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PHASE 1 ENVIRONMENTAL DESK STUDY

job number	date
C177/19/E/268	06/12/2019

site address
New Waste Water Treatment Plant,
Lenzing Fibers Ltd,
Energy Park Way,
Grimsby, DN31 2TT

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Report on a Phase One Desk Study

Location:	New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT
For:	ACWA Services Limited
Report No.	C177/19/E/268 Report date: December 2019

For and on behalf of **Rogers Geotechnical Services Ltd**

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1. Introduction

The site comprises an area of brownfield land located at Lenzing Fibers Ltd, off Energy Park Way, Grimsby, DN31 2TT. The site is approximately 1.0 hectare in size and its National Grid reference is centred around 435327 405215.

It is understood that the development proposals currently comprise the construction of a new waste water treatment plant with associated access roads. In order to assist with decision making processes, and any planning and construction aspects of the development, a phase one environmental desk study has been commissioned and is the subject of this report.

In accordance with issued guidance, a site walkover was conducted on the 21st November 2019 and the following observations were made:

General site description/current site use
The site comprises an area of brownfield land, of current industrial use. An operational electricity substation is also present on site.

Concrete bases for historical above ground storage tanks (AGST) can be seen in the centre of the site. The remains of some historical building foundations were also observed, particularly towards the southeast of the site.

Site boundaries/access
Accessible via a number of dirt tracks which lead off Energy Park Way to the south of the site.

Topography
The majority of the site is flat, although uneven underfoot. However, a large mound of potential made ground is present in strip running along the sites northwest (see site plans for details).

Surface cover of site
The majority of the site is covered by a mixture of grass and gravel. However, areas of hardstanding are present in some locations, particularly in association with historical foundations and AGST stands towards the centre and southeast of the site.

Visible evidence of contamination/ contaminative sources
An old electricity substation was observed in the centre of the site and two historical AGST stands were noted, although the associated AGSTs appear to have been removed. No visible signs of contamination were noted on the surface around the AGSTs.

A limited amount of demolition material was observed around the around the footprints of the demolished buildings on the south-eastern side of the site.

Presence of vegetation and wildlife
Some light vegetation was present on site, predominantly comprising shrubs and trees. In particular the area of made ground towards the sites northwest (see Appendix 1) was covered by shrubs and trees. Vegetation seems to be healthy with no evidence of degradation. There were no obvious signs of invasive flora, fauna, nesting birds, burrowing animals or edible plants observed during the time of the site walkover.

Controlled Waters
A drainage ditch is present on site and runs along the north-western and north-eastern boundaries of the site.

Services
Due to the industrial nature of the site, various utilities are expected to be present below the site. Underground services plans have been obtained from a utilities search and also been provided by the client. Overhead service pipes, understood to be for steam, were noted at the time of the walkover.

Site neighbours
The site is located within a predominantly industrial area. The associated Lenzing Fibres industrial facility is present to the south and west and a number of other industrial facilities are present to the east. An area of woodland is present to the north of the site.

In order to ensure that the site is fully characterised and to comply with the Environment Act 1995[1], a Phase One Desk Study has been commissioned by ACWA Services Limited. The desk study is intended to assess the environmental impact of historical, current and future factors on the development. This report will present the data obtained and provide a conceptual ground model and preliminary risk assessment as well as discussing the scope of any intrusive investigation that may be required. This report does not consider ecological impacts (e.g. bats) or botanical risks (e.g. Japanese Knotweed).

[1]S57 of the Environment Act 1995 inserted the contaminated land regime into the Environmental Protection Act 1990 (Part 2A). The regime **'provides a risk based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment'** See http://www.environment-agency.gov.uk/research/planning/40405.aspx. This places a duty on local authorities to inspect their areas for contaminated land and require its remediation using the 'suitable for use' approach. Much of this duty is discharged via the planning regime under the Town and Country Planning Act 1990 as historical land contamination is a 'material planning consideration.' The local authorities are required to secure the removal of unacceptable risks via remediation of the land, to therefore ensure the site is suitable for its new use. This is fulfilled via completion of a Phase One Environmental Desk Study, Phase Two Intrusive Investigation, Phase Three Remediation Strategy and Phase Four Validation Report. Therefore, as a minimum, once a site has been developed it should not be capable of being designated as 'contaminated land' under Part 2A of the Environmental Protection Act 1990, as inserted by the Environment Act 1995 (see also PPS 23 Planning and Pollution Control Section 8)

2. Review of Previous Reports

A number of reports have been undertaken on the site historically. These are summarised below, however for clarification please refer to the original report in question;

2.1 White Young Green (WYG) Environmental, 2004

This report was undertaken by WYG on behalf of Acordis to benchmark the extent of the land contamination across the wider industrial area (approximately 100 ha) around the site, which at the time was owned by Acordis. The investigation comprised a series of boreholes of 10m depth, window samples of up to 5 m and some trial pits. Positions BH14, TP6, TP11 and TP12 undertaken by WYG fall within the current site boundary (see Appendix 1).

WYG identified thiocyanate and total petroleum hydrocarbons (TPH) as the primary contaminants of concern on the site. However, testing was undertaken on soil and groundwater for a wide range of contaminants.

In terms of geological strata at the site, BH14 indicated a 3.3m thickness of made ground, below which generally soft clay was revealed to 9.3m below ground level (bgl). Beneath the soft clay, firm to stiff brown slightly sandy slightly gravelly clay was revealed to the termination depth at 10.0m bgl. Within TP6, TP11 and TP12, variable made ground was revealed to depths of 1.1m bgl, beneath which clays were revealed to the termination of these positions, at between 2.6m bgl and 3.5m bgl.

Chemical testing at these positions in the area of consideration can be summarised as follows;

Table 1: Summary of Testing from WYG Report

Location	Strata	Depth (m)	Determinants determined to be contaminative by WYG
TP6 Soils	MADE GROUND	1.15	Sulphate, Boron.
TP11 Soils	MADE GROUND	0.5	Sulphide, Boron.
TP12 Soils	MADE GROUND	0.9	Boron.
BH14 Soils	MADE GROUND	0.5 – 1.0	Sulphate, Sulphide, Boron, TPHs.
BH14 Soils	MADE GROUND	3.0	Sulphide, Boron.
BH14 Leachate	MADE GROUND	3.0	None.

In light of the above, the WYG report indicates that made ground, present within the area being considered by this report, is contaminated by Boron, Sulphate, Sulphide and TPHs. However, it should be appreciated that the type and level of contamination varies between the WYG positions.

Notwithstanding the above, one leachate sample undertaken within the made ground indicated that no leachable contamination was present.

Furthermore, it should be appreciated that the natural strata were not tested in this location of the site during the WYG survey.

2.2 Site Report for PPC Application – Lenzing Fibres Limited

This report was undertaken for Lenzing Fibers as part of an application to the Environment Agency for a permit to operate. This report mainly comprises a review of site records to identify any pollution risks to, or from, the land.

The report considers that the area adjacent to that is currently under consideration was previously occupied by a plant undertaking the *Viscose** process. It is understood that in 1977 there was a spillage of Carbon Disulphide and in 1999, associated with this *Viscose* plant. A spillage of concentrated Sulphuric Acid, is also known to have occurred in proximity to the site;

- The Carbon Disulphide spillage was estimated at 120 Tonnes. Much of this spill was recovered through prompt action at the time, however some is likely to have remained within the ground.
- The spillage of Sulphuric Acid in 1999 originated from the Acordis Fibres Sulphuric acid plant. The release was into a storm drain. There was no evidence of a lasting effect on the drain or contamination of the land.

3. Review and Summary of Published Data

As a part of this desk study the following data has been considered.

- Groundsure Reports - Appendix 1
- Historical maps - Appendix 2
- Site Plan - Appendix 3
- Photographs - Appendix 4

The data obtained from the above mentioned sources has been summarised below[2].

3.1 Historical Land Use

Table 2: Historical Land Use[3]

HISTORICAL MAPPING SUMMARY		
Map Dates	**On site**	**Within 250m**
1886 – 1956	The site appears to be part of an agricultural field. A drainage ditch is present along the sites southeast and southwest borders.	The area surrounding the site is predominantly agricultural.
1964 – 1988	The drainage ditch now runs around the southern side of the site.	The east and south of the site have now been developed by the construction of a number of industrial buildings marked as "works". Tanks – 10m SE, 200m SE. Chimney – 150m E.
2001 – 2019	Two tanks now appear to be present in the centre of the site. Five buildings also appear to be present on the southeast side of the site.	The west of the site has also been developed by the construction of industrial buildings. Tanks – 50-75m NW, 50m N, 90m N.

NB. All distances given are approximate only.

[2] This report is a summary only and reference must be made in full to the information provided in the Groundsure Report.
[3] See Appendix 2
**Viscose* is a type of fibre that is made from natural sources such as wood and agricultural products that are regenerated as cellulose fibre. Toxic carbon disulfide is used in the production of viscose.

3.2 Published Geology and Geological Hazards

Table 3: Geological Data for the Site

BGS MAPPING DATA			
Strata Type	**Strata Name**[4]	**Previous Name**[4]	**Description**[5]
Made Ground/Fill	Made Ground (Site wide except for northern corner)	N/A	Made ground is an area where the pre-existing (natural or artificial) land surface is raised by artificial deposits. The purpose of the made ground is unspecified. Variable composition.
Superficial Geology	Tidal Flat Deposits	Estuarine Alluvium	Tidal flat deposits, including mud flat and sand flat deposits, are deposited on extensive nearly horizontal marshy land in the intertidal zone that is alternately covered and uncovered by the rise and fall of the tide. They consist of unconsolidated sediment, mainly mud and/or sand. They may form the top surface of a deltaic deposit. Normally a consolidated soft silty clay, with layers of sand, gravel and peat. Characteristically low relief.
Solid Geology	Flamborough Chalk Formation	Flamborough Formation	White, well-bedded, flint-free chalk with common marl seams (typically about one per metre). Common stylolitic surfaces and pyrite nodules.

GEOLOGICAL FEATURES			
Type	**Location**	**Features**	**Comments**
Mining Activity	On site	Coal mining.	The study site is located within the specified search distance of an identified mining area.
		Non-coal Mining.	Not indicated to be present on site.
Linear Features	-	-	None indicated to be present within 250m.
Landslip Deposits	No data	No data	No data

BGS BOREHOLE DATA
No BGS boreholes are present within 250m of the site. However, reference should be made to previous investigations at the site (See section 2).

NATURAL GROUND SUBSIDENCE & HAZARDS[6]	
Type	**Risk Rating**
Potential for collapsible ground stability hazards	Negligible.
Potential for compressible ground stability	Moderate – Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build, consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely.
Potential for ground dissolution stability	Negligible.
Potential for landslide ground stability	Very low.

4 Sources: British Geological Survey (NERC) Map Sheets 81; Patrington; Solid and Drift Edition, and Geology of Britain Viewer [*online resource from www.bgs.ac.uk*]
5 Sources: British Geological Survey (NERC) Lexicon of Named Rock Units [*online resource from www.bgs.ac.uk*]
6 See Groundsure report

Potential for running sand ground stability	Moderate – Significant potential for running sand problems with relatively small changes in ground conditions. Avoid large amounts of water entering the ground (for example through pipe leakage or soak-aways). Do not dig (deep) holes into saturated ground near the property without technical advice. For new build - consider the consequences of soil and groundwater conditions during and after construction.
Potential for shrinking or swelling clay ground stability	Low – Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems.
Radon	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level. BR211 states that no radon protective measures are necessary.

3.3 Construction Issues

3.3.1 Foundation Construction

On the basis of the prevailing geology and previous site investigation, it is anticipated that superficial Tidal Flat Deposits underlie the site. Should these deposits be present to significant depths, a piled foundation solution may be required.

Furthermore, in light of the expected strata, any volume change potential at the site should also be considered. Should foundations be placed within the zone of influence of any existing, or proposed, trees and shrubs, it may be necessary to include an allowance for soil volume change potential.

It should be appreciated that an intrusive investigation is required to validate the above opinions.

3.3.2 Site Won Materials

It would appear that cohesive soils are likely to be encountered at shallow depth over much of the site. This material is likely to be relatively difficult to re-engineer as a construction material. However, depending on the results of laboratory testing, it may possible to modify/stabilise the soil using lime and/or cement to form a suitable sub-base replacement for pavements and hard standings.

3.3.3 Disposal of Site Materials

If made ground is present then contamination/WAC testing will be required to establish the nature of the underlying soil before disposal to a licensed landfill site. However, it is anticipated that the naturally occurring soils would not be significantly contaminated, thus would probably be accepted by a waste disposal site catering for inert material.

3.4. Mining and Natural Cavities

3.4.1 Coal Mining

The Groundsure Report states that the site is within an area that may be affected by coal mining. However upon review of the Coal Authority Interactive Viewer[7], it is indicated that the construction is

[7] Coal Authority Interactive Viewer http://mapapps2.bgs.ac.uk/coalauthority/home.html [*online resource from www.bgs.ac.uk*]

not within a *Development High Risk Area*, moreover, there are no *Probable Shallow Workings*, or *Past Workings*, known to be present beneath the site. As such, it is considered that the risk to the development from coal mining is low.

3.4.2 Non-Coal Mining

Not indicated to be present on site.

3.5 Waste Management and Gas Monitoring

Table 4: Landfill Data and Artificial Ground, Recorded and Anticipated			
ENVIRONMENT AGENCY, LOCAL AUTHORITY, BGS & HISTORIC LANDFILLS			
Waste Type	**Location**	**Comments**	**Monitoring Requirement**
Landfills	231m NE	Waste Type: Industrial.	Y
Other waste sites	-	None recorded within 250m.	-
Environment Agency/Natural Resources Wales licensed waste sites	265m NE	Type: Industrial Waste Landfill Size: >= 75000 tonnes	Y
MADE GROUND & INFILLED GROUNDWORKINGS			
Description	**Location**	**Comments**	**Monitoring Requirement**
Records of Potentially Infilled Features		None recorded within 250m.	

3.6 Hydrogeology, Hydrology

Table 5: Ground/Controlled Water Sensitivity and Flooding		
ENVIRONMENT AGENCY AQUIFER DESIGNATION[8]		
Strata	**Designation**	**Description**
Solid Geology On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers.
GROUNDWATER SENSITIVITY[9]		
Description	**Location**	**Details**
Source Protection Zone	-	None recorded within 250m.
Abstraction Licences	-	None recorded within 250m.
Records of Part A(1) and IPCC Authorised Activities	187m W	Operator: Lenzing Fibres. Process: Plastic Materials. Status: Effective.
		Operator: Lenzing Fibres. Process: Nitrogen Containing Compounds. Status: Effective.
		Operator: Lenzing Fibres. Process: Disopsal of Non-Hazardous Waste. Status: Effective.
		Operator: Lenzing Fibres. Process: Associated Processes. Status: Effective.

[8] See Appendix 1
[9] See Appendix 1

Records of Part A(2) and Part B Activities and Enforcements	-	None recorded within 250m.
Records of List 1/2 Dangerous Substance Inventory Sites	118m E	Authorised Substances: Mercury, Cadmium, Chromium, Copper, Lead, Nickel, pH, Zinc.
Records of Licensed Discharge Consents	-	None recorded within 250m.
CONTROLLED WATERS[10]		
Description	**Location**	**Details**
River Network Entries	On Site 2 – 241m NW/NE 151m SE 167m N	Unnamed drain Oldfleet drain The Humber Estuary is 500m to the north. It should be noted that spillages into the drainage tributaries could have connectivity to the Humber.
Surface Water Features	Within 250m	Surface water records present within 250m. Unknown type.
POLLUTION INCIDENTS[11]		
Pollutant	**Receptor**	**Location** / **Date**
None recorded within 250m.		
ENVIRONMENT AGENCY FLOOD RISK[12]		
Description	**Location**	**Details**
Zone 2	On Site	The site is situated within a Zone 2 Flood Plain. Parts of the site recorded as zone 2 have an estimated annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea.
Zone 3	On Site	The site is situated within a Zone 3 Flood Plain. Parts of the site recorded as zone 3 have an estimated annual probability of flooding from rivers of 1 in 100 (1%) or greater and an estimated 1 in 200 (0.5%) or greater chance of flooding from the sea.
Flood Defences	-	None recorded within 250m.
Groundwater Flooding Area	-	Limited potential for groundwater flooding to occur.

3.7 Sensitive Land Use

Table 6: Sensitive Land Uses within 250m

REGISTERED SENSITIVE LAND USES [13]		
Description	**Location**	**Details**
Nitrate Vulnerable Zone	On site	Existing.

3.8 Industrial Land Use and Potential Sources of Contamination

In order for a conceptual site model and preliminary risk assessment to be completed the historical maps and Groundsure data requires analysis to identify any past or present activities on the site and in the area that may have the potential to cause contamination on the site. Guidance has been

[10] See Appendix 1
[11] See Appendix 1
[12] See Appendix 1
[13] See Appendix 1

issued by the Environment Agency, NHBC and Chartered Institute of Environmental Health.[14] Within this document, annex 3 provides examples of important contaminants that are associated with individual uses of land. This data assists in the formulation of any chemical testing regime.

Those that we consider potentially contaminative according to the guidance are given below:

Table 7: Potentially Contaminative Sources

HISTORICAL		
Land Use	**Location**	**Classification**
Historical construction	On site	Artificial/made ground.
Unspecified Industrial Works	On Site	Unspecified works/factories/features.
Tank (Sulphuric Acid)	On Site	
Tank (Petroleum)	On Site	
Railway Sidings	On Site	
Unspecified Tanks	7 – 92m SW 29 – 149m NW 132 – 200m S	
Chimney	164m SE	
CURRENT		
Land Use	**Location**	**Classification**
Lenzing Fibres	Adjoining West	
Works	158m SE	Unspecified works/factories/features.
Chimney	16m SE	

4. Preliminary Qualitative Risk Assessment

The potential of contamination hazards on the land has been identified and the risks associated with them are assessed in the following preliminary risk assessment in accordance with industry practice and the 'suitable for use' approach. This has been conducted using the source-pathway-receptor approach. This method dictates that there must be a risk contaminant produced at a 'source' in sufficient concentration to cause harm and there must be a 'pathway' for the contaminant to reach an identifiable 'receptor' for the linkage to be proved and a contamination hazard to be considered present. Not all substances are contaminants and not all contaminants are considered to be a risk. Indeed DEFRA and The Environment Agency state that **'a contaminant is a substance which has the potential to cause harm, while a risk itself is considered to exist if such a substance is present in sufficient concentration to cause harm and a pathway exists for a receptor to be exposed to the substance.**'

R&D Publication 66: 2008 states that the groups at risk of harm (receptors) can be identified by the following categorisation:

1. Humans: site personnel, end users, visitors and adjacent land users.

2. The water environment – receptors: groundwater, surface water, coastal waters and artificial drainage.

[14] Guidance for the Safe Development of Housing on Land Affected by Contamination, R&D Publication 66: 2008 Volume 1 and 2.

3. Ecosystems: plants and animals.

4. Construction/building materials/services

In order to complete a conceptual site model and therefore a preliminary risk assessment, an appraisal of the sources of contamination, potential and actual, on and in the area of the site has therefore been completed with reference to this pollution linkage.[15]

4.1 Conceptual Ground Model & Preliminary Qualitative Risk Assessment

It is understood that the development proposals currently comprise the construction of a new waste water treatment plant with associated access roads. In view of the sensitivity of the end users it is considered that the soil screening values (SSVs) for a commercial end use should be employed.

The preliminary risk assessment has been evaluated with reference to the following ratings and definitions:

N/A - A source-pathway-receptor linkage is not considered to exist and therefore a risk assessment is not required.

Low - A pollution linkage is unlikely and/or the likelihood of harm occurring is low and of minor consequence.

Moderate - The linkage exists but further field or laboratory data is required to confirm that the contaminant has reached the receptor and the levels of contaminant are harmful.

High - The linkage exists and the available data indicates that significant harm may be caused and remedial action could be necessary.

[15] This assessment has been based on the information as to the proposed development that has been provided by the client. If the plans should change, the assessment should be re-evaluated.

Table 8: Conceptual Site Model and Preliminary Qualitative Risk Assessment

CONCEPTUAL SITE MODEL			PRELIMINARY RISK ASSESSMENT	
Pathways	**Receptor**	**Linkage Present?**	**Risk Rating**	**Notes**
Direct contact/dermal absorption/soil ingestion	Operative	Yes – operatives are likely to come in contact with the soil.	Moderate	There are potential on and off site sources of contamination that may have caused contamination of the site. Any on site sources of contamination could migrate to neighbouring properties. Further testing required to reach a firm conclusion.
	End User	Yes – end users are likely to come in contact with the soil.	Moderate	
	Neighbours	Yes – possible source on site and immediate neighbours are present. However, the site lies within a predominantly industrial area.	Moderate	
Inhalation of Dust/Vapours	Operative	Yes – contact with soil likely during works and vapours may accumulate in enclosed spaces.	Moderate	There are potential on and off site sources of contamination that may have caused contamination of the site. Any on site sources of contamination could migrate to neighbouring properties. Construction activities may create dust on and off site, which, if contaminated, could adversely affect operatives, end users and neighbours. In the event that harmful vapours are present they may accumulate in enclosed spaces, affecting operatives, end users and neighbours Further testing required to reach a firm conclusion.
	End User	Yes – vapours may accumulate in enclosed spaces.	Moderate	
	Neighbours	Yes – neighbouring properties present and possible inhalation of dust during the works.	Moderate	
Ingestion of fruit/vegetables and/or waters	Operative	No – no edible plants or contained water sources in the area of the proposed new works.	N/A	
	End User	No – soft landscaping not proposed as part of the new development. Moreover, the development is commercial in nature.	N/A	
	Neighbours	No – residential dwellings present within 250m of the proposed development.	N/A	

Migration of hazardous gases via permeable strata	Operative	Yes – possible landfill source off site and potential sources on site associated with made ground.	Moderate	Possible source on site and within 250m. A programme of monitoring is recommended but is suggested to be limited to 4 readings over one month in the first instance. If significant made ground considered capable of producing harmful gases is revealed during the investigation works, the monitoring regime may require reconsideration to take into account a higher potential risk.
	End User		Moderate	
	Neighbours	Yes – possible source on site associated with made ground.	Low-Moderate	It is not considered likely that any made ground that has been brought onto site for the construction of the demolished development will produce high levels of gas, thus presenting a significant risk of harm to this receptor. This should be re-assessed during any intrusive works should this be proven to the contrary.
Spillage/loss/run off direct to receiving water	Controlled Waters	Yes – possible source on site and controlled waters present within 250m.	Moderate	There are potential on and off site sources of contamination that may have caused contamination of the site. Controlled waters present within 250m. Principal aquifer below the site. Further testing required to reach a firm conclusion.
Migration via permeable unsaturated strata	Controlled Waters	Yes – possible source on site and Principal aquifer beneath the site.	Moderate	
Run off via drainage/sewers etc	Controlled Waters	Yes – possible source on site and land drains which return to controlled waters are present within 250m. Relict services may also be present.	Moderate	
Direct contact with contaminated soils	Plants	No – soft landscaping areas are not anticipated as part of the proposed development.	N/A	
Uptake via root system			N/A	
Direct contact with contaminated soils	Building Materials	Yes – possible source on and off site and foundation and service installation materials may be affected by the soils underlying the site.	Moderate	There are potential on and off site sources of contamination that may have caused contamination of the site. Further testing required to reach a firm conclusion.
Direct contact with contaminated groundwater				

Migration of mine gas via permeable strata	Operative End User	No – the site is not in an area where shallow worked seams may be present.	N/A	
Exposure to Radon	Operative End User	No – not in a radon affected area.	N/A	The publication BR211 states that no protection measures are necessary.
Mining Instability	End User	No – the site is not in an area where shallow worked seams may be present.	N/A	
Unexploded Ordinance (UXO) Risk	Operative	Yes – a preliminary UXO search indicates a low UXO risk.	Low	No further action required.

Notes:

1. The above data and table is a qualitative assessment of the probable risks identified at this site, based on the information made available to us from the client, third party professional data and walkover survey.

2. Should any additional or new data come to light, the risk assessment should be revisited and any necessary changes made to any recommendations resulting from this study.

3. Where further testing is recommended as part of the risk assessment, this is in order to provide a quantitative assessment of any contamination issues. It should at all times be considered that uncertainties may remain, and therefore any testing regime and ground investigation philosophy should be ready to accommodate any necessary alterations should any data come to light or it become evident that it has not been previously considered.

4. Intrusive Investigation

4.1 Site Investigation Philosophy

The information from the Phase 1 Desk Study shows there are potential sources of contamination on the site and in the surrounding area. In view of the above, any intrusive investigation should be undertaken in accordance with the sampling strategies given in BS10175: 2011 +A2:2017 and CLR4:1994. These two sampling strategies may be classified as:

- Non Targeted – using a defined sampling pattern (BS10175)
- Targeted – based on prior knowledge and professional judgement (CLR4)

These sampling strategies are considered in more detail below. However, it is emphasised that they can be used individually or in combination depending on the depth of site knowledge.

Non Targeted Sampling

If no obvious 'hot spots' of contamination have been identified on a site, it would be recommended that a stratified random pattern of sampling points be considered. This work should be undertaken with reference to BS10175: 2011 +A2: 2017 *Investigation of potentially contaminated sites – Code of practice*: 7.6, and BS5930, *Code of practice for ground investigations, as amended in 2015*.

Targeted Sampling

If a possible 'hot spot' of contamination has been identified on a site, it is recommended that a herringbone pattern of sampling points be considered in the immediate vicinity. If strong evidence of contamination has then been identified, it is recommended that sampling be highly focused to reflect that evidence and the investigator's experience. This work should be undertaken with reference to CLR4, *Sampling Strategies for Contaminated Land, 1994*.

The density of sampling required is defined in BS10175: 2011: +A2: 2017: 7.7.2.2.3, which indicates that an *exploratory* investigation usually requires a lower density sample spacing than does a *main* investigation. The BS goes on to state that *the actual density should depend upon the confidence and robustness required of decisions that will be based on the information obtained. Thus the area and depth of interest will be related to the contaminants present, the pathways and the receptors. Typical densities of sampling grids can vary from 25m to 50m centres for exploratory investigations, and 10m to 25m centres for main investigations.*

4.2 Site Specific Investigation

In view of the information provided above it is considered that an investigation of the site should include the following main elements.

4.2.1 Contamination Assessment

It may be appreciated that BS 10175 clause 7.7.2.2.3 suggests that the number of sampling points at the site should be based on a minimum of three testing locations or the size of the site with respect to the appropriate grid spacing, whichever the greater. On the basis of the site area being 1.0 ha, the number of sampling points at the site should be considered with respect to the table below.

Table 9: Summary of Sampling Strategy

NUMBER OF SAMPLING POINTS						
	Soil	**Asbestos**	**PID**	**PCBs**	**Water**	**Standpipe Readings**
Exploratory Investigation 50m x 50m grid	4	4	4	1	**	It is suggested that three standpipes are installed, which are subject to a minimum of 4 readings over 1 month, in the first instance. However, any regime must take into account the guidance detailed below.
Target Areas	▪ The historical fuel tank should be targeted for hydrocarbon testing. ▪ The historical sulphur storage tank should be targeted for sulphur/sulphide testing. ▪ PID headspace testing should be undertaken to confirm the presence/absence of VOCs and/or volatile carbon disulfide. ▪ The mound of made ground observed on site should be tested for contamination. ▪ Soil testing should also be undertaken across the site to assess contamination within the made ground indicated to be present across the site by BGS data.					

**locations where retrievable water is encountered.

Chemical testing should be undertaken on the above grid spacing and the following standard testing regime should be undertaken;

- **Metals** – Cd, Cr, Cu, Hg, Ni, Pb, Zn, V.
- **Semi Metals and Non Metals** – As, Se, Free Cyanide and Phenols.
- **Hydrocarbons –** Polycyclic aromatic hydrocarbons (PAH EPA16), Total petroleum hydrocarbons (TPH CWG).
- **Others** – pH, Organic Content.
- **Asbestos**

Based on the historical contamination during the WYG survey and the known historical spill of carbon disulfide (CS2) the following testing should also be undertaken;

- **Carbon disulfide** (CS2)
- **Boron**
- **Sulphate/Sulphide**

Due the presence of an electrical substation on site the following testing regime should take place at one location adjacent to the substation;

- **Polychlorinated biphenyls** (PCBs)

Sampling Method

Investigation should include the installation of three gas monitoring standpipes for subsequent monitoring. Furthermore, soils should be obtained for chemical sampling. The sampling strategy should employ the strategy given above in the first instance, i.e. at least four sampling points. However, if

localised areas of made ground are found during the investigation, then the testing regime may require further consideration.

It should be possible to carry out the above work with an excavator, however, it will be necessary to employ a cable percussive drilling rig for installation of standpipes.

Gas Monitoring

The final gas monitoring regime should be undertaken in accordance with Table 4.2 of CIRIA C665: 2007: *Assessing risks posed by hazardous ground gasses to buildings.* In that document guidance for the frequency of monitoring is provided on tables 5.5a and 5.5b *Typical/idealised frequency and period of monitoring* on page 60. For convenience, these tables have been combined and reproduced below.

Table 10: Typical/idealised Frequency and Period of Monitoring.

Sensitivity of development	Generation potential of source				
	Very low	Low	Moderate	High	Very High
Low (commercial)	**4/1**	**6/2**	**6/3**	**12/6**	**12/12**
Moderate (flats)	6/2	6/3	9/6	12/12	24/24
High (residential + gardens)	6/3	9/6	12/6	24/12	24/24

Notes:

a) The first number is the minimum number of readings and the second number is the minimum period in months, for example 4/1 – Four sets of readings over 1 month.

b) At least two sets of readings must be at low and falling atmospheric pressure (but not restricted to periods below 1000mb) known as worst case conditions.

c) The frequency and period stated are considered to represent typical minimum requirements. Depending on specific circumstances fewer or additional readings may be required (e.g. any such variation subject to site specific justification). The NHBC guidance is also recommending these periods/frequencies of monitoring.

d) Historical data can be used as part of the data set.

e) Not all sites will require gas monitoring. However this would need to be confirmed with demonstrable evidence.

f) Placing high sensitivity end use on a high hazard site is not normally acceptable unless the source is removed or treated to reduce its gassing potential. Under such circumstances long-term monitoring may not be appropriate or required.

g) This guidance should be read in conjunction with BS 8576:2013 figure 6 which may justify fewer readings in the first instance, where the generation potential is considered to be very low to low. However, this should be undertaken pragmatically, and further readings obtained according to the above table, where a potentially significant source is identified and initial readings suggest that remedial measures are not necessary.

4.2.2 Geotechnical Assessment

In addition to the above contamination assessment which is likely to be required by planning authorities and insurance providers, the following investigation strategy could be considered:

Sampling Method

It is anticipated that a cable percussive drilling rig will be able to gain sufficient data in regard to the near surface soils. Moreover, such equipment should be able to undertake Standard Penetration Testing (SPT).

Soakaway Design

Should soakaway data be required for drainage design, trialpits could be excavated and infiltration tests conducted. Alternatively these tests could be undertaken within boreholes.

Geotechnical Testing

An allowance for geotechnical testing of the soils should be included in any ground investigation.

4.2.3 Flood Risk Assessment

It is recommended that a flood risk assessment is undertaken, as the Groundsure report records the site as within a Zone 3 Floodplain.

4.2.4 Reporting

The above data will need to be formulated into a formal assessment that should include the following:

- Geotechnical recommendations.
- Contamination assessment.
- Flood risk assessment.
- Contamination remediation strategy, if required.
- Any recommendations for further work, if required and including validation reports where site remediation is necessary.

As soon is as practicable, and prior to the above, this Phase 1 report should be forwarded to the relevant authorities, in order to ensure they have sufficient time to review and discuss any issues.

5. References

- British Standards Institution (2015), BS5930: *Code of practice for site investigations*, B.S.I., London.
- British Standards Institution (2007), Amendment No 1 to BS5930: *Code of practice for site investigations*, B.S.I., London.
- British Standards Institution (2011) +A2:2017, BS 10175: *Investigation of potentially contaminated sites – Code of Practice,* British Standards Institute.
- British Standards Institution (2013), BS 8576 Guidance on Investigations for Ground Gas – Permanent Gases and Volatile Organic Compounds.
- Department for Environment, Food and Rural Affairs and the Environment Agency, DEFRA R&D Publications, Environment Agency, Bristol.
- CLR 2, 1994, *Guidance on preliminary site inspection of contaminated land*, Volume 1.
- CLR 4, 1994, *Sampling Strategies for contaminated land*.
- R&D Publication 66: 2008 Guidance for the Safe Development of Housing on Land Affected by Contamination.
- CIRIA Report C665 (2007), Assessing risks posed by ground gasses in buildings.
- The Environment Agency: Groundwater source protection.

Appendix 1

Groundsure Reports

Rogers Geotechnical Services

Barncliffe Mills, NEAR BANK,
HUDDERSFIELD, HD8 8LU

Groundsure Reference:	GS-6461193
Your Reference:	C177_19_E_268_PO-0440
Report Date	13 Nov 2019
Report Delivery Method:	Email - pdf

Enviro Insight

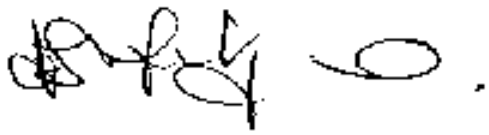
Address: LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT**
Date:	**13 Nov 2019**
Reference:	**GS-6461193**
Client:	**Rogers Geotechnical Services**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	21-Apr-2016
Grid Reference:	523477,412690
Site Size:	0.9885ha

Report Reference: GS-6461193
Client Reference: C177_19_E_268_PO-0440

Contents Page

Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	10	9	6	12
1.2 Additional Information – Historical Tank Database	3	7	17	7
1.3 Additional Information – Historical Energy Features Database	0	0	0	0
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	0	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	0	0	0

Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	18
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	8	24
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	1	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	1	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	2	3
2.2 Records of COMAH and NIHHS sites	2	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	0	1
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	1

Section 3: Landfill and Other Waste Sites	On-site	0-50m	51-250	251-500	501-1000	1000-1500
3.1 Landfill Sites						
3.1.1 Environment Agency/Natural Resources Wales Registered Landfill Sites	0	0	0	1	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	1	2	2	0
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	1	0
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	0	0
3.2 Landfill and Other Waste Sites Findings						
3.2.1 Operational and Non-Operational Waste Treatment, Transfer and Disposal Sites	0	0	0	0	Not searched	Not searched
3.2.2 Environment Agency/Natural Resources Wales Licensed Waste Sites	0	0	0	5	2	2

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	2	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	Identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	Identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	29
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	1
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	0	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	0	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

	0-500m					
	On-site	0-50m	51-250	251-500	501-1000	1000-1500
6.9 Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site	No	No	No	No	No	No
6.10 Ordnance Survey MasterMap Water Network entries within 500m of the site	2	6	10	68	Not searched	Not searched
6.11 Surface water features within 250m of the study site	Yes	Yes	Yes	Not searched	Not searched	Not searched

Section 7: Flooding

7.1 Enviroment Agency Zone 2 floodplains within 250m of the study site	Identified
7.2 Environment Agency/Natural Resources Wales Zone 3 floodplains within 250m of the study site	Identified
7.3 Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site	High
7.4 Flood Defences within 250m of the study site	None identified
7.5 Areas benefiting from Flood Defences within 250m of the study site	None identified
7.6 Areas used for Flood Storage within 250m of the study site	None identified
7.7 Maximum BGS Groundwater Flooding susceptibility within 50m of the study site	Not Prone
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Not Applicable

Section 8: Designated Environmentally Sensitive Sites

	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	1	0	1
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	1	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	1	0	0
8.5 Records of Ramsar sites	0	0	0	1	0	1
8.6 Records of Ancient Woodlands	0	0	0	0	0	0
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	0	0
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	0
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	1	0	0	0	1	2
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Low
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Negligible
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Moderate
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Negligible
9.1.6 Maximum Running Sand hazard rating identified on the study site	Moderate
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining

10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	None identified
10.3 Brine affected areas within 75m of the study site	None identified

Using this report

The following report is designed by Environmental Consultants for Environmental Professionals bringing together the most up-to-date market leading environmental data. This report is provided under and subject to the Terms & Conditions agreed between Groundsure and the Client. The document contains the following sections:

1. Historical Industrial Sites

Provides information on past land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. Potentially Infilled Land features are also included. This search is conducted using radii of up to 500m.

2. Environmental Permits, Incidents and Registers

Provides information on Regulated Industrial Activities and Pollution Incidents as recorded by Regulatory Authorities, and sites determined as Contaminated Land. This search is conducted using radii up to 500m.

3. Landfills and Other Waste Sites

Provides information on landfills and other waste sites that may pose a risk to the study site. This search is conducted using radii up to 1500m.

4. Current Land Uses

Provides information on current land uses that may pose a risk to the study site in terms of potential contamination from activities or processes. These searches are conducted using radii of up to 500m. This includes information on potentially contaminative industrial sites, petrol stations and fuel sites as well as high pressure gas pipelines and underground electricity transmission lines.

5. Geology

Provides information on artificial and superficial deposits and bedrock beneath the study site.

6. Hydrogeology and Hydrology

Provides information on productive strata within the bedrock and superficial geological layers, abstraction licences, Source Protection Zones (SPZs) and river quality. These searches are conducted using radii of up to 2000m.

7. Flooding

Provides information on river and coastal flooding, flood defences, flood storage areas and groundwater flood areas. This search is conducted using radii of up to 250m.

8. Designated Environmentally Sensitive Sites

Provides information on the Sites of Special Scientific Interest (SSSI), National Nature Reserves (NNR), Special Areas of Conservation (SAC), Special Protection Areas (SPA), Ramsar sites, Local Nature Reserves (LNR), Areas of Outstanding Natural Beauty (AONB), National Parks (NP), Environmentally Sensitive Areas, Nitrate Sensitive Areas, Nitrate Vulnerable Zones and World Heritage Sites and Scheduled Ancient Woodland. These searches are conducted using radii of up to 2000m.

9. Natural Hazards

Provides information on a range of natural hazards that may pose a risk to the study site. These factors include natural ground subsidence and radon..

10. Mining

Provides information on areas of coal and non-coal mining and brine affected areas.

11. Contacts

This section of the report provides contact points for statutory bodies and data providers that may be able to provide further information on issues raised within this report. Alternatively, Groundsure provide a free Technical Helpline (08444 159000) for further information and guidance.

Note: Maps

Only certain features are placed on the maps within the report. All features represented on maps found within this search are given an identification number. This number identifies the feature on the mapping and correlates it to the additional information provided below. This identification number precedes all other information and takes the following format -Id: 1, Id: 2, etc. Where numerous features on the same map are in such close proximity that the numbers would obscure each other a letter identifier is used instead to represent the features. (e.g. Three features which overlap may be given the identifier “A” on the map and would be identified separately as features 1A, 3A, 10A on the data tables provided).

Where a feature is reported in the data tables to a distance greater than the map area, it is noted in the data table as “Not Shown”.

All distances given in this report are in Metres (m). Directions are given as compass headings such as N: North, E: East, NE: North East from the nearest point of the study site boundary.

1. Historical Land Use

Site Outline

250
500
Search Buffers (m)

Historical 1:10,000 and 1:10,560 scale mapping

Industrial Land Use

Potentially Infilled Land

Historical 1:2,500, 1:1,250 and 1:500 scale mapping

Energy Features

Petrol Stations

Historical military sites

Tanks

Garages

1. Historical Industrial Sites

1.1 Potentially Contaminative Uses identified from 1:10,000 scale Mapping

The systematic analysis of data extracted from standard 1:10,560 and 1:10,000 scale historical maps provides the following information:

Records of sites with a potentially contaminative past land use within 500m of the search boundary: 37

ID	Distance [m]	Direction	Use	Date
1A	0	On Site	Unspecified Tank	1980
2C	0	On Site	Unspecified Works	1980
3B	0	On Site	Railway Sidings	1968
4Q	0	On Site	Unspecified Works	1968
5P	0	On Site	Unspecified Works	1965
6A	0	On Site	Unspecified Tank	1988
7	0	On Site	Railway Sidings	1965
8B	0	On Site	Railway Sidings	1980
9C	0	On Site	Unspecified Works	1988
10B	0	On Site	Railway Sidings	1988
11D	7	SW	Unspecified Tanks	1980
12D	7	SW	Unspecified Tanks	1968
13D	7	SW	Unspecified Tanks	1988
14B	11	SW	Unspecified Tank	1965
15B	14	SW	Unspecified Tank	1965
16E	18	SW	Unspecified Tank	1980
17E	18	SW	Unspecified Tank	1988
18K	28	SW	Unspecified Tank	1965
19D	31	SW	Unspecified Tank	1965
20F	164	SE	Chimney	1968
21F	164	SE	Chimney	1980
22F	164	SE	Chimney	1988
23F	164	SE	Chimney	1965
24	165	E	Rifle Range	1931
25	219	E	Rifle Range	1938
26G	292	SE	Unspecified Tank	1980
27G	292	SE	Unspecified Tank	1968
28G	292	SE	Unspecified Tank	1988
29H	321	SE	Unspecified Tank	1980
30H	321	SE	Unspecified Tank	1988
31	332	E	Rifle Range	1946
32H	343	SE	Unspecified Tank	1980
33H	343	SE	Unspecified Tank	1988
34I	345	E	Rifle Range	1930

35I	345	E	Rifle Range	1947
36J	363	SE	Unspecified Tank	1980
37J	363	SE	Unspecified Tank	1988

1.2 Additional Information – Historical Tank Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical tanks within 500m of the search boundary: 34

ID	Distance (m)	Direction	Use	Date
38A	0	On Site	Unspecified Tank	1999
39A	0	On Site	Unspecified Tank	1999
40A	0	On Site	Unspecified Tank	1996
41D	5	SW	Tanks	1964
42K	7	SW	Tanks	1999
43D	7	SW	Tanks	1996
44E	22	SW	Unspecified Tank	1999
45E	22	SW	Unspecified Tank	1996
46	28	NW	Tanks	1999
47L	29	NW	Tanks	1999
48L	53	NW	Tanks	1999
49M	69	SW	Unspecified Tank	1999
50M	69	SW	Unspecified Tank	1996
51	87	NW	Unspecified Tank	1999
52N	92	SW	Unspecified Tank	1999
53N	92	SW	Unspecified Tank	1996
54O	132	S	Unspecified Tank	1999
55O	132	S	Unspecified Tank	1996
56O	141	S	Tanks	1999
57O	141	S	Tanks	1996
58	149	NW	Tanks	1999
59P	169	S	Tanks	1964
60Q	193	S	Unspecified Tank	1964
61Q	195	S	Unspecified Tank	1999
62Q	195	S	Unspecified Tank	1996
63Q	200	S	Unspecified Tank	1999
64Q	200	S	Unspecified Tank	1996
65G	296	SE	Unspecified Tank	1964
66H	298	SE	Tanks	1999
67H	298	SE	Tanks	1996
68R	373	E	Unspecified Tank	1999
69R	373	E	Unspecified Tank	1996

70S	401	E	Tanks	1999
71S	401	E	Tanks	1996

1.3 Additional Information – Historical Energy Features Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical energy features within 500m of the search boundary: 0

Database searched and no data found.

1.4 Additional Information – Historical Petrol and Fuel Site Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical petrol stations and fuel sites within 500m of the search boundary: 0

Database searched and no data found.

1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database

The systematic analysis of data extracted from High Detailed 1:1,250 and 1:2,500 scale historical maps provides the following information.

Records of historical garage and motor vehicle repair sites within 500m of the search boundary: 0

Database searched and no data found.

1.6 Historical military sites

Certain military installations were not noted on historic mapping for security reasons. Whilst not all military land is necessarily of concern, Groundsure has researched and digitised a number of Ordnance Factories and other military industrial features (e.g. Ordnance Depots, Munitions Testing Grounds) which may be of contaminative concern. This research was drawn from a number of different sources, and should not be regarded as a definitive or exhaustive database of potentially contaminative military installations. The boundaries of sites within this database have been estimated from the best evidence available to Groundsure at the time of compilation.

Records of historical military sites within 500m of the search boundary: 0

Database searched and no data found.

1.7 Potentially Infilled Land

Records of Potentially Infilled Features from 1:10,000 scale mapping within 500m of the study site: 0

Database searched and no data found.

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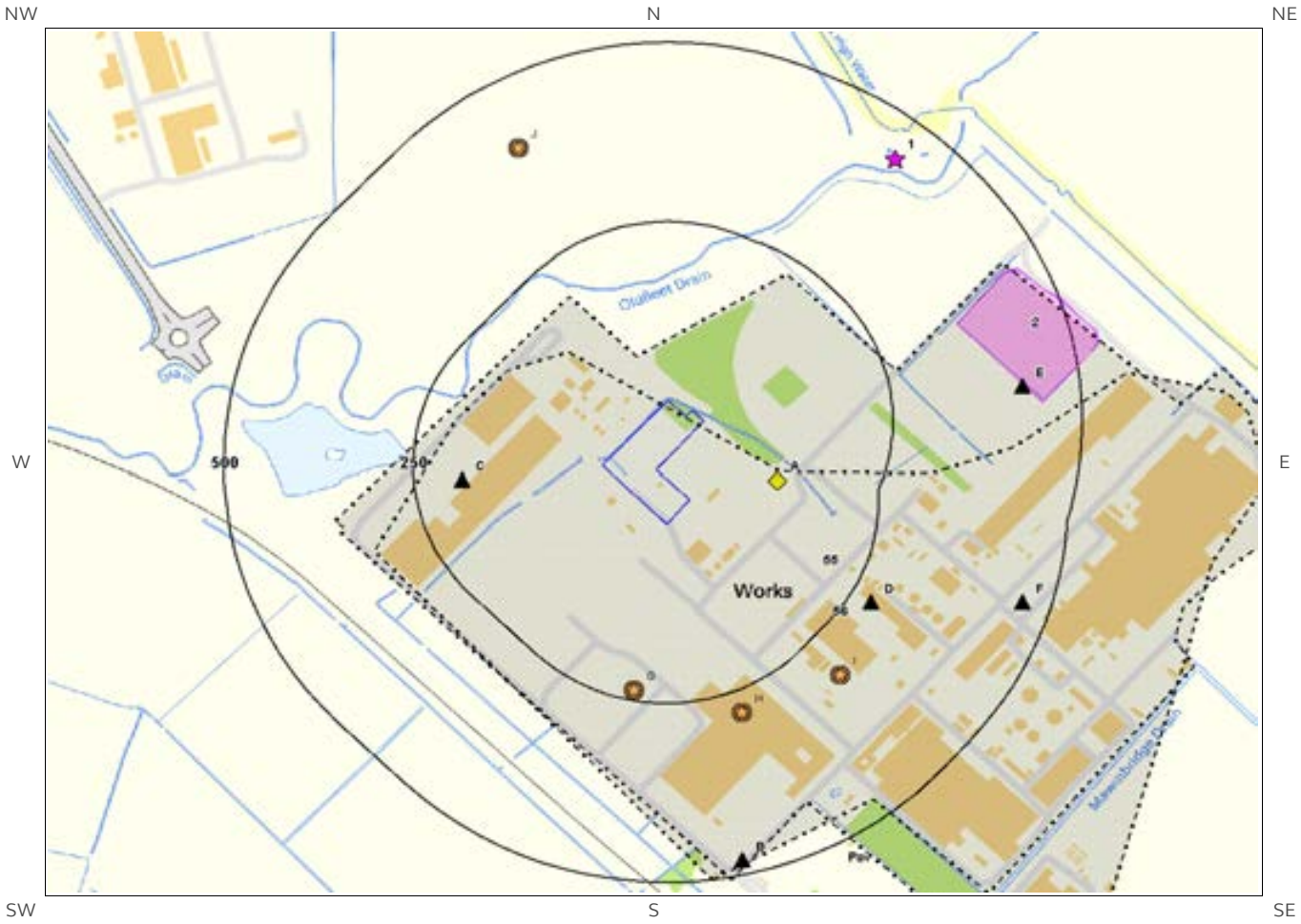
2. Environmental Permits, Incidents and Registers Map



Site Outline

250
500
Search Buffers (m)

Recorded Pollution Incident

Dangerous Substances (List 1)

Dangerous Substances (List 2)

Water Industry Referrals

Licenced Discharge Consents

Red List Discharge Consents

RAS 3 & 4 Authorisations

Part A(1) Authorised Processes and Historic IPC Authorisations

Part A(2) and Part B Authorised Processes

COMAH / NIHHS Sites

Sites Determined as Contaminated Land

Hazardous Substance Consents and Enforcements

2. Environmental Permits, Incidents and Registers

2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency/Natural Resources Wales and Local Authorities reveal the following information:

2.1.1 Records of historic IPC Authorisations within 500m of the study site:

18

The following IPC Authorisations are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
94B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Paper And Pulp Manufacturing Processes	Permit Number: BA9754 Original Permit Number: IPCMINVAR Date Approved: 23-3-1998 Effective Date: 27-3-1998 Status: Superseded By Variation
95B	481	S	523630 412140	Operator: Blue Star Fibres Co Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Permit Number: AK6772 Original Permit Number: IPCAIRAPP Date Approved: 1-4-1994 Effective Date: 1-4-1994 Status: Superseded By Variation
96B	481	S	523630 412140	Operator: Acordis UK Ltd Address: PO Box 24, Great Coates, Grimsby, DN31 2SS Process: Inorganic Chemical Processes	Permit Number: BC8945 Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
97B	481	S	523630 412140	Operator: Technical Absorbents Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Permit Number: AM8261 Original Permit Number: IPCAPP Date Approved: 28-9-1994 Effective Date: 1-10-1994 Status: Superseded By Variation
98B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Paper And Pulp Manufacturing Processes	Permit Number: AS5822 Original Permit Number: IPCMINVAR Date Approved: 31-7-1995 Effective Date: 1-8-1995 Status: Superseded By Variation
99B	481	S	523630 412140	Operator: Acordis UK Ltd Address: PO Box 24, Great Coates, Grimsby, DN31 2SS Process: Inorganic Chemical Processes	Permit Number: BG5077 Original Permit Number: IPCMINVAR Date Approved: 29-10-1999 Effective Date: 1-11-1999 Status: Revoked
100B	481	S	523630 412140	Operator: Technical Absorbents Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of	Permit Number: BD1814 Original Permit Number: IPCMINVAR Date Approved: 24-11-1998

ID	Distance (m)	Direction	NGR	Details	
				Organic Chemicals	Effective Date: 30-11-1998 Status: Superseded By Variation
101B	481	S	523630 412140	Operator: Blue Star Fibres Co Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Permit Number: BQ3185 Original Permit Number: IPCMINVAR Date Approved: 20-3-2002 Effective Date: 1-4-2002 Status: Superseded By Variation
102B	481	S	523630 412140	Operator: Technical Absorbents Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Permit Number: AS1983 Original Permit Number: IPCMINVAR Date Approved: 30-6-1995 Effective Date: 1-7-1995 Status: Superseded By Variation
103B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Paper And Pulp Manufacturing Processes	Permit Number: BE9454 Original Permit Number: IPCMAJVAR Date Approved: 24-2-1999 Effective Date: 1-3-1999 Status: Superseded By Variation
104B	481	S	523630 412140	Operator: Acordis UK Ltd Address: PO Box 24, Great Coates, Grimsby, DN31 2SS Process: Inorganic Chemical Processes	Permit Number: AN7970 Original Permit Number: IPCAIRAPP Date Approved: 31-3-1995 Effective Date: 1-4-1995 Status: Superseded By Variation
105B	481	S	523630 412140	Operator: Blue Star Fibres Co Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Permit Number: BC6926 Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
106B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Manufacture And Use Of Organic Chemicals	Permit Number: AK6829 Original Permit Number: IPCAPP Date Approved: 1-4-1994 Effective Date: 1-4-1994 Status: Superseded By Variation
107B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Paper And Pulp Manufacturing Processes	Permit Number: AX6222 Original Permit Number: IPCMAJVAR Date Approved: 15-5-1997 Effective Date: 1-6-1997 Status: Superseded By Variation
108B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Paper And Pulp Manufacturing Processes	Permit Number: BE4061 Original Permit Number: IPCMINVAR Date Approved: 24-11-1998 Effective Date: 30-11-1998 Status: Superseded By Variation
109B	481	S	523630 412140	Operator: Lenzing Fibers Ltd Address: PO Box 462, South Humberside Industrial Estate, Grimsby, North Lincs, DN31 2ZT Process: Paper And Pulp Manufacturing Processes	Permit Number: BV5432 Original Permit Number: IPCMINVAR Date Approved: 18-12-2003 Effective Date: 1-1-2004 Status: Revoked - Now Ippc
110B	481	S	523630 412140	Operator: Blue Star Fibres Co Ltd Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Permit Number: BZ0424 Original Permit Number: IPCMINVAR Date Approved: 14-7-2005 Effective Date: 18-7-2005 Status: Revoked - Now Ippc
111B	481	S	523630	Operator: Technical Absorbents Ltd	Permit Number: BZ6988

ID	Distance (m)	Direction	NGR	Details	
			412140	Address: PO Box 24, Great Coates, Grimsby, North Lincs, DN31 2SS Process: Manufacture And Use Of Organic Chemicals	Original Permit Number: IPCMINVAR Date Approved: 23-2-2006 Effective Date: 1-3-2006 Status: Revoked - Now Ippc

2.1.2 Records of Part A(1) and IPPC Authorised Activities within 500m of the study site:

32

The following Part A(1) and IPPC Authorised Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
62C	187	W	523260 412670	Operator: LENZING FIBERS GRIMSBY LIMITED Installation Name: GRIMSBY LYOCELL FIBERS FACTORY - EPR/SP3936HE Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: FP3832JA Original Permit Number: SP3936HE EPR Reference: - Issue Date: 15/01/2019 Effective Date: 15/01/2019 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
63C	187	W	523260 412670	Operator: LENZING FIBERS GRIMSBY LIMITED Installation Name: GRIMSBY LYOCELL FIBERS FACTORY - EPR/SP3936HE Process: ORGANIC CHEMICALS; NITROGEN CONTAINING COMPOUNDS EG AMINES	Permit Number: FP3832JA Original Permit Number: SP3936HE EPR Reference: - Issue Date: 15/01/2019 Effective Date: 15/01/2019 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
64C	187	W	523260 412670	Operator: LENZING FIBRES GRIMSBY LTD Installation Name: LENZING FIBRES GRIMSBY LIMITED Process: DISPOSAL OF > 50 T/D NON-HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT	Permit Number: AP3634EK Original Permit Number: SP3936HE EPR Reference: - Issue Date: 13/12/2013 Effective Date: 13/12/2013 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
65C	187	W	523260 412670	Operator: LENZING FIBRES GRIMSBY LTD Installation Name: LENZING FIBRES GRIMSBY LIMITED Process: ASSOCIATED PROCESS	Permit Number: AP3634EK Original Permit Number: SP3936HE EPR Reference: - Issue Date: 13/12/2013 Effective Date: 13/12/2013 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
66C	187	W	523260 412670	Operator: LENZING FIBRES GRIMSBY LTD Installation Name: GRIMSBY LYOCELL FIBRES FACTORY Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: SP3936HE Original Permit Number: SP3936HE EPR Reference: - Issue Date: 05/01/2011 Effective Date: 05/01/2011 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
67C	187	W	523260 412670	Operator: LENZING FIBERS GRIMSBY LIMITED Installation Name: GRIMSBY LYOCELL FIBERS FACTORY - EPR/SP3936HE Process: DISPOSAL OF > 50 T/D NON-	Permit Number: FP3832JA Original Permit Number: SP3936HE EPR Reference: - Issue Date: 15/01/2019 Effective Date: 15/01/2019

ID	Distance (m)	Direction	NGR	Details	
				HAZARDOUS WASTE (> 100 T/D IF ONLY AD) INVOLVING PHYSICO-CHEMICAL TREATMENT	Last date noted as effective: 2019-08-01 Status: EFFECTIVE
68C	187	W	523260 412670	Operator: LENZING FIBRES GRIMSBY LTD Installation Name: LENZING FIBRES GRIMSBY LIMITED Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: AP3634EK Original Permit Number: SP3936HE EPR Reference: - Issue Date: 13/12/2013 Effective Date: 13/12/2013 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
69C	187	W	523260 412670	Operator: LENZING FIBERS GRIMSBY LIMITED Installation Name: GRIMSBY LYOCELL FIBERS FACTORY - EPR/SP3936HE Process: ASSOCIATED PROCESS	Permit Number: FP3832JA Original Permit Number: SP3936HE EPR Reference: - Issue Date: 15/01/2019 Effective Date: 15/01/2019 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
70D	280	SE	523800 412500	Operator: COFELY INDUSTRIAL ENERGY SERVICES LIMITED Installation Name: GRIMSBY FIBRES POWER STATION EPR/AP3238ZU Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: UP3534AJ Original Permit Number: AP3238ZU EPR Reference: - Issue Date: 22/12/2015 Effective Date: 01/01/2016 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
71D	280	SE	523800 412500	Operator: HUMBER ENERGY LIMITED Installation Name: GRIMSBY FIBRES POWER STATION Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: EP3835LB Original Permit Number: EP3835LB EPR Reference: - Issue Date: 14/06/2007 Effective Date: 14/06/2007 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
72D	280	SE	523800 412500	Operator: ENGIE FM LIMITED Installation Name: GRIMSBY FIBRES POWER STATION EPR/AP3238ZU Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: DP3338DC Original Permit Number: DP3338DC EPR Reference: - Issue Date: 23/08/2016 Effective Date: 23/08/2016 Last date noted as effective: 2019-08-01 Status: TRANSFER EFFECTIVE
73D	280	SE	523800 412500	Operator: HUMBER ENERGY LIMITED Installation Name: GRIMSBY FIBRES POWER STATION Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: LP3339XA Original Permit Number: EP3835LB EPR Reference: - Issue Date: 17/12/2007 Effective Date: 17/12/2007 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
74D	280	SE	523800 412500	Operator: INDUSTRIAL ENERGY SERVICES LIMITED Installation Name: GRIMSBY FIBRES POWER STATION EPR/AP3238ZU Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: SP3433DR Original Permit Number: AP3238ZU EPR Reference: - Issue Date: 31/03/2016 Effective Date: 31/03/2016 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
75D	280	SE	523800 412500	Operator: COFELY INDUSTRIAL ENERGY SERVICES LIMITED Installation Name: GRIMSBY FIBRES POWER STATION EPR/AP3238ZU Process: COMBUSTION; ANY FUEL	Permit Number: AP3238ZU Original Permit Number: AP3238ZU EPR Reference: - Issue Date: 15/01/2013 Effective Date: 15/01/2013

ID	Distance (m)	Direction	NGR	Details	
				=>50MW	Last date noted as effective: 2019-08-01 Status: SUPERCEDED
76D	280	SE	523800 412500	Operator: COFELY INDUSTRIAL ENERGY SERVICES LIMITED Installation Name: GRIMSBY FIBRES POWER STATION EPR/AP3238ZU Process: COMBUSTION; ANY FUEL =>50MW	Permit Number: TP3036NM Original Permit Number: AP3238ZU EPR Reference: - Issue Date: 03/02/2014 Effective Date: 03/02/2014 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
77E	423	E	524000 412800	Operator: ACORDIS UK LTD Installation Name: LANDFILL NO.4 Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: BW2960IL Original Permit Number: BW2960IL EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2019-08-01 Status: REFUSED
78E	423	E	524000 412800	Operator: ACORDIS UK LTD Installation Name: LANDFILL NO.4 Process: ASSOCIATED PROCESS	Permit Number: BW2960IL Original Permit Number: BW2960IL EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2019-08-01 Status: REFUSED
79F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: GASIFICATION, LIQUIFAC. AND REFINING; ANY PYROLYSIS HEAT TREATMENT ETC OF COAL CARBONACEOUS MATERIAL ETC (UNLESS COAL DRYING/MAKING CHARCOAL)NISATION, DISTILLATION AND OTHER PROCESSES	Permit Number: BP3037UR Original Permit Number: VP3335LK EPR Reference: - Issue Date: 07/03/2008 Effective Date: 07/03/2008 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
80F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: ASSOCIATED PROCESS	Permit Number: BP3037UR Original Permit Number: VP3335LK EPR Reference: - Issue Date: 07/03/2008 Effective Date: 07/03/2008 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
81F	463	E	524000 412500	Operator: BLUE STAR FIBRES COMPANY LIMITED Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: GASIFICATION, LIQUIFAC. AND REFINING; ANY PYROLYSIS HEAT TREATMENT ETC OF COAL CARBONACEOUS MATERIAL ETC (UNLESS COAL DRYING/MAKING CHARCOAL)NISATION, DISTILLATION AND OTHER PROCESSES	Permit Number: HP3030KB Original Permit Number: VP3335LK EPR Reference: - Issue Date: 21/07/2010 Effective Date: 21/07/2010 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
82F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: FP3131DD Original Permit Number: VP3335LK EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2017-01-01 Status: DETERMINATION

ID	Distance (m)	Direction	NGR	Details	
83F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: VP3335LK Original Permit Number: VP3335LK EPR Reference: - Issue Date: 23/03/2007 Effective Date: 23/03/2007 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
84F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: ASSOCIATED PROCESS	Permit Number: VP3335LK Original Permit Number: VP3335LK EPR Reference: - Issue Date: 23/03/2007 Effective Date: 23/03/2007 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
85F	463	E	524000 412500	Operator: BLUE STAR FIBRES COMPANY LIMITED Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: HP3030KB Original Permit Number: VP3335LK EPR Reference: - Issue Date: 21/07/2010 Effective Date: 21/07/2010 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
86F	463	E	524000 412500	Operator: BLUE STAR FIBRES COMPANY LIMITED Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: HP3030KB Original Permit Number: VP3335LK EPR Reference: - Issue Date: 21/07/2010 Effective Date: 21/07/2010 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
87F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: FP3131DD Original Permit Number: VP3335LK EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2017-01-01 Status: DETERMINATION
88F	463	E	524000 412500	Operator: BLUE STAR FIBRES COMPANY LIMITED Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: ASSOCIATED PROCESS	Permit Number: HP3030KB Original Permit Number: VP3335LK EPR Reference: - Issue Date: 21/07/2010 Effective Date: 21/07/2010 Last date noted as effective: 2019-08-01 Status: EFFECTIVE
89F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: BP3037UR Original Permit Number: VP3335LK EPR Reference: - Issue Date: 07/03/2008 Effective Date: 07/03/2008 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
90F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: BP3037UR Original Permit Number: VP3335LK EPR Reference: - Issue Date: 07/03/2008 Effective Date: 07/03/2008 Last date noted as effective: 2019-08-01 Status: SUPERCEDED

ID	Distance (m)	Direction	NGR	Details	
91F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY Process: ORGANIC CHEMICALS; PLASTIC MATERIALS EG POLYMERS	Permit Number: VP3335LK Original Permit Number: VP3335LK EPR Reference: - Issue Date: 23/03/2007 Effective Date: 23/03/2007 Last date noted as effective: 2019-08-01 Status: SUPERCEDED
92F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: ASSOCIATED PROCESS	Permit Number: FP3131DD Original Permit Number: VP3335LK EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2017-01-01 Status: DETERMINATION
93F	463	E	524000 412500	Operator: BLUESTAR FIBRES COMPANY LTD Installation Name: GRIMSBY ACRYLIC FIBRES FACTORY EPR/VP3335LK Process: GASIFICATION, LIQUIFAC. AND REFINING; ANY PYROLYSIS HEAT TREATMENT ETC OF COAL CARBONACEOUS MATERIAL ETC (UNLESS COAL DRYING/MAKING CHARCOAL)NISATION, DISTILLATION AND OTHER PROCESSES	Permit Number: FP3131DD Original Permit Number: VP3335LK EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 2017-01-01 Status: DETERMINATION

2.1.3 Records of Red List Discharge Consents (potentially harmful discharges to controlled waters) within 500m of the study site:

0

Database searched and no data found.

2.1.4 Records of List 1 Dangerous Substances Inventory Sites within 500m of the study site:

1

The following List 1 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
3A	118	E	523676 412670	Name: Bluestar Fibres Company Limited Status: Not Active Receiving Water: Humber, River Humber	Authorised Substances: Mercury (other), Cadmium

2.1.5 Records of List 2 Dangerous Substance Inventory Sites within 500m of the study site:

1

The following List 2 Dangerous Substance Inventory Site records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
4A	118	E	523676 412670	Name: Bluestar Fibres Company Limited Status: Active Receiving Water: R. Humber	Authorised Substances: Chromium, Copper, Lead, Nickel, pH, Zinc

2.1.6 Records of Part A(2) and Part B Activities and Enforcements within 500m of the study site:

0

Database searched and no data found.

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

2.1.8 Records of Licensed Discharge Consents within 500m of the study site:

0

Database searched and no data found.

2.1.9 Records of Water Industry Referrals (potentially harmful discharges to the public sewer) within 500m of the study site:

0

Database searched and no data found.

2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site:

5

The following records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	Application Reference Number	NGR	Application Status	Application Date	Address	Details	Details of Enforcement Action
112G	237	S	DC/339/08/WOL	523486 412378	Historical Consent	24/09/2008	Vireol Plc, Moody Lane, Grimsby, DN31 2SS	Consent For The Storage Of Hazardous Substances Relating To A Bioethanol Production Facility	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
113G	237	S	DC/361/10/WOL	523486 412378	Approved	02/07/2010	Solenis UK Industries Limited, PO Box 63, Moody Lane, Grimsby, North East Lincolnshire, England, DN31 2SS	Storage Of Hazardous Substances Relating To A Bioethanol Production Facility	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
114H	281	S	No Details	523629 412347	Approved	No Details	RWE npower renewables PKA Helius Energy Plc, Hobson Way, Stallingborough, Grimsby, North East Lincolnshire, England, DN31 2TT	No Details	Enforcement: No Enforcement Notified Date of Enforcement: No Details Comment: No Details
115I	310	SE	HSC/DC/6	523758 412400	Approved	03/11/1992	Bluestar Fibres, PO Box 24, Great Coates, Grimsby, North East Lincolnshire, England, DN31 2TT	Manufacture of acrylic fibre from acrylonitrile and other co-monomers, manufacture of viscose rayon and man made fibres from cellulose wood pulp.	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified
116J	404	NW	DC/576/07/IMM	523334 413134	Historical Consent	16/06/2008	RWE npower Renewables Ltd pka Helius Energy Plc, Land Off Hobson Way, Stallingborough, DN41 8JJ	Storage Of Ethanol 20,000 Tonnes Under Schedule 8 Of The Electricity Act 1989	Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 2

The following COMAH & NIHHS Authorisation records provided by the Health and Safety Executive are represented as polygons or buffered points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	Company	Address	Operational Status	Tier
55	0	On Site	Blue Star Fibres Company Limited	Blue Star Fibres Company Limited, Great Coates, Grimsby, Po Box 24, Grimsby, North Lincolnshire, DN31 2SS	Historical NIHHS Site	-
56	0	On Site	Courtaulds European Fibres Ltd	Courtaulds European Fibres Ltd, Pobox 24, Great Coates Works, Grimsby	Historical NIHHS Site	-

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

2.3.1 Records of National Incidents Recording System, List 2 within 500m of the study site:

1

The following NIRS List 2 records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details	
1	441	NE	523831.0 413119.0	Incident Date: 22-Sep-2007 Incident Identification: 533391.0 Pollutant: Specific Waste Materials Pollutant Description: Tyres	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)

2.3.2 Records of National Incidents Recording System, List 1 within 500m of the study site:

0

Database searched and no data found.

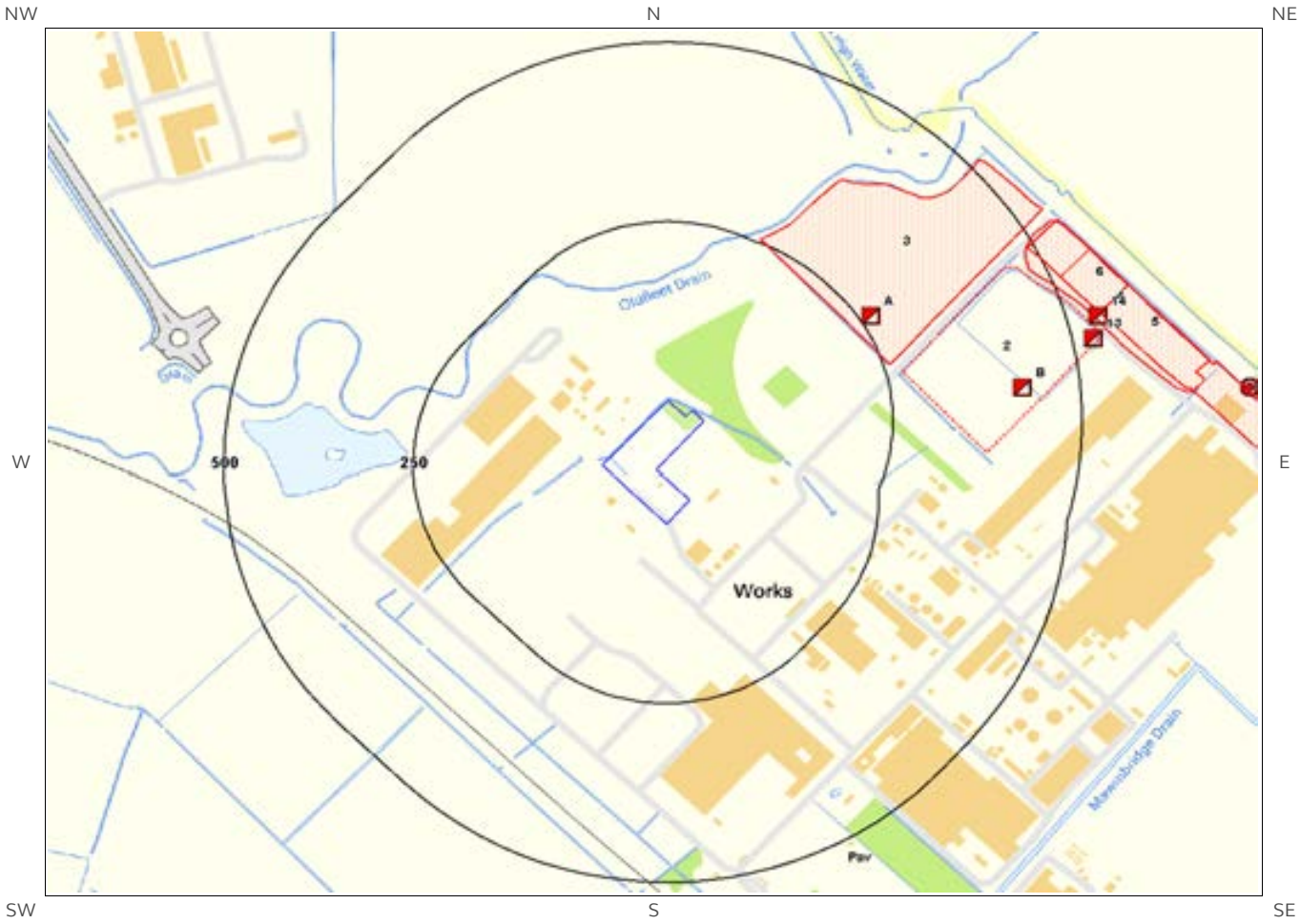
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990

Records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site 1

The following records are represented as polygons on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Description	Location	Category	Year Identified
2	361	E	524007 412873	The EA undertook two assessments of the site, in 2009 and 2014. These highlighted a deterioration in surface water quality within land drains. Arcadis (UK) Ltd, on behalf of the EA, found the potantial for leachate overtopping the bund to be significant.	Landfill Number 4, Land off Moody Lane, Great Coates, Grimsby, DN31 2SS	Contaminated Land	2017

3. Landfill and Other Waste Sites Map



Site Outline

250
500
Search Buffers (m)

EA/NRW Active Landfill

EA/NRW Historic Landfill

BGS / DoE Survey Landfill

Historic and Planned Waste Sites

EA/NRW Licensed Waste Site

Local Authority/Historical Mapping Landfill Records

3. Landfill and Other Waste Sites

3.1 Landfill Sites

3.1.1 Records from Environment Agency/Natural Resources Wales landfill data within 1000m of the study site:

1

The following Environment Agency/Natural Resources Wales landfill records are represented as polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
2	271	E	524094 412868	Address: Acordis U K Ltd, Greatcoates Works, No 4 Landfill, Grimsby, N E Lincs, DN31 2SS Landfill Reference: 70836.0 Environmental Permitting Regulations (Waste) Reference: COU003 Landfill Type: A07: Industrial Waste Landfill (Factory curtilage)	Operator: Acordis U K Ltd Status: To PPC IPPC Reference: EPR Reference:

3.1.2 Records of Environment Agency/Natural Resources Wales historic landfill sites within 1500m of the study site:

5

The following landfill records are represented as either points or polygons on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
3	231	NE		Site Address: No. 3 Landfill, P O Box 24, Grimsby, Greatcoates Works, N E Lincs Waste Licence: Yes Site Reference: - Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 20-Apr-1983 Licence Surrendered: 13-Oct-2008 Licence Holder Address: P O Box 24, Grimsby, Greatcoates Works, N E Lincs Operator: Acordis U K Ltd Licence Holder: Acordis U K Ltd First Recorded: - Last Recorded: -
4	479	NE		Site Address: Courtaulds No 2 Landfill, No 2 Landfill, Grimsby, N E Lincs Waste Licence: Yes Site Reference: - Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: YP4/L/KIR001	Licence Issue: 10-Jul-1995 Licence Surrendered: 13-Oct-2008 Licence Holder Address: P O Box 24, Grimsby, Greatcoates, N E Lincs Operator: Acordis U K Ltd Licence Holder: Acordis U K Ltd First Recorded: - Last Recorded: -
5	491	NE		Site Address: Courtaulds No 2 Landfill, Greatcoates Works, Grimsby, Lincolnshire	Licence Issue: Licence Surrendered:

ID	Distance (m)	Direction	NGR	Details	
				Waste Licence: - Site Reference: A897, 55/16/0439 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Holder Address: - Operator: Courtaulds Limited Licence Holder: - First Recorded: 01-Aug-1970 Last Recorded: 31-Dec-1980
6	512	NE		Site Address: Courtaulds No.2 Landfill, Grimsby Waste Licence: Yes Site Reference: 55/19/0924, 9240, 2000/5294 Waste Type: Inert, Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: 10-Jul-1995 Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: - First Recorded: 31-Dec-1995 Last Recorded: -
Not shown	748	E		Site Address: Great Coates Site C, Grimsby Waste Licence: - Site Reference: 55/16/0440 Waste Type: Industrial Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: Acordis (formerly Courtaulds limited) Licence Holder: - First Recorded: 31-Dec-1970 Last Recorded: -

3.1.3 Records of BGS/DoE non-operational landfill sites within 1500m of the study site:

1

The following landfill records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
1	722	E	524300.0 412800.0	Address: Courtaulds Ltd, Great Coates Works, Grimsby, Linc BGS Number: 1265.0	Risk: No risk to aquifer Waste Type: N/A

3.1.4 Records of Landfills from Local Authority and Historical Mapping Records within 1500m of the study site:

0

Database searched and no data found.

3.2 Other Waste Sites

3.2.1 Records of waste treatment, transfer or disposal sites within 500m of the study site:

0

Database searched and no data found.

3.2.2 Records of Environment Agency/Natural Resources Wales licensed waste sites within 1500m of the study site:

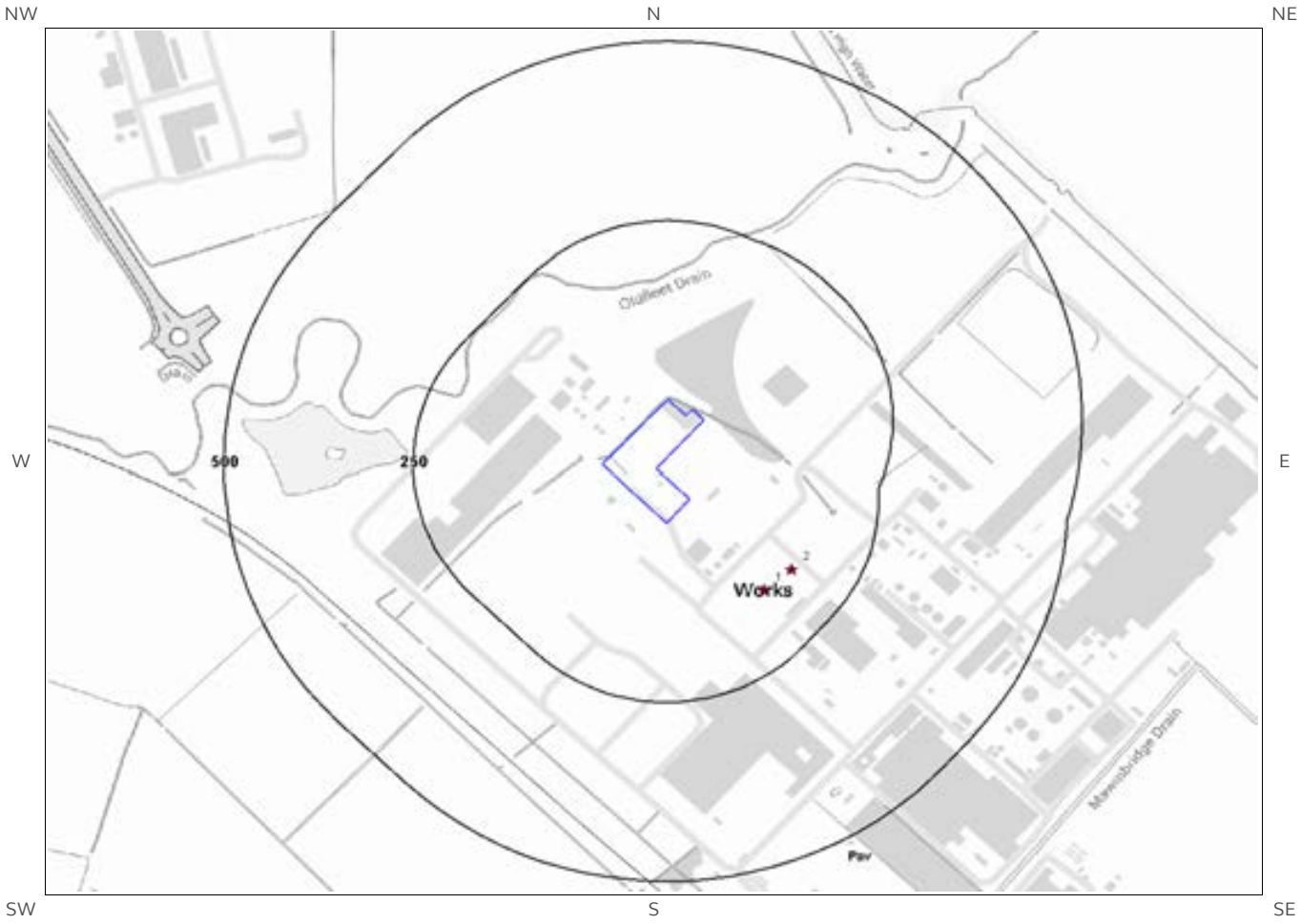
9

The following waste treatment, transfer or disposal sites records are represented as points on the Landfill and Other Waste Sites map:

ID	Distance (m)	Direction	NGR	Details	
8A	265	NE	523800 412900	Site Address: Acordis U K Ltd, P O Box 24, Greatcoates Works, Grimsby, N E Lincs, DN31 2SS Type: Industrial Waste Landfill (Factory curtilage) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COU002 EPR reference: EA/EPR/DP3695NM/A001 Operator: Acordis U K Ltd Waste Management licence No: 70810 Annual Tonnage: 725000.0	Issue Date: 20/04/1983 Effective Date: - Modified: - Surrendered Date: Oct 13 2008 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: No. 3 Landfill Correspondence Address: -
9A	265	NE	523800 412900	Site Address: Acordis U K Ltd, P O Box 24, Greatcoates Works, Grimsby, N E Lincs, DN31 2SS Type: Industrial Waste Landfill (Factory curtilage) Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COU002 EPR reference: - Operator: Acordis U K Ltd Waste Management licence No: 70810 Annual Tonnage: 25000.0	Issue Date: 20/04/1983 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: No. 3 Landfill Correspondence Address: Acordis U K Ltd, P O Box 24, Greatcoates Works, Grimsby, N E Lincs, DN31 2SS
10B	423	E	524000 412800	Site Address: Acordis U K Ltd, No 4 Landfill, Grimsby, N E Lincs, DN31 2SS Type: Household, Commercial & Industrial Waste Landfill Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: IPC026 EPR reference: - Operator: Acordis U K Ltd Waste Management licence No: 73225 Annual Tonnage: 0.0	Issue Date: 01/11/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Landfill No 4 Correspondence Address: Acordis U K Ltd, P O Box 24, Greatcoates, Grimsby, N E Lincs, DN31 2SS
11B	423	E	524000 412800	Site Address: Acordis U K Ltd, No 4 Landfill, Grimsby, N E Lincs, DN31 2SS Type: Industrial Waste Landfill (Factory curtilage) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: IPC026 EPR reference: EA/EPR/CP3292NZ/A001 Operator: Acordis U K Ltd Waste Management licence No: 73225 Annual Tonnage: 250000.0	Issue Date: 01/11/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: To PPC Site Name: Landfill No 4 (bw2960il) Correspondence Address: -
12B	423	E	524000 412800	Site Address: Acordis U K Ltd, Greatcoates Works, No 4 Landfill, Grimsby, N E Lincs, DN31 2SS Type: Industrial Waste Landfill (Factory curtilage) Size: >= 25000 tonnes < 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COU003 EPR reference: - Operator: Acordis U K Ltd	Issue Date: 10/07/1995 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Landfill No 4 Correspondence Address: Acordis U K Ltd, P O Box 24, Greatcoates, Grimsby, N E

ID	Distance (m)	Direction	NGR	Details	
				Waste Management licence No: 70836 Annual Tonnage: 75000.0	Lincs, DN31 2SS
13	528	E	524094 412868	Site Address: Acordis U K Ltd, Greatcoates Works, Greatcoate, No 4 Landfill, Grimsby, N E Lincs, DN31 2SS Type: Industrial Waste Landfill (Factory curtilage) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COU003 EPR reference: EA/EPR/JP3595NK/A001 Operator: Acordis U K Ltd Waste Management licence No: 70836 Annual Tonnage: 75000.0	Issue Date: 10/07/1995 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: To PPC Site Name: Landfill No 4 Correspondence Address: -
14	541	E	524100 412900	Site Address: Acordis U K Ltd, Greatcoates Works, No 2 Landfill, Grimsby, N E Lincs, DN31 2SS Type: Industrial Waste Landfill (Factory curtilage) Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: COU001 EPR reference: EA/EPR/JP3895NN/A001 Operator: Acordis U K Ltd Waste Management licence No: 70838 Annual Tonnage: 425000.0	Issue Date: 10/07/1995 Effective Date: - Modified: - Surrendered Date: Oct 13 2008 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Courtaulds No 2 Landfill Correspondence Address: -
Not shown	1249	NW	522837 413819	Site Address: Newlincs Development Ltd, South Marsh Road, Stallingborough, N E Lincs, DN41 8BZ Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NEW184 EPR reference: EA/EPR/DB3234RC/A001 Operator: Newlincs Development Ltd Waste Management licence No: 103567 Annual Tonnage: 74999.0	Issue Date: 17/05/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Newlincs Development Ltd Correspondence Address: -
Not shown	1249	NW	522837 413819	Site Address: Newlincs Development Ltd, South Marsh Road, Stallingborough, N E Lincs, DN41 8BZ Type: Household, Commercial & Industrial Waste T Stn Size: >= 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: NEW184 EPR reference: EA/EPR/DB3234RC/V003 Operator: Newlincs Development Limited Waste Management licence No: 103567 Annual Tonnage: 74999.0	Issue Date: 17/05/2012 Effective Date: - Modified: 15/06/2018 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Newlincs Development Ltd Correspondence Address: -

4. Current Land Use Map



Site Outline

Search Buffers (m)

250

500

Current Industrial Sites

Petrol & Fuel Sites

Electricity Transmission Cables

Gas Transmission Pipelines

4. Current Land Uses

4.1 Current Industrial Data

Records of potentially contaminative industrial sites within 250m of the study site: 2

The following records are represented as points on the Current Land Uses map.

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	158	SE	Works	523659 412518	Lincolnshire, DN31	Unspecified Works Or Factories	Industrial Features
2	166	SE	Chimney	523695 412547	Lincolnshire, DN31	Chimneys	Industrial Features

4.2 Petrol and Fuel Sites

Records of petrol or fuel sites within 500m of the study site: 0

Database searched and no data found.

4.3 National Grid High Voltage Underground Electricity Transmission Cables

This dataset identifies the high voltage electricity transmission lines running between generating power plants and electricity substations. The dataset does not include the electricity distribution network (smaller, lower voltage cables distributing power from substations to the local user network). This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high voltage underground electricity transmission cables within 500m of the study site: 0

Database searched and no data found.

4.4 National Grid High Pressure Gas Transmission Pipelines

This dataset identifies high-pressure, large diameter pipelines which carry gas between gas terminals, power stations, compressors and storage facilities. The dataset does not include the Local Transmission System (LTS) which supplies gas directly into homes and businesses. This information has been extracted from databases held by National Grid and is provided for information only with no guarantee as to its completeness or accuracy. National Grid do not offer any warranty as to the accuracy of the available data and are excluded from any liability for any such inaccuracies or errors.

Records of National Grid high pressure gas transmission pipelines within 500m of the study site: 0

Database searched and no data found.

5. Geology

5.1 Artificial Ground and Made Ground

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

5.2 Superficial Ground and Drift Geology

The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT

5.3 Bedrock and Solid Geology

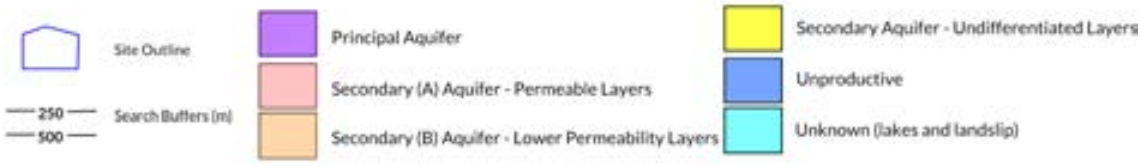
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
FCK-CHLK	FLAMBOROUGH CHALK FORMATION	CHALK

(Derived from the BGS 1:50,000 Digital Geological Map of Great Britain)

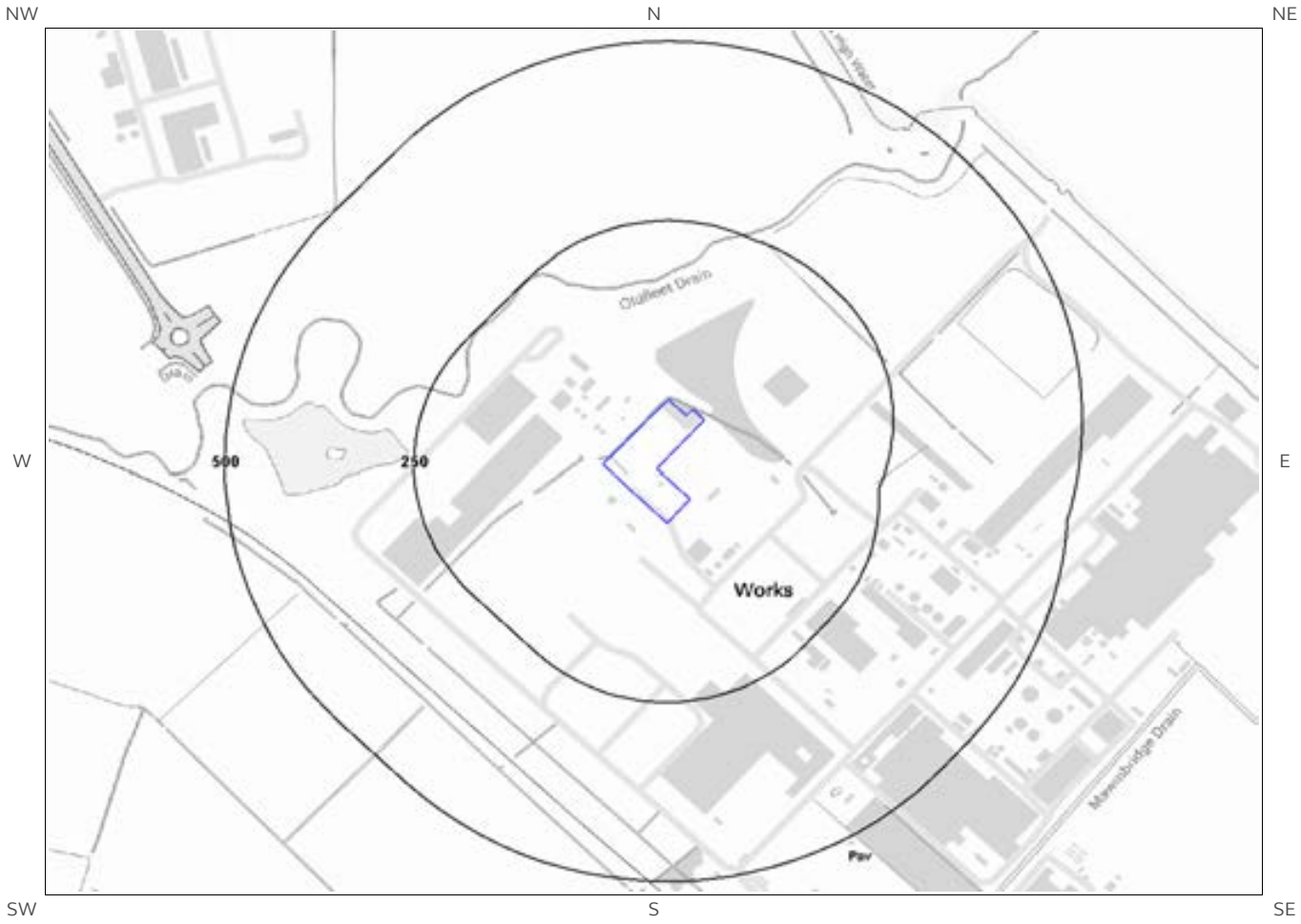
6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology

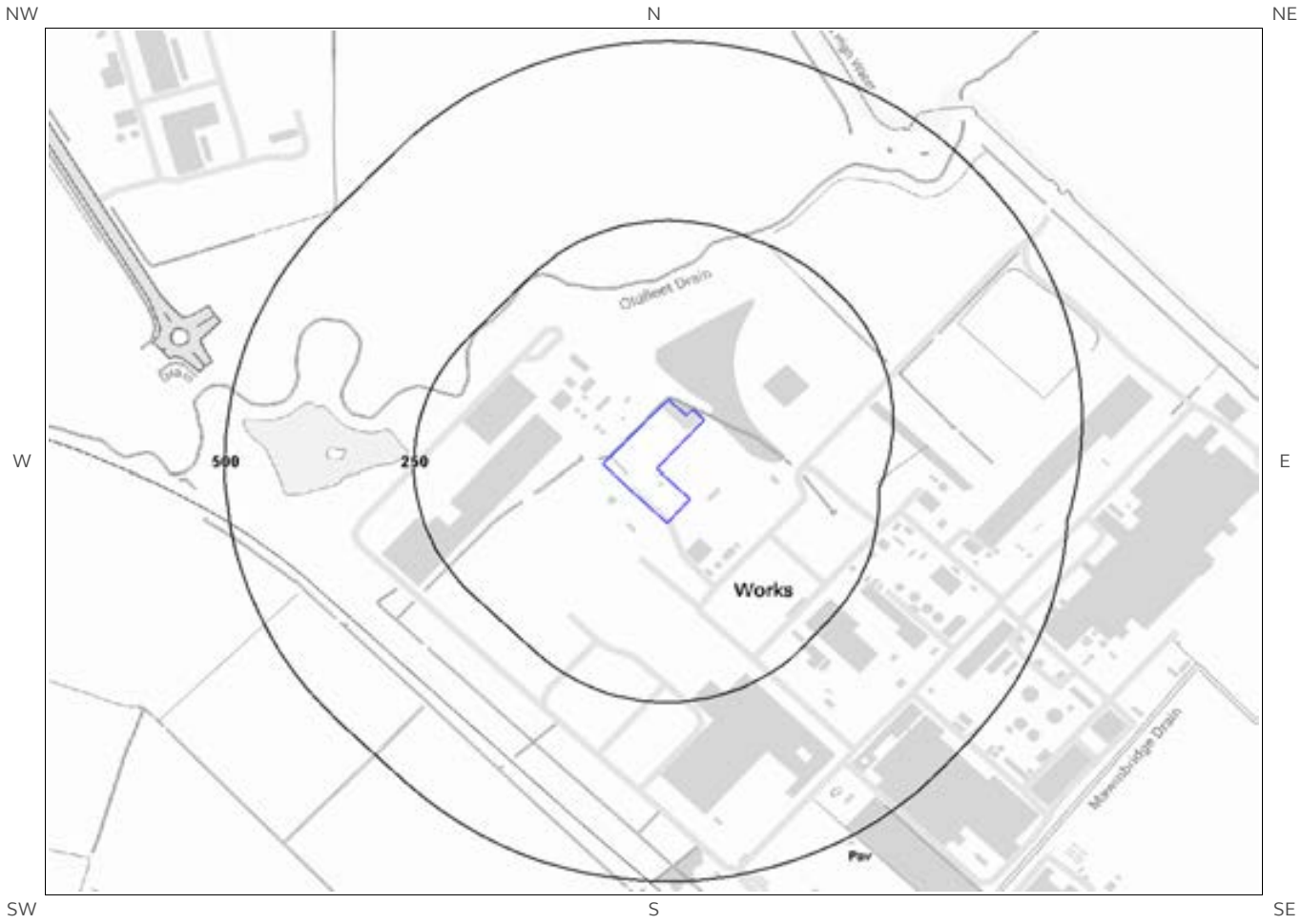


6b. Aquifer Within Bedrock Geology and Abstraction Licences

6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



6d. Hydrogeology – Source Protection Zones within confined aquifer



Source Protection Zone 1 - Inner Catchment

Source Protection Zone 2C - Outer Catchment within Confined Aquifer

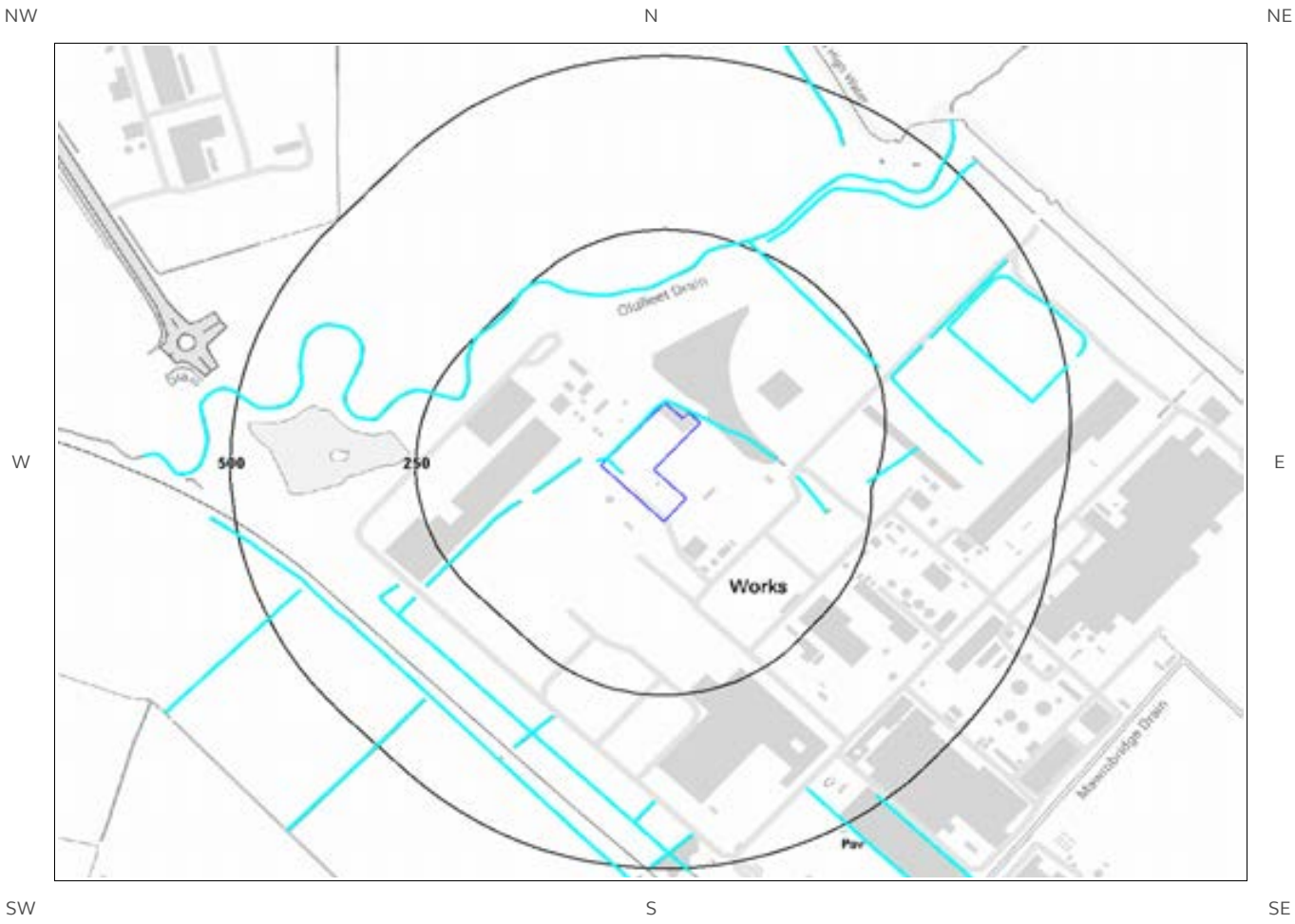
Source Protection Zone 3C - Total Catchment within Confined Aquifer

Site Outline

250
500
Search Buffers (m)

Potable Water Abstraction Licence

6e. Hydrology – Watercourse Network and River Quality



Site Outline

250
500
Search Buffers (m)

Watercourse type

- Tidal River
- Inland River
- Canal
- Lock or Flight of Locks
- Lake, Reservoir, or Marsh
- Foreshore
- Drain or Transfer

Watercourse level

- On ground surface
- Underground or Elevated
- Level unknown

- General Quality Assessment: Biology
- General Quality Assessment: Chemistry

6.Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

Records of strata classification within the superficial geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Superficial Geology Map (6a):

ID	Distance (m)	Direction	Designation	Description
2	0	On Site	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
1	443	NE	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

Records of strata classification within the bedrock geology at or in proximity to the property Yes

From 1 April 2010, the Environment Agency/Natural Resources Wales's Groundwater Protection Policy has been using aquifer designations consistent with the Water Framework Directive. For further details on the designation and interpretation of this information, please refer to the Groundsure Enviro Insight User Guide.

The following aquifer records are shown on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site — Identified

The following Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	1351	W	522150 412310	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 9 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1351	W	522150 412310	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 9 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1366	W	522140 412290	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 8 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1366	W	522140 412290	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 8 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1400	W	522110 412270	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 7 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1400	W	522110 412270	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 7 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1416	W	522100 412250	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 6 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1416	W	522100 412250	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 6 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1438	W	522080 412240	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 5 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1438	W	522080 412240	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 5 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1476	W	522050 412210	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 4 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1476	W	522050 412210	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 4 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1492	W	522040 412190	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 3 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1492	W	522040 412190	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 3 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1521	W	522020 412160	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 2 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1521	W	522020 412160	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 2 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1560	W	521990 412130	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 1 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1560	W	521990 412130	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 1 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1586	W	521970 412110	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 10 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:
Not shown	1586	W	521970 412110	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 10 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1597	W	521900 412290	Status: Active Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: CHALK BOREHOLE 11 AT HEALING Data Type: Point Name: Cristal Pigment UK Limited	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 11,979 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 11/08/2016 Version End Date:
Not shown	1597	W	521900 412290	Status: Historical Licence No: 4/29/09/*G/0051 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: TIOXIDE BOREHOLE 11 HEALING Data Type: Point Name: TIOXIDE EUROPE LTD	Annual Volume (m^3): 3,545,960 Max Daily Volume (m^3): 13,093 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 24/09/2010 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1613	SE	524700 411500	Status: Active Licence No: 4/29/10/*G/0024 Details: Non-Evaporative Cooling Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE A AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): 2,223,500 Max Daily Volume (m^3): 6,092 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:
Not shown	1613	SE	524700 411500	Status: Active Licence No: 4/29/10/*G/0024 Details: Evaporative Cooling Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE A AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): 2,223,500 Max Daily Volume (m^3): 6,092 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:
Not shown	1613	SE	524700 411500	Status: Active Licence No: 4/29/10/*G/0024 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE A AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): 2,223,500 Max Daily Volume (m^3): 6,092 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:
Not shown	1621	SE	524800 411600	Status: Historical Licence No: 4/29/10/*G/0024 Details: Transfer between sources Direct Source: GROUND WATER SOURCE OF SUPPLY Point: RECHARGE BOREHOLE C AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:
Not shown	1833	SE	524700 411200	Status: Active Licence No: 4/29/10/*G/0024 Details: Process Water Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE B AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): 2,223,500 Max Daily Volume (m^3): 6,092 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:
Not shown	1833	SE	524700 411200	Status: Active Licence No: 4/29/10/*G/0024 Details: Evaporative Cooling Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE B AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): 2,223,500 Max Daily Volume (m^3): 6,092 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:
Not shown	1833	SE	524700 411200	Status: Active Licence No: 4/29/10/*G/0024 Details: Non-Evaporative Cooling Direct Source: GROUND WATER SOURCE OF SUPPLY Point: BOREHOLE B AT PYEWIPE Data Type: Point Name: NOVARTIS GRIMSBY	Annual Volume (m^3): 2,223,500 Max Daily Volume (m^3): 6,092 Original Application No: - Original Start Date: Expiry Date: Issue No: Version Start Date: 01/03/1997 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site — Identified

The following Surface Water Abstraction Licences records are represented as points, lines and regions on the Aquifer within Bedrock Geology Map (6b):

ID	Distance (m)	Direction	NGR	Details	
Not shown	1097	E	524637 412434	Status: Active Licence No: AN/029/0009/016 Details: Transfer Between Sources (Post Water Act 2003) Direct Source: SURFACE WATER SOURCE OF SUPPLY Point: ABSTRACTION POINT ON MAWMBRIDGE DRAIN Data Type: Point Name: NORTH EAST LINCOLNSHIRE COUNCIL	Annual Volume (m^3): 90,000 Max Daily Volume (m^3): 3,576 Application No: - Original Start Date: 27/02/2018 Expiry Date: 31/03/2030 Issue No: 1 Version Start Date: 27/02/2018 Version End Date:

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site — None identified

Database searched and no data found.

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site — None identified

Database searched and no data found.

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site — None identified

Historically, Source Protection Zone maps have been focused on regulation of activities which occur at or near the ground surface, such as prevention of point source pollution and bacterial contamination of water supplies. Sources in confined aquifers were often considered to be protected from these surface pressures due to the presence of a low permeability confining layer (e.g. glacial till, clay). The increased interest in subsurface activities such as onshore oil and gas exploration, ground source heating and cooling requires protection zones for confined sources to be marked on SPZ maps where this has not already been done.

Database searched and no data found.

6.8 Groundwater Vulnerability and Soil Leaching Potential

Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.

6.9 River Quality

Environment Agency/Natural Resources Wales information on river quality within 1500m of the study site None identified

6.9.1 Biological Quality:

Database searched and no data found.

6.9.2 Chemical Quality:

Database searched and no data found.

6.10 Ordnance Survey MasterMap Water Network

Ordnance Survey MasterMap Water Network entries within 500m of the study site

This watercourse information is provided by Ordnance Survey MasterMap Water Network. The data provides a detailed centre line following the curve of the waterway precisely, so all distances provided in the report should be understood as measurements to the centreline rather than a measurement to the nearest point of the watercourse. Underground watercourses are inferred from entry and exit points so caution is advised in using these to indicate precise locations of underground watercourses when planning site investigation and development.

The following Ordnance Survey MasterMap Water Network records are represented on the Hydrology Map (6e):

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
1	0 On Site	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.9
28	0	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	On Site			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.9
2	2 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
3	2 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
29	2 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
30	2 NW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
4	29 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.9
31	29 W	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.9
5	120 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
32	120 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
6	151 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
33	151 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
7	167 N	Oldfleet Drain	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
34	167 N	Oldfleet Drain	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 2.3
8	229 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
35	229 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
9	241 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	241 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
10	253 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
37	253 N	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	259 NE	Oldfleet Drain	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
38	259 NE	Oldfleet Drain	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
12	267 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
39	267 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
13	268 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
40	268 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
14	287 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
41	287 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
15	315 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
42	315 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
16	317 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	317 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
17	324 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
44	324 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
18	326 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
45	326 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
19	328 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
46	328 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
20	333	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	E			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
47	333 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
21	344 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
48	344 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
22	345 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
23	345 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
49	345 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
50	345 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
24	348 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
51	348 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
25	353 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
26	353 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	353 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions)

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				Average Width in Watercourse Section (m): 2.0
Not shown	353 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
27	361 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
54	361 E	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
28	373 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	373 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
29	375 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
Not shown	375 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
30	400 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
57	400 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
31	403 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	403 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
32	406 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	406 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
33	407 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
60	407 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.7
34	409 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
Not shown	409 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.2
35	430 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	430 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
36	434 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
Not shown	434 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
37	438 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
Not shown	438 NE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.3
38	443 SW	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	443	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	SW			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
39	451 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
Not shown	451 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.8
40	477 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
41	477 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
42	477 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	477 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.1
Not shown	477 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
Not shown	477 S	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
43	487 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
Not shown	487 SE	-	Inland river not influenced by normal tidal action.	Catchment Area: Louth Grimsby and Ancholme Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9

6.11 Surface Water Features

Surface water features within 250m of the study site | Identified

The following surface water records are not represented on mapping:

Distance (m)	Direction
0	On Site
7	NE
28	W
120	SW
166	N
228	NE
232	NE
241	E

7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)

Site Outline

Search Buffers (m)

Zone 2 Floodplain

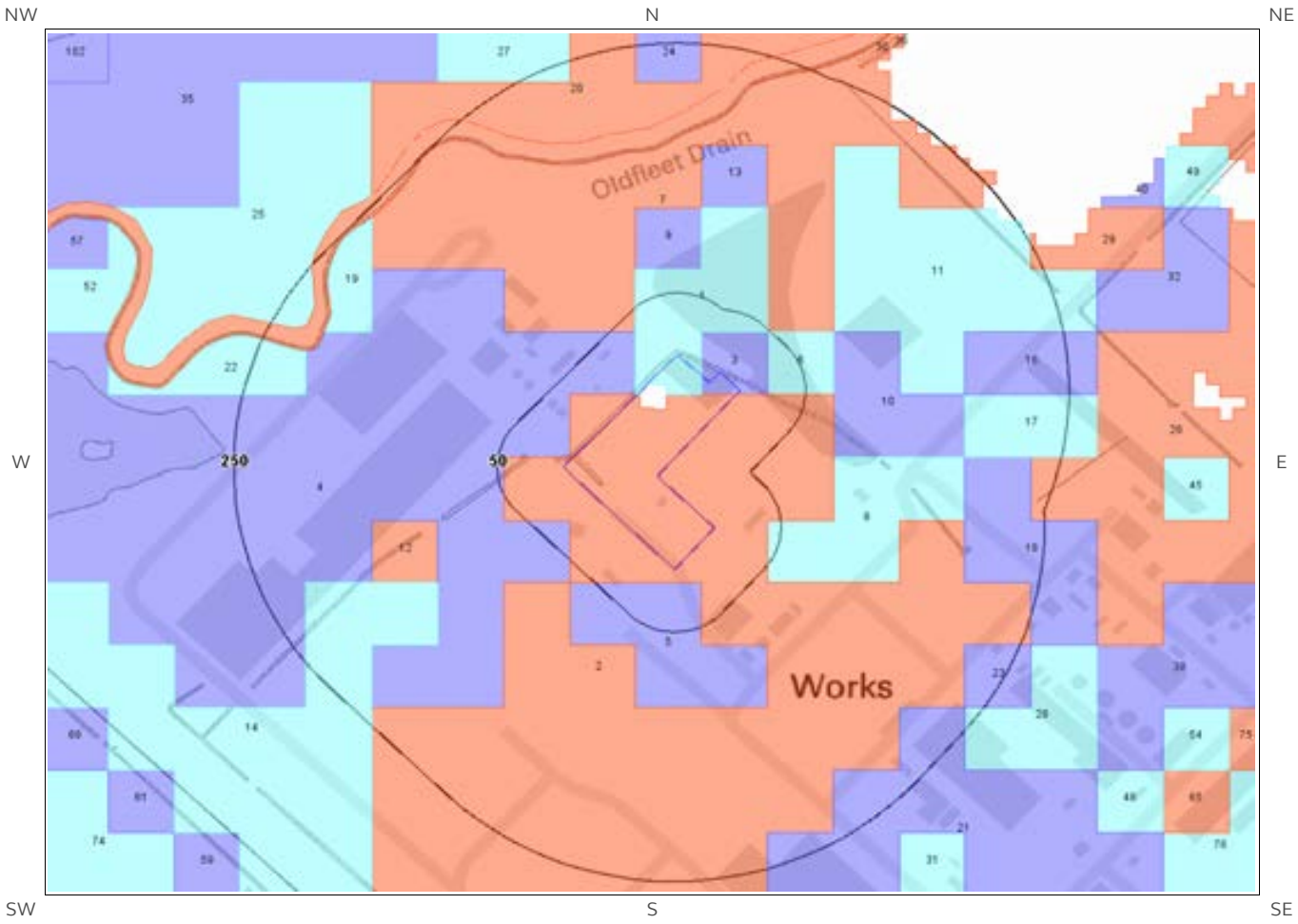
Zone 3 Floodplain

Flood Defences

Area used for Flood Storage

Area Benefiting from Flood Defences

7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



Site Outline

100
250
Search Buffers (m)

RoFRaS Rating

- Very Low
- Low
- Medium
- High

7 Flooding

7.1 River and Coastal Zone 2 Flooding

Environment Agency/Natural Resources Wales Zone 2 floodplain within 250m — Identified

Environment Agency/Natural Resources Wales Zone 2 floodplains estimate the annual probability of flooding as between 1 in 1000 (0.1%) and 1 in 100 (1%) from rivers and between 1 in 1000 (0.1%) and 1 in 200 (0.5%) from the sea. Any relevant data is represented on Map 7a – Flood Map for Planning:

ID	Distance (m)	Direction	Update	Type
1	0	On Site	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
2	0	On Site	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
3	0	On Site	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
4	1	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
5	22	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
6	23	W	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
7	42	SW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
8	74	N	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
9	89	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
10	103	SE	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
11	104	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
12	130	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
13	139	W	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
14	146	NE	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
15	149	SE	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
16	161	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
17	162	N	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
18	174	SW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
19	178	S	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)

20	182	E	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
21	186	NW	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
22	199	E	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
23	207	SE	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
24	218	SE	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)
25	238	SE	09-Sep-2019	Zone 2 - (Fluvial /Tidal Models)

7.2 River and Coastal Zone 3 Flooding

Environment Agency/Natural Resources Wales Zone 3 floodplain within 250m — Identified

Zone 3 shows the extent of a river flood with a 1 in 100 (1%) or greater chance of occurring in any year or a sea flood with a 1 in 200 (0.5%) or greater chance of occurring in any year. Any relevant data is represented on Map 7a – Flood Map for Planning.

ID	Distance (m)	Direction	Update	Type
1	0	On Site	09-Sep-2019	Zone 3 - (Fluvial Models)

7.3 Risk of Flooding from Rivers and the Sea (RoFRaS) Flood Rating

Highest risk of flooding onsite — High

The Environment Agency/Natural Resources Wales RoFRaS database provides an indication of river and coastal flood risk at a national level on a 50m grid with the flood rating at the centre of the grid calculated and given above. The data considers the probability that the flood defences will overtop or breach by considering their location, type, condition and standard of protection.

RoFRaS data for the study site indicates the property is in an area with a High (1 in 30 or greater) chance of flooding in any given year.

Any relevant data within 250m is represented on the RoFRaS Flood map. Data to 50m is reported in the table below.

ID	Distance (m)	Direction	RoFRas flood Risk
1	0.0	On Site	Low
2	0.0	On Site	High
3	0.0	On Site	Medium
4	1.0	NW	Medium
5	10.0	S	Medium
6	21.0	E	Low
7	36.0	NW	High
8	39.0	E	Low

7.4 Flood Defences

Flood Defences within 250m of the study site — None identified

Database searched and no data found.

7.5 Areas benefiting from Flood Defences

Areas benefiting from Flood Defences within 250m of the study site — None identified

7.6 Areas benefiting from Flood Storage

Areas used for Flood Storage within 250m of the study site — None identified

7.7 Groundwater Flooding Susceptibility Areas

7.7.1 British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site — None identified

Notes: Groundwater flooding may either be associated with shallow unconsolidated sedimentary aquifers which overlie unproductive aquifers (Superficial Deposits Flooding), or with unconfined aquifers (Clearwater Flooding).

7.7.2 Highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions

Not Prone

The area is not considered to be prone to groundwater flooding based on rock type.

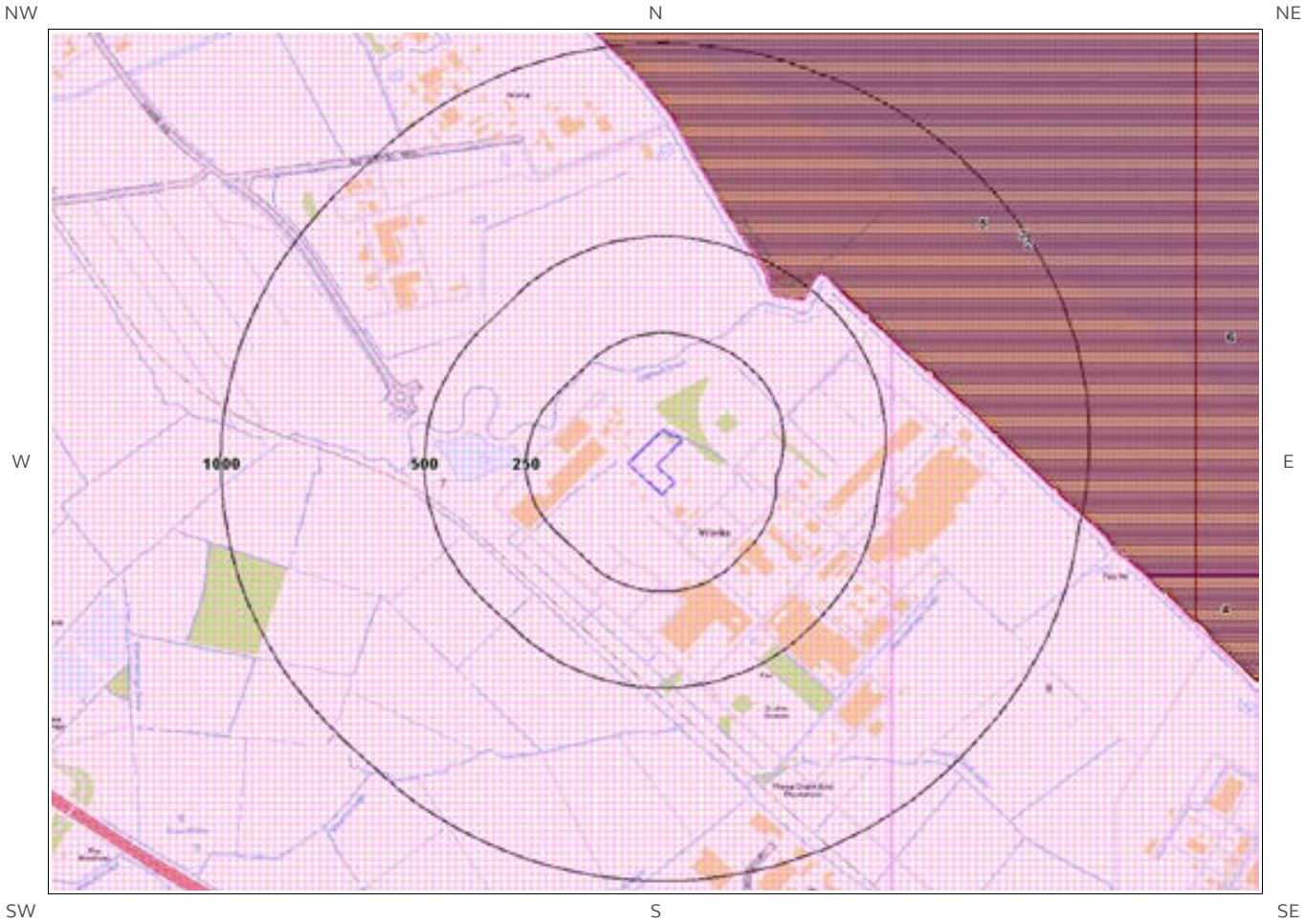
7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result — Not Applicable

Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a relatively lower level of confidence the susceptibility result should be treated with more caution. In other areas with higher levels of confidence the susceptibility result can be used with more confidence.

8. Designated Environmentally Sensitive Sites Map



8. Designated Environmentally Sensitive Sites

Designated Environmentally Sensitive Sites within 2000m of the study site | Identified

8.1 Records of Sites of Special Scientific Interest (SSSI) within 2000m of the study site:

2

The following Site of Special Scientific Interest (SSSI) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SSSI Name	Data Source
3	431	NE	Humber Estuary	Natural England
4	1185	E	Humber Estuary	Natural England

8.2 Records of National Nature Reserves (NNR) within 2000m of the study site:

0

Database searched and no data found.

8.3 Records of Special Areas of Conservation (SAC) within 2000m of the study site:

1

The following Special Area of Conservation (SAC) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SAC Name	Data Source
1	431	NE	Humber Estuary	Natural England

8.4 Records of Special Protection Areas (SPA) within 2000m of the study site:

1

The following Special Protection Area (SPA) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	SPA Name	Data Source
2	431	NE	Humber Estuary	Natural England

8.5 Records of Ramsar sites within 2000m of the study site:

2

The following Ramsar records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	Ramsar Site Name	Ramsar Site Status	Data Source
5	431	NE	Humber Estuary	Listed	Natural England
6	1262	E	Humber Estuary	Listed	Natural England

8.6 Records of Ancient Woodland within 2000m of the study site:

0

Database searched and no data found.

8.7 Records of Local Nature Reserves (LNR) within 2000m of the study site:

0

Database searched and no data found.

8.8 Records of World Heritage Sites within 2000m of the study site:

0

Database searched and no data found.

8.9 Records of Environmentally Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.10 Records of Areas of Outstanding Natural Beauty (AONB) within 2000m of the study site:

0

Database searched and no data found.

8.11 Records of National Parks (NP) within 2000m of the study site:

0

Database searched and no data found.

8.12 Records of Nitrate Sensitive Areas within 2000m of the study site:

0

Database searched and no data found.

8.13 Records of Nitrate Vulnerable Zones within 2000m of the study site:

4

The following Nitrate Vulnerable Zone records produced by DEFRA are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	NVZ Name	Data Source
7	0	On Site	Existing	DEFRA
8	513	E	Existing	DEFRA
Not shown	1441	S	Changed	DEFRA
Not shown	1974	SE	Changed	DEFRA

8.14 Records of Green Belt land within 2000m of the study site:

0

Database searched and no data found.

9. Natural Hazards Findings

9.1 Detailed BGS GeoSure Data

BGS GeoSure Data has been searched to 50m. The data is included in tabular format. If you require further information on geology and ground stability, please obtain a Groundsure Geo Insight, available from our website. The following information has been found:

9.1.1 Shrink Swell

Maximum Shrink-Swell*[*] hazard rating identified on the study site — Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

9.1.2 Landslides

Maximum Landslide* hazard rating identified on the study site — Very Low

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Slope instability problems are unlikely to be present. No special actions required to avoid problems due to landslides. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with landslides.

9.1.3 Soluble Rocks

Maximum Soluble Rocks* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Soluble rocks are present, but unlikely to cause problems except under exceptional conditions. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with soluble rocks.

* This indicates an automatically generated 50m buffer and site.

9.1.4 Compressible Ground

Maximum Compressible Ground* hazard rating identified on the study site — Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant potential for compressibility problems. Avoid large differential loadings of ground. Do not drain or de-water ground near the property without technical advice. For new build consider possibility of compressible ground in ground investigation, construction and building design. Consider effects of groundwater changes. Extra construction costs are likely. For existing property possible increase in insurance risk from compressibility, especially if water conditions or loading of the ground change significantly.

9.1.5 Collapsible Rocks

Maximum Collapsible Rocks* hazard rating identified on the study site — Negligible

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

9.1.6 Running Sand

Maximum Running Sand** hazard rating identified on the study site — Moderate

The following natural subsidence information provided by the British Geological Survey is not represented on mapping:

Hazard
Significant potential for running sand problems with relatively small changes in ground conditions. Avoid large amounts of water entering the ground (for example through pipe leakage or soak-aways). Do not dig (deep) holes into saturated ground near the property without technical advice. For new build consider the consequences of soil and groundwater conditions during and after construction. For existing property possible increase in insurance risk from running sand, for example, due to water leakage, high rainfall events or flooding.

* This indicates an automatically generated 50m buffer and site.

9.2 Radon

9.2.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

9.2.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing
ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

10. Mining

10.1 Coal Mining

Coal mining areas within 75m of the study site — None identified

Database searched and no data found.

10.2 Non-Coal Mining

Non-Coal Mining areas within 50m of the study site boundary — None identified

Database searched and no data found.

10.3 Brine Affected Areas

Brine affected areas within 75m of the study site — None identified
Guidance: No Guidance Required.

Contact Details

Groundsure Helpline
Telephone: 08444 159 000
info@groundsure.com

British Geological Survey Enquiries
Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries:
enquiries@bgs.ac.uk

Environment Agency
National Customer Contact Centre, PO Box 544
Rotherham, S60 1BY
Tel: 03708 506 506
Web: **www.environment-agency.gov.uk**
Email: enquiries@environment-agency.gov.uk

Public Health England
Public information access office
Public Health England, Wellington House
133-155 Waterloo Road, London, SE1 8UG
www.gov.uk/phe
Email:**enquiries@phe.gov.uk**
Main switchboard**: 020 7654 8000**

The Coal Authority
200 Lichfield Lane
Mansfield
Notts NG18 4RG
Tel: 0345 7626 848
DX 716176 Mansfield 5
www.coal.gov.uk

Ordnance Survey
Adanac Drive, Southampton
SO16 0AS
Tel: 08456 050505

Local Authority
Authority: North East Lincolnshire Council
Phone: 01472 313 131
Web: http://www.nelincs.gov.uk/
Address: Municipal Offices, Town Hall Square, Grimsby, North

Gemapping PLC
Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444

Standard Terms and Conditions

Groundsure's Terms and Conditions can be viewed online at this link:

https://www.groundsure.com/terms-and-conditions-feb11-2019

Groundsure
LOCATION INTELLIGENCE

Rogers Geotechnical Services

Barncliffe Mills, NEAR BANK,
HUDDERSFIELD, HD8 8LU

Groundsure Reference:	GS-6461194
Your Reference:	C177_19_E_268_PO-0440
Report Date	13 Nov 2019
Report Delivery Method:	Email - pdf

Geo Insight

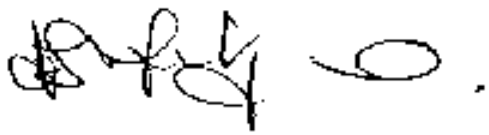
Address: LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Dear Sir/ Madam,

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

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

Yours faithfully,



Managing Director
Groundsure Limited

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT**
Date:	**13 Nov 2019**
Reference:	**GS-6461194**
Client:	**Rogers Geotechnical Services**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	21-Apr-2016
Grid Reference:	523477,412690
Site Size:	0.9885ha

Contents Page

Overview of Findings

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

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

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

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

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	No

Section 3: Radon

3. Radon	3.1Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
	3.2Radon Protection	No radon protective measures are necessary.

Section 4: Ground Workings	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	0	0	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	0	0	0

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

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

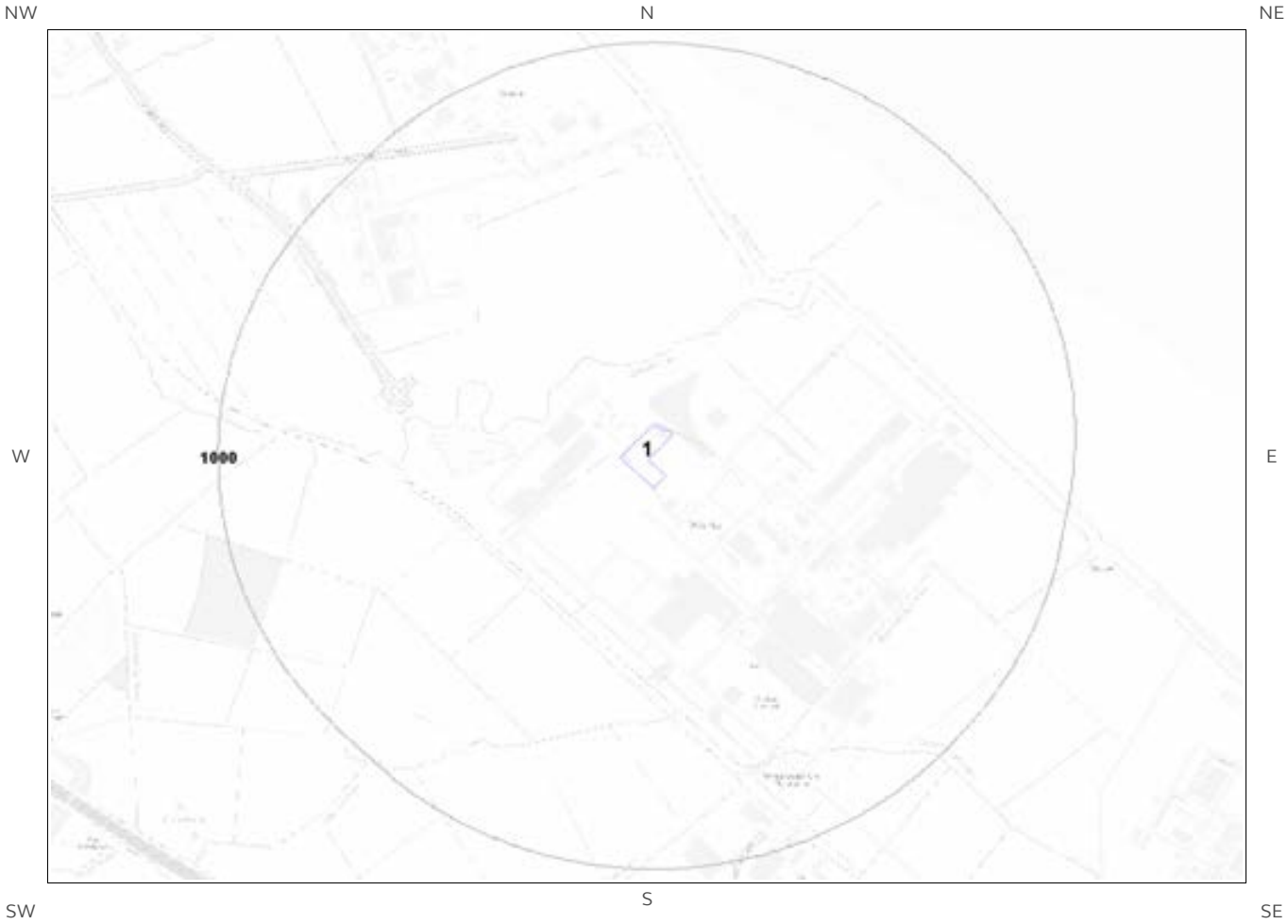
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Low
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Negligible
6.4 Compressible Deposits	Moderate
6.5 Collapsible Deposits	Negligible
6.5 Running Sand	Moderate

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

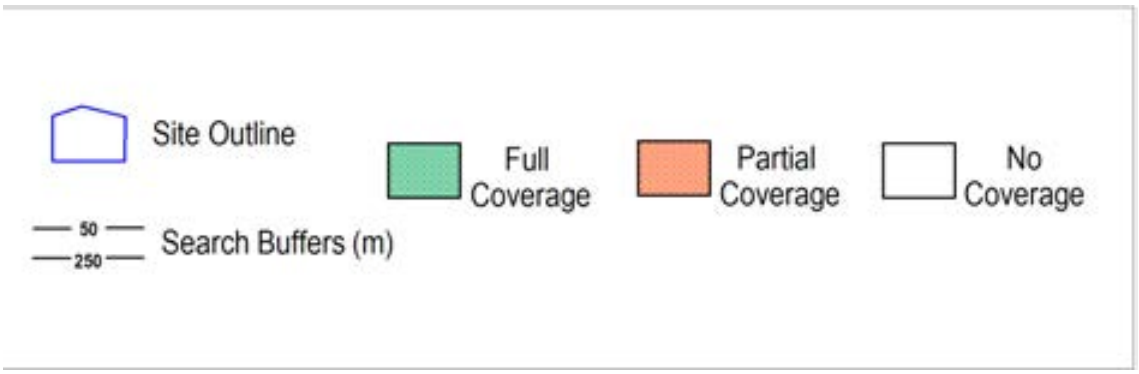
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250
8 Records of Background Soil Chemistry	2	0	0

Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500
9.1 Tunnels	0	0	0	Not Searched
9.2 Historical Railway and Tunnel Features	4	1	0	Not Searched
9.3 Historical Railways	0	0	0	Not Searched
9.4 Active Railways	0	0	0	Not Searched
9.5 Railway Projects	0	0	0	0

1:10,000 Scale Availability



1_10,000 Availability Legend



Availability of 1:10,000 Scale Geology Mapping

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

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

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

The definitions of coverage are as follows:

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

1 Geology (1:10,000 scale).

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

Artificial Ground Legend

1. Geology 1:10,000 scale

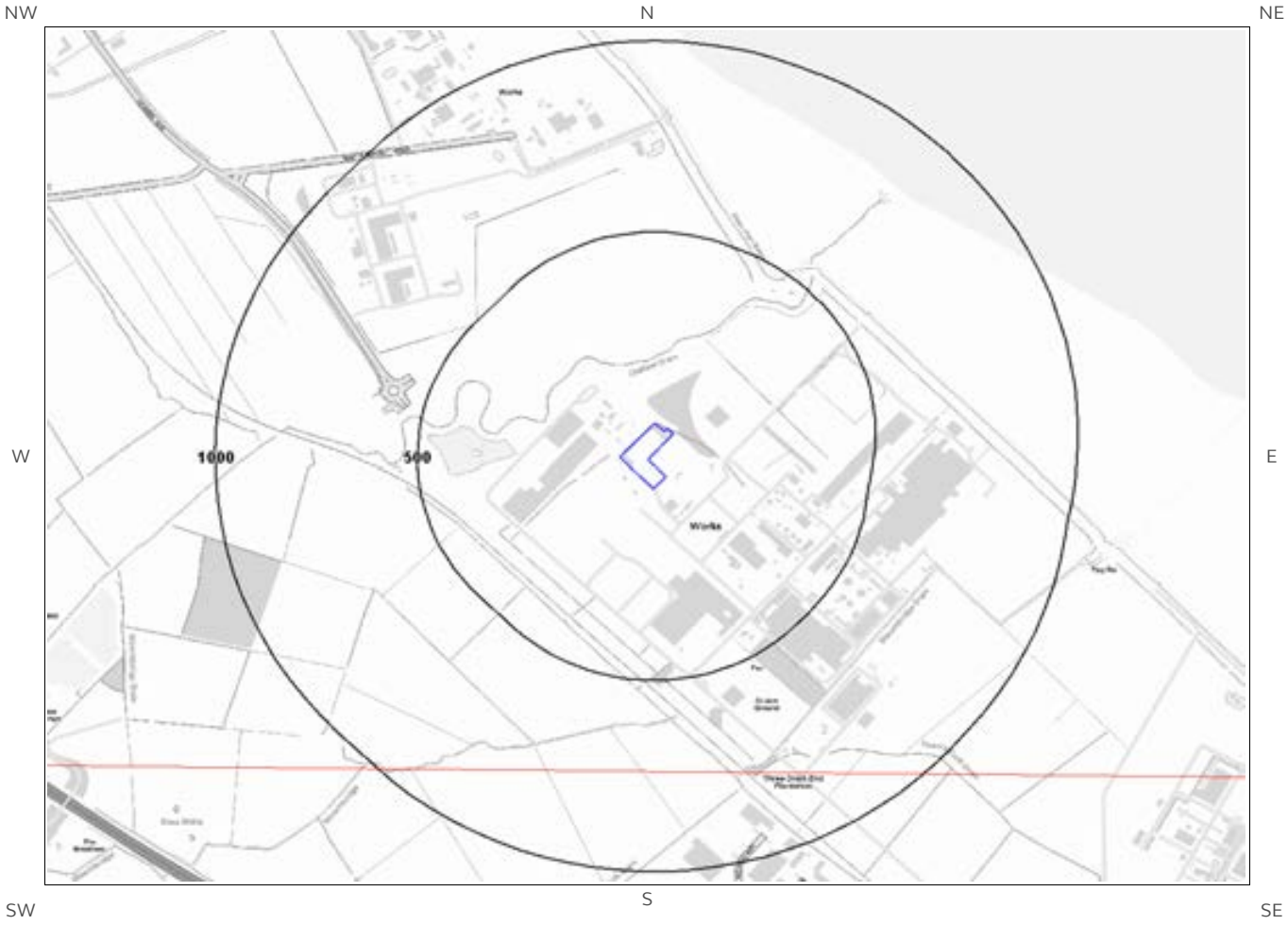
1.1 Artificial Ground

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

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

Database searched and no data found.

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



Artificial Ground Legend

Site Outline

500
1000
Search Buffers (m)

1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

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

Database searched and no data found.

1.2.2 Landslip

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

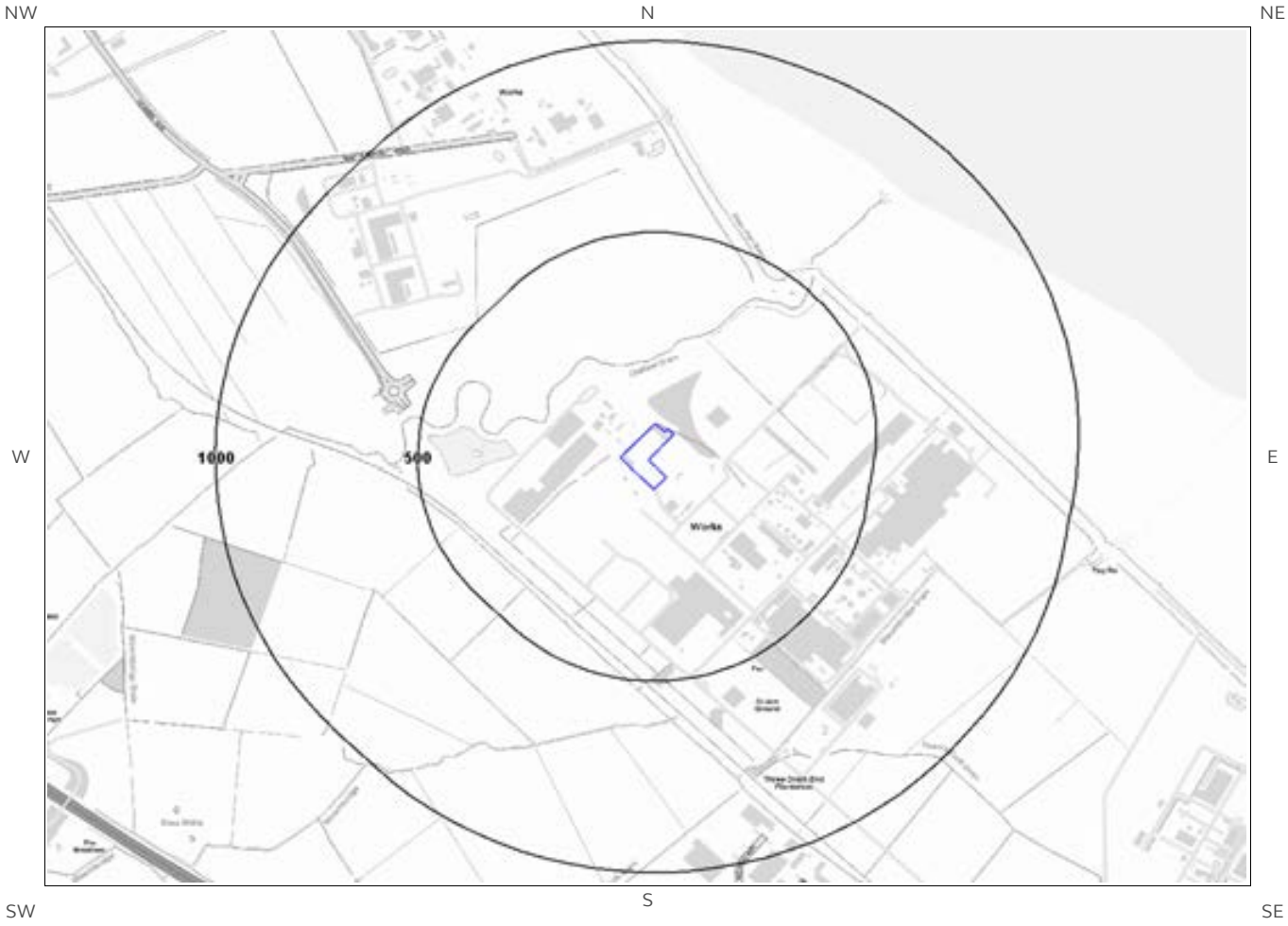
No

Database searched and no data found.

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

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

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



Bedrock and linear features Legend

Site Outline

500
1000
Search Buffers (m)

1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

Database searched and no data found at this scale.

1.3.2 Linear features

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

Database searched and no data found at this scale.

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

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

---

2 Geology 1:50,000 Scale

2.1 Artificial Ground map

Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Worked Ground (undivided)

Infilled Ground

Disturbed Ground (undivided)

Landscaped Ground (undivided)

Reclaimed Ground

2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 081

2.1.1 Artificial/ Made Ground

Are there any records of Artificial/ Made Ground within 500m of the study site boundary? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	257.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
3	286.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
4	410.0	NE	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
5	412.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
6	459.0	E	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

2.1.2 Permeability of Artificial Ground

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

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

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

Site Outline

500
1000
Search Buffers (m)

2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT
2	443.0	NE	BTFU-XCZS	BEACH AND TIDAL FLAT DEPOSITS (UNDIFFERENTIATED)	CLAY, SILT AND SAND

2.2.2 Permeability of Superficial Ground

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

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

2.2.3 Landslip

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

Database searched and no data found.

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

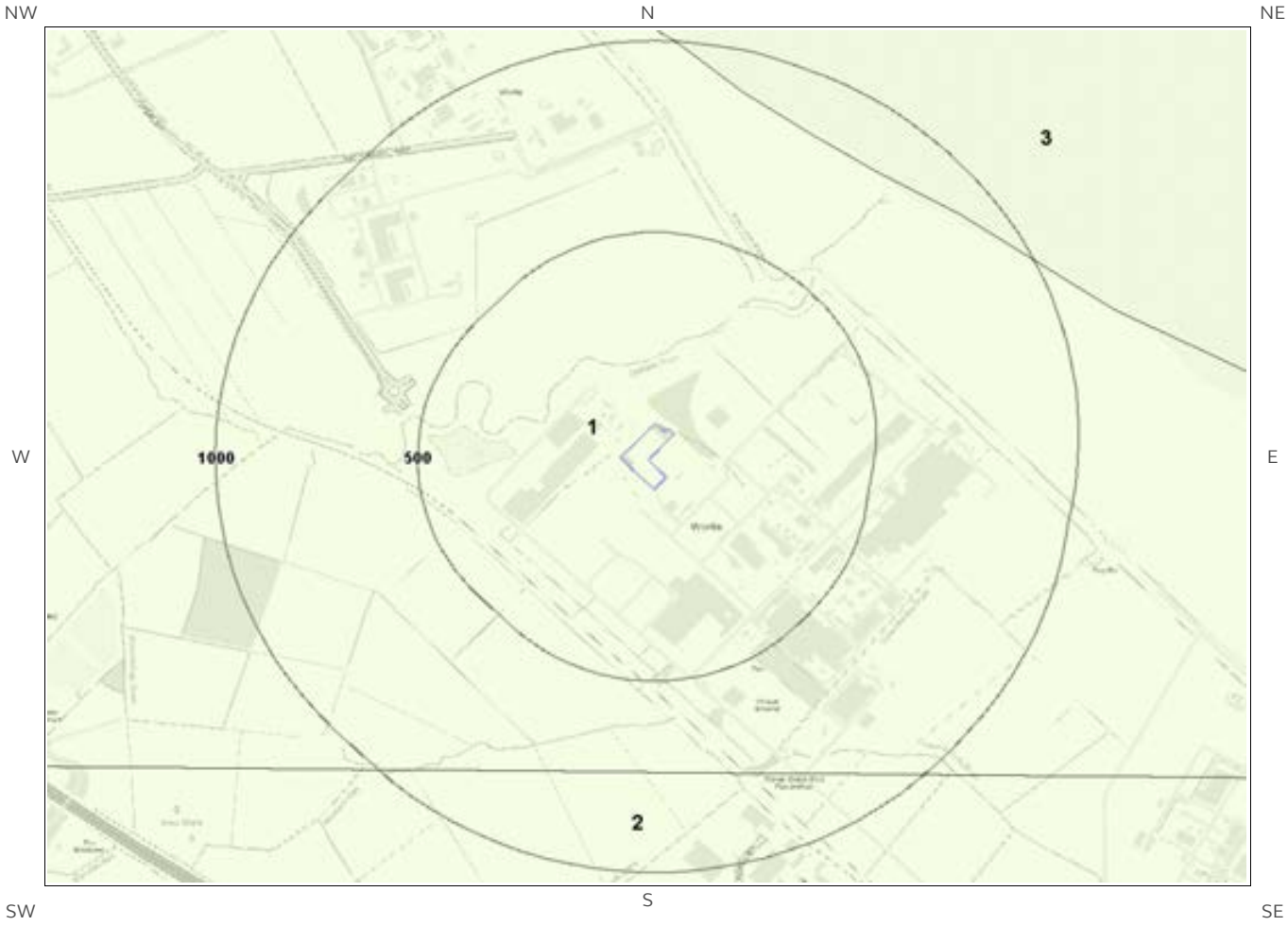
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

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

Database searched and no data found.

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



Site Outline

500
1000
Search Buffers (m)

2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 081

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	FCK-CHLK	FLAMBOROUGH CHALK FORMATION - CHALK	SANTONIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Fracture	Very High	Very High

2.3.3 Linear features

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

Database searched and no data found.

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

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

3 Radon Data

3.1 Radon Affected Areas

Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level? The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

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

3.2 Radon Protection

Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

---

4 Ground Workings map

Ground Workings Legend

Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

Are there any Historical Surface Ground Working Features within 250m of the study site boundary? No

Database searched and no data found.

4.2 Historical Underground Working Features derived from Historical Mapping

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

Are there any Historical Underground Working Features within 1000m of the study site boundary? No

Database searched and no data found.

4.3 Current Ground Workings

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

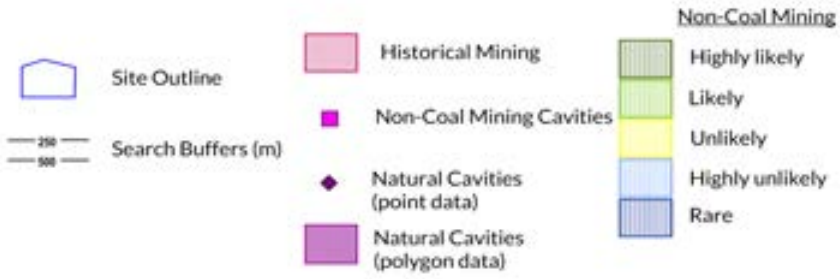
Are there any BGS Current Ground Workings within 1000m of the study site boundary? No

Database searched and no data found.

---

5 Mining, Extraction & Natural Cavities map

Mining, Extraction and Natural Cavities Legend



5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

Database searched and no data found.

5.2 Coal Mining

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

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

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

Distance (m)	Direction	Details
470.0	NE	The site lies in or in proximity to the coal mining reporting area as defined by the Coal Authority

5.3 Johnson Poole and Bloomer

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

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

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

5.4 Non-Coal Mining

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

Are there any Non-Coal Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.5 Non-Coal Mining Cavities

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

Are there any Non-Coal Mining cavities within 1000m of the study site boundary? No

Database searched and no data found.

5.6 Natural Cavities

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

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

Database searched and no data found.

5.7 Brine Extraction

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

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

Database searched and no data found.

5.8 Gypsum Extraction

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

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

Database searched and no data found.

5.9 Cornwall and Devon Metalliferous Mining

This dataset provides information on metalliferous mining areas in Cornwall/Devon and is derived from records held by Mining Searches UK.

Are there any Cornwall and Devon Metalliferous Mining areas within 1000m of the study site boundary? No

Database searched and no data found.

5.10 Clay Mining

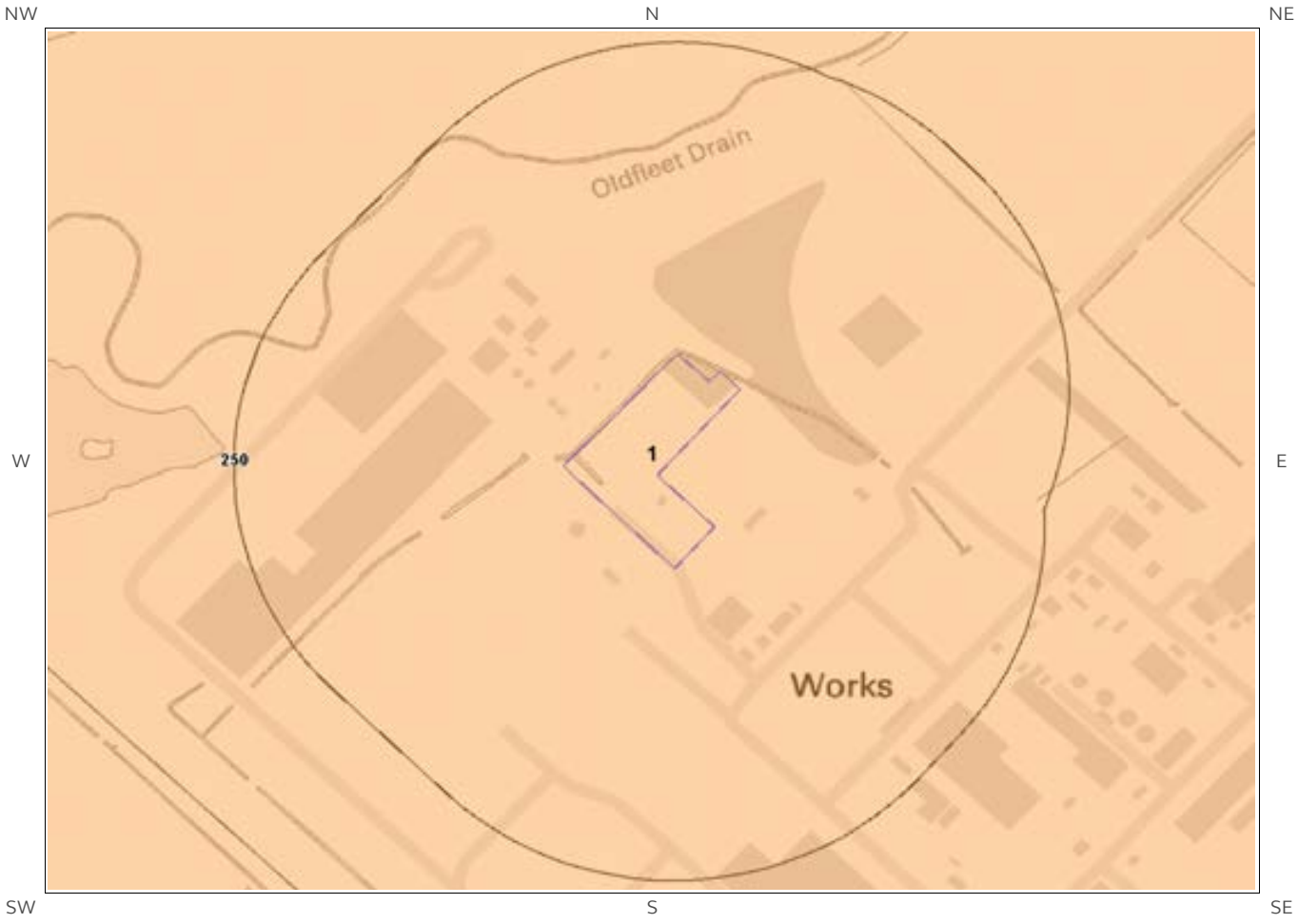
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

Database searched and no data found.

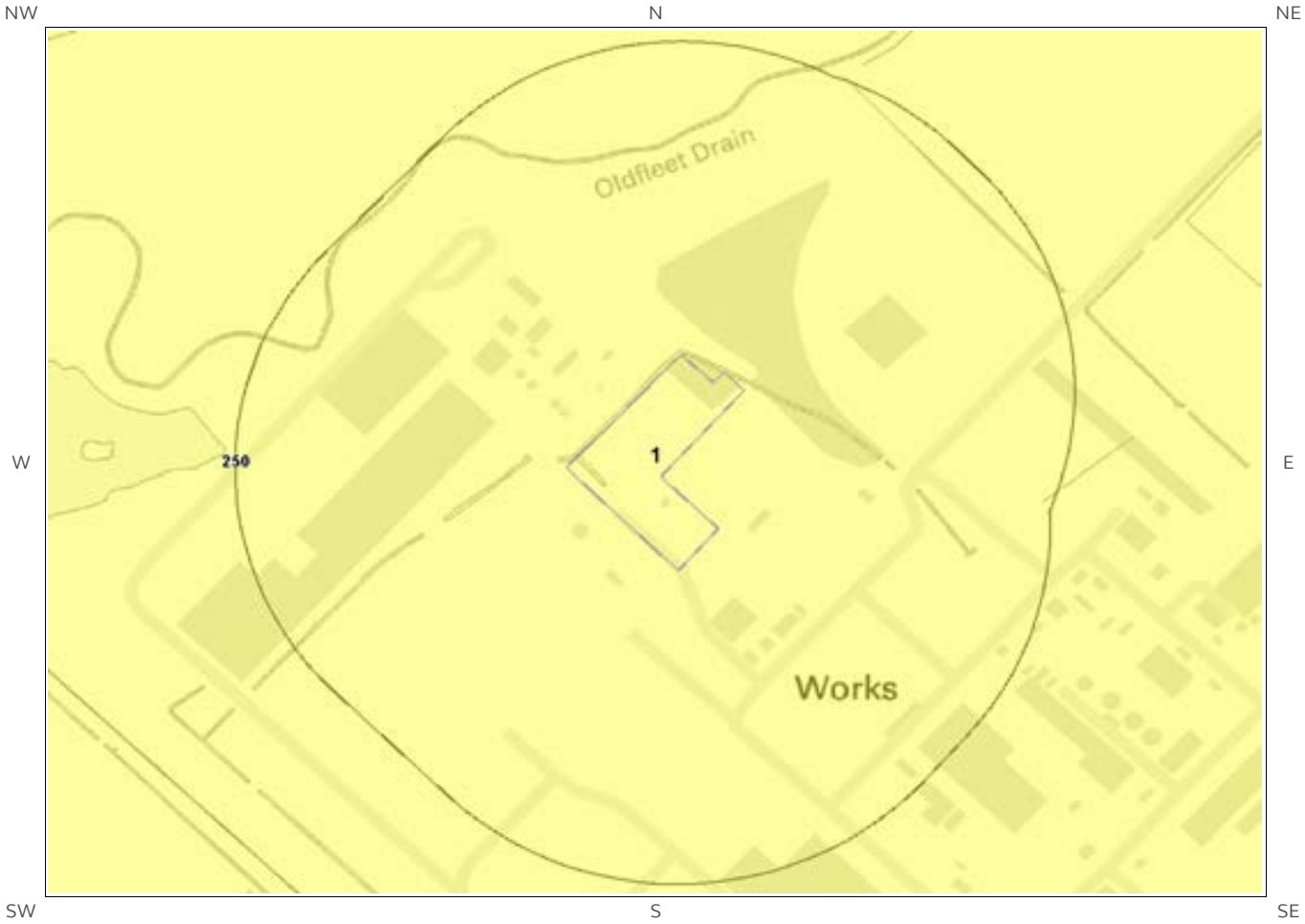
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map



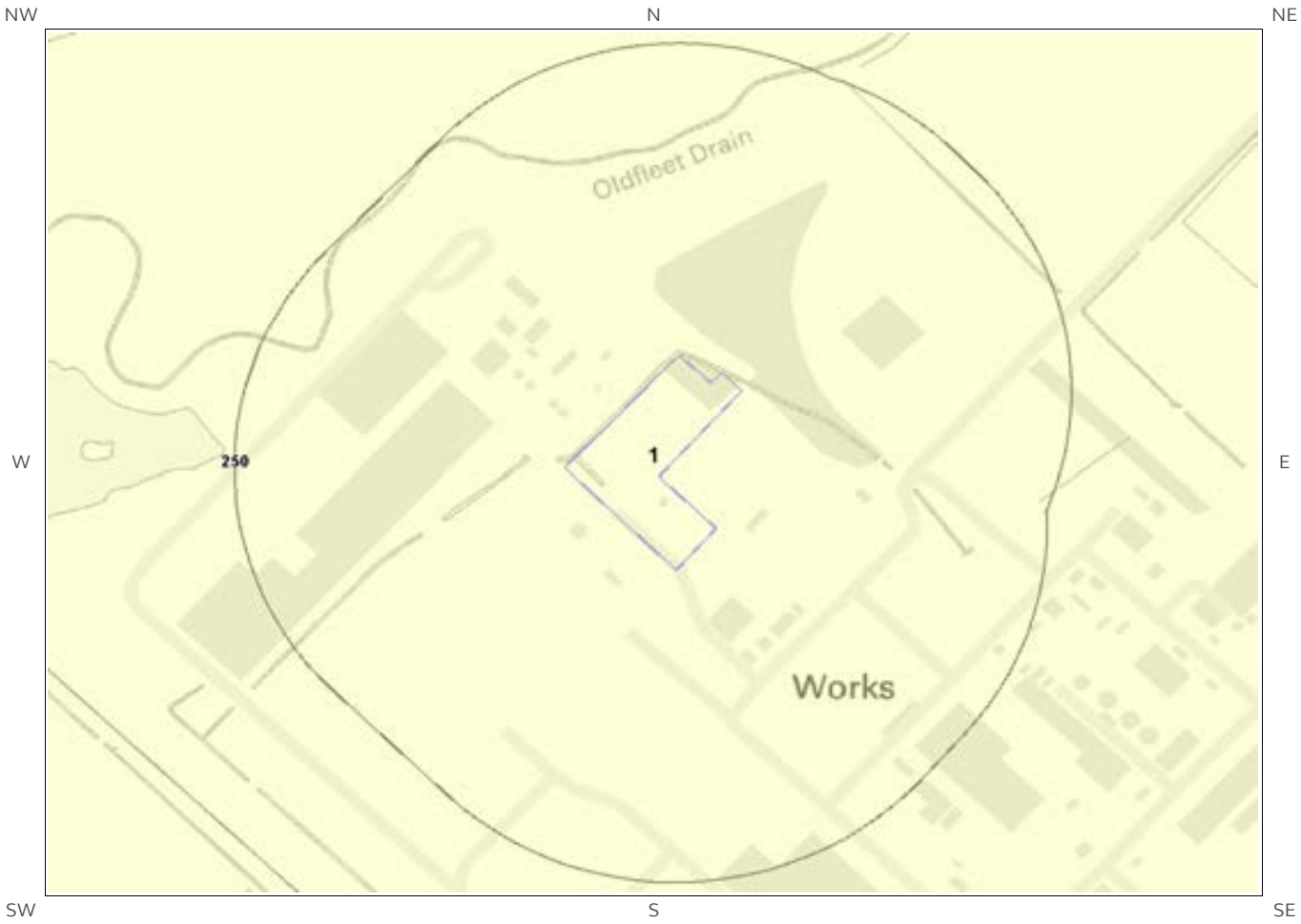
Shrink Swell Clay Legend

6.2 Landslides map



Landslides Legend

6.3 Ground Dissolution of Soluble Rocks map

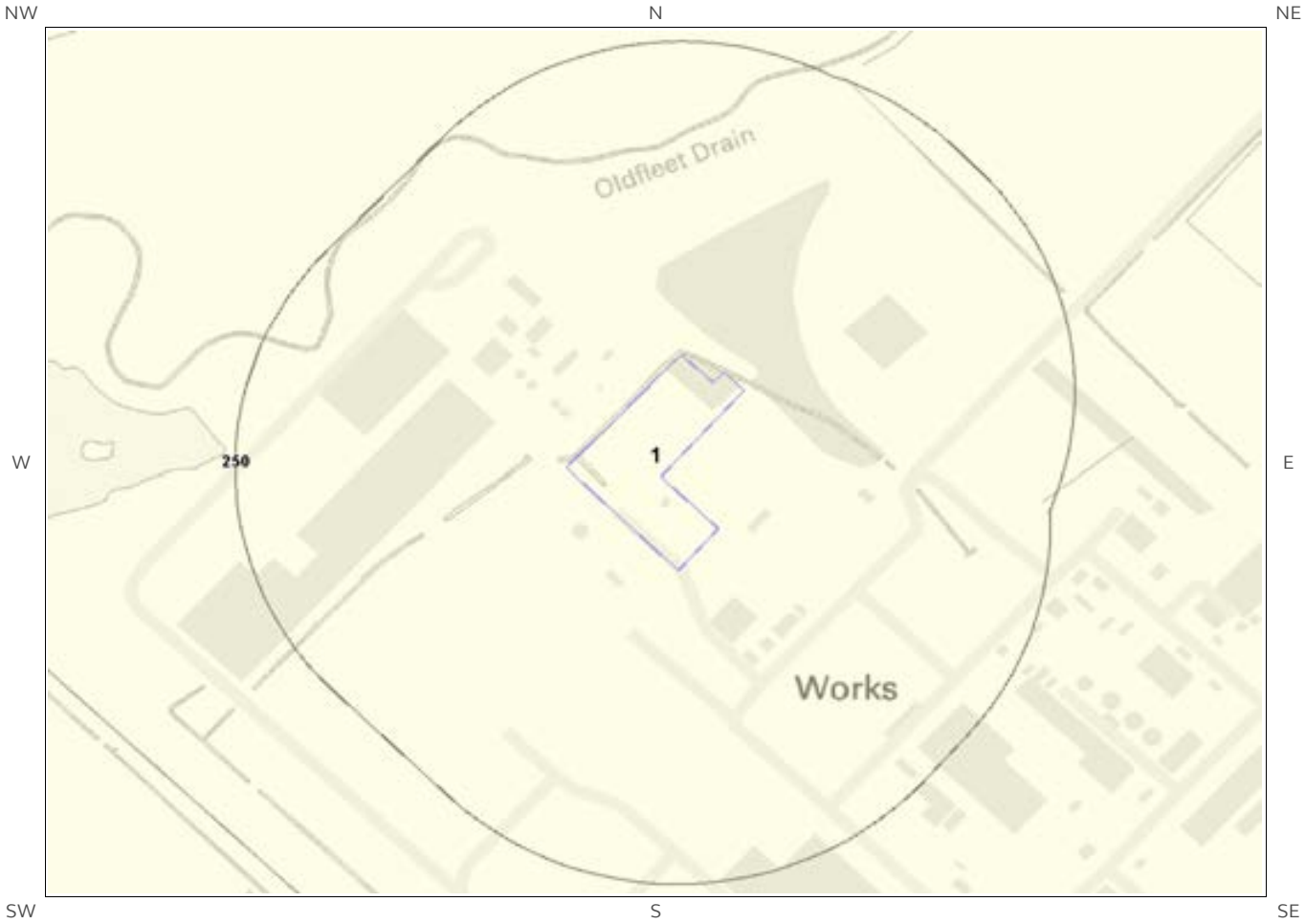


Ground Dissolution Soluble Rocks Legend

6.4 Compressible Deposits map

Compressible Deposits Legend

6.5 Collapsible Deposits map



Collapsible Deposits Legend

6.6 Running Sand map

Running Sand Legend

6 Natural Ground Subsidence

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

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

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

6.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink-swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.

6.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

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

6.3 Ground Dissolution of Soluble Rocks

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

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

6.4 Compressible Deposits

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

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

6.5 Collapsible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

6.6 Running Sands

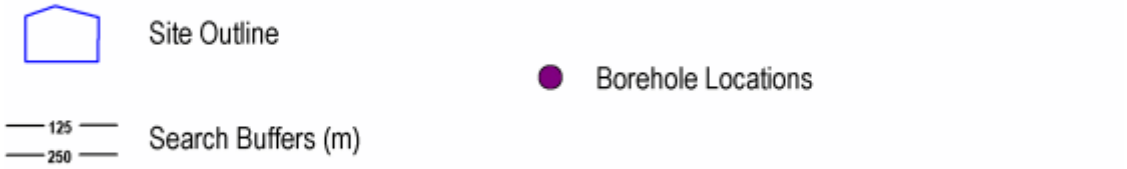
The following Running Sands information provided by the British Geological Survey:

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Very low potential for running sand problems if water table rises or if sandy strata are exposed to water. No special actions required, to avoid problems due to running sand. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with running sand.

ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Moderate	Significant potential for running sand problems with relatively small changes in ground conditions. Avoid large amounts of water entering the ground (for example through pipe leakage or soak-aways). Do not dig (deep) holes into saturated ground near the property without technical advice. For new build - consider the consequences of soil and groundwater conditions during and after construction. For existing property - possible increase in insurance risk from running sand, for example, due to water leakage, high rainfall events or flooding.

7 Borehole Records map

Borehole Records Legend



7 Borehole Records

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

Records of boreholes within 250m of the study site boundary: 0

Database searched and no data found.

8 Estimated Background Soil Chemistry

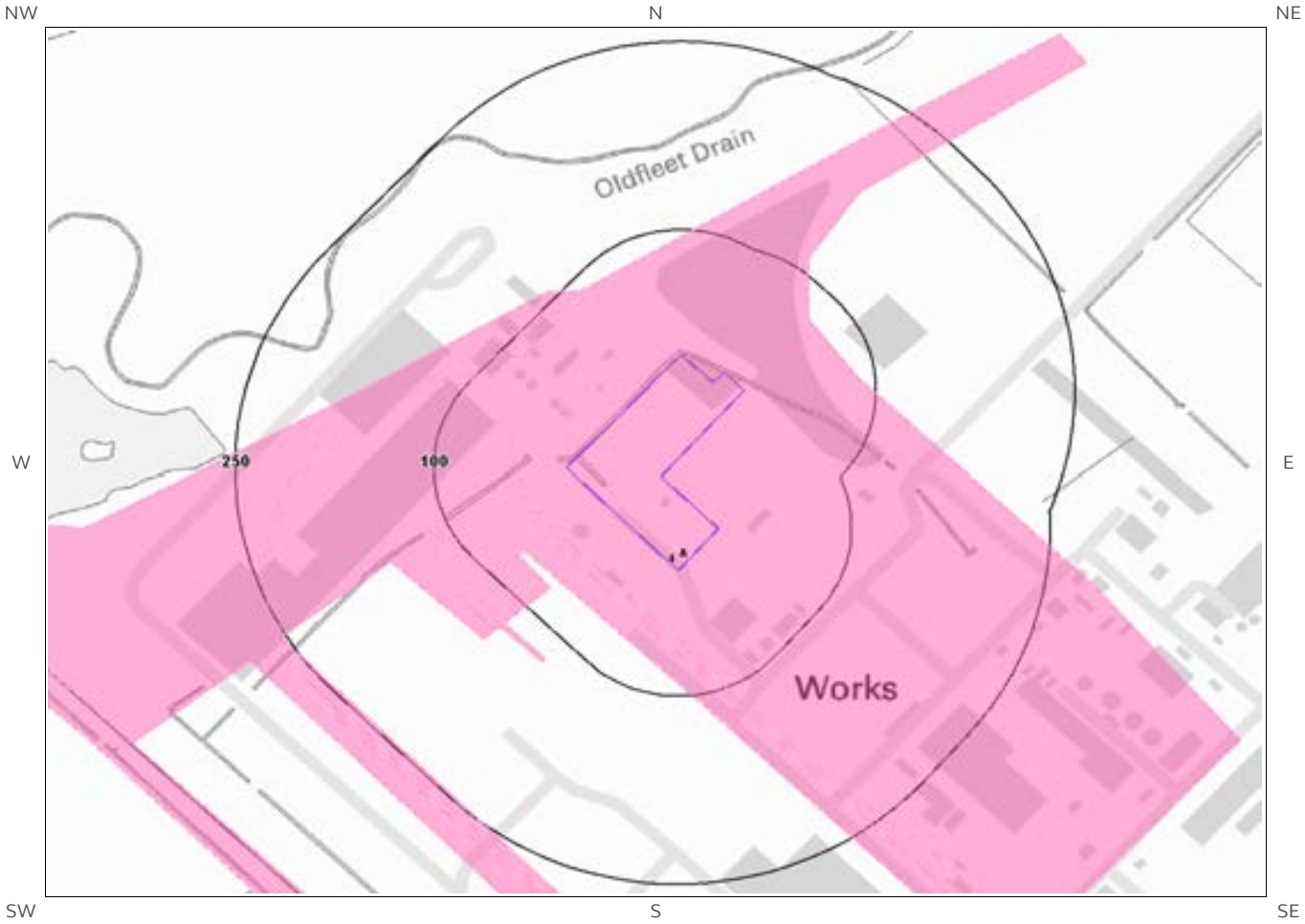
Records of background estimated soil chemistry within 250m of the study site boundary: 2

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

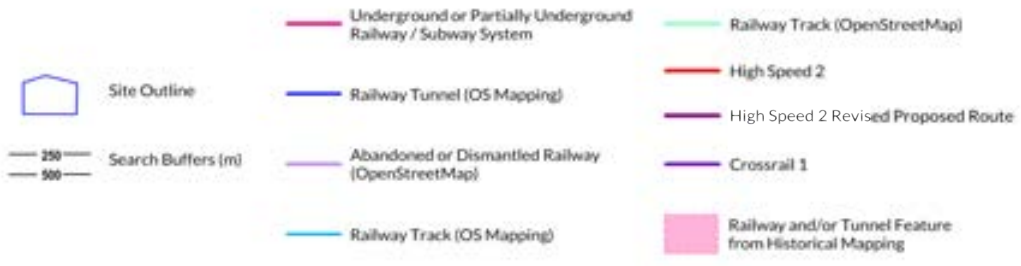
Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	30 - 45 mg/kg	<100 mg/kg

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

9 Railways and Tunnels map



Railways and Tunnels Legend



9 Railways and Tunnels

9.1 Tunnels

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

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

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

Database searched and no data found.

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

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

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

Have any other railway tunnels been identified within 250m of the site boundary? No

Database searched and no data found.

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

9.2 Historical Railway and Tunnel Features

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

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

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

ID	Distance (m)	Direction	NGR	Details	Date
1A	0	On Site	523398 412628	Railway Sidings	1988
2A	0	On Site	523398 412628	Railway Sidings	1980
3A	0	On Site	523398 412628	Railway Sidings	1968
4	0	On Site	521843 413610	Railway Sidings	1965
5	35	SW	523235 412544	Railway Sidings	1964

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

9.3 Historical Railways

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

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

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

Database searched and no data found.

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

9.4 Active Railways

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

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

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

Database searched and no data found.

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

9.5 Railway Projects

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

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

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

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

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

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

Contact Details

Groundsure Helpline

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info@groundsure.com

British Geological Survey Enquiries

Kingsley Dunham Centre
Keyworth, Nottingham NG12 5GG
Tel: 0115 936 3143.
Fax: 0115 936 3276.
Email:**enquiries@bgs.ac.uk**
Web:**www.bgs.ac.uk**
BGS Geological Hazards Reports and general geological enquiries

British Gypsum

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The Coal Authority

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Mansfield
Notts NG18 4RG
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DX 716176 Mansfield 5
www.coal.gov.uk

Public Health England

Public information access office
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133-155 Waterloo Road, London, SE1 8UG
https://www.gov.uk/government/organisations/public-health-england
Email: **enquiries@phe.gov.uk**
Main switchboard: 020 7654 8000

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Getmapping PLC

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

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

Standard Terms and Conditions

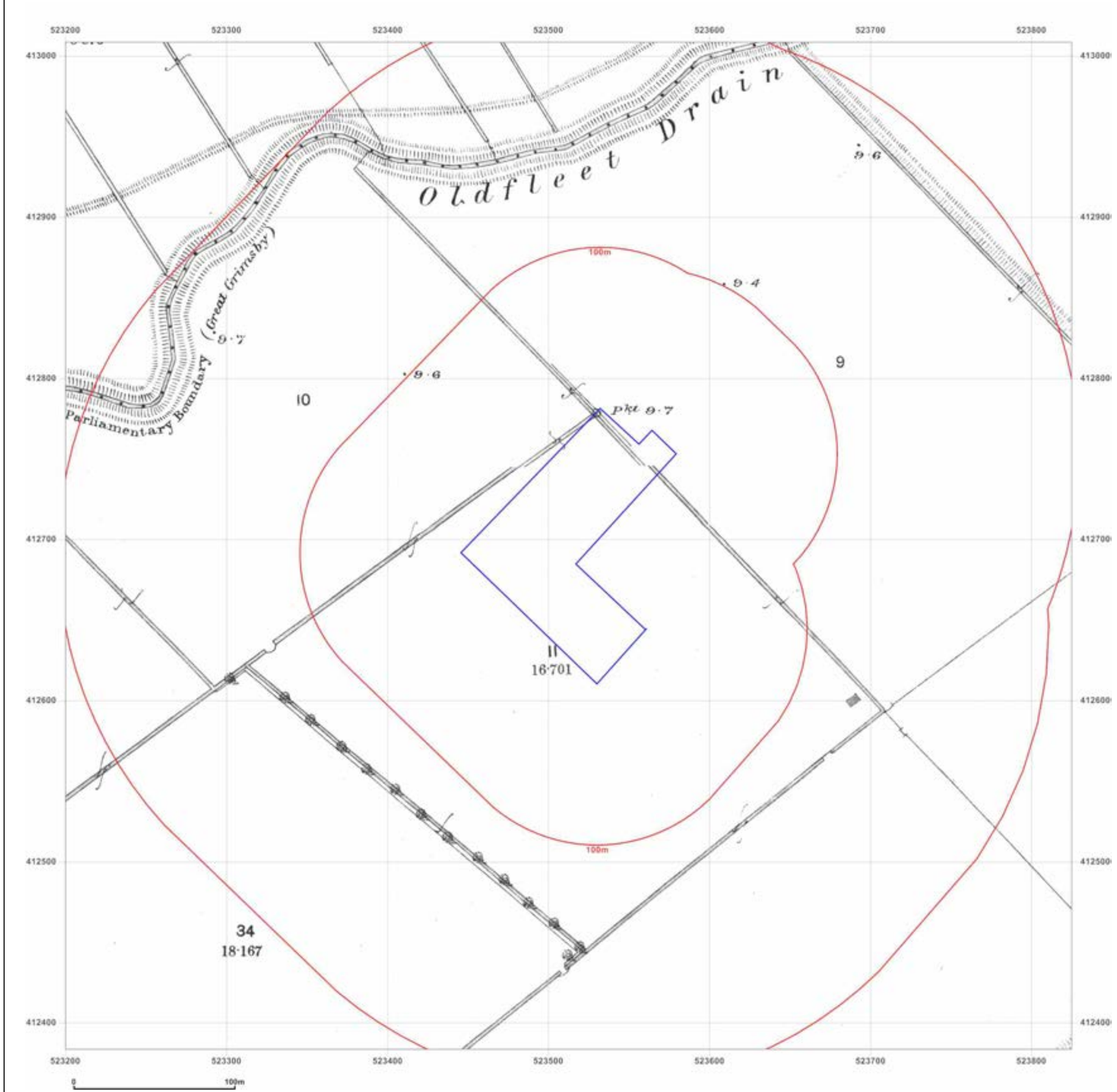
Groundsure's Terms and Conditions can be viewed online at this link:
https://www.groundsure.com/terms-and-conditions-feb11-2019

Environmental Geotechnical Specialists

RGS

Appendix 2

Historical Maps



Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series
Map date: **1888-1889**
Scale: 1:2,500
Printed at: 1:2,500

N
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Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

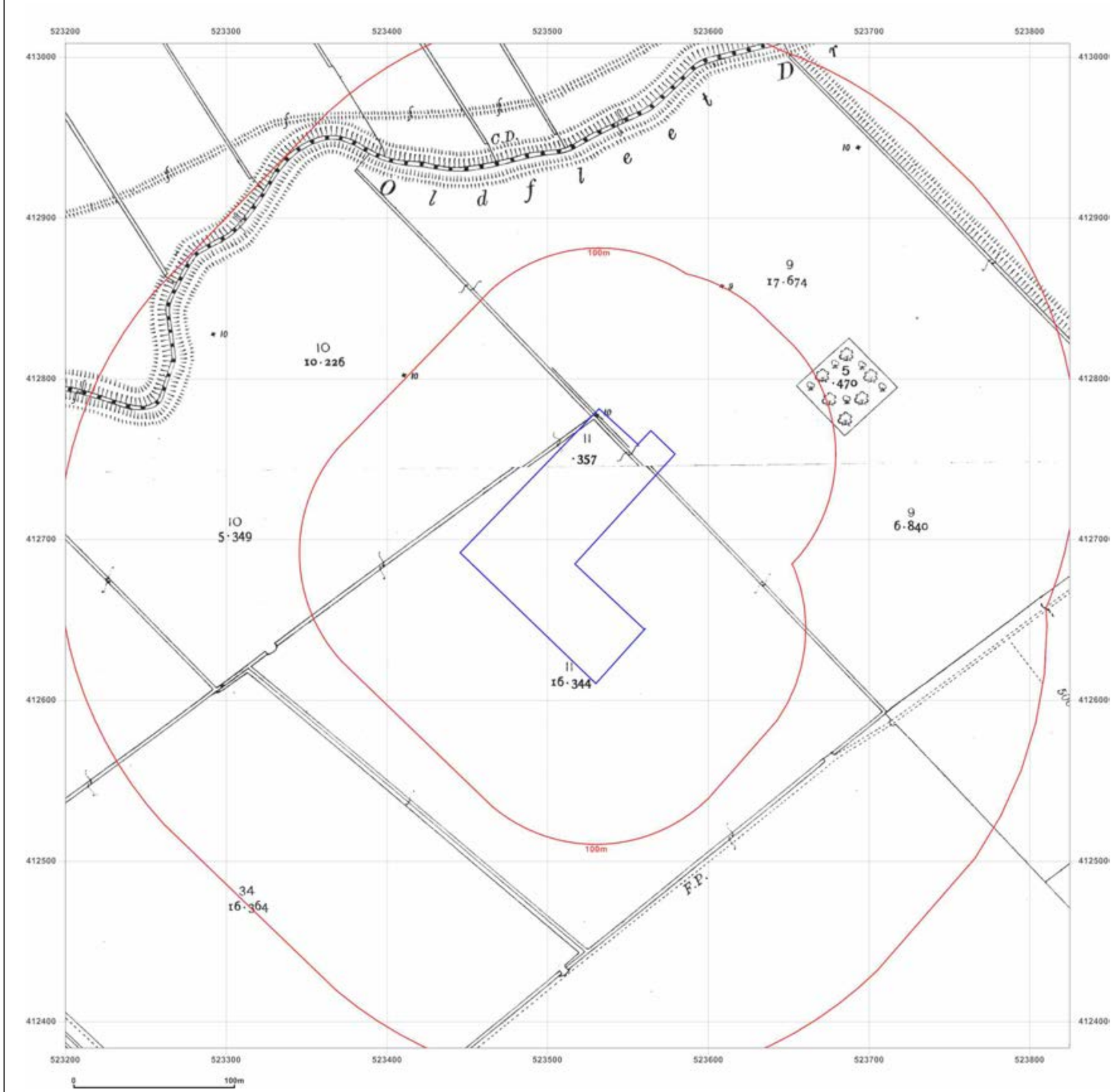
Surveyed 1889
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Powered by OS

Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 13 November 2019

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



Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series
Map date: 1932
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A

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W: www.groundsure.com

Production date: 13 November 2019

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

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: National Grid

Map date: **1964-1965**

Scale: 1:2,500

Printed at: 1:2,500

N
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Surveyed 1964
Revised 1964
Edition N/A
Copyright 1965
Levelled 1951

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

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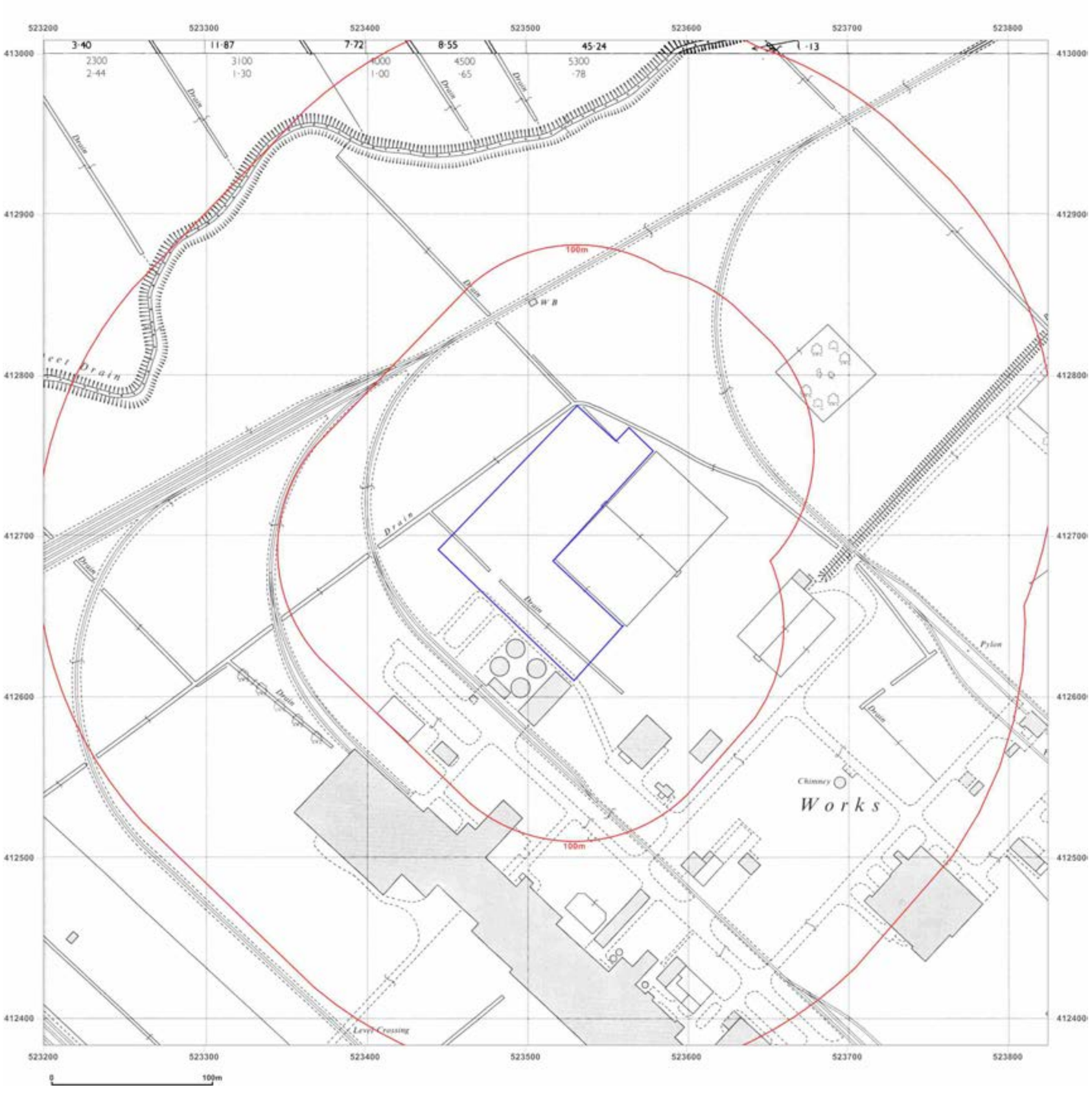
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 13 November 2019

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



Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: National Grid

Map date: **1964-1965**

Scale: 1:2,500

Printed at: 1:2,500

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

Surveyed 1964
Revised 1964
Edition N/A
Copyright 1965
Levelled 1951

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Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 13 November 2019

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

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: LandLine
Map date: **2003**
Scale: 1:1,250
Printed at: 1:1,250

N
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2003

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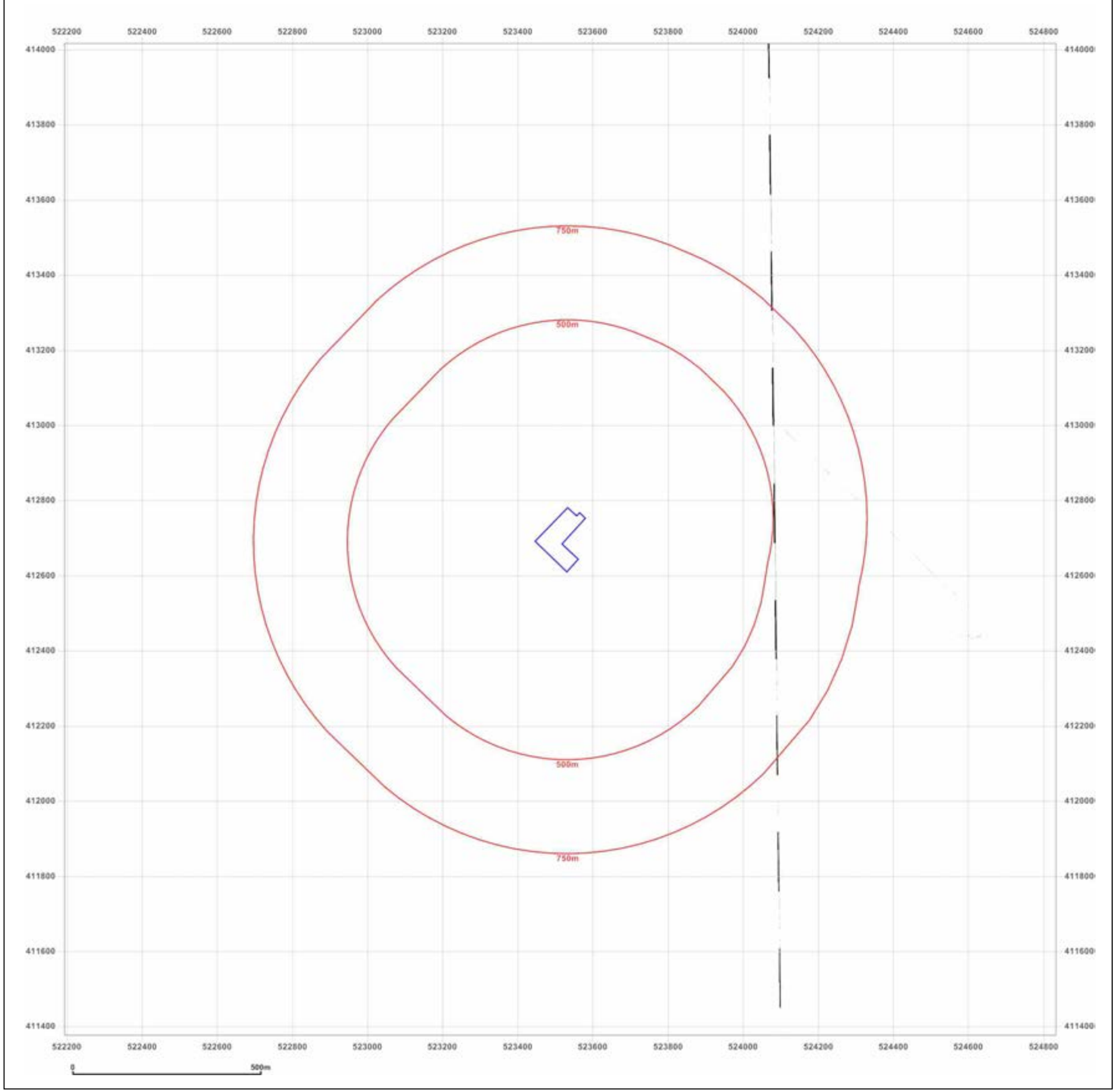
Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 13 November 2019

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



Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1854**

Scale: 1:10,560

Printed at: 1:10,560

N
W E
S

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

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Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

Production date: 13 November 2019

Map legend available at:
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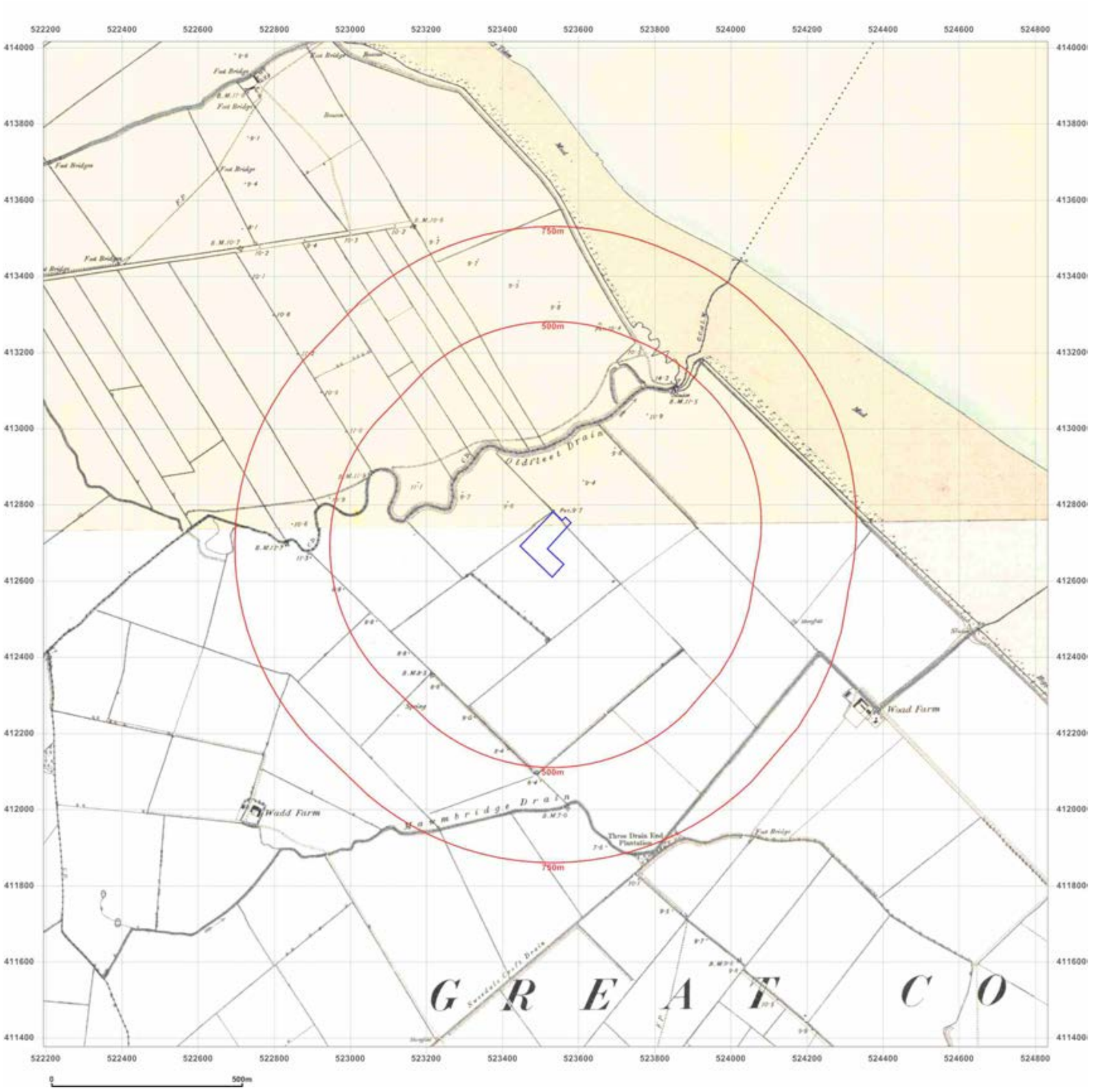

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1887**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1888
Revised N/A
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1887
Edition N/A
Copyright N/A
Levelled N/A

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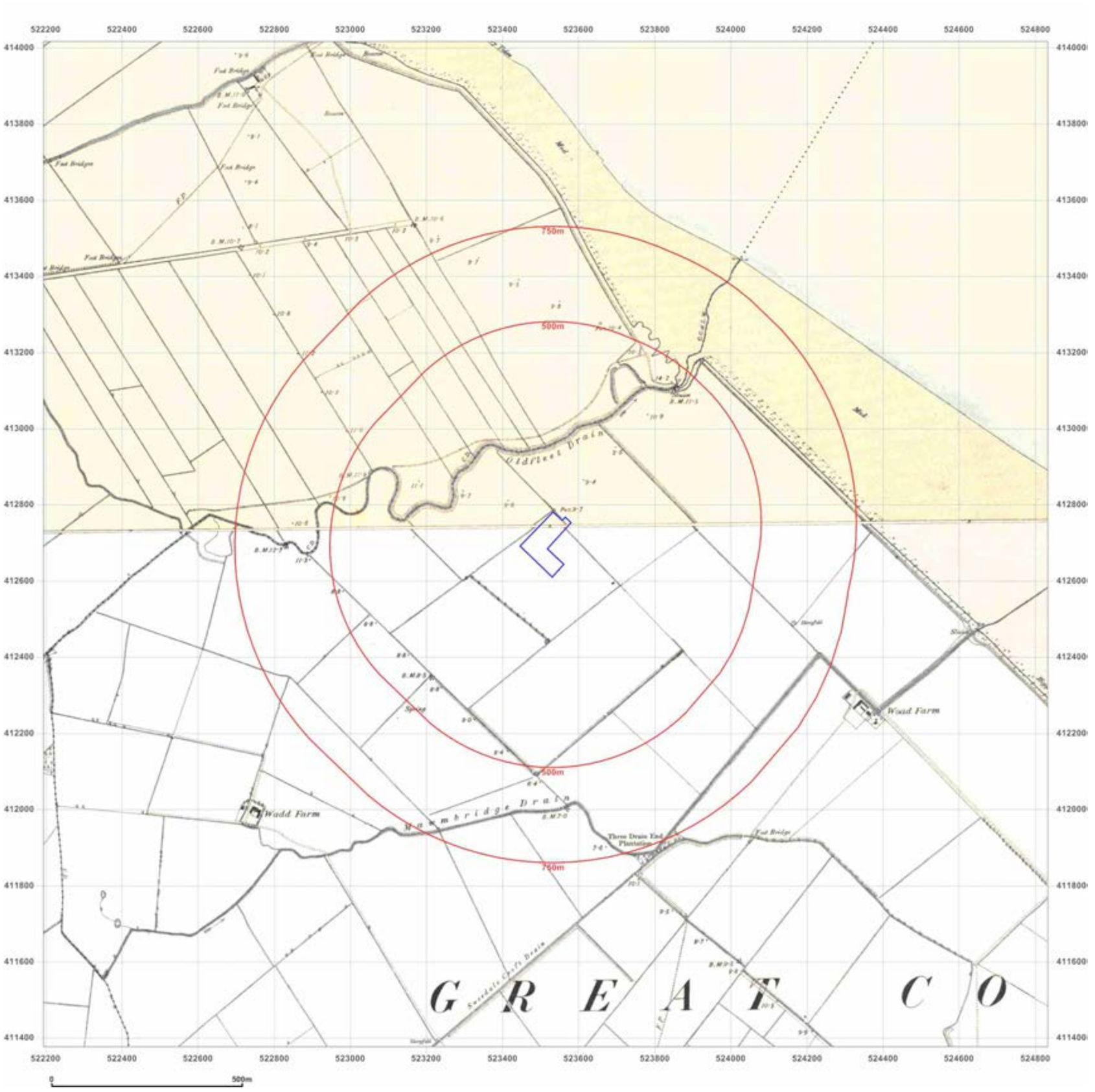

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1886-1888**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised N/A
Edition N/A
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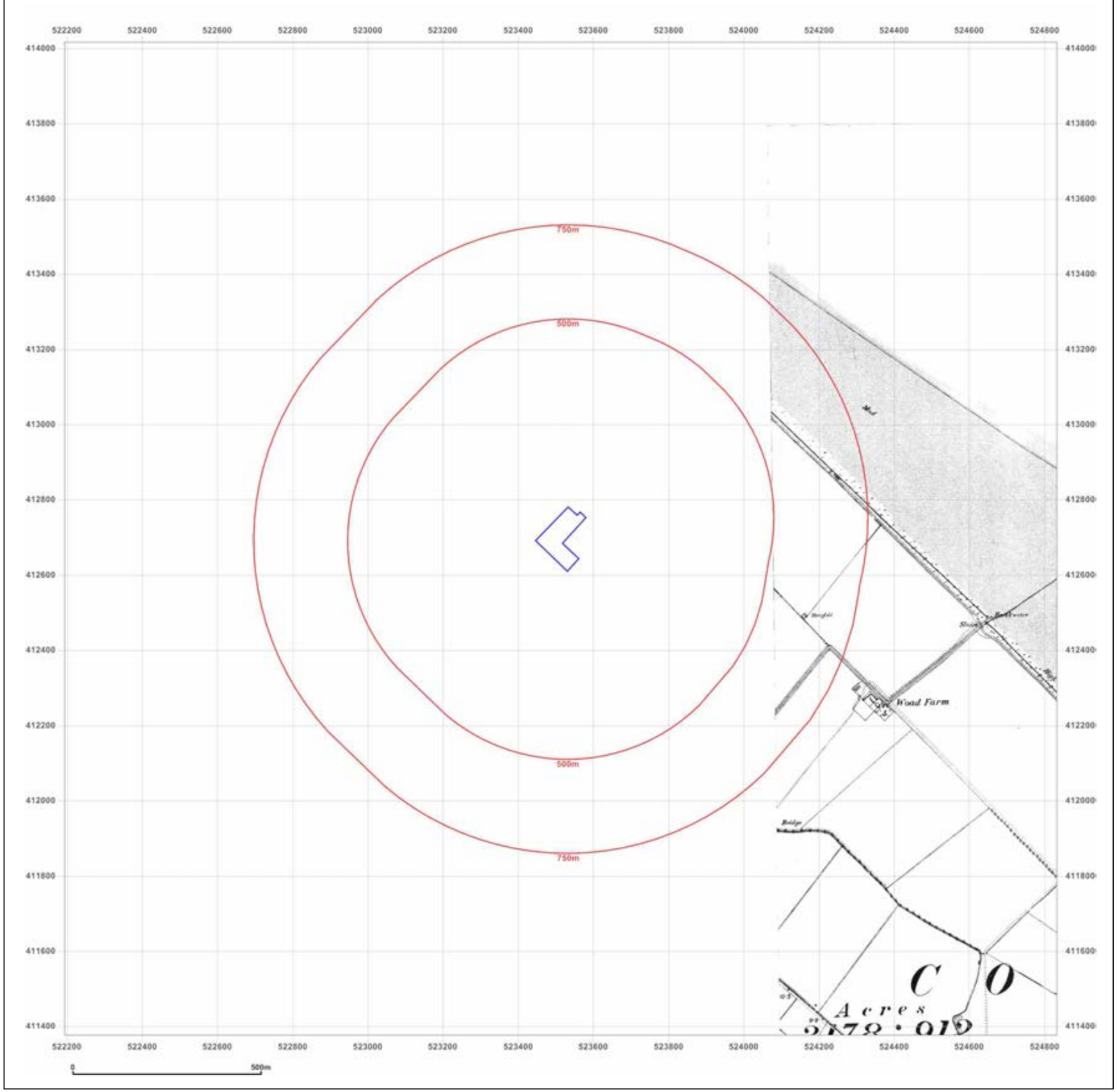

Groundsure INSIGHTS

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: 1892

Scale: 1:10,560

Printed at: 1:10,560

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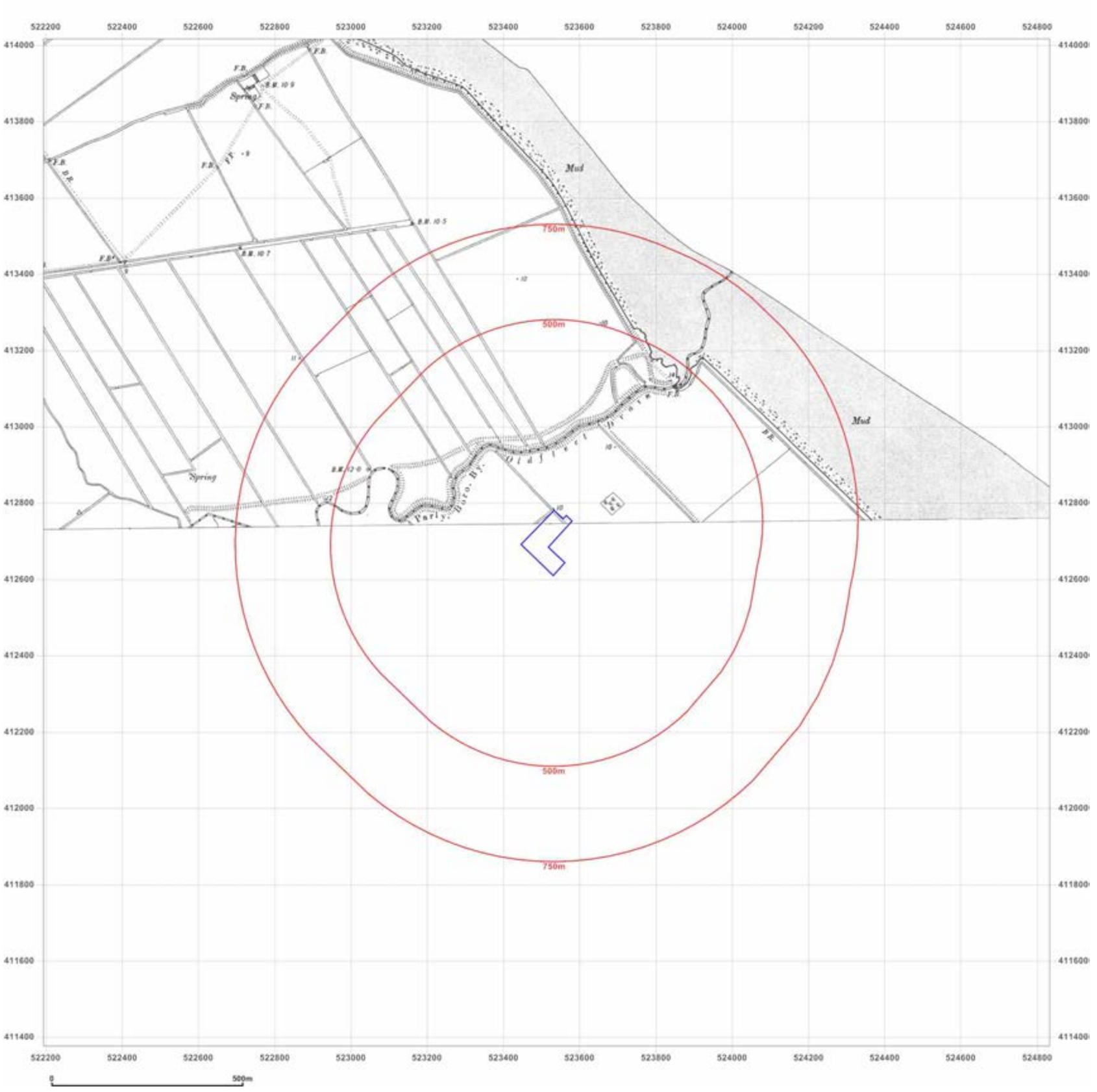

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series
Map date: **1906**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1888
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

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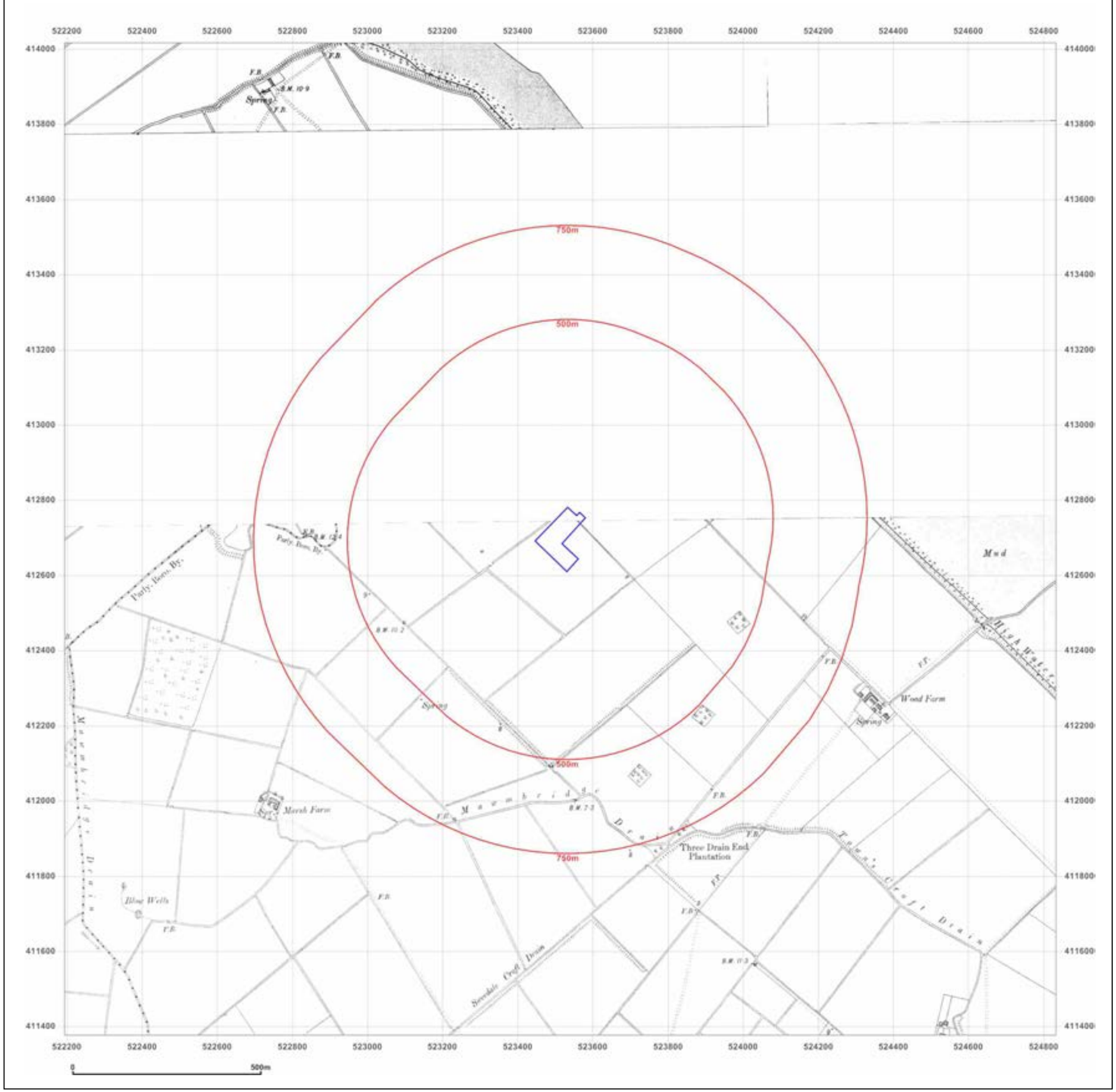

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

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

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

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

Surveyed 1887
Revised 1908
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

Map legend available at:
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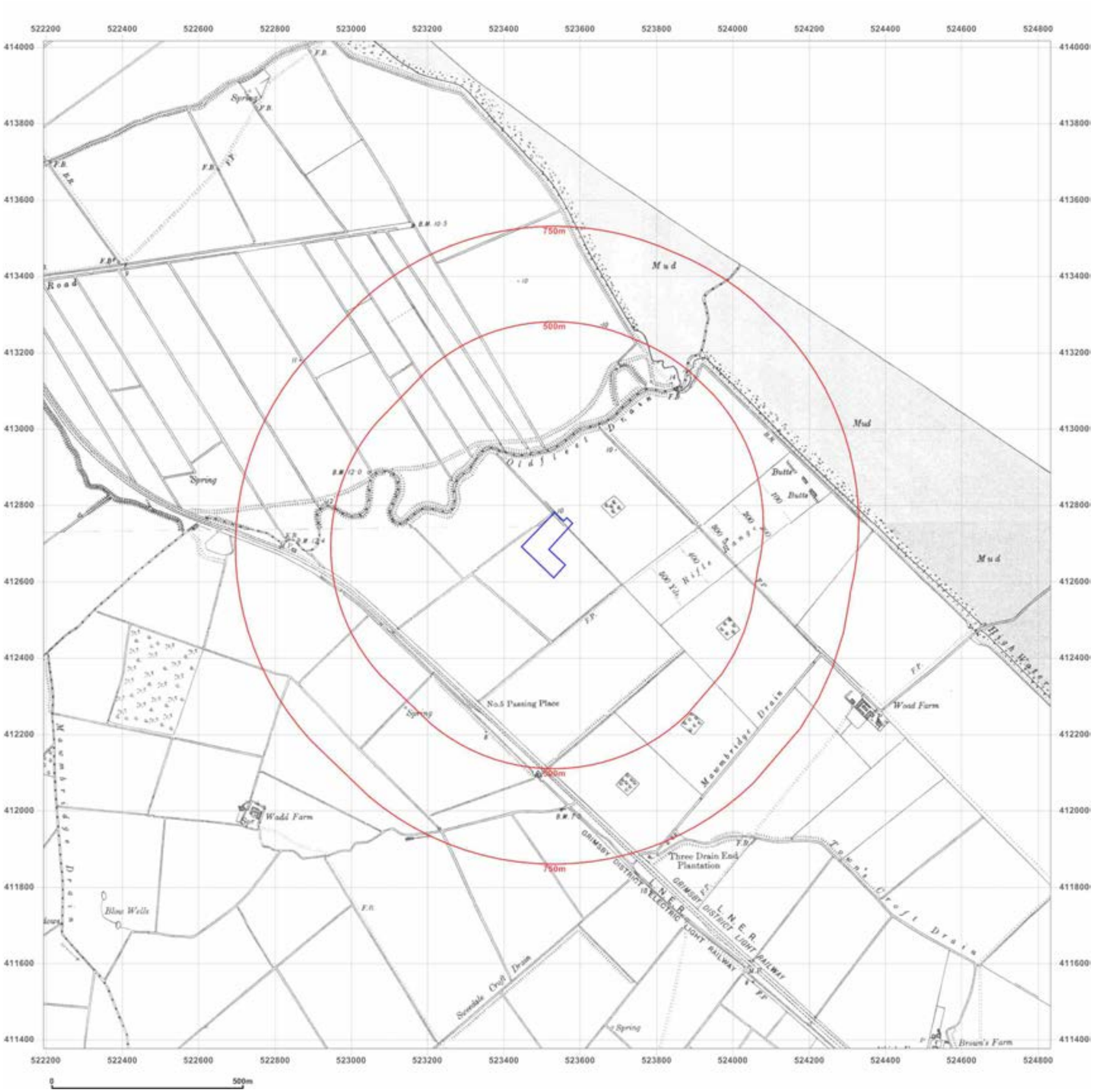

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1930-1931**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1888
Revised 1930
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1931
Edition N/A
Copyright N/A
Levelled N/A

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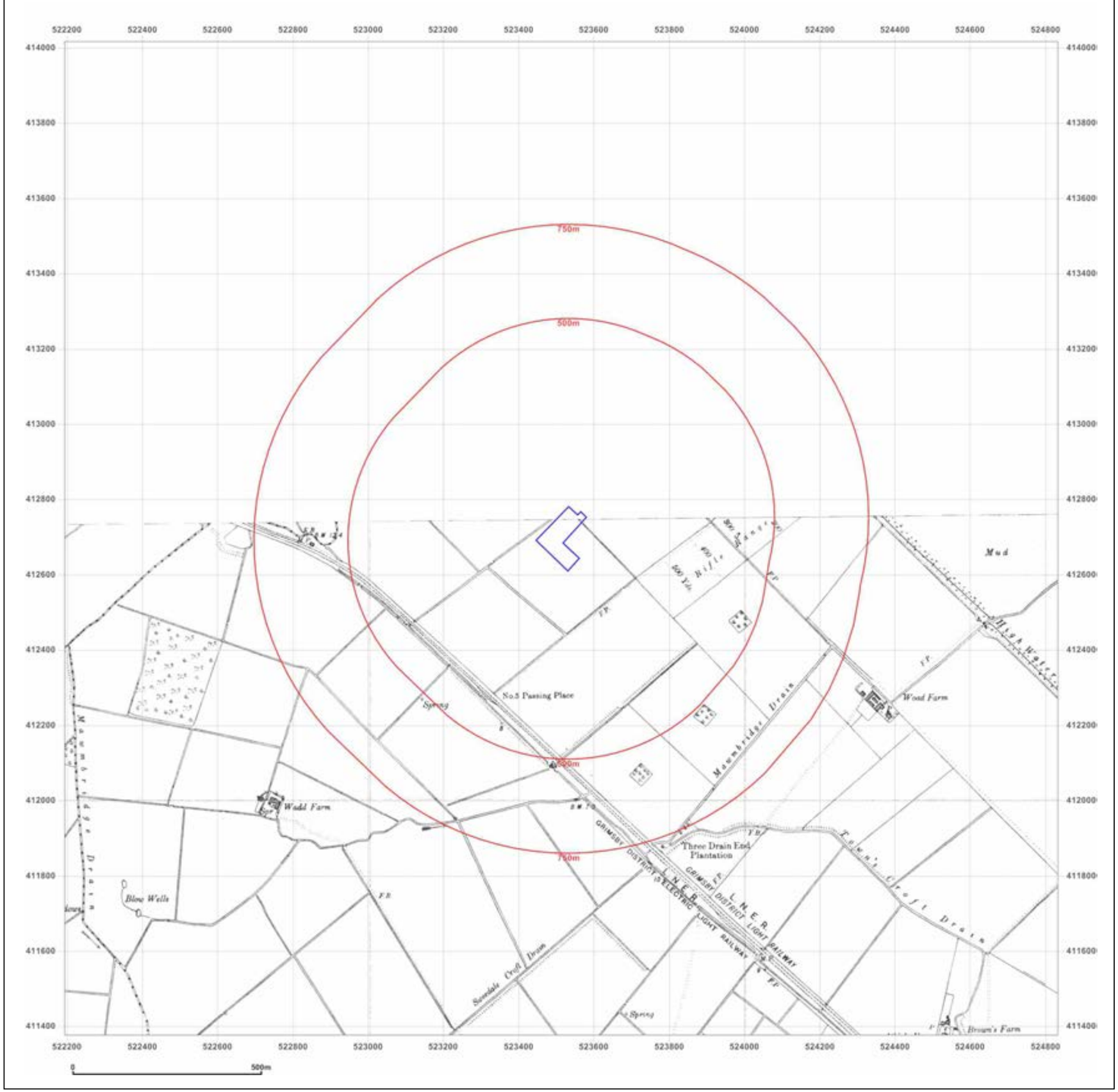

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1938**

Scale: 1:10,560

Printed at: 1:10,560

N
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Surveyed 1887
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

Map legend available at:
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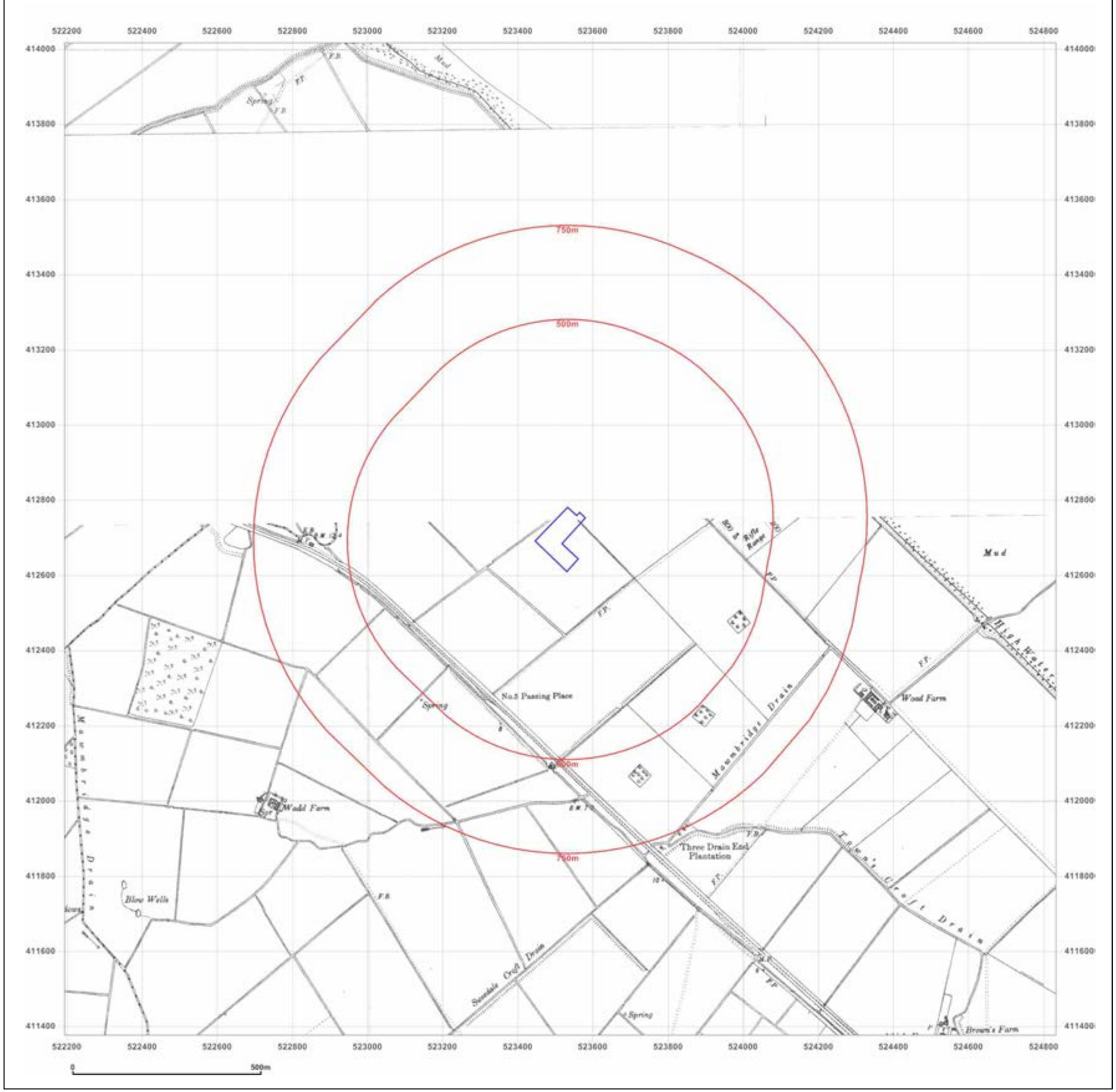

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1946-1947**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1853
Revised 1947
Edition 1947
Copyright N/A
Levelled N/A

Surveyed 1887
Revised 1948
Edition N/A
Copyright N/A
Levelled N/A

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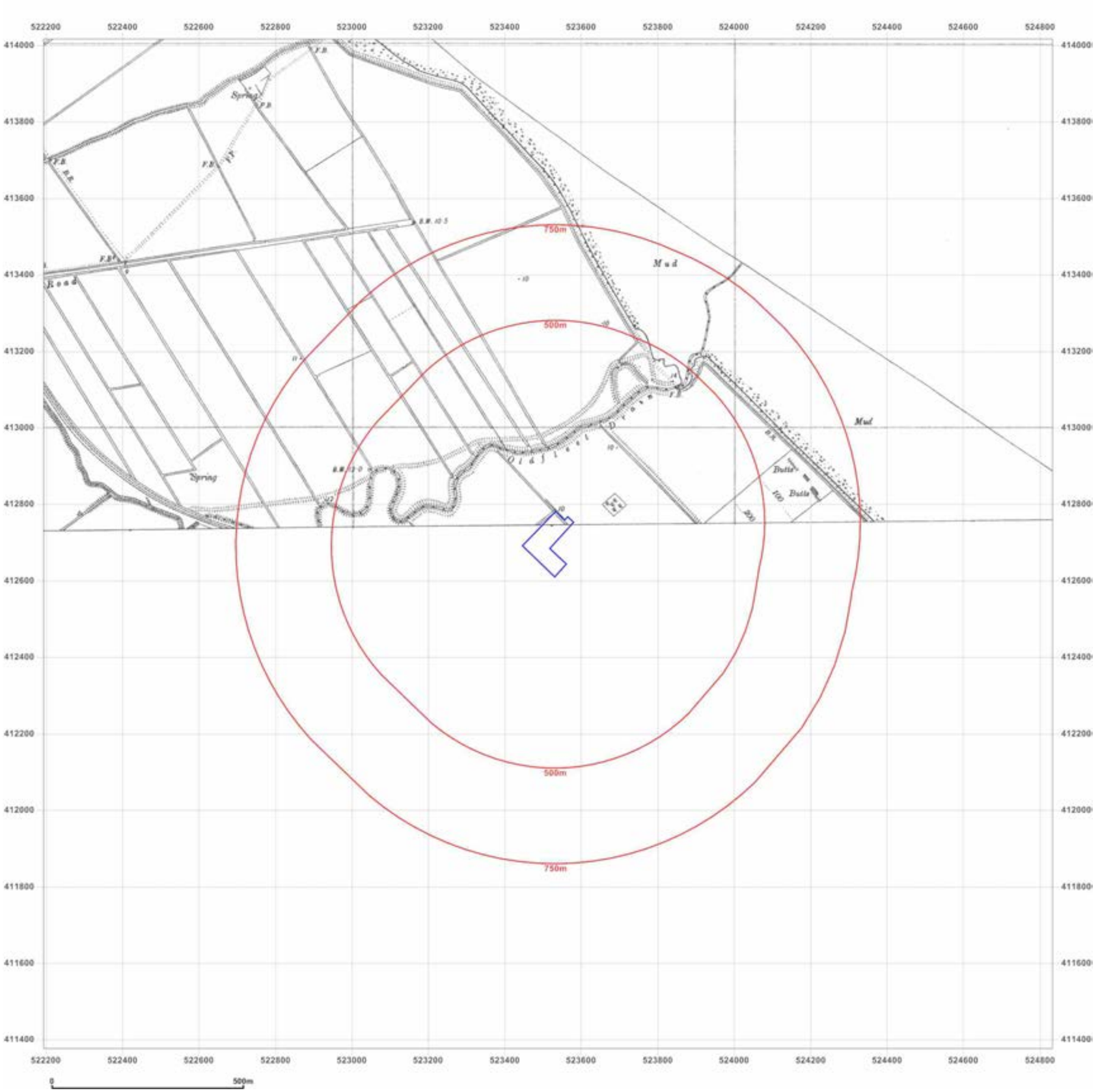

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: County Series

Map date: **1947**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed 1888
Revised 1947
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

Map legend available at:
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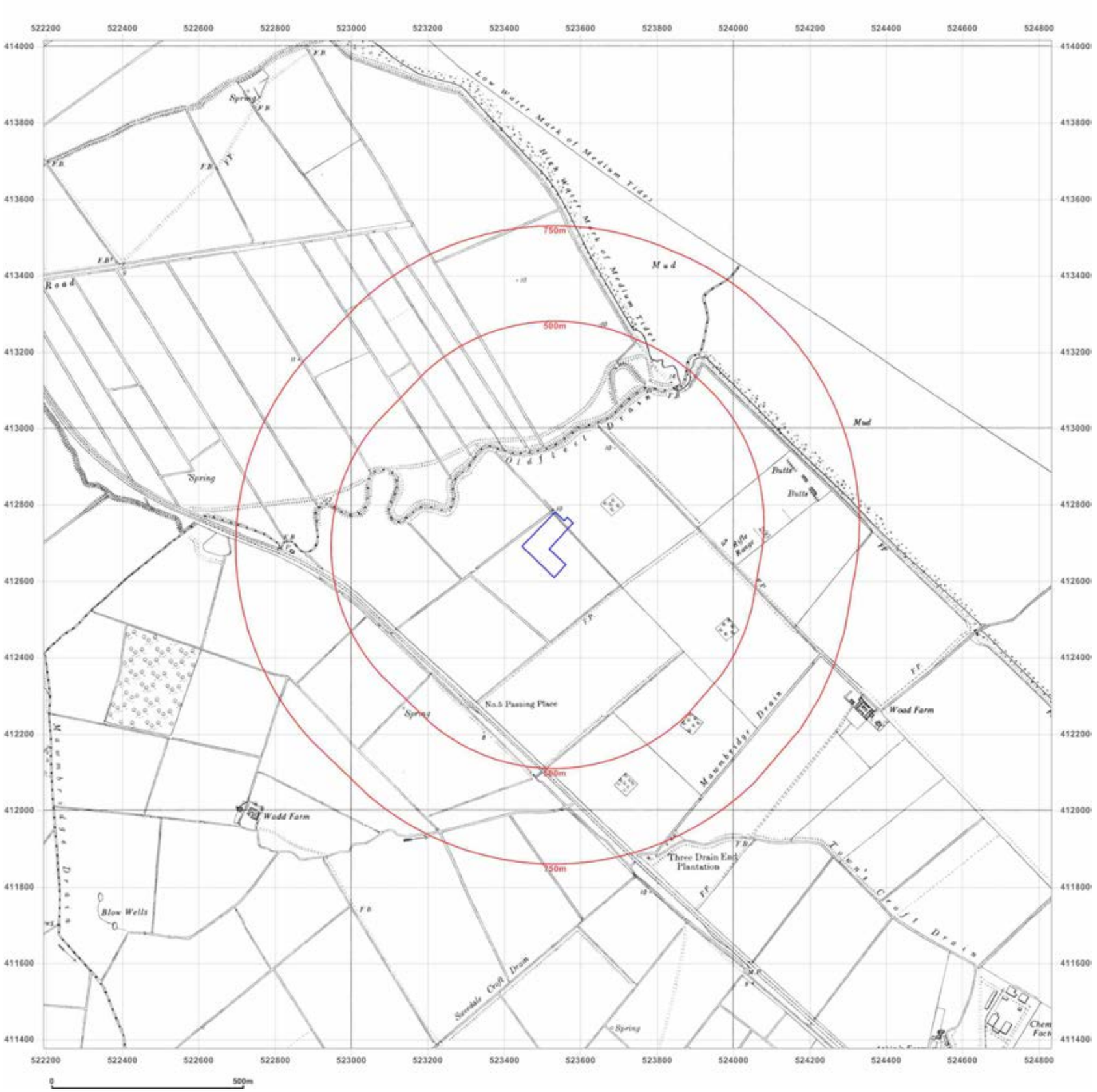

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: Provisional
Map date: **1956**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed N/A
Revised 1956
Edition 1956
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

Map legend available at:
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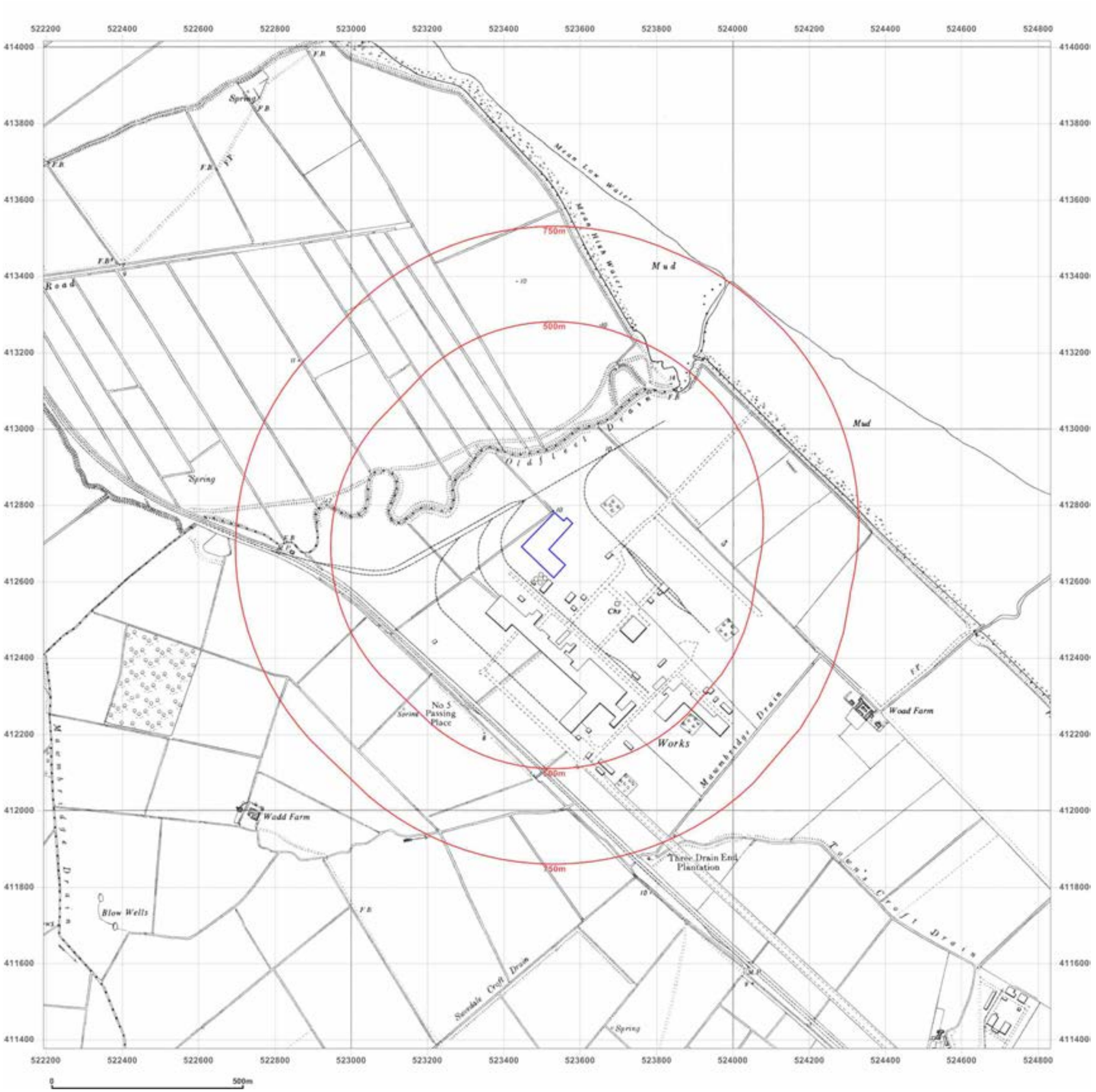

Groundsure INSIGHTS

Site Details:

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Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: Provisional

Map date: **1965**

Scale: 1:10,560

Printed at: 1:10,560

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Surveyed N/A
Revised 1965
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

Map legend available at:
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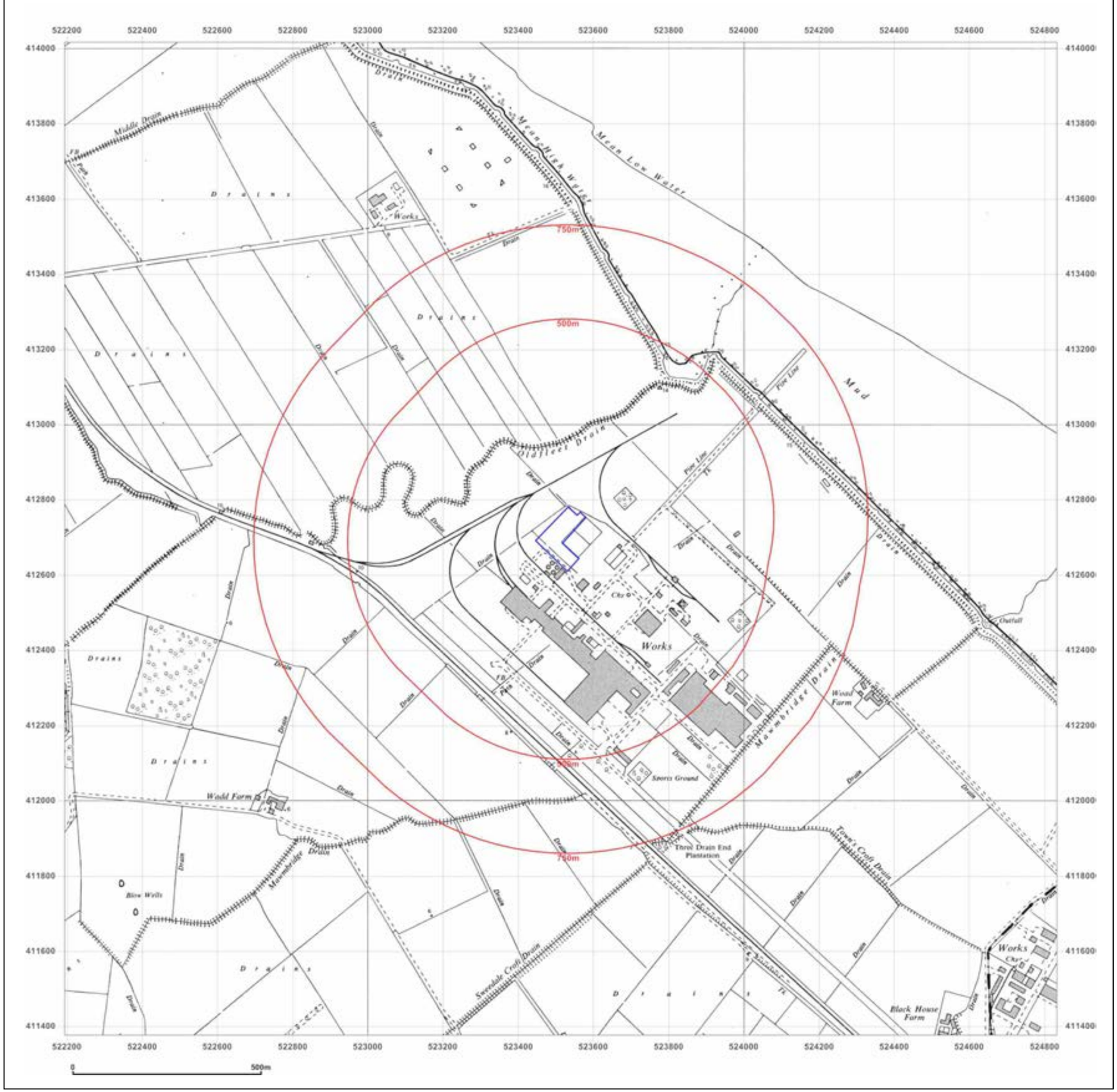

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: Provisional
Map date: **1968**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1968
Revised 1968
Edition N/A
Copyright N/A
Levelled N/A

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Production date: 13 November 2019

Map legend available at:
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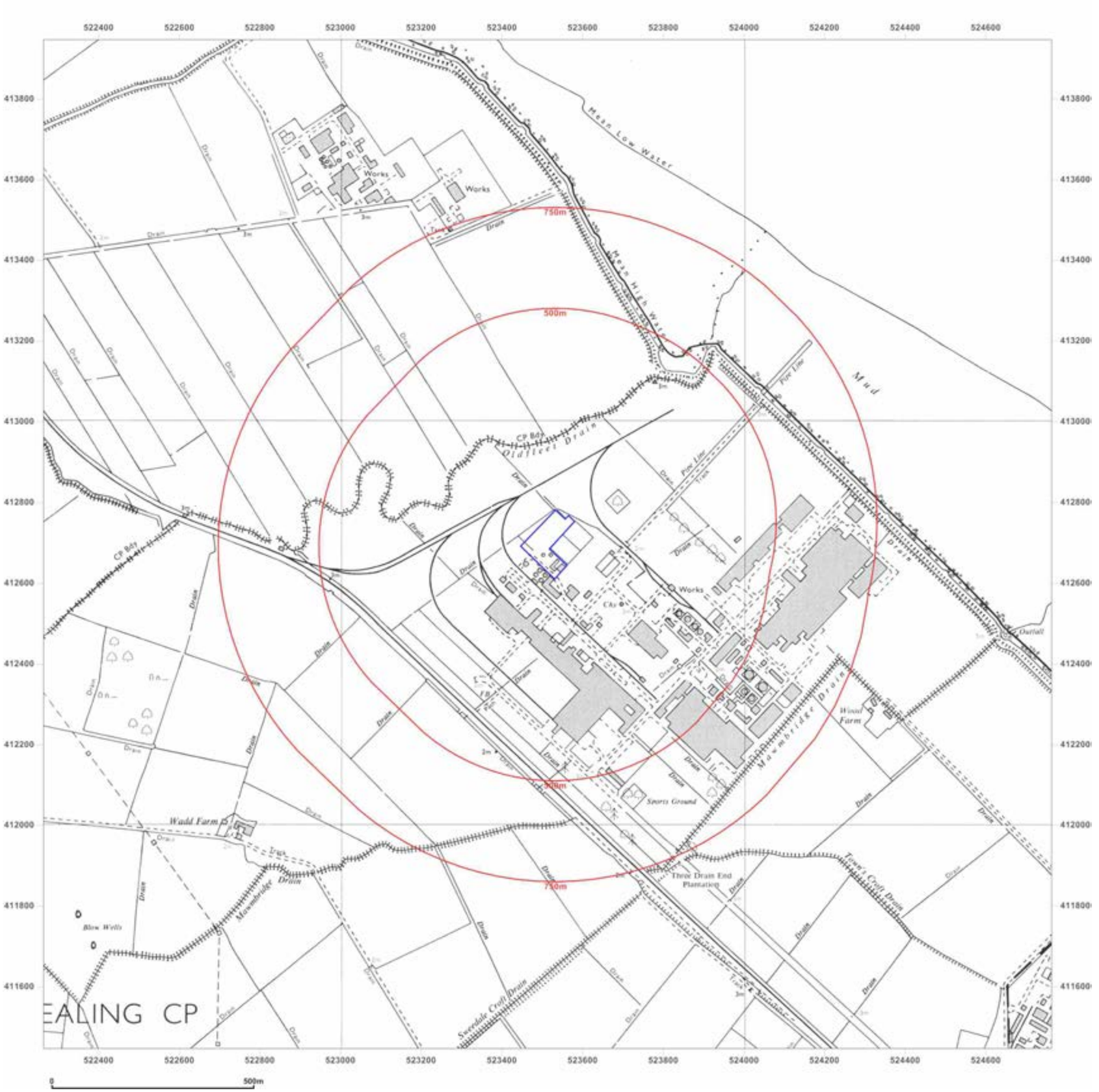

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: National Grid

Map date: **1980**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1878
Revised 1880
Edition N/A
Copyright N/A
Levelled N/A

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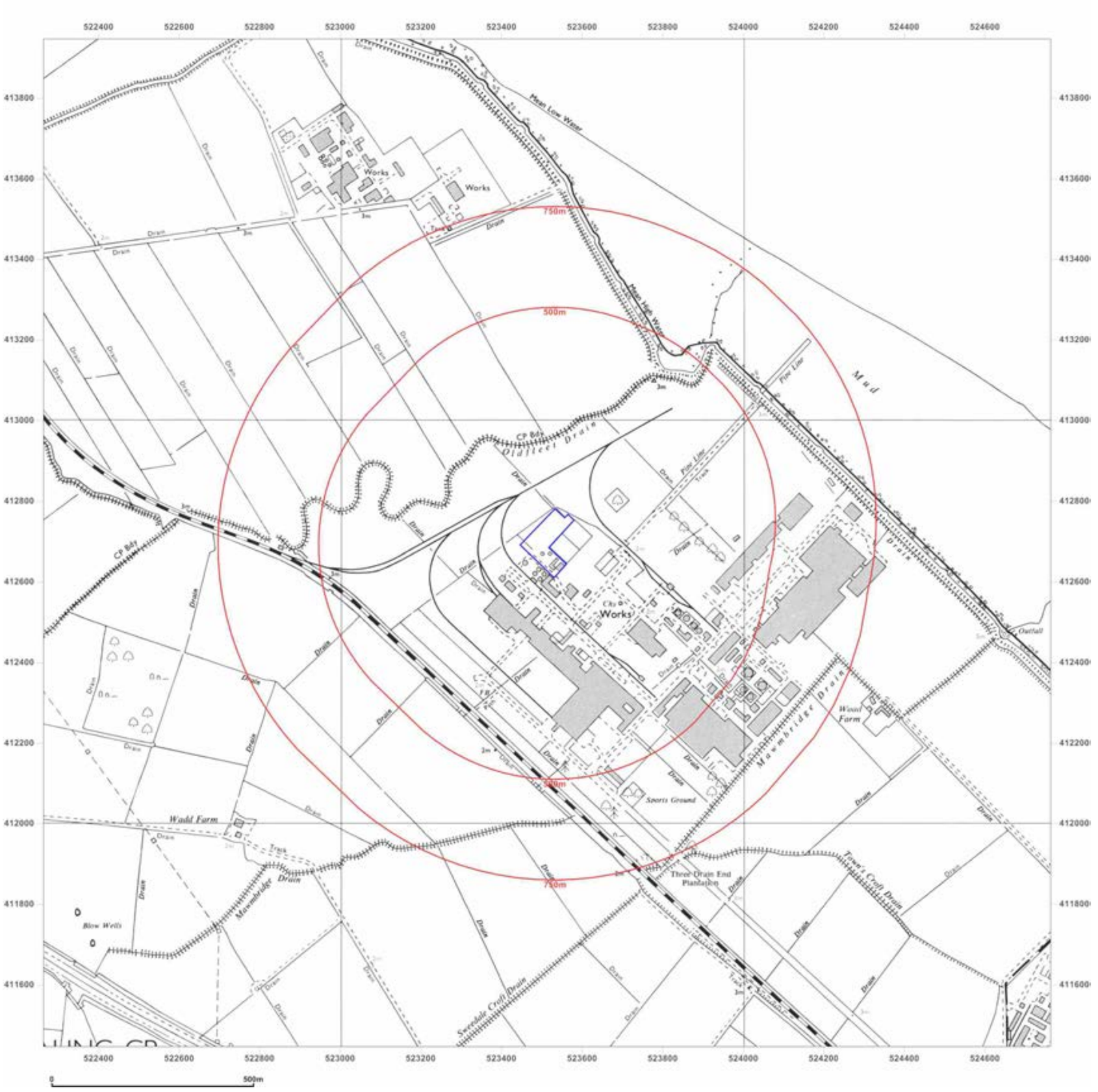
Production date: 13 November 2019

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



Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: National Grid

Map date: **1988**

Scale: 1:10,000

Printed at: 1:10,000

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Surveyed 1888
Revised 1888
Edition N/A
Copyright N/A
Levelled N/A

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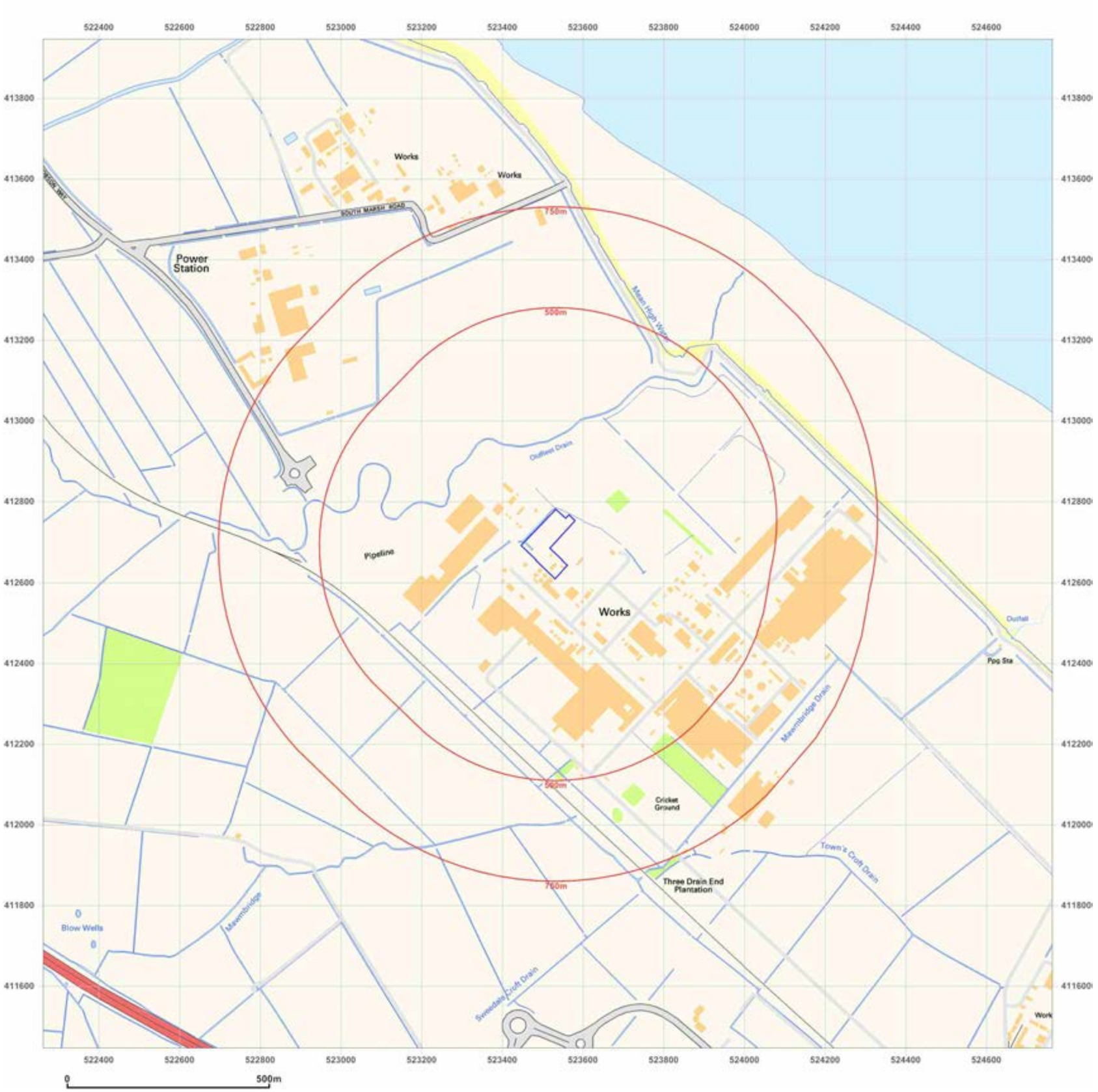
Production date: 13 November 2019

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



Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: National Grid

Map date: 2001

Scale: 1:10,000

Printed at: 1:10,000

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W: www.groundsure.com

Production date: 13 November 2019

Map legend available at:
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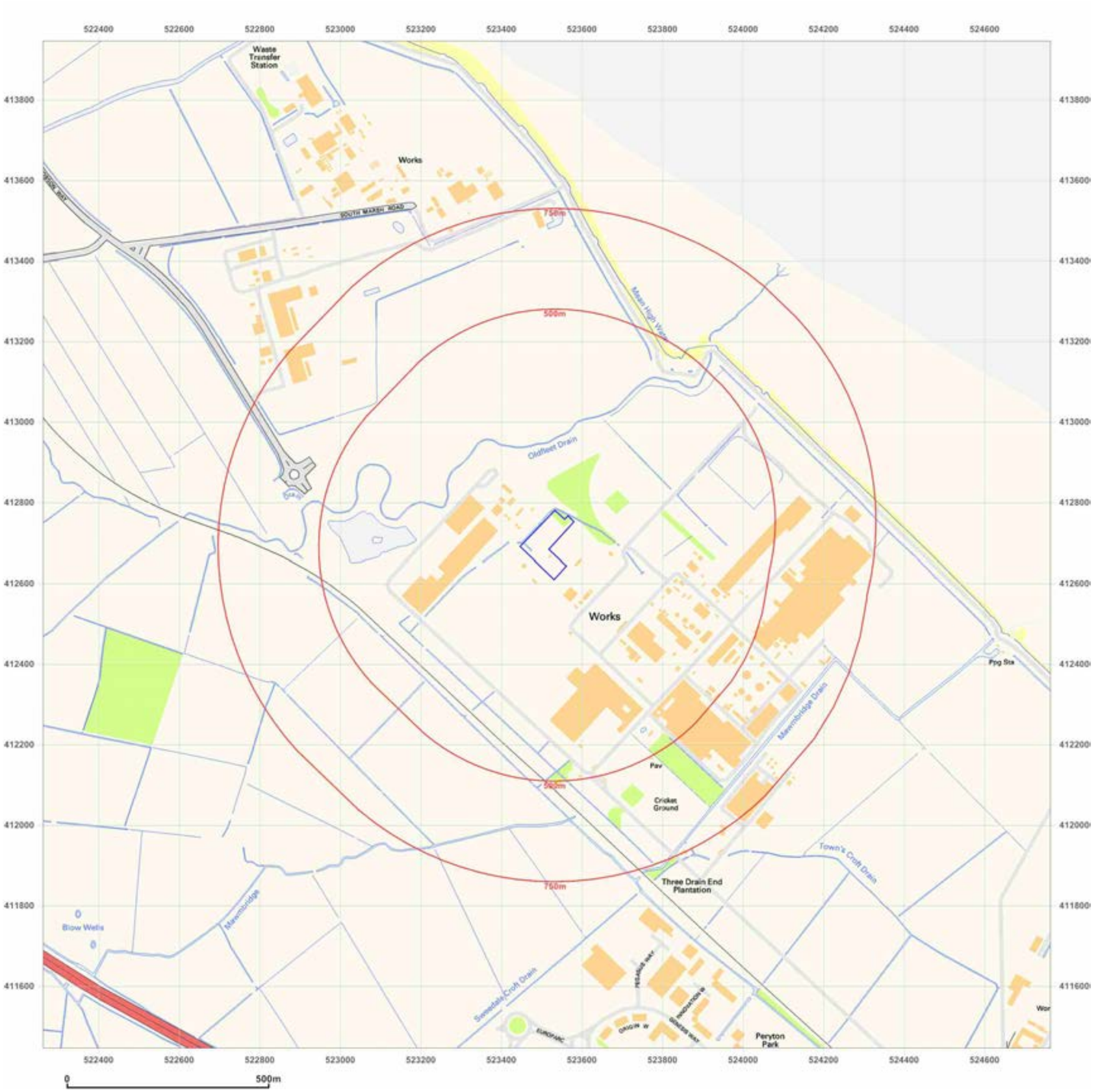

Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

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

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W: www.groundsure.com

Production date: 13 November 2019

Map legend available at:
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Groundsure INSIGHTS

Site Details:

LENZING FIBERS LTD, LENZING FIBERS LTD, ENERGY PARK WAY, GRIMSBY, DN31 2TT

Client Ref: C177_19_E_268_PO-0440
Report Ref: GS-6461195
Grid Ref: 523512, 412696

Map Name: National Grid

Map date: 2019

Scale: 1:10,000

Printed at: 1:10,000

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2019

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Production date: 13 November 2019

Map legend available at:
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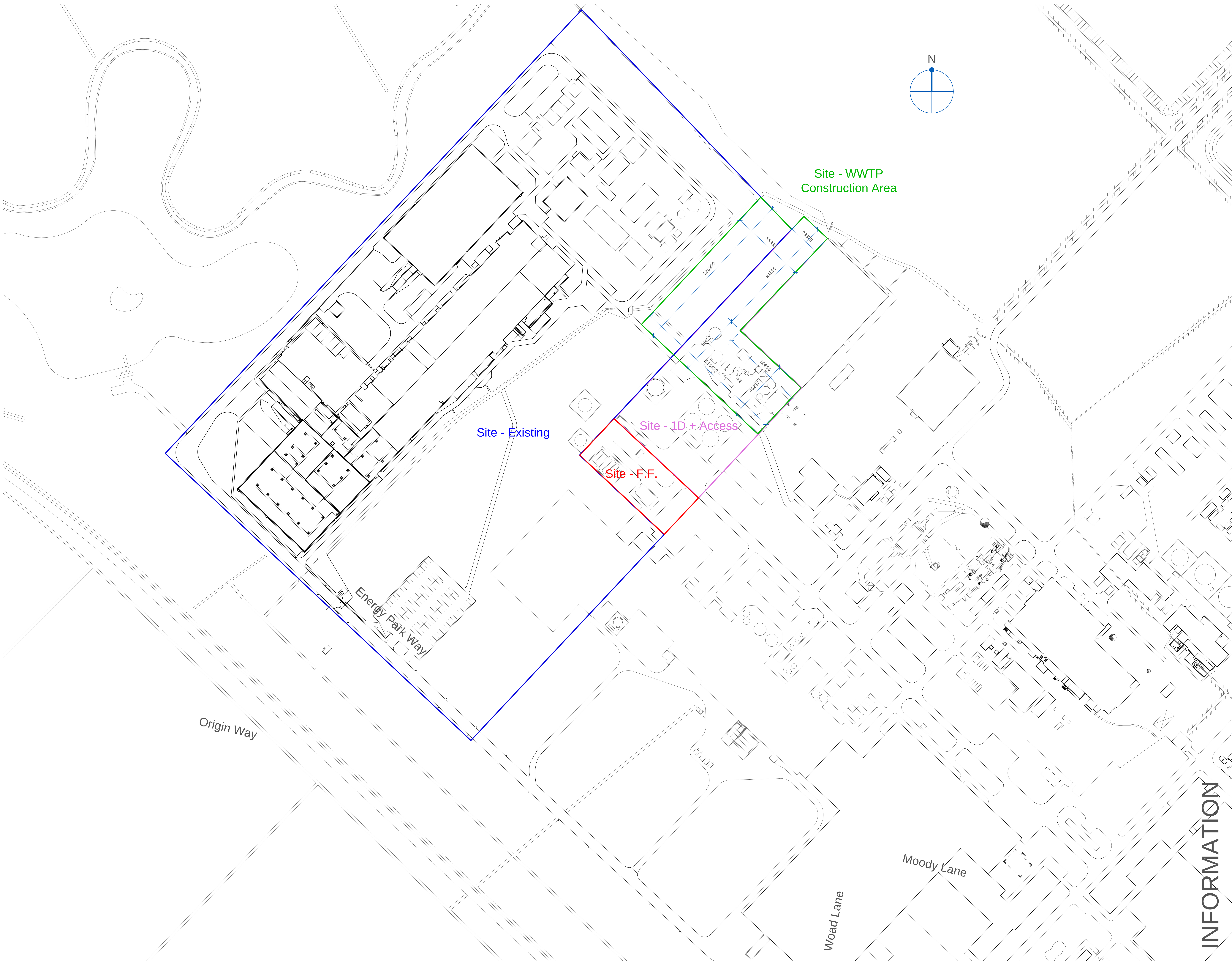
Appendix 3

Site Plans

Title: **Investigation Location Plan for Lenzing Fibres Wastewater Treatment Plan**

Rogers Geotechnical Services Ltd	Site Name: New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT	Job No: C177/19/E/268



Scale Bar

0mm 25mm 50mm 75mm

Notes

- Drawing copyright of Ross Davy Associates
- Used figured dimensions only, do not scale from this drawing
- All materials specified are to be used in strict accordance with manufacturers written instructions and current codes of practice.
- Should the project fall under the scope of the Equality Act, Party Wall Act or the CDM Regulations, it is the Employer's responsibility to initiate the following:
  - Disabled Access Audits
  - Party Wall Notices and Surveys (If required)
  - Pre-Construction Health and Safety Plan
- These drawings are to be considered as Preliminary and for Information only until technical approval has been obtained from the relevant Local Authority/Approved Consultant. Commencement of work on site prior to these approvals is at the Clients/Contractors risk.

Inspections and Surveys

Where elements of the construction are not visible during the survey, it is the contractors responsibility to identify structural elements such as floor joist spans and supporting structures, prior to any demolition works and inform client / architectural consultant. Additional works may therefore be necessary. Our survey does not include any destructive investigation.

Drawing Revisions

A	02-08-19.-Site boundaries revised
B	27-09-19.-WWTP construction area added.
C	03-10-19.-WWTP construction area revised.
D	08-10-19.-Site boundaries revised

Lenzing
Innovation by nature

Ross Davy Associates

Pelham House, 1 Grosvenor Street,
Grimsby, N.E.Lincolnshire, DN32 0QH

Tel: 01472 347956
Email: design@rossdavyltd.co.uk
Web: www.rossdavyltd.co.uk

Project: Proposed Guillotine Area Extension
Lenzing Fibres Grimsby Ltd
Energy Park Way, Grimsby

Drawing Title: SITE LOCATION PLAN
Combined Site Plans

Drawn: APS | Scale: 1:2500

Date: 26.07.19. | Size: A1

Drawing No.: RD:4417 / 04 | D

Appendix 4

Photographs

The northwest border of the site (Facing northeast)

The southwest border of the site (Facing southeast)

	Rogers Geotechnical Services Ltd	Project Name: **New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT**	Project Number: **C177/19/E/268**

The southwest border of the site (Facing northwest)

The southeast border of the site (Facing northeast)

	Rogers Geotechnical Services Ltd	Project Name: **New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT**	Project Number: **C177/19/E/268**

The east border of the site (Facing northwest)

The northern limb of the site (Facing northwest), the heap of made ground can be seen on the left hand side of the photo

	Rogers Geotechnical Services Ltd	Project Name: **New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT**	Project Number: **C177/19/E/268**

The northern limb of the site (Facing northwest), the heap of made ground can be seen on the right hand side of the photo

On top of the made ground heap

	Rogers Geotechnical Services Ltd	Project Name: **New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT**	Project Number: **C177/19/E/268**

Facing east from the sites southwest

Facing northeast from the sites southwest

	Rogers Geotechnical Services Ltd	Project Name: **New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT**	Project Number: **C177/19/E/268**

The electricity substation

One of the tank bases

	Rogers Geotechnical Services Ltd	Project Name: **New Waste Water Treatment Plant, Lenzing Fibers Ltd, Energy Park Way, Grimsby, DN31 2TT**	Project Number: **C177/19/E/268**