

GROUND ENGINEERING

Newark Road
Peterborough
PE1 5UA

Tel: 01733 566566

e: admin@groundengineering.co.uk

SITE INVESTIGATION REPORT

LAND REAR OF 192-200 HIGH ROAD

WESTON

SPALDING

LINCOLNSHIRE

Report Reference C15417

On behalf of:-

**Morespace Garage Conversions Limited
15 Stockwell Gate West
Whaplode
Spalding
Lincolnshire
PE12 6WG**

August 2021

MORESPACE GARAGE CONVERSIONS LIMITED

ARC SURVEY & DESIGN CONSULTANTS LIMITED

SITE INVESTIGATION REPORT

FOR

PROPOSED RESIDENTIAL DEVELOPMENT

AT

LAND REAR OF Nos.192-200 HIGH ROAD

WESTON

NEAR SPALDING

LINCOLNSHIRE

Report Reference No. C15417

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INTRODUCTION

The client, Morespace Garage Conversions Limited, proposes to build a new residential development on land to the rear of Nos.192-200 High Road, Weston, near Spalding in Lincolnshire.

Ground Engineering Limited was commissioned by the client, under the direction of ARC Survey & Design Consultants Limited, to carry out a site investigation to determine the nature and chemical properties of the underlying soils, and provide a contamination assessment and risk assessment. A desk study checking past uses was also included within the scope of this report. Recommendations for foundation design were not required within the scope of this report.

LOCATION, TOPOGRAPHY AND GEOLOGY OF THE SITE

The site of the proposed development is located in the rear (south-eastern) part of the gardens of Nos.192-200 High Road, Weston, near Spalding in Lincolnshire. Weston is approximately 4.5km north-east of Spalding. The National Grid Reference for the centre of the site is TF 2870 2464 and its location is shown on plans following this report text.

The approximately 0.23hectare, rectangular shaped site is approximately 30m wide and 65m long, which is to be accessed along a new 45m roadway between Nos.194 and 196 High Road, Weston. At the time of the investigation the site comprised separate garden areas of the five properties. To the rear of No.192 there was a metal garage, many old cars, and various stored items including empty plastic containers and car parts. The garden of No.192 was generally gravelled, and which was partly underlain by a plastic sheet. The gardens to the rear of Nos.194-200 were generally grassed, with occasional areas of concrete hardstanding. Coniferous hedges were present along several garden boundaries, the gardens contained occasional trees including Willow, and areas of shrubs. The site is bounded by the gardens of houses fronting High Road to the north-west and south-west; by an access track from Broad Gate to the south-east; and by the garden of a house fronting St. Marys Close to the north-east.

The level site stands at an elevation of about 3mOD, in an area of low-lying Fenland.

The geological map for the area, sheet 144 at 1:50,000 scale, shows the site to be underlain by a thick succession of Terrington Beds, more recently identified as Tidal Flat Deposits. These silt and organic clay soils are indicated to rest on the solid geology of the Oxford Clay Formation at depth. Previous work in the vicinity has found glacial deposits beneath the surface layer of Tidal Flat Deposits.

HISTORY OF THE SITE

Research into the site history involved reference to historical Ordnance Survey (OS) maps, photographs and information obtained from the internet. The map extracts and photographs studied are presented in the desk study map section, Appendix 1, and are described below. Distances are approximate.

<i>OS Map Extract</i>	<i>Description</i>
1887 Lincolnshire Sheet 134SE Scale 1:10,560 Figure A	The site is undeveloped within a field on the south-east side of a road. Drains are present along the edges of the field, and a drain borders the site to the north-east.
1888 Lincolnshire Sheets 134.11 & 134.12 Scale 1:2500 Figure B	The site and immediate surrounding area appear unchanged.
1904 Lincolnshire Sheets 134.11 & 134.12 Scale 1:2500 Figure C	The site and immediate surrounding area appear unchanged.
1929 Lincolnshire Sheet 134SE Scale 1:10,560 Figure D	New houses are shown to the north-west of the site fronting the road, with the site access part of the site between houses. New houses are also shown off-site at the other end of the field fronting a road to the south-east.
1932 Lincolnshire Sheets 134.11 & 134.12 Scale 1:2500 Figure E	The site and immediate surrounding area appear unchanged.
1938 Lincolnshire Sheet 134SE Scale 1:10,560 Figure F	The site area appears unchanged. A new track and building are shown in the adjacent field to the south-west. New buildings are also shown in the adjacent field to the north-east.

<i>OS Map Extract</i>	<i>Description</i>
1955-58 Lincolnshire Sheet 134SE Scale 1:10,560 Figure G	The site is shown within the rear gardens of the houses to the north-west. A new rectangular building is shown 100m north-east of the site.
1967 Sheet TF2824 Scale 1:2500 Figure H	The road to the north-west of the site is named High Road. The rear of the site is shown bounded by a track from Broad Gate to the south-east. A new rectangular building is shown to the south-west associated with Woodcroft House. The rectangular building to the north-east is denoted as a glasshouse.
1971-75 Sheets TF22SE & NE Scale 1:10,000 Figure I	The site and immediate surrounding area appear generally unchanged. A tank is denoted on the northern side of the glasshouse to the north-east of the site.
1987 Sheet TF2824 Scale 1:2500 Figure J	The site area appears unchanged. A new road, St. Marys Close, has been constructed to the north-east of the site, and the drain along the north-eastern edge of the site is no longer shown. New houses fronting High Road have also been built to the north of the site, and to the north-west on the other side of High Road. The site of the glasshouse to the north-east has been redeveloped as Armstrong's Close.
1995 Sheet TF2824 Scale 1:2500 Figure K	The site and immediate surrounding area appear unchanged.
1999-2007 GroundSure Aerial Photographs of Site (Pages 10-11, Appendix 2)	The site comprises the rear parts of five gardens, with boundary hedgerows evident. New buildings are evident to the south of the site, in the rear garden of a house fronting Broad Gate to the south-east. In 2007 a new building (shed) is evident in one of the gardens on-site, as well as two trampolines or swimming pools in two other gardens.
2001 Sheets TF22SE & NE Scale 1:10,000 Figure L	The site and immediate surrounding area appear unchanged.
2003 Sheet TF2824NE Scale 1:1250 Figure M	The site and immediate surrounding area appear unchanged.
2010 Sheets TF22SE & NE Scale 1:10,000 Figure N	The site area appears unchanged. A rectangular building in the adjacent garden to the south-west is no longer shown.
2015-2018 GroundSure Aerial Photographs of Site (Pages 8-9, Appendix 2)	The eastern-most garden contains a garage, outbuilding and many stored cars. The former shed in the adjacent garden is no longer evident. A new rectangular feature is evident in the north-western corner of the middle garden. A new access roadway appears to have been constructed from High Road to the rear gardens area. A rectangular building has been cleared from the rear garden to the south of the site.

<i>OS Map Extract</i>	<i>Description</i>
2021 Sheet TF2824 (BT) Not to Scale Figure O	The site is shown sub-divided as the rear gardens of houses, with a garage/out-buildings within the eastern-most garden, and an access road from High Road to the north.

Summary of Historical Information

The Ordnance Survey map of 1887 showed that the site was undeveloped within a rural area to the south-west of Weston. The site remained undeveloped until houses fronting High Road were shown on the 1929 map extract, with the proposed development area in their rear gardens. Apart from the addition of some outbuildings including a shed, domestic garage, and locally the storage of cars since at least 2015, the site has remained unchanged. The garden areas, outbuildings and some stored cars were present at the time of this investigation in July 2021.

The area around the site was initially fields to the south-west of Weston. New houses had been built adjacent the site by 1929; a glasshouse to the north-east by 1955; and new housing to the east and north-east by 1987 which replaced the glasshouse.

SUMMARY OF ENVIRONMENTAL DATA

Appendix 2 contains information derived from Environmental Databases for a radius of up to 2,000m from the site. The information covers datasets held by Groundsure with contributors including the local authority, the Environment Agency (EA), British Geological Survey, Ordnance Survey and the Coal Authority and the results, within a radius of 250m, are summarised below:

1-2. Historical Industrial Sites	On-Site	0 - 250m
Potentially Contaminative Uses (1:10,000 mapping)	0	2
Historical Tank Database	0	1
Historical Energy Features Database	0	1
Historical Petrol & Fuel Site Database	0	0
Historical Garage & Motor Vehicle Repair Database	0	0
3. Landfill and Other Waste Sites	On-Site	0 - 250m
Landfill Sites	0	0
Historical Landfill and Other Waste Sites	0	0
Waste Exemptions	0	13
4. Current Land Use	On-Site	0 - 250m
Current Industrial Sites Data	0	3
Records of Petrol and Fuel Sites	0	0
Underground Electricity, High Pressure Oil and Gas Pipelines	0	0
Sites Determined as Contaminated Land under Part IIA EPA 1990	0	0
Records of COMAH and NIHHS Sites	0	0
Environmental permits/pollution incidents/registers	0	1
5-6. Hydrogeology and Hydrology	On-Site	0 - 250m
Productive strata within superficial geology beneath the site	No	
Productive strata within solid geology	No	
Groundwater Abstraction Licences	0	0
Surface Water Abstraction Licences	0	0
Potable Water Abstraction Licences	0	0
Source Protection Zones	0	0
Water Network Entries	0	23
Surface Water Features	0	9

7-9. Flooding					
Risk of flooding from rivers & the sea (RoFRaS) rating			Negligible		
Historical flood events			0	0	
Flood defences within 250m of site			No		
Any areas benefitting from flood defences within 250m of site			No		
Flood storage areas within 250m of site			No		
Environment Agency indicative Zone 2 floodplains within 50m of site			Yes		
Environment Agency indicative Zone 3 floodplains within 50m of site			Yes		
Surface water flooding on site			1 in 30 year (0.10m to 0.30m)		
Groundwater flooding on site			Negligible		
10-13. Designated Environmentally Sensitive Sites			On Site	0 - 250m	
Environmentally sensitive sites (nitrate vulnerable zone, SSSI impact zone)			0	0	
14-16. Geology					
Artificial Ground or Made Ground records			0	0	
Superficial Ground and Drift Geology records beneath the site			Yes		
17. Natural Hazards (on site)					
Hazard	Negligible	Very Low	Low	Moderate	High
Shrinking or Swelling Clay	-	-	On-site	-	-
Running Sand	-	-	-	On-site	-
Compressible Ground	-	-	-	On-site	-
Collapsible Rocks	On-site	-	-	-	-
Landslides	-	On-site	-	-	-
Soluble rocks	On-site	-	-	-	-
18. Mining					
Surface ground workings			0	0	
Underground workings			0	0	
Non coal-mining areas within 50m of site			0	0	
Mining cavities			0	0	
Brine affected areas on study site			No		
19. Radon					
The property is not in a Radon Affected Area, as less than 1% of properties are above the action level. No Radon Protective Measures are required for new properties or extensions.					

Database Summary

No historical land uses were identified on the site. A nursery (1987) is recorded at Bay Tree Garden Centre 189m west of the site; historical tanks are recorded 209m south-west and 225m west; and a gas governor 222m north-east of the site. The former tank beside the former glasshouse to the north-east (1971) is not recognised. No electricity sub-stations are recorded within 250m north of the site. No historic landfills are recorded on, or within 250m of the site. Thirteen waste exemptions for storage, burning and spreading of plant matter waste at Beacon Farm are recorded 136m north of the site.

Recent industrial land uses around the site include a pumping station 84m to the south-east, gas governor station 229m north-east and a tank 237m west. A revoked licensed discharge to controlled waters is recorded 210m south-west of the site.

Superficial Tidal Flat Deposits are shown beneath the site, which are classified by the EA as an 'Unproductive' stratum. The solid geology Oxford Clay Formation underlying the site is also classified by the EA as an 'Unproductive' stratum. There are no groundwater abstractions within 250m of the site. The site is not within a source protection zone.

Surface water drains are present along field boundaries, the closest being 14m south-west of the site. The site is within a Zone 2 and Zone 3 floodplain, and has a low risk of river and coastal flooding. The site has a 1 in 30 year risk of surface water flooding to a depth of between 0.10m and 0.30m, and a negligible risk of groundwater flooding. The site is not within an environmentally sensitive area.

There is a moderate hazard from compressible ground and from running sand; a low hazard from shrinking and swelling clay; a very low hazard from landslides; and a negligible hazard from soluble rocks and collapsible rocks. The site is not in an area affected by mining.

The site is not in a radon affected area, and no radon protection measures are required for new properties on the site.

PRELIMINARY RISK ASSESSMENT

Potential sources of contamination present on or beneath the site would relate primarily to; the historical use of the site; the presence of contaminated soil; and the potential presence of hazardous or ground gas beneath the site.

In order to assess the risks associated with the presence of ground contamination the linkages between the sources and potential receptors to contamination need to be established and evaluated. This is in accordance with the Environmental Protection Act 1990, which provides a statutory definition of Contaminated Land. To fall within this definition it is necessary that, as a result of the condition of the land, substances may be present on or under the land such that;

- *Significant harm is being caused or there is a significant possibility of such harm being caused; or*
- *Pollution of controlled waters is being, or is likely to be, caused.*

There are three principal factors that are assessed whilst undertaking a qualitative risk assessment for any site. These are the presence of a contamination source, the existence of migration pathways and the presence of a sensitive target(s). It should be noted that it is necessary for each element of source, pathway and target to be present in order for exposure of a human or environmental receptor to occur.

UK Government guidance on the assessment of contaminated land, requires risk to human health and the environment to be reviewed using source – pathway – target relationships. If each of these elements is present, the linkage provides a potential risk to the identified targets.

Contaminants or potential pollutants identified as ***sources*** in relation to the identified previous uses are listed overleaf in Table 1.

Table 1: Identified Potential Contaminant Sources

<i>Contaminant Source</i>	<i>Comments</i>
Drainage/ Buildings	Effluent from former field drains could provide a contaminant source. The outbuildings may include asbestos containing materials (ACM).
Soil Beneath Site	Contamination may be present within any made ground on the site, such as associated with storage of old vehicles.
Soil Gas	Potential soil gas generated from made ground or naturally deposited organic soils.
Ground Contamination Outside Site Boundary	Ground contamination migrating from adjoining sites.

A ***Pathway*** is defined as one or more routes through which a receptor is being, or could be, exposed to, or affected by, a given contaminant.

Potential ***Targets or Receptors*** fall within the categories of Human Health, Water Environment, Flora and Fauna, and Building Materials.

There are a number of possible pathways for the contaminants identified on the site to impact human and/or environmental receptors and these are summarised in Tables 2 and 3.

Table 2: Human Receptors and Pathways

<i>Human Receptor-Mechanism</i>	<i>Typical Exposure Pathway</i>
Human Inhalation	Breathing Dust and Fumes Breathing Gas emissions
Human Ingestion	Eating -contaminated soil, for example by small children -produce grown on contaminated soil Ingesting dust or soil on vegetables Drinking contaminated water
Human Contact	Direct skin contact with contamination Direct skin contact with contaminated liquids

Table 3: Water Receptors and Pathways

<i>Receptor-Water Environment</i>	<i>Typical Exposure Pathway</i>
Groundwater The superficial Tidal Flat Deposits and solid geology Oxford Clay are indicated to be 'Unproductive' strata. The site is not within a Source Protection Zone.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and migrate to underlying groundwater. Contamination leads to restriction/prevention of use as a resource, for example, drinking water, and can have secondary impacts on other resources, which depend on it.
Surface Water/Watercourses The nearest surface water feature is a drain 14m south-west of the site. The South Holland Main Drain is approximately 2.2km east of the site.	Surface infiltration of atmospheric waters into the soils beneath the site could wash or dissolve potential contaminants and laterally migrate. Contamination leads to a restriction/prevention of use: -as drinking water resource -for amenity use Effects on aquatic life.

Preliminary Conceptual Model

Assessment of the potential linkage between ground contamination sources, human and environmental receptors have been assessed based on the desk study research documented in the preceding sections of this report.

A generalised preliminary conceptual model is presented below in Table 4.

Table 4: Preliminary Conceptual Model Relative to Residential Development

Receptors	Pathway	Estimated Potential for Linkage with Contaminant Sources			
		Drainage/ Buildings	Soil Beneath Site	Soil Gas	Ground Contamination Outside Site Boundary
Human Health i ground or construction workers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Low likelihood	Low likelihood	Low likelihood	Low likelihood
Human Health i end users	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	N/A	Low likelihood	Low likelihood	Low likelihood
Water Environment	Migration through ground into surface water or surrounding groundwater	Low likelihood	Low likelihood	Unlikely	Low likelihood
Flora	Vegetation on site growing on contaminated soil	Low likelihood	Low likelihood	Low likelihood	Unlikely
Building Materials	Contact with contaminated soil	Low likelihood	Low likelihood	Low likelihood	Low likelihood
<u>Key to Table 4</u> Estimated Potential for Linkage with Contaminant Source		Definition			
High likelihood		There is a pollution linkage and an event that either 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		There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.			
Low likelihood		There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such an event would take place, and is less likely in the shorter term.			
Unlikely		There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.			
N/A		Not Applicable.			

SITE WORK

The site work conducted on 6th July 2021 comprised seven hand augered boreholes (HA1 to HA6 plus HA6A). The positions are shown on the exploratory hole location plan following this report text.

Prior to excavation, a service scan was made at each position using a CAT (Cable Avoidance Tool) to check for the absence of detectable buried services that may otherwise have been damaged by the investigation.

The exploratory hole records, presented following the plans, give the descriptions and depths of the various strata encountered, details of all samples taken, and the groundwater conditions observed during and on completion of excavation.

Hand Augered Boreholes

Boreholes HA1 to HA6A were excavated using hand tools to depths of between 0.20m and 1.00m. Borehole HA6 was abandoned at 0.20m to avoid puncturing a plastic sheet which has been laid beneath a surface gravel layer. The exposed strata were sampled and recorded by a Geoenvironmental Engineer. Representative small disturbed and environmental jar samples of soil were taken at regular intervals throughout the depth of each trial pit.

On completion, the boreholes were backfilled with arisings and the surfaces reinstated.

LABORATORY WORK

The samples were inspected in the laboratory and assessments of the soil characteristics have been taken into account during preparation of the borehole records. The soil descriptions have been made in accordance with BS5930:2015+A1:2020. The geotechnical test results, undertaken in accordance with BS1377:1990 & 2016, are presented following the exploratory hole records. The chemical test results follow the geotechnical test results.

The moisture content and index properties of selected soil samples were determined as a guide to soil classification and behaviour. The liquid limit was determined by a cone penetrometer.

Chemical analysis of soil samples recovered from the exploratory holes was undertaken, by an independent laboratory, primarily for characterisation purposes. The samples were tested for a suite encompassing a wide range of potential contaminants outlined by the Environment Agency (EA) and National House Building Council (NHBC) document R&D 66; 2008 'Guidance for the Safe Development of Housing on Land Affected by Contamination'. In addition the samples were also tested for Total Petroleum Hydrocarbons (TPH).

GROUND CONDITIONS

The ground conditions comprised a surface layer of made ground to between 0.30m and 0.50m depth, underlain by superficial Tidal Flat Deposits comprising sandy silt to silty sand. The Tidal Flat Deposits were encountered to at least the base of the boreholes at between 0.90m to 1.00m depth. Groundwater was not encountered within 1.00m depth during the investigation, however water was perched on the plastic sheet in the east of the site at 0.19m depth.

Made Ground

Made ground was encountered across the site to between 0.30m and 0.50m depth. The made ground generally comprised brown and dark brown, slightly gravelly, silty sand fill. The gravel fraction comprised angular to sub-rounded flint, ash, plastic, glass and a metal pin.

From surface in the easternmost garden (HA5, HA6 & HA6A), yellow, grey and brown, silty, sand and gravel fill with occasional cobbles of limestone, concrete and brick was encountered to depths of 0.20m and 0.25m depth, which was underlain by a plastic sheet. The gravel fraction comprised angular to sub-rounded, limestone, igneous rock, concrete, brick and tile fragments. Borehole HA6 was stopped at 0.20m depth to avoid damaging the plastic sheet.

Tidal Flat Deposits

Beneath the surface made ground at between 0.30m and 0.50m depth, orange brown and brown, sandy silt with soft, sandy, silty clay partings varying to silty sand was encountered to at least the base of the boreholes at between 0.90m and 1.00m depth, which were considered to represent the anticipated superficial Tidal Flat Deposits.

Groundwater

Apart from water sitting on the plastic sheet in HA6, no groundwater was recorded during boring of the boreholes within 1.00m depth.

Observations

Live roots were observed in most of the pits, and locally to at least 1.00m depth in HA2. No roots were observed beneath the plastic sheet in the easternmost garden.

Excavation Stability

The borehole sides were generally stable during boring and on completion.

Evidence of Contamination

The made ground encountered during this investigation was not noted to have olfactory or visual evidence of fuel contamination. The made ground contained occasional ash, plastic, glass, a metal pin, brick, concrete and plastic fragments. No asbestos containing materials were noted in the soils during this investigation, or during testing.

COMMENTS ON THE SOIL CHEMICAL TEST RESULTS

The results of the laboratory chemical testing on near surface soil samples have primarily been compared to soil screening values (SSVs) produced by Land Quality Management Limited (LQM) and the Chartered Institute for Environmental Health (CIEH) presented in their document 'The LQM/CIEH S4ULs for Human Health Risk Assessment: 2015 (Publication Number S4UL3608)'. The LQM/CIEH S4ULs are intended for use in assessing the potential risks posed to human health by contaminants in soil and are transparently-derived and cautious 'trigger values' above which further assessment of the risks or remedial action may be needed. The S4ULs (Suitable for Use Levels) have been derived, in accordance with UK legislation and Environment Agency policy, using a modified version of the Environment Agency CLEA 1.06 software.

Reference has also been given to ATRISKsoil soil screening values produced by Atkins Limited and provided under licence to Ground Engineering Limited. Atkins SSVs have been derived in line with the Environment Agency 2009 guidance using the CLEA 1.071 software. With the absence of a S4UL for cyanide the ATRISKsoil SSV has been used as the soil screening criteria within this report.

In 2014 the Department for Environment Food and Rural Affairs (DEFRA) published, in their document SP1010, Category 4 Screening Levels (C4SL) for several contaminants including lead. The C4SL represent screening levels below which the land could be considered suitable for a specified use and definitely not contaminated land in respect of those determinands. With the absence of S4UL for lead the C4SL has been used as the soil screening criteria within this report.

For each contaminant the adopted soil screening criteria have been calculated for the following land uses:

- Residential use with home grown produce
- Residential use without home grown produce
- Commercial and industrial usage

The intended purpose of the SSVs are as 'intervention values' in the regulatory framework for assessment of human health risks in relation to land use. These values are not binding standards, but are intended to inform judgements about the need for action to ensure that a new use of land does not pose any unacceptable risks to the health of the intended users.

Table 5 compares the test results for the made ground with the SSVs in relation to the specified uses. The number of test results, which exceed these values, are also provided.

Table 5: Comparison of Chemical Test Results with SSVs for Near Surface Soils

Determinand	Number of Samples	Min Value mg/kg	Max Value mg/kg	Number of Samples Exceeding SSV for			Measured 95 th Percentile mg/kg	Assessment Method	Soil Screening Criteria 1.0% SOM		
				Residential with home grown produce	Residential without home grown produce	Commercial/ Industrial			Residential with home grown produce mg/kg	Residential without home grown produce mg/kg	Commercial/ Industrial mg/kg
Organic Matter	6	1.5%	6%	-	-	-	-	-	-	-	-
Arsenic	6	7.8	21	0	0	0	17.69	S4UL	37	40	640
Cadmium	6	0.12	1.1	0	0	0	0.66	S4UL	11	85	190
Chromium	6	9.3	21	0	0	0	17.10	S4UL	910	910	8600
Chromium (VI)	6	<0.5	<0.5	0	0	0	<0.5	S4UL	6	6	33
Lead	6	18	440	1	1	0	121.10	C4SL	200	310	2330
Mercury	6	<0.10	0.18	0	0	0	0.14	S4UL	11	15	320
Selenium	6	<0.20	0.34	0	0	0	0.29	S4UL	250	430	12,000
Nickel	6	8.3	17	0	0	0	14.67	S4UL	130	180	980
Phenols	6	<0.10	<0.10	0	0	0	<0.10	S4UL	120	440	440
Benzo[a]pyrene	6	<0.10	2.0	4	2	0	1.49	S4UL	0.79	1.2	15
Copper	6	11	49	0	0	0	41.31	S4UL	2400	7100	68,000
Zinc	6	37	310	0	0	0	219.15	S4UL	3700	40,000	730,000
Free Cyanide	6	<0.50	<0.50	0	0	0	<0.50	ATRISK	34	34	34

Notes

S4UL and C4SL for metals were derived using 6% SOM. These values are not sensitive to SOM and would also be applicable for 1% SOM and 2.5% SOM.

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ATRISKsoil SSVs produced by Atkins Limited and provided under licence to Ground Engineering Limited.

Discussion of Soil Results

Four of the benzo[a]pyrene concentrations exceeded the soil screening value for the most sensitive end use of residential with home grown produce, and the two highest concentrations also exceeded the residential without home grown produce end use. None of the benzo[a]pyrene concentrations exceeded the screening value for commercial/industrial end use representative of buildings and hardstanding areas. The benzo[a]pyrene concentrations are indicated to be from a coal derived source.

A lead concentration of 440mg/kg from HA4 at 0.15m depth, exceeded both the soil screening values for a residential end use, but did not exceed the screening value for a commercial/industrial end use.

Statistical analysis, using the mean value test, indicates that the US95 value for benzo[a]pyrene exceeded the screening values for the most sensitive end uses of residential with home grown produce and residential without home grown produce, but did not exceed the screening value for a commercial or industrial usage. The US95 value for lead did not exceed the screening values for the residential end uses nor the commercial/industrial end use.

The made ground encountered during this investigation was not noted to have olfactory or visual evidence of fuel contamination, and all of the total petroleum hydrocarbon concentrations were below the laboratory detection limit of 10mg/kg which is not considered significant.

No asbestos containing materials (ACM) were observed within the made ground soils during site work or testing in the laboratory.

In conclusion, the near surface soils would be considered unsuitable for use in the proposed gardens and landscaped areas of the residential development, but could be used beneath buildings and areas of permanent hardstanding if geotechnically suitable.

UPDATED CONCEPTUAL MODEL

Assessment of the potential linkage between ground contamination sources, human and environmental receptors have been assessed based on the desk study research and the intrusive ground investigation documented in the preceding sections of this report.

A generalised conceptual model relative to the existing site and proposed residential use of the site is presented in Table 6 below.

Table 6: General Conceptual Model Relative to Future Residential Development

Receptors	Pathway	Estimated Potential for Linkage with Contaminant Sources			
		Drainage/ Buildings	Soil	Soil Gas	Off-Site Sources
Human Health i ground workers	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	Low	Low	Low	Very Low
Human Health i users of completed development	Ingestion and Inhalation of contaminated Soil, Dust and Vapour	N/A	Low	Low	Very Low
Water Environment	Migration through ground into surface water or groundwater	Low	Very Low	Very Low	Low
Flora	Vegetation on site growing on contaminated soil	Very Low	Very Low	Very Low	Very Low
Building Materials	Contact with contaminated soil	Very Low	Very Low	Very Low	Very Low

Key to Table 6 Risk	Definition
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, or, there is evidence that severe harm to a designated receptor is currently happening. The risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) and remedial works may be necessary in the short term and likely over the long term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that any such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild.
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.
N/A	Not Applicable because the proposed development will remove the source.

COMMENTS ON GROUND CONTAMINATION IN RELATION TO PROPOSED DEVELOPMENT

Anticipated exposure scenarios relating to the existing site, the site history and proposed residential end use of the site, in the context of the conceptual model, are discussed as follows.

This investigation may not have revealed the full extent of contamination on the site and appropriate professional advice should be sought if subsequent site work reveals materials that may appear to be contaminated.

Contaminated Soil

On the basis of the ground investigation, the site is underlain by between 0.30m and 0.50m of made ground. The presence of contaminants (benzo[a]pyrene and lead) in the made ground indicates that there is a low risk of contaminants affecting groundworkers during any construction works and a low risk of affecting future end users of the site if the made ground is exposed in garden and landscaped areas. The underlying naturally deposited soils encountered beneath the site would generally be considered suitable for retention and re-use within the development if required.

Existing Drainage

Redundant drain runs, where encountered, should be removed from beneath the site and precautions should ensure that any remaining effluent is directly disposed off-site. The integrity of existing drainage should be checked, and if they are to be retained any damaged sections should be replaced prior to development. The latter measures should minimise any future risk to human health and the water environment.

Buildings

Although unlikely, the existing garage and outbuildings within the site may have asbestos containing materials within them and an asbestos survey should be undertaken prior to demolition for the proposed redevelopment. Suitable precautions, in line with current best practice, should be put in place to protect workers from the effects of asbestos material, during the site clearance and redevelopment phases.

There is a very low risk of contamination affecting the existing and proposed structures, and their foundations.

Soil Gas

According to the environmental database there are no landfills recorded within 250m of the site. The site is generally underlain by a thin layer of made ground, covering Tidal Flat Deposits.

There is a low risk that hazardous gases would affect groundworkers during the construction phase and a low risk of hazardous gases affecting future users of the site.

Consideration should be given to gas monitoring within deep or confined spaces, particularly where thick made ground and organic soils are present, to ensure safety of personnel entering them, since carbon dioxide could accumulate within any excavations, service chambers or sub-structures. If additional boreholes are to be undertaken, it would provide the opportunity to install gas monitoring standpipes to check on the gas regime at the site.

The site is not in a radon affected area, and no radon protection measures are required for new properties on the site.

Human Health - Construction Workers

Based on the chemical test results, no special precautions would be required during the development of the site by workers who may come into contact with the soil during groundworks, providing standard precautions are adopted which should generally include the procedures given by the Health and Safety Executive (The Blue Book) HS(G)66.

For the protection of workers during groundworks the following is recommended:

- a) Limit repeated or prolonged skin contact with soils by wearing gloves with sleeves rolled down.
- b) Washing facilities should be made available to groundworkers, so as to minimise the potential for inadvertent ingestion of soil.
- c) If any soils are revealed which are different to those encountered by this ground investigation, the advice of a specialist should be sought in view of classifying the material and ascertaining its risk to groundworkers.
- d) Suitable precautions, in line with current best practice, should be put in place to protect workers from the effects of asbestos containing material, during the site clearance phase.
- e) Consideration should be given to gas monitoring within deep or confined spaces, particularly where thick made ground and organic soils are present, to ensure safety of personnel entering them, since carbon dioxide could accumulate within any excavations, service chambers or sub-structures.

Human Health - Users of Completed Development

The risk of the identified ground contamination (benzo[a]pyrene and lead) affecting the site users where a pathway is present, in a residential setting with private gardens and landscaping, would be considered to be low.

The results of the chemical analysis would indicate that the made ground should be considered to be unsuitable for re-use at the surface within any new garden and patio areas, due to the elevated concentrations of benzo[a]pyrene and lead. For private residential garden and patios areas it is recommended that the made ground should either be completely removed, or removed to a minimum depth of 1.00m below finished ground level, and replaced with an equivalent thickness of clean inert topsoil or clean granular fill. Made ground was encountered to a maximum depth of 0.50m during this investigation.

The test results indicate that no scheme of remediation would be considered necessary for areas covered by buildings or hard surfaced areas, which would effectively provide a barrier between end users and the made ground, however these soils could affect buried services.

Any soil imported to site must be certified as "suitable for use".

Water Environment

The site is underlain by superficial Tidal Flat Deposits and solid geology Oxford Clay at depth, which are indicated by the EA to be 'Unproductive' strata. The nearest surface water feature is a drain along a boundary 14m south-west of the site. The site does not lie within a source protection zone.

Apart from perched water on a plastic sheet, no groundwater was recorded within 1.00m below ground level during the investigation.

The risk to the water environment from soil contaminants is considered very low as it is unlikely that the proposed development and contaminants within the made ground soils would impact the quality of the water environment.

Effects on Buried Services

The local water supply company should be consulted if new buried plastic water pipes are to be installed within the made ground soils on this site.

Off-Site Disposal of Soil Arisings

The results of chemical analysis are provided following the exploratory hole records and can be used within the information necessary for basic characterisation of the soil destined for landfill. The Environment Agency publication Hazardous Waste, Technical Guidance WM3 outlines the methodology for classifying wastes and should be referenced for guidance. The test results (total metals, hydrocarbons and cyanide) should be compared to the relevant thresholds to determine whether they fall into the primary categories of non-hazardous

or hazardous waste and will help indicate the likely European Waste Catalogue (EWC) code which is determined by the waste type.

Excavated material and excess spoil should always be classified prior to removal from site as required by 'Duty of Care' (Environmental Protection Act, 1990) legislation. This means that material has to be given a proper description and waste classification prior to removal. Basic characterisation is the responsibility of the waste producer, whilst compliance checking and on-site verification are generally the responsibility of the landfill operator. The landfill operator will need to liaise with the waste producer, as the approach relies on the information from basic characterisation.

It is expected that arisings of natural soils from the excavations across this site would fall into the inert category under the European Waste Catalogue description 'Soil and Stones', EWC code 17 05 04 with restrictions excluding topsoil and peat.

GROUND ENGINEERING LIMITED

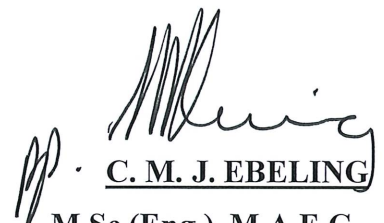


S. WEATHERLEY

B.Eng.(Hons.),

C.Geol., F.G.S.

Senior Geo-Environmental Engineer



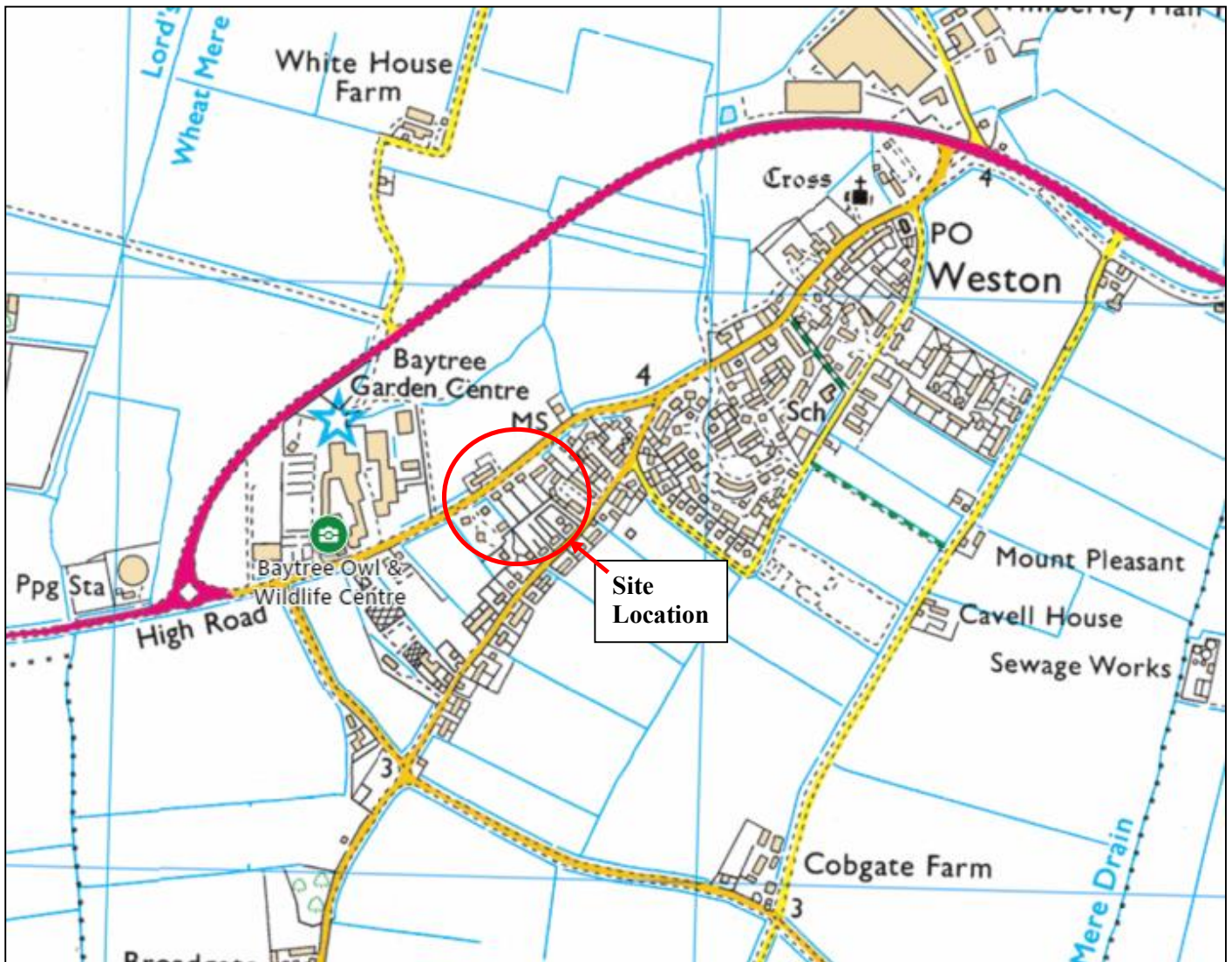
M.Sc.(Eng.), M.A.E.G.,

C.Geol., F.G.S.

Director

Site Location Plan

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Licence number AL100005523



Not To Scale



Project : Land rear of 192-200 High Road, Weston, near
Spalding, Lincolnshire

Client : Morespace Garage Conversions Limited

**GROUND
ENGINEERING
LIMITED**

Peterborough

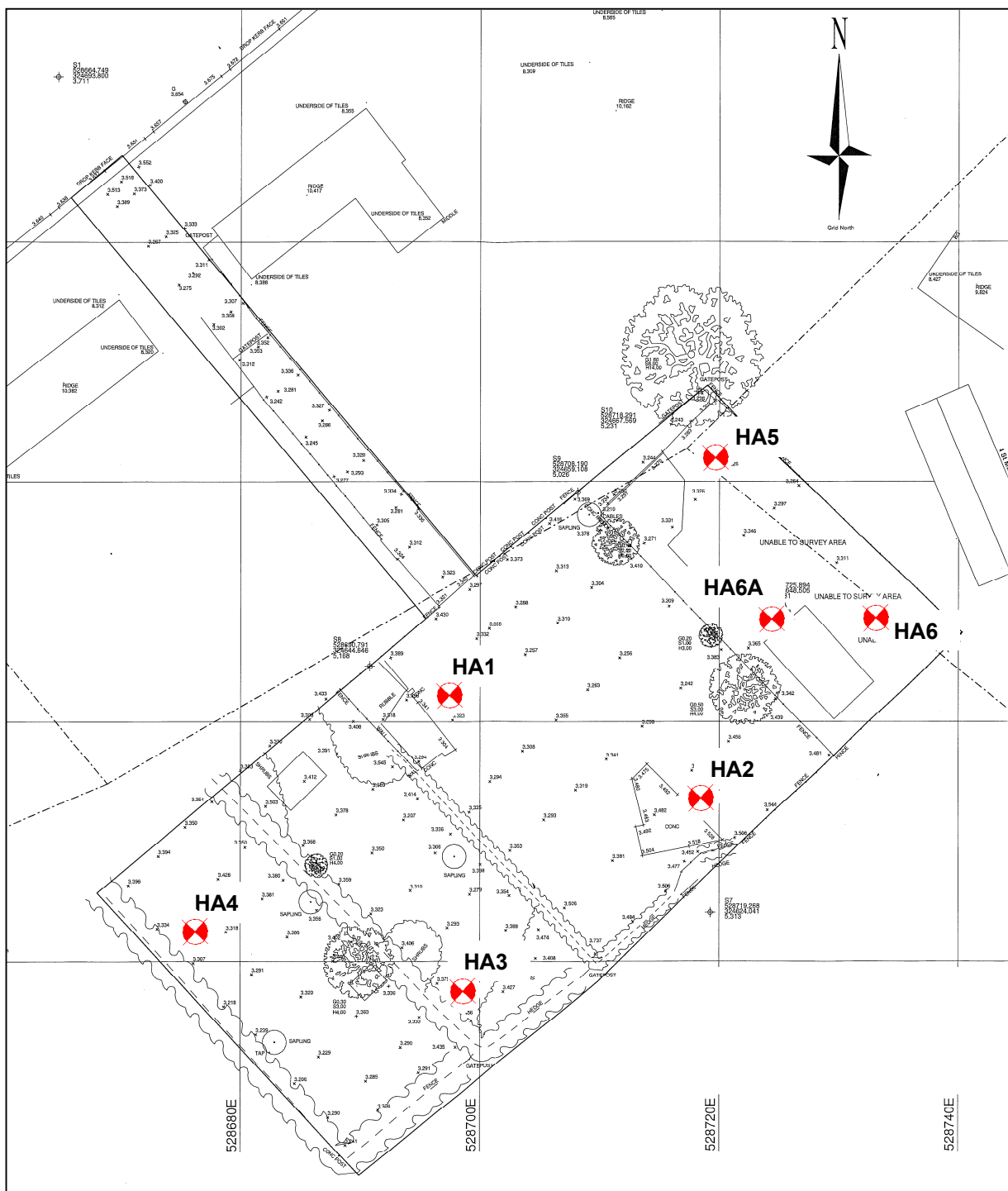
Tel : 01733 566566

Project No.

C15417

Exploratory Hole Location Plan

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Not To Scale

Project: Land rear of 192-200 High Road, Weston, near Spalding, Lincolnshire

Client: Morespace Garage Conversions Limited

**GROUND
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LIMITED**

Peterborough

Tel : 01733 566566

**Project No.
C15417**

Site Walkover Photographs



Project : Land rear of 192-200 High Road, Weston, near Spalding, Lincolnshire

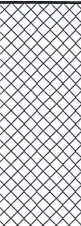
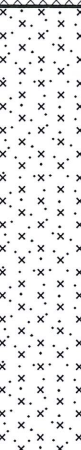
Client : Morespace Garage Conversions Limited

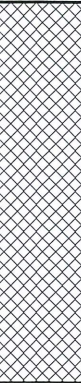
**GROUND
ENGINEERING
LIMITED**

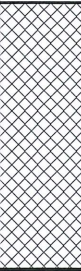
Peterborough Tel : 01733 566566

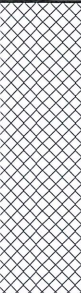
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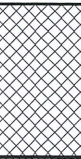
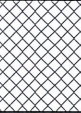
C15417

GROUND ENGINEERING L I M I T E D Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA1				
			Date: 06/07/21		Hole Size: 60mm dia to 0.90m		Ground Level:				
Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O. D. Level m				
Depth m	Type	Result									
0.15 0.15	D1 ES1			MADE GROUND - Brown, sandy SILT with rare gravel of ash and clinker.		0.30					
0.60	D2			Orange brown and brown, sandy SILT. Sand is fine and medium grained. (TIDAL FLAT DEPOSIT)							
0.90	D3			Hole completed at 0.90m depth		0.90					
REMARKS 1. Live roots observed to 0.10m depth 2. Hole sides stable						Project No 15417					
						Scale 1:10	Page 1/1				
KEY D - Disturbed Sample MP - Mackintosh Probe B - Bulk Sample V - Vane Shear Test U - Undisturbed Sample Cohesion () kPa W - Water Sample ES - Environmental R - Root Sample Sample ▽ Water Strike ▽ Water Rise ▽c Level on completion ▽s Standpipe Level			Groundwater Strikes				Groundwater Observations				
			Depth m				Date	Depth m			
			No	Struck	Rose to	Rate		Cased	Sealed	Hole	Casing
							06/07/21	0.90			dry

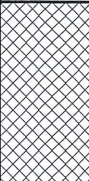
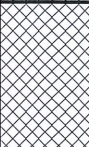
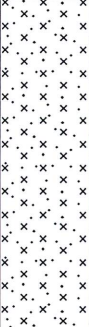
GROUND ENGINEERING L I M I T E D Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA2			
			Date: 06/07/21		Hole Size: 60mm dia to 1.00m		Ground Level:			
Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m			
Depth m	Type	Result								
0.15 0.15	D1 ES1			MADE GROUND - Brown and dark brown, slightly gravelly, very silty SAND. Gravel is angular to sub-rounded flint, ash, rare plastic and metal pin.						
0.60	D2			Orange brown and brown, sandy SILT. Sand is fine and medium grained. (TIDAL FLAT DEPOSIT)		0.50				
0.90	D3					1.00				
				Hole completed at 1.00m depth						
REMARKS 1. Live roots observed to 1.00m depth 2. Hole sides stable						Project No 15417				
						Scale 1:10	Page 1/1			
KEY D - Disturbed Sample MP - Mackintosh Probe B - Bulk Sample V - Vane Shear Test U - Undisturbed Sample Cohesion () kPa W - Water Sample ES - Environmental Sample R - Root Sample ▽ Water Strike ▽ Water Rise ▽c Level on completion ▽s Standpipe Level			Groundwater Strikes				Groundwater Observations			
			Depth m				Date	Depth m		
			No	Struck	Rose to	Rate		Cased	Sealed	Hole
							06/07/21	1.00		dry

GROUND ENGINEERING L I M I T E D Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA3			
			Date: 06/07/21		Hole Size: 60mm dia to 1.00m		Ground Level:			
Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m			
Depth m	Type	Result								
0.15 0.15	D1 ES1			MADE GROUND - Brown and dark brown, silty SAND with occasional ash.		0.35				
0.60	D2			Orange brown and brown, sandy SILT with soft, sandy, silty clay lenses. Sand is fine and medium grained.						
0.90	D3			(TIDAL FLAT DEPOSIT)		1.00				
				Hole completed at 1.00m depth						
REMARKS 1. Live roots observed to 0.90m depth 2. Hole sides stable						Project No 15417				
						Scale 1:10	Page 1/1			
KEY D - Disturbed Sample MP - Mackintosh Probe B - Bulk Sample V - Vane Shear Test U - Undisturbed Sample Cohesion () kPa W - Water Sample ES - Environmental Sample R - Root Sample ▽ Water Strike ▽ Water Rise ▽c Level on completion ▽s Standpipe Level			Groundwater Strikes				Groundwater Observations			
			Depth m				Date	Depth m		
			No	Struck	Rose to	Rate		Cased	Sealed	Hole
							06/07/21	1.00		dry

GROUND ENGINEERING L I M I T E D Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA4			
			Date: 06/07/21		Hole Size: 60mm dia to 0.90m		Ground Level:			
Samples and in-situ Tests			(Date)	Description of Strata			Legend	Depth m	O.D. Level m	
Depth m	Type	Result	Water							
0.15 0.15	D1 ES1			MADE GROUND - Dark brown, slightly gravelly, very silty SAND. Sand is fine and medium grained. Gravel is angular plastic, ash and glass fragments.				0.40		
0.60	D2			Brown and orange brown, very sandy SILT. Sand is fine and medium grained. (TIDAL FLAT DEPOSIT)						
0.90	D3			Light brown, slightly silty SAND. Sand is fine and medium grained. (TIDAL FLAT DEPOSIT)				0.90		
				Hole completed at 0.90m depth						
REMARKS 1. Live roots observed to 0.60m depth 2. Hole sides stable								Project No 15417		
								Scale 1:10	Page 1/1	
KEY D - Disturbed Sample MP - Mackintosh Probe B - Bulk Sample V - Vane Shear Test U - Undisturbed Sample Cohesion () kPa W - Water Sample ES - Environmental Sample R - Root Sample ☒ Water Strike ☒ Water Rise ☒c Level on completion ☒s Standpipe Level				Groundwater Strikes			Groundwater Observations			
				Depth m			Date	Depth m		
				No	Struck	Rose to		Rate	Cased	Sealed
							06/07/21	0.90		dry

GROUND ENGINEERING L I M I T E D Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA5					
			Date: 06/07/21		Hole Size: 60mm dia to 0.95m		Ground Level:					
Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m					
Depth m	Type	Result										
0.10 0.10	D1 ES1			MADE GROUND - Grey and brown, silty SAND AND GRAVEL. Gravel is angular to sub-rounded limestone and igneous rock. Plastic sheet at base.		0.20						
0.30	D2			MADE GROUND - Brown, very silty SAND with rare fine and medium grained, sub-rounded flint gravel.		0.35						
0.50	D3			Orange brown, very sandy SILT with rare black carbonaceous specks. Sand is fine and medium grained.								
				(TIDAL FLAT DEPOSIT)								
0.90	D4			Hole completed at 0.95m depth		0.95						
REMARKS 1. Hole sides stable								Project No 15417				
								Scale 1:10 Page 1/1				
KEY D - Disturbed Sample MP - Mackintosh Probe B - Bulk Sample V - Vane Shear Test U - Undisturbed Sample Cohesion () kPa W - Water Sample ES - Environmental Sample R - Root Sample  Water Strike  Water Rise  Level on completion  Standpipe Level			Groundwater Strikes				Groundwater Observations					
			Depth m						Depth m			
			No	Struck	Rose to	Rate	Cased	Sealed	Date	Hole	Casing	Water
						06/07/21	0.95		dry			

GROUND ENGINEERING LIMITED Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA6					
Date: 06/07/21			Hole Size: 60mm dia to 0.20m				Ground Level:					
Samples and in-situ Tests			(Date)	Description of Strata			Legend	Depth m	O.D. Level m			
Depth m	Type	Result	Water									
0.10	D1		1 ▽	MADE GROUND - Yellow, slightly sandy GRAVEL AND COBBLES of limestone, brick, concrete and tile. Plastic sheet at base.				0.20				
				Hole abandoned at 0.20m depth								
REMARKS 1. Hole abandoned at 0.20 due to water proof membrane										Project No 15417		
										Scale 1:10	Page 1/1	
KEY D - Disturbed Sample B - Bulk Sample U - Undisturbed Sample W - Water Sample R - Root Sample ▽ Water Strike ▽c Level on completion MP - Mackintosh Probe V - Vane Shear Test Cohesion () kPa ES - Environmental Sample ▽ Water Rise ▽s Standpipe Level			Groundwater Strikes				Groundwater Observations					
			Depth m						Date	Depth m		
			No	Struck	Rose to	Rate	Cased	Sealed		Hole	Casing	Water
			1	0.19					06/07/21	0.20		0.19

GROUND ENGINEERING L I M I T E D Tel: 01733-566566 www.groundengineering.co.uk			Site: RO. 192-200 HIGH ROAD, WESTON, SPALDING				HAND AUGER HA6A			
			Date: 06/07/21		Hole Size: 60mm dia to 0.90m		Ground Level:			
Samples and in-situ Tests			(Date) Water	Description of Strata	Legend	Depth m	O.D. Level m			
Depth m	Type	Result								
0.15 0.15	D1 ES1			MADE GROUND - Yellow and brown, slightly silty, sandy GRAVEL with occasional cobbles of limestone, concrete and brick. Gravel is angular and sub-angular limestone, igneous rock, concrete and brick.		0.25				
0.35 0.35	D2 ES2			MADE GROUND - Dark brown and brown, silty SAND with dark staining.						
0.70	D3			Light brown and orange brown, very sandy SILT. Sand is fine and medium grained.		0.45				
0.90	D4			(TIDAL FLAT DEPOSIT)		0.90				
				Hole completed at 0.90m depth						
REMARKS 1. Hole sides stable						Project No 15417				
						Scale 1:10	Page 1/1			
KEY D - Disturbed Sample MP - Mackintosh Probe B - Bulk Sample V - Vane Shear Test U - Undisturbed Sample Cohesion () kPa W - Water Sample ES - Environmental R - Root Sample Sample ▽ Water Strike ▽ Water Rise ▽c Level on completion ▽s Standpipe Level			Groundwater Strikes			Groundwater Observations				
			Depth m			Date	Depth m			
			No	Struck	Rose to		Rate	Cased	Sealed	Hole
							06/07/21	0.90		dry

LABORATORY TEST RESULTS

CONTRACT RO 192-200 HIGH ROAD, WESTON, SPALDING

Bore-hole	Sample	Depth m	Classification				Density		Triaxial Compression					Sulphates (SO ₄)				Remarks
			Liquid Limit %	Plastic Limit %	Plasticity Index %	Moisture Content %	Bulk Mg/m ³	Dry Mg/m ³	Type	Principal Stress Difference kPa	Cell Pressure kPa	Shear Strength kPa	Angle of Shear Resistance degrees	Total Dry Wt. %	Soil Aqueous Extract mg/l	Water mg/l	pH	
HA1	D2	0.60	37	26	11	29												SOIL CLASSIFICATION = MI 0% retained on 425µm sieve
HA3	D3	0.90	34	22	12	24												SOIL CLASSIFICATION = CL 0% retained on 425µm sieve
HA4	D2	0.60	32	27	5	25												SOIL CLASSIFICATION = ML 0% retained on 425µm sieve
HA6A	D3	0.70	37	31	6	30												SOIL CLASSIFICATION = MI 0% retained on 425µm sieve



Final Report

Report No.: 21-23527-1
Initial Date of Issue: 15-Jul-2021
Client Ground Engineering Limited
Client Address: Newark Road
Peterborough
Cambridgeshire
PE1 5UA
Contact(s): Simon Weatherley
Project SW/C15417 Land rear of 192-200,
High Road, Weston

Quotation No.:		Date Received:	09-Jul-2021
Order No.:	SW/C15417	Date Instructed:	09-Jul-2021
No. of Samples:	6		
Turnaround (Wkdays):	5	Results Due:	15-Jul-2021
Date Approved:	15-Jul-2021		

Approved By:

Details: Glynn Harvey, Technical Manager

Results - Soil

Project: SW/C15417 Land rear of 192-200, High Road, Weston

Client: Ground Engineering Limited	Chemtest Job No.:				21-23527	21-23527	21-23527	21-23527	21-23527	21-23527
Quotation No.:	Chemtest Sample ID.:				1237095	1237096	1237097	1237098	1237099	1237100
Order No.: SW/C15417	Client Sample Ref.:				D1, ES1	D1, ES1	D1, ES1	D1, ES1	D1, ES1	D2, ES2
	Sample Location:				HA1	HA2	HA3	HA4	HA5	HA6A
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.15	0.15	0.15	0.15	0.10	0.35
	Date Sampled:				06-Jul-2021	06-Jul-2021	06-Jul-2021	06-Jul-2021	06-Jul-2021	06-Jul-2021
Determinand	Accred.	SOP	Units	LOD						
pH	M	2010		4.0	8.5	8.4	8.0	8.4	10.6	9.0
Moisture	N	2030	%	0.020	19	22	21	20	8.8	19
Stones and Removed Materials	N	2030	%	0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Boron (Hot Water Soluble)	M	2120	mg/kg	0.40	< 0.40	0.46	< 0.40	< 0.40	< 0.40	< 0.40
Sulphate (2:1 Water Soluble) as SO4	M	2120	g/l	0.010	< 0.010	< 0.010	< 0.010	< 0.010	0.039	< 0.010
Cyanide (Free)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cyanide (Total)	M	2300	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulphide (Easily Liberatable)	N	2325	mg/kg	0.50	0.85	0.82	0.55	0.65	1.0	0.75
Arsenic	M	2450	mg/kg	1.0	11	13	7.8	21	18	11
Cadmium	M	2450	mg/kg	0.10	0.22	1.1	0.15	0.37	0.12	0.14
Chromium	M	2450	mg/kg	1.0	12	14	9.3	15	21	11
Copper	M	2450	mg/kg	0.50	29	49	11	38	28	31
Mercury	M	2450	mg/kg	0.10	< 0.10	0.11	< 0.10	0.18	< 0.10	< 0.10
Nickel	M	2450	mg/kg	0.50	12	13	8.3	17	13	10
Lead	M	2450	mg/kg	0.50	35	62	20	440	18	24
Selenium	M	2450	mg/kg	0.20	0.20	0.29	< 0.20	0.34	< 0.20	< 0.20
Zinc	M	2450	mg/kg	0.50	130	200	53	310	37	57
Chromium (Hexavalent)	N	2490	mg/kg	0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Organic Matter	M	2625	%	0.40	2.9	6.0	2.8	4.0	1.5	1.5
Acenaphthene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Acenaphthylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.40	< 0.10
Benzo[a]anthracene	M	2700	mg/kg	0.10	0.50	1.2	1.0	0.81	1.8	< 0.10
Benzo[a]pyrene	M	2700	mg/kg	0.10	< 0.10	1.3	1.0	0.83	2.0	< 0.10
Benzo[b]fluoranthene	M	2700	mg/kg	0.10	< 0.10	1.9	1.5	1.4	2.9	< 0.10
Benzo[g,h,i]perylene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	3.5	< 0.10
Benzo[k]fluoranthene	M	2700	mg/kg	0.10	< 0.10	0.82	0.51	0.51	0.98	< 0.10
Chrysene	M	2700	mg/kg	0.10	0.30	1.3	0.99	1.1	2.2	< 0.10
Dibenz(a,h)Anthracene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.46	< 0.10
Fluoranthene	M	2700	mg/kg	0.10	0.35	1.9	1.6	1.5	3.5	0.32
Fluorene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Indeno(1,2,3-c,d)Pyrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	2.4	< 0.10
Naphthalene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phenanthrene	M	2700	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.3	0.16
Pyrene	M	2700	mg/kg	0.10	0.27	1.9	1.3	1.4	3.4	0.18
Total Of 16 PAH's	M	2700	mg/kg	2.0	< 2.0	10	7.9	7.6	25	< 2.0
Total Phenols	M	2920	mg/kg	0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Soil Colour	N	2040		N/A	Brown	Brown	Brown	Brown	Brown	Brown

Results - Soil

Project: SW/C15417 Land rear of 192-200, High Road, Weston

Client: Ground Engineering Limited	Chemtest Job No.:				21-23527	21-23527	21-23527	21-23527	21-23527	21-23527
Quotation No.:	Chemtest Sample ID.:				1237095	1237096	1237097	1237098	1237099	1237100
Order No.: SW/C15417	Client Sample Ref.:				D1, ES1	D1, ES1	D1, ES1	D1, ES1	D1, ES1	D2, ES2
	Sample Location:				HA1	HA2	HA3	HA4	HA5	HA6A
	Sample Type:				SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Top Depth (m):				0.15	0.15	0.15	0.15	0.10	0.35
	Date Sampled:				06-Jul-2021	06-Jul-2021	06-Jul-2021	06-Jul-2021	06-Jul-2021	06-Jul-2021
Determinand	Accred.	SOP	Units	LOD						
Other Material	N	2040		N/A	Stones	Roots and Stones	Stones, Roots and plant	Stones and Roots	Stones	Stones
Soil Texture	N	2040		N/A	Sand	Sand	Sand	Sand	Sand	Clay
Total TPH >C6-C40	M	2670	mg/kg	10	< 10	< 10	< 10	< 10	< 10	< 10

Test Methods

SOP	Title	Parameters included	Method summary
2010	pH Value of Soils	pH	pH Meter
2030	Moisture and Stone Content of Soils(Requirement of MCERTS)	Moisture content	Determination of moisture content of soil as a percentage of its as received mass obtained at <37°C.
2040	Soil Description(Requirement of MCERTS)	Soil description	As received soil is described based upon BS5930
2120	Water Soluble Boron, Sulphate, Magnesium & Chromium	Boron; Sulphate; Magnesium; Chromium	Aqueous extraction / ICP-OES
2300	Cyanides & Thiocyanate in Soils	Free (or easy liberatable) Cyanide; total Cyanide; complex Cyanide; Thiocyanate	Alkaline extraction followed by colorimetric determination using Automated Flow Injection Analyser.
2325	Sulphide in Soils	Sulphide	Steam distillation with sulphuric acid / analysis by 'Aquakem 600' Discrete Analyser, using N,N-dimethyl-p-phenylenediamine.
2450	Acid Soluble Metals in Soils	Metals, including: Arsenic; Barium; Beryllium; Cadmium; Chromium; Cobalt; Copper; Lead; Manganese; Mercury; Molybdenum; Nickel; Selenium; Vanadium; Zinc	Acid digestion followed by determination of metals in extract by ICP-MS.
2490	Hexavalent Chromium in Soils	Chromium [VI]	Soil extracts are prepared by extracting dried and ground soil samples into boiling water. Chromium [VI] is determined by 'Aquakem 600' Discrete Analyser using 1,5-diphenylcarbazide.
2625	Total Organic Carbon in Soils	Total organic Carbon (TOC)	Determined by high temperature combustion under oxygen, using an Eltra elemental analyser.
2670	Total Petroleum Hydrocarbons (TPH) in Soils by GC-FID	TPH (C6–C40); optional carbon banding, e.g. 3-band – GRO, DRO & LRO*TPH C8–C40	Dichloromethane extraction / GC-FID
2700	Speciated Polynuclear Aromatic Hydrocarbons (PAH) in Soil by GC-FID	Acenaphthene; Acenaphthylene; Anthracene; Benzo[a]Anthracene; Benzo[a]Pyrene; Benzo[b]Fluoranthene; Benzo[ghi]Perylene; Benzo[k]Fluoranthene; Chrysene; Dibenzo[ah]Anthracene; Fluoranthene; Fluorene; Indeno[123cd]Pyrene; Naphthalene; Phenanthrene; Pyrene	Dichloromethane extraction / GC-FID (GC-FID detection is non-selective and can be subject to interference from co-eluting compounds)
2920	Phenols in Soils by HPLC	Phenolic compounds including Resorcinol, Phenol, Methylphenols, Dimethylphenols, 1-Naphthol and TrimethylphenolsNote: chlorophenols are excluded.	60:40 methanol/water mixture extraction, followed by HPLC determination using electrochemical detection.

Report Information

Key

U	UKAS accredited
M	MCERTS and UKAS accredited
N	Unaccredited
S	This analysis has been subcontracted to a UKAS accredited laboratory that is accredited for this analysis
SN	This analysis has been subcontracted to a UKAS accredited laboratory that is not accredited for this analysis
T	This analysis has been subcontracted to an unaccredited laboratory
I/S	Insufficient Sample
U/S	Unsuitable Sample
N/E	not evaluated
<	"less than"
>	"greater than"
SOP	Standard operating procedure
LOD	Limit of detection

Comments or interpretations are beyond the scope of UKAS accreditation

The results relate only to the items tested

Uncertainty of measurement for the determinands tested are available upon request

None of the results in this report have been recovery corrected

All results are expressed on a dry weight basis

The following tests were analysed on samples as received and the results subsequently corrected to a dry weight basis TPH, BTEX, VOCs, SVOCs, PCBs, Phenols

For all other tests the samples were dried at < 37°C prior to analysis

All Asbestos testing is performed at the indicated laboratory

Issue numbers are sequential starting with 1 all subsequent reports are incremented by 1

Sample Deviation Codes

- A - Date of sampling not supplied
- B - Sample age exceeds stability time (sampling to extraction)
- C - Sample not received in appropriate containers
- D - Broken Container
- E - Insufficient Sample (Applies to LOI in Trommel Fines Only)

Sample Retention and Disposal

All soil samples will be retained for a period of 30 days from the date of receipt

All water samples will be retained for 14 days from the date of receipt

Charges may apply to extended sample storage

If you require extended retention of samples, please email your requirements to:

customerservices@chemtest.com

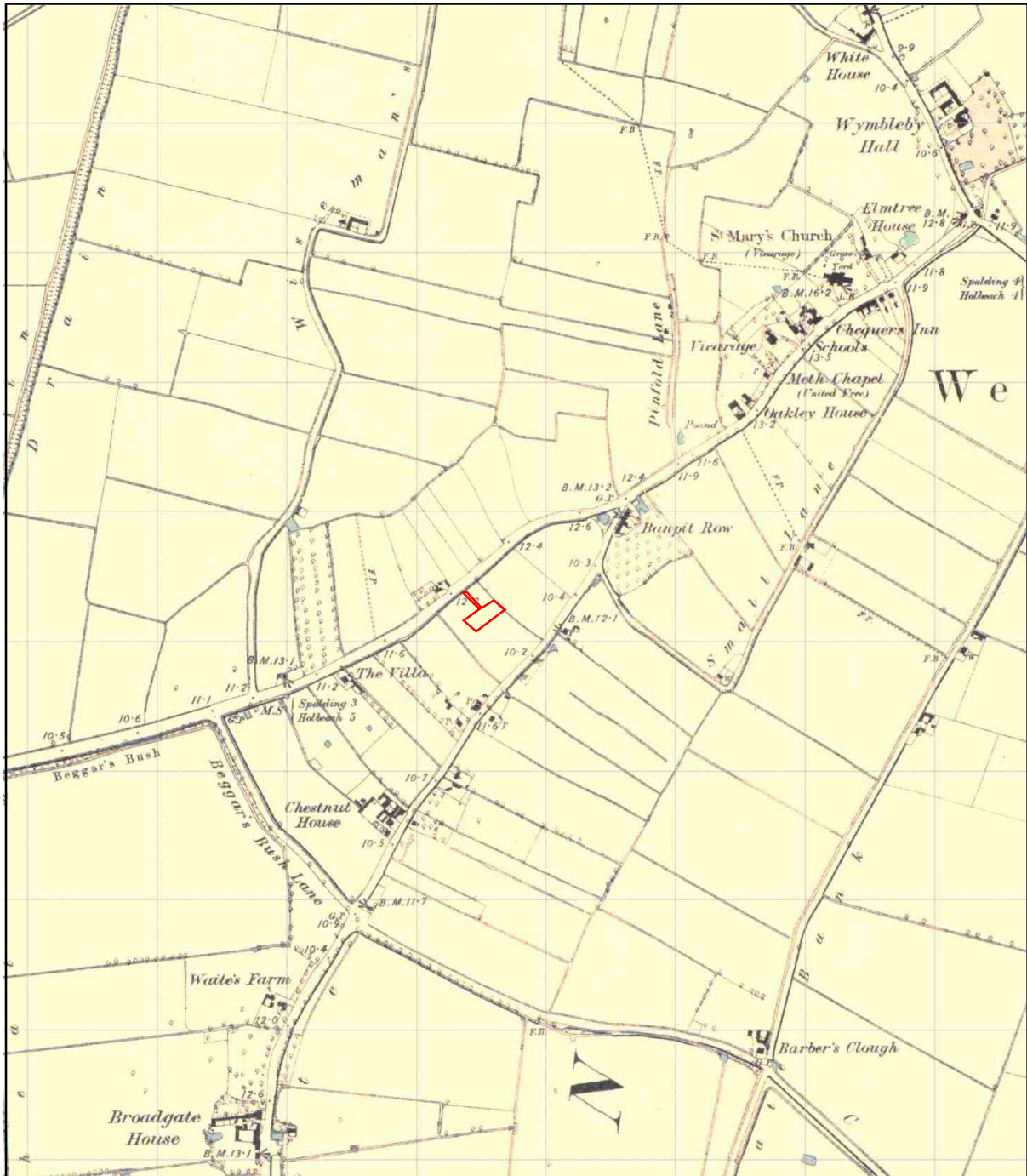
APPENDIX 1

HISTORICAL MAP EXTRACTS

Site History

Figure A

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Spalding**

Client : Morespace Garage Conversions Limited

**GROUND
ENGINEERING
LIMITED**

Peterborough Tel : 01733 566566

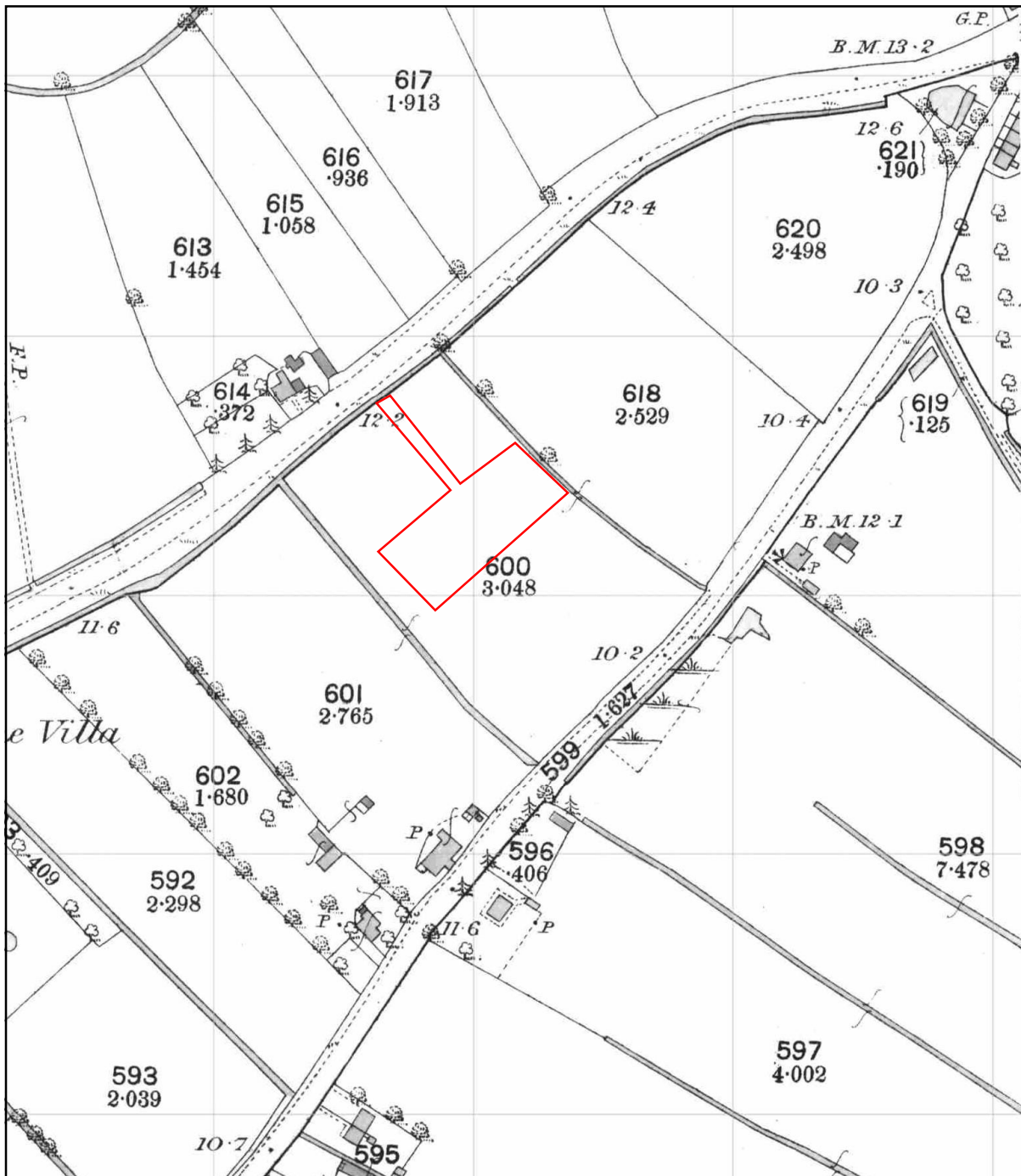
Project No.

C15417

Site History

Figure B

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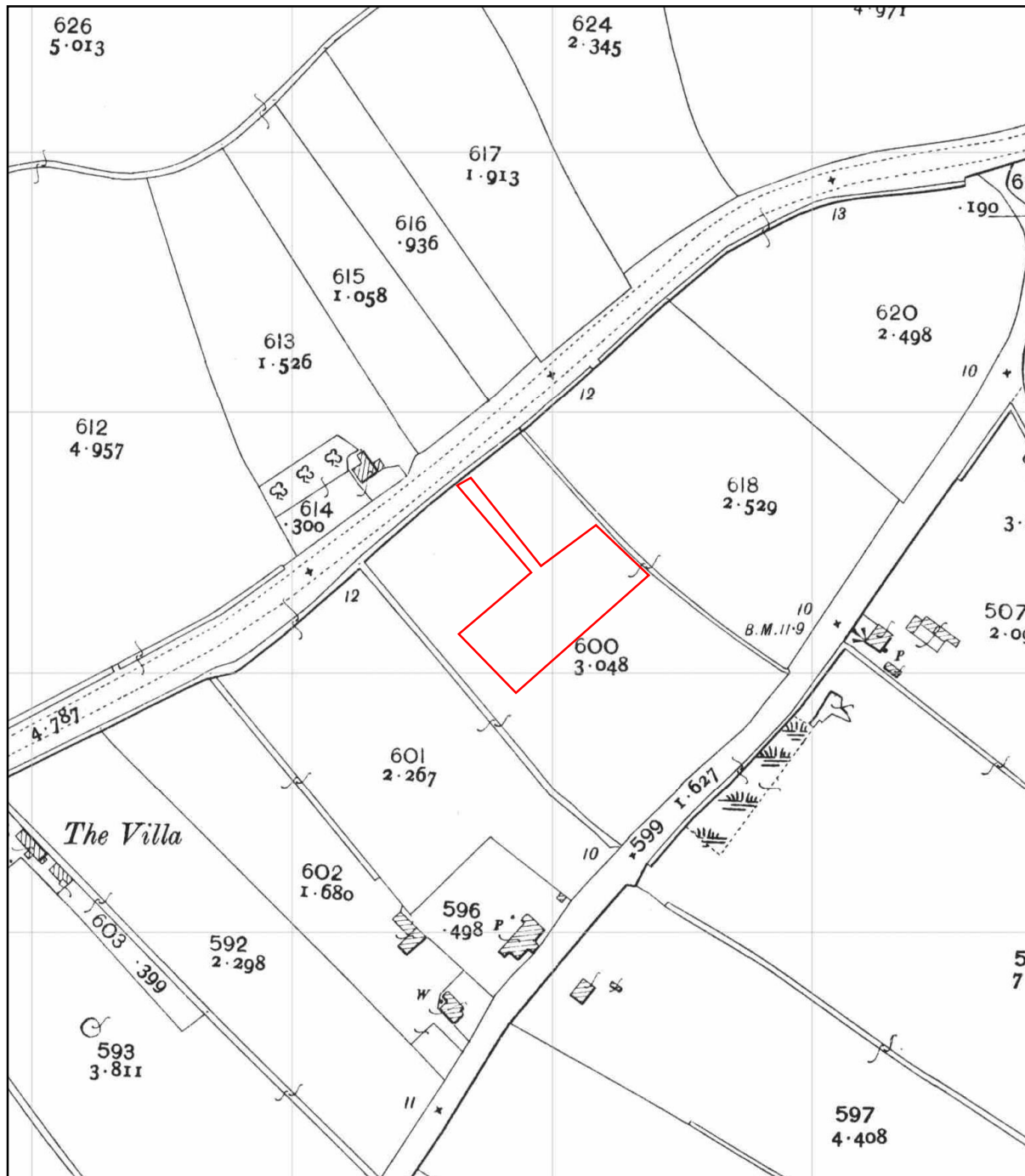
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Figure C

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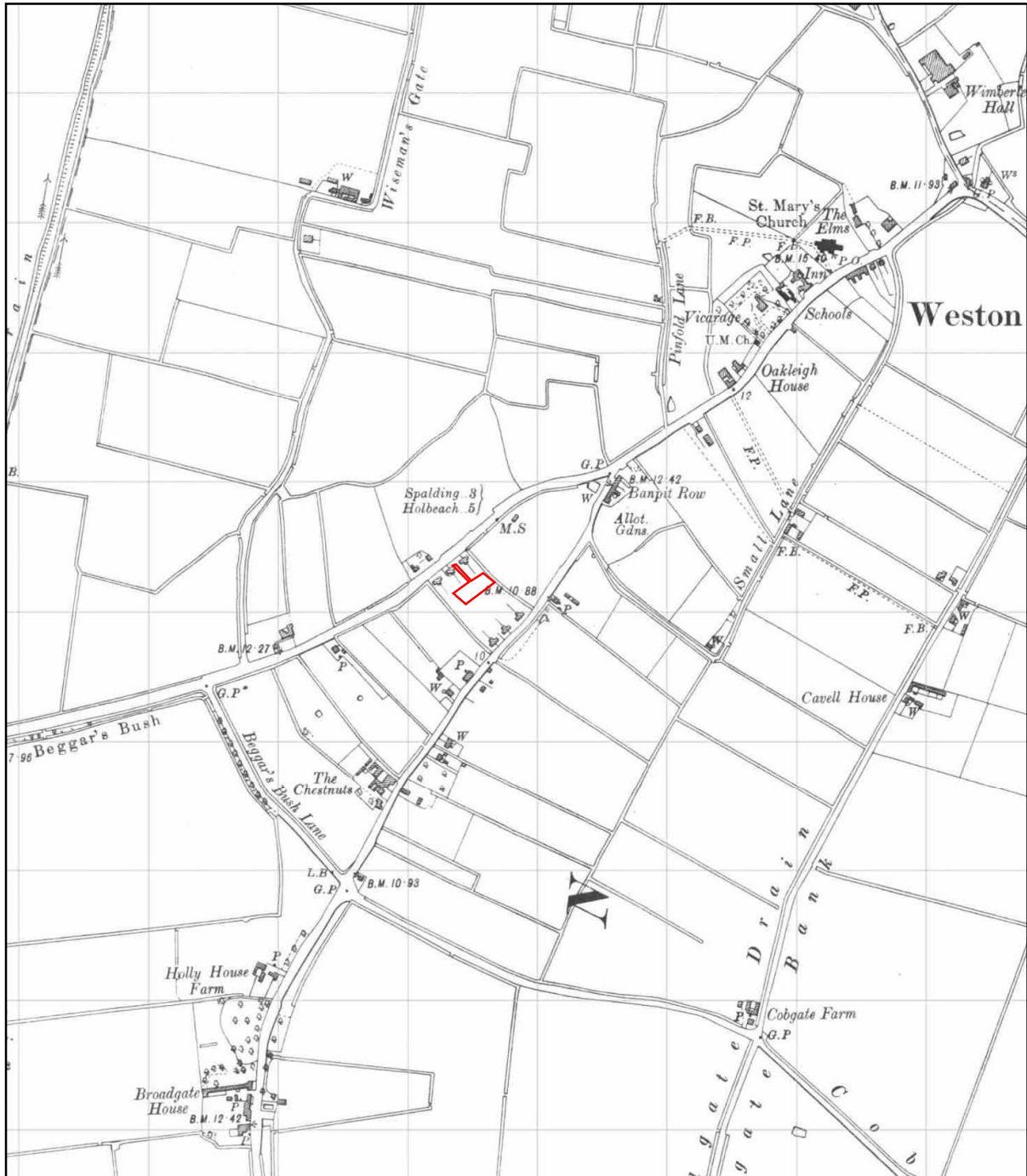
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Figure D

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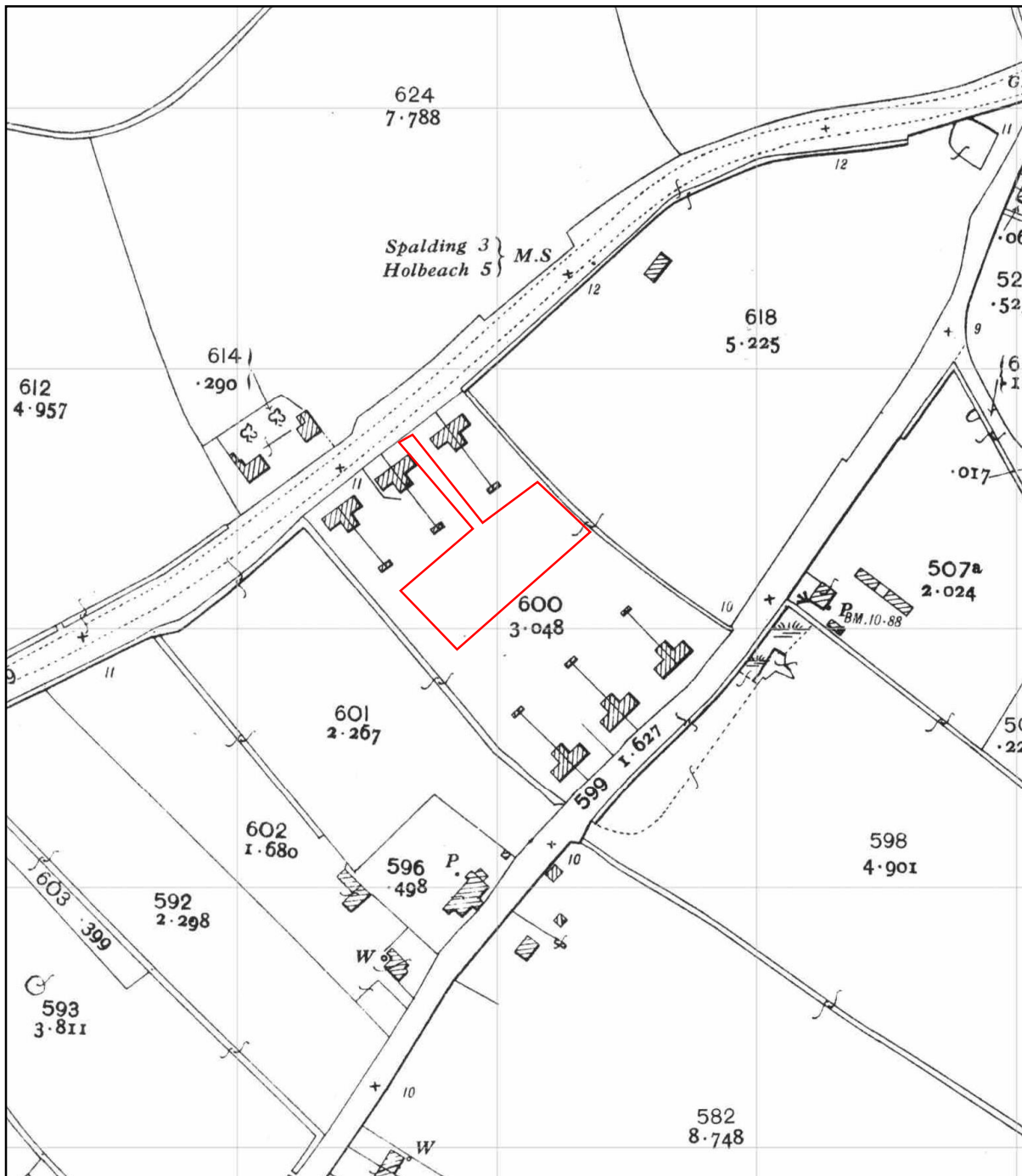
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Site History

Figure E

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Site History

Figure F

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Site History

Figure G

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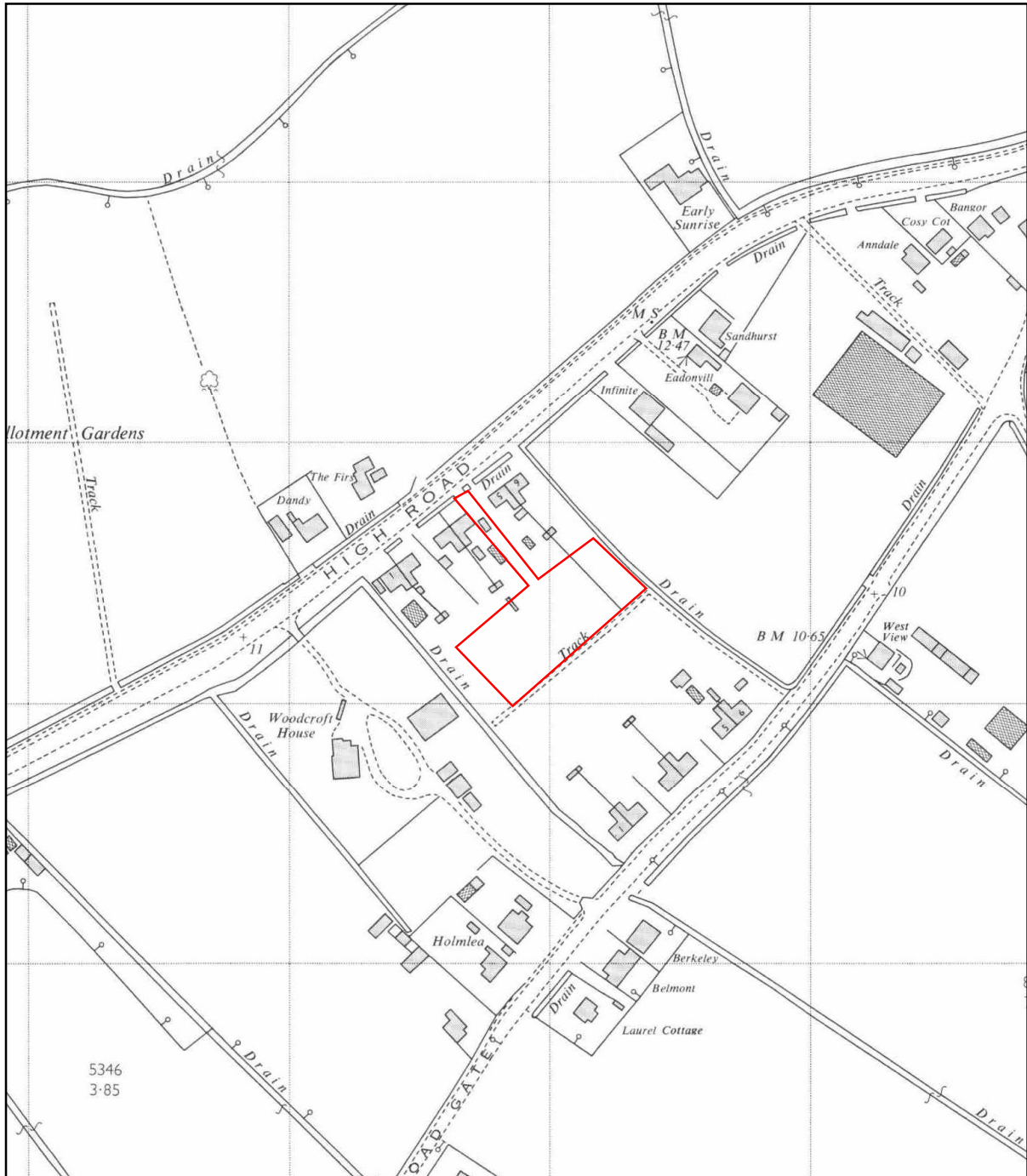
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Site History

Figure H

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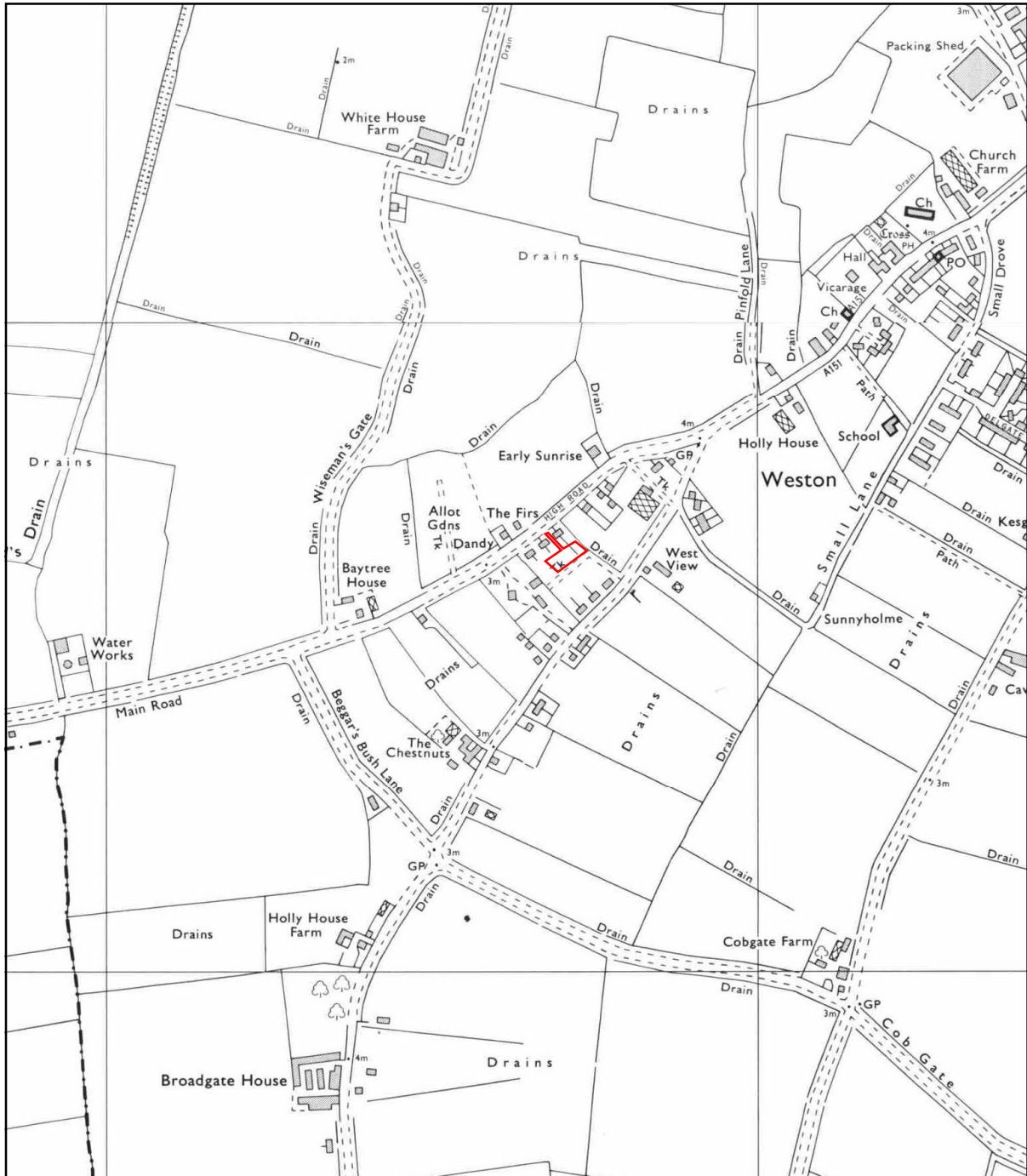
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Site History

Figure I

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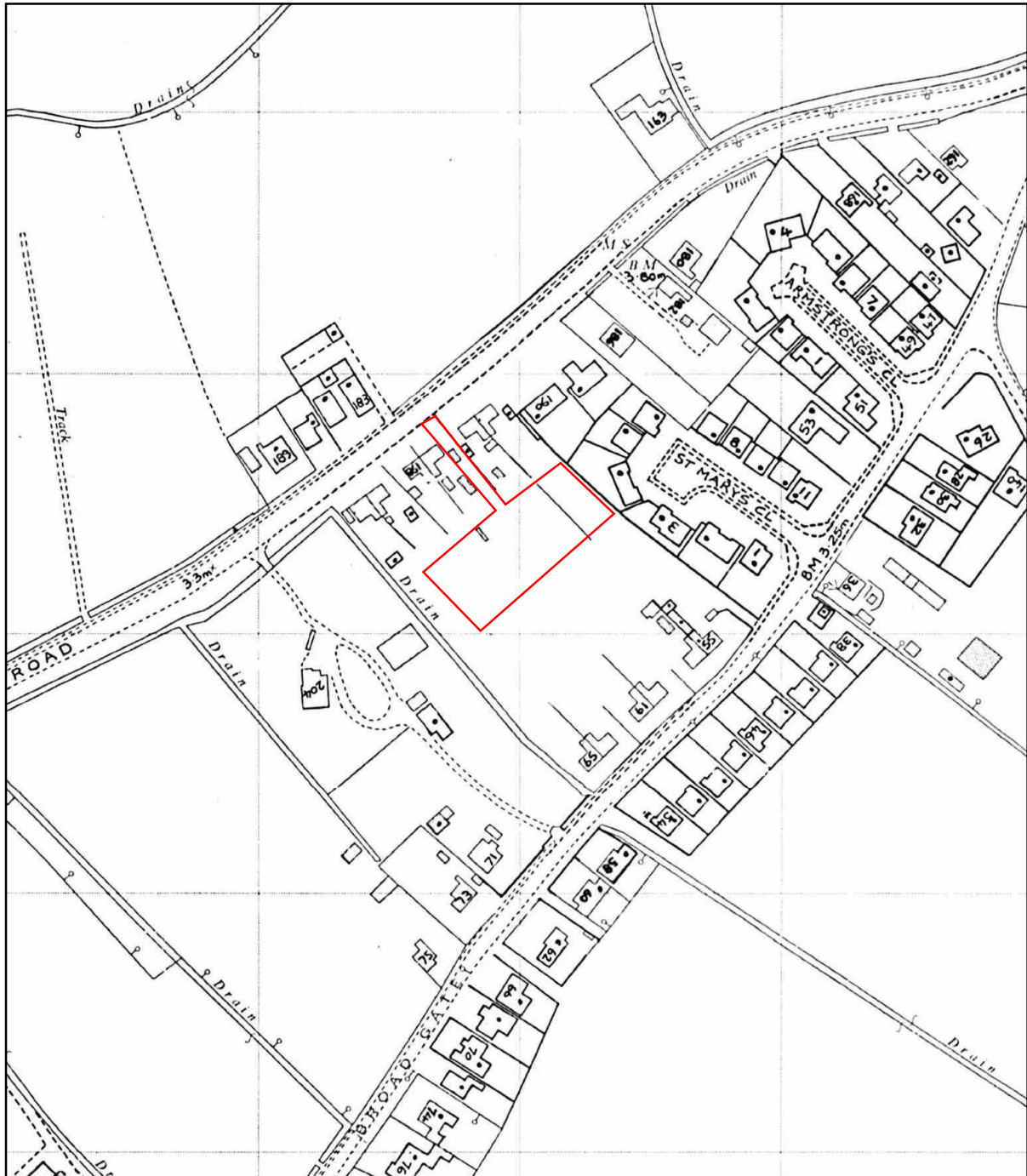
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Site History

Figure J

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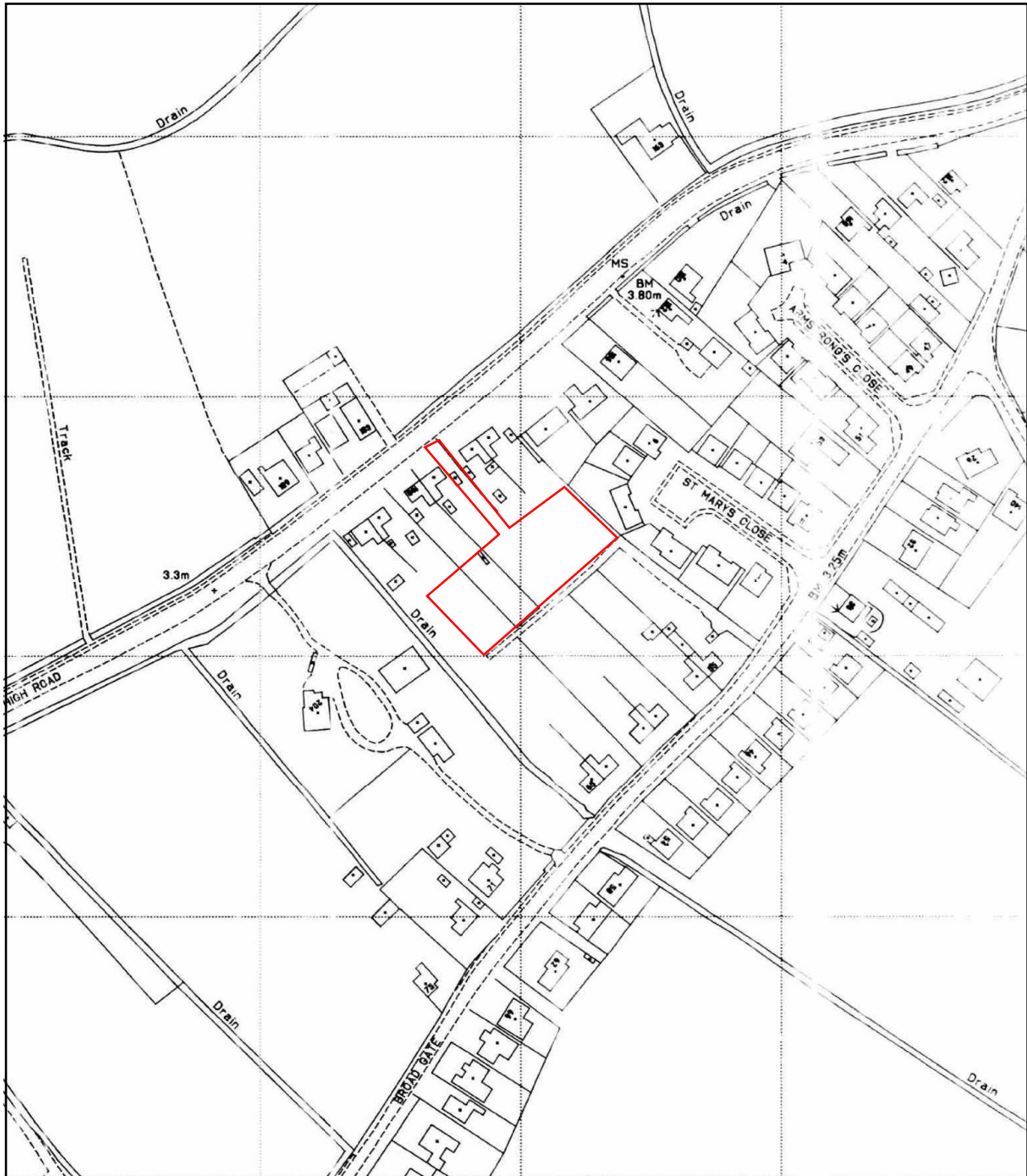
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Site History

Figure K

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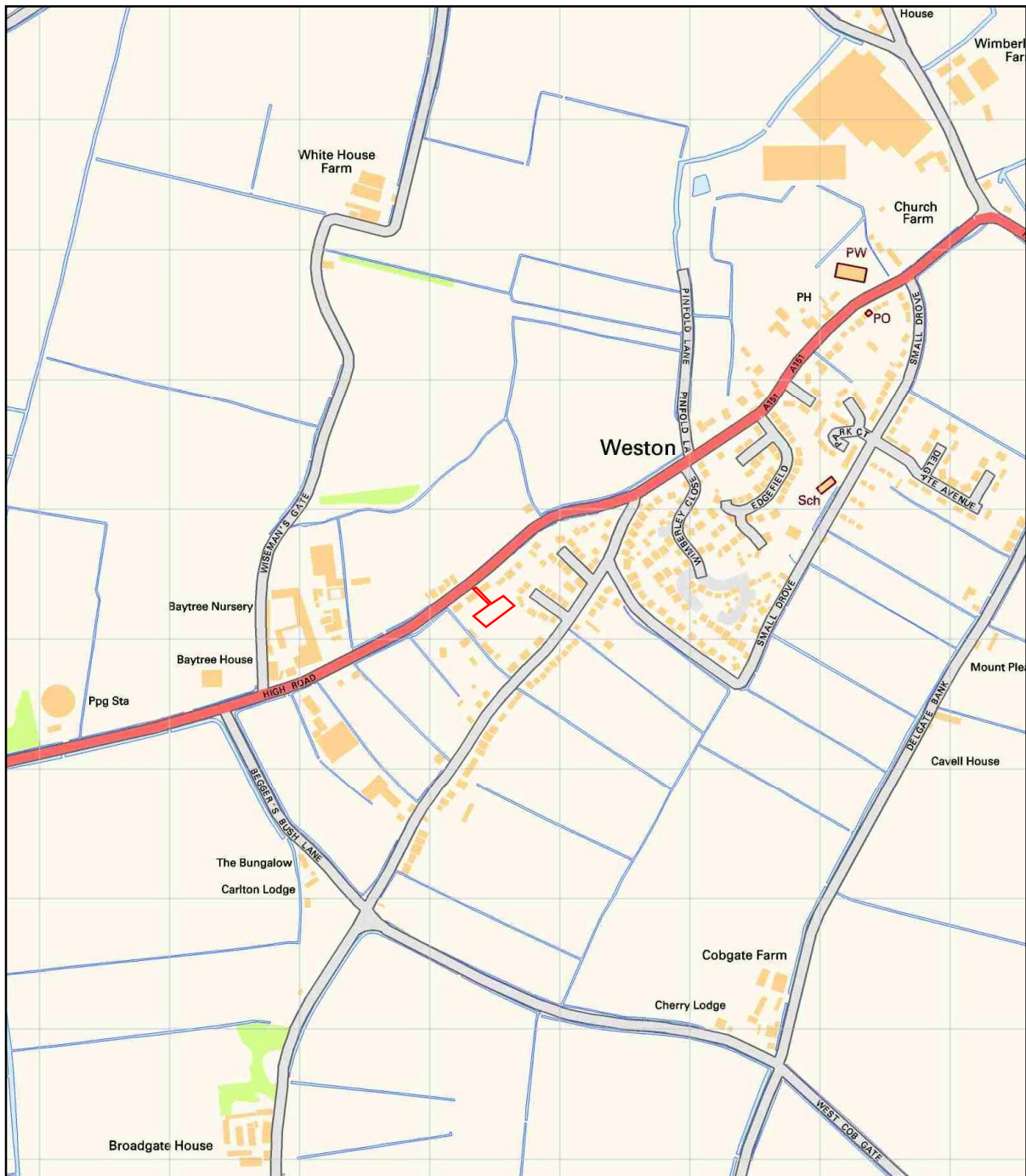
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Site History

Figure L

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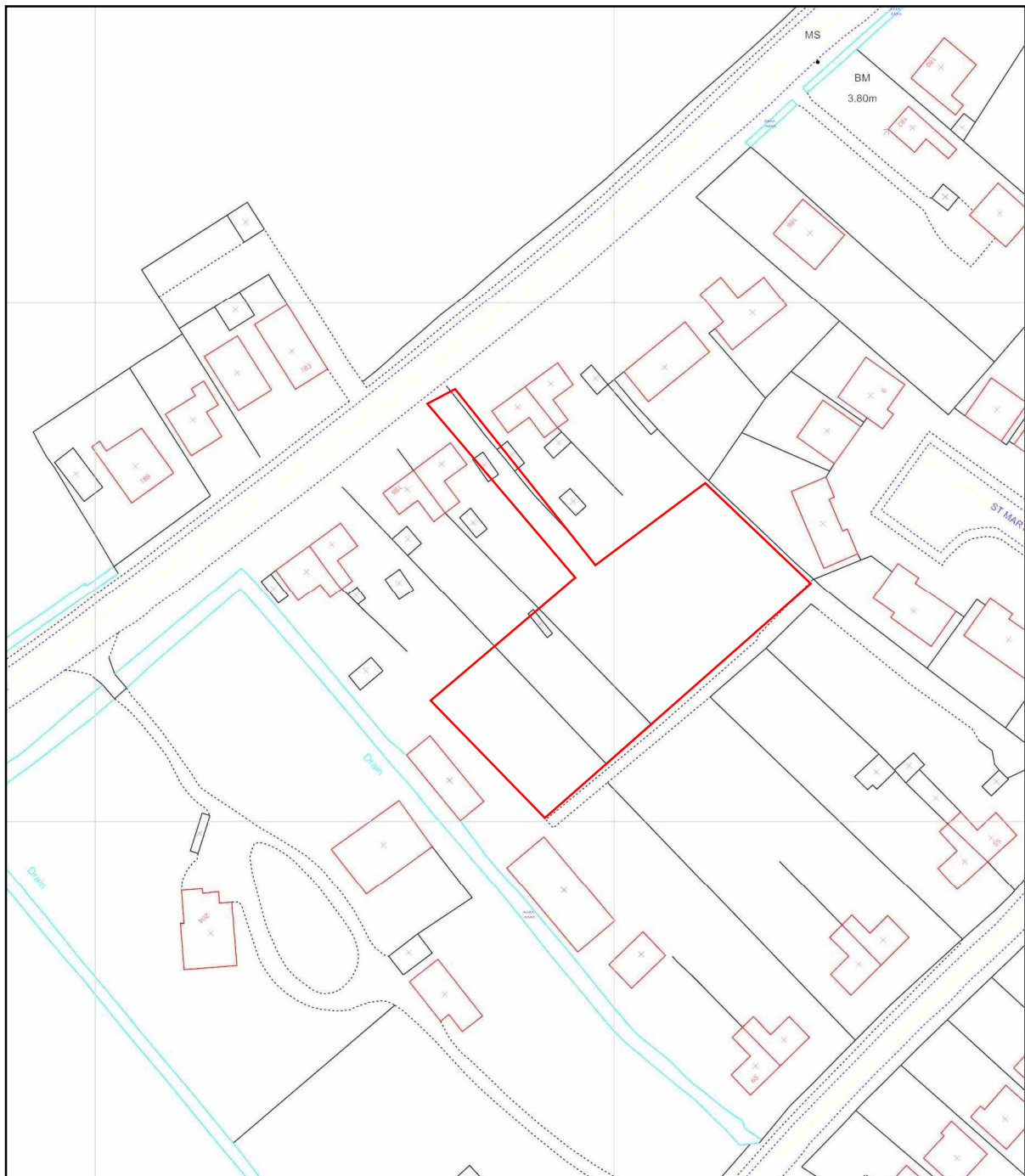
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Site History

Figure M

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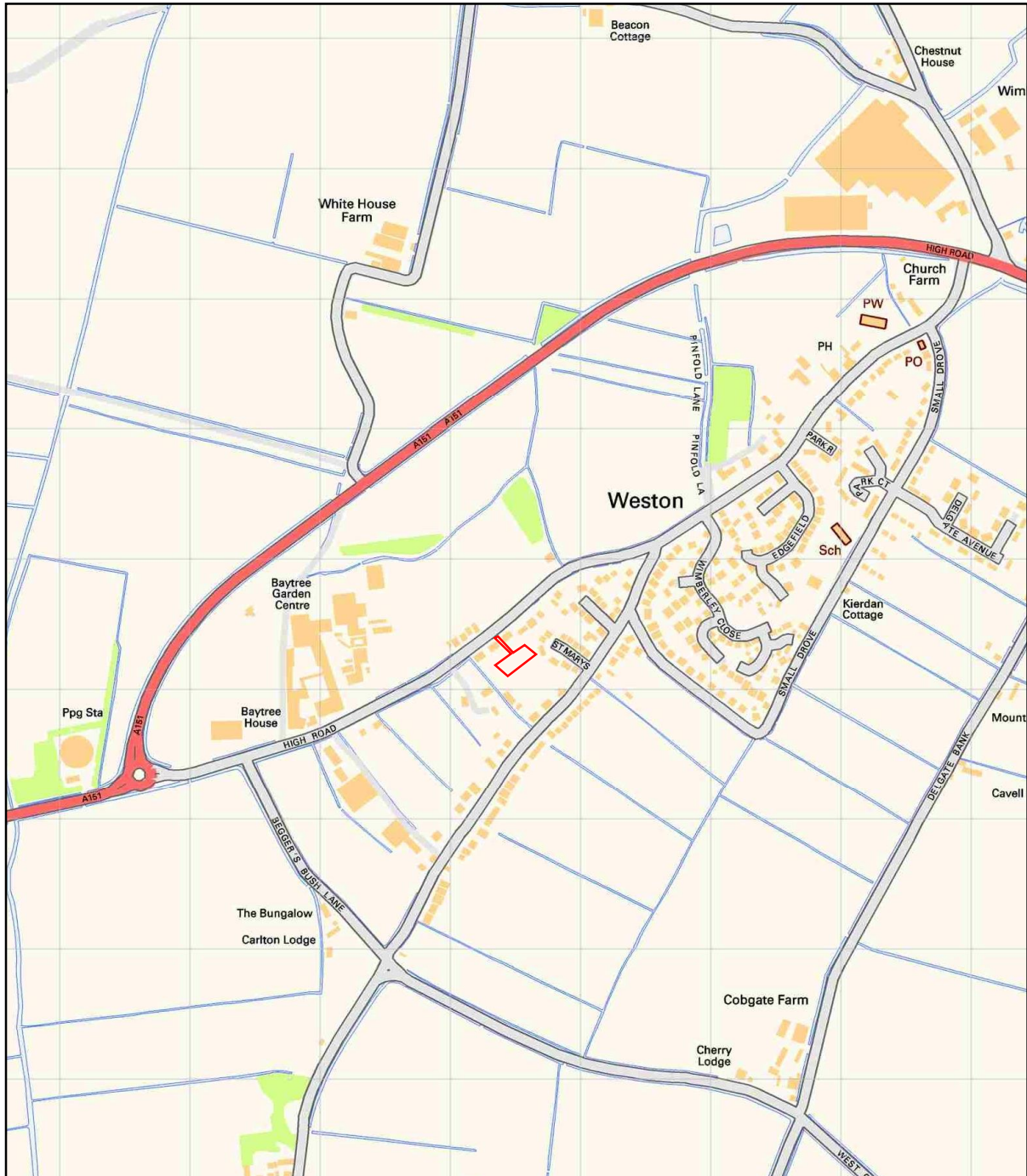
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Site History

Figure N

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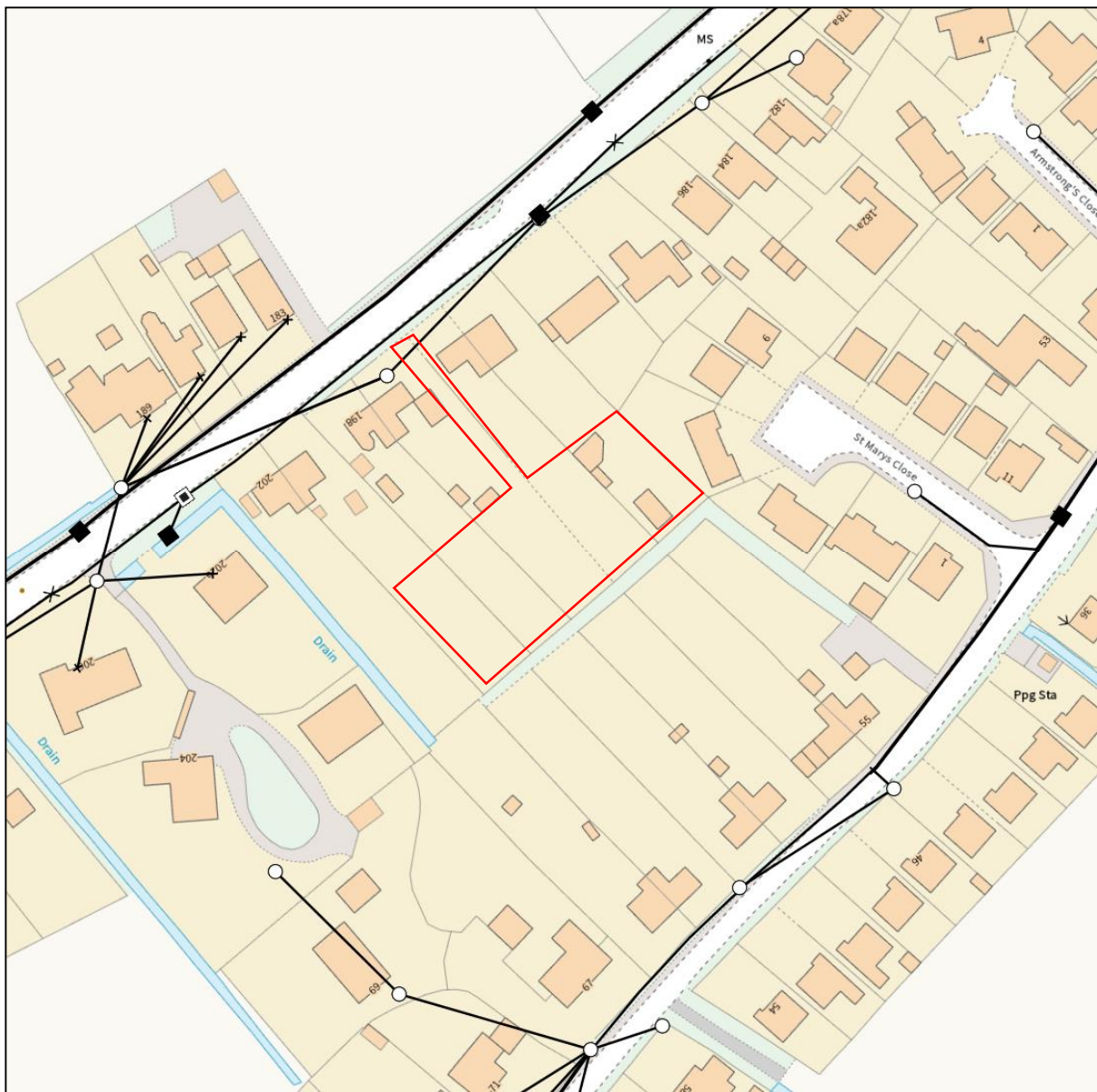
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Site History

Figure O

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Project No.

C15417

APPENDIX 2

ENVIRONMENTAL DATABASE SEARCH

REAR OF 192 TO 200, HIGH ROAD, WESTON, SPALDING, PE12 6JU

Order Details

Date: 02/07/2021
Your ref: SWC15417
Our Ref: HMD-8009161
Client: Ground Engineering Limited

Site Details

Location: 528704 324635
Area: 0.23 ha
Authority: [South Holland District Council](#)



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Summary of findings

p. 2

Aerial image

p. 8

OS MasterMap site plan

p.12

groundsure.com/insightuserguide

Contact us with any questions at:

info@groundsure.com

08444 159 000

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	<u>Historical industrial land uses</u>	0	0	2	1	-
14	1.2	<u>Historical tanks</u>	0	0	1	1	-
14	1.3	<u>Historical energy features</u>	0	0	1	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	<u>Historical industrial land uses</u>	0	0	2	1	-
17	2.2	<u>Historical tanks</u>	0	0	1	1	-
17	2.3	<u>Historical energy features</u>	0	0	1	0	-
17	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	<u>Waste exemptions</u>	0	0	13	0	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
23	4.1	<u>Recent industrial land uses</u>	0	0	3	-	-
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	0	-
25	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	<u>Licensed Discharges to controlled waters</u>	0	0	1	0	-
26	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
26	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)	0	0	0	0	-
27	4.19	Pollution inventory substances	0	0	0	0	-
27	4.20	Pollution inventory waste transfers	0	0	0	0	-
28	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
29	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
30	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
31	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
32	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
32	5.5	Groundwater vulnerability- local information	None (within 0m)				
33	5.6	Groundwater abstractions	0	0	0	0	0
33	5.7	Surface water abstractions	0	0	0	0	0
33	5.8	Potable abstractions	0	0	0	0	0
33	5.9	Source Protection Zones	0	0	0	0	-
34	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
35	6.1	<u>Water Network (OS MasterMap)</u>	0	1	22	-	-

37	6.2	<u>Surface water features</u>	0	1	8	-	-
38	6.3	<u>WFD Surface water body catchments</u>	1	-	-	-	-
38	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
38	6.5	WFD Groundwater bodies	0	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
39	7.1	<u>Risk of Flooding from Rivers and Sea (RoFRaS)</u>	Low (within 50m)				
40	7.2	Historical Flood Events	0	0	0	-	-
40	7.3	Flood Defences	0	0	0	-	-
40	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
40	7.5	Flood Storage Areas	0	0	0	-	-
41	7.6	<u>Flood Zone 2</u>	Identified (within 50m)				
42	7.7	<u>Flood Zone 3</u>	Identified (within 50m)				
Page	Section	Surface water flooding					
43	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
45	9.1	<u>Groundwater flooding</u>	Negligible (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
46	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
46	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
46	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
46	10.4	Special Protection Areas (SPA)	0	0	0	0	0
47	10.5	National Nature Reserves (NNR)	0	0	0	0	0
47	10.6	Local Nature Reserves (LNR)	0	0	0	0	0
47	10.7	Designated Ancient Woodland	0	0	0	0	0
47	10.8	Biosphere Reserves	0	0	0	0	0
48	10.9	Forest Parks	0	0	0	0	0
48	10.10	Marine Conservation Zones	0	0	0	0	0
48	10.11	Green Belt	0	0	0	0	0
48	10.12	Proposed Ramsar sites	0	0	0	0	0



48	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
49	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
49	10.15	Nitrate Sensitive Areas	0	0	0	0	0
49	10.16	Nitrate Vulnerable Zones	0	0	0	0	0
50	10.17	SSSI Impact Risk Zones	0	-	-	-	-
50	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
51	11.1	World Heritage Sites	0	0	0	-	-
52	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
52	11.3	National Parks	0	0	0	-	-
52	11.4	Listed Buildings	0	0	1	-	-
53	11.5	Conservation Areas	0	0	0	-	-
53	11.6	Scheduled Ancient Monuments	0	0	0	-	-
53	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
54	12.1	Agricultural Land Classification	Grade 1 (within 250m)				
55	12.2	Open Access Land	0	0	0	-	-
55	12.3	Tree Felling Licences	0	0	0	-	-
55	12.4	Environmental Stewardship Schemes	0	0	0	-	-
55	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
56	13.1	Priority Habitat Inventory	0	0	0	-	-
56	13.2	Habitat Networks	0	0	0	-	-
56	13.3	Open Mosaic Habitat	0	0	0	-	-
56	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
57	14.1	10k Availability	Identified (within 500m)				
58	14.2	Artificial and made ground (10k)	0	0	0	0	-
59	14.3	Superficial geology (10k)	0	0	0	0	-

59	14.4	Landslip (10k)	0	0	0	0	-
60	14.5	Bedrock geology (10k)	0	0	0	0	-
60	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
61	15.1	<u>50k Availability</u>	Identified (within 500m)				
62	15.2	Artificial and made ground (50k)	0	0	0	0	-
62	15.3	Artificial ground permeability (50k)	0	0	-	-	-
63	15.4	<u>Superficial geology (50k)</u>	1	0	0	0	-
64	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
64	15.6	Landslip (50k)	0	0	0	0	-
64	15.7	Landslip permeability (50k)	None (within 50m)				
65	15.8	<u>Bedrock geology (50k)</u>	1	1	0	0	-
66	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
66	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
67	16.1	BGS Boreholes	0	0	0	-	-
Page	Section	Natural ground subsidence					
68	17.1	<u>Shrink swell clays</u>	Low (within 50m)				
69	17.2	<u>Running sands</u>	Moderate (within 50m)				
70	17.3	<u>Compressible deposits</u>	Moderate (within 50m)				
71	17.4	<u>Collapsible deposits</u>	Negligible (within 50m)				
72	17.5	<u>Landslides</u>	Very low (within 50m)				
73	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
74	18.1	Natural cavities	0	0	0	0	-
74	18.2	BritPits	0	0	0	0	-
74	18.3	Surface ground workings	0	0	0	-	-
74	18.4	Underground workings	0	0	0	0	0
75	18.5	Historical Mineral Planning Areas	0	0	0	0	-



75	18.6	Non-coal mining	0	0	0	0	0
75	18.7	Mining cavities	0	0	0	0	0
75	18.8	JPB mining areas	None (within 0m)				
75	18.9	Coal mining	None (within 0m)				
76	18.10	Brine areas	None (within 0m)				
76	18.11	Gypsum areas	None (within 0m)				
76	18.12	Tin mining	None (within 0m)				
76	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
77	19.1	Radon	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
78	20.1	BGS Estimated Background Soil Chemistry	1	1	-	-	-
78	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
78	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
79	21.1	Underground railways (London)	0	0	0	-	-
79	21.2	Underground railways (Non-London)	0	0	0	-	-
79	21.3	Railway tunnels	0	0	0	-	-
79	21.4	Historical railway and tunnel features	0	0	0	-	-
79	21.5	Royal Mail tunnels	0	0	0	-	-
80	21.6	Historical railways	0	0	0	-	-
80	21.7	Railways	0	0	0	-	-
80	21.8	Crossrail 1	0	0	0	0	-
80	21.9	Crossrail 2	0	0	0	0	-
80	21.10	HS2	0	0	0	0	-

Recent aerial photograph



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Capture Date: 20/04/2018

Site Area: 0.23ha



Recent site history - 2015 aerial photograph



Capture Date: 06/04/2015

Site Area: 0.23ha



Recent site history - 2007 aerial photograph



Capture Date: 12/09/2007

Site Area: 0.23ha



Recent site history - 1999 aerial photograph



Capture Date: 18/06/1999

Site Area: 0.23ha



OS MasterMap site plan



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Site Area: 0.23ha



1 Past land use



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

1.1 Historical industrial land uses

Records within 500m

3

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	189m W	Nursery	1987	2008125



ID	Location	Land use	Dates present	Group ID
1	209m SW	Unspecified Tank	1929	2004289
B	315m W	Unspecified Tank	1987	2004286

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

2

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 ungrouped 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	225m W	Unspecified Tank	1987	337884
B	319m W	Unspecified Tank	1987	337881

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

1

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 ungrouped 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
2	222m NE	Gas Governor	1987	221442

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 ungrouped 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 ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

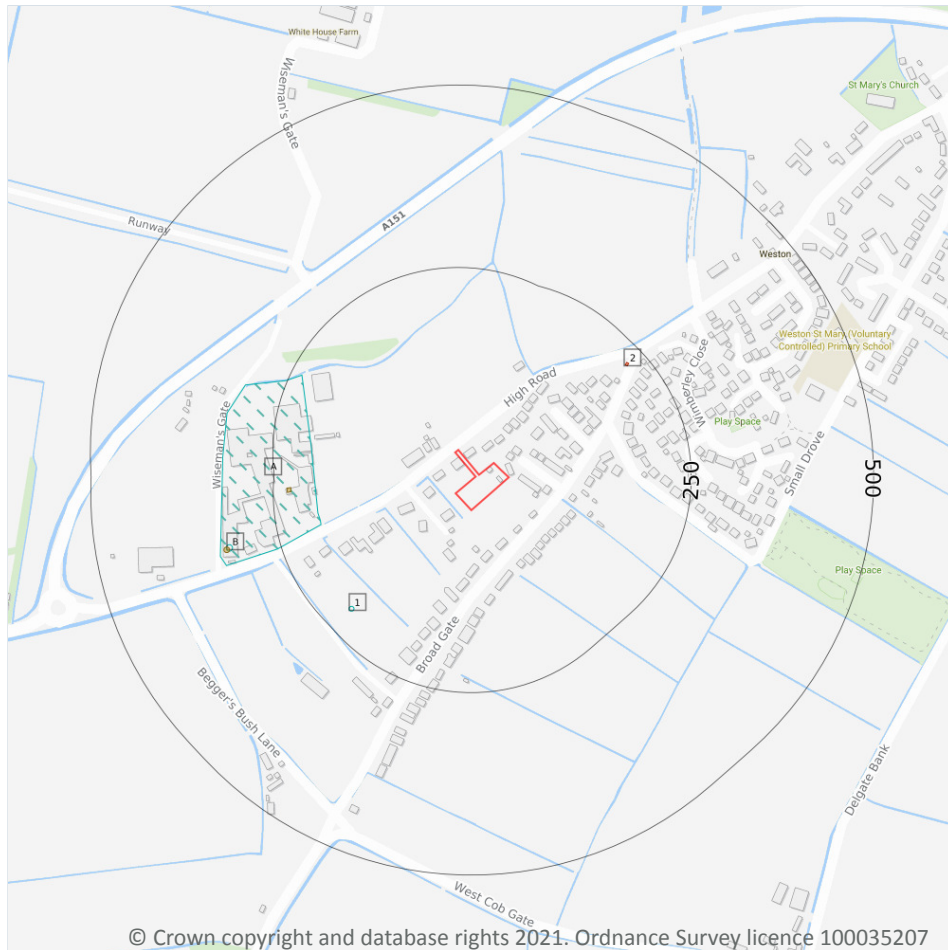
1.6 Historical military land

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



- Site Outline
- Search buffers in metres (m)
- Historical industrial land uses
- Historical tanks
- Historical energy features

2.1 Historical industrial land uses

Records within 500m

3

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	189m W	Nursery	1987	2008125
1	209m SW	Unspecified Tank	1929	2004289
B	315m W	Unspecified Tank	1987	2004286



This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

2

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'.

Features are displayed on the Past land use - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
A	225m W	Unspecified Tank	1987	337884
B	319m W	Unspecified Tank	1987	337881

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

1

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'.

Features are displayed on the Past land use - un-grouped map on **page 16**

ID	Location	Land Use	Date	Group ID
2	222m NE	Gas Governor	1987	221442

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



— Site Outline
Search buffers in metres (m)
● Waste exemptions

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**13**

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	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Storing waste exemption	On a Farm	Storage of waste in a secure place
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Storing waste exemption	On a Farm	Storage of waste in secure containers
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Disposing of waste exemption	On a Farm	Burning waste in the open
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Disposing of waste exemption	On a Farm	Disposal by incineration
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Disposing of waste exemption	On a Farm	Deposit of agricultural waste consisting of plant tissue under a Plant Health notice
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Disposing of waste exemption	On a Farm	Deposit of waste from dredging of inland waters
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Treating waste exemption	On a Farm	Screening and blending of waste
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Treating waste exemption	On a Farm	Preparatory treatments (baling, sorting, shredding etc)
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Treating waste exemption	On a Farm	Cleaning, washing, spraying or coating relevant waste
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Using waste exemption	On a Farm	Spreading of plant matter to confer benefit
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Using waste exemption	On a Farm	Spreading waste on agricultural land to confer benefit
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Using waste exemption	On a Farm	Use of waste for a specified purpose
A	136m N	Beacon Farm, Wisemans Gate, Weston, Spalding Lincs, PE12 6JU	WEX208834	Using waste exemption	On a Farm	Use of waste in construction



This data is sourced from the Environment Agency and Natural Resources Wales.



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- Licensed Discharges to controlled waters

4.1 Recent industrial land uses

Records within 250m

3

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	84m SE	Pumping Station	Lincolnshire, PE12	Water Pumping Stations	Industrial Features
3	229m NE	Gas Governor Station	Lincolnshire, PE12	Gas Features	Infrastructure and Facilities
4	237m W	Tank	Lincolnshire, PE12	Tanks (Generic)	Industrial Features



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**0**

Records of Part A(1) installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

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**1**

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	
2	210m SW	MELANDI, HIGH ROAD, WESTON, SPALDING, LINCS, PE12 6JU	Effluent Type: UNSPECIFIED Permit Number: PR5LF3766 Permit Version: 1 Receiving Water: Land	Status: PRE NRA LEGISLATION WHERE ISSUE DATE 01-SEP-89 (HISTORIC ONLY) Issue date: 11/03/1981 Effective Date: 11/03/1981 Revocation Date: 08/09/1997

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**0**

Records of substantiated pollution incidents. Since 2006 this data has only included category 1 (major) and 2 (significant) pollution incidents.

This data is sourced from the Environment Agency and Natural Resources Wales.

4.19 Pollution inventory substances

Records within 500m**0**

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.

This data is sourced from the Environment Agency and the Scottish Environment Protection Agency.

4.20 Pollution inventory waste transfers

Records within 500m**0**

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.

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



- Site Outline
- Search buffers in metres (m)
- Principal
 - Secondary A
 - Secondary B
 - Secondary Undifferentiated
 - Unproductive
 - Unknown

5.1 Superficial aquifer

Records within 500m

2

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 29**

ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	315m N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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

2

Aquifer status of groundwater held within bedrock geology.

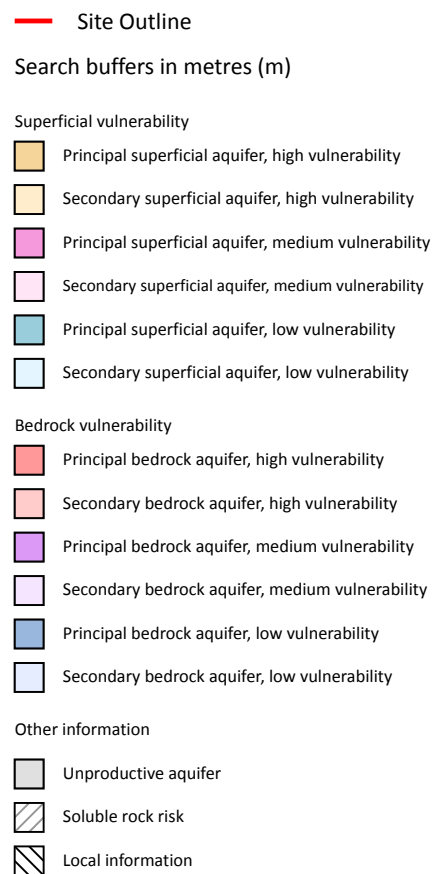
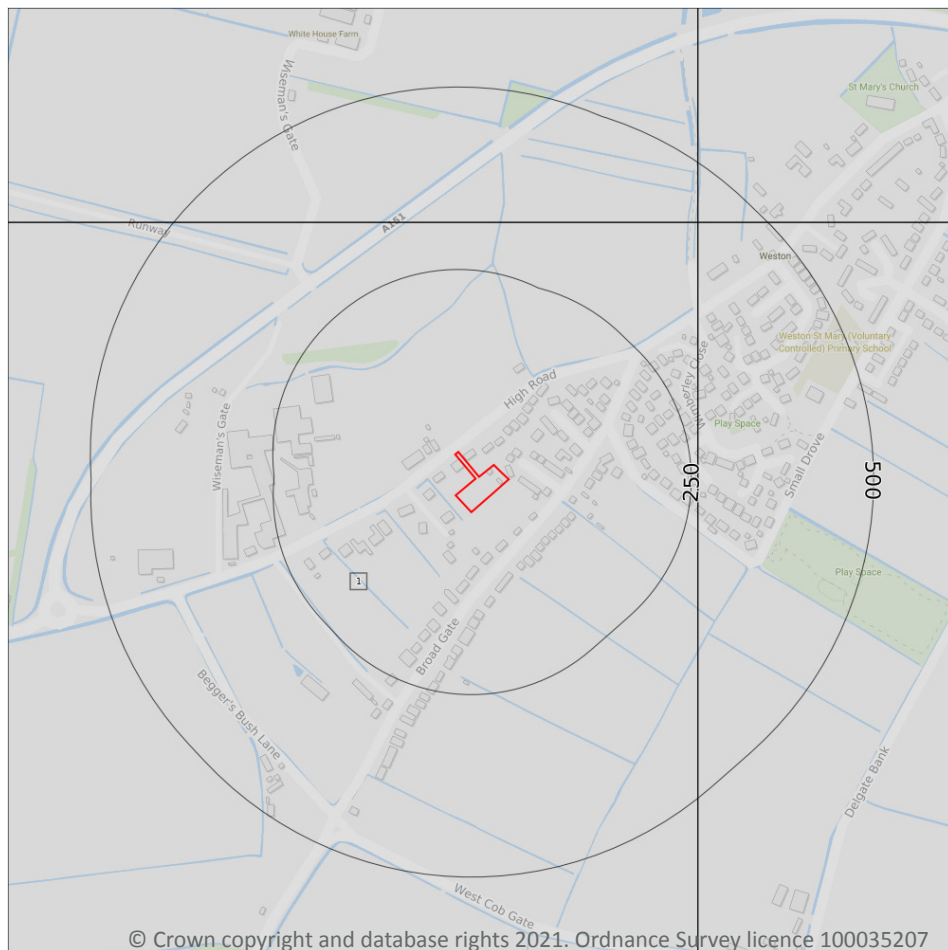
Features are displayed on the Bedrock aquifer map on **page 30**

ID	Location	Designation	Description
1	On site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
2	315m N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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

1

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 31**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Unproductive aquifer (may have productive aquifer beneath) Combined classification: Unproductive 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: Unproductive Aquifer type: Unproductive 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

0

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.

This data is sourced from the Environment Agency and Natural Resources Wales.

5.7 Surface water abstractions

Records within 2000m

0

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.

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

0

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination.

This data is sourced from the Environment Agency and Natural Resources Wales.



5.10 Source Protection Zones (confined aquifer)

Records within 500m

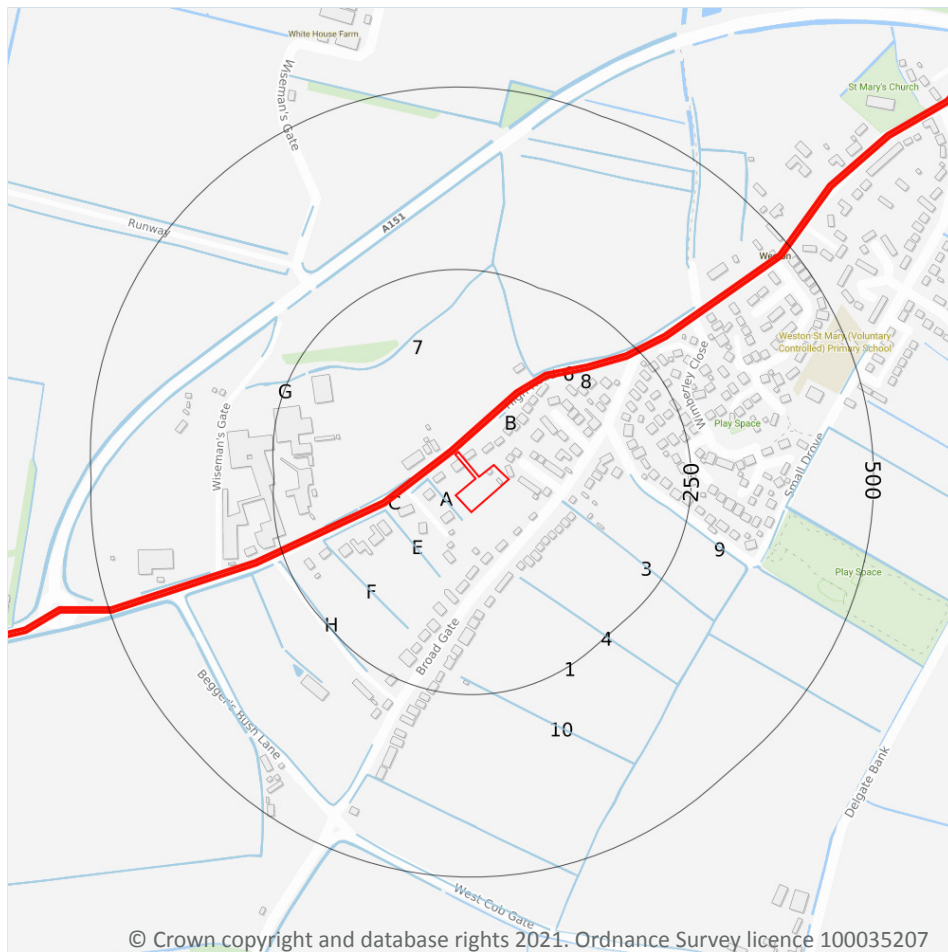
0

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



- Site Outline
- Search buffers in metres (m)
- Water Network (OS MasterMap)
- Surface water features (wider than 5m)
- Surface water features (narrower than 5m)
- ⋯ WFD River, canal and surface water transfer water bodies
- WFD Lake water bodies
- WFD Transitional and coastal water bodies
- WFD Surface water body catchments boundaries
- WFD Groundwater body boundaries

6.1 Water Network (OS MasterMap)

Records within 250m

23

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 35**

ID	Location	Type of water feature	Ground level	Permanence	Name
A	14m 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
B	64m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	66m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
B	76m N	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
3	78m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
E	87m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
4	111m SE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	112m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
C	121m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	131m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
6	134m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	135m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	139m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	142m W	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
C	150m W	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
7	158m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
8	165m NE	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
9	166m E	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
F	174m SW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
C	176m W	Inland river not influenced by normal tidal action.	Underground	Watercourse contains water year round (in normal circumstances)	-
10	226m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
G	233m NW	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-
H	246m SW	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

9

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 35**

This data is sourced from the Ordnance Survey.



6.3 WFD Surface water body catchments

Records on site

1

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 35**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River WB catchment	South Holland Main Drain	GB205032050405	Lower Nene	Nene

This data is sourced from the Environment Agency and Natural Resources Wales.

6.4 WFD Surface water bodies

Records identified

1

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 35**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	2283m E	River	South Holland Main Drain	GB205032050405	Moderate	Good	Moderate	2016

This data is sourced from the Environment Agency and Natural Resources Wales.

6.5 WFD Groundwater bodies

Records on site

0

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.

This data is sourced from the Environment Agency and Natural Resources Wales.



7 River and coastal flooding



- Site Outline
- Search buffers in metres (m)
- Environment Agency 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 Sea (RoFRaS)

Records within 50m

1

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition; 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).

Features are displayed on the River and coastal flooding map on **page 39**

Distance	RoFRaS flood risk
On site	Low
0 - 50m	Low



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

0

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.

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

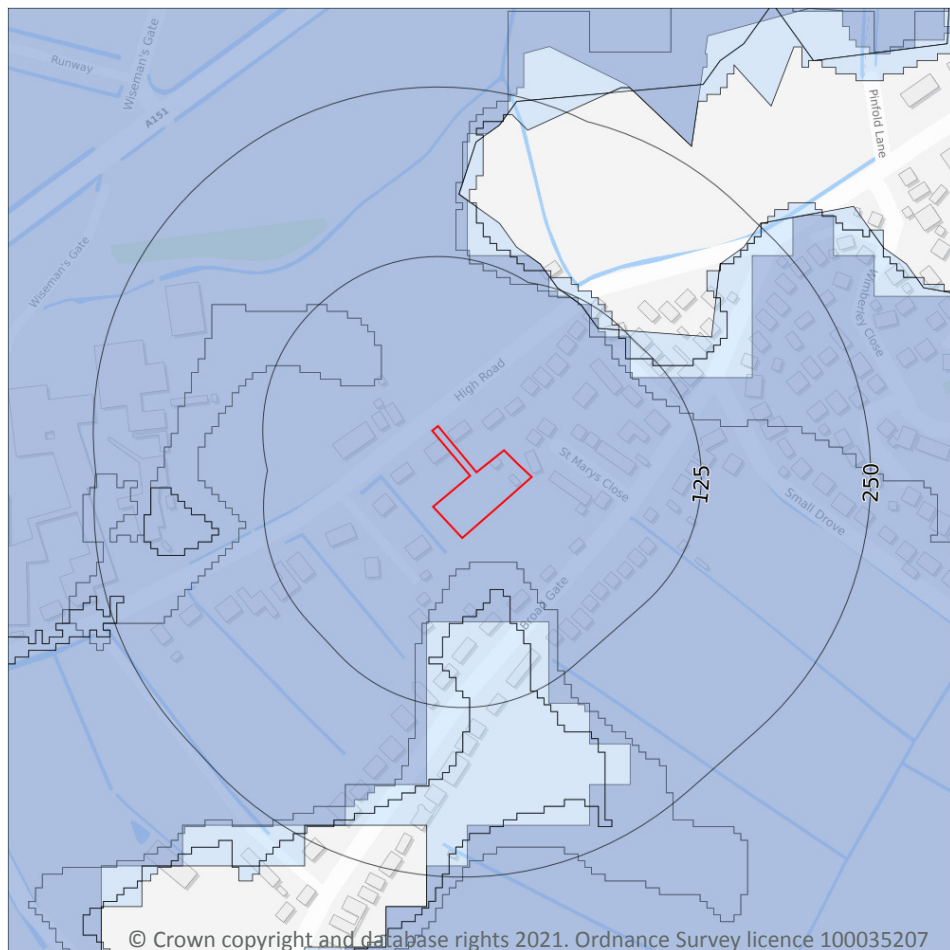
0

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

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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 39**

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.

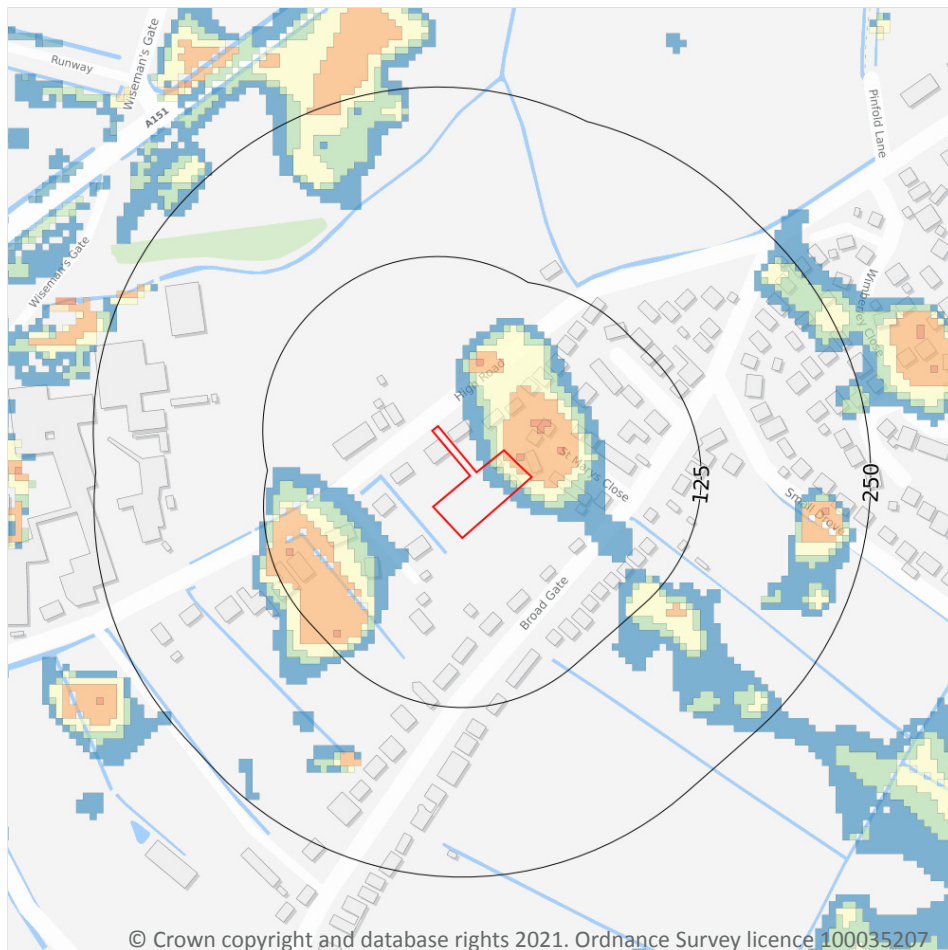
Features are displayed on the River and coastal flooding map on **page 39**

Location	Type
On site	Zone 3 - (Fluvial 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, 0.1m - 0.3m

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 43**

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	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.1m and 0.3m
1 in 30 year	Between 0.1m and 0.3m

This data is sourced from Ambiantal 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

Negligible

Highest risk within 50m

Negligible

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 45**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

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.

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

0

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.

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

0

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.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m

0

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.

This data is sourced from Natural England and Natural Resources Wales.



11 Visual and cultural designations



- Site Outline
- Search buffers in metres (m)
- Listed buildings
- Conservation areas
- Conservation areas - no data
- National Parks
- Areas of Outstanding Natural Beauty
- Registered parks and gardens
- Scheduled Monuments
- World Heritage Sites

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

1

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.

Features are displayed on the Visual and cultural designations map on **page 51**

ID	Location	Name	Grade	Reference Number	Listed date
1	82m N	Milestone, Weston, South Holland, Lincolnshire, PE12	II	1064476	07/12/1987

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

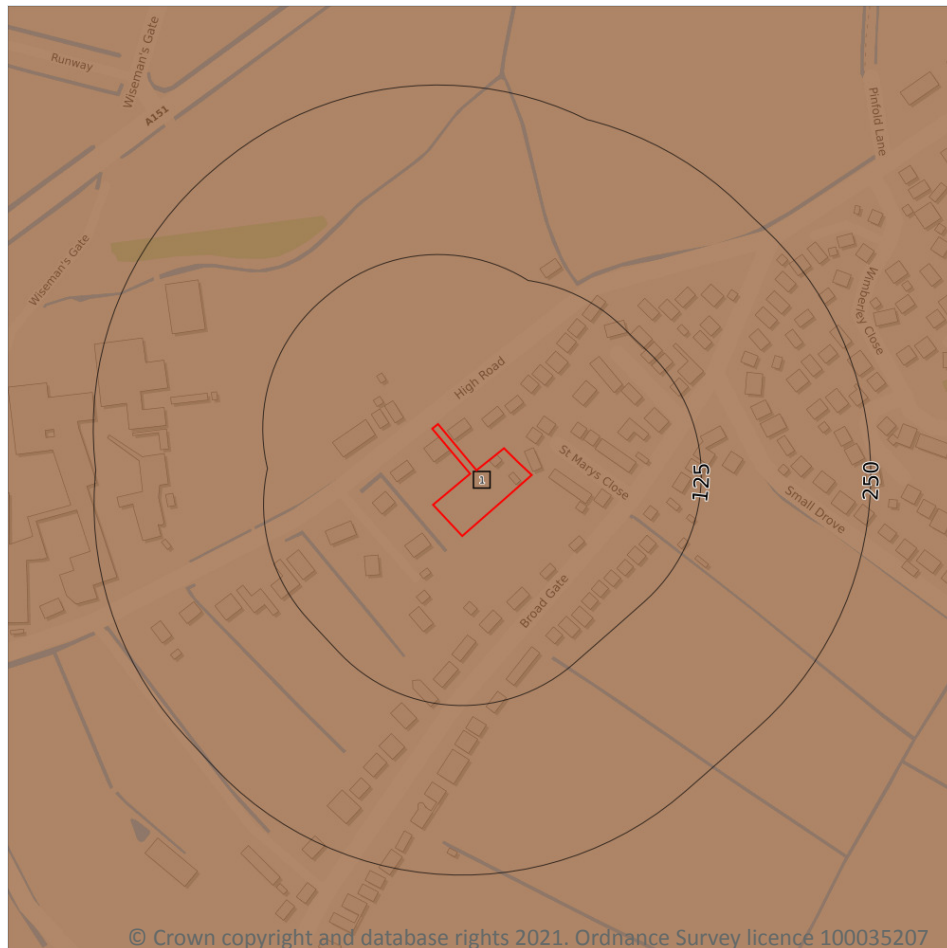
Records within 250m

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

1

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 54**

ID	Location	Classification	Description
1	On site	Grade 1	Excellent quality agricultural land. Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m**0**

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.

This data is sourced from Natural England and Natural Resources Wales.

12.3 Tree Felling Licences

Records within 250m**0**

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.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m**0**

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.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m**0**

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.

This data is sourced from Natural England.

13 Habitat designations

13.1 Priority Habitat Inventory

Records within 250m**0**

Habitats of principal importance as named under Natural Environment and Rural Communities Act (2006) Section 41.

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



- Site Outline
- Search buffers in metres (m)
- Full coverage
 - Partial coverage
 - No coverage

14.1 10k Availability

Records within 500m

1

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 57**

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

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

14.3 Superficial geology (10k)

Records within 500m

0

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.

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

14.5 Bedrock geology (10k)

Records within 500m

0

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.

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 61**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	Full	Full	Full	No coverage	EW144_spalding_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

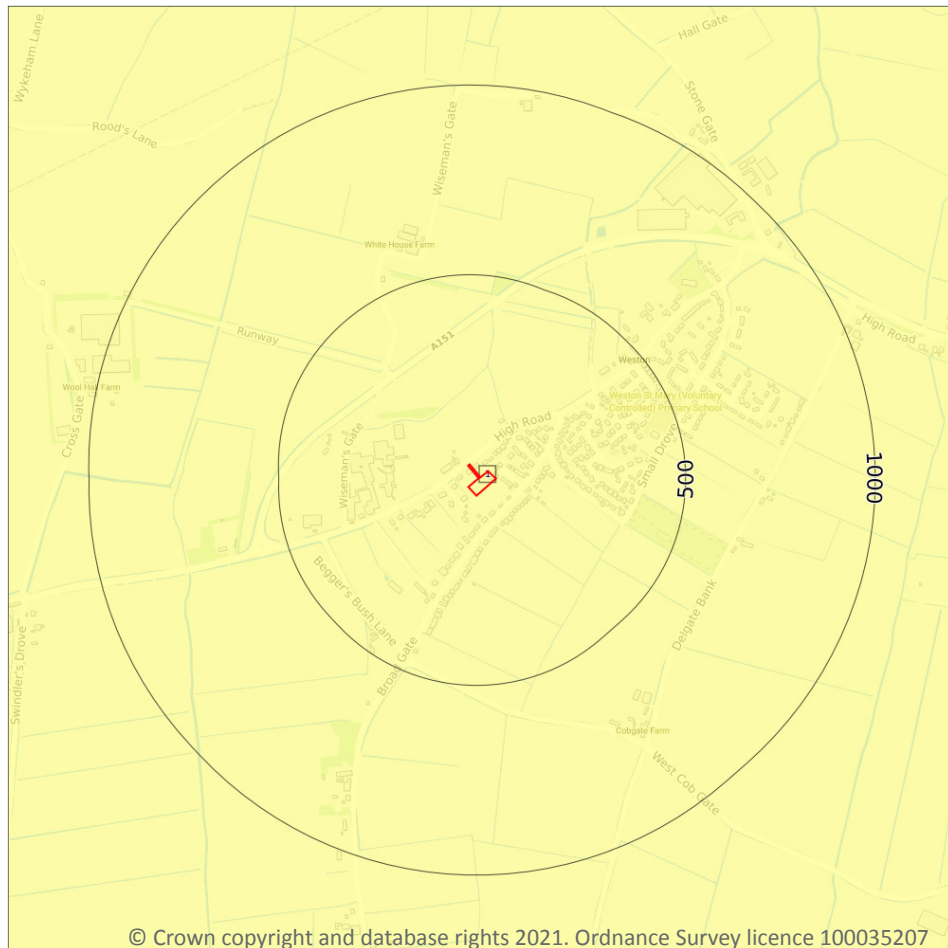
0

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

1

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 63**

ID	Location	LEX Code	Description	Rock description
1	On site	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT

This data is sourced from the British Geological Survey.



15.5 Superficial permeability (50k)

Records within 50m

1

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	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)

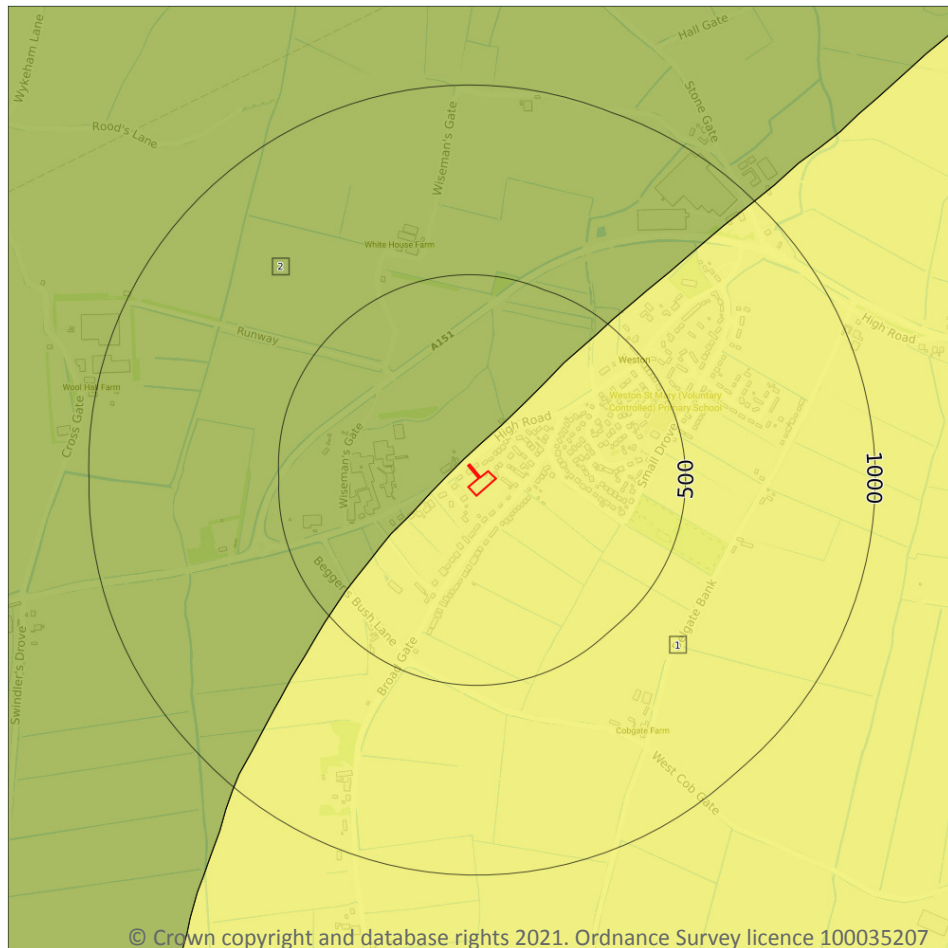
Records within 50m

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 65**

ID	Location	LEX Code	Description	Rock age
1	On site	WWB-MDSI	WEST WALTON FORMATION - MUDSTONE AND SILTSTONE	OXFORDIAN
2	20m NW	OXF-MDST	OXFORD CLAY FORMATION - MUDSTONE	CALLOVIAN

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	Fracture	Low	Very Low
20m SW	Fracture	Low	Very 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

16.1 BGS Boreholes

Records within 250m

0

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.

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

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17.1 Shrink swell clays

Records within 50m

1

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).

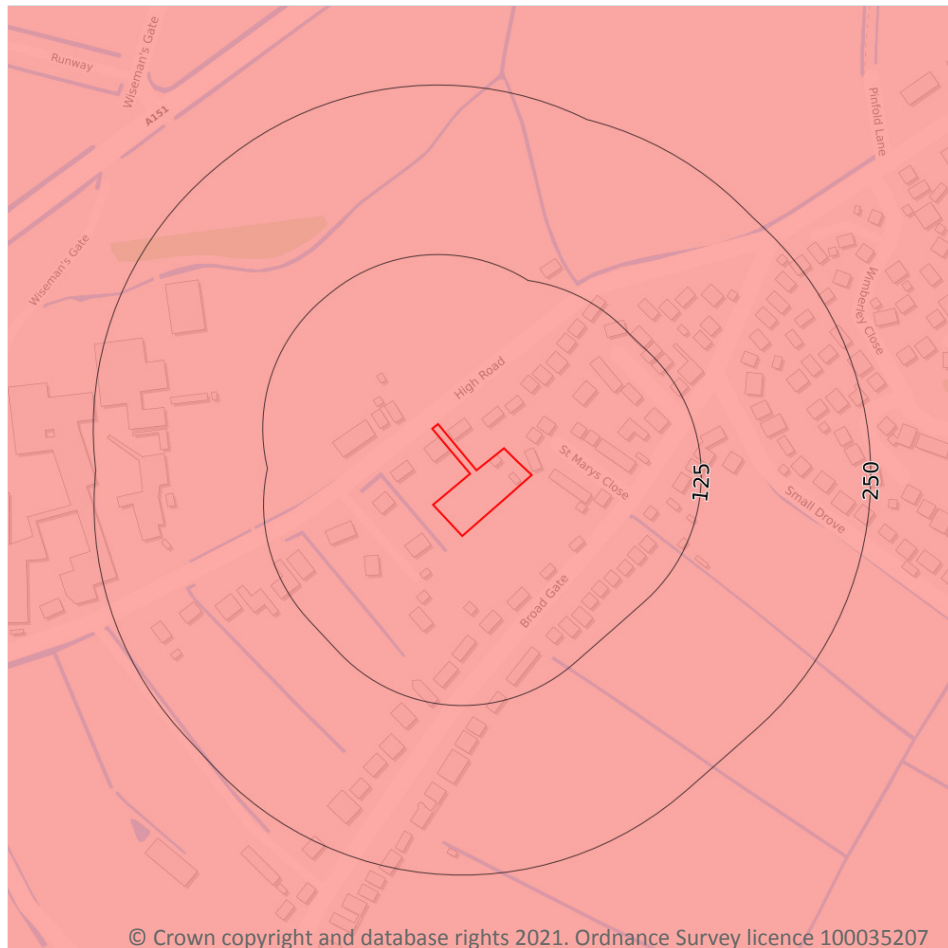
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 68**

Location	Hazard rating	Details
On site	Low	Ground conditions predominantly medium 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

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17.2 Running sands

Records within 50m

1

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.

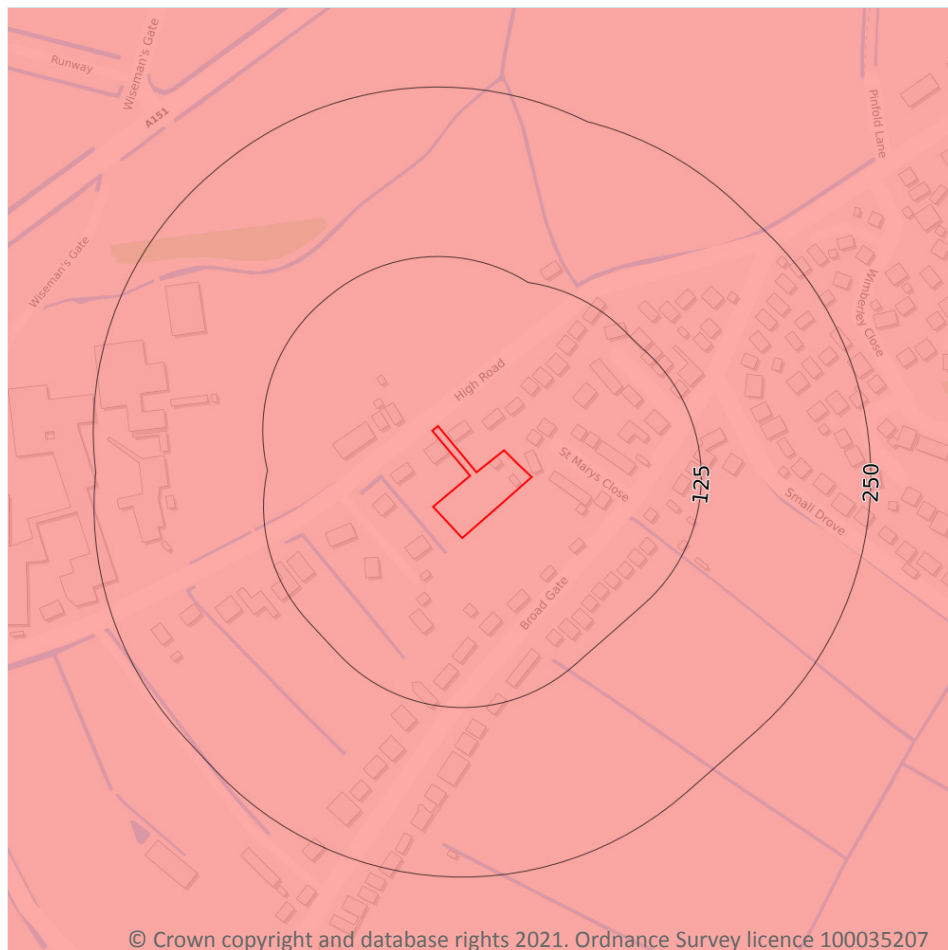
Features are displayed on the Natural ground subsidence - Running sands map on **page 69**

Location	Hazard rating	Details
On site	Moderate	Running sand conditions are probably 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

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17.3 Compressible deposits

Records within 50m

1

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 70**

Location	Hazard rating	Details
On site	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

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17.4 Collapsible deposits

Records within 50m

1

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.

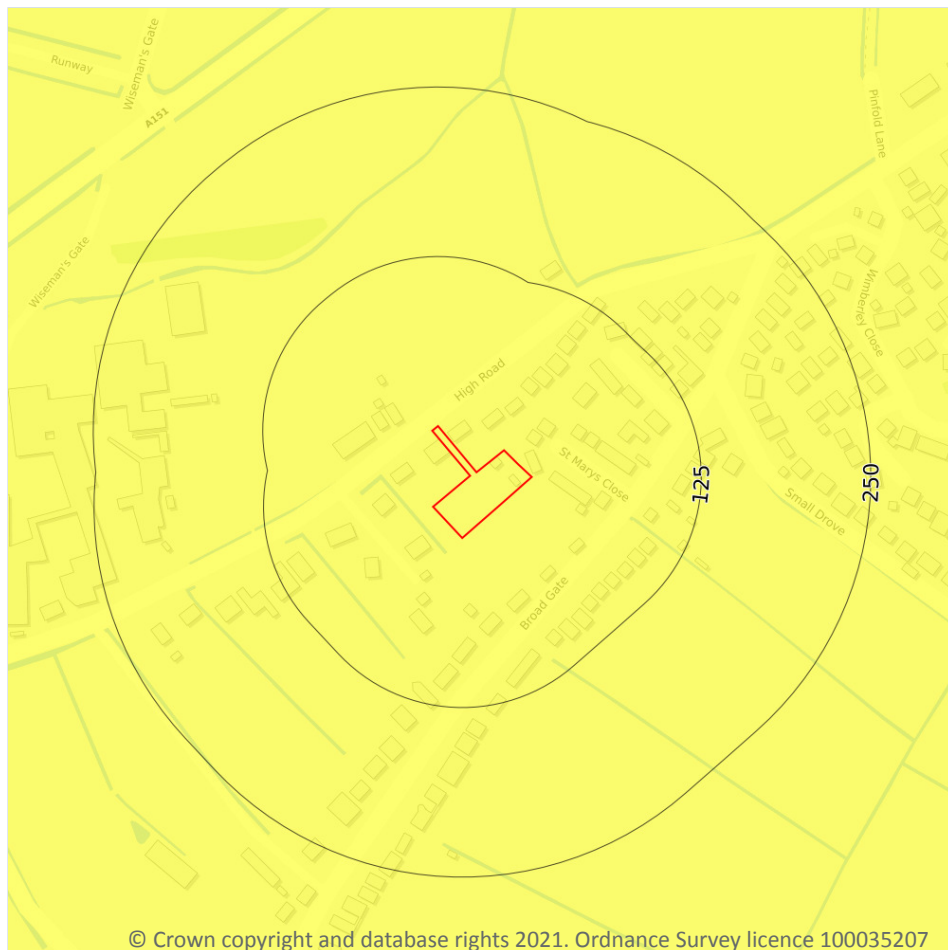
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 71**

Location	Hazard rating	Details
On site	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

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 72**

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



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- 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 73**

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

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

0

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.

This 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 data is sourced from Ordnance Survey/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 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
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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
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Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
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Generalised areas that may be affected by historical tin mining.

This data is sourced from Mining Searches UK.

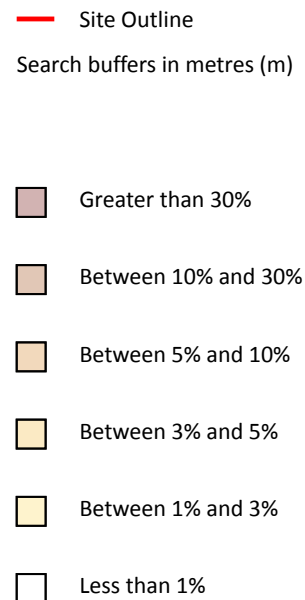
18.13 Clay mining

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



19.1 Radon

Records on site

1

Estimated percentage of dwellings exceeding the Radon Action Level. This data is the highest resolution radon dataset available for the UK and is produced to a 75m level of accuracy to allow for geological data accuracy and a 'residential property' buffer. The findings of this section should supersede any estimations derived from the Indicative Atlas of Radon in Great Britain. The data was derived from both geological assessments and long term measurements of radon in more than 479,000 households.

Features are displayed on the Radon map on **page 77**

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

This data is sourced from the British Geological Survey and Public Health England.



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

2

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 km². 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 km²; 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	40 - 60 mg/kg	15 - 30 mg/kg
20m N	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	40 - 60 mg/kg	15 - 30 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 km²).

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 km².

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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