annual Volume (m^3): 15,274.56 Max Daily Volume (m^3): 545.52 Original Application No: - Original Start Date: 04/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/10/1999 Version End Date: -
16	573m NE	Status: Historical Licence No: 03/28/83/0254 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: LAND AT CROWLE - STAINFORTH AND KEADBY CANAL Data Type: Line Name: BRITISH WATERWAYS BOARD Easting: 476800 Northing: 411260	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 17/05/2000 Expiry Date: 31/03/2008 Issue No: 1 Version Start Date: 17/05/2000 Version End Date: -
17	588m E	Status: Active Licence No: 03/28/83/0192 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: BELTON PARISH - RIVER TORNE Data Type: Line Name: J J & D S STUBLEY LTD Easting: 478150 Northing: 409840	Annual Volume (m^3): 5,819 Max Daily Volume (m^3): 611 Original Application No: - Original Start Date: 28/05/1993 Expiry Date: - Issue No: 100 Version Start Date: 28/05/1993 Version End Date: -

ID	Location	Details	
18	613m E	Status: Active Licence No: 03/28/83/0193 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: PARISH OF BELTON - SOUTH ENGINE DRAIN Data Type: Line Name: J J & D S STUBLEY LTD Easting: 478190 Northing: 409770	Annual Volume (m^3): 5,819 Max Daily Volume (m^3): 611 Original Application No: - Original Start Date: 28/05/1993 Expiry Date: - Issue No: 100 Version Start Date: 28/05/1993 Version End Date: -
20	648m W	Status: Active Licence No: 03/28/83/0114 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS BRIDGE FARM - BOATING DYKE Data Type: Line Name: CUNDALL Easting: 474130 Northing: 410300	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 545.50 Original Application No: - Original Start Date: 30/11/1976 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -
21	718m SE	Status: Historical Licence No: 03/28/83/0206 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WESTGATE - FOLLY DRAIN (REACH) Data Type: Line Name: BOWERS Easting: 477510 Northing: 408310	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 31/03/1994 Version End Date: -
22	745m SE	Status: Active Licence No: 03/28/83/0190 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: BELTON PARISH - FOLLY DRAIN Data Type: Line Name: J J & D S STUBLEY LTD Easting: 477860 Northing: 408740	Annual Volume (m^3): 5,819 Max Daily Volume (m^3): 611 Original Application No: - Original Start Date: 28/05/1993 Expiry Date: - Issue No: 100 Version Start Date: 28/05/1993 Version End Date: -
23	794m S	Status: Active Licence No: 03/28/83/0162 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WESTGATE,BELTON - SOUTH LEVEL ENGINE DRAIN Data Type: Point Name: T D & P A JOHNSON Easting: 476590 Northing: 408100	Annual Volume (m^3): 27,250 Max Daily Volume (m^3): 1,210 Original Application No: - Original Start Date: 27/02/1989 Expiry Date: - Issue No: 102 Version Start Date: 25/10/2006 Version End Date: -

ID	Location	Details	
24	843m SW	Status: Active Licence No: 03/28/83/0060 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SANDTOFT,YORKS - NEW IDLE DRAIN Data Type: Line Name: DENT Easting: 474400 Northing: 408200	Annual Volume (m^3): 3,636.80 Max Daily Volume (m^3): 454.60 Original Application No: - Original Start Date: 18/02/1966 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -
25	848m S	Status: Active Licence No: 03/28/83/0196 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - FOLLY DRAIN (2) Data Type: Line Name: TILLERS TURF COMPANY LTD Easting: 477060 Northing: 407740	Annual Volume (m^3): 9,091 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/024914 Original Start Date: 07/02/1995 Expiry Date: - Issue No: 101 Version Start Date: 10/11/2016 Version End Date: -
26	852m NE	Status: Active Licence No: 03/28/83/0191 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: BELTON - HATFIELD WASTE DRAIN Data Type: Line Name: J J & D S STUBLEY LTD Easting: 478220 Northing: 410510	Annual Volume (m^3): 5,819 Max Daily Volume (m^3): 611 Original Application No: - Original Start Date: 28/05/1993 Expiry Date: - Issue No: 100 Version Start Date: 03/12/2018 Version End Date: -
27	883m W	Status: Active Licence No: 03/28/83/0067 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: POPLARS FARM - DUNN DRAIN (1) Data Type: Point Name: H BARKER & SONS Easting: 475000 Northing: 410300	Annual Volume (m^3): 13,638 Max Daily Volume (m^3): 1,200 Original Application No: - Original Start Date: 08/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1982 Version End Date: -
28	919m W	Status: Active Licence No: 03/28/83/0255 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SMAQUE FARM - OLD RIVER DON Data Type: Point Name: J S BROOKE AND SONS Easting: 474860 Northing: 409970	Annual Volume (m^3): 15,450 Max Daily Volume (m^3): 1,100 Original Application No: A/28/83/130 Original Start Date: 28/01/2000 Expiry Date: - Issue No: 1 Version Start Date: 28/01/2000 Version End Date: -

ID	Location	Details	
29	962m NW	Status: Active Licence No: 03/28/83/0067 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: POPLARS FARM - DUNN DRAIN (2) Data Type: Point Name: H BARKER & SONS Easting: 475000 Northing: 410500	Annual Volume (m^3): 13,638 Max Daily Volume (m^3): 1,200 Original Application No: - Original Start Date: 08/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1982 Version End Date: -
I	1026m SW	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (1) Data Type: Line Name: Maw Easting: 474210 Northing: 407450	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
I	1029m SW	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (1) Data Type: Line Name: Maw Easting: 474210 Northing: 407452	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
I	1029m SW	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - NORTH IDLE DRAIN (1) Data Type: Line Name: Maw Easting: 474210 Northing: 407452	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -
J	1042m N	Status: Historical Licence No: 03/28/84/0005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SOUTH END FARM - NORTH SOAK DRAIN Data Type: Point Name: PROCTOR Easting: 476540 Northing: 411420	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/01/1985 Expiry Date: - Issue No: 100 Version Start Date: 31/01/1985 Version End Date: -

ID	Location	Details	
J	1042m N	Status: Historical Licence No: 03/28/83/0266 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SOUTH END FARM - NORTH SOAK DRAIN Data Type: Point Name: T C BREARS & SONS Easting: 476540 Northing: 411420	Annual Volume (m^3): 4440 Max Daily Volume (m^3): 264 Original Application No: - Original Start Date: 21/09/2001 Expiry Date: - Issue No: 2 Version Start Date: 01/04/2003 Version End Date: -
30	1052m S	Status: Historical Licence No: 03/28/83/0206 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WESTGATE - FOLLY DRAIN (POINT) Data Type: Point Name: BOWERS Easting: 477100 Northing: 407840	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 31/03/1994 Version End Date: -
31	1067m NW	Status: Active Licence No: 03/28/83/0067 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: POPLARS FARM - DUNN DRAIN (3) Data Type: Point Name: H BARKER & SONS Easting: 475200 Northing: 410900	Annual Volume (m^3): 13,638 Max Daily Volume (m^3): 1,200 Original Application No: - Original Start Date: 08/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1982 Version End Date: -
32	1149m N	Status: Active Licence No: 03/28/83/0067 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: GLEBE FARM - THE SOUTH SOAK DRAIN Data Type: Point Name: H BARKER & SONS Easting: 476300 Northing: 411450	Annual Volume (m^3): 13,638 Max Daily Volume (m^3): 1,200 Original Application No: - Original Start Date: 08/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1982 Version End Date: -
33	1175m NW	Status: Active Licence No: 03/28/83/0067 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: POPLARS FARM - DUNN DRAIN (4) Data Type: Point Name: H BARKER & SONS Easting: 475300 Northing: 411100	Annual Volume (m^3): 13,638 Max Daily Volume (m^3): 1,200 Original Application No: - Original Start Date: 08/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1982 Version End Date: -

ID	Location	Details	
-	1178m W	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: LAND AT SANDTOFT Data Type: Line Name: Maw Easting: 472950 Northing: 408900	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
35	1286m W	Status: Active Licence No: 03/28/83/0057 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: BOATING DYKE DRAIN Data Type: Line Name: Bramhall Farming Ltd Easting: 473429 Northing: 410626	Annual Volume (m^3): 31,000 Max Daily Volume (m^3): 818 Original Application No: NPS/WR/034997 Original Start Date: 18/02/1966 Expiry Date: - Issue No: 103 Version Start Date: 01/04/2022 Version End Date: -
-	1336m SW	Status: Active Licence No: 03/28/83/0209 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SANDTOFT - HATFIELD WASTE DRAIN Data Type: Point Name: J T HOPKINS & SONS Easting: 473500 Northing: 408200	Annual Volume (m^3): 10,000 Max Daily Volume (m^3): 550 Original Application No: - Original Start Date: 31/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 01/04/2003 Version End Date: -
-	1358m E	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: HATFIELD WASTE DRAIN AT CURLEWS FARM, CROWLE Data Type: Line Name: Maw Easting: 478799 Northing: 410349	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
-	1358m E	Status: Active Licence No: MD/028/0083/005 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: HATFIELD WASTE DRAIN AT CURLEWS FARM, CROWLE Data Type: Line Name: Maw Easting: 478799 Northing: 410349	Annual Volume (m^3): 36,363 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/012485 Original Start Date: 01/04/2014 Expiry Date: 31/03/2026 Issue No: 1 Version Start Date: 13/04/2020 Version End Date: -

ID	Location	Details	
-	1360m E	Status: Historical Licence No: 03/28/83/0197 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: HATFIELD WASTE DRAIN AT CURLEWS FARM, CROWLE Data Type: Line Name: Maw Easting: 478800 Northing: 410350	Annual Volume (m^3): 36363 Max Daily Volume (m^3): 2273 Original Application No: - Original Start Date: 07/02/1995 Expiry Date: 31/03/2014 Issue No: 103 Version Start Date: 29/07/2010 Version End Date: -
-	1418m E	Status: Active Licence No: 03/28/83/0161 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: NORTH MOOR,BELTON - FOLLY DRAIN Data Type: Line Name: G R Bletcher & Son Ltd Easting: 479000 Northing: 409750	Annual Volume (m^3): 20,000 Max Daily Volume (m^3): 700 Original Application No: NPS/WR/025014 Original Start Date: 20/02/1989 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2019 Version End Date: -
-	1428m SW	Status: Active Licence No: 03/28/83/0115 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WILLOW LODGE FARM,THORNE - MOOR DRAIN Data Type: Line Name: ULLEY Easting: 473130 Northing: 407350	Annual Volume (m^3): 2,273 Max Daily Volume (m^3): 545.50 Original Application No: NPS/WR/037084 Original Start Date: 30/11/1976 Expiry Date: - Issue No: 101 Version Start Date: 10/01/2022 Version End Date: -
39	1443m NW	Status: Active Licence No: 03/28/83/0067 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: POPLARS FARM - DUNN DRAIN (5) Data Type: Point Name: H BARKER & SONS Easting: 475300 Northing: 411400	Annual Volume (m^3): 13,638 Max Daily Volume (m^3): 1,200 Original Application No: - Original Start Date: 08/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/12/1982 Version End Date: -
40	1533m S	Status: Active Licence No: 03/28/83/0123 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: STOCKHOLES TURBARY - FOLLY DRAIN Data Type: Line Name: T D & P A JOHNSON Easting: 476730 Northing: 407360	Annual Volume (m^3): 50,000 Max Daily Volume (m^3): 1,210 Original Application No: - Original Start Date: 15/12/1977 Expiry Date: - Issue No: 102 Version Start Date: 25/10/2006 Version End Date: -

ID	Location	Details	
-	1555m W	Status: Active Licence No: 03/28/83/0066 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRNESS GROVES, CROWLE - ANCHOR DRAIN (1) Data Type: Line Name: J S BROOKE & SONS Easting: 473050 Northing: 410200	Annual Volume (m^3): 15,274.56 Max Daily Volume (m^3): 545.52 Original Application No: - Original Start Date: 04/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/10/1999 Version End Date: -
42	1562m S	Status: Active Licence No: 03/28/83/0120 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: NEAR EPWORTH - RIVER TORNE Data Type: Line Name: Wroot Farming Company Easting: 475680 Northing: 406600	Annual Volume (m^3): 9,092 Max Daily Volume (m^3): 455 Original Application No: NPS/WR/016016 Original Start Date: 18/10/1977 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2020 Version End Date: -
43	1582m S	Status: Active Licence No: 03/28/83/0195 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - SOUTH ENGINE DRAIN (2) Data Type: Line Name: Bramhall Farming Ltd Easting: 475950 Northing: 406490	Annual Volume (m^3): 22,727 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/031462 Original Start Date: 07/02/1995 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -
44	1619m S	Status: Active Licence No: 03/28/83/0195 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: EPWORTH & BELTON - RIVER TORNE (2) Data Type: Line Name: Bramhall Farming Ltd Easting: 475730 Northing: 406740	Annual Volume (m^3): 22,727 Max Daily Volume (m^3): 2,273 Original Application No: NPS/WR/031462 Original Start Date: 07/02/1995 Expiry Date: - Issue No: 102 Version Start Date: 01/04/2020 Version End Date: -
-	1633m S	Status: Historical Licence No: 03/28/83/0181 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: STOCKHOLES TURBARY - FOLLY DRAIN Data Type: Point Name: TREWEEK Easting: 476670 Northing: 407260	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 30/03/1994 Expiry Date: - Issue No: 101 Version Start Date: 16/03/2005 Version End Date: -

ID	Location	Details	
-	1643m W	Status: Active Licence No: 03/28/83/0066 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS GROVES,CROWLE - ANCHOR DRAIN (2) Data Type: Line Name: J S BROOKE & SONS Easting: 473180 Northing: 410150	Annual Volume (m^3): 15,274.56 Max Daily Volume (m^3): 545.52 Original Application No: - Original Start Date: 04/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/10/1999 Version End Date: -
-	1753m S	Status: Historical Licence No: 03/28/83/0126 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: AIRFIELD AT STOCKHOLES TURBARY - RIVER TORNE Data Type: Point Name: STEWART Easting: 475950 Northing: 407250	Annual Volume (m^3): 20457 Max Daily Volume (m^3): 655 Original Application No: - Original Start Date: 08/06/1979 Expiry Date: - Issue No: 100 Version Start Date: 08/06/1979 Version End Date: -
-	1771m SW	Status: Historical Licence No: 03/28/83/0226 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR,EPWORTH - NORTH IDLE DRAIN Data Type: Line Name: TRUSTEES OF THE VAN ZWANENBERG WEST HALE Easting: 474000 Northing: 406300	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 13/11/1995 Expiry Date: - Issue No: 100 Version Start Date: 15/05/1998 Version End Date: -
-	1771m SW	Status: Active Licence No: 03/28/83/0061 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR,EPWORTH - NORTH IDLE DRAIN Data Type: Line Name: HINZ Easting: 474000 Northing: 406300	Annual Volume (m^3): 10,870 Max Daily Volume (m^3): 324 Original Application No: - Original Start Date: 02/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2002 Version End Date: -
-	1771m SW	Status: Active Licence No: 03/28/83/0272 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR,EPWORTH - NORTH IDLE DRAIN Data Type: Line Name: G J MELLOR & PARTNERS Easting: 474000 Northing: 406300	Annual Volume (m^3): 51,739 Max Daily Volume (m^3): 1,246 Original Application No: A/28/83/145 Original Start Date: 17/10/2005 Expiry Date: - Issue No: 1 Version Start Date: 01/04/2006 Version End Date: -

ID	Location	Details	
M	1801m N	Status: Historical Licence No: 03/28/84/0010 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: CROWLE - OLD RIVER DRAIN Data Type: Line Name: H BARKER & SONS Easting: 475900 Northing: 412000	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 30/05/1995 Version End Date: -
M	1801m N	Status: Active Licence No: 03/28/83/0259 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: CROWLE - OLD RIVER DRAIN Data Type: Line Name: DAN ALBONE & SON LTD Easting: 475900 Northing: 412000	Annual Volume (m^3): 24,000 Max Daily Volume (m^3): 2,945 Original Application No: NPS/WR/035308 Original Start Date: 21/11/2001 Expiry Date: - Issue No: 2 Version Start Date: 27/04/2021 Version End Date: -
-	1833m N	Status: Historical Licence No: 03/28/84/0004 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SOUTH END FARM - OLD RIVER DRAIN 2 Data Type: Point Name: PROCTOR Easting: 476750 Northing: 412330	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/01/1985 Expiry Date: - Issue No: 100 Version Start Date: 31/01/1985 Version End Date: -
-	1833m N	Status: Historical Licence No: 03/28/83/0264 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SOUTH END FARM - OLD RIVER DRAIN 2 Data Type: Point Name: PROCTOR Easting: 476750 Northing: 412330	Annual Volume (m^3): 9210 Max Daily Volume (m^3): 264 Original Application No: - Original Start Date: 21/11/2001 Expiry Date: - Issue No: 1 Version Start Date: 21/11/2001 Version End Date: -
-	1849m S	Status: Historical Licence No: 03/28/83/0207 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: STOCKHOLES TURBARY - SOUTH ENGINE DRAIN Data Type: Point Name: BOWERS Easting: 476150 Northing: 407090	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/03/1994 Expiry Date: - Issue No: 100 Version Start Date: 31/03/1994 Version End Date: -

ID	Location	Details	
49	1868m W	Status: Active Licence No: 03/28/83/0066 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: DIRTNESS GROVES, CROWLE - BLETCHERS DRAIN Data Type: Line Name: J S BROOKE & SONS Easting: 473050 Northing: 410200	Annual Volume (m^3): 15,274.56 Max Daily Volume (m^3): 545.52 Original Application No: - Original Start Date: 04/03/1966 Expiry Date: - Issue No: 101 Version Start Date: 21/10/1999 Version End Date: -
-	1996m N	Status: Historical Licence No: 03/28/84/0004 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: SOUTH END FARM - OLD RIVER DRAIN Data Type: Line Name: PROCTOR Easting: 476750 Northing: 412720	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 31/01/1985 Expiry Date: - Issue No: 100 Version Start Date: 31/01/1985 Version End Date: -
-	1998m SW	Status: Historical Licence No: 03/28/83/0273 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR, EPWORTH, DONCASTER-MOOR DRAIN Data Type: Line Name: TOOTHILL Easting: 473040 Northing: 407390	Annual Volume (m^3): 13301 Max Daily Volume (m^3): 1246 Original Application No: - Original Start Date: 04/11/2005 Expiry Date: - Issue No: 1 Version Start Date: 04/11/2005 Version End Date: -
-	1999m SW	Status: Historical Licence No: 03/28/83/0226 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR,EPWORTH - MOOR DRAIN Data Type: Line Name: TRUSTEES OF THE VAN ZWANENBERG WEST HALE Easting: 473040 Northing: 407390	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 13/11/1995 Expiry Date: - Issue No: 100 Version Start Date: 15/05/1998 Version End Date: -

ID	Location	Details	
-	1999m SW	Status: Active Licence No: 03/28/83/0273 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR, EPWORTH, DONCASTER-MOOR DRAIN Data Type: Line Name: W G S Platt & Sons Easting: 473040 Northing: 407390	Annual Volume (m^3): 13,301 Max Daily Volume (m^3): 1,246 Original Application No: NPS/WR/009637 Original Start Date: 04/11/2005 Expiry Date: - Issue No: 3 Version Start Date: 04/01/2012 Version End Date: -
-	1999m SW	Status: Active Licence No: 03/28/83/0061 Details: Spray Irrigation - Direct Direct Source: Surface Water Midlands Region Point: WEST CARR,EPWORTH - MOOR DRAIN Data Type: Line Name: HINZ Easting: 473040 Northing: 407390	Annual Volume (m^3): 10,870 Max Daily Volume (m^3): 324 Original Application No: - Original Start Date: 02/02/1966 Expiry Date: - Issue No: 101 Version Start Date: 01/04/2002 Version End Date: -

This data is sourced from the Environment Agency and Natural Resources Wales.

5.8 Potable abstractions

Records within 2000m	0

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.9 Source Protection Zones

Records within 500m	1

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

Features are displayed on the Abstractions and Source Protection Zones map on **page 45**

ID	Location	Type	Description
5	**On site**	**3**	**Total catchment**

This data is sourced from the Environment Agency and Natural Resources Wales.

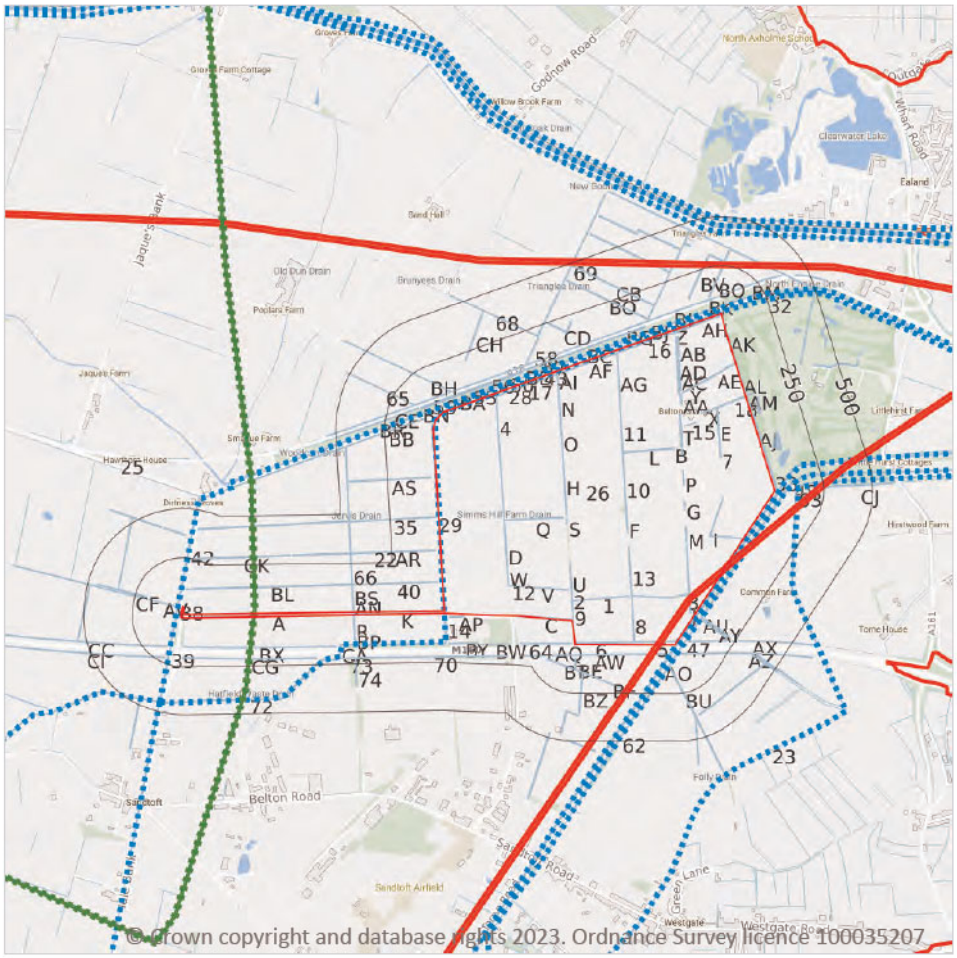
5.10 Source Protection Zones (confined aquifer)

Records within 500m	0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

This data is sourced from the Environment Agency and Natural Resources Wales.

6 Hydrology



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6.1 Water Network (OS MasterMap)

Records within 250m	191

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 66**

ID	Location	Type of water feature	Ground level	Permanence	Name
1	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
2	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
5	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
6	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
9	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
10	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
11	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
12	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
13	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
14	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain

ID	Location	Type of water feature	Ground level	Permanence	Name
15	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
16	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
17	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
18	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
A	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain

ID	Location	Type of water feature	Ground level	Permanence	Name
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
D	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
E	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
G	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
I	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
J	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
K	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
L	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
M	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
N	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
O	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
P	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Q	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
R	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
R	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
R	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
R	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
R	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
S	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
T	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
U	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
V	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
W	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
X	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Y	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Z	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
Z	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
Z	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
Z	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
Z	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AA	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AB	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AC	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AD	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AE	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AF	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AG	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AH	On site	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AI	On site	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
AK	1m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
28	1m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain
29	2m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Jervis Drain
AL	3m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AJ	5m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AM	5m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AN	5m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
AH	6m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain
AM	7m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AO	7m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	River Torne
32	8m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain
33	10m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AP	12m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
AQ	15m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
35	21m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Jervis Drain
38	24m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	North Idle Drain
39	24m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	North Idle Drain
40	24m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AR	24m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
42	26m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	North Idle Drain
AS	26m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
43	28m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	North Engine Drain
47	34m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	South Engine Drain
AU	37m SE	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	South Engine Drain
48	37m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	South Engine Drain
AU	37m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
AU	37m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AU	40m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AU	41m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AV	43m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AX	47m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AW	48m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AY	52m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
50	54m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
AZ	55m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BA	55m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BB	58m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Drain
BC	60m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BD	60m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
53	60m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BD	60m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BE	70m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
56	81m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
57	81m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Triangles Drain
BD	81m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Triangles Drain
BC	82m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
58	83m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Triangles Drain
BA	83m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
59	83m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BA	83m NW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
BG	84m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BA	84m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
BI	87m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BJ	87m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
BH	87m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BK	89m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BL	90m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BM	92m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BN	94m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BJ	96m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BO	96m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BP	97m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
BQ	100m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BP	104m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
62	105m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	South Engine Drain

ID	Location	Type of water feature	Ground level	Permanence	Name
AO	105m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BR	106m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
63	108m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Folly Drain
BS	108m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
AY	113m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BS	115m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
BT	121m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
BU	124m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BV	129m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BE	129m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
BN	130m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
64	133m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BP	134m SW	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain

ID	Location	Type of water feature	Ground level	Permanence	Name
65	135m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Brunyees and Turners Drain
BN	137m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BS	140m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
66	141m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
BX	144m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BF	144m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Simms Hill Farm Drain
BW	144m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BZ	144m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BP	144m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Woodcarr Small Drain
BY	144m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CA	149m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain
BP	149m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain
CB	152m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
BJ	152m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CA	159m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CC	165m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CD	171m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CE	183m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BJ	184m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
CF	184m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CF	186m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Plains Drain
BJ	188m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
68	202m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Brunyees Drain
69	202m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Triangles Drain
CG	203m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
70	206m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

ID	Location	Type of water feature	Ground level	Permanence	Name
CH	208m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
72	216m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	Hatfield Waste Drain
73	216m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
74	220m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CI	222m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
CJ	241m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
BJ	247m N	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
CK	249m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.

6.2 Surface water features

Records within 250m	75

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 66**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site	2

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 66**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
22	**On site**	**River**	**Hatfield Waste Drain Catchment (trib of Torne/Three Rivers)**	**GB104028064330**	**Isle of Axholme**	**Idle and Torne**
23	**On site**	**River**	**Torne/Three Rivers from Mother Drain to Trent**	**GB104028064340**	**Isle of Axholme**	**Idle and Torne**

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified	2

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 66**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
24	**On site**	**River**	**Hatfield Waste Drain Catchment (trib of Torne/Three Rivers)**	**GB104028064330**	**Poor**	**Fail**	**Poor**	**2019**
31	8m SE	River	Torne/Three Rivers from Mother Drain to Trent	GB104028064340	Moderate	Fail	Moderate	2019

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site	2

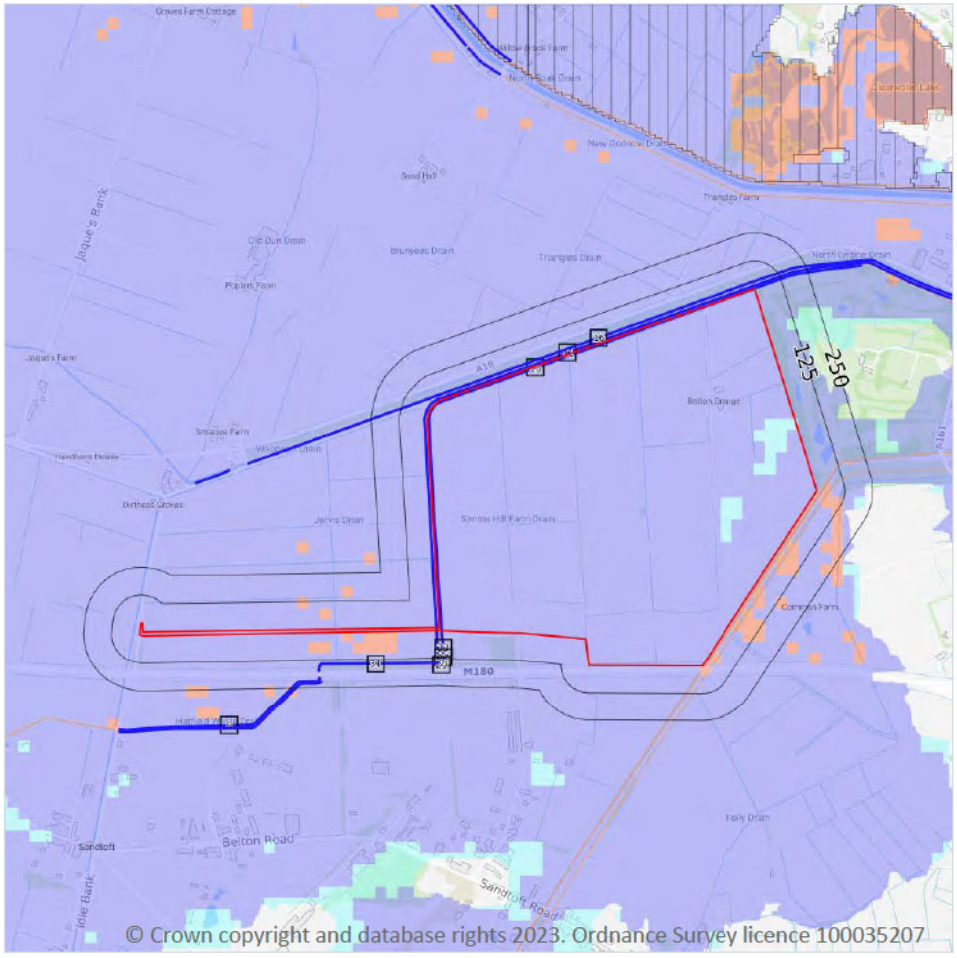
Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 66**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
25	**On site**	**Idle Torne - PT Sandstone Nottinghamshire& Doncaster**	**GB40401G301500**	**Poor**	**Poor**	**Poor**	**2019**
26	**On site**	**Idle Torne - Secondary Mudrocks**	**GB40402G992200**	**Good**	**Good**	**Good**	**2019**

This data is sourced from the Environment Agency and Natural Resources Wales.

7 River and coastal flooding



Site Outline

Search buffers in metres (m)

River and coastal flooding:

- High
- Medium
- Low
- Very Low
- Historical Flood Events
- Areas Used for Flood Storage
- Areas Benefiting from Flood Defences
- Flood Defences

7.1 Risk of flooding from rivers and the sea

Records within 50m	21

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

Features are displayed on the River and coastal flooding map on **page 84**

Distance	Flood risk category
On site	**High**
0 - 50m	High

This data is sourced from the Environment Agency and Natural Resources Wales.

7.2 Historical Flood Events

Records within 250m	0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

This data is sourced from the Environment Agency and Natural Resources Wales.

7.3 Flood Defences

Records within 250m	9

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

Features are displayed on the River and coastal flooding map on **page 84**

ID	Location	Update
10	**On site**	**08/11/2022**
11	**On site**	**08/11/2022**
16	24m N	08/11/2022
23	44m SW	08/11/2022
27	108m SW	08/11/2022
29	137m SW	08/11/2022
31	142m SW	08/11/2022
B	206m SW	08/11/2022
B	222m SW	08/11/2022

This data is sourced from the Environment Agency and Natural Resources Wales.

7.4 Areas Benefiting from Flood Defences

Records within 250m	0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

This data is sourced from the Environment Agency and Natural Resources Wales.

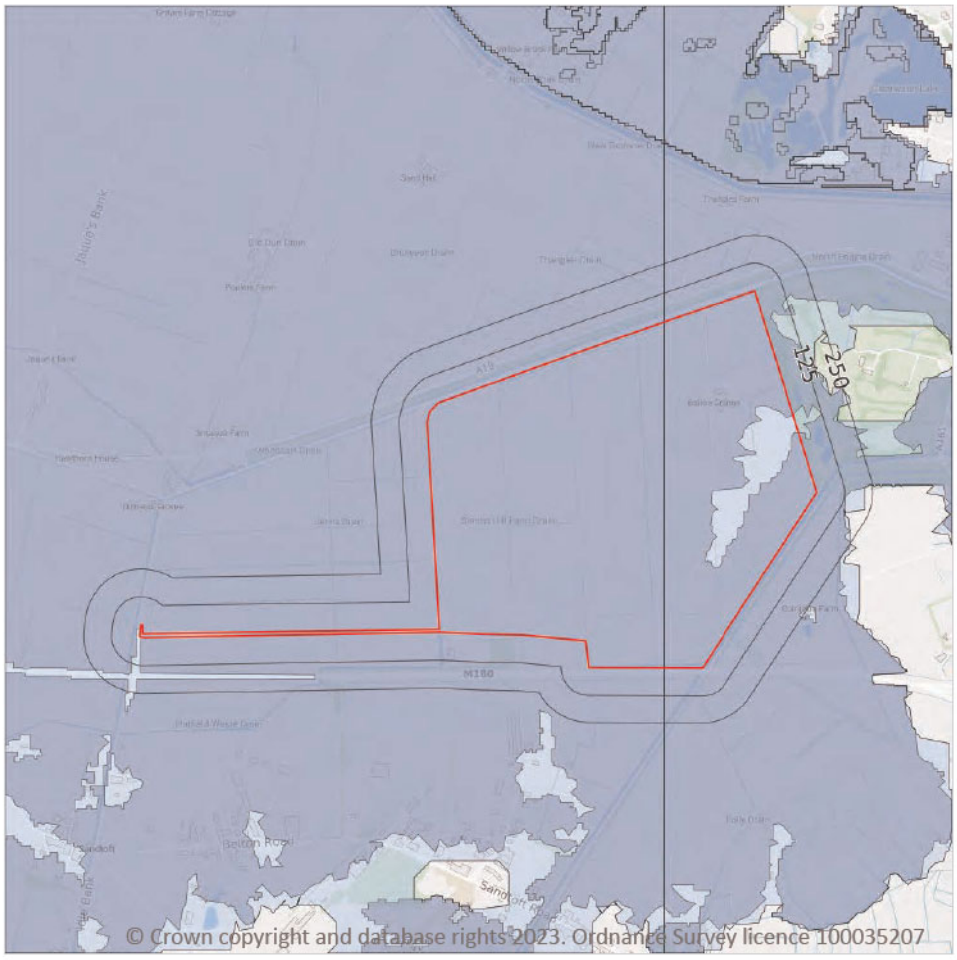
7.5 Flood Storage Areas

Records within 250m	0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

This data is sourced from the Environment Agency and Natural Resources Wales.

River and coastal flooding - Flood Zones



Site Outline

Search buffers in metres (m)

Flood zone 2

Flood zone 3

7.6 Flood Zone 2

Records within 50m	1

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

Features are displayed on the River and coastal flooding map on **page 84**

Location	Type
On site	**Zone 2 - (Fluvial /Tidal Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

7.7 Flood Zone 3

Records within 50m	1

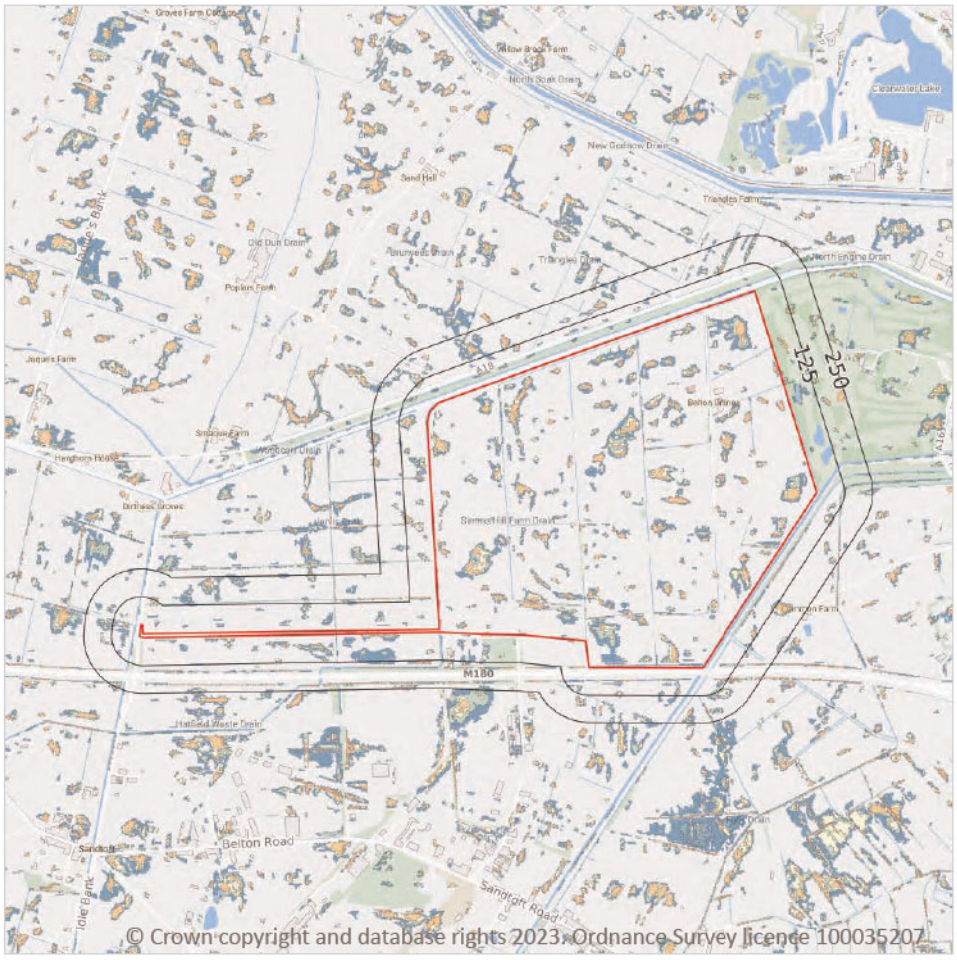
Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

Features are displayed on the River and coastal flooding map on **page 84**

Location	Type
On site	**Zone 3 - (Fluvial /Tidal Models)**

This data is sourced from the Environment Agency and Natural Resources Wales.

8 Surface water flooding



Site Outline

Search buffers in metres (m)

1 in 1000 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 250 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 100 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

1 in 30 return period
- Depth between 0.1m - 0.3m
- Depth between 0.3m - 1.0m
- Depth greater than 1.0m

8.1 Surface water flooding

Highest risk on site	**1 in 30 year, 0.3m - 1.0m**
Highest risk within 50m	**1 in 30 year, 0.3m - 1.0m**

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 89**

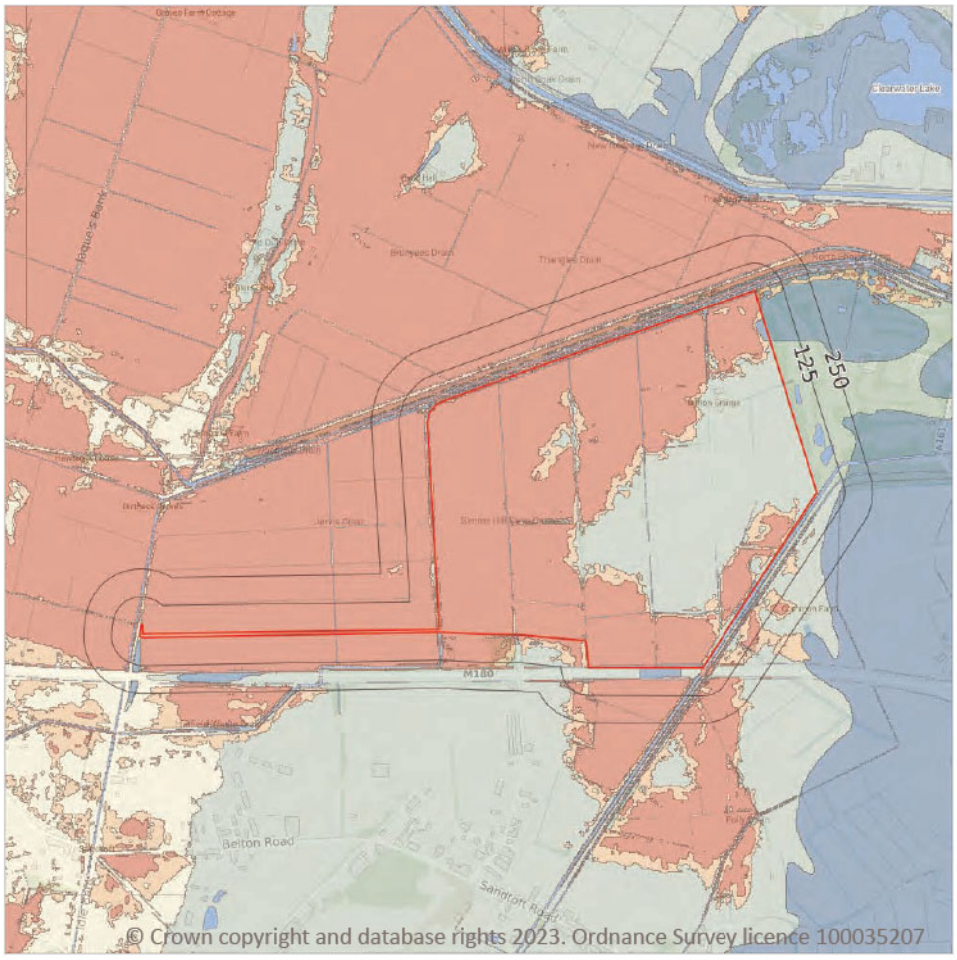
The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Greater than 1.0m
1 in 250 year	Greater than 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.

9 Groundwater flooding



Site Outline

Search buffers in metres (m)

- High
- Moderate - High
- Moderate
- Low
- Negligible

9.1 Groundwater flooding

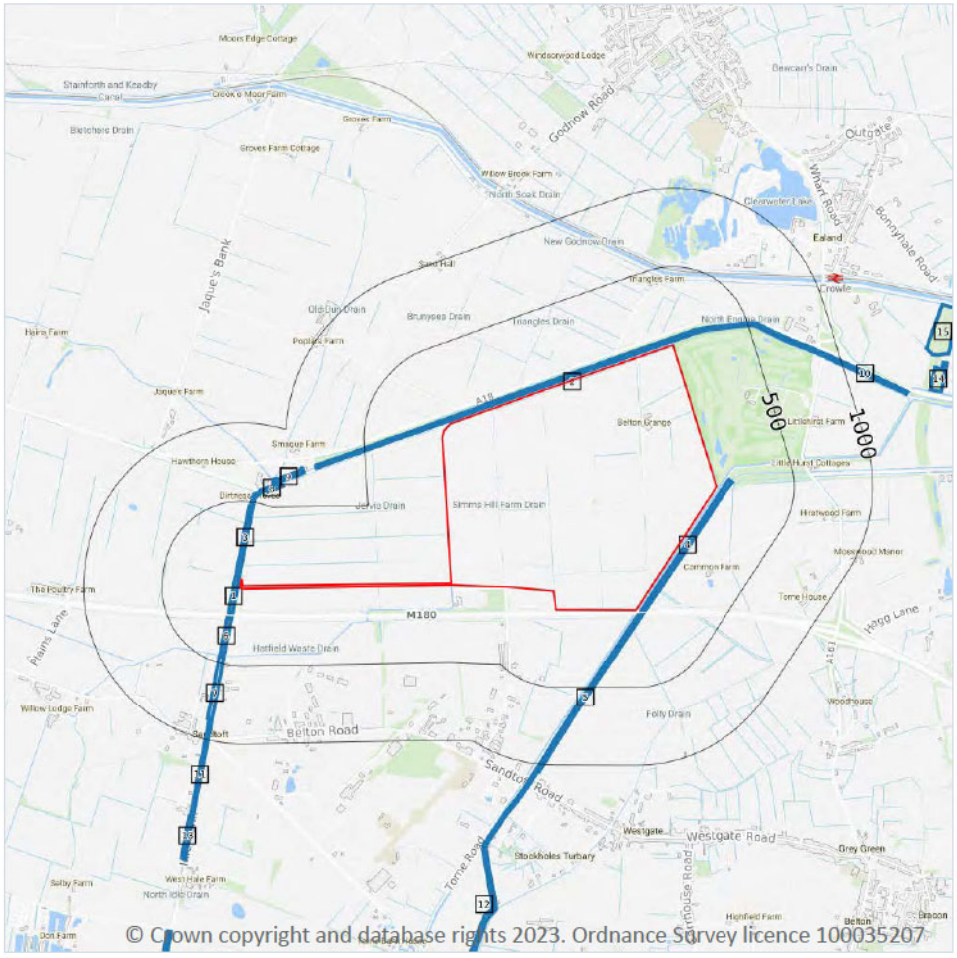
Highest risk on site	**High**
Highest risk within 50m	**High**

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 91**

This data is sourced from Ambiental Risk Analytics.

10 Environmental designations



Site Outline

Search buffers in metres (m)

- Sites of Special Scientific Interest (SSSI)
- Special Areas of Conservation (SAC)
- Special Protection Areas (SPA)
- National Nature Reserves (NNR)

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m	15

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

Features are displayed on the Environmental designations map on **page 92**

ID	Location	Name	Data source
1	16m W	Hatfield Chase Ditches	Natural England

ID	Location	Name	Data source
2	18m NW	Hatfield Chase Ditches	Natural England
3	19m W	Hatfield Chase Ditches	Natural England
4	30m SE	Hatfield Chase Ditches	Natural England
5	36m SE	Hatfield Chase Ditches	Natural England
6	202m W	Hatfield Chase Ditches	Natural England
7	452m SW	Hatfield Chase Ditches	Natural England
8	569m W	Hatfield Chase Ditches	Natural England
9	642m W	Hatfield Chase Ditches	Natural England
10	905m NE	Hatfield Chase Ditches	Natural England
11	989m SW	Hatfield Chase Ditches	Natural England
12	1139m S	Hatfield Chase Ditches	Natural England
13	1461m SW	Hatfield Chase Ditches	Natural England
14	1490m E	Crowle Borrow Pits	Natural England
15	1543m E	Crowle Borrow Pits	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m	0

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m	0

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m	0

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m	0

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m	0

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m	0

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m	0

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m	0

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.

10.10 Marine Conservation Zones

Records within 2000m	0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m	0

Areas designated to prevent urban sprawl by keeping land permanently open.

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m	0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m	0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

This data is sourced from Natural England and Natural Resources Wales.

10.14 Potential Special Protection Areas (pSPA)

Records within 2000m	0

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m	0

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m	5

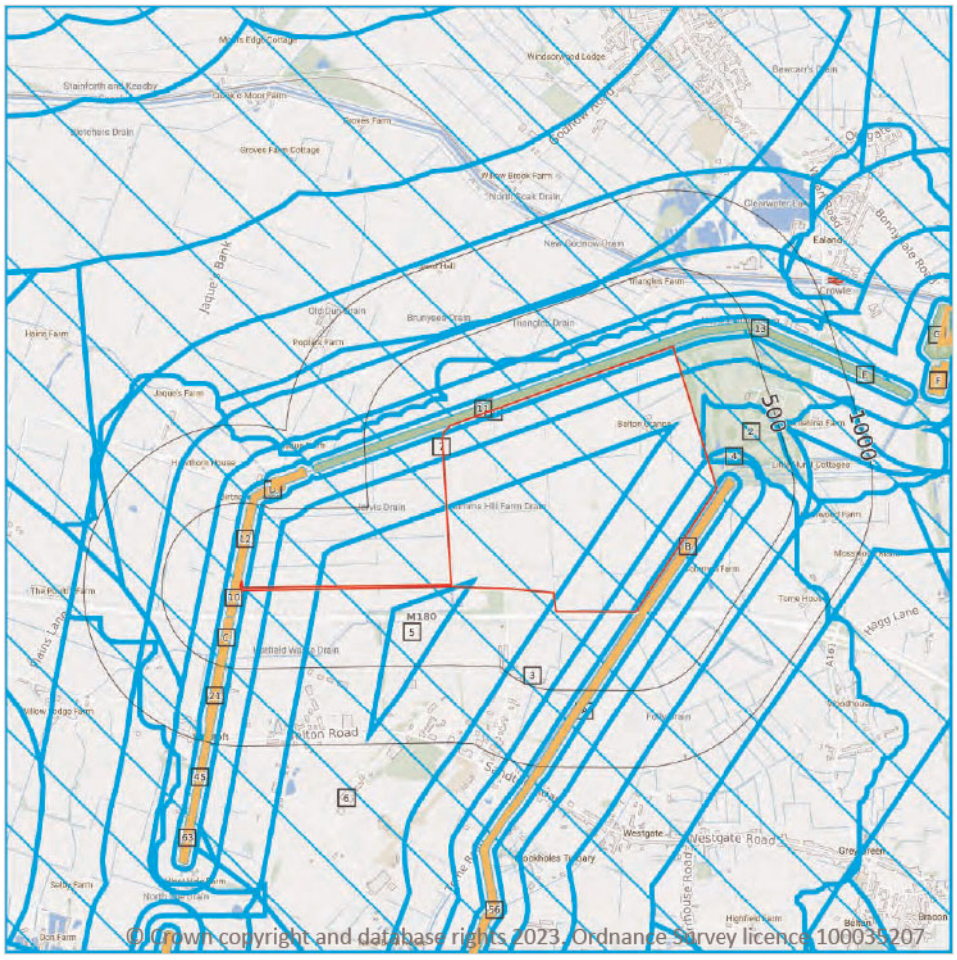
Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	**R Torne / Three Rivers from Mother Dr to R Trent NVZ**	**Surface Water**	**351**	**Existing**

Location	Name	Type	NVZ ID	Status
153m N	North Soak Drain (trib of R Torne / Three Rivers) NVZ	Surface Water	352	Existing
452m W	R Torne / Three Rivers from Mother Dr to R Trent NVZ	Surface Water	351	Existing
912m W	North Soak Drain (trib of R Torne / Three Rivers) NVZ	Surface Water	352	Existing
1095m NE	Paupers Drain Catchment (trib of Trent) NVZ	Surface Water	349	Existing

This data is sourced from Natural England and Natural Resources Wales.

SSSI Impact Zones and Units



10.17 SSSI Impact Risk Zones

Records on site	9

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

Features are displayed on the SSSI Impact Zones and Units map on **page 98**

ID	Location	Type of developments requiring consultation
1	On site	**All applications - All planning applications - except householder applications.**

ID	Location	Type of developments requiring consultation
2	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause air pollution (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .
3	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause air pollution (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .

ID	Location	Type of developments requiring consultation
4	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha. Residential - Residential development of 50 units or more. Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause air pollution or dust either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .
5	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where footprint exceeds 1ha. Rural residential - Any residential development of 100 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 200m², manure stores > 250t). Combustion - General combustion processes >20mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 75000 tonnes maximum annual operational throughput. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 5m³/day to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where total net additional gross internal floorspace following development is 1,000m² or more.

ID	Location	Type of developments requiring consultation
6	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha. Residential - Residential development of 100 units or more. Rural residential - Any residential development of 50 or more houses outside existing settlements/urban areas. Air pollution - Any industrial/agricultural development that could cause air pollution (incl: industrial processes, livestock & poultry units with floorspace > 500m², slurry lagoons & digestate stores > 200m², manure stores > 250t). Combustion - General combustion processes >20mw energy input. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Landfill. incl: inert landfill, non-hazardous landfill, hazardous landfill. Composting - Any composting proposal with more than 500 tonnes maximum annual operational throughput. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste of more than 2m³/day to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .
7	On site	Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha. Residential - Residential development of 50 units or more. Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause air pollution or dust either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .
A	On site	All applications - All planning applications - except householder applications.

ID	Location	Type of developments requiring consultation
A	On site	**Infrastructure - Pipelines, pylons and overhead cables. any transport proposal including road, rail and by water (excluding routine maintenance). airports, helipads and other aviation proposals. Wind and Solar - Solar schemes with footprint > 0.5ha, all wind turbines. Minerals, Oil and Gas - Planning applications for quarries, including: new proposals, review of minerals permissions (romp), extensions, variations to conditions etc. oil & gas exploration/extraction. Rural non-residential - Large non residential developments outside existing settlements/urban areas where net additional gross internal floorspace is > 1,000m² or footprint exceeds 0.2ha. Residential - Residential development of 50 units or more. Rural residential - Any residential development of 10 or more houses outside existing settlements/urban areas. Air pollution - Any development that could cause air pollution or dust either in its construction or operation (incl: industrial/commercial processes, livestock & poultry units, slurry lagoons & digestate stores, manure stores). Combustion - All general combustion processes. incl: energy from waste incineration, other incineration, landfill gas generation plant, pyrolysis/gasification, anaerobic digestion, sewage treatment works, other incineration/ combustion. Waste - Mechanical and biological waste treatment, inert landfill, non-hazardous landfill, hazardous landfill, household civic amenity recycling facilities construction, demolition and excavation waste, other waste management. Composting - Any composting proposal. incl: open windrow composting, in-vessel composting, anaerobic digestion, other waste management. Discharges - Any discharge of water or liquid waste that is discharged to ground (ie to seep away) or to surface water, such as a beck or stream. Water supply - Large infrastructure such as warehousing / industry where net additional gross internal floorspace is > 1,000m² or any development needing its own water supply .**

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	18

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

Features are displayed on the SSSI Impact Zones and Units map on **page 98**

ID:	10
Location:	16m W
SSSI name:	Hatfield Chase Ditches
Unit name:	Nid - M180 To Dirtness Pumping Station (Idb)
Broad habitat:	Standing Open Water And Canals
Condition:	Unfavourable - Declining
Reportable features:	

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: 11
Location: 18m NW
SSSI name: Hatfield Chase Ditches
Unit name: Ned - Dirtness Pumping Station To Belton Grange
Broad habitat: Standing Open Water And Canals
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Favourable	30/10/2018

ID: 12
Location: 19m W
SSSI name: Hatfield Chase Ditches
Unit name: Nid - M180 To Dirtness Pumping Station (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: 13
Location: 24m NE
SSSI name: Hatfield Chase Ditches
Unit name: Ned - Hirst Priory To Belton Grange (Ea)
Broad habitat: Standing Open Water And Canals
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Favourable	30/10/2018

ID: B
Location: 30m SE
SSSI name: Hatfield Chase Ditches
Unit name: South Engine Drain (6) (Ea)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: A
Location: 36m SE
SSSI name: Hatfield Chase Ditches
Unit name: South Engine Drain (5) (Ea)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: C
Location: 202m W
SSSI name: Hatfield Chase Ditches
Unit name: North Idle Drain Gatehouse To M180 (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: 21
Location: 452m SW
SSSI name: Hatfield Chase Ditches
Unit name: North Idle Drain Gatehouse To M180 (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: D
Location: 569m W
SSSI name: Hatfield Chase Ditches
Unit name: Nid - M180 To Dirtness Pumping Station (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: D
Location: 642m W
SSSI name: Hatfield Chase Ditches
Unit name: Nid - M180 To Dirtness Pumping Station (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: E
Location: 905m NE
SSSI name: Hatfield Chase Ditches
Unit name: North Engine Drain - Double Rivers (Ea)
Broad habitat: Standing Open Water And Canals
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Favourable	30/10/2018

ID: 45
Location: 989m SW
SSSI name: Hatfield Chase Ditches
Unit name: North Idle Drain Gatehouse To M180 (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: 56
Location: 1139m S
SSSI name: Hatfield Chase Ditches
Unit name: South Engine Drain (4) (Ea)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: 63
Location: 1461m SW
SSSI name: Hatfield Chase Ditches
Unit name: North Idle Drain Gatehouse To M180 (Idb)
Broad habitat: Standing Open Water And Canals
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Ditches	Unfavourable - Declining	09/05/2017

ID: F
Location: 1490m E
SSSI name: Crowle Borrow Pits
Unit name: Fen South-East
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Floodplain fen (lowland)	Unfavourable - Declining	30/11/2022
Wet woodland	Favourable	23/09/2021

ID: G
Location: 1543m E
SSSI name: Crowle Borrow Pits
Unit name: Fen North-West
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Floodplain fen (lowland)	Favourable	23/09/2021
Wet woodland	Favourable	23/09/2021

ID: G
Location: 1598m E
SSSI name: Crowle Borrow Pits
Unit name: Fen North-East
Broad habitat: Fen, Marsh And Swamp - Lowland
Condition: Favourable
Reportable features:

Feature name	Feature condition	Date of assessment
Floodplain fen (lowland)	Favourable	23/09/2021
Wet woodland	Favourable	23/09/2021

ID: G
Location: 1636m E
SSSI name: Crowle Borrow Pits
Unit name: Alder Carr
Broad habitat: Broadleaved, Mixed And Yew Woodland - Lowland
Condition: Unfavourable - Declining
Reportable features:

Feature name	Feature condition	Date of assessment
Wet woodland	Unfavourable - Declining	23/09/2021

This data is sourced from Natural England and Natural Resources Wales.

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m	0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m	0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m	0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m	0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m	0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m	0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

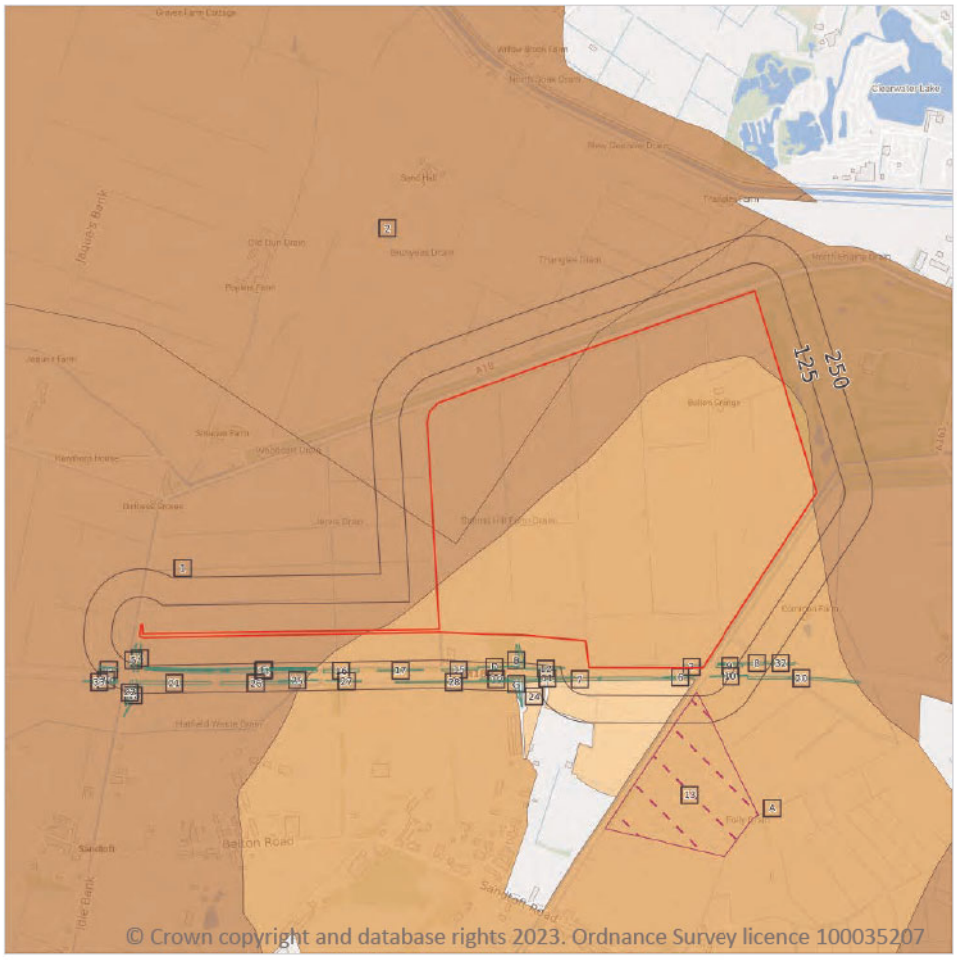
11.7 Registered Parks and Gardens

Records within 250m	0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

12 Agricultural designations



Site Outline

Search buffers in metres (m)

- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m	5

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 111**

ID	Location	Classification	Description
1	**On site**	**Grade 2**	**Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.**
2	**On site**	**Grade 2**	**Very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.**
A	**On site**	**Grade 3**	**Good to moderate quality agricultural land. Land with moderate limitations which affect the choice of crops, timing and type of cultivation, harvesting or the level of yield. Where more demanding crops are grown yields are generally lower or more variable than on land in Grades 1 and 2.**
A	51m SE	Grade 3a	Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.
24	201m S	Grade 3a	Good quality agricultural land. Land capable of consistently producing moderate to high yields of a narrow range of arable crops, especially cereals, or moderate yields of a wide range of crops including cereals, grass, oilseed rape, potatoes, sugar beet and the less demanding horticultural crops.

This data is sourced from Natural England.

12.2 Open Access Land

Records within 250m **1**

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

Features are displayed on the Agricultural designations map on **page 111**

ID	Location	Name	Classification	Other relevant legislation
13	110m S	Low Closes Turbary	Section 4 Conclusive Registered Common Land	-

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m	80

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

Features are displayed on the Agricultural designations map on **page 111**

ID	Location	Description	Reference	Application date
3	**On site**	**Selective Fell/Thin (Unconditional)**	**018/366/15-16**	**-**
4	29m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
5	33m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
6	36m SE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
B	41m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
7	42m S	Selective Fell/Thin (Unconditional)	018/366/15-16	-
B	42m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
8	45m SE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
9	47m SE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
10	48m SE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
11	76m S	Selective Fell/Thin (Unconditional)	018/366/15-16	-
12	109m S	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	134m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	134m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	137m W	Single Tree	018/366/15-16	-
D	138m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	139m W	Single Tree	018/366/15-16	-
C	140m W	Single Tree	018/366/15-16	-
C	141m W	Single Tree	018/366/15-16	-
C	142m W	Single Tree	018/366/15-16	-
C	142m W	Single Tree	018/366/15-16	-
C	142m W	Single Tree	018/366/15-16	-
C	142m W	Single Tree	018/366/15-16	-

ID	Location	Description	Reference	Application date
C	142m W	Single Tree	018/366/15-16	-
C	143m W	Single Tree	018/366/15-16	-
C	143m W	Single Tree	018/366/15-16	-
C	144m W	Single Tree	018/366/15-16	-
14	144m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
C	145m W	Single Tree	018/366/15-16	-
C	145m W	Single Tree	018/366/15-16	-
C	145m SW	Single Tree	018/366/15-16	-
C	145m SW	Single Tree	018/366/15-16	-
C	146m SW	Single Tree	018/366/15-16	-
C	146m SW	Single Tree	018/366/15-16	-
C	146m SW	Single Tree	018/366/15-16	-
C	146m SW	Single Tree	018/366/15-16	-
C	146m SW	Single Tree	018/366/15-16	-
C	146m SW	Single Tree	018/366/15-16	-
C	147m SW	Single Tree	018/366/15-16	-
C	147m SW	Single Tree	018/366/15-16	-
C	147m SW	Single Tree	018/366/15-16	-
C	148m SW	Single Tree	018/366/15-16	-
C	148m SW	Single Tree	018/366/15-16	-
C	148m SW	Single Tree	018/366/15-16	-
C	148m SW	Single Tree	018/366/15-16	-
E	149m SW	Single Tree	018/366/15 16	
E	149m SW	Single Tree	018/366/15-16	-
E	149m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-

ID	Location	Description	Reference	Application date
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
E	150m SW	Single Tree	018/366/15-16	-
D	152m SW	Single Tree	018/366/15-16	-
15	154m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
E	157m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
D	158m SW	Single Tree	018/366/15-16	-
16	159m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
17	164m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
F	175m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
F	176m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
G	193m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
18	193m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
G	193m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
19	194m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
20	194m SE	Selective Fell/Thin (Unconditional)	018/366/15-16	-
21	195m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
22	196m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
25	201m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
26	205m SW	Selective Fell/Thin (Unconditional)	018/366/15 16	
27	207m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
28	207m SW	Selective Fell/Thin (Unconditional)	018/366/15-16	-
30	218m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
31	225m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-
32	225m SE	Selective Fell/Thin (Unconditional)	018/366/15-16	-

ID	Location	Description	Reference	Application date
33	229m W	Selective Fell/Thin (Unconditional)	018/366/15-16	-

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m	1

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

Location	Reference	Scheme	Start Date	End date
On site	**AG00624893**	**Entry Level Stewardship**	**01/10/2014**	**30/09/2019**

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m	11

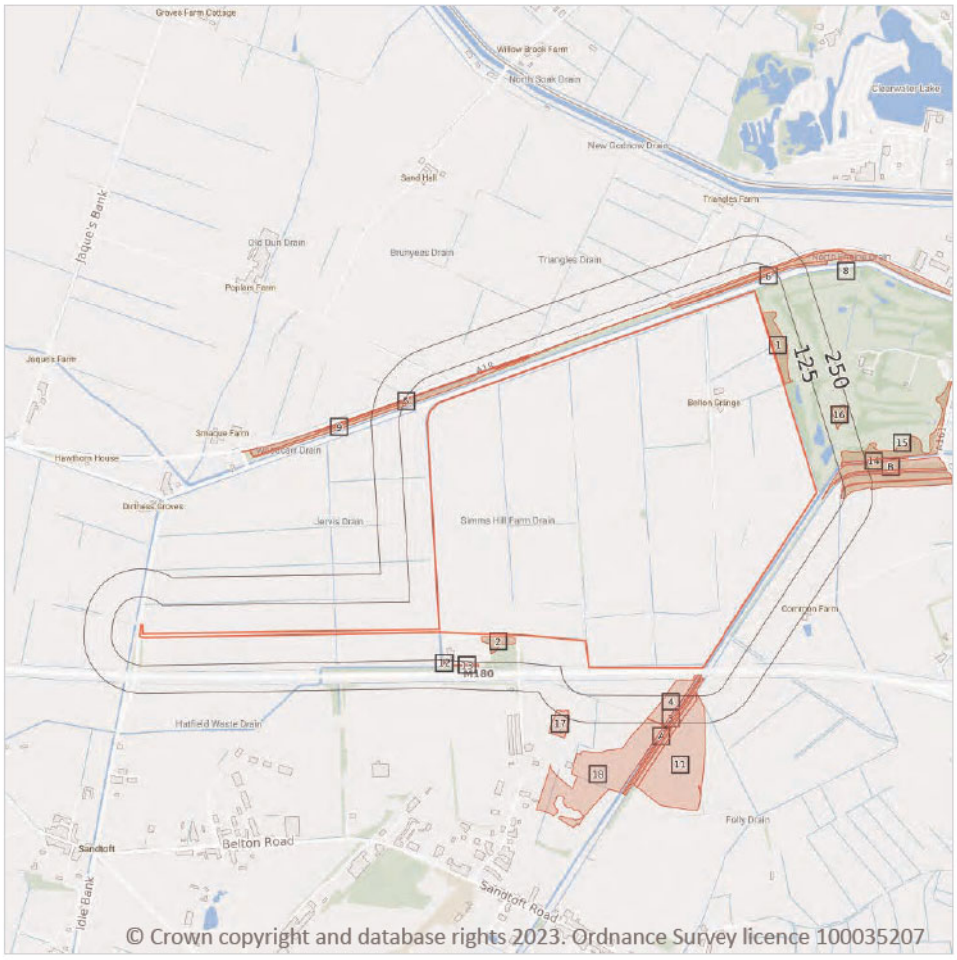
Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

Location	Reference	Scheme	Start Date	End Date
On site	**489951**	**Countryside Stewardship (Middle Tier)**	**01/01/2018**	**31/12/2022**
On site	**824806**	**Countryside Stewardship (Middle Tier)**	**01/01/2020**	**31/12/2024**
On site	**1066277**	**Countryside Stewardship (Middle Tier)**	**01/01/2021**	**31/12/2025**
4m SW	1056200	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025
28m W	489951	Countryside Stewardship (Middle Tier)	01/01/2018	31/12/2022
29m W	489951	Countryside Stewardship (Middle Tier)	01/01/2018	31/12/2022
41m SE	1061543	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025

Location	Reference	Scheme	Start Date	End Date
54m SE	1061543	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025
63m S	1066277	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025
112m E	1061543	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025
226m W	1061406	Countryside Stewardship (Middle Tier)	01/01/2021	31/12/2025

This data is sourced from Natural England.

13 Habitat designations



13.1 Priority Habitat Inventory

Records within 250m	23

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

Features are displayed on the Habitat designations map on **page 118**

ID	Location	Main Habitat	Other habitats
1	3m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
2	8m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	33m SE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
4	33m SE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)

ID	Location	Main Habitat	Other habitats
A	35m SE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
B	35m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
5	38m NW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
6	43m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
7	45m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	46m SE	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
8	63m N	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
B	84m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
A	109m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
9	110m W	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
10	111m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
11	114m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
12	121m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
13	136m SW	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
14	139m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
15	144m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
16	170m E	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
17	217m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)
18	233m S	Coastal and floodplain grazing marsh	Main habitat: CFPGM (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m	**0**

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m	0

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

This data is sourced from Natural England.

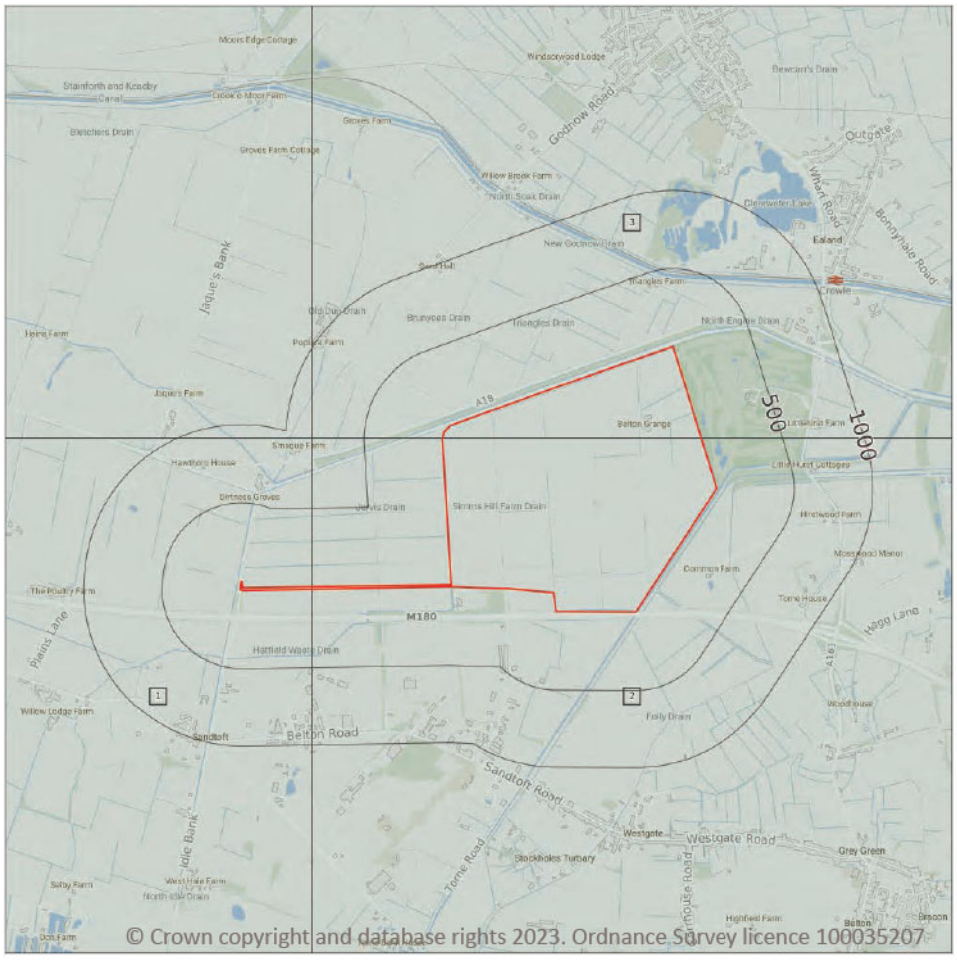
13.4 Limestone Pavement Orders

Records within 250m	0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.

14 Geology 1:10,000 scale - Availability



14.1 10k Availability

Records within 500m	3

An indication on the coverage of 1:10,000 scale geology data for the site, the most detailed dataset provided by the British Geological Survey. Either 'Full', 'Partial' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 121**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	SE70NW
2	On site	No coverage	Full	Full	No coverage	SE70NE
3	On site	No coverage	Full	Full	No coverage	SE71SE

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Artificial and made ground

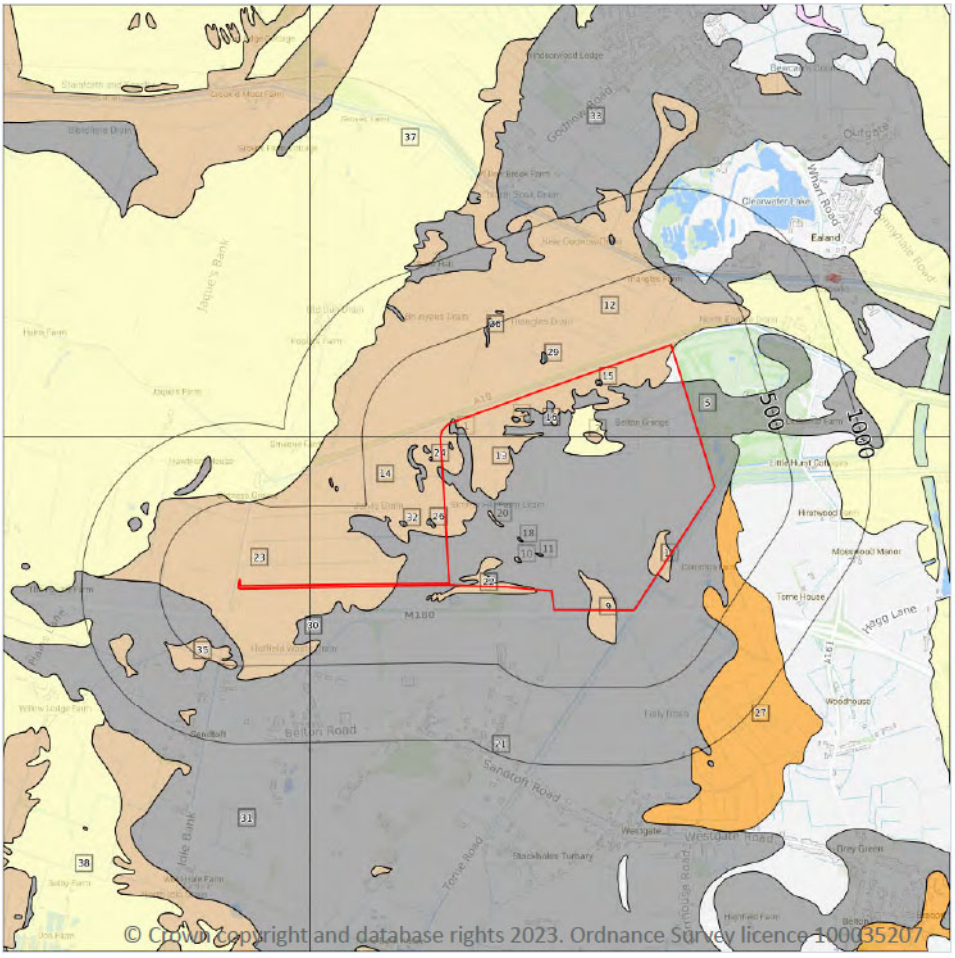
14.2 Artificial and made ground (10k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:10,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Superficial



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14.3 Superficial geology (10k)

Records within 500m **38**

Superficial geological deposits at 1:10,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:10,000 scale - Superficial map on **page 123**

ID	Location	LEX Code	Description	Rock description
1	On site	BSA1-S	Blown Sand, 1 - Sand	Sand
2	On site	PEAT-P	Peat - Peat	Peat
3	On site	BSA1-S	Blown Sand, 1 - Sand	Sand
4	On site	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

ID	Location	LEX Code	Description	Rock description
5	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
6	**On site**	**ALV-XCZSV**	**Alluvium - Clay, Silt, Sand And Gravel**	**Clay, Silt, Sand And Gravel**
7	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
8	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
9	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
10	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
11	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
12	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
13	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
14	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
15	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
16	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
17	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
18	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
19	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
20	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
21	**On site**	**BSA1-S**	**Blown Sand, 1 - Sand**	**Sand**
22	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
23	**On site**	**PEAT-P**	**Peat - Peat**	**Peat**
24	59m W	BSA1-S	Blown Sand, 1 - Sand	Sand
25	66m W	BSA1-S	Blown Sand, 1 - Sand	Sand
26	67m W	BSA1-S	Blown Sand, 1 - Sand	Sand
27	87m E	HEM CZ	Hemingbrough Glaciolacustrine Formation Silty Clay	Clay, Silty
28	104m W	BSA1-S	Blown Sand, 1 - Sand	Sand
29	158m N	BSA1-S	Blown Sand, 1 - Sand	Sand
30	185m SW	BSA1-S	Blown Sand, 1 - Sand	Sand
31	223m W	BSA1-S	Blown Sand, 1 - Sand	Sand
32	246m W	BSA1-S	Blown Sand, 1 - Sand	Sand

ID	Location	LEX Code	Description	Rock description
33	317m NE	BSA1-S	Blown Sand, 1 - Sand	Sand
34	336m SW	PEAT-P	Peat - Peat	Peat
35	378m SW	PEAT-P	Peat - Peat	Peat
36	378m NW	BSA1-S	Blown Sand, 1 - Sand	Sand
37	442m NE	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel
38	489m W	ALV-XCZSV	Alluvium - Clay, Silt, Sand And Gravel	Clay, Silt, Sand And Gravel

This data is sourced from the British Geological Survey.

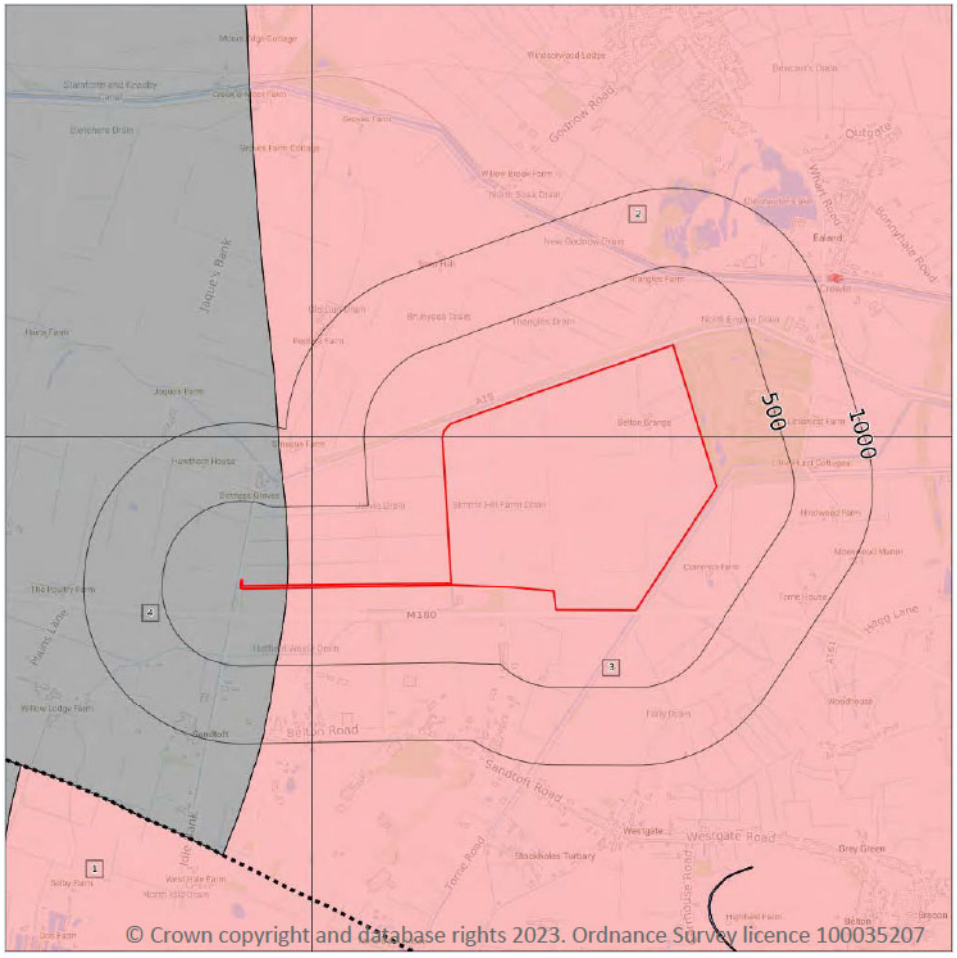
14.4 Landslip (10k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:10,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

Geology 1:10,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (10k)

Bedrock geology (10k)
Please see table for more details.

14.5 Bedrock geology (10k)

Records within 500m	4

Bedrock geology at 1:10,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:10,000 scale - Bedrock map on **page 126**

ID	Location	LEX Code	Description	Rock age
1	On site	MMG-MDST	Mercia Mudstone Group - Mudstone	Rhaetian Age - Early Triassic Epoch
2	On site	MMG-MDST	Mercia Mudstone Group - Mudstone	Rhaetian Age - Early Triassic Epoch

ID	Location	LEX Code	Description	Rock age
3	On site	MMG-MDST	Mercia Mudstone Group - Mudstone	Rhaetian Age - Early Triassic Epoch
4	On site	NTC-SDST	Nottingham Castle Sandstone Formation - Sandstone	Early Triassic Epoch

This data is sourced from the British Geological Survey.

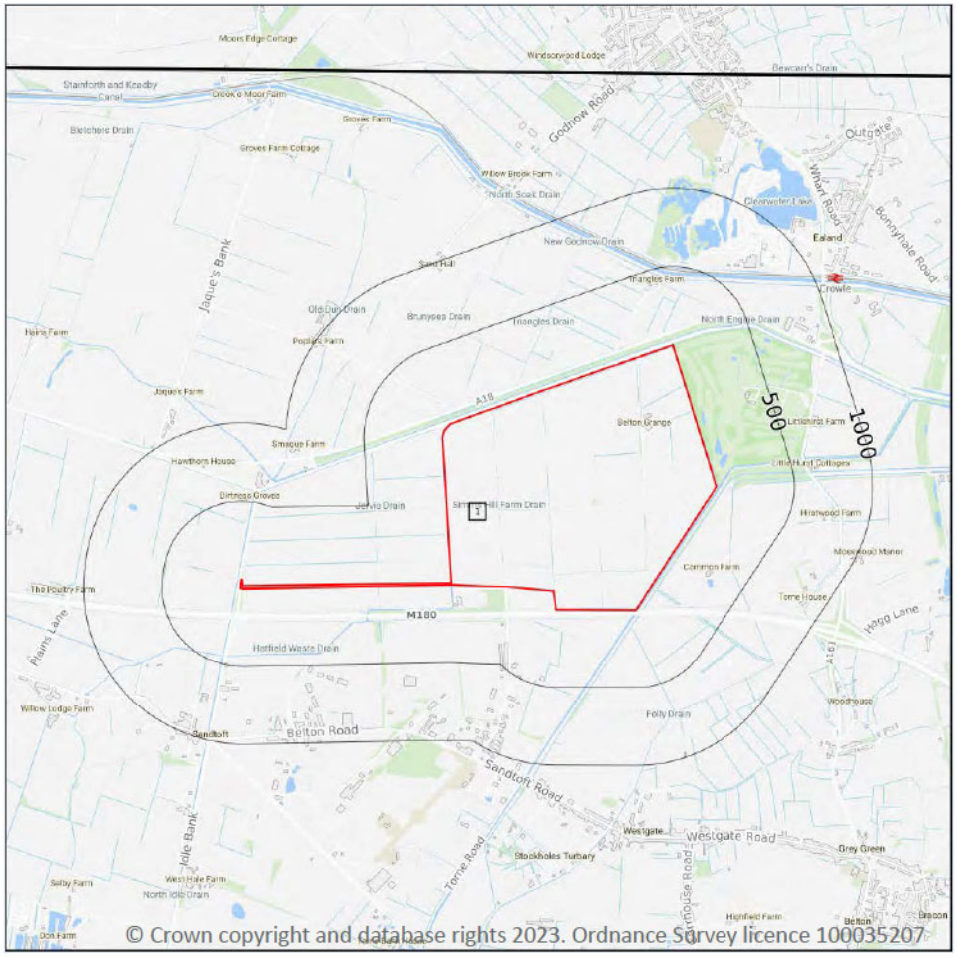
14.6 Bedrock faults and other linear features (10k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:10,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

15 Geology 1:50,000 scale - Availability



15.1 50k Availability

Records within 500m	1

An indication on the coverage of 1:50,000 scale geology data for the site. Either 'Full' or 'No coverage' for each geological theme.

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 128**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW088_doncaster_v4

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Artificial and made ground

15.2 Artificial and made ground (50k)

Records within 500m	0

Details of made, worked, infilled, disturbed and landscaped ground at 1:50,000 scale. Artificial ground can be associated with potentially contaminated material, unpredictable engineering conditions and instability.

This data is sourced from the British Geological Survey.

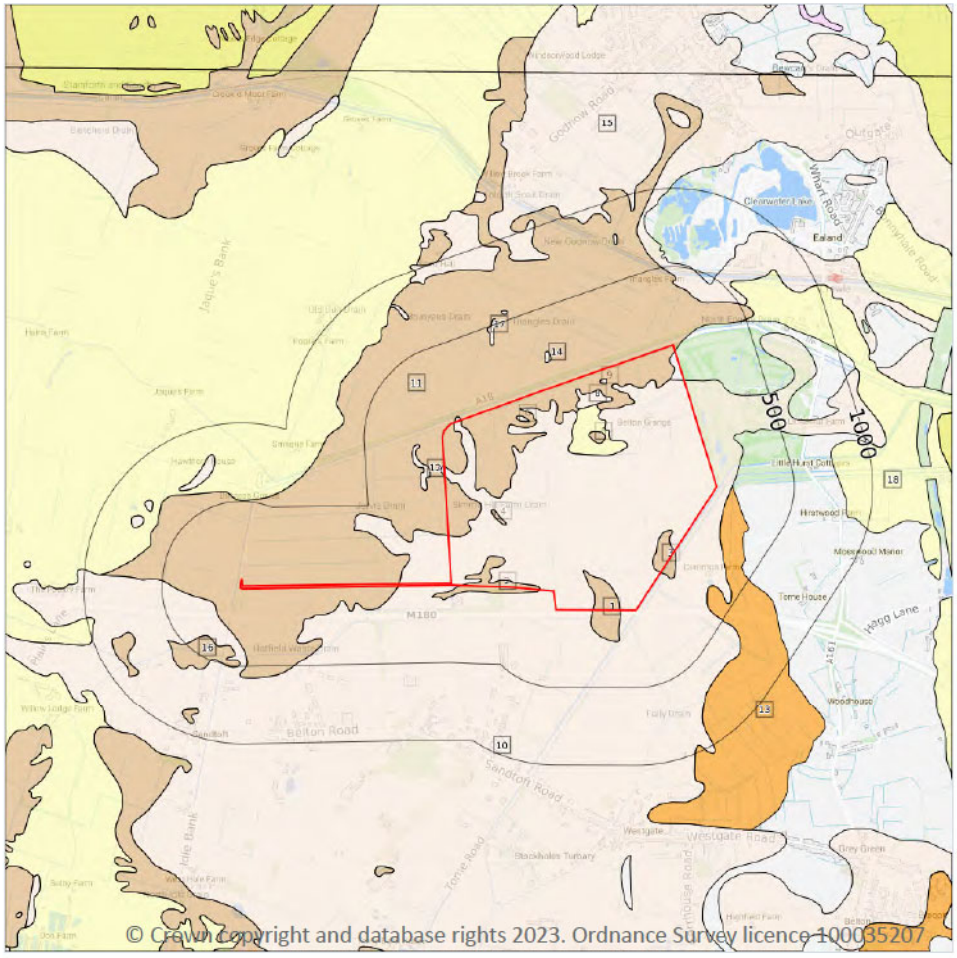
15.3 Artificial ground permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Superficial



Site Outline

Search buffers in metres (m)

Landslip (50k)

Superficial geology (50k)
Please see table for more details.

15.4 Superficial geology (50k)

Records within 500m **18**

Superficial geological deposits at 1:50,000 scale. Also known as 'drift', these are the youngest geological deposits, formed during the Quaternary. They rest on older deposits or rocks referred to as bedrock.

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 130**

ID	Location	LEX Code	Description	Rock description
1	On site	PEAT-P	PEAT	PEAT
2	On site	PEAT-P	PEAT	PEAT
3	On site	PEAT-P	PEAT	PEAT
4	On site	PEAT-P	PEAT	PEAT

ID	Location	LEX Code	Description	Rock description
5	**On site**	**PEAT-P**	**PEAT**	**PEAT**
6	**On site**	**SUTN-S**	**SUTTON SAND FORMATION**	**SAND**
7	**On site**	**ALV-XCZSV**	**ALLUVIUM**	**CLAY, SILT, SAND AND GRAVEL**
8	**On site**	**SUTN-S**	**SUTTON SAND FORMATION**	**SAND**
9	**On site**	**SUTN-S**	**SUTTON SAND FORMATION**	**SAND**
10	**On site**	**SUTN-S**	**SUTTON SAND FORMATION**	**SAND**
11	**On site**	**PEAT-P**	**PEAT**	**PEAT**
12	92m W	SUTN-S	SUTTON SAND FORMATION	SAND
13	96m E	HEM-CZ	HEMINGBROUGH GLACIOLACUSTRINE FORMATION	CLAY, SILTY
14	161m N	SUTN-S	SUTTON SAND FORMATION	SAND
15	328m NE	SUTN-S	SUTTON SAND FORMATION	SAND
16	369m W	PEAT-P	PEAT	PEAT
17	382m NW	SUTN-S	SUTTON SAND FORMATION	SAND
18	447m NE	ALV-XCZSV	ALLUVIUM	CLAY, SILT, SAND AND GRAVEL

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m **19**

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any superficial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Intergranular**	**High**	**Very Low**
On site	**Intergranular**	**High**	**Very Low**
On site	**Intergranular**	**High**	**High**
On site	**Intergranular**	**High**	**High**
On site	**Intergranular**	**High**	**High**
On site	**Intergranular**	**High**	**High**
On site	**Intergranular**	**High**	**High**

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	High	High
On site	Intergranular	High	High
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low
On site	Mixed	Low	Very Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m	0

Mass movement deposits on BGS geological maps at 1:50,000 scale. Primarily superficial deposits that have moved down slope under gravity to form landslips. These affect bedrock, other superficial deposits and artificial ground.

This data is sourced from the British Geological Survey.

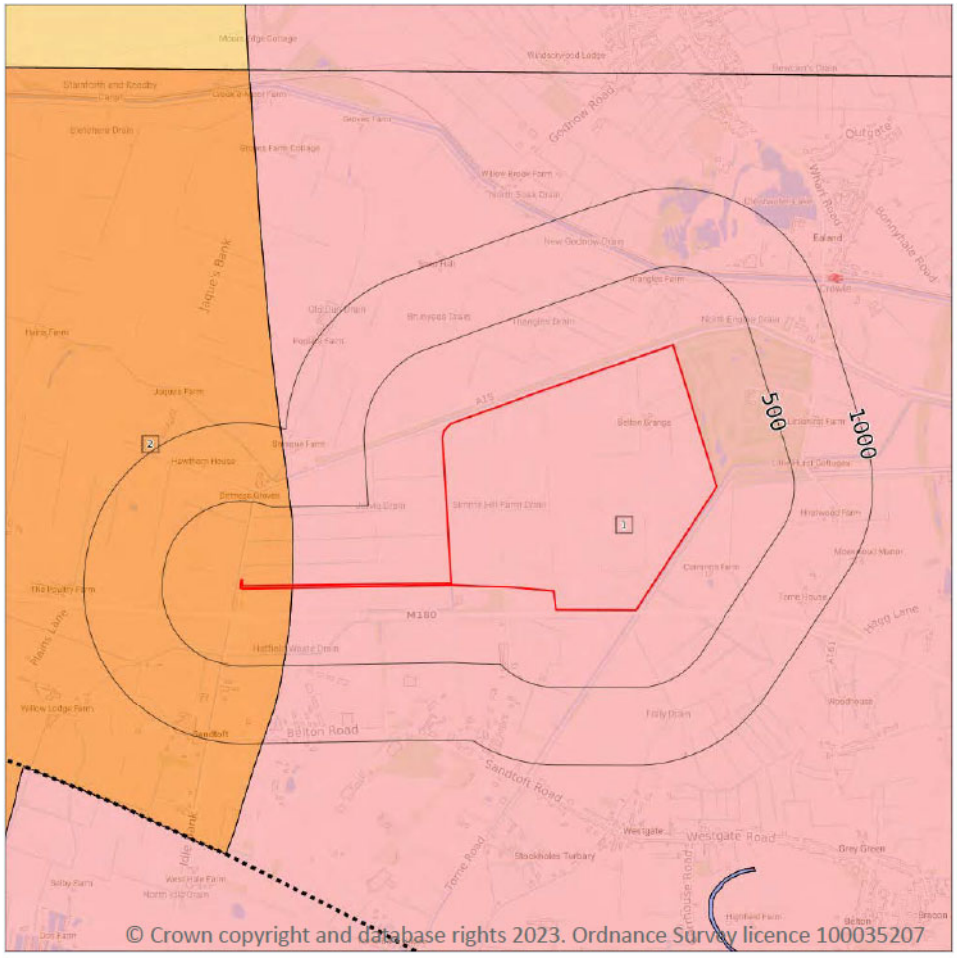
15.7 Landslip permeability (50k)

Records within 50m	0

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any landslip deposits (the zone between the land surface and the water table).

This data is sourced from the British Geological Survey.

Geology 1:50,000 scale - Bedrock



Site Outline

Search buffers in metres (m)

Bedrock faults and other linear features (50k)

Bedrock geology (50k)
Please see table for more details.

15.8 Bedrock geology (50k)

Records within 500m	2

Bedrock geology at 1:50,000 scale. The main mass of rocks forming the Earth and present everywhere, whether exposed at the surface in outcrops or concealed beneath superficial deposits or water.

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 133**

ID	Location	LEX Code	Description	Rock age
1	On site	MMG-MDST	MERCIA MUDSTONE GROUP - MUDSTONE	-
2	On site	CHES-PESST	CHESTER FORMATION - SANDSTONE, PEBBLY (GRAVELLY)	OLENEKIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m	4

A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of bedrock (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	**Mixed**	**High**	**Moderate**
On site	**Fracture**	**Low**	**Low**
On site	**Fracture**	**Low**	**Low**
On site	**Fracture**	**Low**	**Low**

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m	0

Linear features at the ground or bedrock surface at 1:50,000 scale of six main types; rock, fault, fold axis, mineral vein, alteration area or landform. Features are either observed or inferred, and relate primarily to bedrock.

This data is sourced from the British Geological Survey.

16 Boreholes

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16.1 BGS Boreholes

Records within 250m **29**

The Single Onshore Boreholes Index (SOBI); an index of over one million records of boreholes, shafts and wells from all forms of drilling and site investigation work held by the British Geological Survey. Covering onshore and nearshore boreholes dating back to at least 1790 and ranging from one to several thousand metres deep.

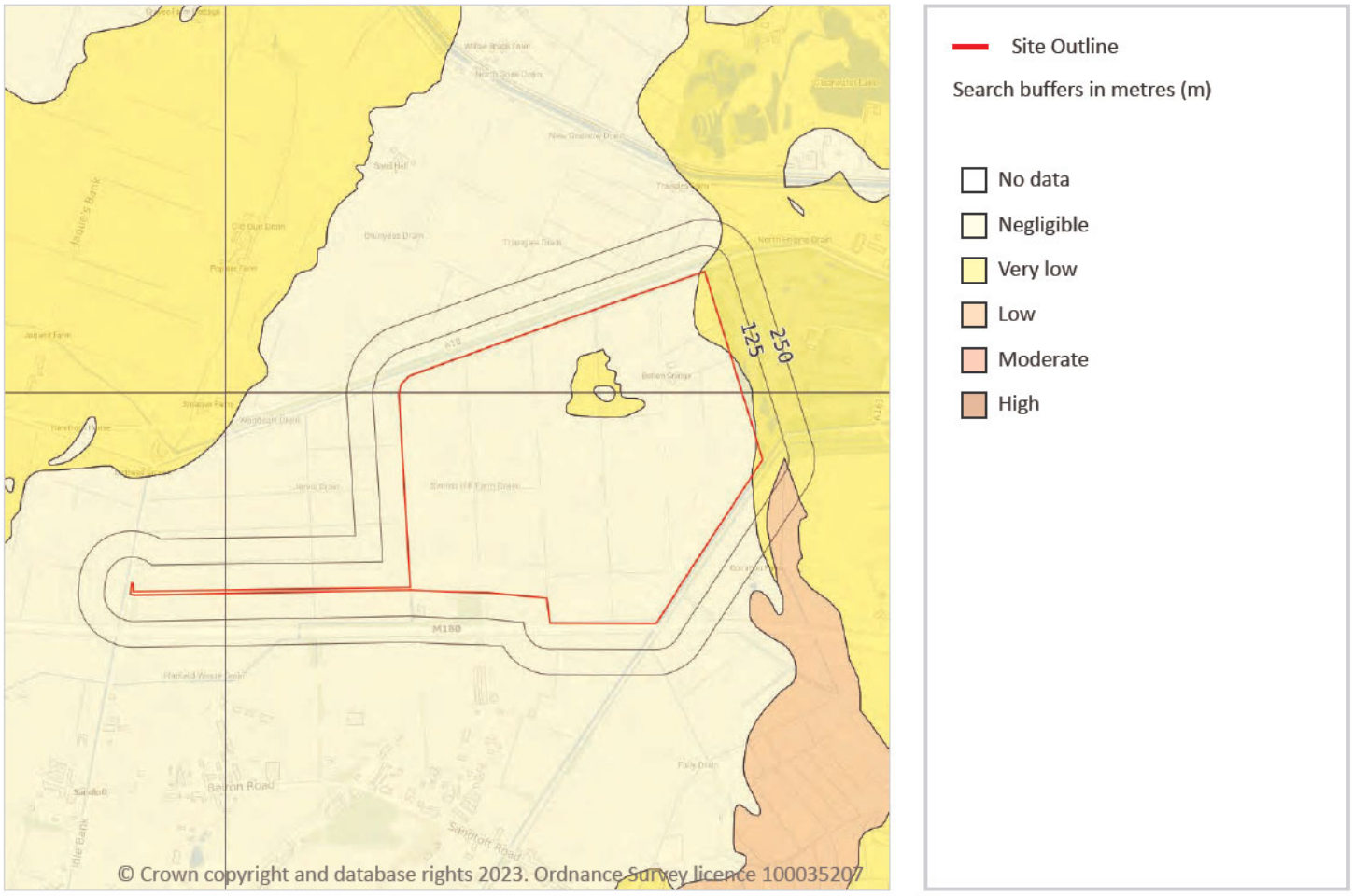
Features are displayed on the Boreholes map on **page 135**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	**On site**	**477083 409904**	**BELTON GRANGE FARM**	**85.95**	**N**	**124456**
2	3m S	476840 408890	SOUTH HUMBERSIDE M180 C14	2.0	N	124476
3	22m SE	477050 408870	SOUTH HUMBERSIDE M180 P17	22.1	N	124477

ID	Location	Grid reference	Name	Length	Confidential	Web link
4	25m SE	477080 408870	M180 THORNE-SCUNTHORPE BHP19	22.0	N	124504
5	42m SE	477030 408850	M180 THORNE-SCUNTHORPE BHP20	22.0	N	124505
6	48m S	476540 408850	SOUTH HUMBERSIDE M180 C12	4.0	N	124475
7	50m SE	477120 408880	M180 THORNE-SCUNTHORPE BHP18	21.0	N	124503
8	53m SE	477100 408850	M180 THORNE-SCUNTHORPE BHP21	20.0	N	124506
9	97m N	476430 410380	A18 SCUNTHORPE 91	6.09	N	124769
10	101m NE	477220 410660	A18 SCUNTHORPE 92	6.09	N	124770
11	103m W	474670 409150	DONCASTER 113	12.19	N	124582
12	109m S	476450 408880	SOUTH HUMBERSIDE M180 C11	2.0	N	124474
13	126m W	474590 409206	SANDTOFT BH	1025.2	N	124529
14	158m N	476914 410614	EALAND 1	1011.0	N	18958646
15	161m SW	476250 408880	M180 THORNE-SCUNTHORPE BHP8	16.5	N	124500
16	162m W	474470 408890	DONCASTER 112	12.19	N	124581
17	171m SW	476210 408870	SOUTH HUMBERSIDE M180 P7	19.3	N	124473
18	174m SW	476090 408870	SOUTH HUMBERSIDE M180 C5	3.0	N	124471
19	175m SW	475490 408870	M180 THORNE-SCUNTHORPE BHR107	4.0	N	124496
20	182m SW	475860 408870	SOUTH HUMBERSIDE M180 C3	4.0	N	124469
21	183m SW	475340 408860	A18 THORNE/SCUNTHORPE 41	3.05	N	124464
22	201m SW	476250 408840	M180 THORNE-SCUNTHORPE BHP10	15.0	N	124502
23	201m SW	476220 408840	M180 THORNE-SCUNTHORPE BHP9	22.0	N	124501
24	208m SW	475990 408840	SOUTH HUMBERSIDE M180 C4	4.0	N	124470
25	209m SW	475700 408840	M180 THORNE-SCUNTHORPE BHR109	4.0	N	124498
26	210m W	475640 410090	A18 SCUNTHORPE 90	4.87	N	124768
27	214m SW	476320 408820	SOUTH HUMBERSIDE M180 C6	4.0	N	124472
28	214m W	474510 408820	A18 THORNE/SCUNTHORPE 40	12.49	N	124544
29	237m SW	475600 408810	M180 THORNE-SCUNTHORPE BHR108	3.7	N	124497

This data is sourced from the British Geological Survey.

17 Natural ground subsidence - Shrink swell clays



17.1 Shrink swell clays

Records within 50m	2

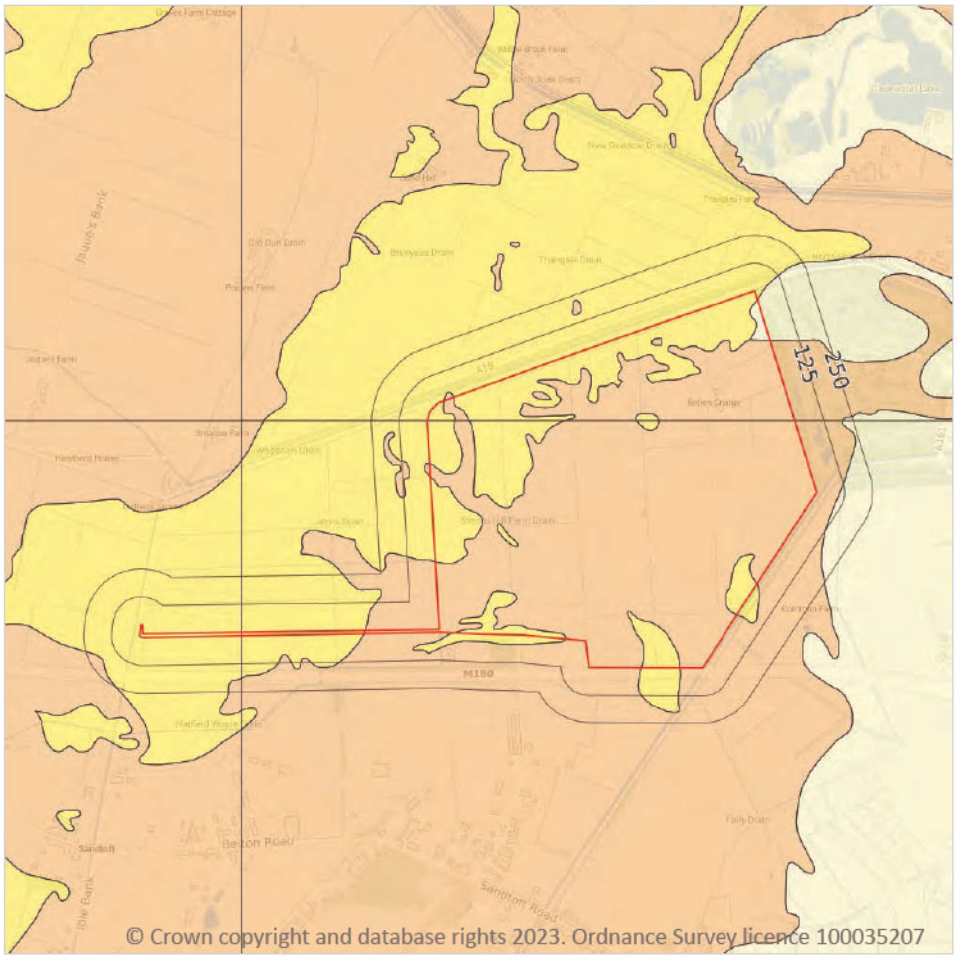
The potential hazard presented by soils that absorb water when wet (making them swell), and lose water as they dry (making them shrink). This shrink-swell behaviour is controlled by the type and amount of clay in the soil, and by seasonal changes in the soil moisture content (related to rainfall and local drainage).

Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 137**

Location	Hazard rating	Details
On site	**Negligible**	**Ground conditions predominantly non-plastic.**
On site	**Very low**	**Ground conditions predominantly low plasticity.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Running sands



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.2 Running sands

Records within 50m	3

The potential hazard presented by rocks that can contain loosely-packed sandy layers that can become fluidised by water flowing through them. Such sands can 'run', removing support from overlying buildings and causing potential damage.

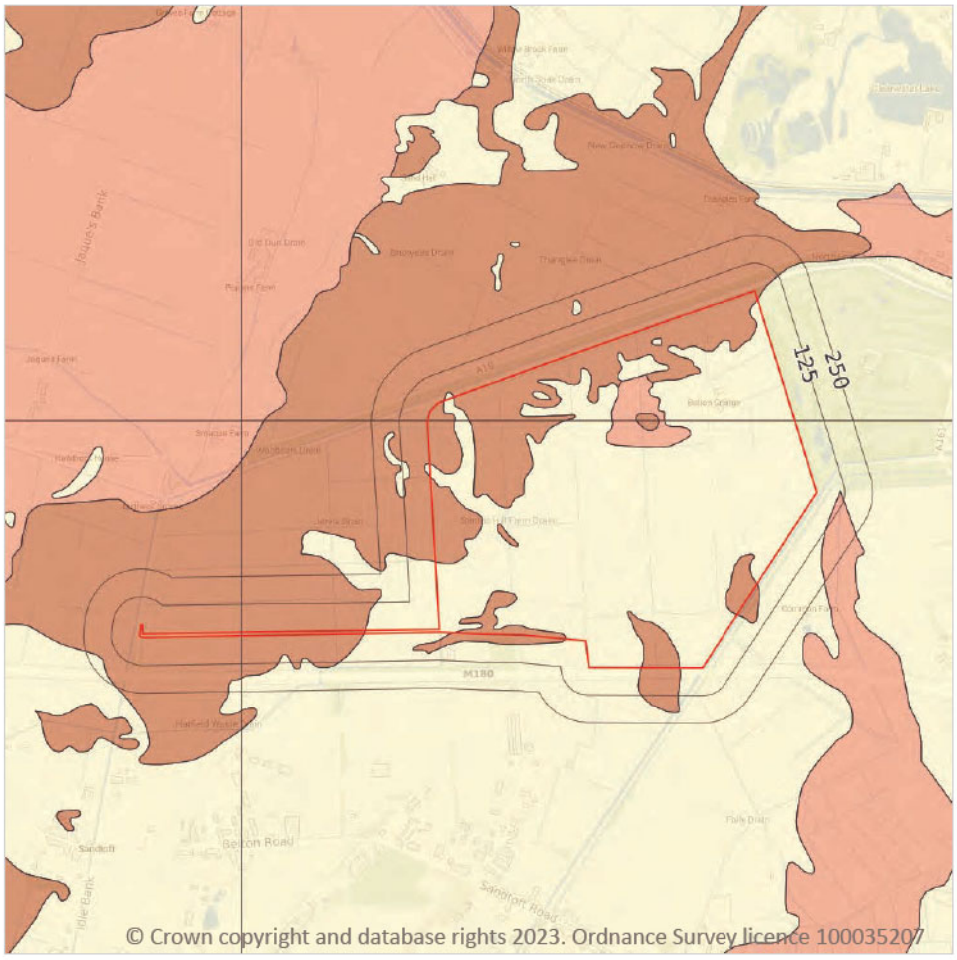
Features are displayed on the Natural ground subsidence - Running sands map on **page 138**

Location	Hazard rating	Details
On site	**Negligible**	**Running sand conditions are not thought to occur whatever the position of the water table. No identified constraints on lands use due to running conditions.**

Location	Hazard rating	Details
On site	**Very low**	**Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.**
On site	**Low**	**Running sand conditions may be present. Constraints may apply to land uses involving excavation or the addition or removal of water.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Compressible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.3 Compressible deposits

Records within 50m	3

The potential hazard presented by types of ground that may contain layers of very soft materials like clay or peat and may compress if loaded by overlying structures, or if the groundwater level changes, potentially resulting in depression of the ground and disturbance of foundations.

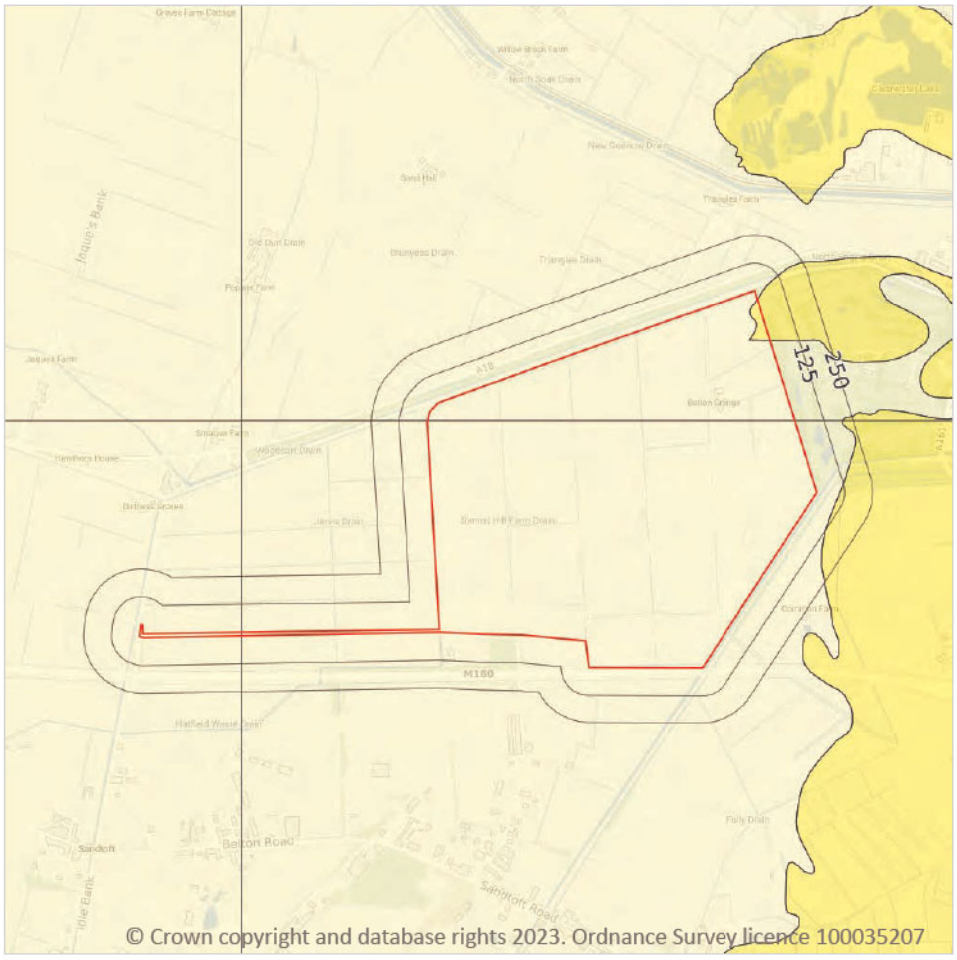
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 140**

Location	Hazard rating	Details
On site	**Negligible**	**Compressible strata are not thought to occur.**
On site	**Moderate**	**Compressibility and uneven settlement hazards are probably present. Land use should consider specifically the compressibility and variability of the site.**

Location	Hazard rating	Details
On site	**High**	**Highly compressible strata present. Significant constraint on land use depending on thickness.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Collapsible deposits



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.4 Collapsible deposits

Records within 50m	2

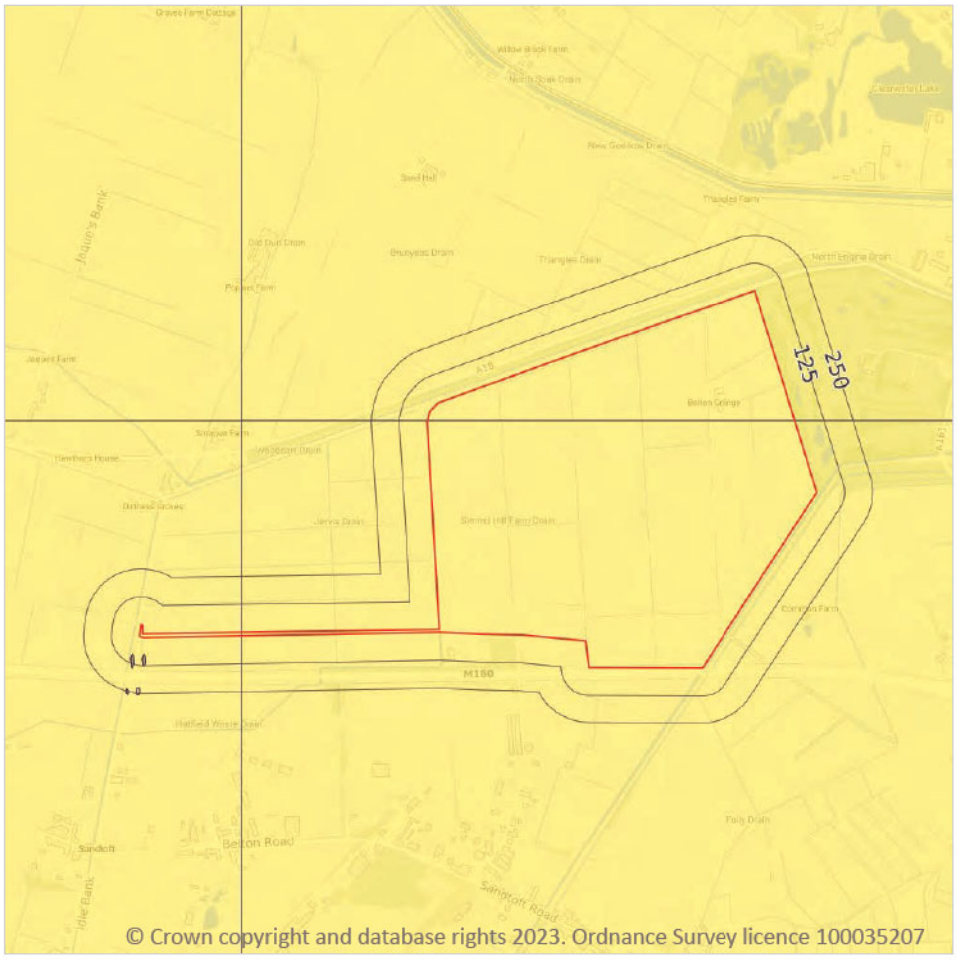
The potential hazard presented by natural deposits that could collapse when a load (such as a building) is placed on them or they become saturated with water.

Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 142**

Location	Hazard rating	Details
On site	**Negligible**	**Deposits with potential to collapse when loaded and saturated are believed not to be present.**
On site	**Very low**	**Deposits with potential to collapse when loaded and saturated are unlikely to be present.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Landslides



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.5 Landslides

Records within 50m	1

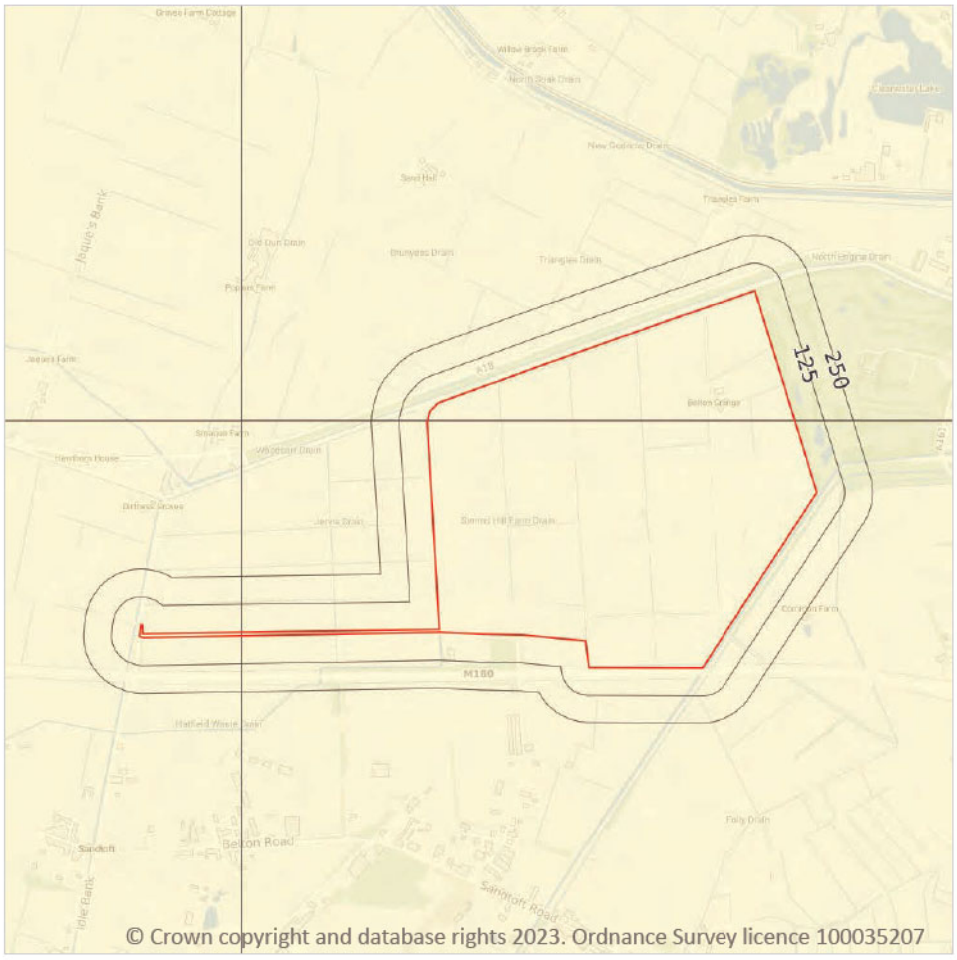
The potential for landsliding (slope instability) to be a hazard assessed using 1:50,000 scale digital maps of superficial and bedrock deposits, combined with information from the BGS National Landslide Database and scientific and engineering reports.

Features are displayed on the Natural ground subsidence - Landslides map on **page 143**

Location	Hazard rating	Details
On site	**Very low**	**Slope instability problems are not likely to occur but consideration to potential problems of adjacent areas impacting on the site should always be considered.**

This data is sourced from the British Geological Survey.

Natural ground subsidence - Ground dissolution of soluble rocks



Site Outline

Search buffers in metres (m)

- No data
- Negligible
- Very low
- Low
- Moderate
- High

17.6 Ground dissolution of soluble rocks

Records within 50m	1

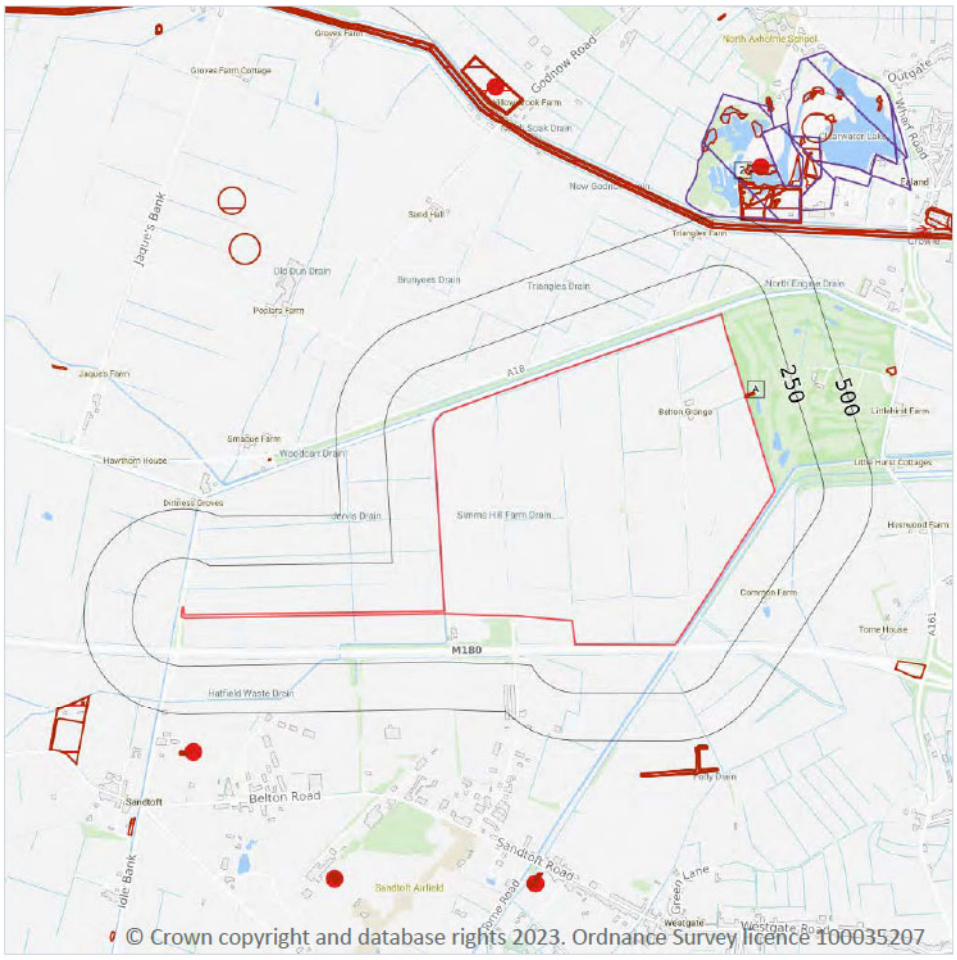
The potential hazard presented by ground dissolution, which occurs when water passing through soluble rocks produces underground cavities and cave systems. These cavities reduce support to the ground above and can cause localised collapse of the overlying rocks and deposits.

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 144**

Location	Hazard rating	Details
On site	**Negligible**	**Soluble rocks are either not thought to be present within the ground, or not prone to dissolution. Dissolution features are unlikely to be present.**

This data is sourced from the British Geological Survey.

18 Mining, ground workings and natural cavities



Site Outline

Search buffers in metres (m)

- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities

Non Coal Mining

- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m	0

Industry recognised national database of natural cavities. Sinkholes and caves are formed by the dissolution of soluble rock, such as chalk and limestone, gulls and fissures by cambering. Ground instability can result from movement of loose material contained within these cavities, often triggered by water.

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m	0

BritPits (an abbreviation of British Pits) is a database maintained by the British Geological Survey of currently active and closed surface and underground mineral workings. Details of major mineral handling sites, such as wharfs and rail depots are also held in the database.

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m	2

Historical land uses identified from Ordnance Survey mapping that involved ground excavation at the surface. These features may or may not have been subsequently backfilled.

Features are displayed on the Mining, ground workings and natural cavities map on **page 146**

ID	Location	Land Use	Year of mapping	Mapping scale
A	**On site**	**Ponds**	**1885**	**1:10560**
A	7m NE	Pond	1973	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m	0

Historical land uses identified from Ordnance Survey mapping that indicate the presence of underground workings e.g. mine shafts.

This is data is sourced from Ordnance Survey/Groundsure.

18.5 Historical Mineral Planning Areas

Records within 500m	1

Boundaries of mineral planning permissions for England and Wales. This data was collated between the 1940s (and retrospectively to the 1930s) and the mid 1980s. The data includes permitted, withdrawn and refused permissions.

Features are displayed on the Mining, ground workings and natural cavities map on **page 146**

ID	Location	Site Name	Mineral	Type	Planning Status	Planning Status Date
2	499m NE	Crowle Brickworks	Clay, bricks	Surface mineral working	Valid	4/12/1947

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m	0

The potential for historical non-coal mining to have affected an area. The assessment is drawn from expert knowledge and literature in addition to the digital geological map of Britain. Mineral commodities may be divided into seven general categories - vein minerals, chalk, oil shale, building stone, bedded ores, evaporites and 'other' commodities (including ball clay, jet, black marble, graphite and chert).

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m	0

Industry recognised national database of mining cavities. Degraded mines may result in hazardous subsidence (crown holes). Climatic conditions and water escape can also trigger subsidence over mine entrances and workings.

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site	0

Areas which could be affected by former coal and other mining. This data includes some mine plans unavailable to the Coal Authority.

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site	0

Areas which could be affected by past, current or future coal mining.

This data is sourced from the Coal Authority.

18.10 Brine areas

Records on site	0

The Cheshire Brine Compensation District indicates areas that may be affected by salt and brine extraction in Cheshire and where compensation would be available where damage from this mining has occurred. Damage from salt and brine mining can still occur outside this district, but no compensation will be available.

This data is sourced from the Cheshire Brine Subsidence Compensation Board.

18.11 Gypsum areas

Records on site	0

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

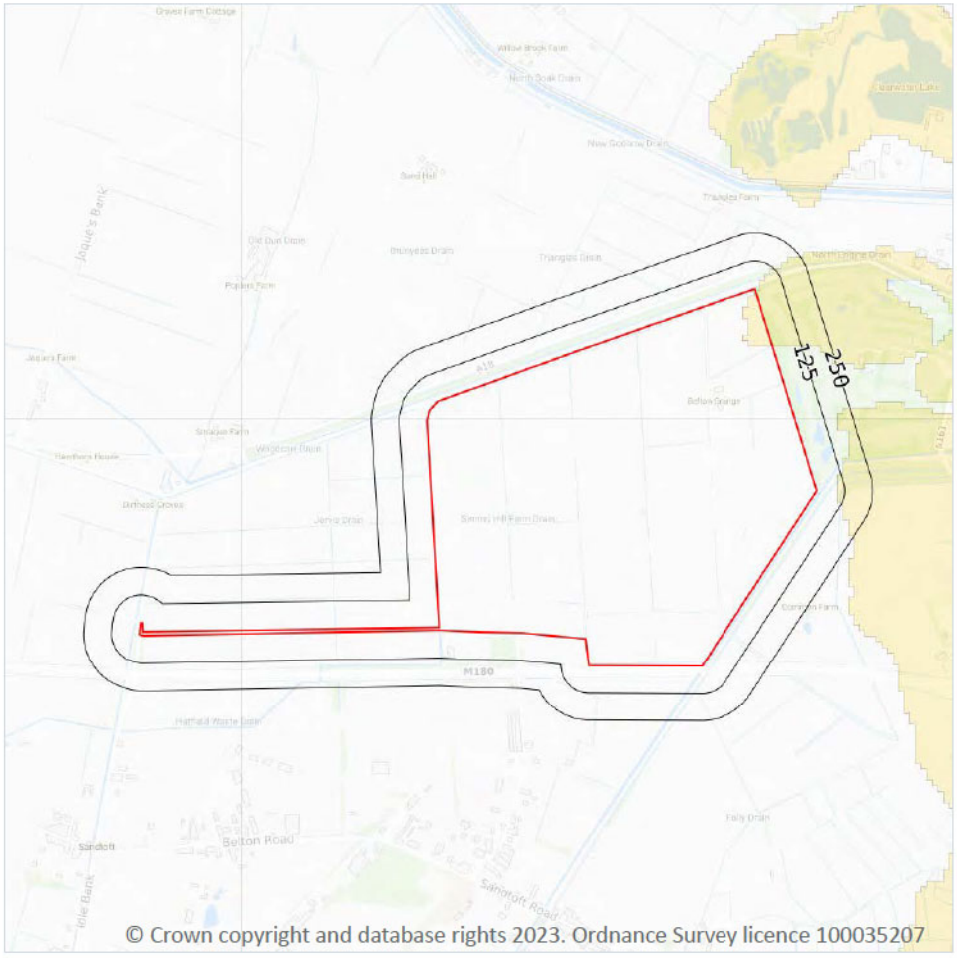
18.13 Clay mining

Records on site	0

Generalised areas that may be affected by kaolin and ball clay extraction.

This data is sourced from the Kaolin and Ball Clay Association (UK).

19 Radon



Site Outline

Search buffers in metres (m)

- Greater than 30%
- Between 10% and 30%
- Between 5% and 10%
- Between 3% and 5%
- Between 1% and 3%
- Less than 1%

19.1 Radon

Records on site	2

The Radon Potential data classifies areas based on their likelihood of a property having a radon level at or above the Action Level in Great Britain. The dataset is intended for use at 1:50,000 scale and was derived from both geological assessments and indoor radon measurements (more than 560,000 records). A minimum 50m buffer should be considered when searching the maps, as the smallest detectable feature at this scale is 50m. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain (1:100,000 scale).

Features are displayed on the Radon map on **page 150**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Between 1% and 3%**	**None**

Location	Estimated properties affected	Radon Protection Measures required
On site	**Less than 1%**	**None**

This data is sourced from the British Geological Survey and UK Health Security Agency.

20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m	120

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km^2. In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km^2; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**40 - 60 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
On site	**15 mg/kg**	**No data**	**100 mg/kg**	**60 mg/kg**	**1.8 mg/kg**	**60 - 90 mg/kg**	**15 - 30 mg/kg**
15m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
15m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
18m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
18m S	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
22m N	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
22m N	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
28m E	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
28m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
28m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
34m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
34m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
34m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
35m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
35m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
36m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
36m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
36m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
36m W	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
43m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
44m W	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
45m SW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
45m SW	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
46m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
46m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
48m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
48m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg
48m SW	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	20 - 40 mg/kg	15 mg/kg

This data is sourced from the British Geological Survey.

20.2 BGS Estimated Urban Soil Chemistry

Records within 50m	0

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km^2).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m	0

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km^2.

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects

21.1 Underground railways (London)

Records within 250m	0

Details of all active London Underground lines, including approximate tunnel roof depth and operational hours.

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m	0

Details of the Merseyrail system, the Tyne and Wear Metro and the Glasgow Subway. Not all parts of all systems are located underground. The data contains location information only and does not include a depth assessment.

This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m	0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m	0

Railways and tunnels digitised from historical Ordnance Survey mapping as scales of 1:1,250, 1:2,500, 1:10,000 and 1:10,560.

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m	0

The Post Office Railway, otherwise known as the Mail Rail, is an underground railway running through Central London from Paddington Head District Sorting Office to Whitechapel Eastern Head Sorting Office. The line is 10.5km long. The data includes details of the full extent of the tunnels, the depth of the tunnel, and the depth to track level.

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m	0

Former railway lines, including dismantled lines, abandoned lines, disused lines, historic railways and razed lines.

This data is sourced from OpenStreetMap.

21.7 Railways

Records within 250m	0

Currently existing railway lines, including standard railways, narrow gauge, funicular, trams and light railways.

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m	0

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m	0

Crossrail 2 is a proposed railway linking the national rail networks in Surrey and Hertfordshire via an underground tunnel through London.

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m	0

HS2 is a proposed high speed rail network running from London to Manchester and Leeds via Birmingham. Main civils construction on Phase 1 (London to Birmingham) of the project began in 2019, and it is currently anticipated that this phase will be fully operational by 2026. Construction on Phase 2a (Birmingham to Crewe) is anticipated to commence in 2021, with the service fully operational by 2027. Construction on Phase 2b (Crewe to Manchester and Birmingham to Leeds) is scheduled to begin in 2023 and be operational by 2033.

This data is sourced from HS2 ltd.

Data providers

Groundsure works with respected data providers to bring you the most relevant and accurate information. To find out who they are and their areas of expertise see https://www.groundsure.com/sources-reference.

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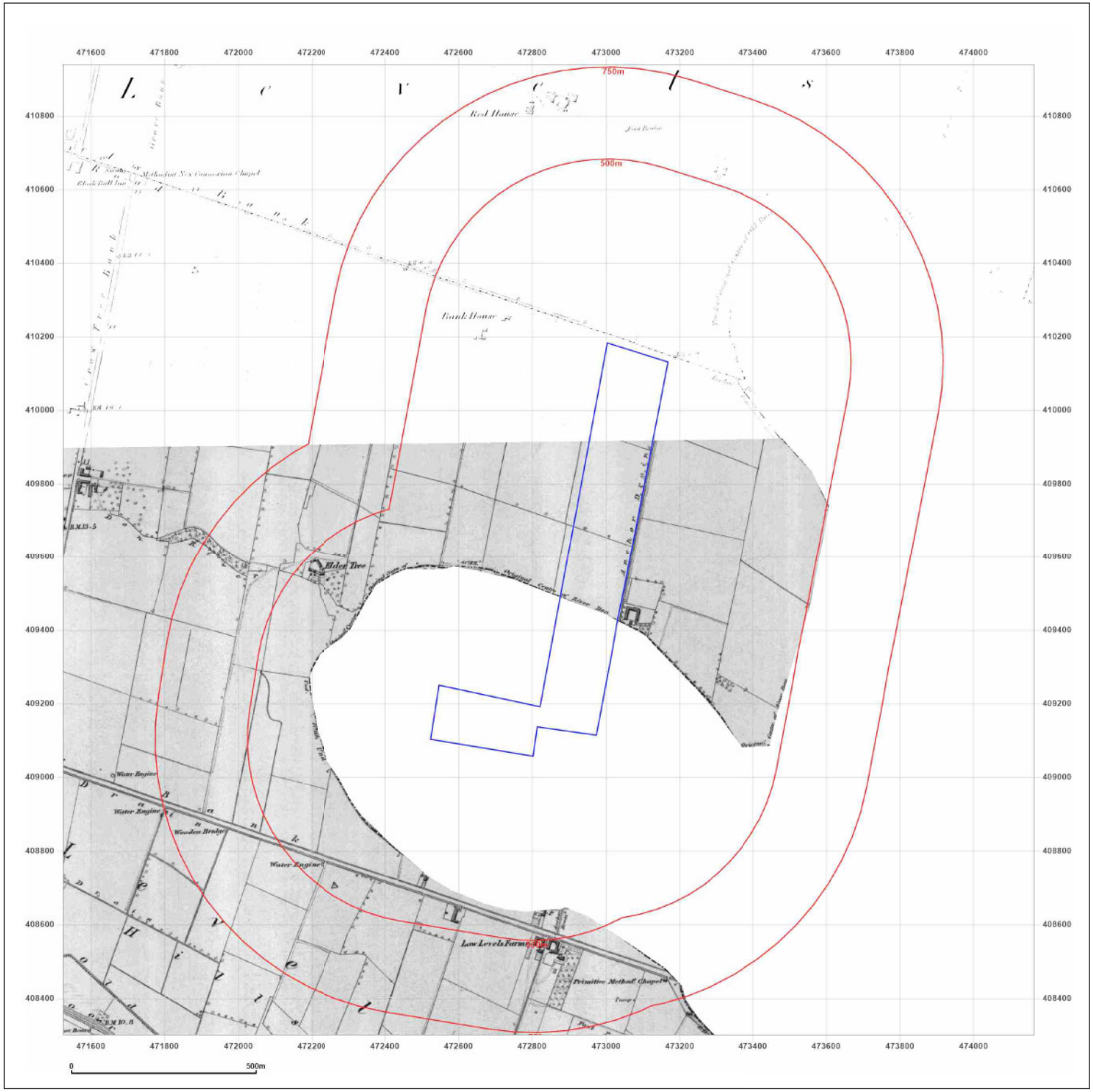

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1853**
Scale: 1:10,560
Printed at: 1:10,560

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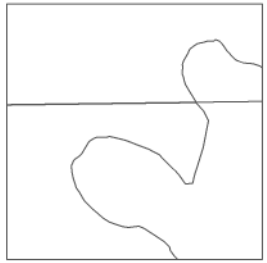
Surveyed 1849
Revised N/A
Edition 1853
Copyright N/A
Levelled N/A



Surveyed 1853
Revised N/A
Edition 1853
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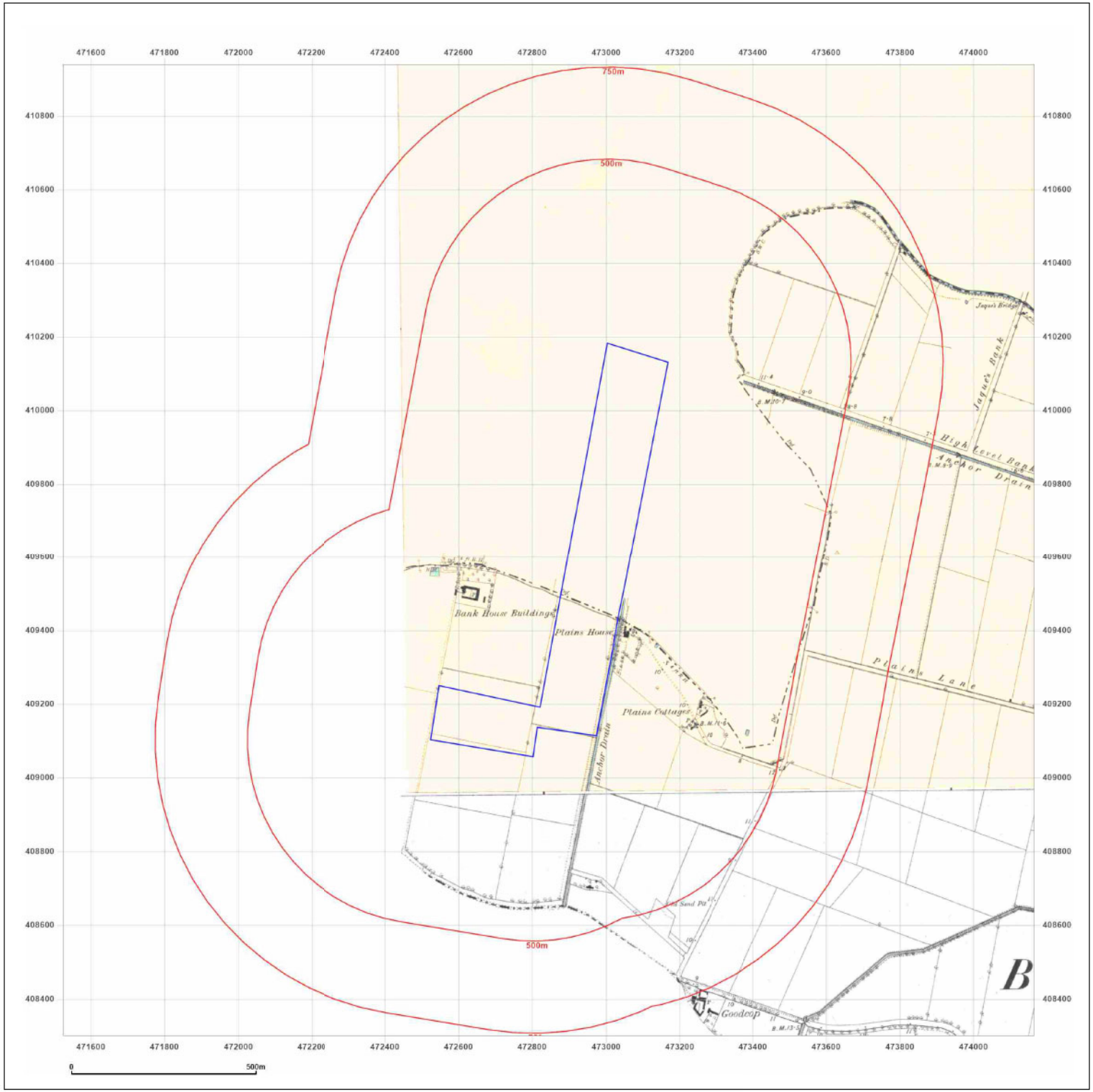

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1885**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1885
Revised N/A
Edition N/A
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Levelled N/A

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Revised 1885
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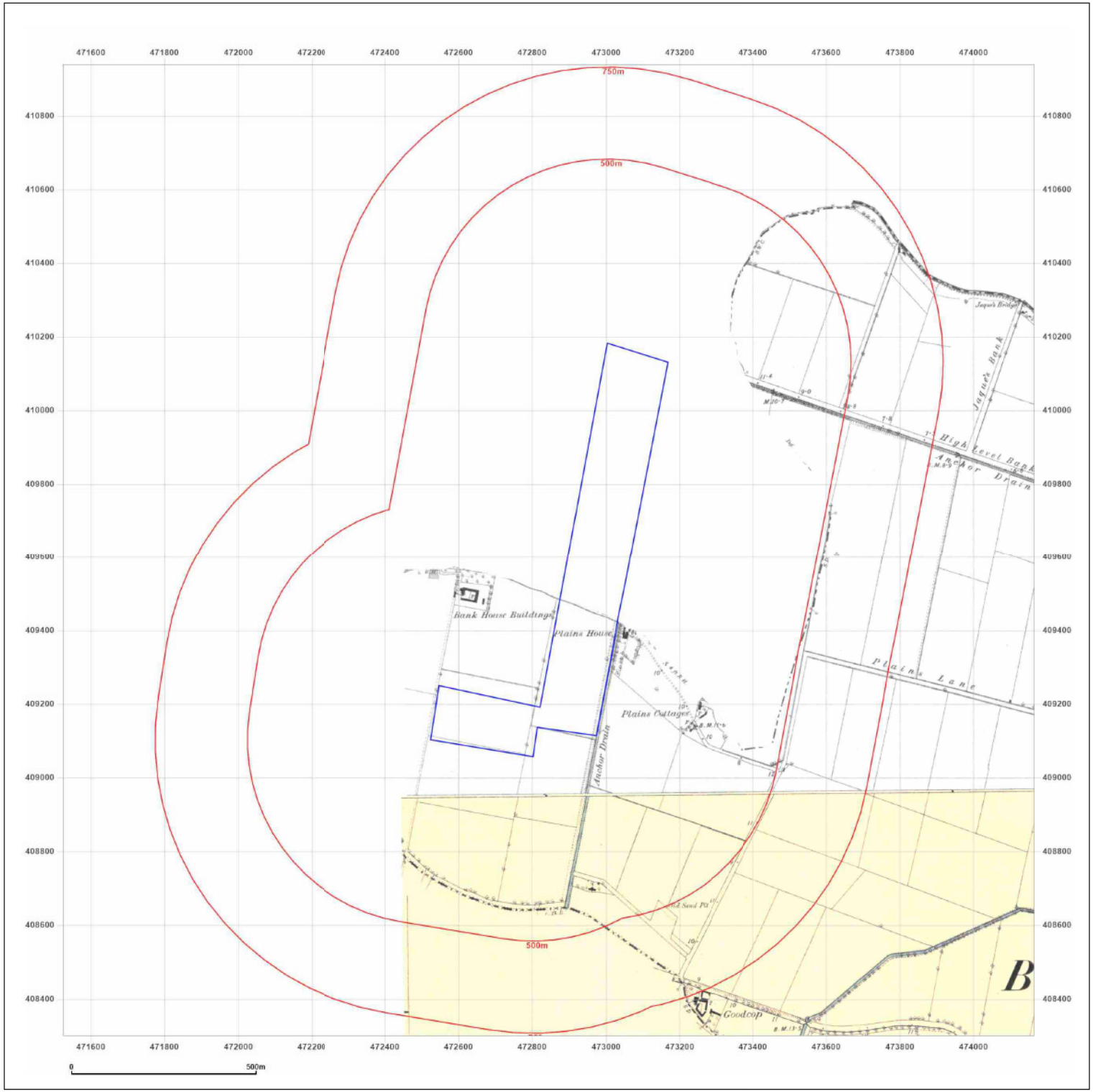

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1885**
Scale: 1:10,560
Printed at: 1:10,560

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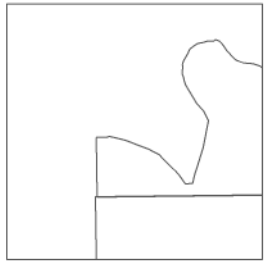

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Edition N/A
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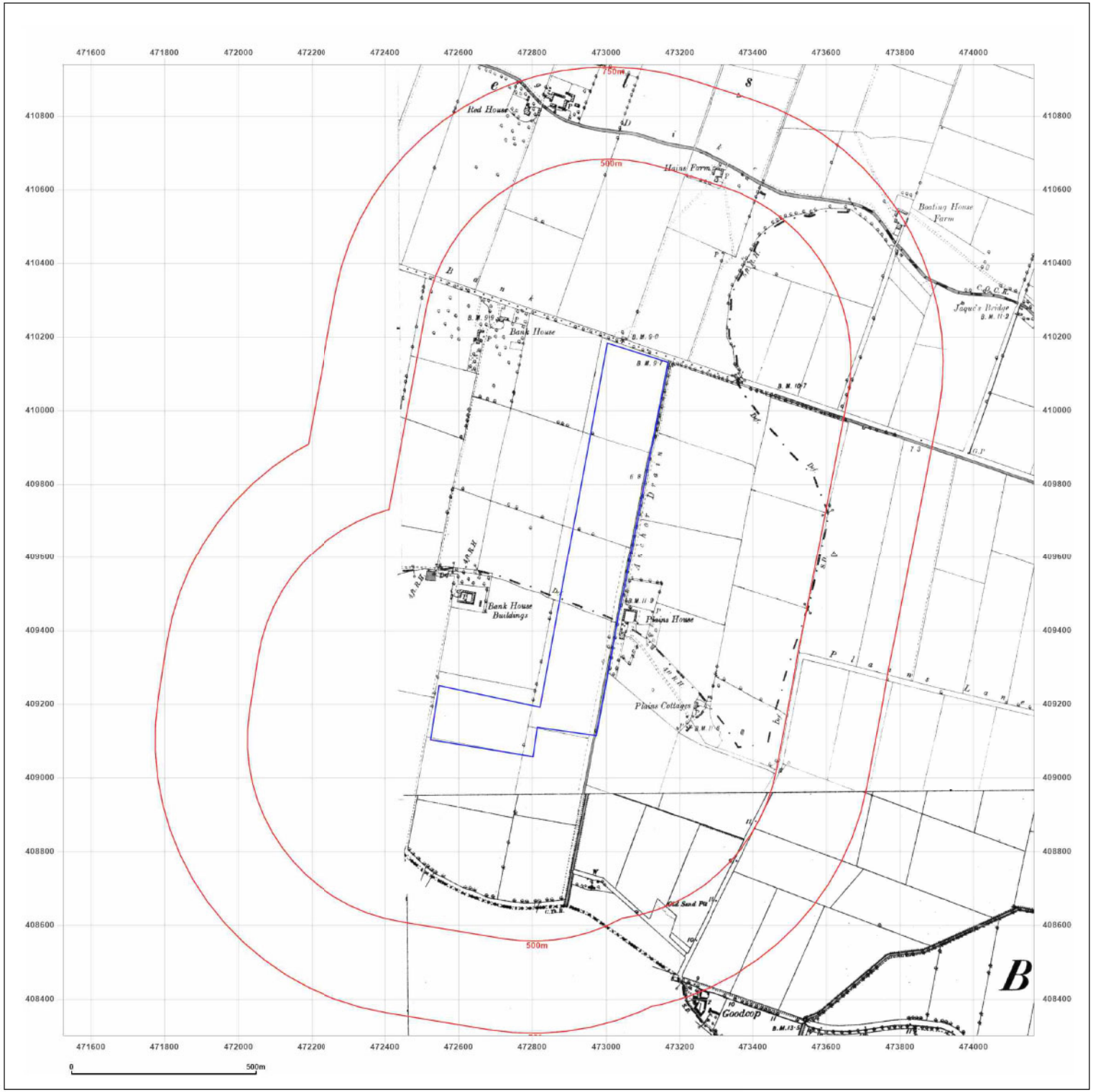

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1885**
Scale: 1:10,560
Printed at: 1:10,560

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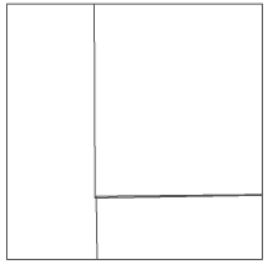

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Revised N/A
Edition N/A
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Levelled N/A

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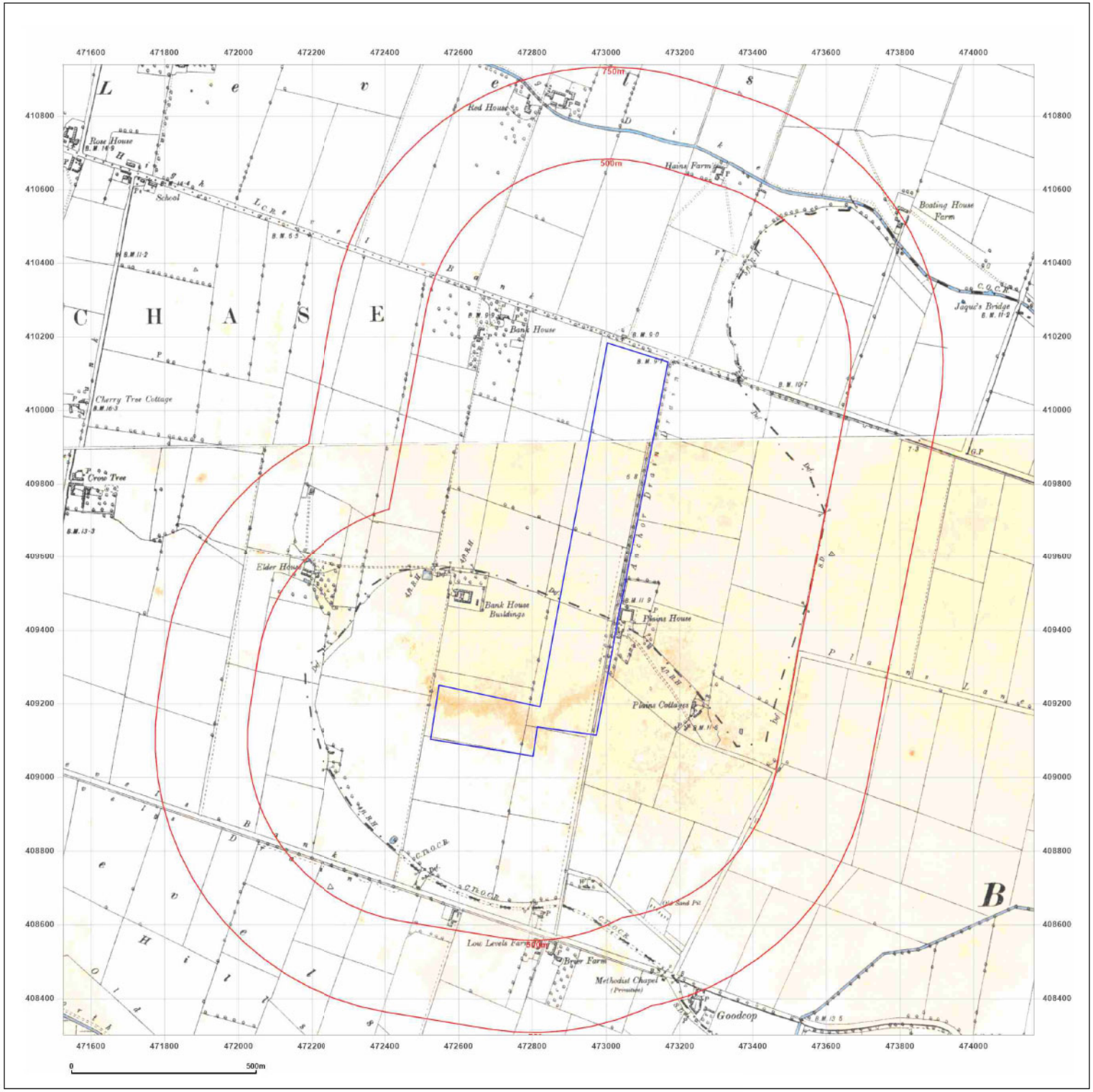

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1891**
Scale: 1:10,560
Printed at: 1:10,560

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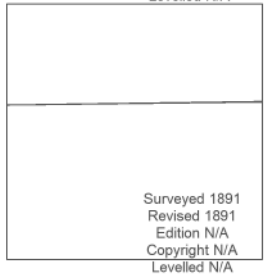
Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A



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Map legend available at:
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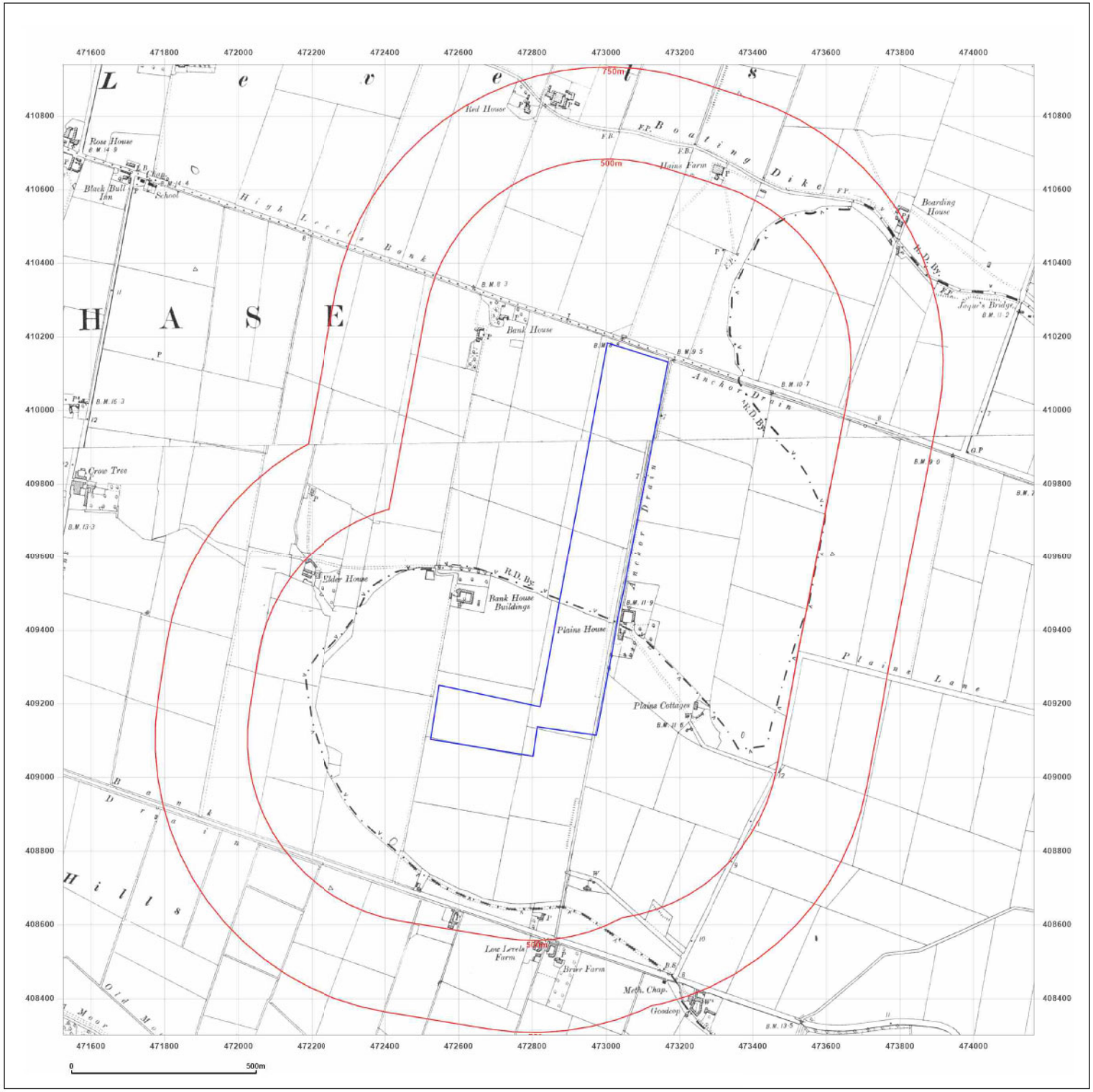


Groundsure INSIGHTS

Site Details:

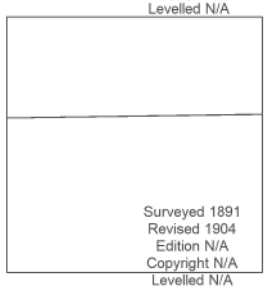
Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1904**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1891
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1891
Revised 1904
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 04 March 2025

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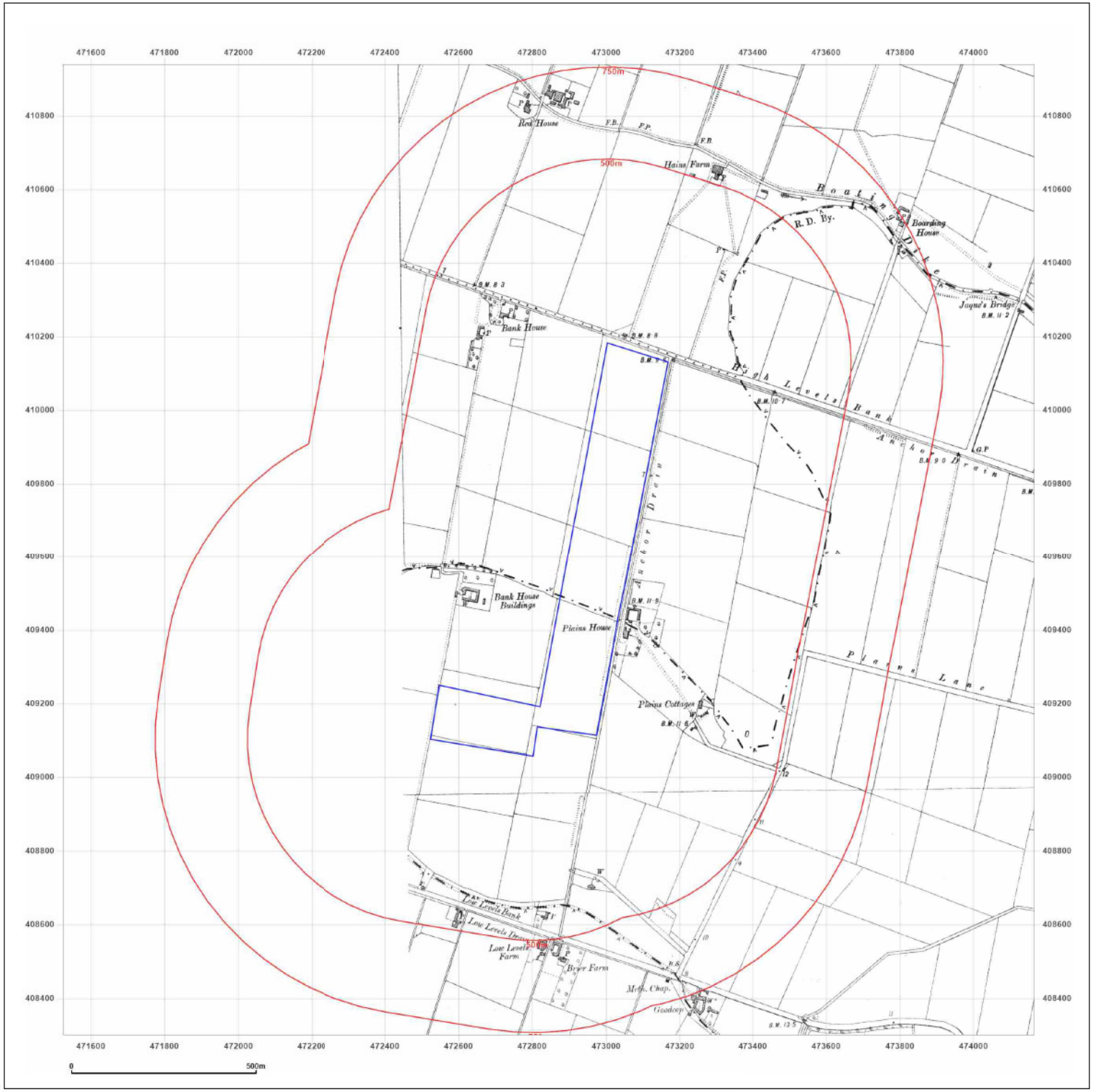

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: 1904
Scale: 1:10,560
Printed at: 1:10,560

N
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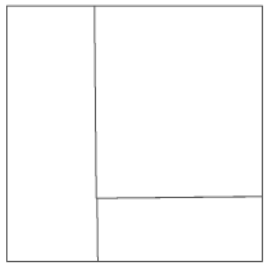

Surveyed N/A
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

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Revised N/A
Edition N/A
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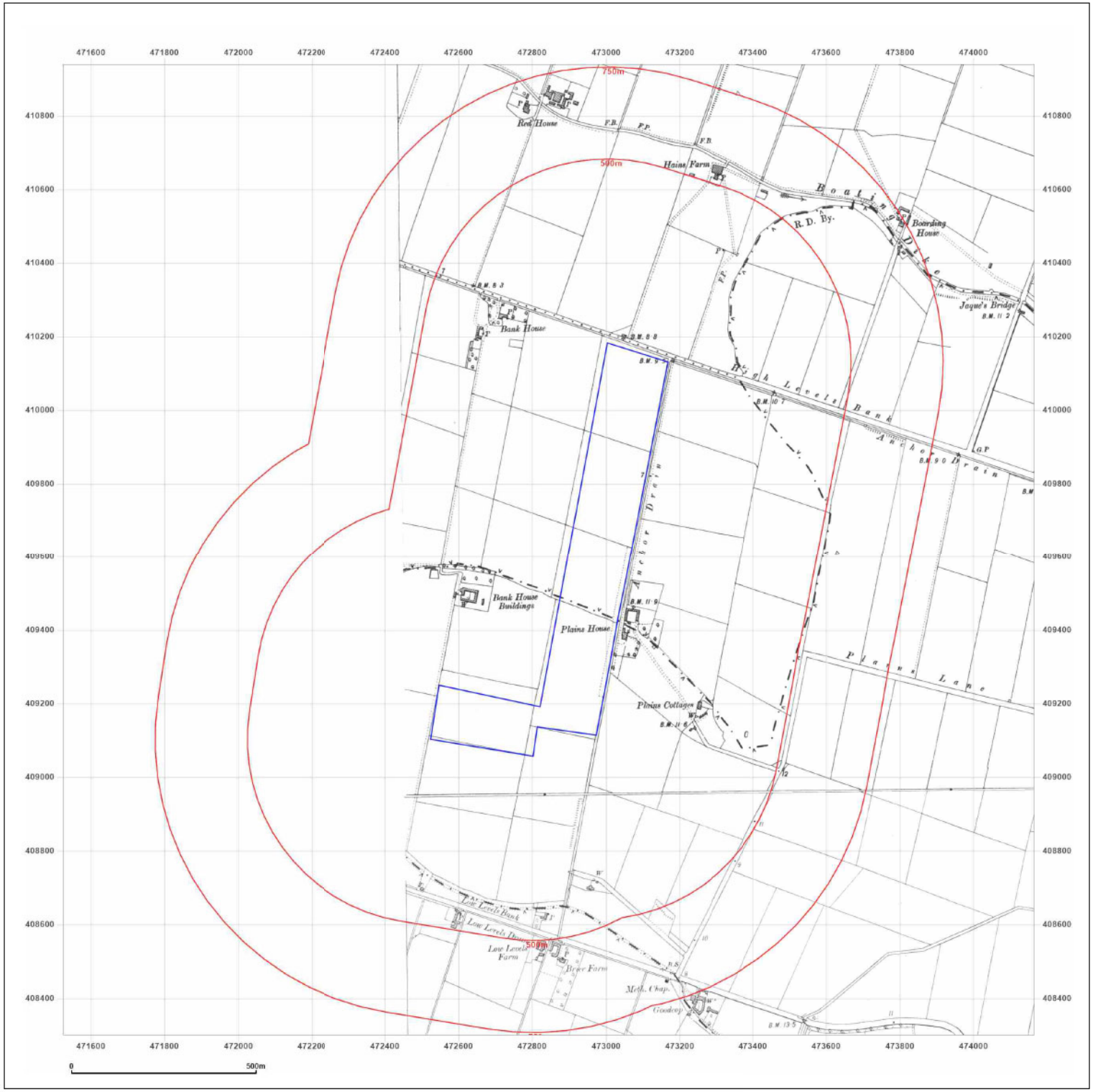

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1905-1908**
Scale: 1:10,560
Printed at: 1:10,560

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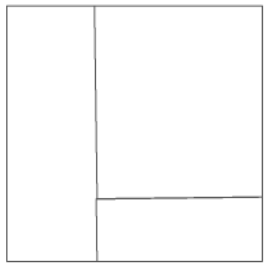

Surveyed 1885
Revised 1908
Edition 1908
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1905
Edition N/A
Copyright N/A
Levelled N/A

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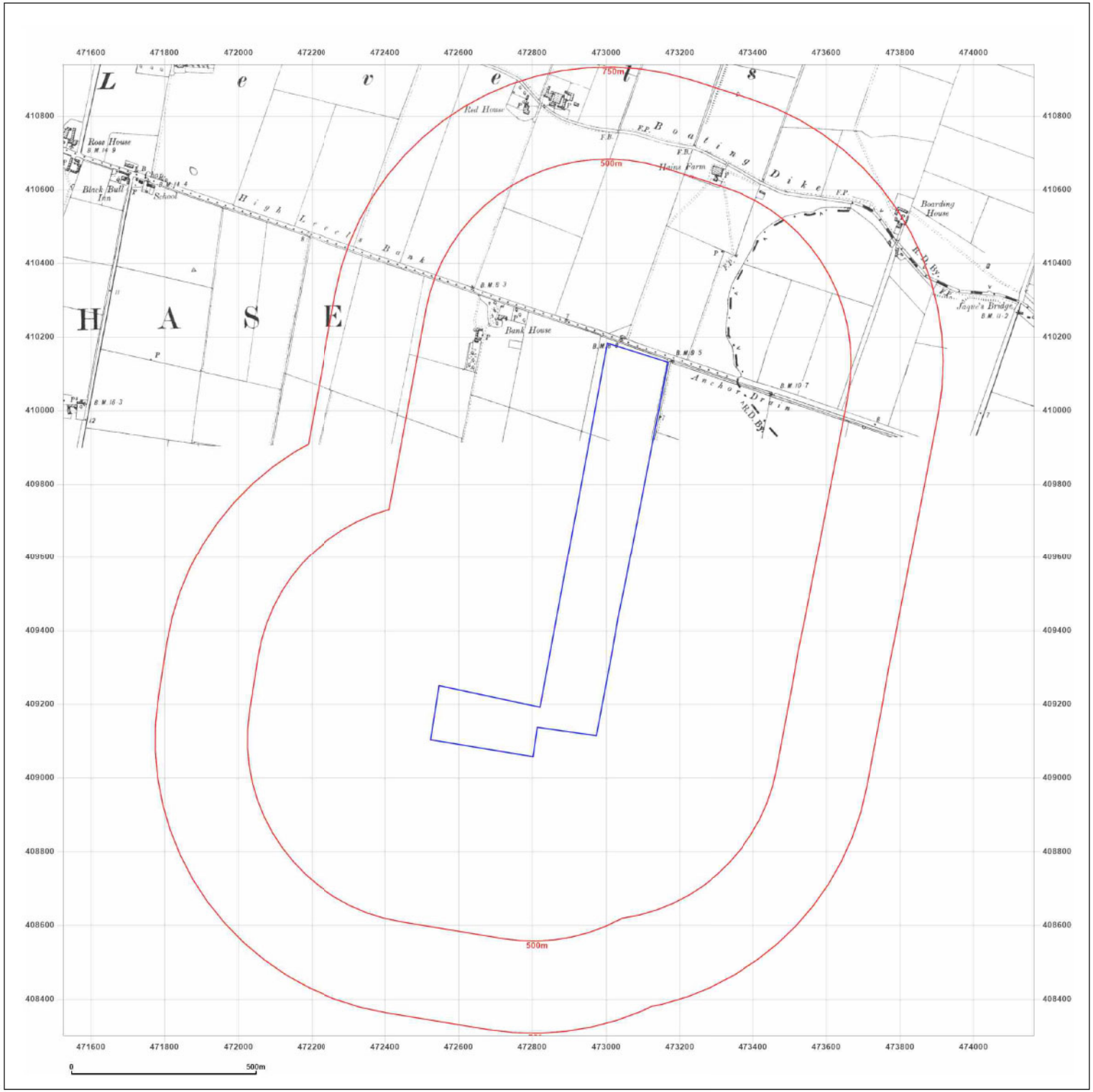

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: 1908
Scale: 1:10,560
Printed at: 1:10,560

N
W E
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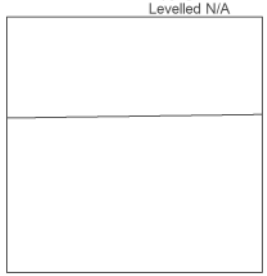
Surveyed 1850
Revised 1908
Edition 1908
Copyright N/A
Levelled N/A



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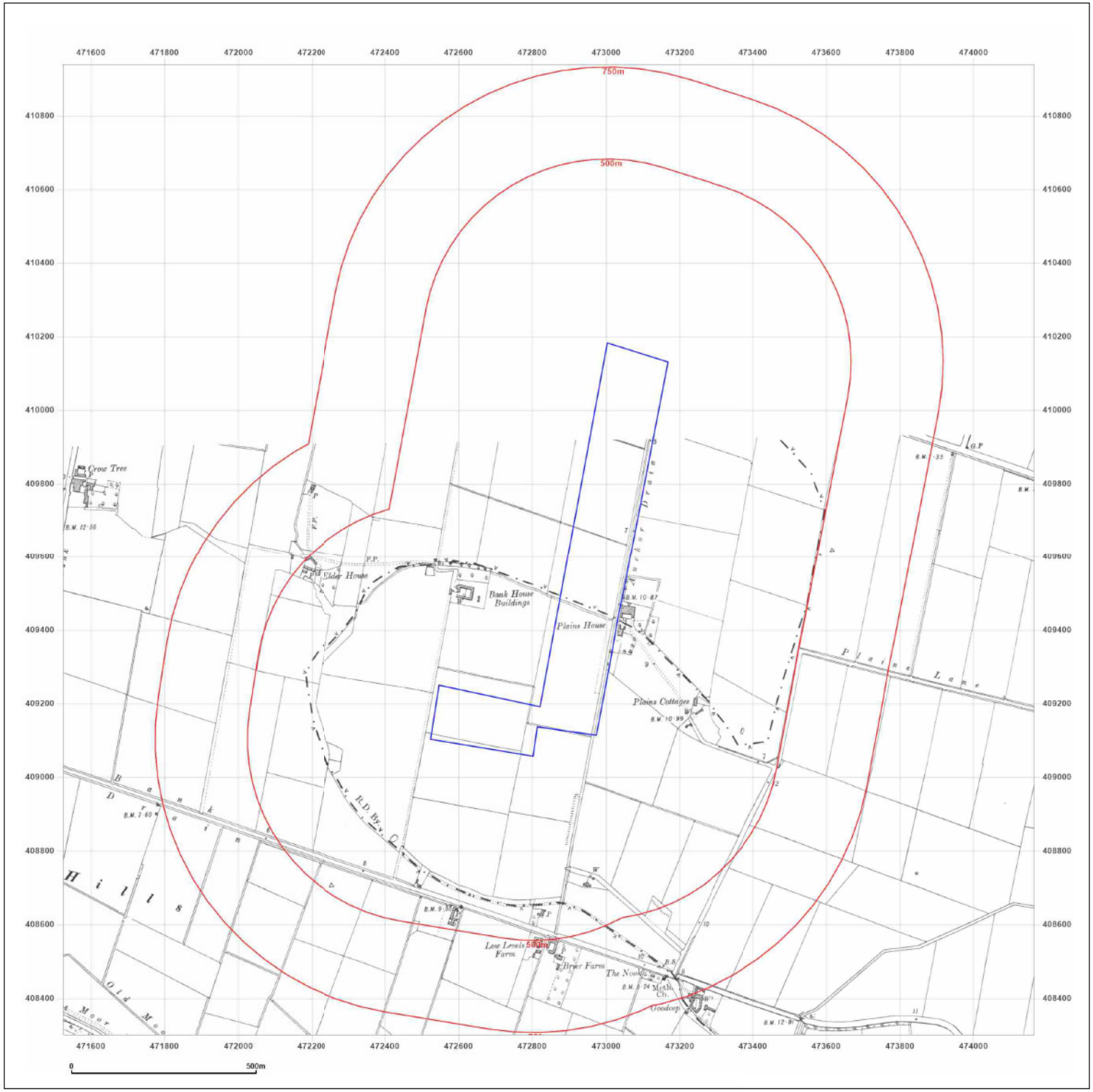

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1932**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
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Surveyed 1850
Revised 1932
Edition 1932
Copyright N/A
Levelled N/A

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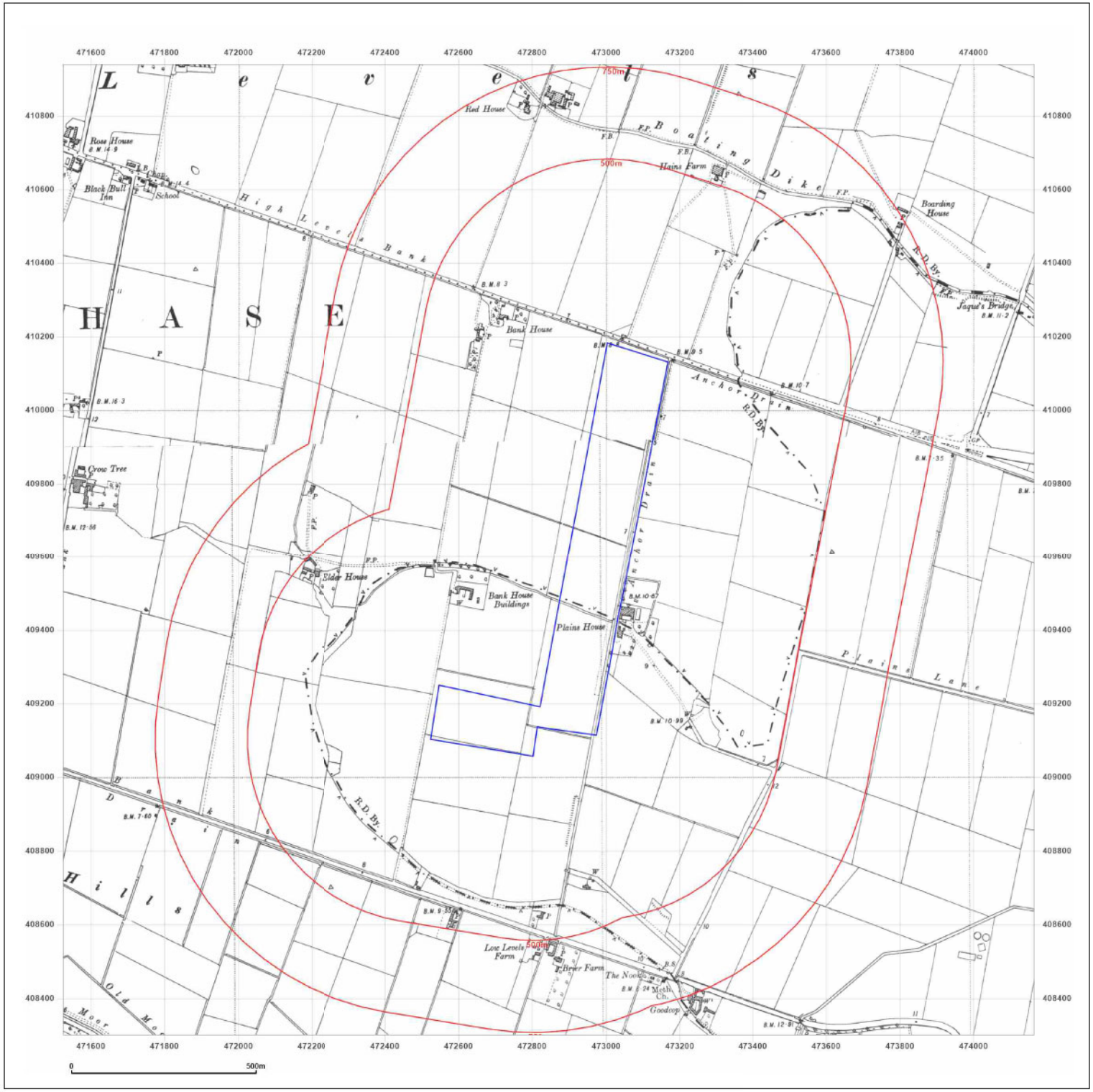

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: **1948**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
S

Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1850
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

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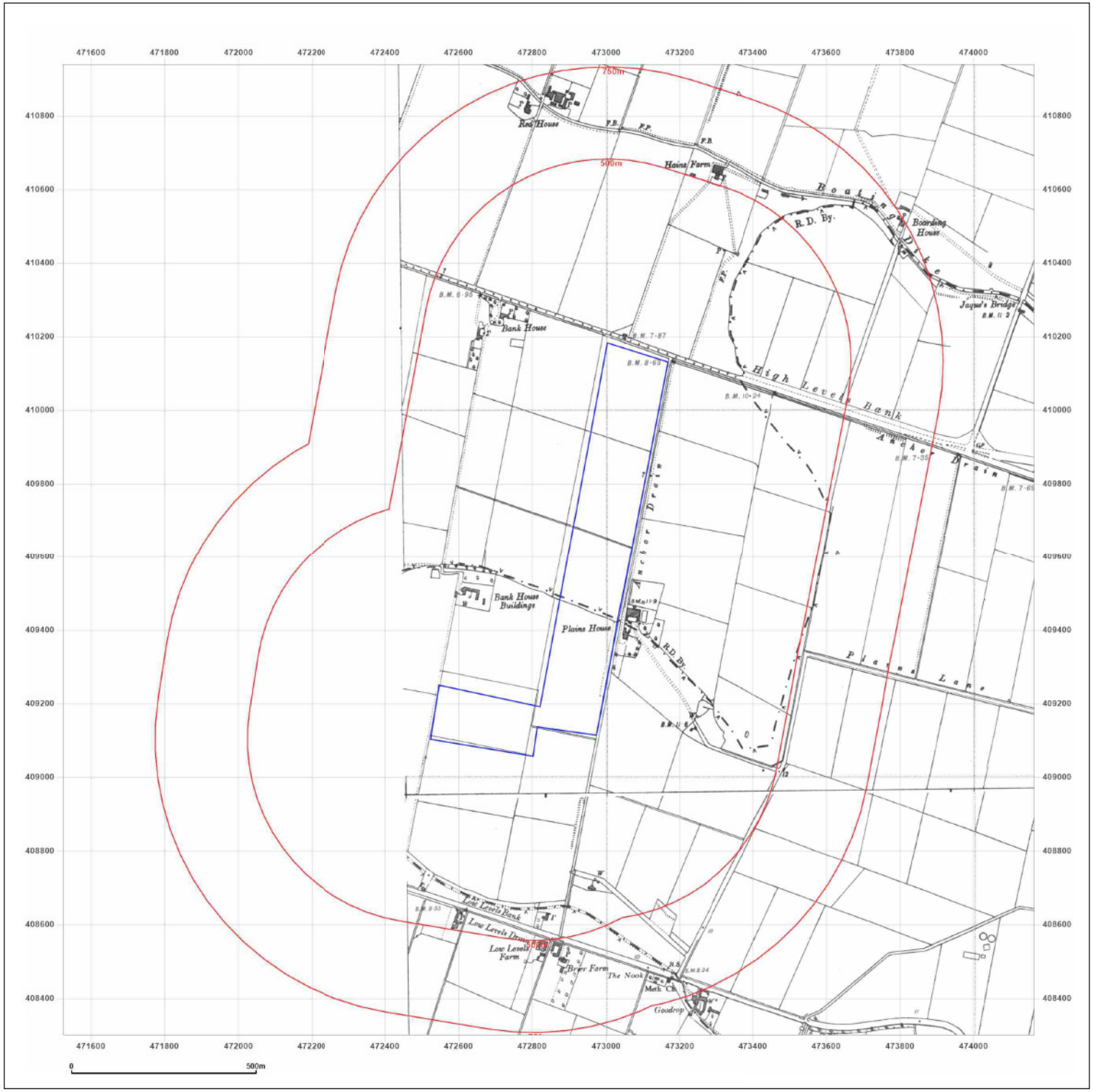

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: County Series
Map date: 1948
Scale: 1:10,560
Printed at: 1:10,560

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W E
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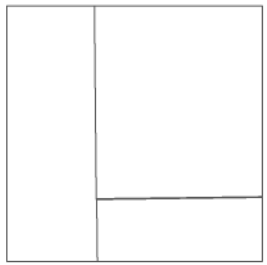

Surveyed 1885
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1885
Revised 1948
Edition N/A
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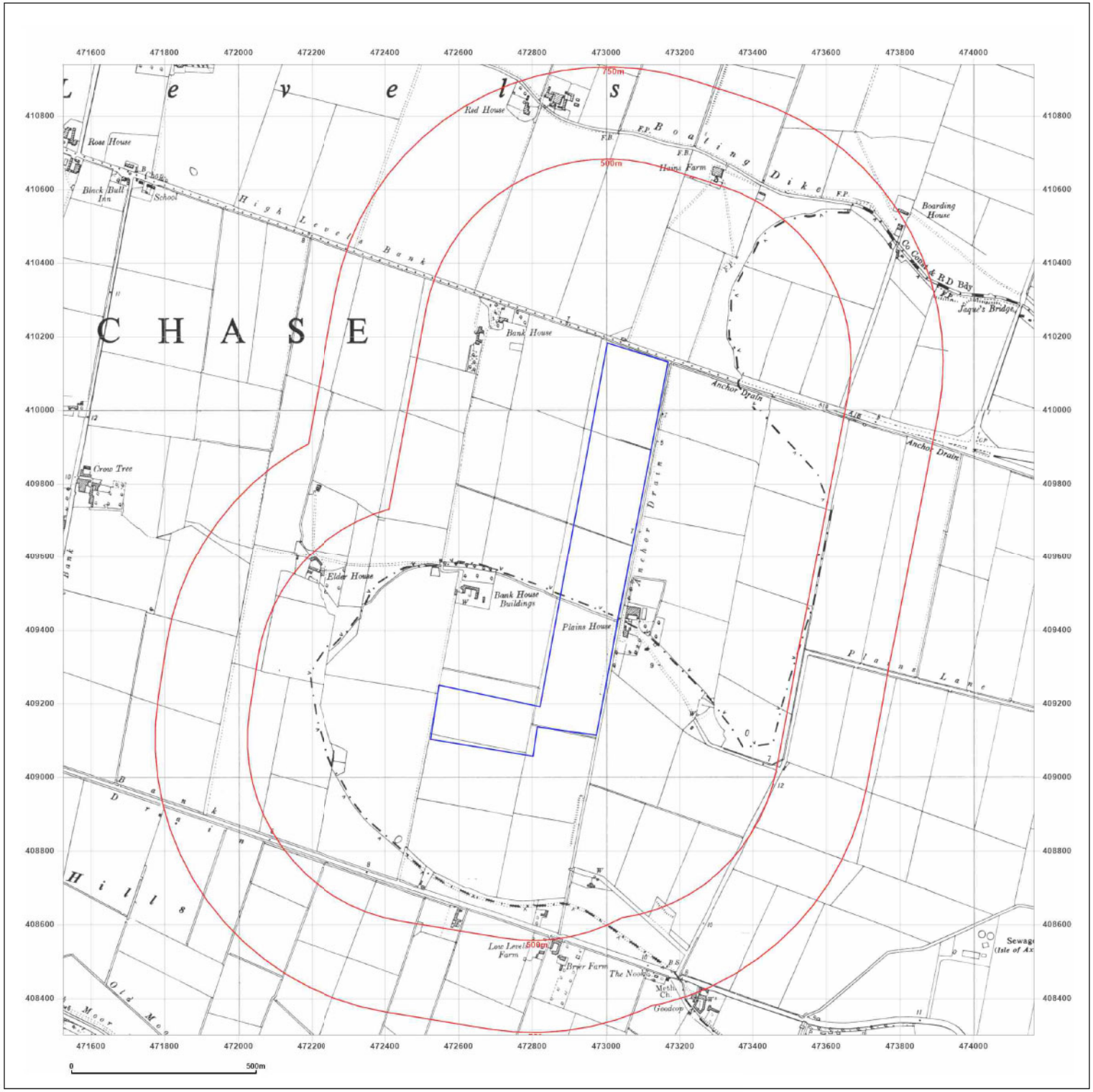

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: Provisional
Map date: **1951-1955**
Scale: 1:10,560
Printed at: 1:10,560

N
W E
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Surveyed N/A
Revised 1955
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1951
Revised 1951
Edition N/A
Copyright N/A
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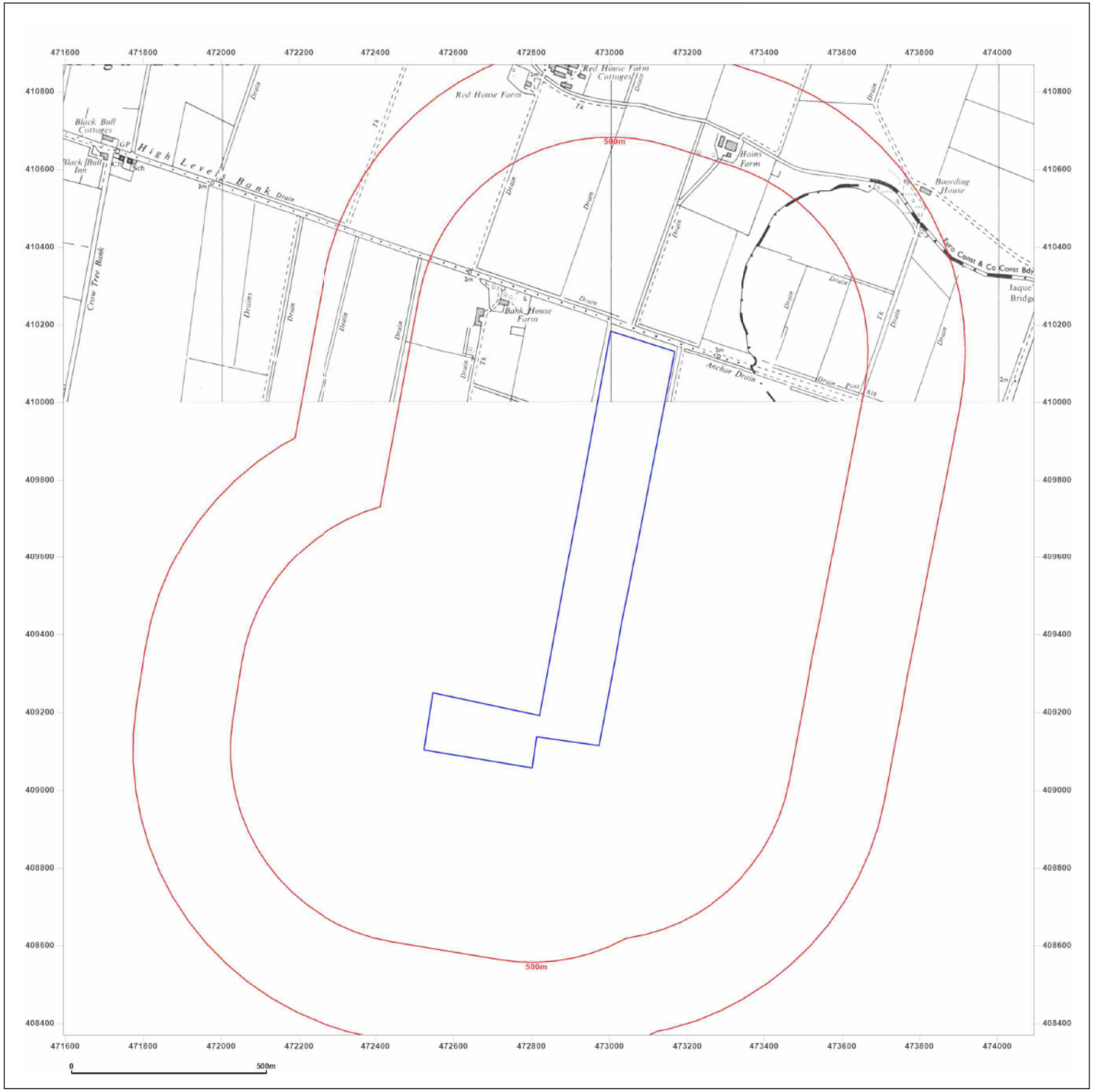

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: National Grid
Map date: **1968**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
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Surveyed 1966
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A

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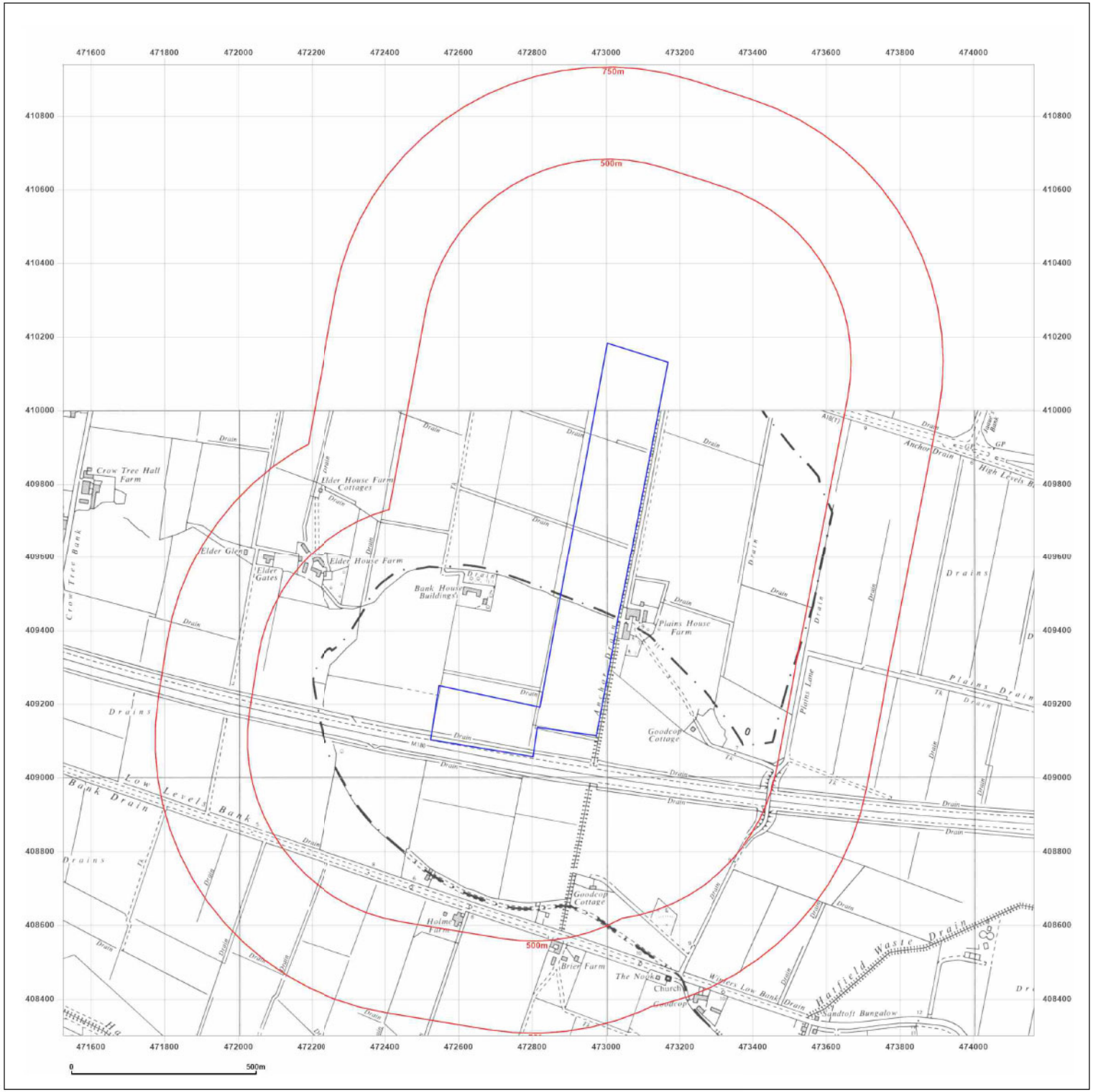

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: Provisional
Map date: 1969
Scale: 1:10,560
Printed at: 1:10,560

N W E S

Surveyed 1969
Revised 1969
Edition N/A
Copyright N/A
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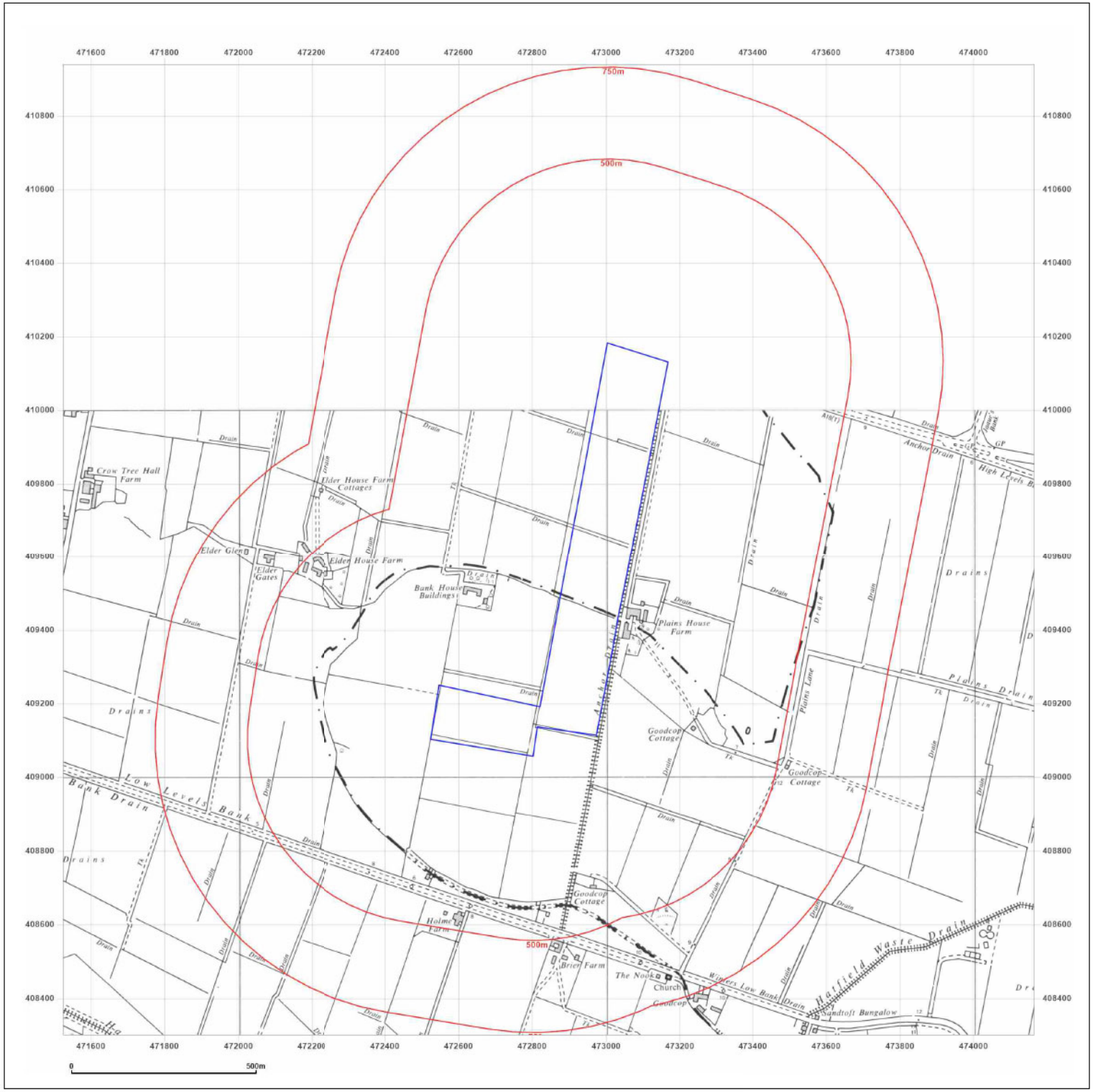

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: Provisional
Map date: **1969**
Scale: 1:10,560
Printed at: 1:10,560

N
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Surveyed 1969
Revised 1969
Edition N/A
Copyright N/A
Levelled N/A

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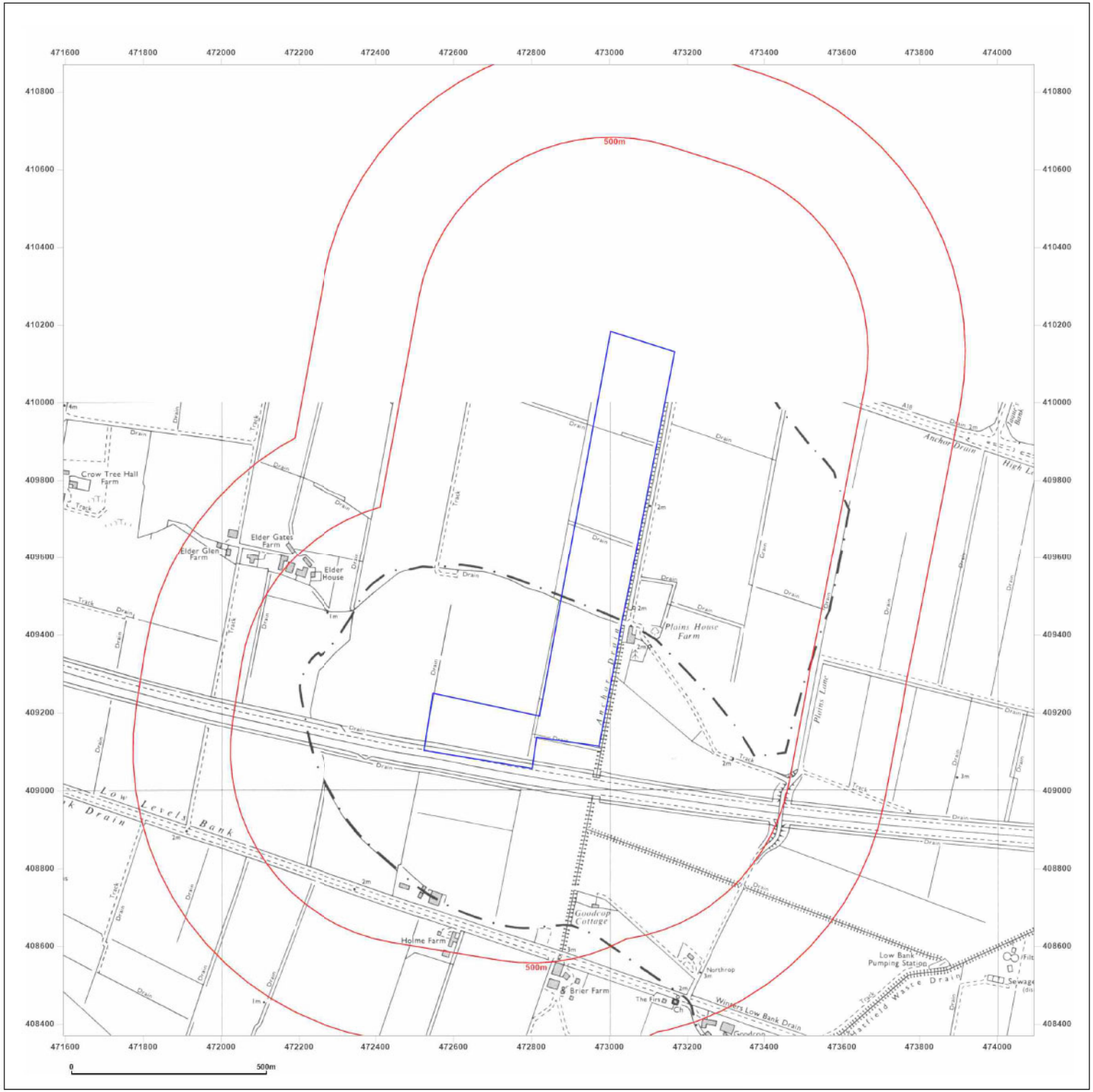

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: National Grid
Map date: **1981**
Scale: 1:10,000
Printed at: 1:10,000

N
W E
S

Surveyed 1966
Revised 1981
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 04 March 2025

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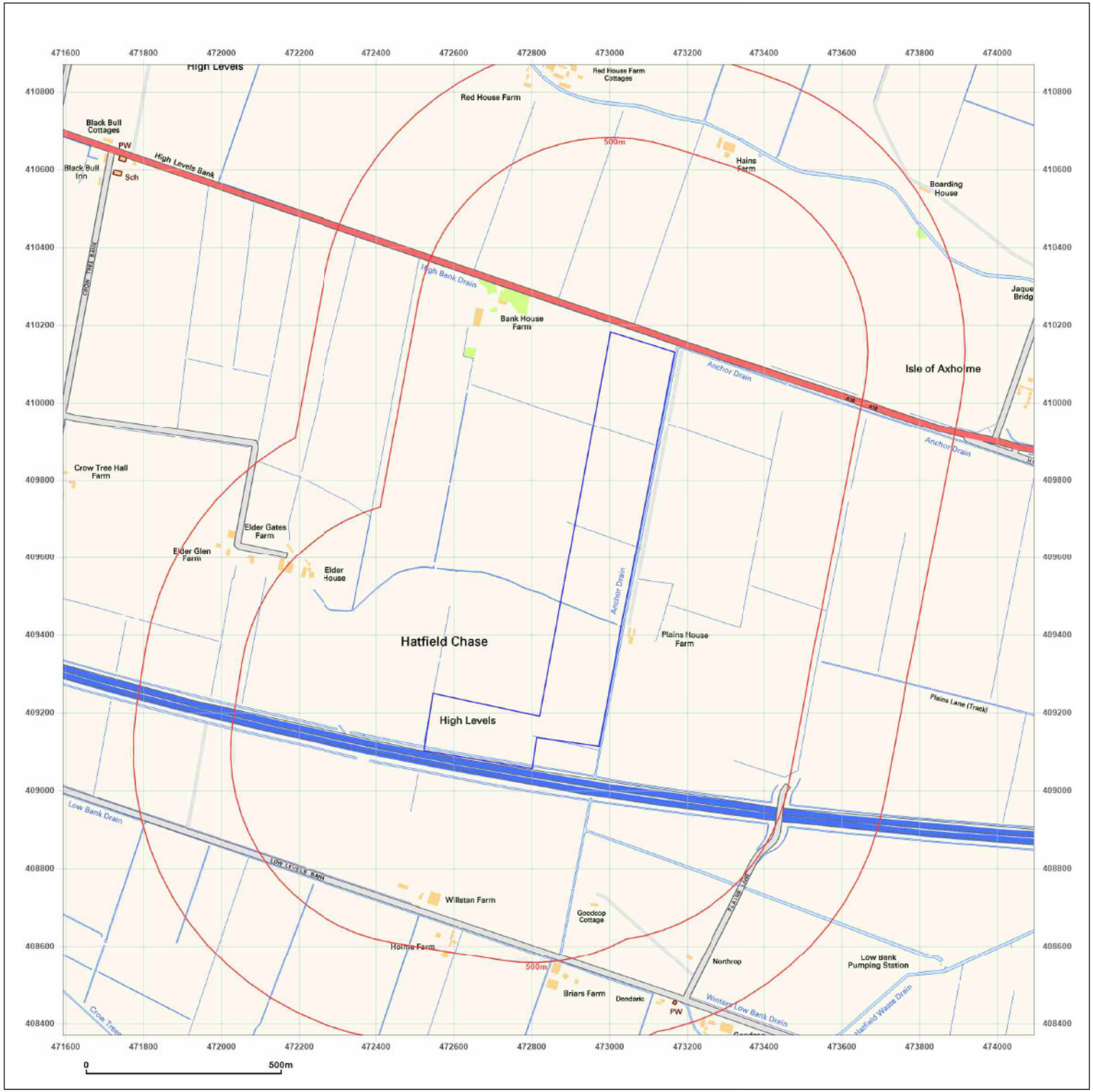

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: National Grid
Map date: 2001
Scale: 1:10,000
Printed at: 1:10,000

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2001

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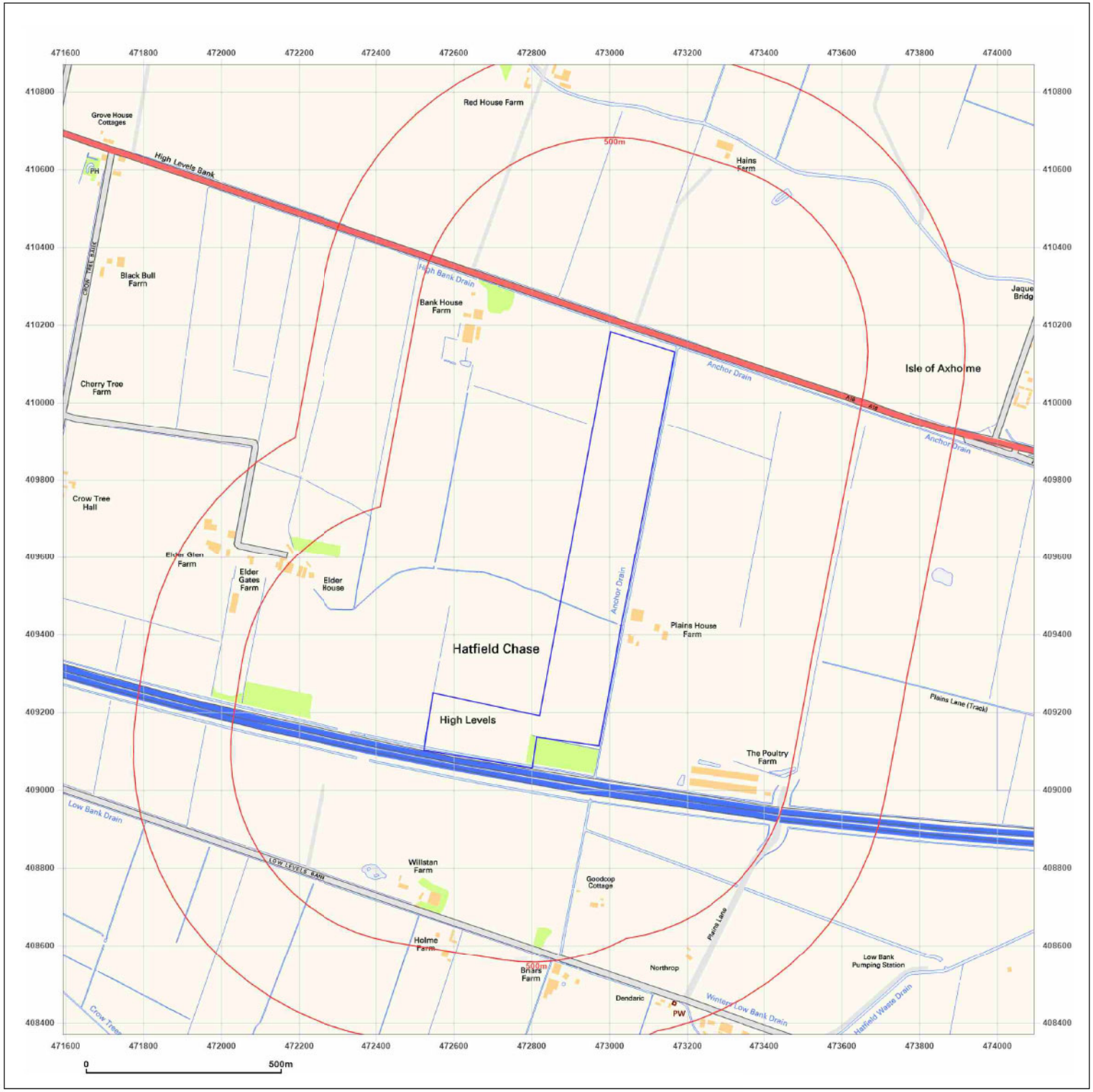

Groundsure INSIGHTS

Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: National Grid
Map date: **2010**
Scale: 1:10,000
Printed at: 1:10,000

N
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2010

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Site Details:

Tween Bridge Area E West

Client Ref: P02159615
Report Ref: GS-PA4-D1X-UIB-GR2
Grid Ref: 472844, 409620

Map Name: National Grid
Map date: **2025**
Scale: 1:10,000
Printed at: 1:10,000

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2025

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Groundsure LOCATION INTELLIGENCE

Enviro+Geo Insight

Tween Bridge Area E West

Order Details

Date: 04/03/2025

Your ref: P02159615

Our Ref: GS-QW2-CFY-NQN-CGI

Site Details

Location: 472928 409554

Area: 21.51 ha

Authority: Doncaster Metropolitan Borough Council ↗, North Lincolnshire Council ↗

Summary of findings p. 2 >

Aerial image p. 9 >

OS MasterMap site plan N/A: >10ha

Insight User Guide ↗

Contact us with any questions at:
info@groundsure.com ↗
01273 257 755

Certified B Corporation

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	0	3	6	-
15 >	1.2 >	Historical tanks >	0	0	0	2	-
15	1.3	Historical energy features	0	0	0	0	-
16	1.4	Historical petrol stations	0	0	0	0	-
16	1.5	Historical garages	0	0	0	0	-
16	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
17 >	2.1 >	Historical industrial land uses >	0	0	3	7	-
18 >	2.2 >	Historical tanks >	0	0	0	2	-
18	2.3	Historical energy features	0	0	0	0	-
19	2.4	Historical petrol stations	0	0	0	0	-
19	2.5	Historical garages	0	0	0	0	-
Page	Section	Waste and landfill >	On site	0-50m	50-250m	250-500m	500-2000m
20	3.1	Active or recent landfill	0	0	0	0	-
20	3.2	Historical landfill (BGS records)	0	0	0	0	-
21	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
21	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
21	3.5	Historical waste sites	0	0	0	0	-
21	3.6	Licensed waste sites	0	0	0	0	-
21 >	3.7 >	Waste exemptions >	0	0	1	12	-
Page	Section	Current industrial land use >	On site	0-50m	50-250m	250-500m	500-2000m
23	4.1	Recent industrial land uses	0	0	0	-	-
23	4.2	Current or recent petrol stations	0	0	0	0	-
24	4.3	Electricity cables	0	0	0	0	-
24	4.4	Gas pipelines	0	0	0	0	-
24	4.5	Sites determined as Contaminated Land	0	0	0	0	-

24	4.6	Control of Major Accident Hazards (COMAH)	0	0	0	0	-
24	4.7	Regulated explosive sites	0	0	0	0	-
25	4.8	Hazardous substance storage/usage	0	0	0	0	-
25	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
25 >	4.10 >	Licensed industrial activities (Part A(1)) >	0	0	0	4	-
26	4.11	Licensed pollutant release (Part A(2)/B)	0	0	0	0	-
26	4.12	Radioactive Substance Authorisations	0	0	0	0	-
26 >	4.13 >	Licensed Discharges to controlled waters >	0	0	0	3	-
27	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
27	4.15	Pollutant release to public sewer	0	0	0	0	-
27	4.16	List 1 Dangerous Substances	0	0	0	0	-
28	4.17	List 2 Dangerous Substances	0	0	0	0	-
28 >	4.18 >	Pollution Incidents (EA/NRW) >	0	0	0	3	-
28 >	4.19 >	Pollution inventory substances >	0	0	0	3	-
29 >	4.20 >	Pollution inventory waste transfers >	0	0	0	1	-
30	4.21	Pollution inventory radioactive waste	0	0	0	0	-

Page	Section	Hydrogeology >	On site	0-50m	50-250m	250-500m	500-2000m
31 >	5.1 >	Superficial aquifer >	Identified (within 500m)				
33 >	5.2 >	Bedrock aquifer >	Identified (within 500m)				
35 >	5.3 >	Groundwater vulnerability >	Identified (within 50m)				
36	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
36	5.5	Groundwater vulnerability- local information	None (within 0m)				
37 >	5.6 >	Groundwater abstractions >	0	0	0	0	6
39 >	5.7 >	Surface water abstractions >	1	2	1	0	39
48	5.8	Potable abstractions	0	0	0	0	0
48 >	5.9 >	Source Protection Zones >	1	0	0	0	-
49	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-

Page	Section	Hydrology >	On site	0-50m	50-250m	250-500m	500-2000m
50 >	6.1 >	Water Network (OS MasterMap) >	4	15	14	-	-

53 >	6.2 >	Surface water features >	1	8	7	-	-
53 >	6.3 >	WFD Surface water body catchments >	1	-	-	-	-
54 >	6.4 >	WFD Surface water bodies >	0	0	0	-	-
54 >	6.5 >	WFD Groundwater bodies >	1	-	-	-	-
Page	Section	River and coastal flooding >	On site	0-50m	50-250m	250-500m	500-2000m
55 >	7.1 >	Risk of flooding from rivers and the sea >	High (within 50m)				
56	7.2	Historical Flood Events	0	0	0	-	-
56	7.3	Flood Defences	0	0	0	-	-
56	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
56	7.5	Flood Storage Areas	0	0	0	-	-
57 >	7.6 >	Flood Zone 2 >	Identified (within 50m)				
58 >	7.7 >	Flood Zone 3 >	Identified (within 50m)				
Page	Section	Surface water flooding >					
59 >	8.1 >	Surface water flooding >	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding >					
61 >	9.1 >	Groundwater flooding >	High (within 50m)				
Page	Section	Environmental designations >	On site	0-50m	50-250m	250-500m	500-2000m
62 >	10.1 >	Sites of Special Scientific Interest (SSSI) >	0	0	0	0	10
63	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
63 >	10.3 >	Special Areas of Conservation (SAC) >	0	0	0	0	1
64 >	10.4 >	Special Protection Areas (SPA) >	0	0	0	0	2
64 >	10.5 >	National Nature Reserves (NNR) >	0	0	0	0	2
65	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
65	10.7	Designated Ancient Woodland	0	0	0	0	0
65	10.8	Biosphere Reserves	0	0	0	0	0
65	10.9	Forest Parks	0	0	0	0	0
66	10.10	Marine Conservation Zones	0	0	0	0	0
66	10.11	Green Belt	0	0	0	0	0
66	10.12	Proposed Ramsar sites	0	0	0	0	0

66	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
66	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
67	10.15	Nitrate Sensitive Areas	0	0	0	0	0
67 >	10.16 >	Nitrate Vulnerable Zones >	1	1	0	0	3
68 >	10.17 >	SSSI Impact Risk Zones >	2	-	-	-	-
70 >	10.18 >	SSSI Units >	0	0	0	0	14
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
75	11.1	World Heritage Sites	0	0	0	-	-
75	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
75	11.3	National Parks	0	0	0	-	-
75	11.4	Listed Buildings	0	0	0	-	-
76	11.5	Conservation Areas	0	0	0	-	-
76	11.6	Scheduled Ancient Monuments	0	0	0	-	-
76	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations >	On site	0-50m	50-250m	250-500m	500-2000m
77 >	12.1 >	Agricultural Land Classification >	Grade 2 (within 250m)				
78	12.2	Open Access Land	0	0	0	-	-
78 >	12.3 >	Tree Felling Licences >	2	0	5	-	-
79	12.4	Environmental Stewardship Schemes	0	0	0	-	-
79 >	12.5 >	Countryside Stewardship Schemes >	1	1	2	-	-
Page	Section	Habitat designations >	On site	0-50m	50-250m	250-500m	500-2000m
80 >	13.1 >	Priority Habitat Inventory >	0	3	0	-	-
81	13.2	Habitat Networks	0	0	0	-	-
81	13.3	Open Mosaic Habitat	0	0	0	-	-
81	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
82 >	14.1 >	10k Availability >	Identified (within 500m)				
83	14.2	Artificial and made ground (10k)	0	0	0	0	-
84 >	14.3 >	Superficial geology (10k) >	2	0	2	0	-

85	14.4	Landslip (10k)	0	0	0	0	-
86 >	14.5 >	Bedrock geology (10k) >	2	0	0	0	-
87	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale >	On site	0-50m	50-250m	250-500m	500-2000m
88 >	15.1 >	50k Availability >	Identified (within 500m)				
89	15.2	Artificial and made ground (50k)	0	0	0	0	-
89	15.3	Artificial ground permeability (50k)	0	0	-	-	-
90 >	15.4 >	Superficial geology (50k) >	1	0	2	1	-
91 >	15.5 >	Superficial permeability (50k) >	Identified (within 50m)				
91	15.6	Landslip (50k)	0	0	0	0	-
91	15.7	Landslip permeability (50k)	None (within 50m)				
92 >	15.8 >	Bedrock geology (50k) >	1	0	0	0	-
93 >	15.9 >	Bedrock permeability (50k) >	Identified (within 50m)				
93	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes >	On site	0-50m	50-250m	250-500m	500-2000m
94 >	16.1 >	BGS Boreholes >	1	0	0	-	-
Page	Section	Natural ground subsidence >					
95 >	17.1 >	Shrink swell clays >	Very low (within 50m)				
96 >	17.2 >	Running sands >	Low (within 50m)				
97 >	17.3 >	Compressible deposits >	Moderate (within 50m)				
98 >	17.4 >	Collapsible deposits >	Negligible (within 50m)				
99 >	17.5 >	Landslides >	Very low (within 50m)				
100 >	17.6 >	Ground dissolution of soluble rocks >	Negligible (within 50m)				
Page	Section	Mining and ground workings >	On site	0-50m	50-250m	250-500m	500-2000m
102	18.1	BritPits	0	0	0	0	-
103 >	18.2 >	Surface ground workings >	0	0	3	-	-
103	18.3	Underground workings	0	0	0	0	0
103	18.4	Underground mining extents	0	0	0	0	-
103	18.5	Historical Mineral Planning Areas	0	0	0	0	-

104	18.6	Non-coal mining	0	0	0	0	0
104	18.7	JPB mining areas	None (within 0m)				
104	18.8	The Coal Authority non-coal mining	0	0	0	0	-
104	18.9	Researched mining	0	0	0	0	-
105	18.10	Mining record office plans	0	0	0	0	-
105	18.11	BGS mine plans	0	0	0	0	-
105 >	18.12 >	Coal mining >	Identified (within 0m)				
105	18.13	Brine areas	None (within 0m)				
106	18.14	Gypsum areas	None (within 0m)				
106	18.15	Tin mining	None (within 0m)				
106	18.16	Clay mining	None (within 0m)				
Page	Section	Ground cavities and sinkholes	On site	0-50m	50-250m	250-500m	500-2000m
107	19.1	Natural cavities	0	0	0	0	-
107	19.2	Mining cavities	0	0	0	0	0
107	19.3	Reported recent incidents	0	0	0	0	-
107	19.4	Historical incidents	0	0	0	0	-
Page	Section	Radon >					
109 >	20.1 >	Radon >	Less than 1% (within 0m)				
Page	Section	Soil chemistry >	On site	0-50m	50-250m	250-500m	500-2000m
111 >	21.1 >	BGS Estimated Background Soil Chemistry >	12	1	-	-	-
112	21.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
112	21.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
113	22.1	Underground railways (London)	0	0	0	-	-
113	22.2	Underground railways (Non-London)	0	0	0	-	-
113	22.3	Railway tunnels	0	0	0	-	-
113	22.4	Historical railway and tunnel features	0	0	0	-	-
113	22.5	Royal Mail tunnels	0	0	0	-	-
114	22.6	Historical railways	0	0	0	-	-

114	22.7	Railways	0	0	0	-	-
114	22.8	Crossrail 2	0	0	0	0	-
114	22.9	HS2	0	0	0	0	-

Recent aerial photograph

Capture Date: 19/04/2021

Site Area: 21.51ha

Recent site history - 2019 aerial photograph

Capture Date: 20/10/2019

Site Area: 21.51ha

Recent site history - 2013 aerial photograph

Capture Date: 07/06/2013

Site Area: 21.51ha

Recent site history - 2009 aerial photograph

Capture Date: 02/07/2009

Site Area: 21.51ha

Recent site history - 1999 aerial photograph

Capture Date: 03/05/1999

Site Area: 21.51ha