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REDROW HOMES LIMITED

WILDINGS LANE, LYTHAM ST ANNES

PHASE 1 GEOENVIRONMENTAL DESK STUDY

JANUARY 2020

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PHASE 1 GEOENVIRONMENTAL DESK STUDY

JANUARY 2020

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DRAWINGS	TITLE	SCALE
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1 EXECUTIVE SUMMARY

1.1.1 This desk study report has been prepared for the Wildings Lane, Lytham St Annes site. A summary of the report is provided in Table 1.1.

Table 1.1 Executive Summary	
Site location	Ridings Lane, Lytham St Annes, FY8 3RJ
Current Use and History	The site currently comprises of multiple paddock fields, a horse riding facility and a residential building.
Adjacent land uses	East: agricultural fields. North: undeveloped land and a cluster of trees. South and west: residential.
Geology/Anticipated Ground Conditions	The superficial deposits are recorded by the BGS as Blown Sand. BGS boreholes in the vicinity of the site and the results of an adjacent WA ground investigation, indicate the potential presence of peat at shallow depth. The underlying bedrock geology is anticipated to be the Singleton Mudstone Member with potential subcrops of Lowest Mythop Salt.
Asbestos	Not recorded during the site walkover and unlikely to present on the majority of the site given the site history. However mounded areas identified on the site and the buildings could contain asbestos containing materials (ACMs).
Groundwater Vulnerability	The site is underlain by a Secondary A Aquifer which can be important for local supplies or river base flows. The site in underlain by a Secondary B Aquifer and an Unproductive Aquifer within the bedrock geology.
Mining	None.
Unexploded Ordnance (UXO)	The risk of UXO is considered Low.
Contamination Issues	There are potential contamination issues from the previous and current land use in the form of made ground associated with the horse riding facility and unknown materials used to raise areas. It is also considered possible that the existing buildings contain ACMs. Potential Peat deposits beneath the site could be a source of ground gas. Adjacent land use could be a potential source of contamination from the infilled pond and former embankment areas.
Preliminary Conceptual Model and Risk Assessment	The overall risk classification is low to moderate and necessary actions have been provided for each contaminant source.
Geotechnical Issues	Peat deposits could result in excessive total and differential settlements.
Other – services etc	Overhead power cables and telecoms cross the site, which may limit access for drilling rigs or other construction plant and equipment. Utility records will need to be obtained and reviewed prior to any intrusive works on site.
Recommendations	Undertake a detailed Phase 2 ground investigation to determine the environmental and geotechnical conditions on site.
Overall Geo-Environmental Risk	Based on the information summarised within this report the site is considered to present a Low to Moderate risk from contaminated land. It is recommended that a ground investigation is carried out to quantify the risks associated with contaminated land and the prevailing ground conditions. Depending on the results of the ground investigation, if required, mitigation measures can be put in place to reduce any unacceptable risks to an acceptable level.

2 INTRODUCTION

2.1 Instruction

2.1.1 Wardell Armstrong LLP (WA) have been commissioned to prepare this Desk Study following written confirmation on 8th January 2020 from Karl Longworth on behalf of Redrow Homes Limited. Details of appointment include the signed Terms of Engagement referenced GM10908 ToE002 070120, dated 13/01/20. Commission of the work follows the proposal letter prepared by WA entitled 'Queensway Phase 8, Lytham St Annes Phase 1 Geo-environmental Desk Study', referenced GC/GM10908/002 and dated 7th January 2020 and the Redrow Purchase Order Number 0 000 583 309.

2.2 Site Location

2.2.1 The site lies approximately 1.0 km east of Lytham St Annes town centre in the Borough of Fylde. The nearest available postcode for the site is FY8 3RJ and the approximate Ordnance Survey (OS) National Grid Reference for the site centre is SD 34079 29750. The site location is shown on Drawing Number GM10908-001.

2.2.2 It is understood the site is owned by Kensington Developments Limited who are currently developing the land to the north west as residential, and is in the process of being purchased by Redrow Homes Limited.

2.3 Scope and Objectives

2.3.1 The purpose of this report is to assist with the assessment of future development options of the site by identifying and examining readily available documentary sources of information relating to the following:

- Past and current uses of the site and surrounding area and the nature of any hazards and physical constraints;
- Environmental setting including geology, geochemistry, mining, hydrogeology and hydrology;
- Potential contamination sources, pathways and receptors as part of a preliminary conceptual site model;
- Provide information on the preliminary risk assessment;
- Identify aspects of the site requiring immediate attention;

- Potential stability and contamination constraints and liabilities to the proposed development that may arise in context with the past and present use of the site;
- Requirements or otherwise for future studies including a potential intrusive ground investigation prior to development and to give an early indication of possible remedial requirements;
- Provide information relevant to worker's health and safety and to the protection of the environment during field investigations; and
- Identify, if necessary, the need to involve regulatory bodies during the design of intrusive investigations.

2.3.2 This report has been prepared in compliance with BS 5930, BS 10175 and the Land Contamination Risk Management (LCRM) guidance prepared by the Environment Agency.

2.4 Proposed Site Use

2.4.1 Redrow Homes Limited propose to develop the site for residential end use. A Sketch Scheme, (Drawing No. SKL-321-2), showing the proposed development, is enclosed as Appendix G.

2.5 Limitation of Report

2.5.1 This report does not constitute or contain a valuation nor is it a full rigorous environmental audit.

2.5.2 The opinions and findings of this report are given without the benefit of any physical site investigation, sampling or testing on the site.

2.5.3 WA have carried out an appropriate level of checking of the information used to prepare this report, however WA cannot be held liable for any inaccuracies, inconsistencies or omissions by other parties or their subcontractors.

2.5.4 The findings and recommendations are considered to be valid and appropriate at the time of preparation and for the specific purpose or purposes intended. Wardell Armstrong LLP will not be liable if any findings are used by third parties, without the written agreement of the company, or if an interpretation is made and action taken without further consultation.

2.5.5 The possibility of significant variation in ground conditions existing on site in comparison to those described within this report cannot be discounted.

2.6 Data Sources

2.6.1 The following sources of information have been reviewed and should be read in conjunction with this report:

- Groundsure Report dated 14th January 2020, and referenced GSWA1-6553686 and GSWA1-6553687, attached at Appendix A;
- Site walkover photographs, attached at Appendix B;
- 'Desk Study and Ground Investigation Report for Site off Queensway, Lytham St Annes' prepared by WA for Kensington Developments Limited, dated March 2013 and referenced LE11591-001, attached at Appendix C. This report was prepared for both the site and the adjacent residential development, as part of a larger development scheme;
- British Geological Survey (BGS) published geological mapping Sheet 047 Southport (1:50,000 Scale) and the BGS interactive mapping database;
- BGS borehole database (selected borehole logs), attached at Appendix D;
- Southport Solid and Drift geological mapping Sheet 74, dated 1948; and
- Zetica Unexploded Ordnance map, attached at Appendix E.

3 SITE HISTORY AND CURRENT LAND USE

3.1 Site History

3.1.1 The history of the site and the surrounding area from 1847 to the present day is presented in Table 3.1. Historic maps provided in the Groundsure Report (Appendix A) have been used to identify previous land uses including any significant potentially contaminative uses or those that could impact future development.

Table 3.1 Summary of Land Use

Date	Site Land Use	Adjacent Land Use
1848	The site comprises fields.	North and East: Undeveloped fields. South: c.140m, some residential development along Hey House Lane and fields. West: 'Wildings' farm buildings located adjacent to site along Wildings Lane.
1891	Unnamed watercourses, possibly drainage ditches, are located in the north and east of the site.	North, East and South: No significant change. West: More 'Wildings' farm buildings.
1909	No significant change.	North, East, West and South: Numerous possible field drains located between fields.
1930-1938	No significant change.	North, East and West: No significant change. South: A pond is located adjacent to the site.
1951	No significant change.	No significant change.
1964-1971	Drains are located in the northern, eastern and southern boundaries. A drain is located in the south of the site trending east to west.	North: Kennels are located adjacent to site. East: No significant change. South: Embankments and a Rifle Range are located adjacent to the south of the site. The pond is no longer recorded, possibly infilled. West: Residential development increased.
1978-1982	Drain in south of site no longer recorded, possibly infilled.	North and East: No significant change. West: Wildings farm no longer recorded. South: Rifle Range is no longer recorded and has been replaced by residential development.
1987-1992	Site now divided into three separate fields, possibly by fences. A Riding School and 'Roseacre' building are located in the west and south of the site.	North, East, West and South: No significant change.

Table 3.1 Summary of Land Use		
Date	**Site Land Use**	**Adjacent Land Use**
2001-2010	No significant change.	North, East, West and South: No significant change.
??	No significant change?	Kensington Developments Limited commenced the progressive residential development of the land to the north west of the site (ongoing)
2020	The buildings in the south of the site are no longer called a Riding school.	North: The Kennels are no longer recorded and have been replaced by a cluster of trees. East, South and West: No significant change.

3.2 Site Use

3.2.1 A site walkover was carried out on 22/01/2019 by a WA Engineer. The site walkover photographs are attached at Appendix B. The approximate locations of the photographs are shown on Drawing Number GM10908-002.

3.2.2 The following observations were made during the walkover:

- The majority of the current site use appears to be grassed paddock areas for horses and is separated into several fields by wooden fencing;
- A horse riding facility and associated stable buildings are located in the south of the site, which also includes a residential building and garden area. Some buildings were used for storage of hay and various horse riding equipment. The buildings were built from a combination of wood, concrete blocks and what looks like metal sheeting for roofs. No possible asbestos containing materials were observed. The buildings were located on concrete hardstanding;
- A caravan, horse trailer, a metal towed roller and some wooden pallets were positioned within a gravelled/ partly grassed area;
- A trailer containing horse manure was positioned within a raised concrete area. The concrete raised area is likely to be there to enable deposition of manure/waste into the trailer. Mounds of grassed earth are located adjacent to the concrete structure, although it is not known what this material is comprised of;
- A fenced off sandy area to the east of the horse riding facility is being used as a horse training area;

- Adjacent land use to the east appears to be agricultural fields. Adjacent land use to the north is undeveloped land and a cluster of trees. Adjacent land use to the south and west is residential;
- Wildings Lane is located adjacent to the west of the site. A path leads into the horse riding facility;
- The site is relatively flat lying and drained via ditches surrounding the north, eastern and southern edges of the site, which we understand flow to the north east after heavy rainfall;
- Overhead power cables and telecoms cross the site, which may limit access for drilling rigs or other construction plant and equipment;
- Where underlying soils within the field areas were exposed by vehicle rutting etc, the underlying topsoil appeared to be a sandy organic clay in nature.

3.3 Asbestos

3.3.1 Given the historical land use, it is considered unlikely that asbestos will be present within the fields on the site. Asbestos was not recorded during the site walkover. However, mounded areas identified on the site and the buildings could contain asbestos containing materials (ACMs).

3.3.2 With regards to the Health and Safety at Work Act, the Control of Asbestos Regulations and Construction (Design and Management) Regulations, where works are proposed an appropriate survey should be carried out to identify where and in what condition the asbestos is in. Any works undertaken in areas, where asbestos is known or suspected to be present should be carried out in accordance with the Control of Asbestos Regulation (2012)

3.4 Ecology

3.4.1 The desk study and the site walkover are not specifically for ecological purposes; however, the Groundsure report recorded a Site of Special Scientific Interest (SSSI) named Lytham Coastal Changes, 184m southwest of the site. Green Belt land within 2000m of the site is recorded as Blackpool Greenbelt under the Fylde District and Blackpool local authorities.

3.4.2 There are no National Nature Reserves, Special Areas of Conservation, Special Protection Areas, Ramsar sites, Ancient Woodland, Nitrate Vulnerable Zones, Local Nature Reserves, World Heritage Sites, Environmentally Sensitive Areas, Areas of

Outstanding Natural Beauty, National Parks, or Nitrate Sensitive Areas within 2000m of the site.

3.5 Invasive Plants

3.5.1 The Wildlife and Countryside Act, 1981 contains measures for preventing the establishment of non-native species, including 'invasive' plants which may be detrimental to native wildlife, prohibiting the release of animals and planting of plants listed in Schedule 9 in England and Wales. In particular, Japanese knotweed, Himalayan balsam and Giant hogweed can become aggressively dominant, and persistent. Giant hogweed poses certain health risks and Japanese knotweed can cause physical damage to pavements and structures.

3.5.2 Invasive plant species were not identified on site. However, it should be noted that the survey was not specifically for ecological purposes and was not undertaken by a trained ecologist.

3.6 Archaeology

3.6.1 There are no scheduled Monuments or Listed Buildings recorded on the site. The desk study and site walkover are not for archaeological purposes and it is recommended that specialist support is sought during the design of future development.

3.7 Environmental Management

3.7.1 The overall standard of housekeeping and environmental management for the fields was good at the time of the site walkover. However, the horse riding facility may have contained stockpiles of various materials and waste which were not bunded or stored on hardstanding.

4 GEOLOGICAL AND HYDROGEOLOGICAL INFORMATION

4.1 Geology

4.1.1 The assessment of the geology of the site is based on the published geological mapping (Sheet 74, Southport, Solid and Drift Edition, 1:50,000 scale) supplemented by the geological memoir, topographical plans and site visit. Online data from the BGS has been researched and relevant borehole records are attached (Appendix D).

4.1.2 A summary of relevant geological information is provided in Table 4.1. This information has been supplemented by information contained within the Groundsure Report.

Table 4.1 Summary of Relevant Geological Data

Strata	**Description**
Made Ground	No record of artificial deposits according to the BGS Geoindex website. Made ground associated with the horse riding facility and access road was recorded during the site walkover.
Superficial Deposits	The Southport Sheet 74 Drift map records the site as Blown Sand.
Solid Geology	Singleton Mudstone Member – Mudstone The Southport Sheet 74 Drift map records a conjectured outcrop of the Lowest Mythop Salt, comprising mudstones and halite, beneath the northern part of the site.
Geological Structures	None
Geohazards	**Description**
Natural cavities	None
Landslides	Very Low
Collapsible deposits	Negligible
Compressible deposits	Negligible
Ground dissolution	Very Low
Running sands	Low
Shrinkage/swelling clay	Negligible

4.1.3 A review of the BGS borehole data located approximately 0.5km to the south of the site shows topsoil was encountered from the ground surface to c.0.10 to 0.5 metres below ground level (mbgl). Out of the four BGS boreholes, amorphous to fibrous brown peat was encountered at between 1.7 and 4.3mbgl, beneath loose sand. The peat was overlying alternating lenses of clay, silts and sand. Rockhead was not encountered. The BGS borehole logs are provided at Appendix D.

4.2 Previous WA 2013 Ground Investigation

4.2.1 The WA March 2013 Desk Study and Ground Investigation (report attached at Appendix C) was carried out on the site and to the north and west of the site as part

of a wider development scheme. Due to the close proximity of that investigation to the site, it is considered likely that the ground conditions will be similar. WA carried out a site investigation between 2nd October 2012 and 6th December 2012. The following ground conditions were typically encountered adjacent to the site (typical depth ranges provided):

- Topsoil: 0.0 - 0.6mbgl;
- Loose Sands: 0.6 - 2.7mbgl;
- Fibrous to Amorphous Peat: 1.1 – 2.6mbgl;
- Alluvial Clay/Silt: 2.7 - 4.7mbgl;
- Loose/medium dense sand: 4.7 - 15.0mbgl;
- Firm to Stiff Clay: 15.0 – 15.45mbgl (depth to base not proved).

4.2.2 The WA March 2013 Desk Study and Ground Investigation Report recommended that, due to the presence of peat material at depth, a foundation solution of piling combined with surcharging is likely to be the most appropriate technique for the Kensington Development area. The potential for future settlement within the external areas also needed to be taken into account. It is unknown whether these conclusions and recommendations will be representative of this site.

4.3 Hydrogeology

4.3.1 Hydrogeological information provided in the Groundsure report indicates the site is underlain by a Secondary A Aquifer with permeable layers within the superficial deposits. The site in underlain by a Secondary B Aquifer and an Unproductive Aquifer within the bedrock geology.

4.3.2 Secondary A aquifers are generally fractured or potentially fractured formations and do not have a high primary permeability. Although not producing large quantities of water for abstraction, they are important for local supplies and may supply base flow to rivers.

4.3.3 Secondary B aquifers are generally regarded as containing limited quantities of groundwater. Groundwater flow through such rocks although imperceptible, does take place and needs to be considered in assessing the risk associated with persistent pollutants.

4.3.4 An Unproductive Aquifer has low permeability and contributes a negligible flow for water supply or river base flow.

4.3.5 There are no groundwater abstraction licences or potable water abstraction licences within 500m of the site.

4.3.6 The site does not lie within a source protection zone.

4.3.7 Groundwater monitoring was carried out by WA following the ground investigation for the adjacent Kensington Development area in 2013. The mean groundwater level was recorded at between 0.40 and 1.15mbgl.

4.4 Soil Vulnerability Classification

4.4.1 Groundwater vulnerability and soil leaching information is provided within the Groundsure Report for the site. The soil vulnerability category is recorded as H1 and HU.

4.4.2 The H1 soil vulnerability category with classification Minor Aquifer/High Leaching potential is described as soils which readily transmit liquid discharges because they are shallow and susceptible to rapid flow directly to rock, gravel or groundwater.

4.4.3 The HU soil vulnerability category with classification Minor Aquifer/High Leaching potential is described as soils information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

4.5 Hydrology

Watercourses

4.5.1 The Groundsure report records 6No. unnamed watercourses on the site, however it is likely that the same watercourse has been recorded more than once. The watercourses are described as inland river not influenced by normal tidal action. There are 2No. watercourses 8m west of the site and it is likely that the same watercourse has been recorded twice. It is considered likely that these watercourses relate to the drainage ditches bordering the north, east and south of the site.

4.5.2 There are no surface water abstraction licences within 500m of the site.

Flooding

4.5.3 The flood maps show the predicted likelihood of flooding in an area in the context of current and also the proposed land use considered in development planning.

4.5.4 The site is not within an Environment Agency Flood Zone or in an area benefiting from flood defences.

4.5.5 The area approximately 170m north of the site is within an Environment Agency Flood Zone 2 and 1.

4.5.6 Given that the area of the site is over 1 hectare, the site will require a Flood Risk Assessment for planning purposes.

5 MINING AND QUARRYING

5.1 General

5.1.1 Published geological information indicates that the site is not in an area of surface or underground coal mining or non-coal mining. Therefore, the site is considered highly unlikely to be subjected to any ground instability or ground gas from this source.

6 ENVIRONMENTAL SETTING AND CONSULTATIONS

6.1 Introduction

6.1.1 Information from various statutory sources has been summarised from the Groundsure Report (Appendix A).

6.2 Contaminated Land Register Entries and Notices

6.2.1 The site or an area within 500m of the site has not been identified as potentially contaminated by the Local Authority under the Part IIA of the Environmental Protection Act 1990.

6.3 Waste Management

6.3.1 Information supplied has not indicated the presence of any historic landfill within 1000m of the site.

6.4 Radon

6.4.1 The Health Protection Agency and British Geological Survey document entitled Indicative Atlas of Radon in England and Wales, dated 2007, summarises the number of homes in a given area above the "Action Level" for radon.

6.4.2 The site is located in 1km grid squares that are in the lowest band of radon potential and less than 1% of homes are above the Action Level.

6.4.3 The BRE document entitled "Radon guidance on protective measures for new buildings", dated 2015 suggests that no protection is required for the site.

6.5 Environmental Issues

6.5.1 The following environmental issues for the site and adjacent land have been reviewed:

- There are no recorded pollution incidents within 500m of the site;
- There are 2No. recorded active discharge consents within 500m of the site. Details of these are provided within Table 6.1;
- There are no recorded Integrated Pollution Prevention Controls (Part A2) activities and enforcement within 500m of the site;
- There are no Local Authority Pollution Prevention Controls (Part B) activity and enforcement within 500m of the site;
- There are no Planning Hazardous Substance consents and Enforcements within 500m of the site.

Table 6.1 Discharge Consents	
Incident	**Details**
Grid ref: 334030 429425 Distance from site: 213m south of the site.	Effluent Type: Sewage Discharges – Pumping Station – Water Company Receiving Water: Unnamed tributary to Laggard Brook.
Grid ref: 334030 429425 Distance from site: 213m south of the site.	Effluent Type: Sewage Discharges – Sewer Storm Overflow/Storm Tank – Water Company Receiving Water: Unnamed tributary to Laggard Brook.

6.5.2 The environmental issues identified above are not likely to significantly impact the proposed development.

6.6 Unexploded Ordnance

6.6.1 A Zetica unexploded bomb (UXB) risk map for the site has been reviewed and suggests that the risk on site is Low – areas indicated as having 15 bombs per 1000acres or less. The map is attached at Appendix E.

7 PRELIMINARY CONCEPTUAL SITE MODEL

7.1 Background

7.1.1 Following a review of the information presented in this report a preliminary conceptual site model has been prepared to show the characteristics of the site and show the relationships between possible contaminants, pathways and receptors. The Preliminary Conceptual Site model is based upon an assumed future residential end use. This should be refined as more detail becomes available on the ground conditions present.

7.1.2 Potential Sources of Contamination On-Site:

- Made Ground – associated with the horse riding facility and associated infrastructure;
- Potential stockpiles of material and waste used in raised area around concrete structure;
- Infilled drainage;
- Asbestos – potentially associated with buildings on site;
- Agricultural fertilizers;
- Ground gas – potential peat.

7.1.3 Potential Sources of Contamination Off-Site:

- Ground gas – peat encountered in adjacent areas of the site during 2012 WA ground investigation;
- Infilled pond and former embankment areas located south of the site.

7.1.4 Potential Pathways

- Human health – inhalation, ingestion, dermal;
- Controlled waters – leaching, migration, overland flow;
- Buildings/infrastructure – gas migration, direct contact;
- Flora and Fauna – ingestion, root uptake.

7.1.5 Potential Receptors

- Human health – current site users, future site users, construction workers and adjacent site users;

- Controlled water – groundwater, surface water – adjacent drainage;
- Buildings/infrastructure existing and proposed.

7.2 Preliminary Conceptual Site Model

7.2.1 Table 7.1 summaries the conceptual site model and potential pollution linkages

TABLE 7.1: Conceptual Site Model & Potential Pollutant Linkages

Source (Contaminant)	Pathway	Receptor
Made Ground – associated with horse riding facility and associated infrastructure	1. Inhalation 2. Dermal contact 3. Ingestion 4. Surface runoff/overland flow 5. Groundwater migration 6. Direct contact (aggressive attack) 7. Gas migration	1. Current occupiers 2. Future occupiers 3. Construction workers 4. Groundwater 5. Surface water 6. Building materials (substructure) 7. Water supply pipes 8. Flora and fauna
Potential stockpiles of material and waste used in raised areas. Infilled drainage.	1. Inhalation 2. Dermal contact 3. Ingestion 4. Surface runoff/overland flow 5. Groundwater migration 6. Direct contact (aggressive attack) 7. Gas migration	1. Current occupiers 2. Future occupiers 3. Construction workers 4. Groundwater 5. Surface water 6. Building materials (substructure) 7. Water supply pipes 8. Flora and fauna
Asbestos – potentially associated with buildings on site	1. Inhalation 2. Dermal contact 3. Ingestion 4. Direct Contact	1. Current occupiers 2. Future occupiers 3. Construction workers
Agricultural Fertilizers	1. Inhalation 2. Dermal contact 3. Ingestion 4. Surface runoff/overland flow 5. Groundwater migration	1. Current occupiers 2. Future occupiers 3. Construction workers 4. Groundwater 5. Surface water 6. Flora and fauna
Ground Gas – Peat (on and off site)	1. Inhalation 2. Gas migration	1. Current occupiers 2. Future occupiers 3. Construction workers 4. Building materials (substructure)
Infilled pond and former embankment areas located south of the site	1. Groundwater migration 2. Inhalation 3. Gas migration	1. Groundwater 2. Current occupiers 3. Future occupiers 4. Construction workers 5. Building materials (substructure)

8 PRELIMINARY ENVIRONMENTAL RISK ASSESSMENT

8.1 Introduction

8.1.1 In line with EA guidance Land Contamination: Risk Management June 2019 (LCRM) the information gathered throughout this report can be used to carry out a Preliminary Risk Assessment. The Risk Assessment is provided for each identified source, pathway, receptor linkage in Table 8.1.

8.1.2 The CIRIA document Contaminated Land Risk Assessment – a guide to good practice C552, 2001 defines the Consequence of Risk, Probability of Risk Being Realised and Risk Classification Definition. These definitions are provided in Tables G.1, G.2 and G.3, and the Risk Classification Matrix (Table G.4) and are used to provide a qualitative Risk Assessment for each identified source, pathway, receptor linkage. Tables G.1 to G.4 are provided in Appendix F.

TABLE 8.1: Preliminary Qualitative Risk Assessment						
Source / Contaminant	**Pathway(s)**	**Receptor**	**Consequence of Risk Being Realised**	**Probability of Risk Being Realised**	**Risk Classification**	**Necessary Actions / Commentary**
Made Ground – associated with horse riding facility and associated infrastructure	Human Health	Future site users, current site users, construction workers	Minor	Low	Very Low	The condition of the made ground is unknown although given the site history there is potential for it to contain contamination. Investigation of the made ground to determine its nature and potential contamination is required.
	Controlled waters	Drains and aquifer	Medium	Low	Low/Moderate	
	Buildings/Infrastructure	Future buildings and water pipes	Minor	Low	Very Low	Made ground and potential contamination such as aggressive chemicals could affect water pipes and vegetation. A ground investigation is recommended to support any future design
	Flora and Fauna	Existing and future vegetation	Minor	Low	Very Low	
Potential stockpiles of material and waste used in raised areas. Infilled drainage.	Human Health	Future site users, current site users, construction workers	Medium	Low	Low/Moderate	It was not possible to identify the materials during the site walkover. The material does not appear to be located on any hardstanding. Should

TABLE 8.1: Preliminary Qualitative Risk Assessment						
Source / Contaminant	**Pathway(s)**	**Receptor**	**Consequence of Risk Being Realised**	**Probability of Risk Being Realised**	**Risk Classification**	**Necessary Actions / Commentary**
	Controlled waters	Three Pools Waterway, drains and aquifer	Medium	Low	Low/Moderate	any works be required in this part of the site the materials used in the raised areas, and the ground below, will need to be investigated.
	Buildings/Infrastructure	Future buildings and water pipes	Minor	Low	Very Low	
	Flora and Fauna	Existing and future vegetation	Mild	Low	Low	
Agricultural Fertilizers and Pesticides	Human Health	Future site users, current site users,	Medium	Low	Low/Moderate	Given the current and previous land use, it is likely that fertilizers and pesticides have been used on the site. As part of the ground investigation ground samples should be tested for fertilizers and pesticides.
	Controlled Waters	Drains and aquifer	Medium	Low	Low/Moderate	
	Flora and Fauna	Existing and future vegetation	Mild	Likely	Low/Moderate	
Asbestos – associated with the farm buildings	Human Health	Future site users, current site users, construction workers	Severe	Low	Moderate	Given the age of the farm and associated buildings it is possible that asbestos is present. Ground Investigation is recommended.

TABLE 8.1: Preliminary Qualitative Risk Assessment						
Source / Contaminant	**Pathway(s)**	**Receptor**	**Consequence of Risk Being Realised**	**Probability of Risk Being Realised**	**Risk Classification**	**Necessary Actions / Commentary**
						Appropriate risk assessment and mitigation required prior to any investigation works on site. Should the demolition of any existing buildings be required a full asbestos survey will be necessary.
Ground Gas – Peat (on and off site)	Human Health	Future site users, current site users, construction workers	Medium	Likely	Moderate	Peat has been identified in the boreholes surrounding the site. It is considered likely that peat deposits are present beneath the site and likely to be a source of ground gas (on and off site) and differential settlement. Ground gas monitoring is required following the proposed ground investigation.
	Buildings/Infrastructure	Future buildings	Mild	Likely	Low/Moderate	
Infilled pond and former embankment	Controlled waters	Drains and aquifer	Medium	Low	Low/Moderate	It is considered that any areas of potential infilling within 250m of the

TABLE 8.1: Preliminary Qualitative Risk Assessment						
Source / Contaminant	**Pathway(s)**	**Receptor**	**Consequence of Risk Being Realised**	**Probability of Risk Being Realised**	**Risk Classification**	**Necessary Actions / Commentary**
areas located south of the site Ground Gas – Peat (on and off site)	Human Health	Future site users, current site users, construction workers	Medium	Low	Low/Moderate	site are a potential a source of ground gas (on and off site). Ground gas monitoring is required following the proposed ground investigation. Samples of groundwater taken from the proposed ground investigation should be tested for chemicals such as Metals, non metals, inorganics and organics.
	Buildings/Infrastructure	Future buildings	Mild	Low	Low	

9 CONCLUSIONS AND RECOMMENDATIONS

9.1 Conclusions

9.1.1 Based on available information summarised in this report the ground conditions beneath the site are considered to present an overall Low to Moderate risk to future development. There are a number of potential environmental and geotechnical constraints that need to be fully investigated and assessed prior to the future development. It is considered likely that some mitigation measures will be necessary.

9.1.2 The following constraints have been identified in this report:

- Made ground associated with the horse riding facility and associated infrastructure could be a potential source of contamination;
- Potential stockpiles of material and waste used in a raised area around a concrete structure are of unknown origin and could be a potential source of contamination;
- Potential for fertilizers and pesticides to be present on site;
- Potential ACMs within the buildings;
- Peat deposits are likely to be present beneath the site are a potential source of ground gas;
- Off-site infilled pond and former embankments are a potential source of groundwater contamination and ground gas;
- The WA March 2013 Desk Study and Ground Investigation Report for areas adjacent to the site recommended that, due to the presence of peat material at depth, a foundation solution of piling combined with surcharging is likely to be the most appropriate technique for the Kensington Development area. The potential for future settlement within the external areas also needed to be taken into account. It is unknown whether these conclusions and recommendations will be representative of this site. However, they should be taken into consideration as a potential constraint to development.

9.1.3 It is recommended that a detailed investigation of the geological conditions will be required prior to the intended development of the site. Further to this, some remedial measures may be necessary depending on the nature and extent of any made ground and the geotechnical nature of the superficial deposits.

9.2 Recommendations

9.2.1 It is recommended that a Phase 2 Ground Investigation is carried out to determine the geological conditions on site, geotechnical parameters and the potential contamination.

9.2.2 Table 9.1 outlines the preliminary objectives that the ground investigation would be anticipated to target. The list presented in Table 9.1 is not exhaustive and general investigation, sampling and testing across the site will be required to better understand the overall risk posed by the site.

Table 9.1 Preliminary Ground Investigation Objectives

Geo-environmental Objectives	Geotechnical Objectives
• To reduce uncertainty in knowledge of the site, enabling the initial conceptual model to be refined and reassessment of risk; • Target sampling and chemical testing to the horse riding facility and fertilizers; • Undertake groundwater and ground gas monitoring; • Provide sufficient data to design a remediation approach, if required.	• To reduce uncertainty in knowledge of the site, enabling review of the Geotechnical Risk Assessment; • To identify the nature and parameters of the ground strata and groundwater; • Identify the ground conditions associated with the peat and superficial deposits likely to be encountered beneath the site; • Establish parameters prior to the design of foundations, temporary and permanent works; • Provide sufficient information to target further ground investigation and/or design of a suitable remediation approach; • Locate, map and investigate underground obstructions and identify potential construction difficulties.

9.2.3 The ground investigation is likely to comprise of:

- Drilling/trial pitting and testing/monitoring of soil, groundwater and ground gas to target potential sources of contamination within and outside of the site;
- Drilling/trial pitting/probing and geotechnical testing of soil/rock across the site to enable foundation and infrastructure design;
- A quantitative/qualitative risk assessment to determine if significant contamination is present;
- If significant contamination is identified, calculation of site-specific remedial targets.

9.2.4 Given the size of the site and flood zone conditions near to the site, a Flood Risk Assessment will be required as part of any future planning.

9.2.5 An ecological assessment is recommended prior to any works on site to identify whether protected species or invasive plant species inhabit the site.

9.2.6 As previously stated, it is recommended that archaeological support is sought prior to any works on site. This may initially comprise an archaeological desk based assessment and include a review of the whole site and buildings present; it is likely that this will be required as part of any future planning.

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Appendix A

Wardell Armstrong LLP

Sir Henry Doulton House, Forge Lane,
Stoke on Trent, ST1 5BD

Groundsure Reference:	GSWA1-6553686
Your Reference:	GM10908
Report Date	14 Jan 2020
Report Delivery Method:	Email - pdf

Enviro Insight

Address: WILDINGS LANE, LYTHAM ST ANNES,

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,

Wardell Armstrong

Enc.
Groundsure Enviroinsight

Enviro Insight

Address:	**WILDINGS LANE, LYTHAM ST ANNES,**
Date:	**14 Jan 2020**
Reference:	**GSWA1-6553686**
Client:	**Wardell Armstrong LLP**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	22-Apr-2015
Grid Reference:	334079,429750
Site Size:	3.2920ha

Report Reference: GSWA1-6553686
Client Reference: GM10908

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Overview of Findings

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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	0	0	4	0
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	2	10
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	1	4	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	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
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	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	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	5	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	0	0
2.2 Records of COMAH and NIHHS sites	0	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	0
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	0

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	0	0	Not searched
3.1.2 Environment Agency/Natural Resources Wales Historic Landfill Sites	0	0	0	0	0	1
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	0	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	0	0	10

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	3	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	None 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	1	4
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)	2	0	0	1	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	6	2	18	96	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	Very Low
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	Potential at Surface
7.8 BGS confidence rating for the Groundwater Flooding susceptibility areas	Moderate

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	1	0	0	0
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	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
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	0	0	0	0	0	0
8.14 Records of Green Belt land	0	0	2	0	0	1

Section 9: Natural Hazards

9.1 Maximum risk of natural ground subsidence	Low
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Negligible
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	Very Low
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
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	Low
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.

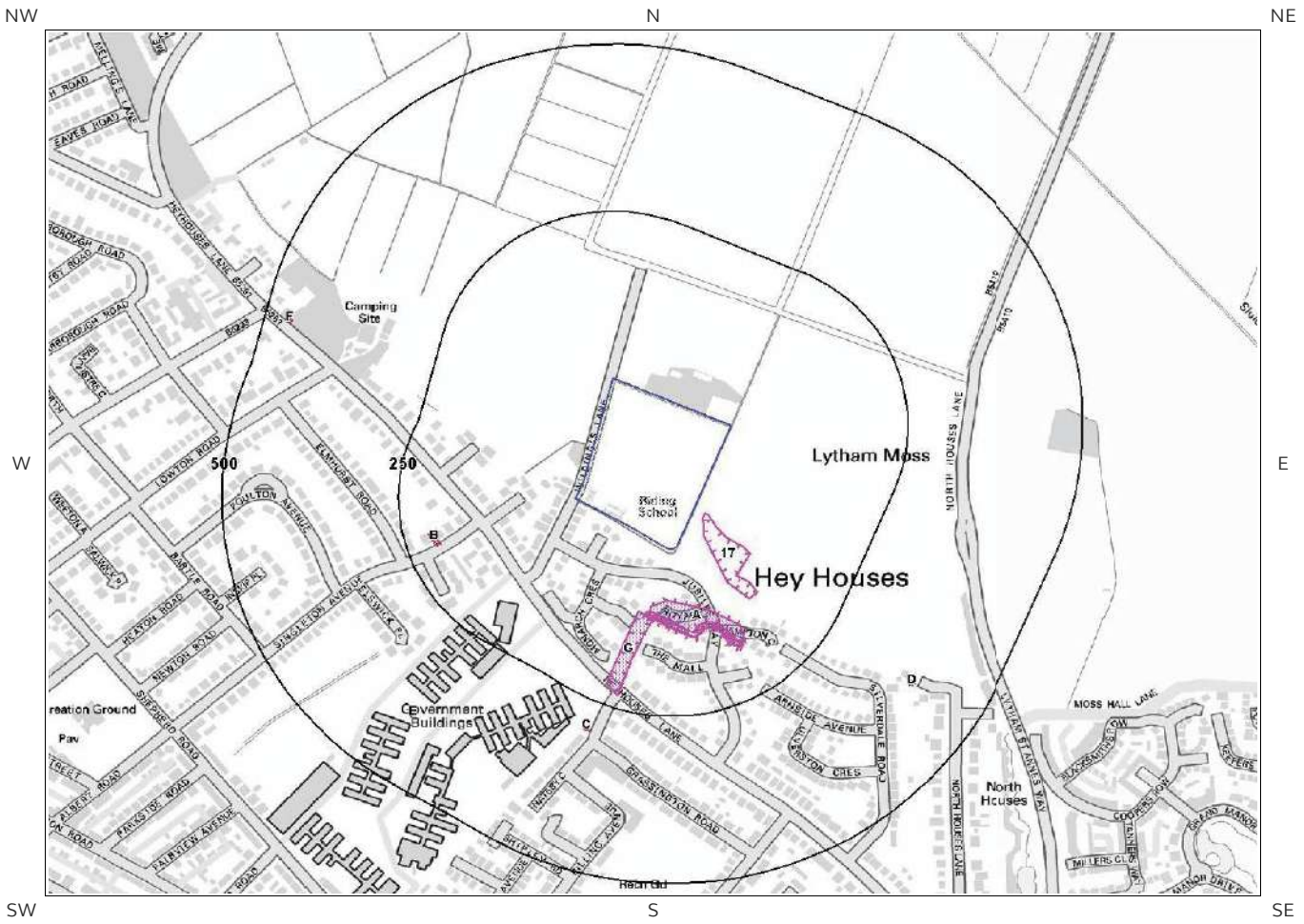
Note: Maps

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



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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: 4

ID	Distance [m]	Direction	Use	Date
1A	77	S	Unspecified Pit	1951
2A	101	S	Unspecified Ground Workings	1930
3G	101	S	Cuttings	1891
4A	103	S	Unspecified Ground Workings	1938

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: 0

Database searched and no data found.

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: 12

ID	Distance (m)	Direction	Use	Date
5B	201	W	Electricity Substation	1981
6B	202	W	Electricity Substation	1993
7C	289	S	Electricity Substation	1970
8C	290	S	Electricity Substation	1990
9C	290	S	Electricity Substation	1972
10D	385	SE	Electricity Substation	1993
11D	387	SE	Electricity Substation	1982
12E	395	SW	Electricity Substation	1970

13E	395	SW	Electricity Substation	1990
14E	395	SW	Electricity Substation	1972
15F	460	W	Electricity Substation	1981
16F	460	W	Electricity Substation	1993

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: 5

The following Historical Potentially Infilled Features derived from the Historical Mapping information is provided by Groundsure:

ID	Distance(m)	Direction	Use	Date
17	17	SE	Unspecified Heap	1951
18A	77	S	Unspecified Pit	1930
19A	101	S	Unspecified Ground Workings	1891

20G	101	S	Cuttings	1938
21A	103	S	Unspecified Ground Workings	

2. Environmental Permits, Incidents and Registers Map

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- Site Outline
- Search Buffers (m) 250 / 500
- 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:

0

Database searched and no data found.

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

0

Database searched and no data found.

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:

0

Database searched and no data found.

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

0

Database searched and no data found.

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:

5

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

ID	Distance (m)	Direction	NGR	Details	
1A	213	S	334030 429425	Address: SMITHY LANE PUMPING STATION 19003, JNT SMITHY LANE AND HEYHSE LANE, ., LYTHAM ST ANNES, LANCASHIRE, FY8 3RQ Effluent Type: SEWAGE DISCHARGES - PUMPING STATION - WATER COMPANY Permit Number: 01FYL0011 Permit Version: 3	Receiving Water: UNNAMED TRIB LAGGARD BROOK Status: VARIED UNDER EPR 2010 Issue date: 15/10/2018 Effective Date: 15-Oct-2018 Revocation Date: -
2A	213	S	334030 429425	Address: SMITHY LANE PUMPING STATION 19003, JNT SMITHY LANE AND HEYHSE LANE, ., LYTHAM ST ANNES, LANCASHIRE, FY8 3RQ Effluent Type: SEWAGE DISCHARGES - STW STORM OVERFLOW/STORM TANK - WATER COMPANY Permit Number: 01FYL0011 Permit Version: 3	Receiving Water: UNNAMED TRIB LAGGARD BROOK Status: VARIED UNDER EPR 2010 Issue date: 15/10/2018 Effective Date: 15-Oct-2018 Revocation Date: -
3	229	SW	334000 429420	Address: LYTHAM-ST-ANNES SPS NO 3, FYLDE Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01LA1436 Permit Version: 1	Receiving Water: TRIB LIGGARD BROOK Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 30-Dec-1965 Revocation Date: 30/12/1965
4B	241	S	334200 429400	Address: SMITHY LANE PUMPING STATION 19003, JNT SMITHY LANE AND HEYHSE LANE, ., LYTHAM ST ANNES, LANCASHIRE, FY8 3RQ Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0011 Permit Version: 1	Receiving Water: - Status: REVOKED - UNSPECIFIED Issue date: - Effective Date: 01-Apr-1991 Revocation Date: 31/12/1994
5B	241	S	334200 429400	Address: SMITHY LANE PUMPING STATION 19003, JNT SMITHY LANE AND HEYHSE LANE, ., LYTHAM ST ANNES, LANCASHIRE, FY8 3RQ	Receiving Water: ?? Status: POST NRA LEGISLATION WHERE ISSUE DATE > 31-AUG-89 (HISTORIC ONLY)

ID	Distance (m)	Direction	NGR	Details	
				Effluent Type: SEWAGE DISCHARGES - SEWER STORM OVERFLOW - WATER COMPANY Permit Number: 01FYL0011 Permit Version: 2	Issue date: - Effective Date: 01-Jan-1995 Revocation Date: 14/10/2018

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:

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

Records of COMAH & NIHHS sites within 500m of the study site: 0

Database searched and no data found.

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:

0

Database searched and no data found.

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	0

Database searched and no data found.

3. Landfill and Other Waste Sites Map

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Site Outline

250 Search Buffers (m)
500

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:

0

Database searched and no data found.

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

1

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	
Not shown	1203	NW		Site Address: Blackpool Airport, Common Edge Road, Lytham, Blackpool, Lancashire Waste Licence: - Site Reference: K1/04/027 Waste Type: Inert, Household Environmental Permitting Regulations (Waste) Reference: -	Licence Issue: Licence Surrendered: Licence Holder Address: - Operator: - Licence Holder: Blackpool Borough Council First Recorded: 31-Dec-1951 Last Recorded: 31-Dec-1969

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

0

Database searched and no data found.

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:

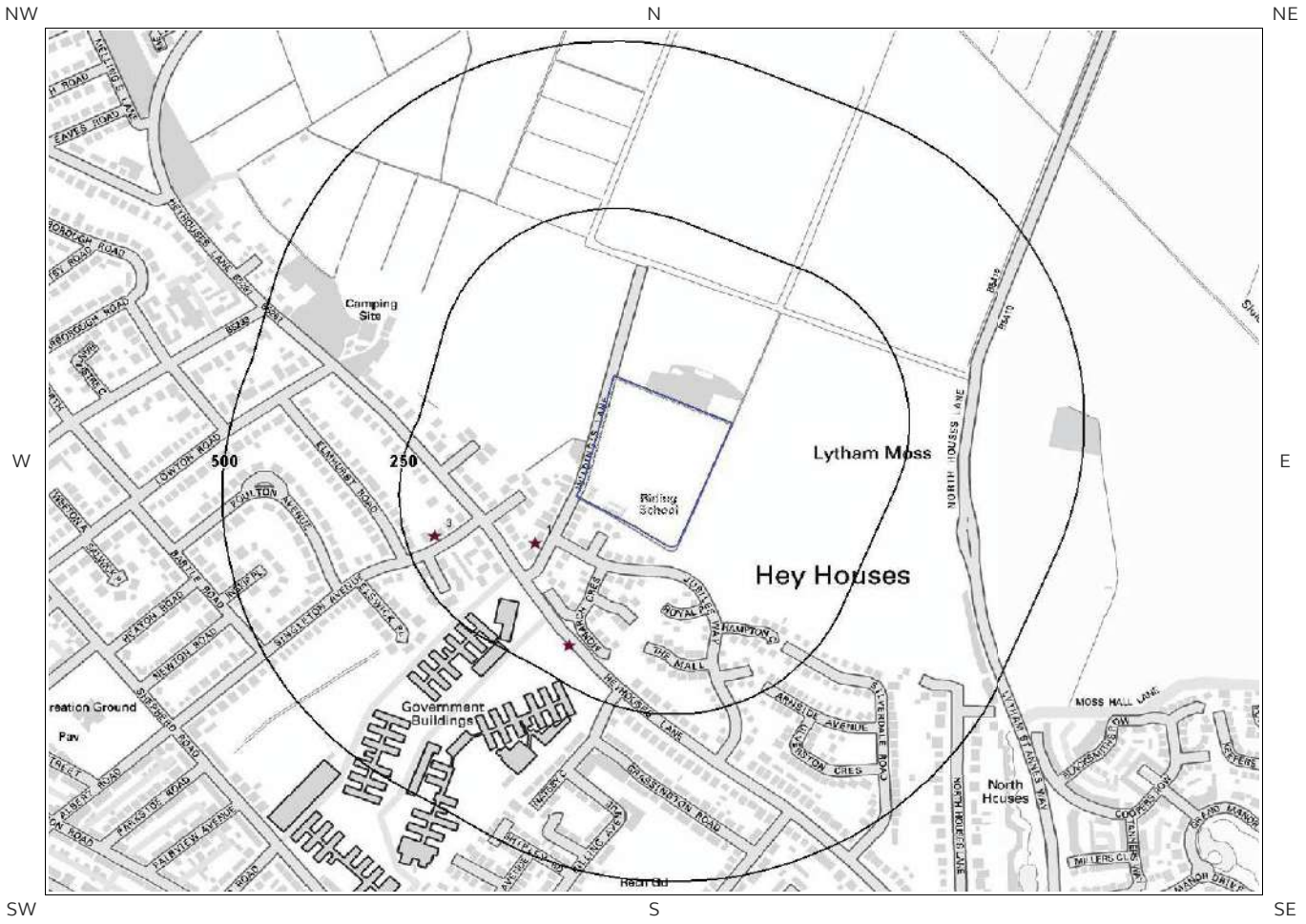
10

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	
Not shown	1073	NW	333372 430730	Site Address: Unit C & E G, Scafell Road, Queensway Industrial Esta, Lytham St Annes, Lancashire, FY8 3HE Type: Physical Treatment Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: RJR005 EPR reference: EA/EPR/BB3704XQ/S002 Operator: R J Refurbishments Limited Waste Management licence No: 401526 Annual Tonnage: 0.0	Issue Date: 12/09/2014 Effective Date: - Modified: - Surrendered Date: Dec 18 2017 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: R J Refurbishments Ltd Correspondence Address: -
Not shown	1192	NW	333212 430751	Site Address: Land/premises At, Snowdon Road, Lytham, St Annes, Lancashire, FY8 3DP Type: ELV Facility Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: R&L001 EPR reference: EA/EPR/RP3497CG/S002 Operator: Ward Leslie Waste Management licence No: 54387 Annual Tonnage: 0.0	Issue Date: 23/08/2004 Effective Date: - Modified: - Surrendered Date: Jan 31 2019 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: R & L Metals Correspondence Address: -
Not shown	1221	NW	333145 430725	Site Address: Snowdon Road, Lytham St Annes, Lytham, Lancashire, FY8 3DP Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT058 EPR reference: - Operator: Sita (Lancashire) Ltd Waste Management licence No: 54443 Annual Tonnage: 0.0	Issue Date: 23/06/2006 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Everest Road Hwrc Correspondence Address: Tustin Court, Portway, Preston, Lancashire, PR2 2YQ
Not shown	1221	NW	333145 430725	Site Address: Snowdon Road, Lytham St Annes, Lytham, Lancashire, FY8 3AZ Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT058 EPR reference: EA/EPR/QP3797CC/S002 Operator: Sita (Lancashire) Ltd Waste Management licence No: 54443 Annual Tonnage: 0.0	Issue Date: 23/06/2006 Effective Date: - Modified: - Surrendered Date: Jun 27 2011 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Everest Road H W R C Correspondence Address: -

ID	Distance (m)	Direction	NGR	Details	
Not shown	1237	NW	333100 430700	Site Address: Everest Road, St. Annes, Lancashire, FY8 3AZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT029 EPR reference: - Operator: Sita (Lancashire) Ltd Waste Management licence No: 54124 Annual Tonnage: 0.0	Issue Date: 14/05/1991 Effective Date: - Modified: 18/02/2000 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Everest Road H W D C Correspondence Address: Tustin Court, Portway, Preston, Lancashire, PR2 2YQ
Not shown	1237	NW	333100 430700	Site Address: Everest Road, Lytham St Annes, Lancashire, FY8 3DZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT029 EPR reference: - Operator: Sita (Lancashire) Ltd Waste Management licence No: 54124 Annual Tonnage: 15000.0	Issue Date: 14/05/1991 Effective Date: - Modified: 18/02/2000 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Everest Road H W D C Correspondence Address: S I T A, Tustin Court, Portway, Preston, Lancashire, PR2 2YQ
Not shown	1237	NW	333100 430700	Site Address: Everest Road, Lytham St Annes, Lancashire, FY8 3DZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT029 EPR reference: EA/EPR/AP3191SC/S002 Operator: Sita (Lancashire) Ltd Waste Management licence No: 54124 Annual Tonnage: 0.0	Issue Date: 14/05/1991 Effective Date: - Modified: 18/02/2000 Surrendered Date: 19/09/2008 Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Everest Road H W D C Correspondence Address: -
Not shown	1237	NW	333100 430700	Site Address: Everest Road, St. Annes, Lancashire, FY8 3AZ Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT029 EPR reference: - Operator: Sita U K Ltd Waste Management licence No: 54124 Annual Tonnage: 15000.0	Issue Date: 14/05/1991 Effective Date: - Modified: 18/02/2000 Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Modified Site Name: Everest Road H W D C Correspondence Address: Tustin Court, Portway, Preston, Lancashire, PR2 2YQ
Not shown	1237	NW	333100 430700	Site Address: Everest Road, Lytham St Annes, Lancashire, FY8 3DZ Type: Household Waste Amenity Site Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: SIT029 EPR reference: EA/EPR/AP3191SC/S002 Operator: Sita (Lancashire) Ltd Waste Management licence No: 54124 Annual Tonnage: 0.0	Issue Date: 14/05/1991 Effective Date: - Modified: 18/02/2000 Surrendered Date: Sep 19 2008 12:00AM Expiry Date: - Cancelled Date: - Status: Surrendered Site Name: Everest Road H W D C Correspondence Address: -
Not shown	1260	NW	333177 430811	Site Address: C/o R & L Metals, Snowdon Road, Lytham St Annes, Lancashire, FY8 3DP Type: Household, Commercial & Industrial Waste T Stn Size: < 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: KWI001 EPR reference: EA/EPR/DP3197CF/A001 Operator: John Douglas Gold Waste Management licence No: 54404 Annual Tonnage: 4999.0	Issue Date: 02/11/2004 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Issued Site Name: Kwik Skip Hire Ltd Correspondence Address: -

4. Current Land Use Map



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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: 3

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	91	SW	Priory Cooked Meats	333913 429630	1, Wildings Lane, Lytham St. Annes, Lancashire, FY8 3RJ	Fish, Meat and Poultry Products	Foodstuffs
2	199	SW	Masts	333961 429477	Lancashire, FY8	Telecommunications Features	Infrastructure and Facilities
3	208	W	Electricity Sub Station	333772 429641	Lancashire, FY8	Electrical Features	Infrastructure and Facilities

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

Database searched and no data found.

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

5.2 Superficial Ground and Drift Geology

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

Lex Code	Description	Rock Type
BSA-S	BLOWN SAND	SAND

5.3 Bedrock and Solid Geology

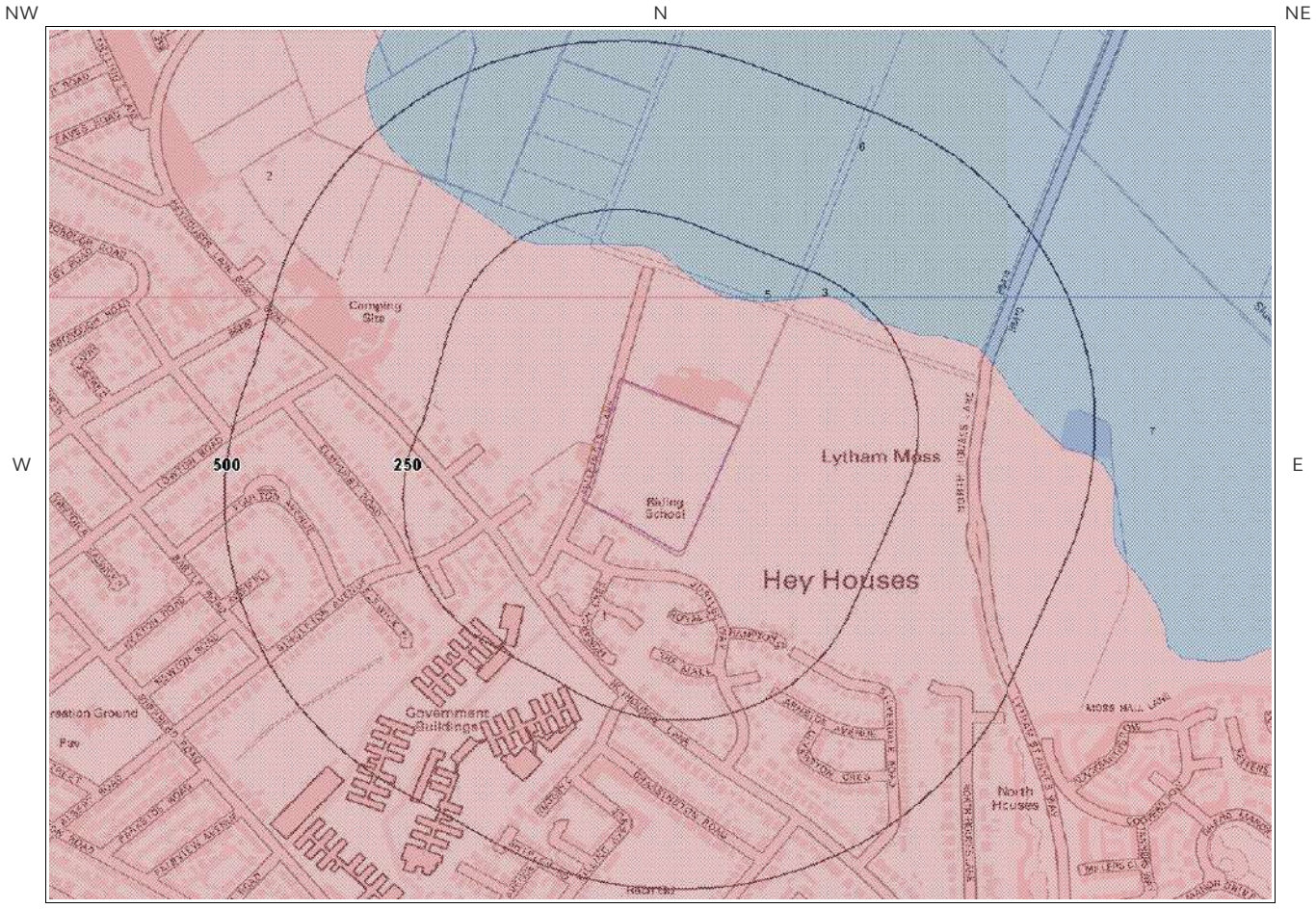
The database has been searched on site, including a 50m buffer.

Lex Code	Description	Rock Type
SNM-MDST	SINGLETON MUDSTONE MEMBER	MUDSTONE
MSA-MDHA	MYTHOP HALITE MEMBER	MUDSTONE AND HALITE-STONE

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

6 Hydrogeology and Hydrology

6a. Aquifer Within Superficial Geology



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Site Outline

250
500
Search Buffers (m)

Principal Aquifer

Secondary (A) Aquifer - Permeable Layers

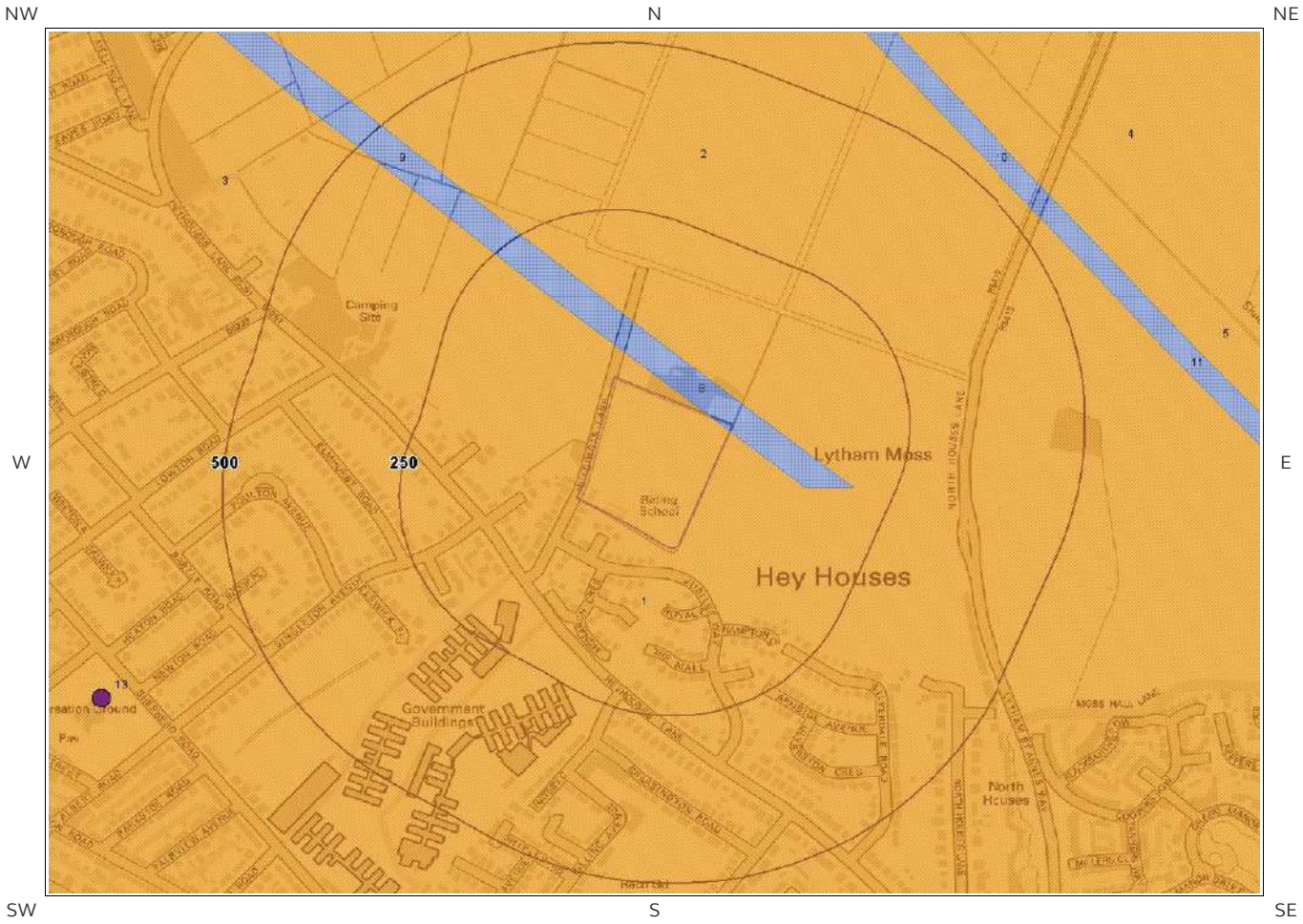
Secondary (B) Aquifer - Lower Permeability Layers

Secondary Aquifer - Undifferentiated Layers

Unproductive

Unknown (lakes and landslip)

6b. Aquifer Within Bedrock Geology and Abstraction Licences



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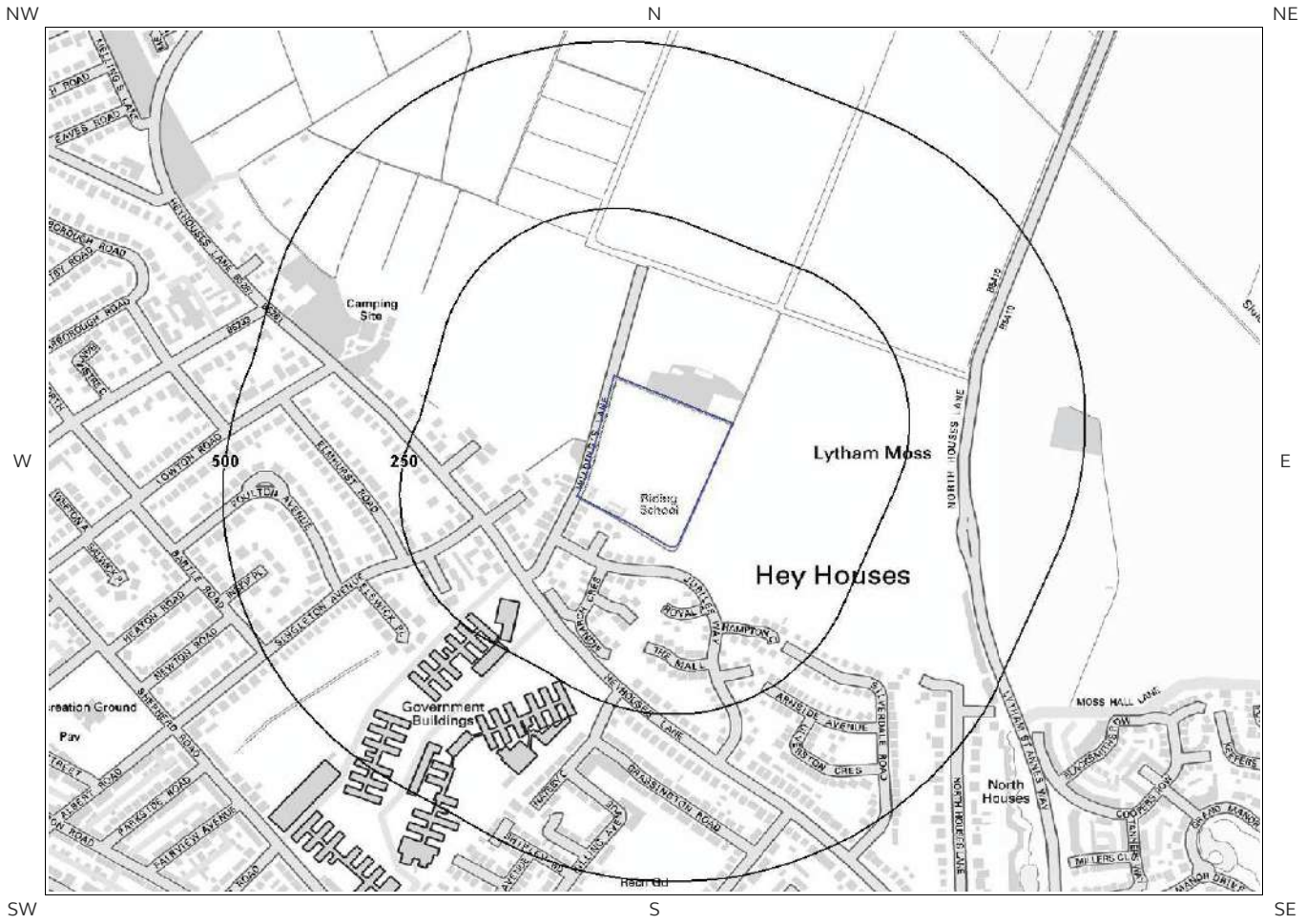
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



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Site Outline

250 Search Buffers (m)
500

Source Protection Zone 1 - Inner Catchment

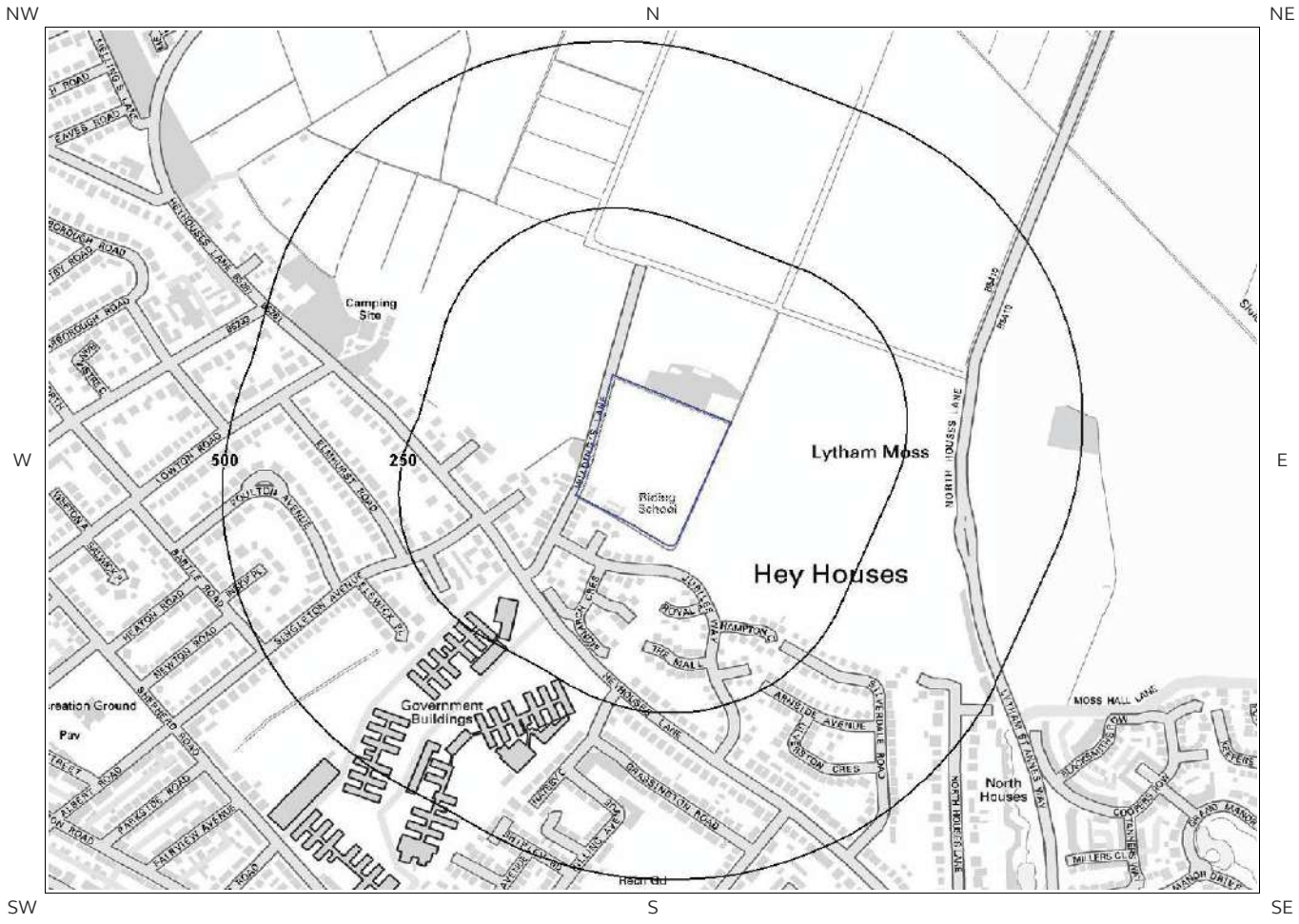
Source Protection Zone 2 - Outer Catchment

Source Protection Zone 3 - Total Catchment

Source Protection Zone 4 - Zone of Special Interest

Potable Water Abstraction Licence

6d. Hydrogeology – Source Protection Zones within confined aquifer



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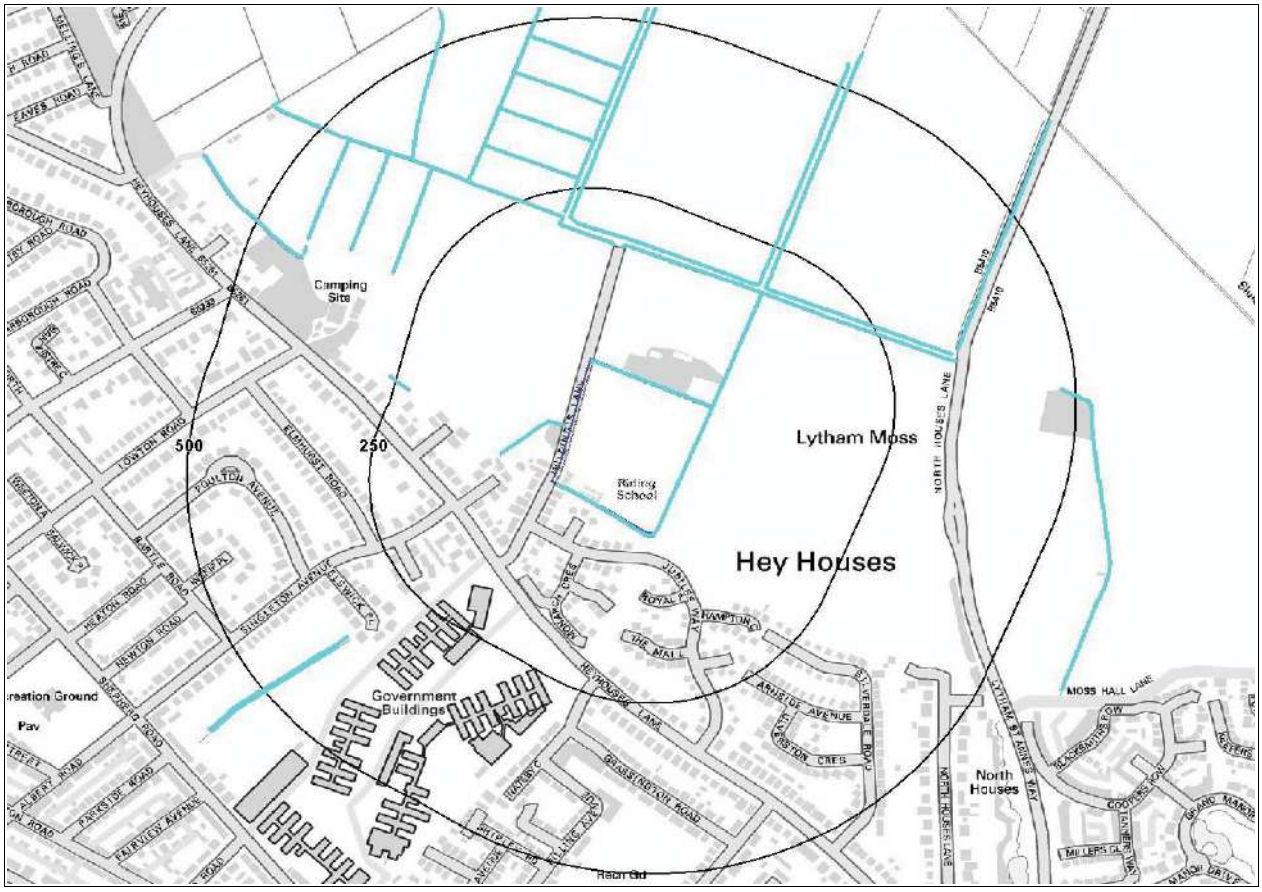
6e. Hydrology – Watercourse Network and River Quality

NW N NE

W E

SW S SE



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Site Outline

250 Search Buffers (m)
500

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
1	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	121	N	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	167	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
6	167	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow
3	218	NE	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
7	230	NE	Unproductive	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow

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	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers
8	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
2	121	N	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers
9	123	N	Unproductive	These are rock layers or drift deposits with low permeability that have negligible

ID	Distance (m)	Direction	Designation	Description
				significance for water supply or river base flow
3	151	NW	Secondary B	Predominantly lower permeability layers which may store/yield limited amounts of groundwater due to localised features such as fissures, thin permeablehorizons and weathering. These are generally the water-bearing parts of the former non-aquifers

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	
13	736	SW	333300 429400	Status: Historical Licence No: 2671353008 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: REAM WELL AT LYTHAM ST ANNES Data Type: Point Name: FYLDE BOROUGH COUNCIL	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 19/08/1993 Expiry Date: - Issue No: 100 Version Start Date: 19/08/1993 Version End Date:
Not shown	1299	S	333850 428350	Status: Historical Licence No: 2671353010 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: WELL POINT SYSTEM - SUPERFICIAL SAND AT LYTHAM ST ANNES Data Type: Point Name: ROYAL LYTHAM AND ST ANNES GOLF CLUB	Annual Volume (m^3): - Max Daily Volume (m^3): - Original Application No: - Original Start Date: 08/01/1997 Expiry Date: - Issue No: 101 Version Start Date: 30/12/1999 Version End Date:
Not shown	1390	S	333750 428280	Status: Historical Licence No: 2671353010/R1 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: WELLPOINT SYSTEM AT ROYAL LYTHAM & ST ANNES GOLF CLUB Data Type: Point Name: ROYAL LYTHAM AND ST ANNES GOLF CLUB	Annual Volume (m^3): 32,556 Max Daily Volume (m^3): 506 Original Application No: - Original Start Date: 21/05/2005 Expiry Date: 31/03/2013 Issue No: 1 Version Start Date: 21/05/2005 Version End Date:
Not shown	1390	S	333750 428280	Status: Active Licence No: NW/071/0350/003 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: WELLPOINT SYSTEM AT ROYAL LYTHAM & ST ANNES GOLF CLUB Data Type: Point Name: ROYAL LYTHAM AND ST ANNES GOLF CLUB LAND HOLDINGS LIMITED	Annual Volume (m^3): 32,556 Max Daily Volume (m^3): 507 Original Application No: - Original Start Date: 01/04/2013 Expiry Date: 31/03/2028 Issue No: 3 Version Start Date: 28/02/2019 Version End Date:

ID	Distance (m)	Direction	NGR	Details	
Not shown	1547	SW	333500 428200	Status: Active Licence No: 2671353003 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: WELLS (18) AT ROYAL LYTHAM & ST ANNES GOLF CLUB Data Type: Point Name: ROYAL LYTHAM AND ST ANNES GOLF CLUB LAND HOLDINGS LIMITED	Annual Volume (m^3): 1,818 Max Daily Volume (m^3): 82 Original Application No: - Original Start Date: 13/05/1966 Expiry Date: - Issue No: 100 Version Start Date: 26/11/2018 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	1072	E	335240 429580	Status: Historical Licence No: 2671353013 Details: Spray Irrigation - Storage Direct Source: Surface, Non-Tidal - North West Region Point: LIGGARD BROOK WEETON PRESTON Data Type: Point Name: BRADLEY	Annual Volume (m^3): 191,000 Max Daily Volume (m^3): 6,048 Application No: - Original Start Date: 14/07/2008 Expiry Date: 31/03/2014 Issue No: 1 Version Start Date: 14/07/2008 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	Minor 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.
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
414	W	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.

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	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
2	0 On Site	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
3	0 On Site	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
6	0 On Site	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
7	0 On Site	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
8	0 On Site	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.4
4	8 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	8 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
				conditions) Average Width in Watercourse Section (m): Not Provided
5	168 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	168 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
6	169 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	169 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
7	178 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	178 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
8	183 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	183 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
9	188 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	188 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	212 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
11	212 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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
15	212 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	212 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
12	217 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
17	217 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
13	227 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	227 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
14	265 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	265 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	265 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	265 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
16	266 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	266 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
17	271	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	NE			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
22	271 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
18	272 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	272 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
19	273 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
24	273 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
20	277 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
25	277 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
21	280 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
26	280 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
22	299 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
27	299 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
23	305 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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): 1.0
28	305 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.0
24	310 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
25	310 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	310 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
Not shown	310 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.7
26	318 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
27	318 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	318 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	318 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	345 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
Not shown	345 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
29	346 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
Not shown	346 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.6
30	347 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
35	347 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
31	354 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	354 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
32	358 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	358 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	360 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
38	360 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
34	365 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
39	365 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
35	372 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	372	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	N			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	372 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	372 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
37	376 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
42	376 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
38	379 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
39	379 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
43	379 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
44	379 SW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	381 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6
41	381 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
Not shown	381 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	381 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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): 1.1
42	384 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	384 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
43	387 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
Not shown	387 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
44	388 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	388 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
45	390 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
Not shown	390 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.5
46	410 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
47	410 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	410 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	410 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.6

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
48	416 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	416 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
49	418 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	418 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	421 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
55	421 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.9
51	422 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
56	422 W	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.2
52	424 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	424 NE	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
53	425 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
58	425 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 0.8
54	426	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground

ID	Distance/ Direction	Name	Type of Watercourse	Additional Details
	N			Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
55	426 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	426 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: Underground Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
Not shown	426 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 2.0
56	433 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
Not shown	433 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.0
57	435 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	435 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
58	462 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
Not shown	462 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.1
59	478 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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	478 E	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): Not Provided
60	480 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble 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): 3.4
Not shown	480 N	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 3.4
61	499 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3
Not shown	499 NW	- Alternative Name: -	Inland river not influenced by normal tidal action.	Catchment Area: Ribble Relationship to Ground Level: On ground surface Permanence: Watercourse contains water year round (in normal conditions) Average Width in Watercourse Section (m): 1.3

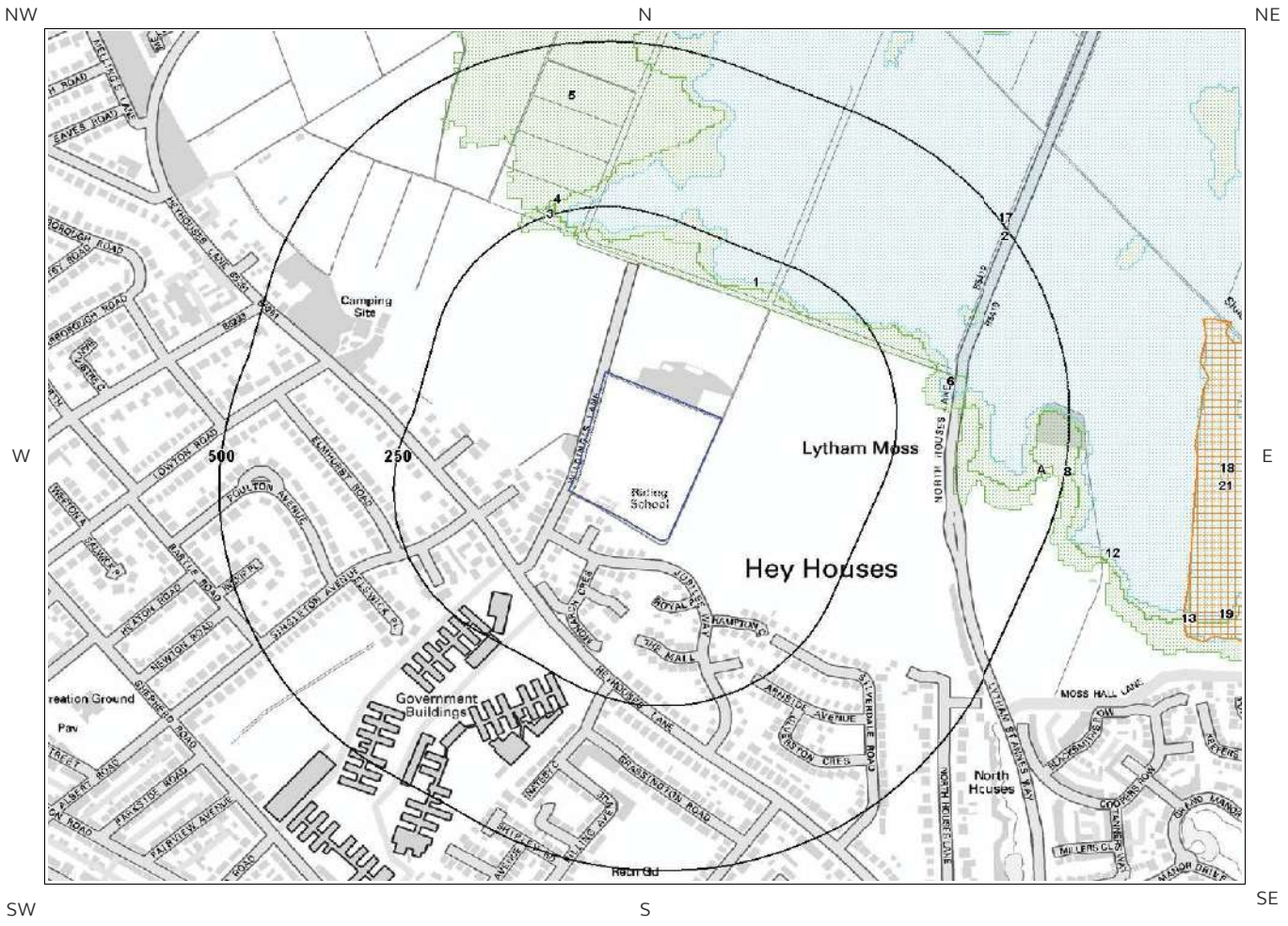
6.11 Surface Water Features

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	W
8	W
168	N
169	N
180	NE
183	N
184	N
188	NE
212	N
217	N
227	W

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



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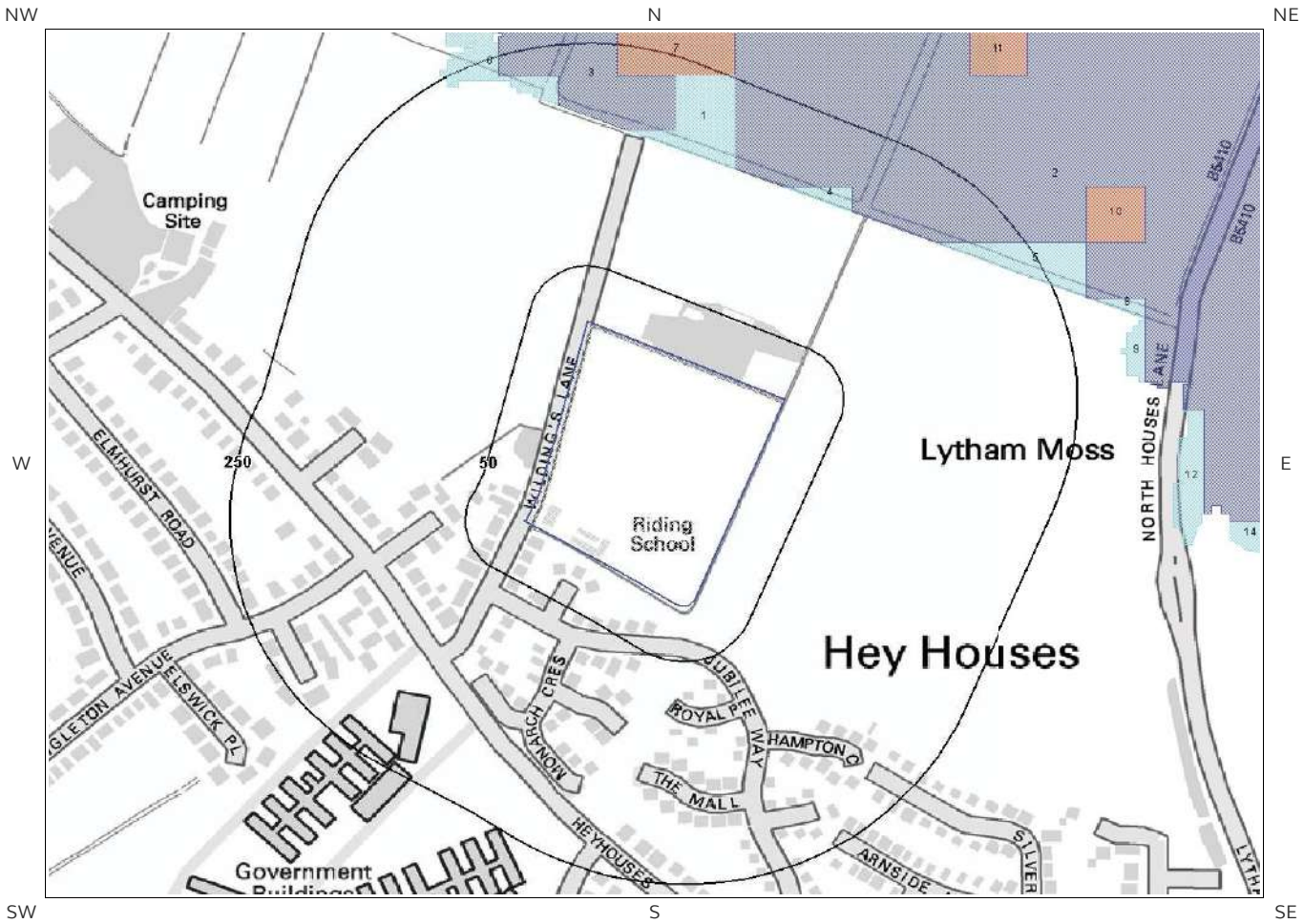
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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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	172	N	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
2	184	NE	19-Nov-2019	Zone 2 - (Fluvial /Tidal Models)
3	211	N	19-Nov-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	193	NE	19-Nov-2019	Zone 3 - (Fluvial Models)

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

Highest risk of flooding onsite — Very Low

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 Very Low (less than 1 in 1000) chance of flooding in any given year.

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 — Identified

Clearwater Flooding or Superficial Deposits Flooding — Superficial Deposits Flooding

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

Potential at Surface

Where potential for groundwater flooding to occur at surface is indicated, this means that given the geological conditions in the area groundwater flooding hazard should be considered in all land-use planning decisions. It is recommended that other relevant information e.g. records of previous incidence of groundwater flooding, rainfall, property type, and land drainage information be investigated in order to establish relative, but not absolute, risk of groundwater flooding.

7.8 Groundwater Flooding Confidence Areas

British Geological Survey confidence rating in this result — Moderate

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.

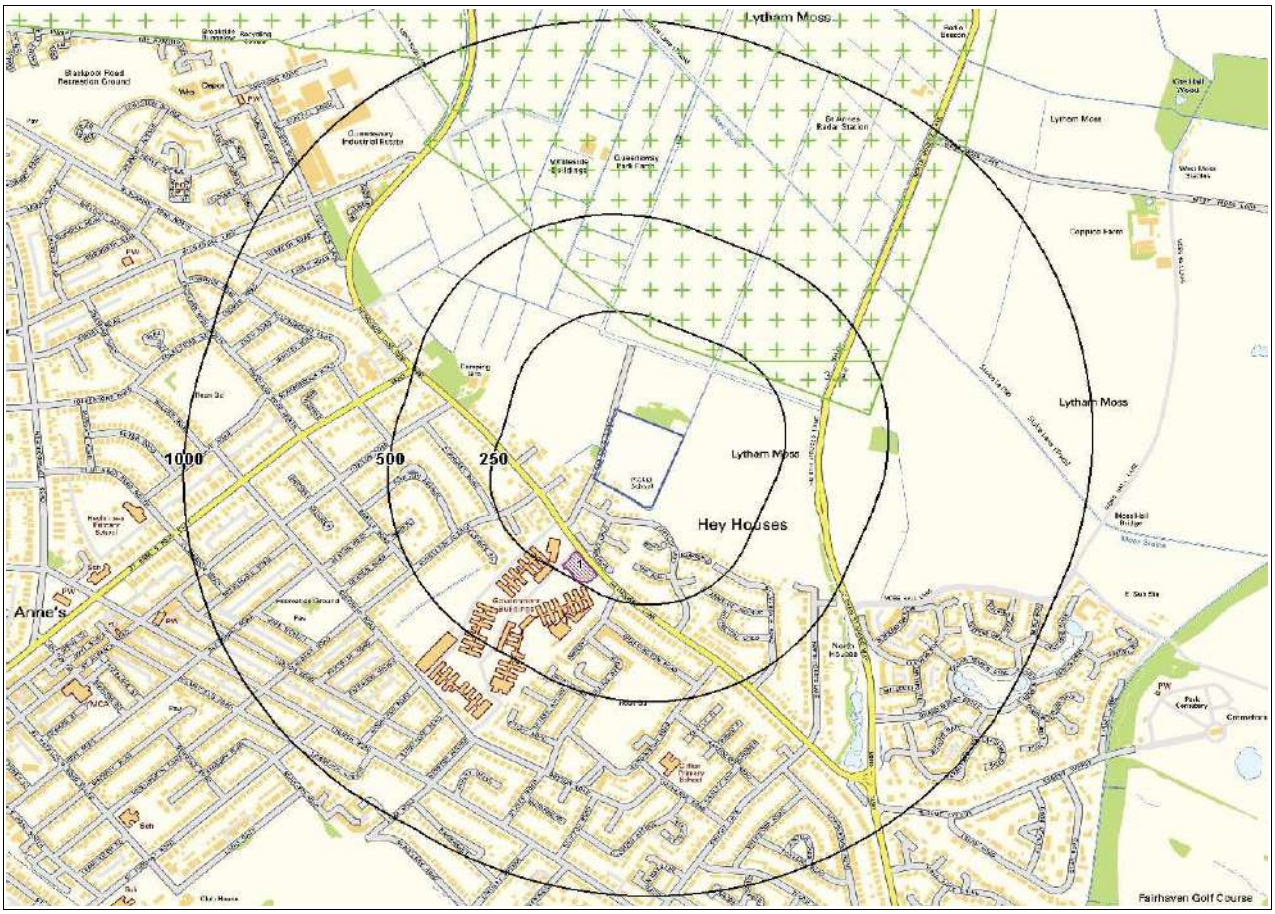
The confidence rating is on a threefold scale - Low, Moderate and High. This provides a relative indication of the BGS confidence in the accuracy of the susceptibility result for groundwater flooding. This is based on the amount and precision of the information used in the assessment. In areas with a 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

NW N NE

W E

SW S SE



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Site Outline

100 250 Search Buffers (m)

AONB

National Park

SSSI

Special Protection Areas

Nitrate Vulnerable Zones

Green Belt

Environmentally Sensitive Areas

Special Areas of Conservation

World Heritage Sites

Nitrate Sensitive Areas

Ancient Woodland

National Nature Reserve

Local Nature Reserves

Ramsar Sites

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:

1

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
1	184	SW	Lytham Coastal Changes	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:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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:

0

Database searched and no data found.

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

3

Green Belt data contains Ordnance Survey data © Crown copyright and database right [2015].

ID	Distance	Direction	Green Belt Name	Local Authority Name
2	207	NE	Blackpool Greenbelt	Fylde District (B)
3	213	NE	Blackpool Greenbelt	Fylde District (B)
Not shown	1812	NW	Blackpool Greenbelt	Blackpool (B)

---

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 — Negligible

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

Hazard
Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

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 — Very Low

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

Hazard
Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

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

9.1.4 Compressible Ground

Maximum Compressible Ground* 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 compressible deposits identified. No special actions required to avoid problems due to compressible deposits. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with compressible deposits.

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 — Low

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

Hazard
Possibility of running sand problems after major changes in ground conditions. Normal maintenance to avoid leakage of water-bearing services or water bodies (ponds, swimming pools) should reduce likelihood of problems due to running sand. For new build consider possibility of running sand into trenches or excavations if water table is high or sandy strata are exposed to water. Avoid concentrated water inputs to site. Unlikely to be an increase in construction costs due to potential for running sand. For existing property no significant increase in insurance risk due to running sand problems is likely.

* 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

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https://www.groundsure.com/terms-and-conditions-jan-2020/

Wardell Armstrong LLP

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Stoke on Trent, ST1 5BD

Report Reference: GSWA1-6553687

Your Reference: GM10908

Report Date 14 Jan 2020

Report Delivery Method: Email - pdf

Geo Insight

Address: WILDINGS LANE, LYTHAM ST ANNES,

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,

Wardell Armstrong

Enc.
Groundsure Geo Insight

Geo Insight

Address:	**WILDINGS LANE, LYTHAM ST ANNES,**
Date:	**14 Jan 2020**
Reference:	**GSWA1-6553687**
Client:	**Wardell Armstrong LLP**

NW N NE

W E

SW S SE

Aerial Photograph Capture date:	22-Apr-2015
Grid Reference:	334079,429750
Site Size:	3.2920ha

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Overview of Findings

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

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

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

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

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features	2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.	
	2.3.2 Are there any records relating to permeability of bedrock ground within the study site boundary?	Yes
	2.3.3 Are there any records of linear features within 500m of the study site boundary?	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	4	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	0	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

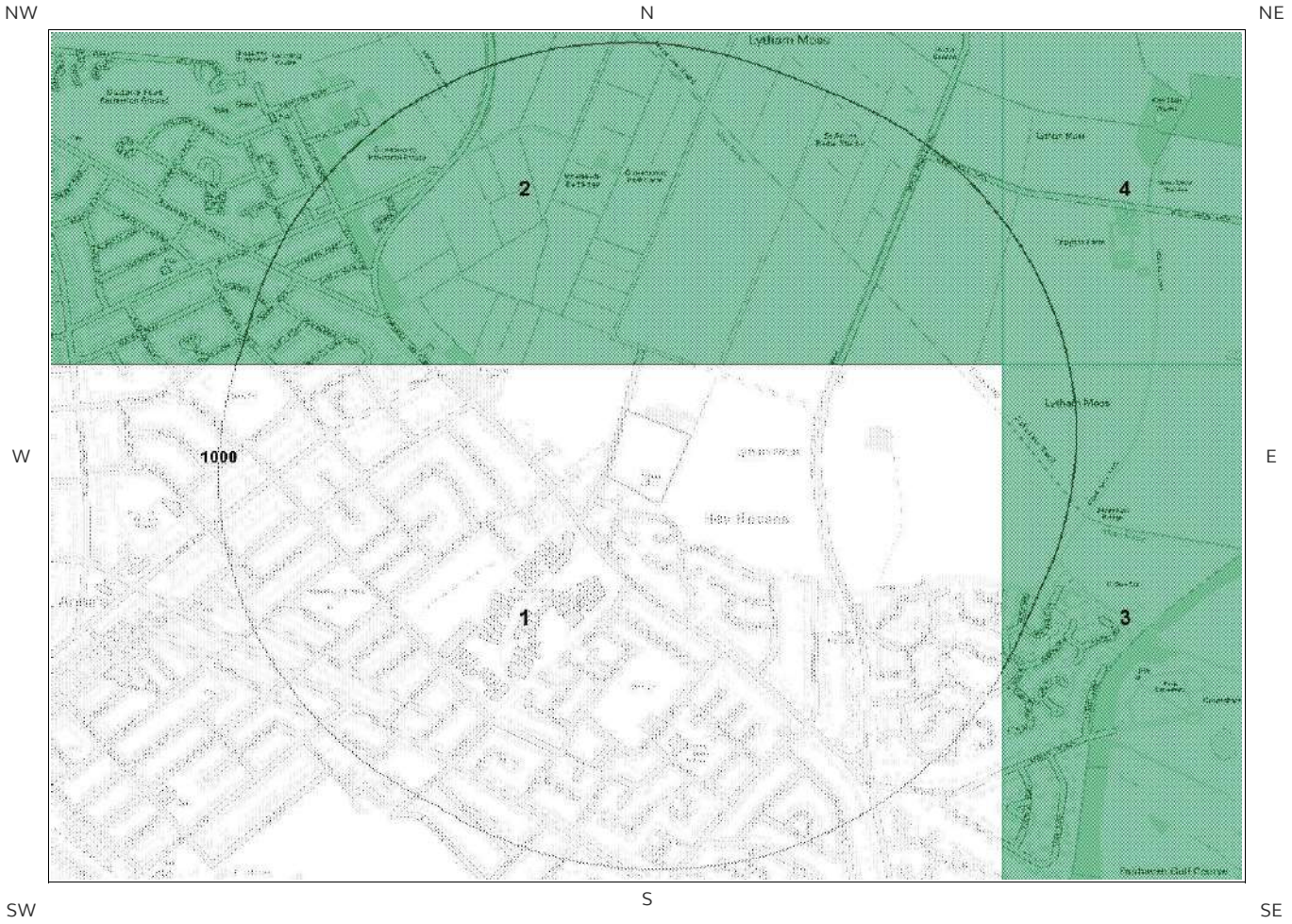
Section 6: Natural Ground Subsidence	On-site
6.1 Shrink-Swell Clay	Negligible
6.2 Landslides	Very Low
6.3 Ground Dissolution of Soluble Rocks	Very Low
6.4 Compressible Deposits	Negligible
6.5 Collapsible Deposits	Negligible
6.5 Running Sand	Low

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	3	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	0	0	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

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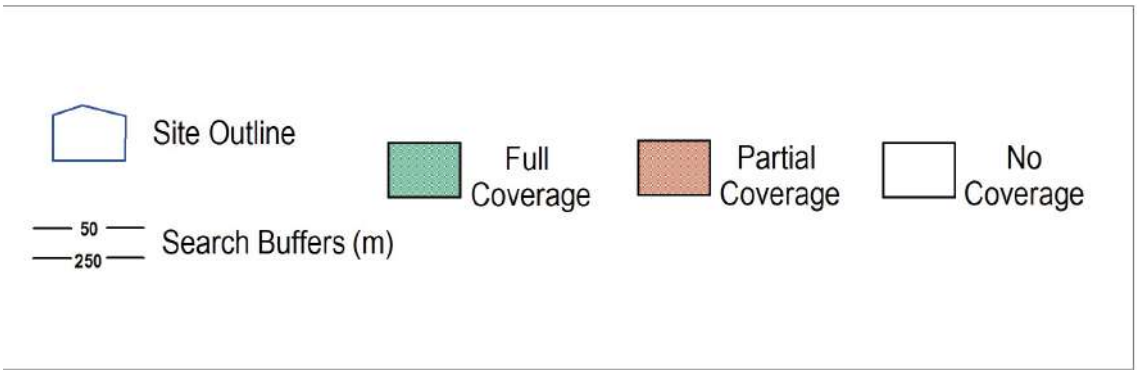


Availability of 1:10,000 Scale Geology Mapping

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
2	121.0	Some deposits are mapped	Full	Full	No coverage
3	807.0	Some deposits are mapped	Full	Full	No coverage
4	829.0	Some deposits are mapped	Full	Full	No coverage

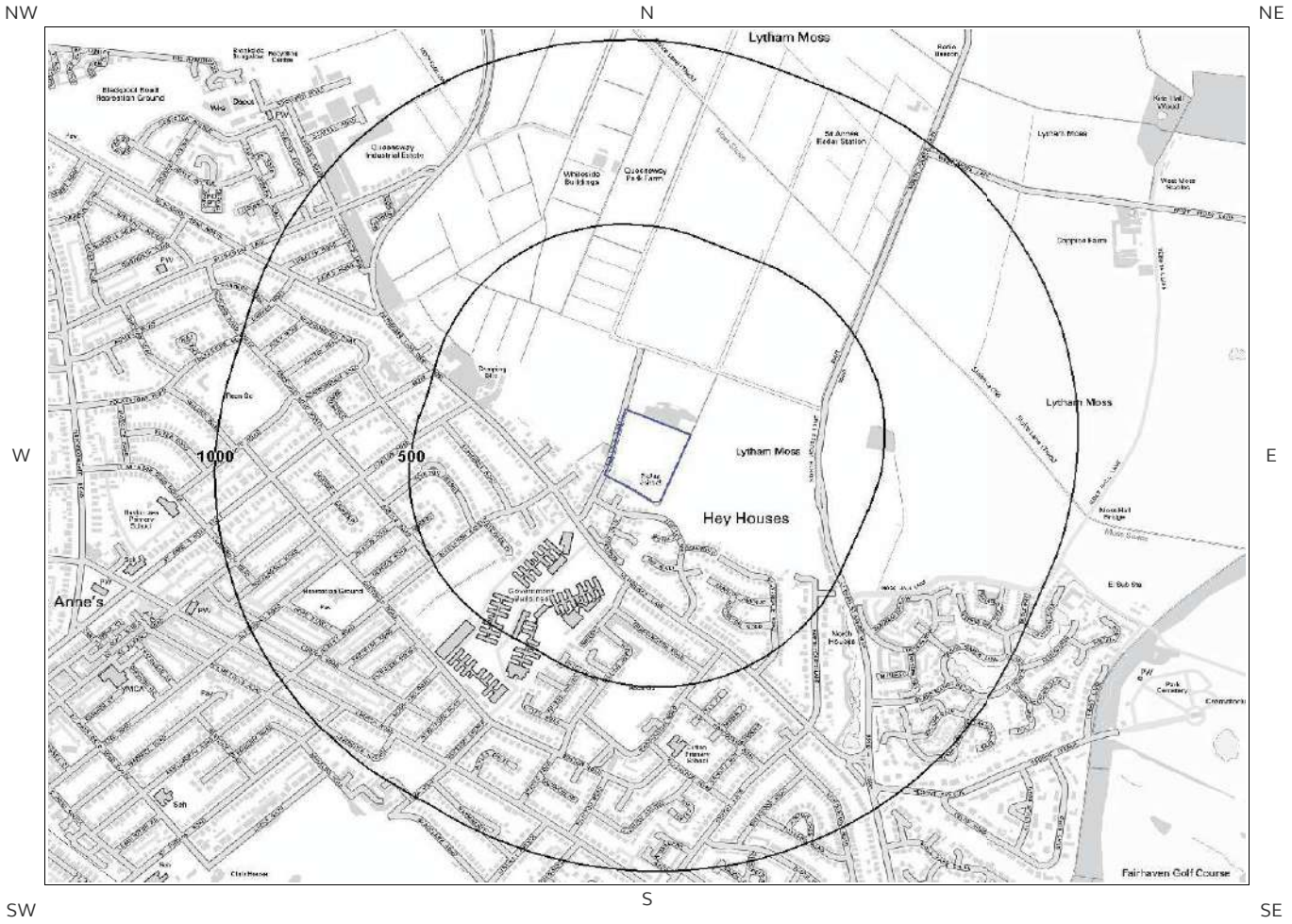
Guidance: The 1:10,000 scale geological interpretation is the most detailed generally available from BGS and is the scale at which most geological surveying is carried out in the field. The database is presented as four types of geology (artificial, mass movement, superficial and bedrock), although not 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

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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

Reclaimed Ground

1. Geology 1:10,000 scale

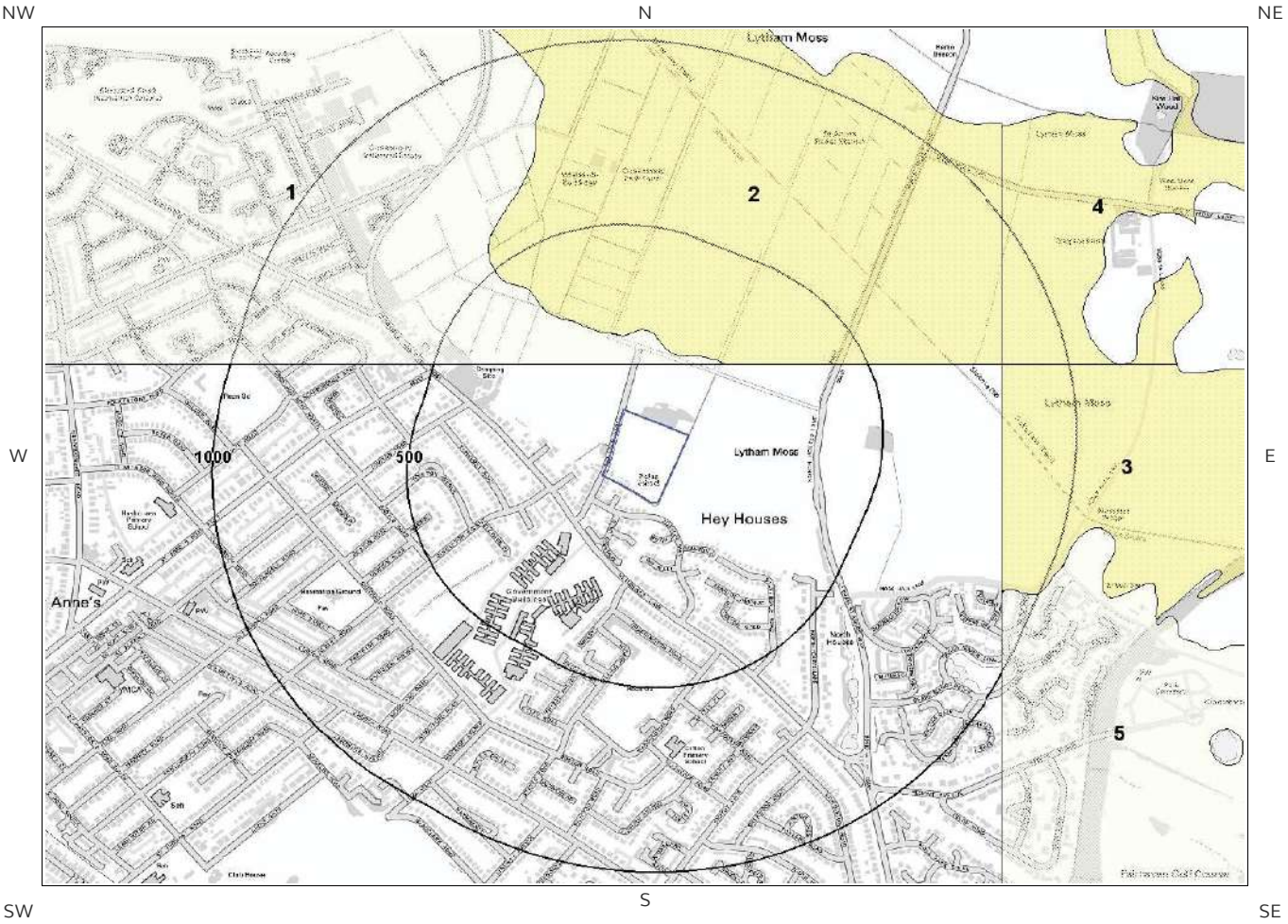
1.1 Artificial Ground

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

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

Database searched and no data found.

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



Artificial Ground Legend

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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? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	121.0	N	BSA-S	Blown Sand - Sand	Sand
2	188.0	NE	TFD1-XCZ	Tidal Flat Deposits, 1 - Clay And Silt	Clay And Silt

1.2.2 Landslip

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

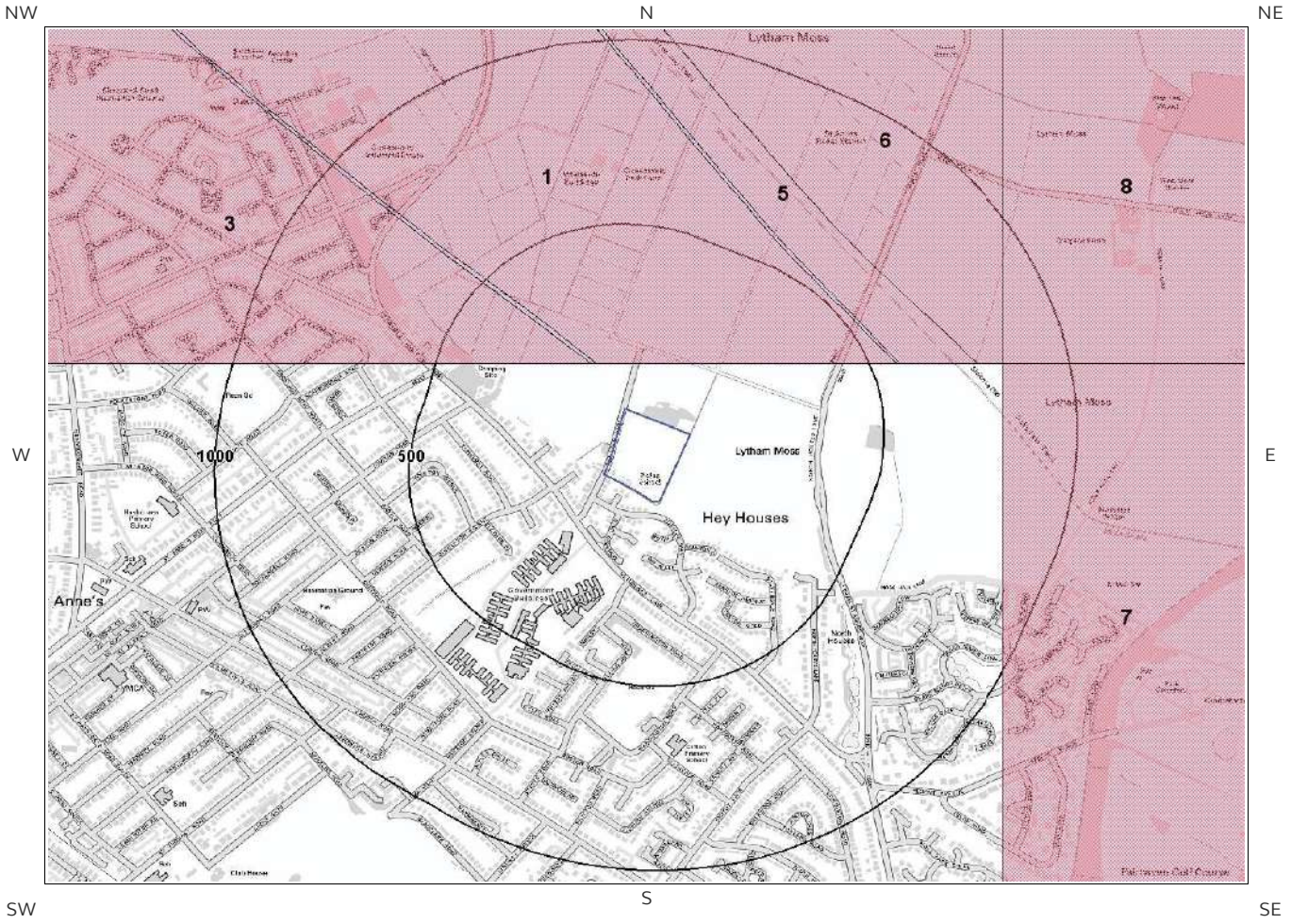
No

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

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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.

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	121.0	N	SNM-MDST	Singleton Mudstone Member - Mudstone	Anisian Age - Early Triassic Epoch
2	141.0	NW	MSA-MDHA	Mythop Halite Member - Mudstone And Halite-stone	Anisian Age
3	148.0	NW	SNM-MDST	Singleton Mudstone Member - Mudstone	Anisian Age - Early Triassic Epoch

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

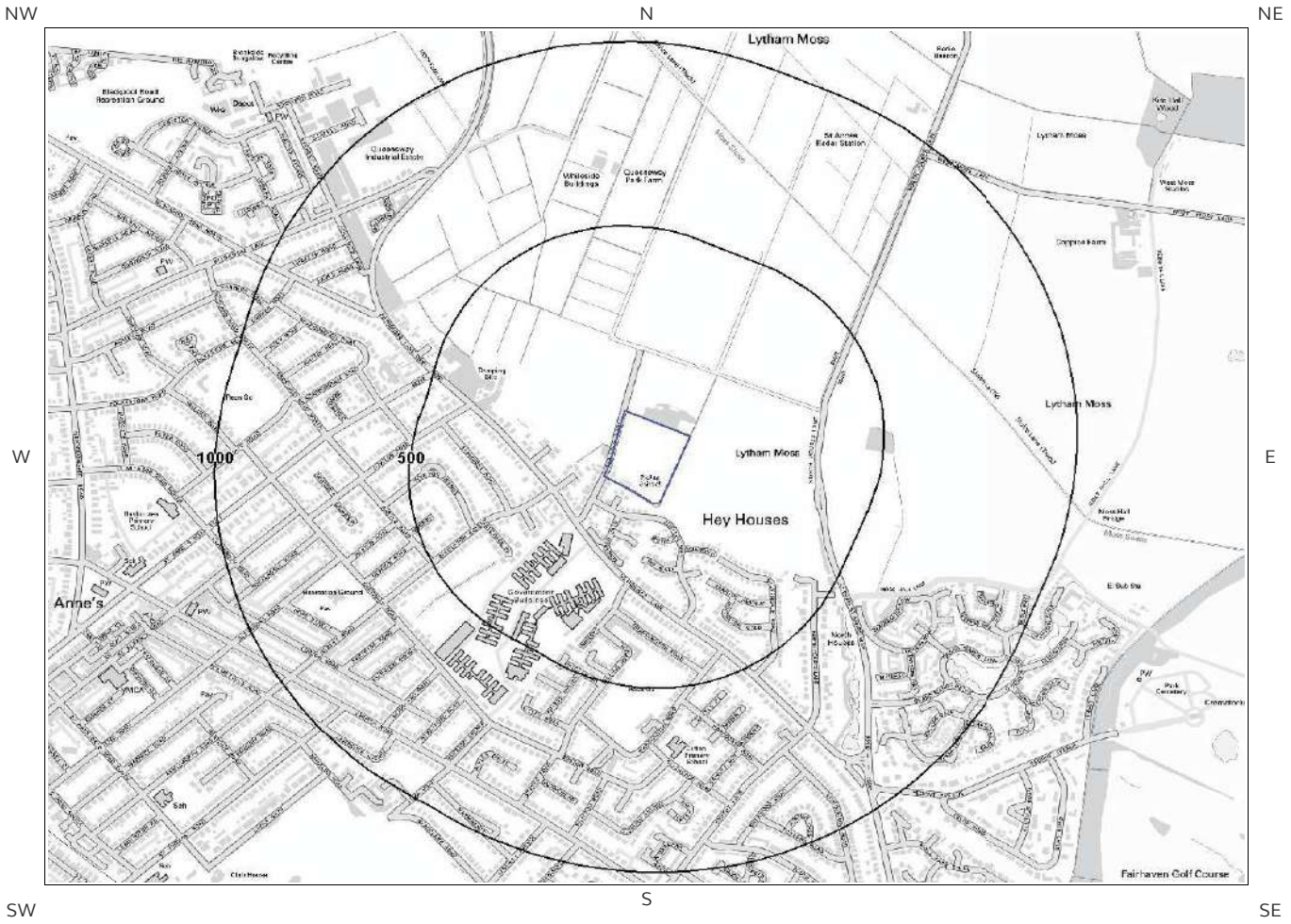
Database searched and no data found at this scale.

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



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Site Outline

500
1000
Search Buffers (m)

Made Ground (undivided)

Disturbed Ground (undivided)

Worked Ground (undivided)

Landscaped Ground (undivided)

Infilled Ground

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: 074

2.1.1 Artificial/ Made Ground

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

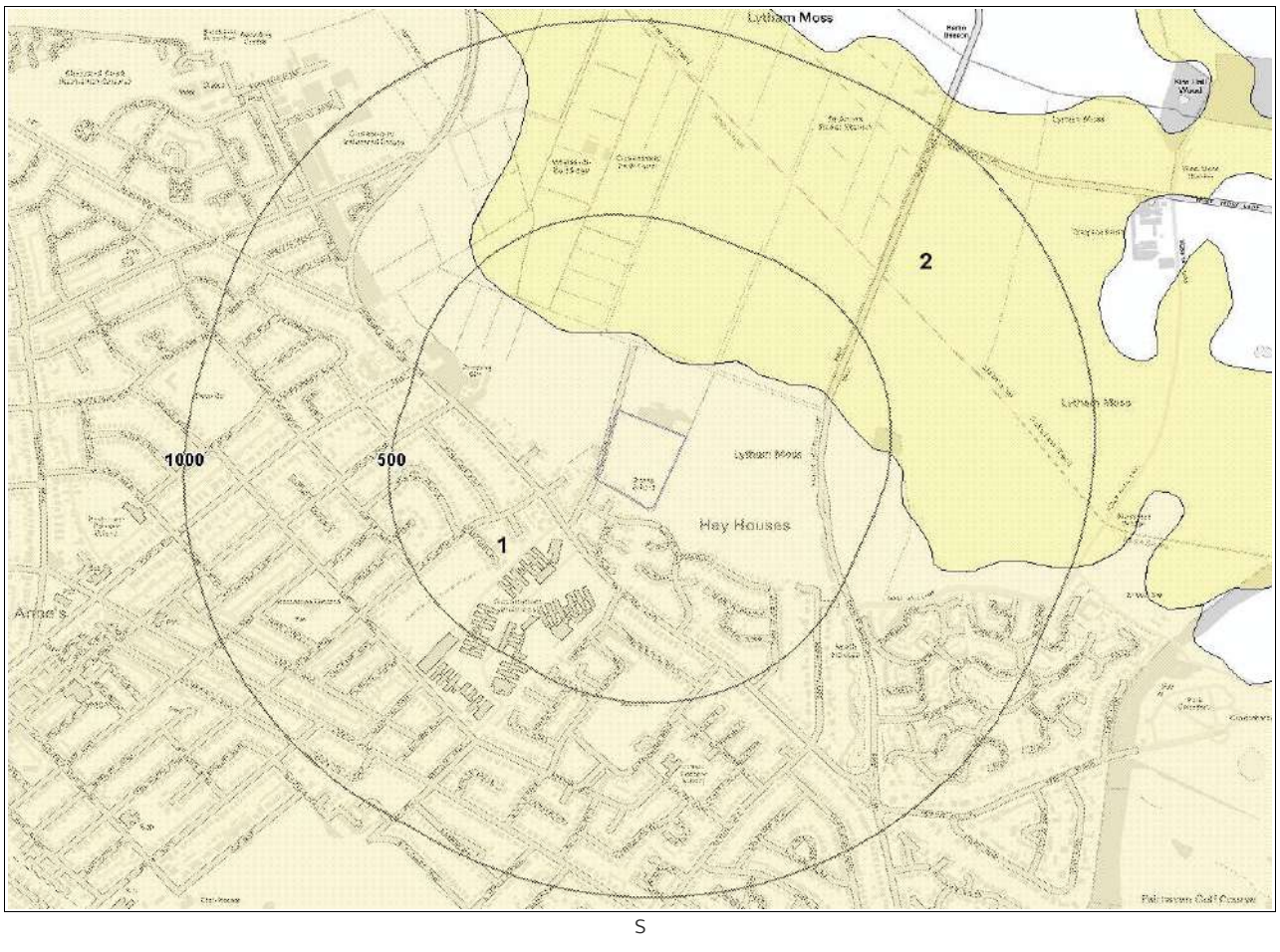
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

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

Database searched and no data found.

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



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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	BSA-S	BLOWN SAND	SAND
2	167.0	NE	TFD-XCZ	TIDAL FLAT DEPOSITS	CLAY AND SILT

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	High	High

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)

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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: 074

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	SNM-MDST	SINGLETON MUDSTONE MEMBER - MUDSTONE	-
2	0.0	On Site	MSA-MDHA	MYTHOP HALITE MEMBER - MUDSTONE AND HALITE-STONE	ANISIAN

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	Low	Low
0.0	On Site	Fracture	Low	Low

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.

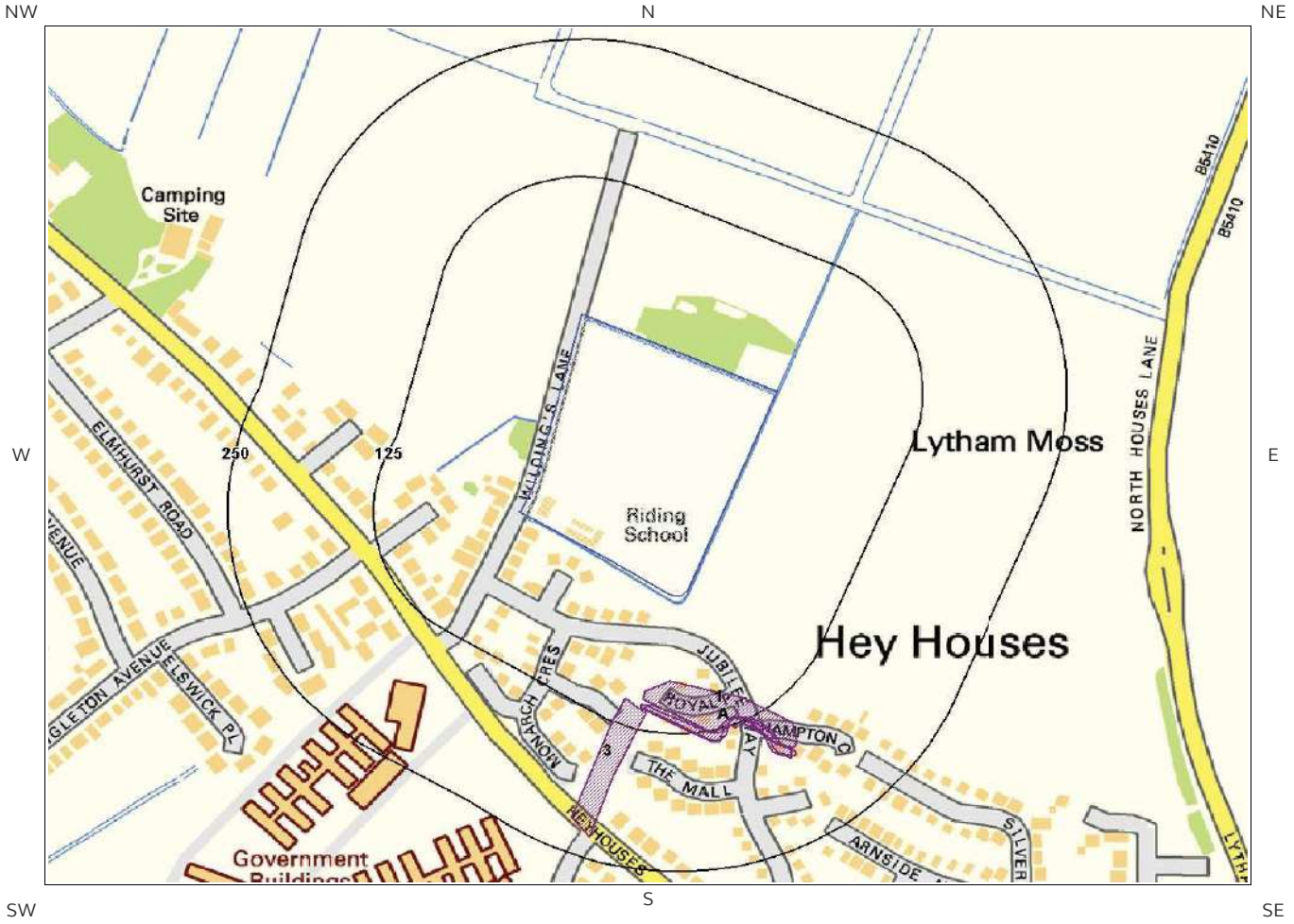
The radon data in this report is supplied by the BGS/Public Health England and is the definitive map of Radon Affected Areas in Great Britain and Northern Ireland. The dataset was created using long-term radon measurements in over 479,000 homes across Great Britain and 23,000 homes across Northern Ireland, 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

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Site Outline

125
250
Search Buffers (m)

Historic Surface Ground Workings

Historic Underground Workings

Current Ground Workings

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1	77.0	S	334144 429517	Unspecified Pit	1951
2A	101.0	S	334126 429502	Unspecified Ground Workings	1930
3	101.0	S	334048 429469	Cuttings	1891
4A	103.0	S	334142 429500	Unspecified Ground Workings	1938

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

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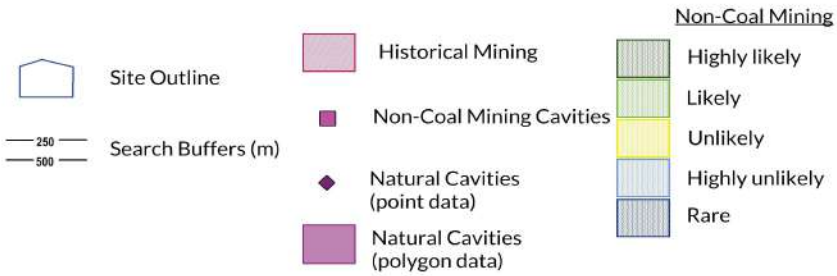


5 Mining, Extraction & Natural Cavities

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? No

Database searched and no data found.

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

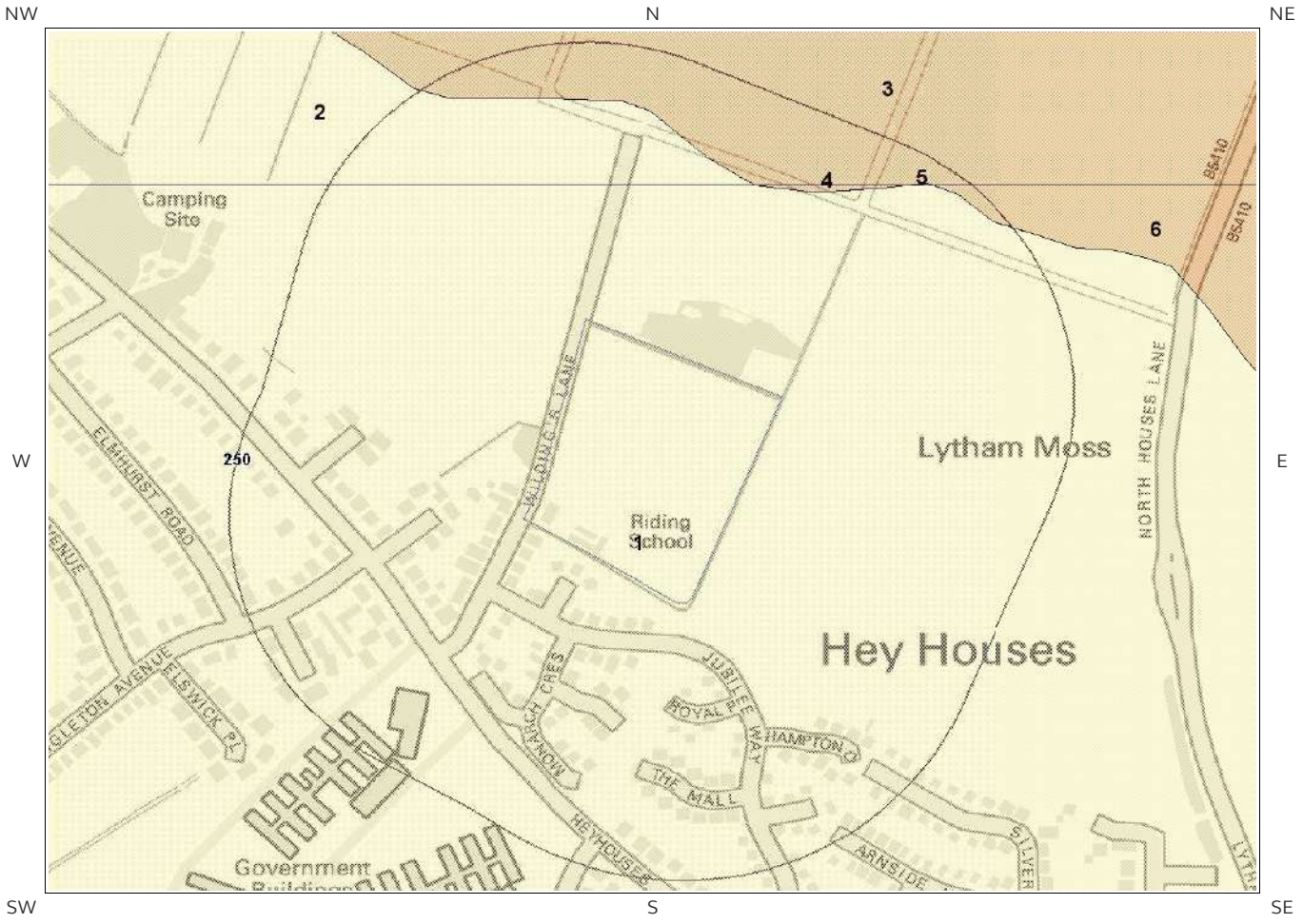
This dataset provides information on Kaolin and Ball Clay mining from relevant mining records.

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

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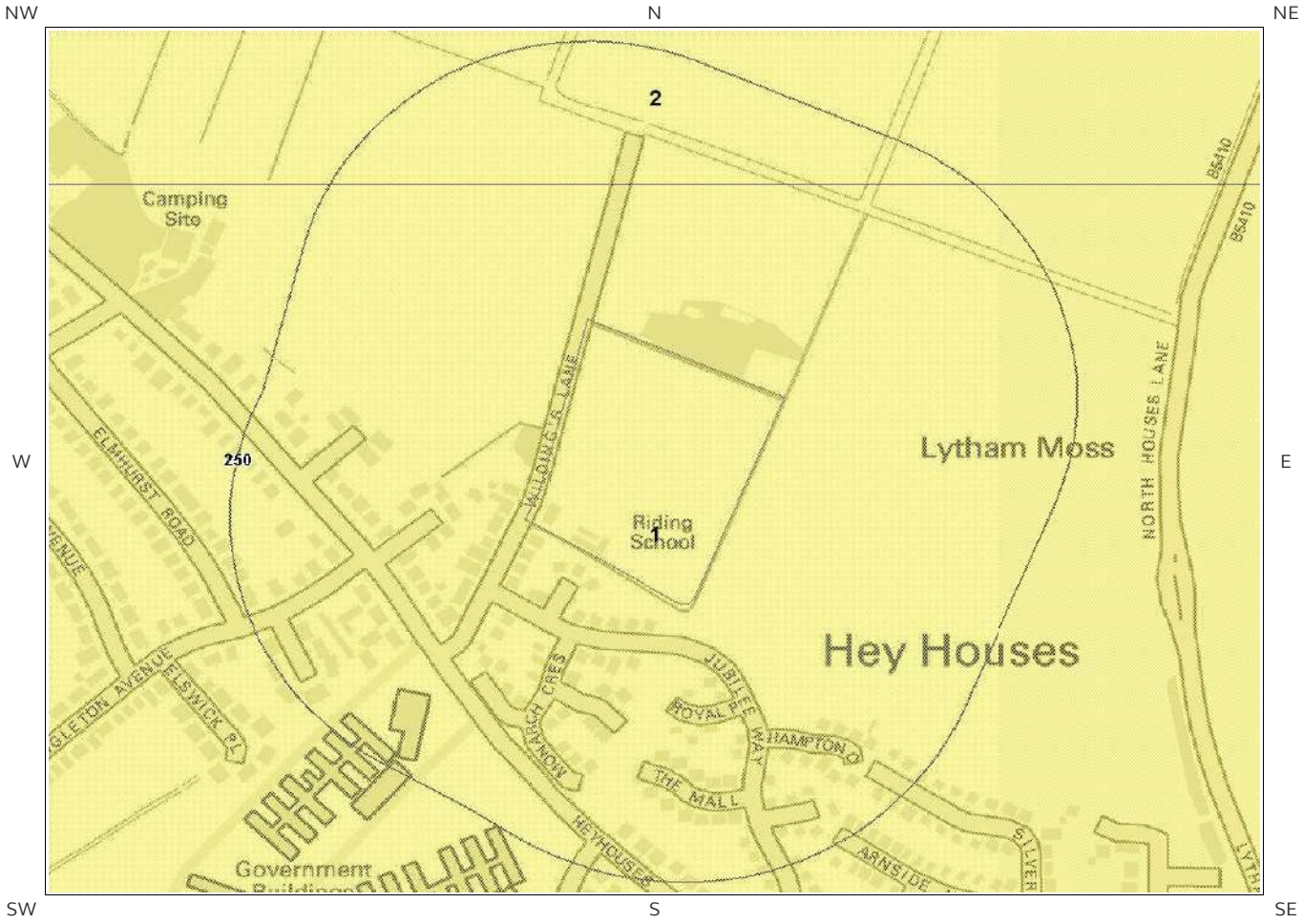
Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

6.2 Landslides map



Landslides Legend

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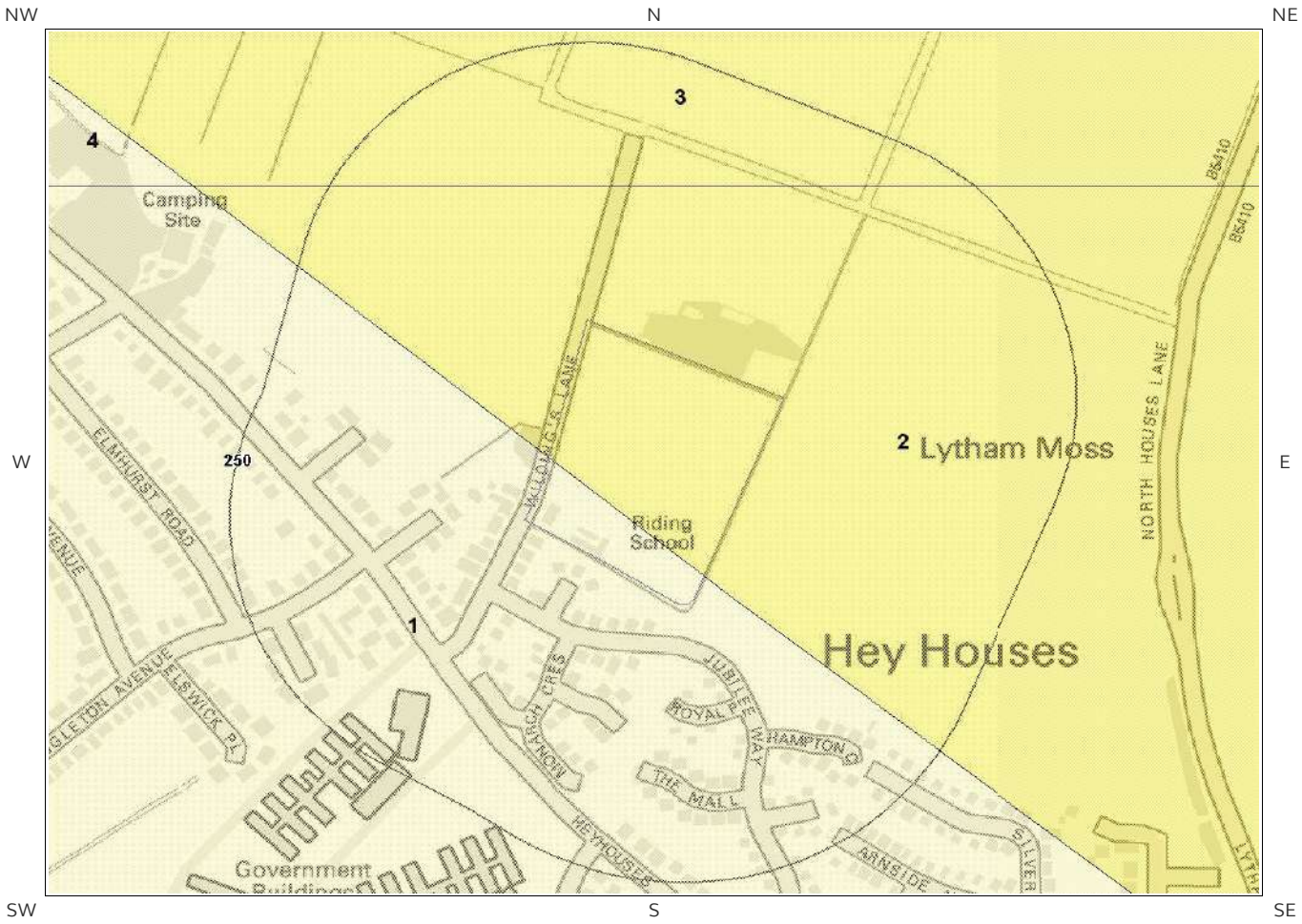
Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

6.3 Ground Dissolution of Soluble Rocks map



Ground Dissolution Soluble Rocks Legend

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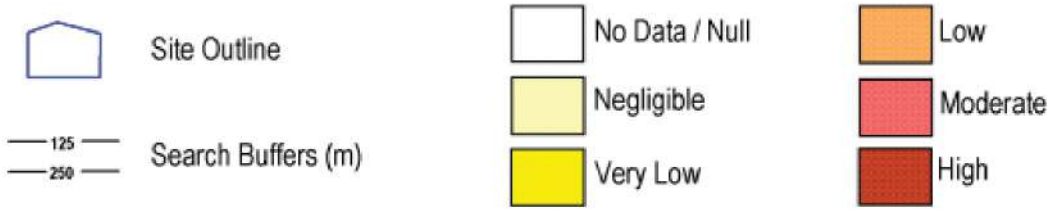
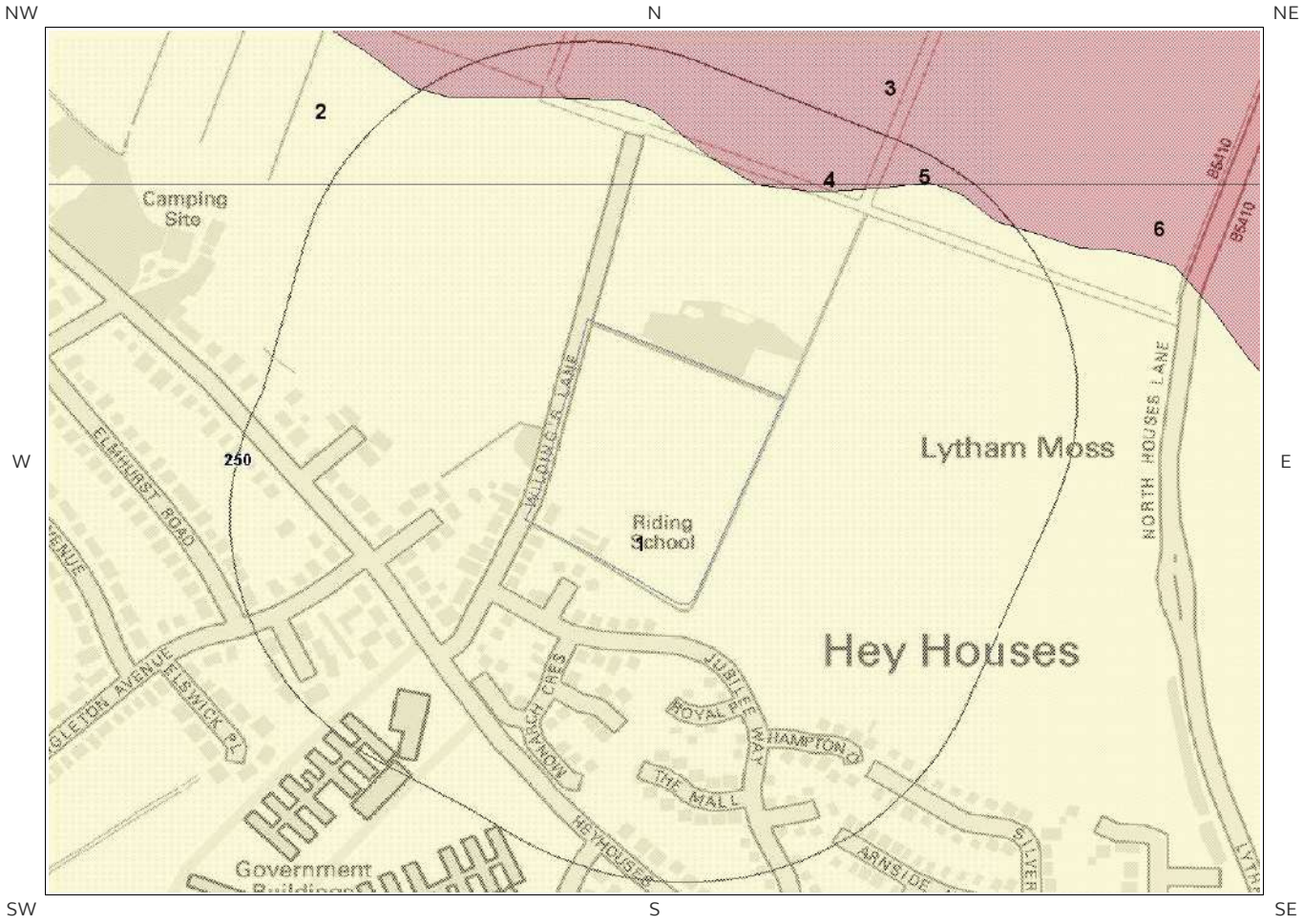


6.4 Compressible Deposits map



Compressible Deposits Legend

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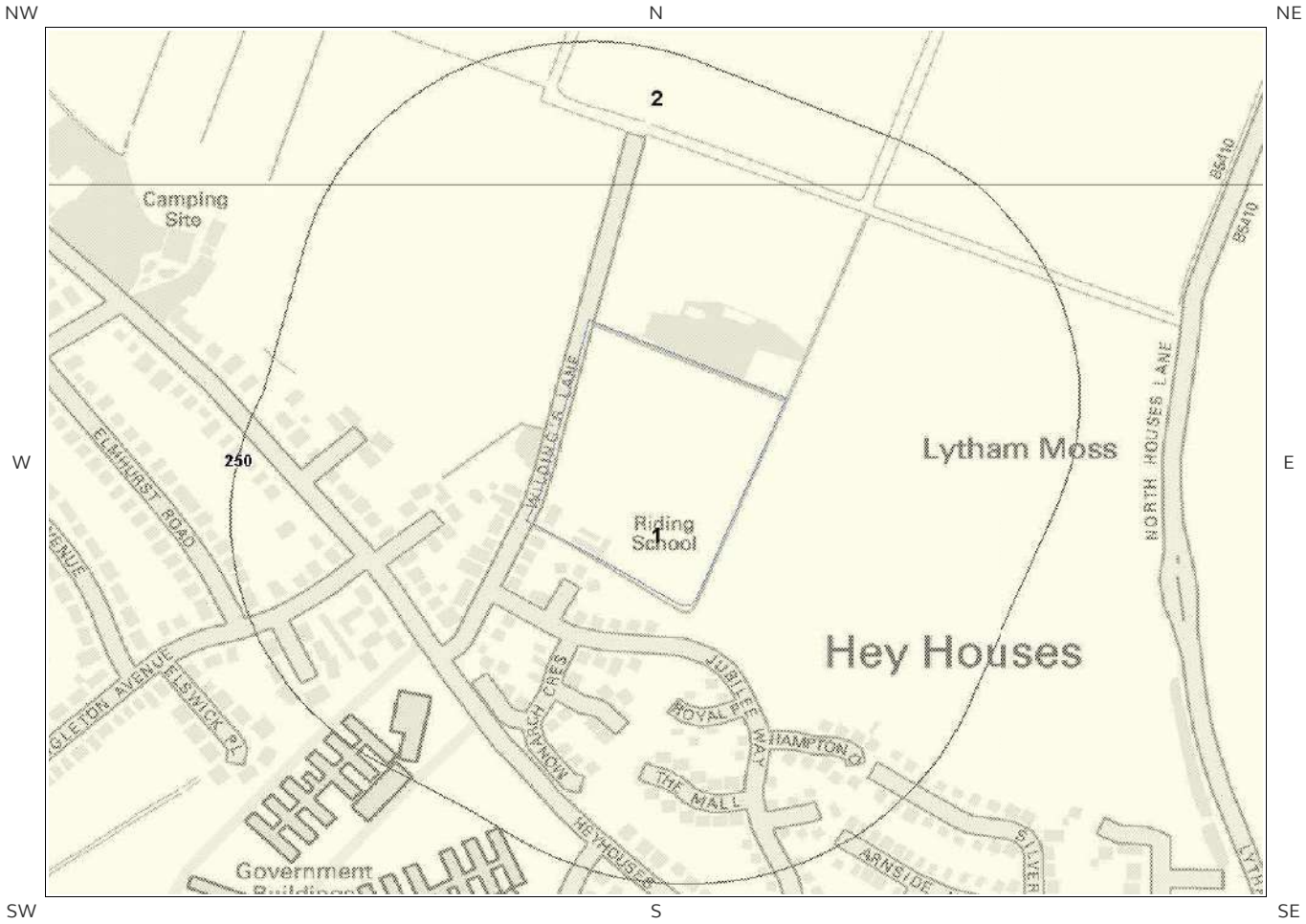
Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

6.5 Collapsible Deposits map



Collapsible Deposits Legend

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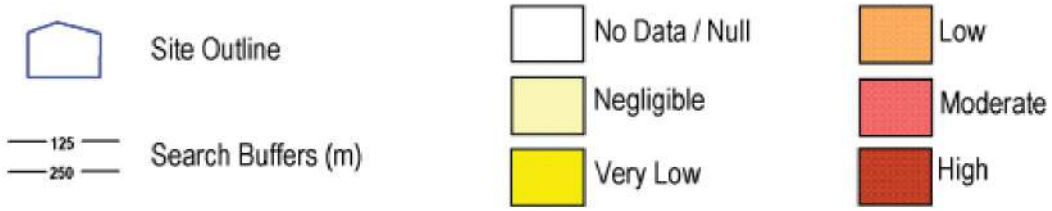
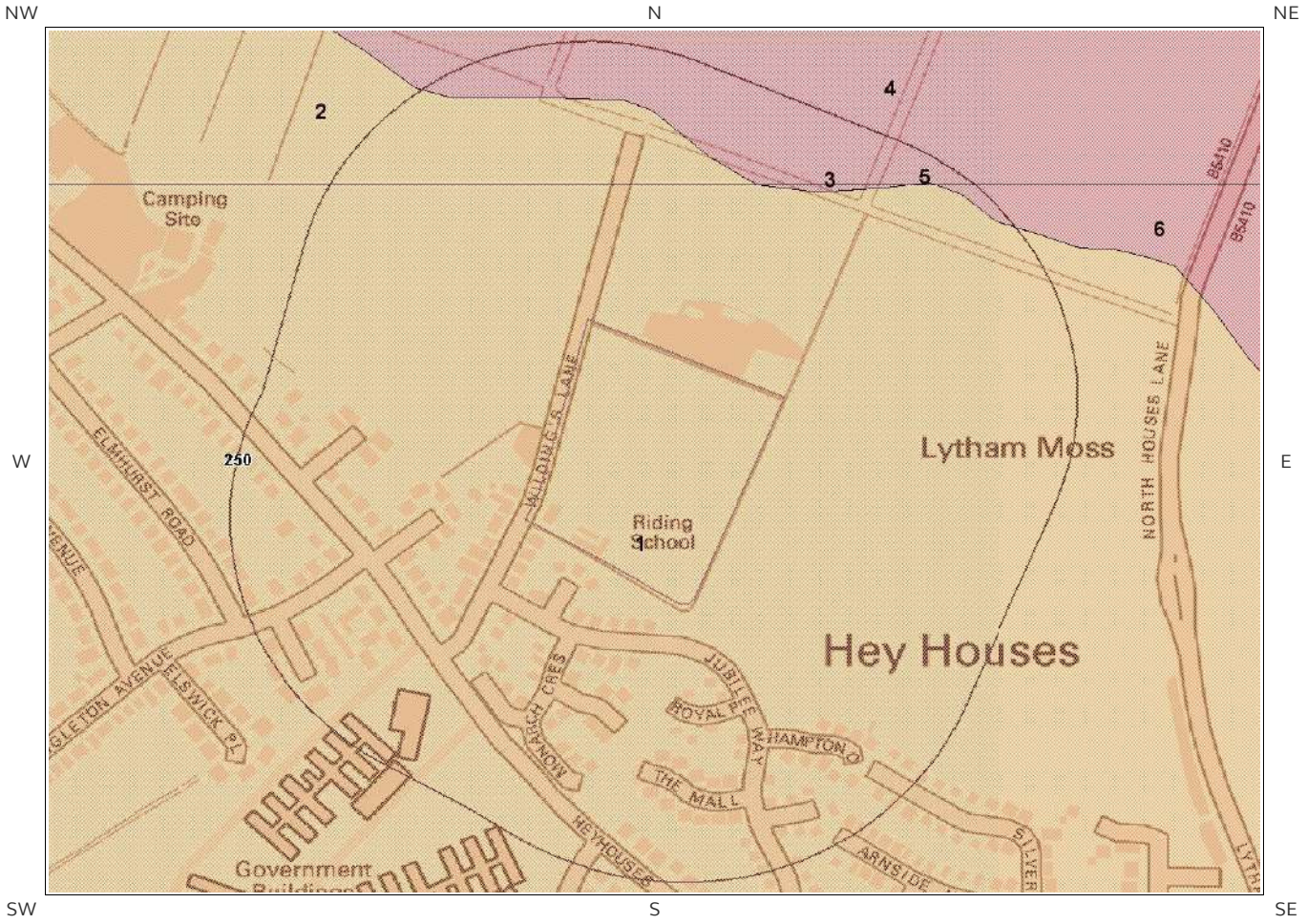


6.6 Running Sand map



Running Sand Legend

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Site Outline

125
250
Search Buffers (m)

No Data / Null
Negligible
Very Low

Low
Moderate
High

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? Low

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	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely likely due to potential problems with shrink-swell clays.

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.

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.

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

ID	Distance (m)	Direction	Hazard Rating	Details
2	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.

6.4 Compressible Deposits

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

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

6.5 Collapsible Deposits

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

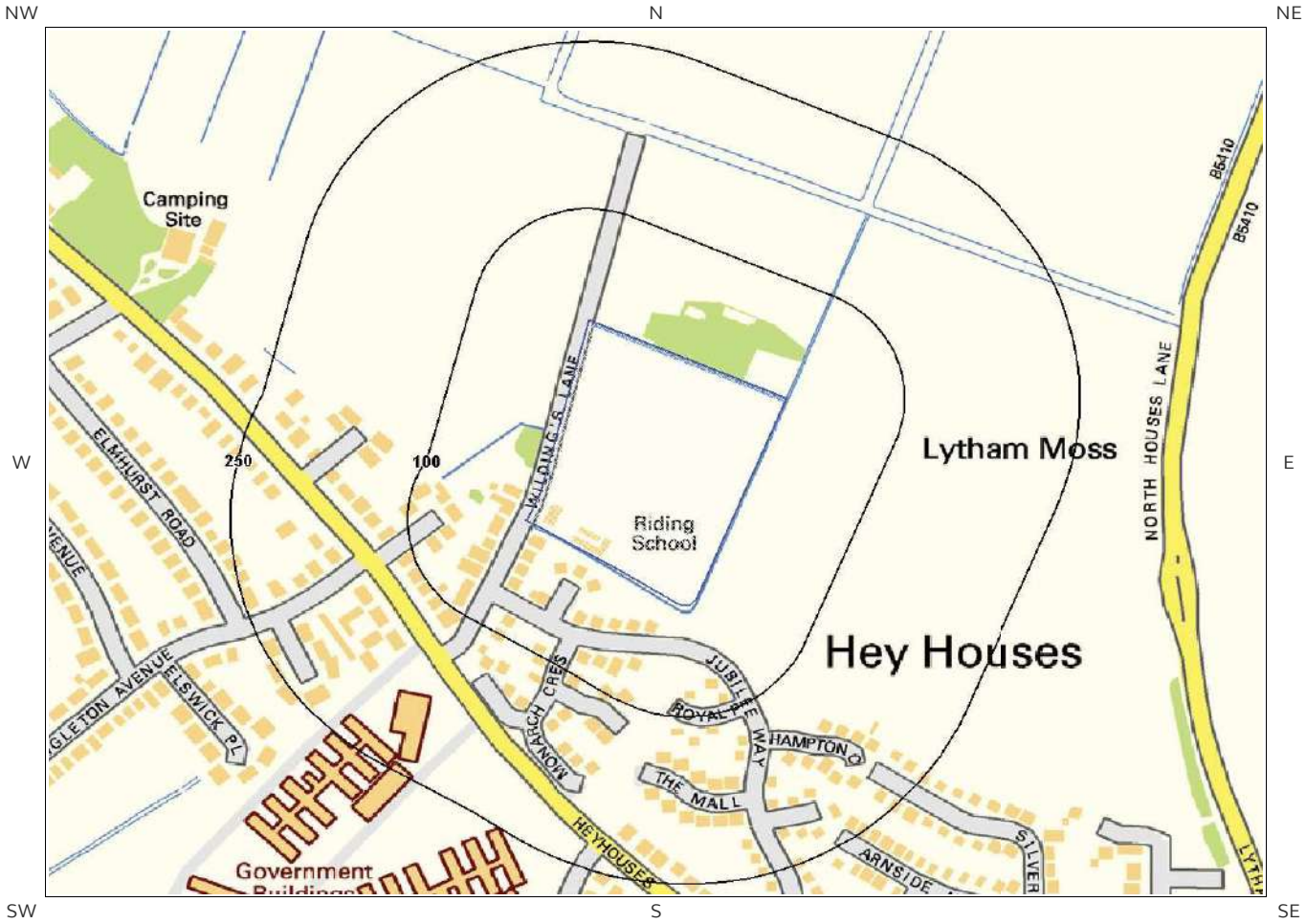
ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Negligible	No indicators for collapsible deposits identified. No actions required to avoid problems due to collapsible deposits. No special ground investigation required, or increased construction costs or increased financial risk due to potential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

7 Borehole Records map



Borehole Records Legend

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Site Outline

Borehole Locations

125
250
Search Buffers (m)

7 Borehole Records

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

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

Database searched and no data found.

8 Estimated Background Soil Chemistry

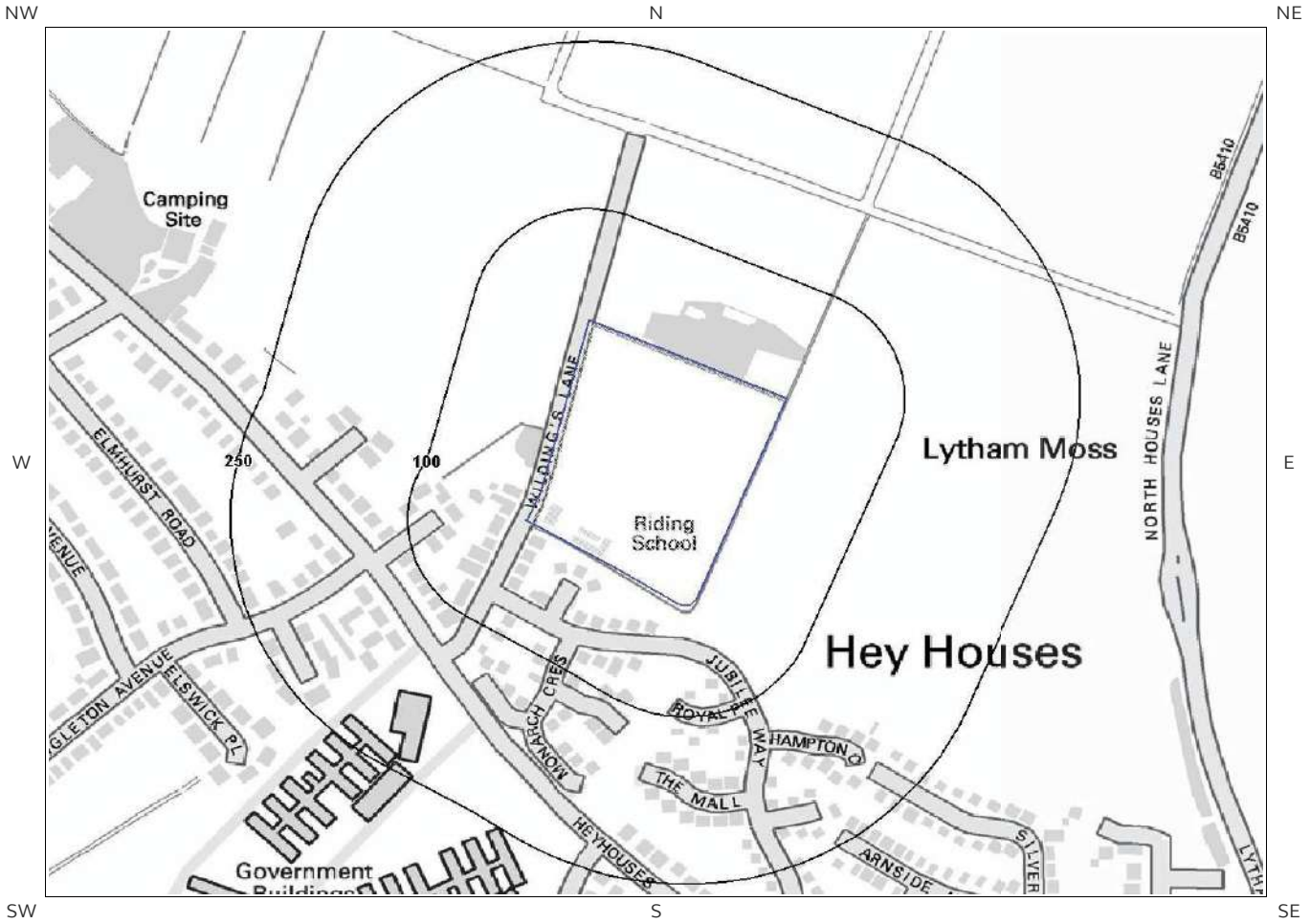
Records of background estimated soil chemistry within 250m of the study site boundary: 3

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	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg
0.0	On Site	RuSoilExAs	<15 mg/kg	<1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg	<100 mg/kg

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

9 Railways and Tunnels map



Railways and Tunnels Legend

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

9 Railways and Tunnels

9.1 Tunnels

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

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

Database searched and no data found.

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

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

Have any other railway tunnels been identified within the site boundary?	No
Have any other railway tunnels been identified within 250m of the site boundary?	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?	No
Have any historical railway or tunnel features 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.

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

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info@groundsure.com

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

British Gypsum

British Gypsum Ltd
East Leake
Loughborough
Leicestershire
LE12 6HX

The Coal Authority

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

Public Health England

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

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Tel: +44 (0) 1384 262 000
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Website: **www.jpb.co.uk**

Ordnance Survey

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SO16 0AS

Tel: 08456 050505
Website: http://www.ordnancesurvey.co.uk/

Getmapping PLC

Virginia Villas, High Street, Hartley Witney,
Hampshire RG27 8NW
Tel: 01252 845444
Website:**http://www1.getmapping.com/**

Peter Brett Associates
Caversham Bridge House
Waterman Place
Reading
Berkshire RG1 8DN
Tel: +44 (0)118 950 0761 E-mail:**reading@pba.co.uk**
Website:**http://www.peterbrett.com/home**

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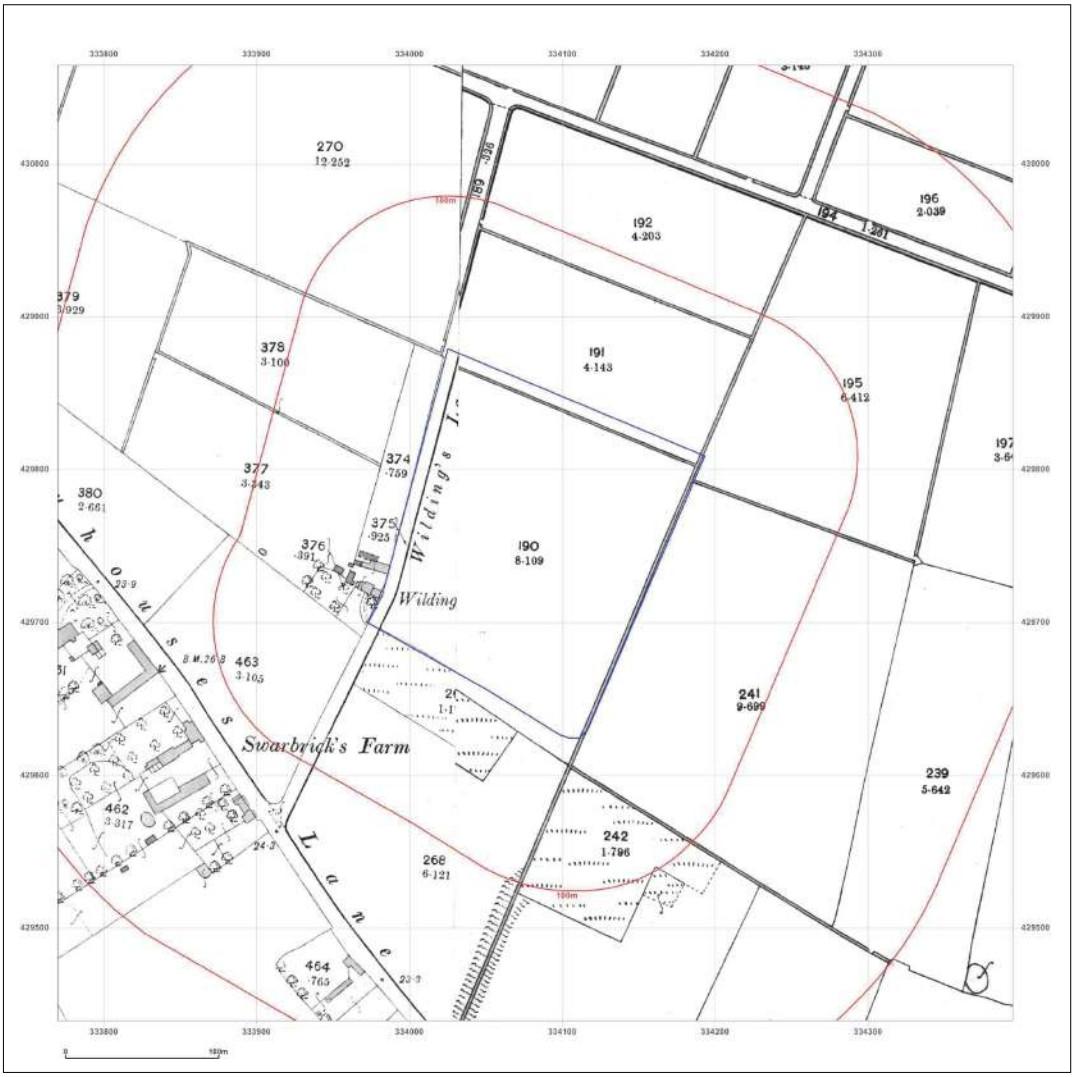

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: County Series
Map date: 1891
Scale: 1:2,500
Printed at: 1:2,500

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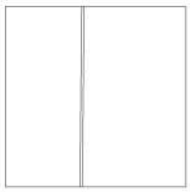
Surveyed 1891
Revised 1891
Edition N/A
Copyright N/A
Levelled N/A



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Revised 1891
Edition N/A
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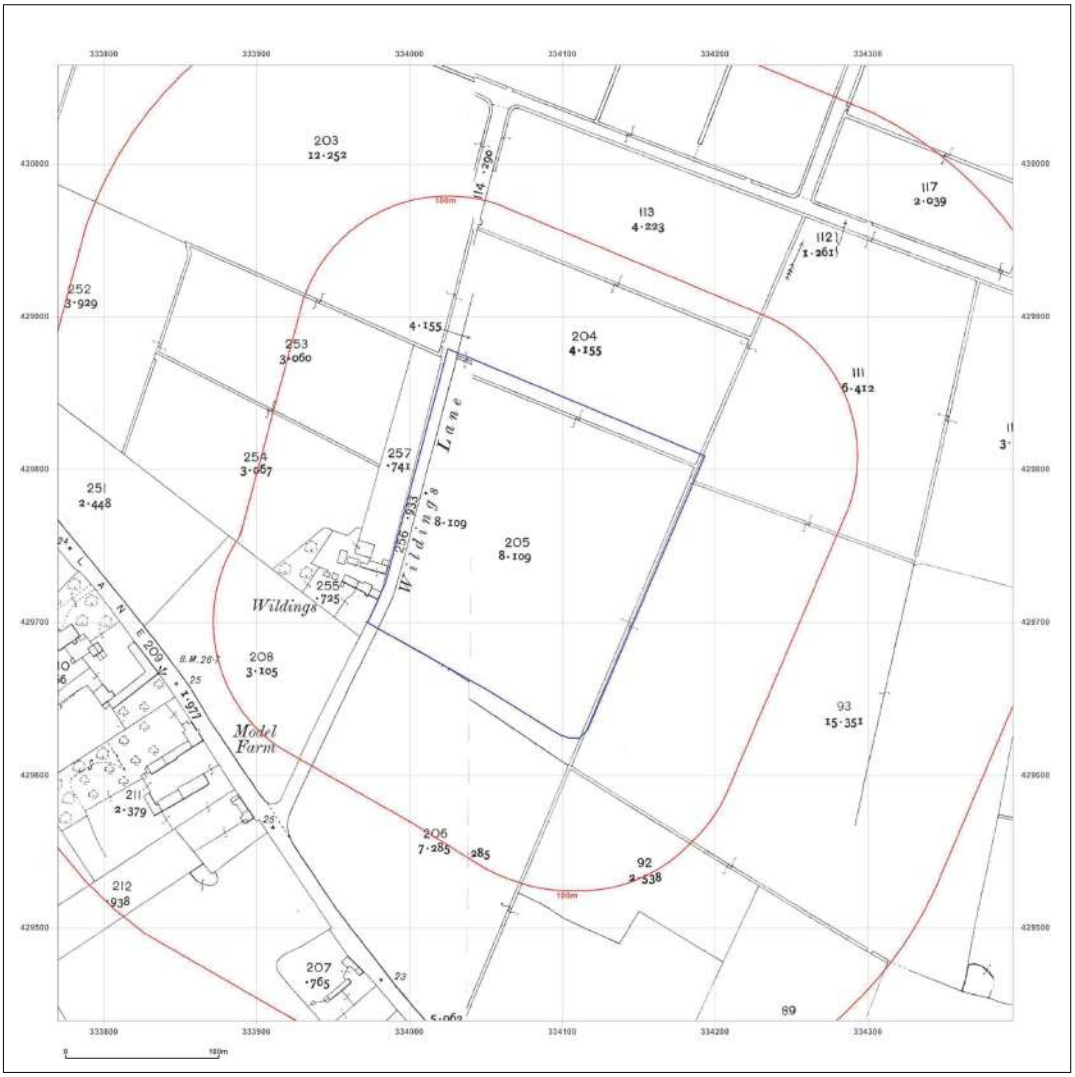

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WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: County Series
Map date: 1911
Scale: 1:2,500
Printed at: 1:2,500

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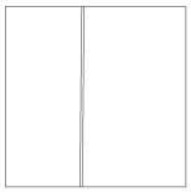
Surveyed 1911
Revised 1911
Edition N/A
Copyright N/A
Levelled N/A



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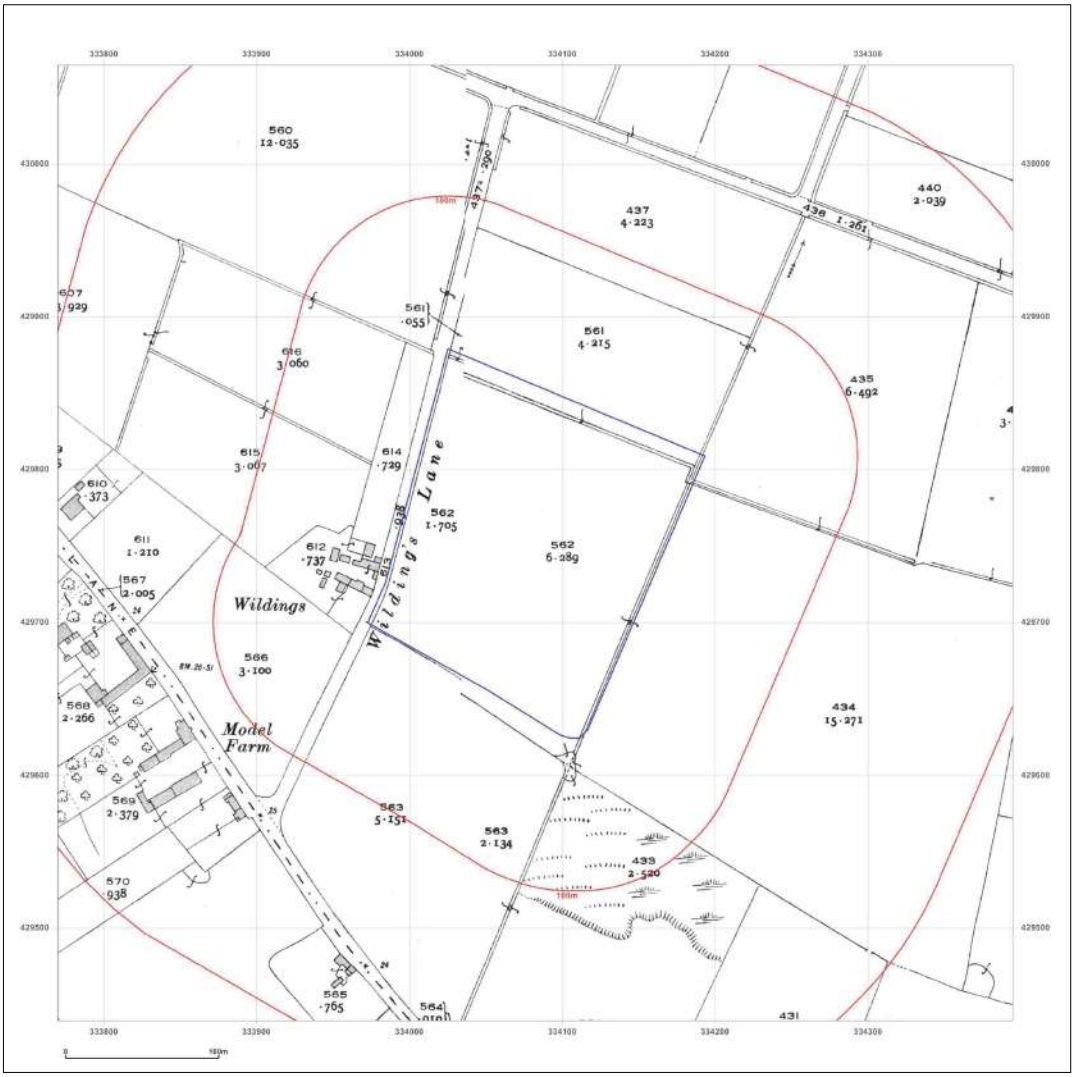

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

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

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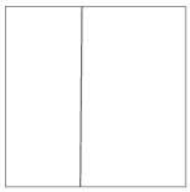
Surveyed 1932
Revised 1932
Edition N/A
Copyright N/A
Levelled N/A



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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1964-1965**
Scale: 1:1,250
Printed at: 1:2,000

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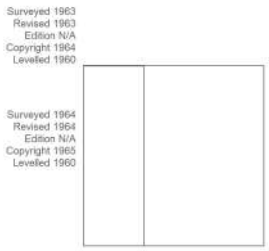

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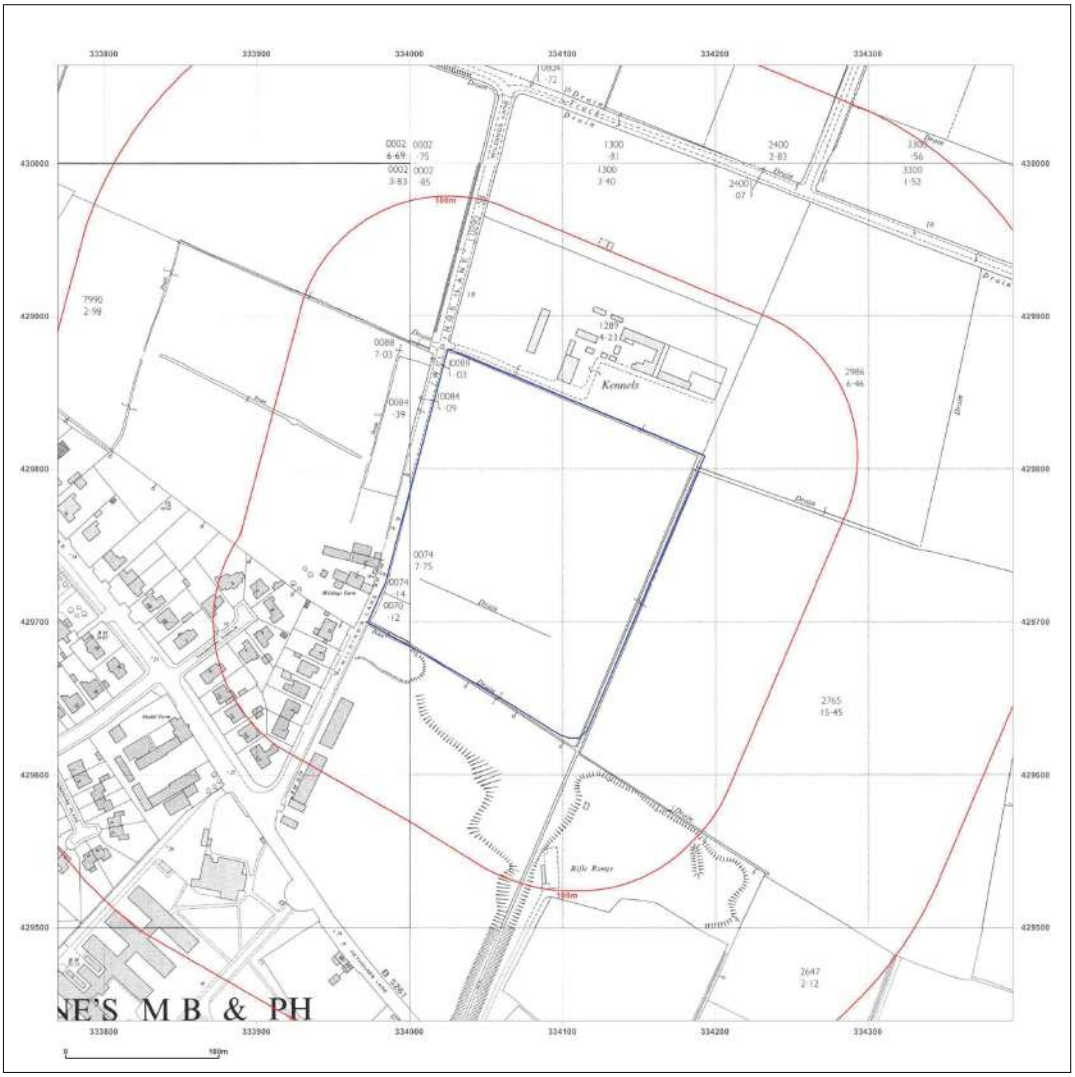

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1964-1966**
Scale: 1:2,500
Printed at: 1:2,500

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Surveyed 1964
Revised 1964
Edition 1965
Copyright 1965
Levelled 1960

Surveyed 1966
Revised 1966
Edition N/A
Copyright 1967
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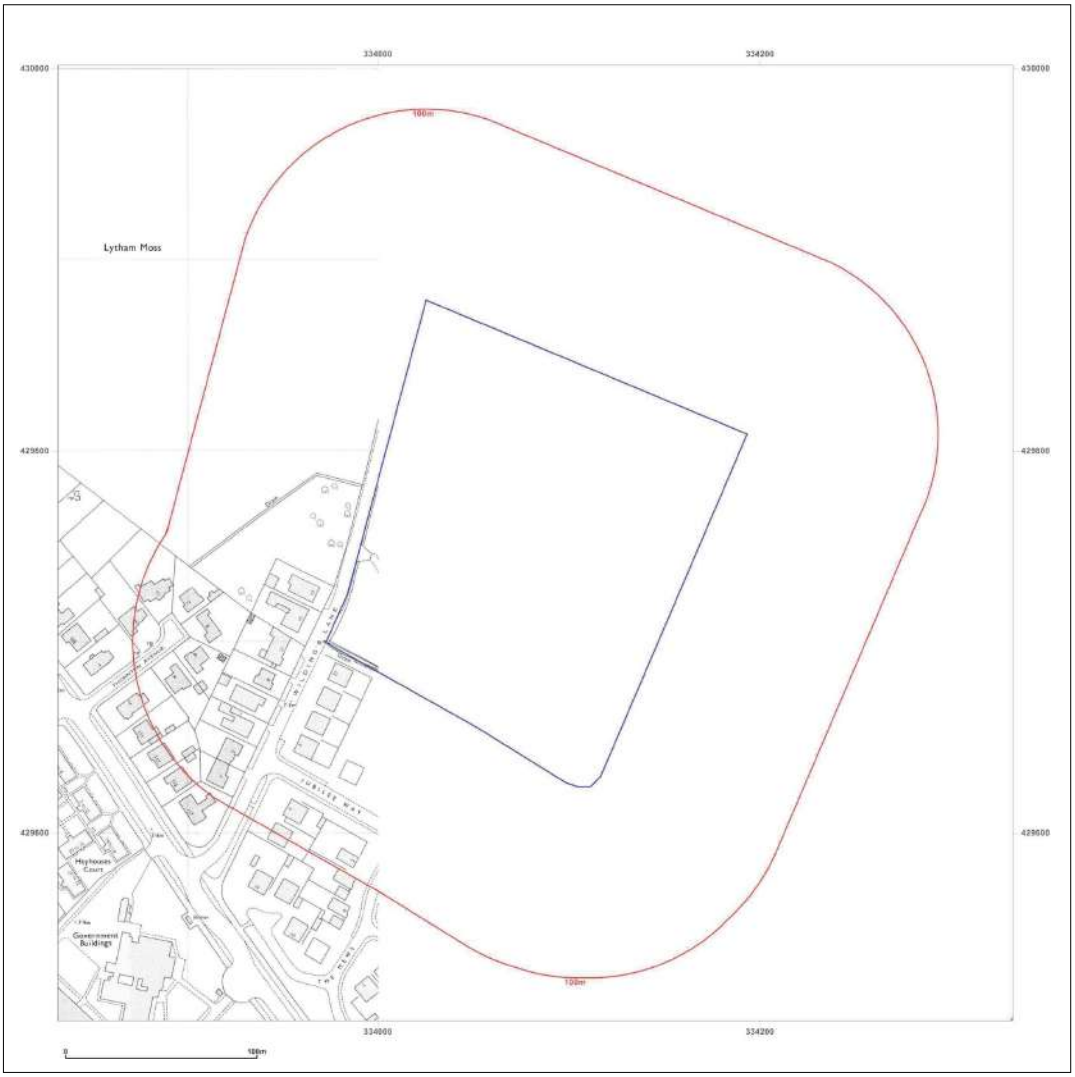

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: 1981
Scale: 1:1,250
Printed at: 1:2,000

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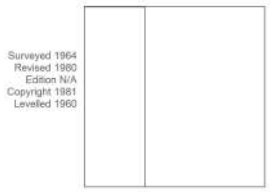

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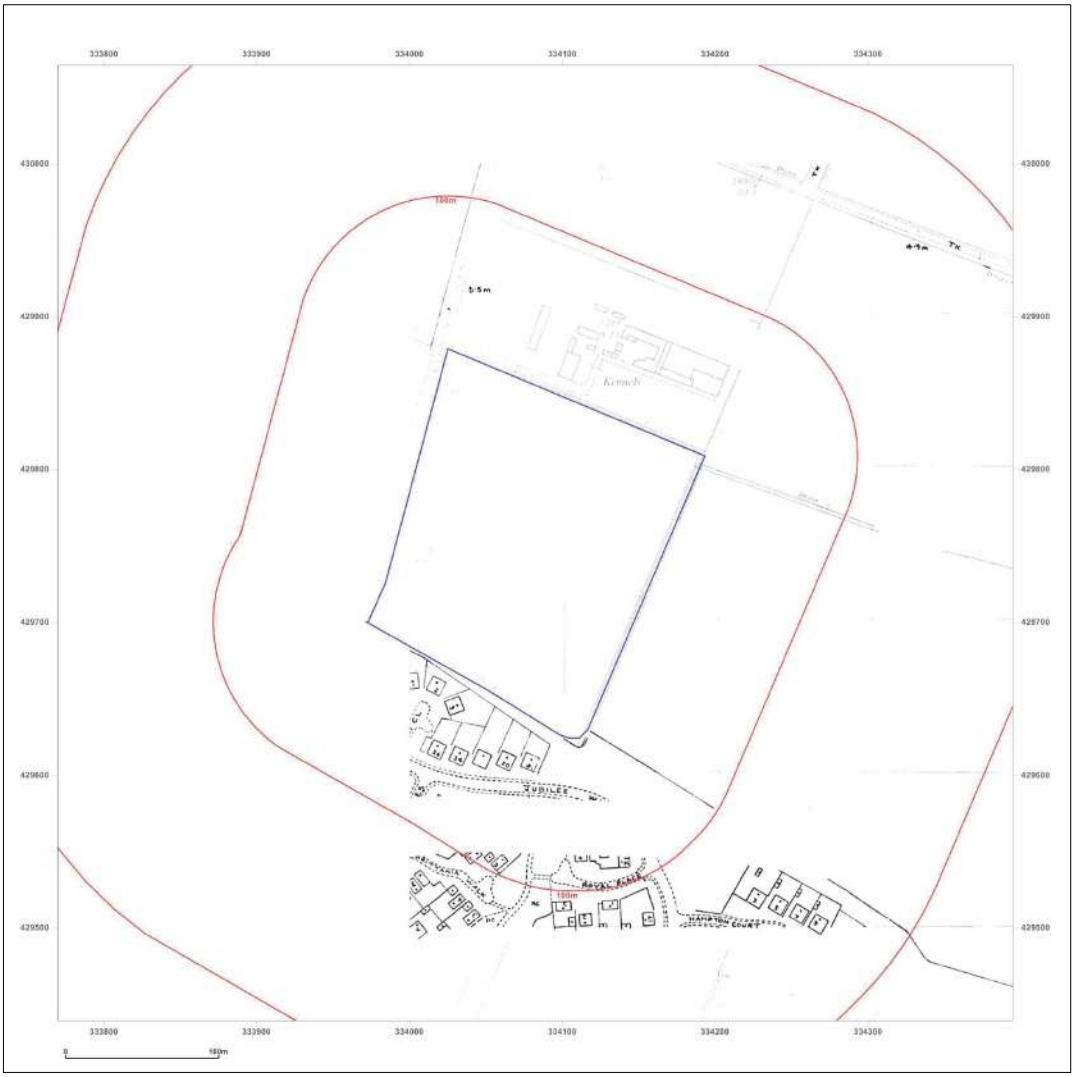

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1983**
Scale: 1:2,500
Printed at: 1:2,500

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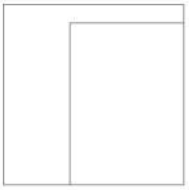

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Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1983**
Scale: 1:2,500
Printed at: 1:2,500

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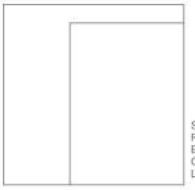

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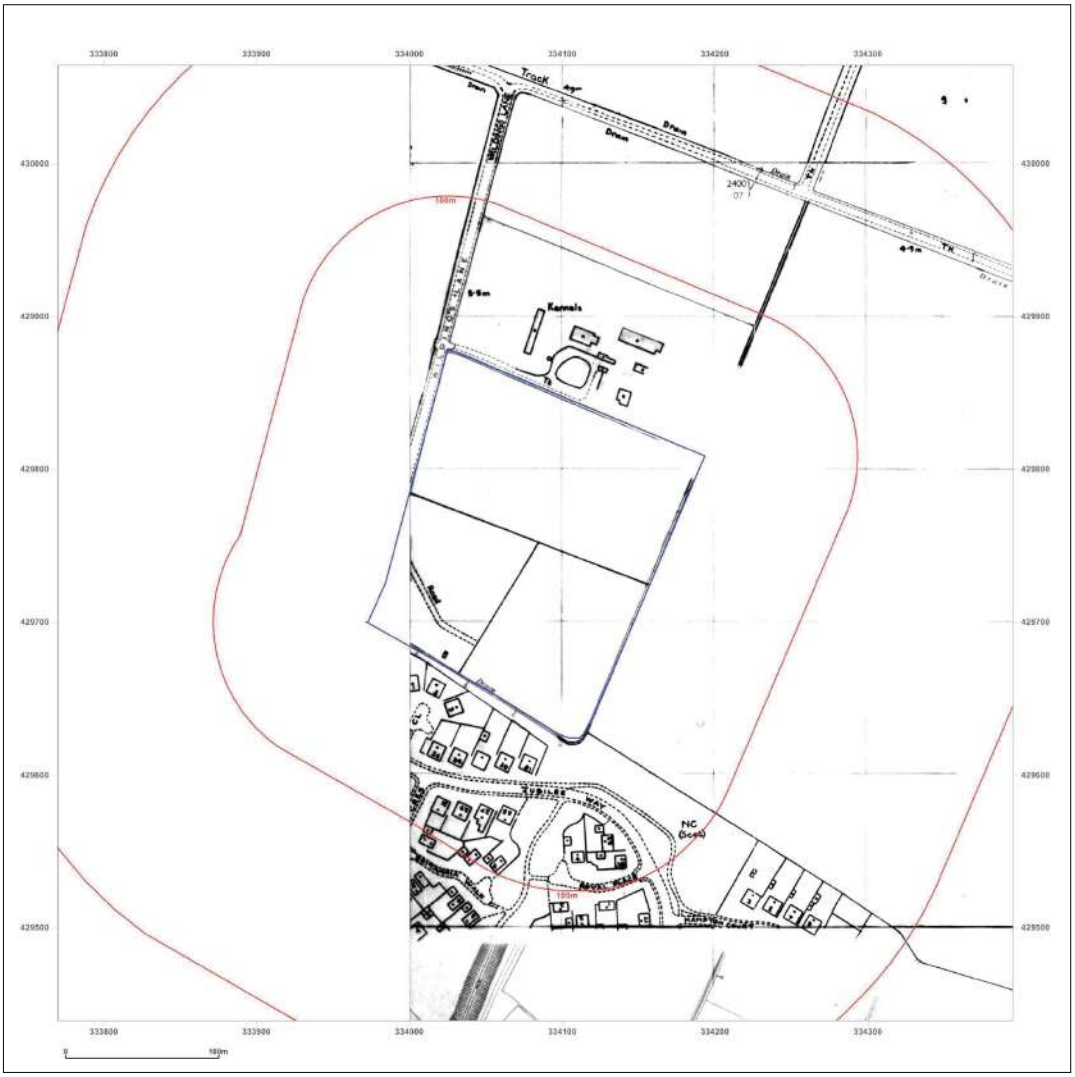

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1988-1992**
Scale: 1:2,500
Printed at: 1:2,500

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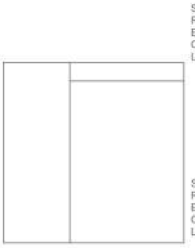

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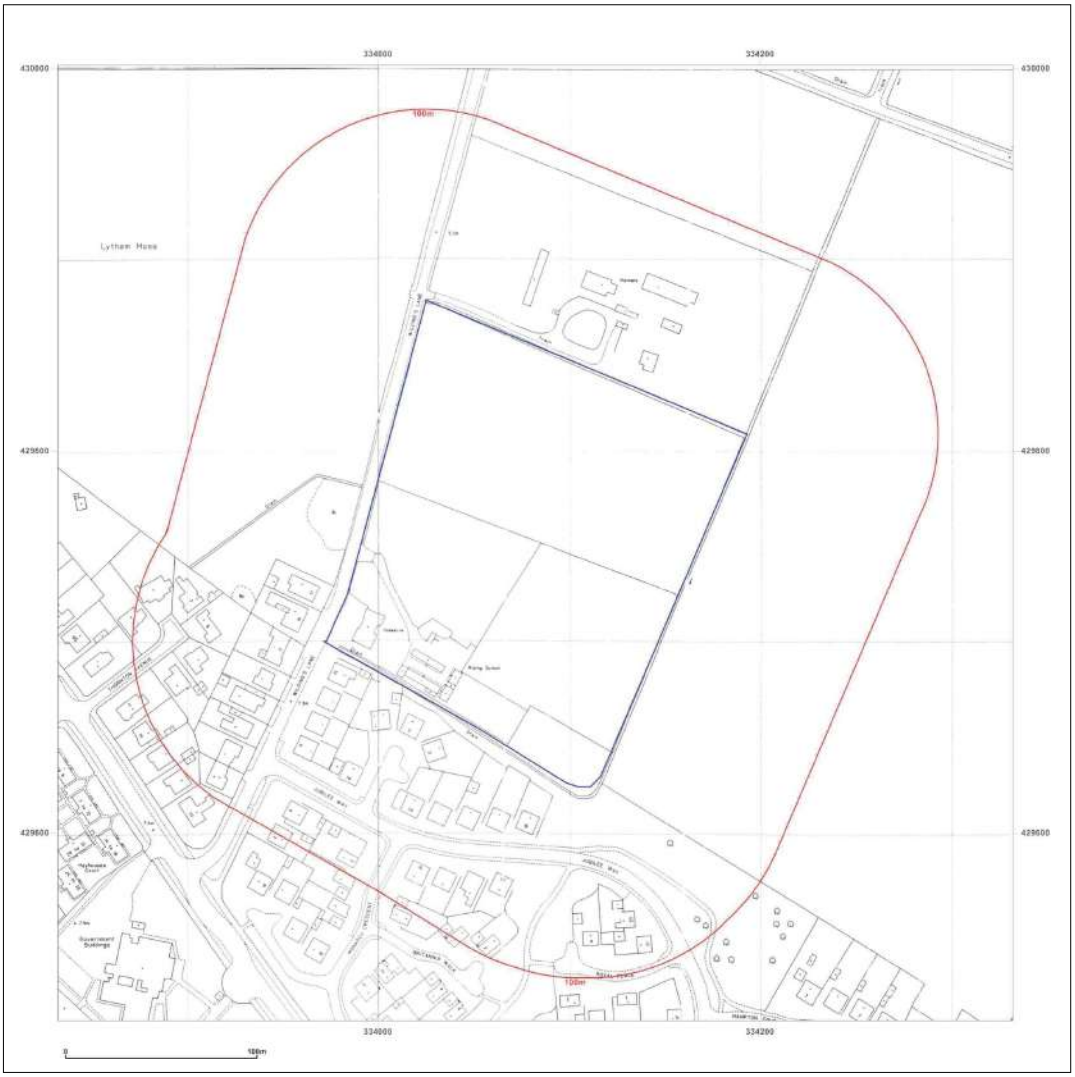

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1991-1993**
Scale: 1:1,250
Printed at: 1:2,000

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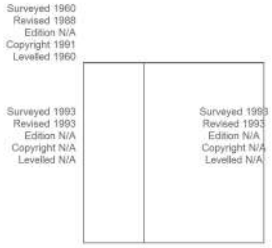

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Site Details:

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

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

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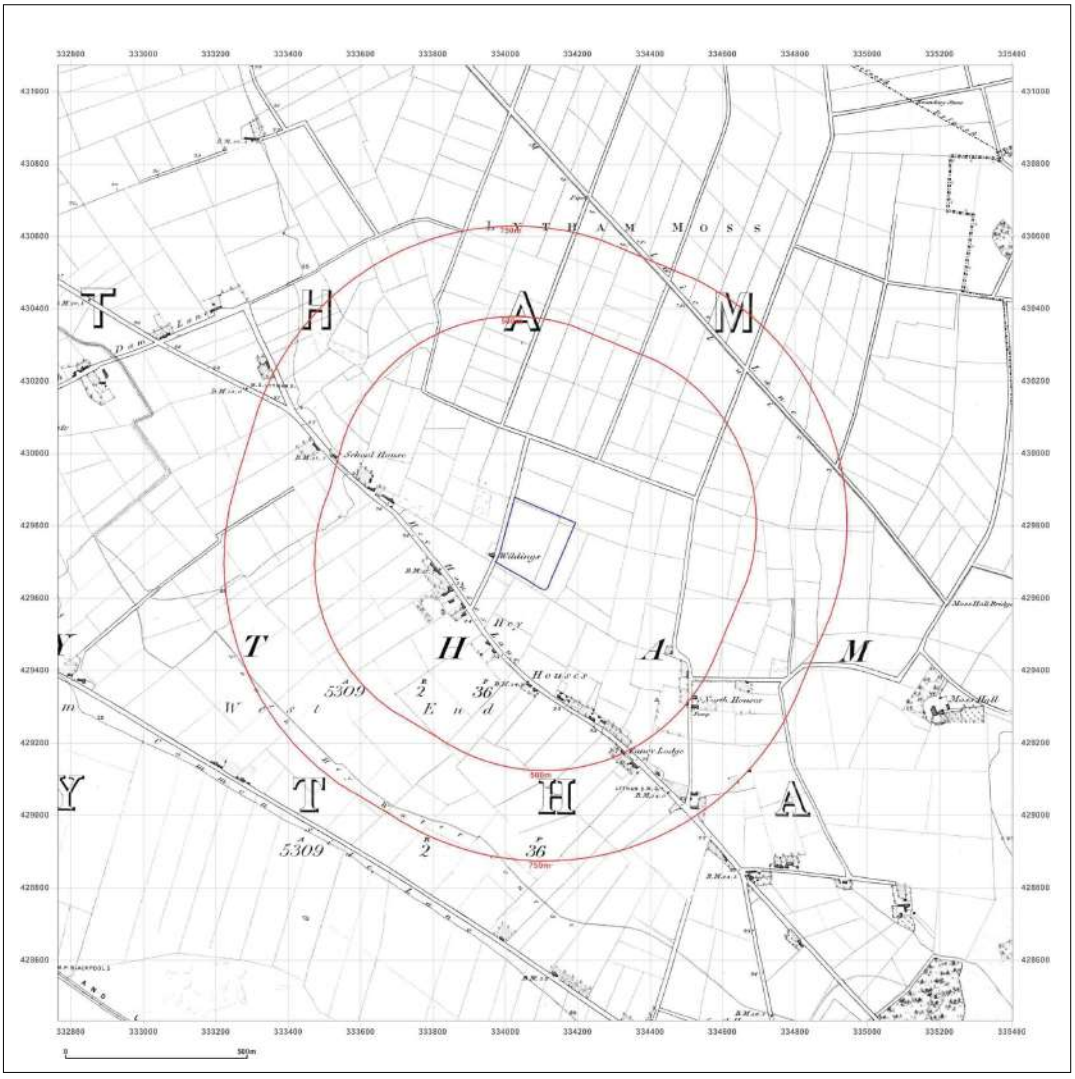

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Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: County Series
Map date: **1847**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1844
Revised N/A
Edition 1847
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Map legend available at:
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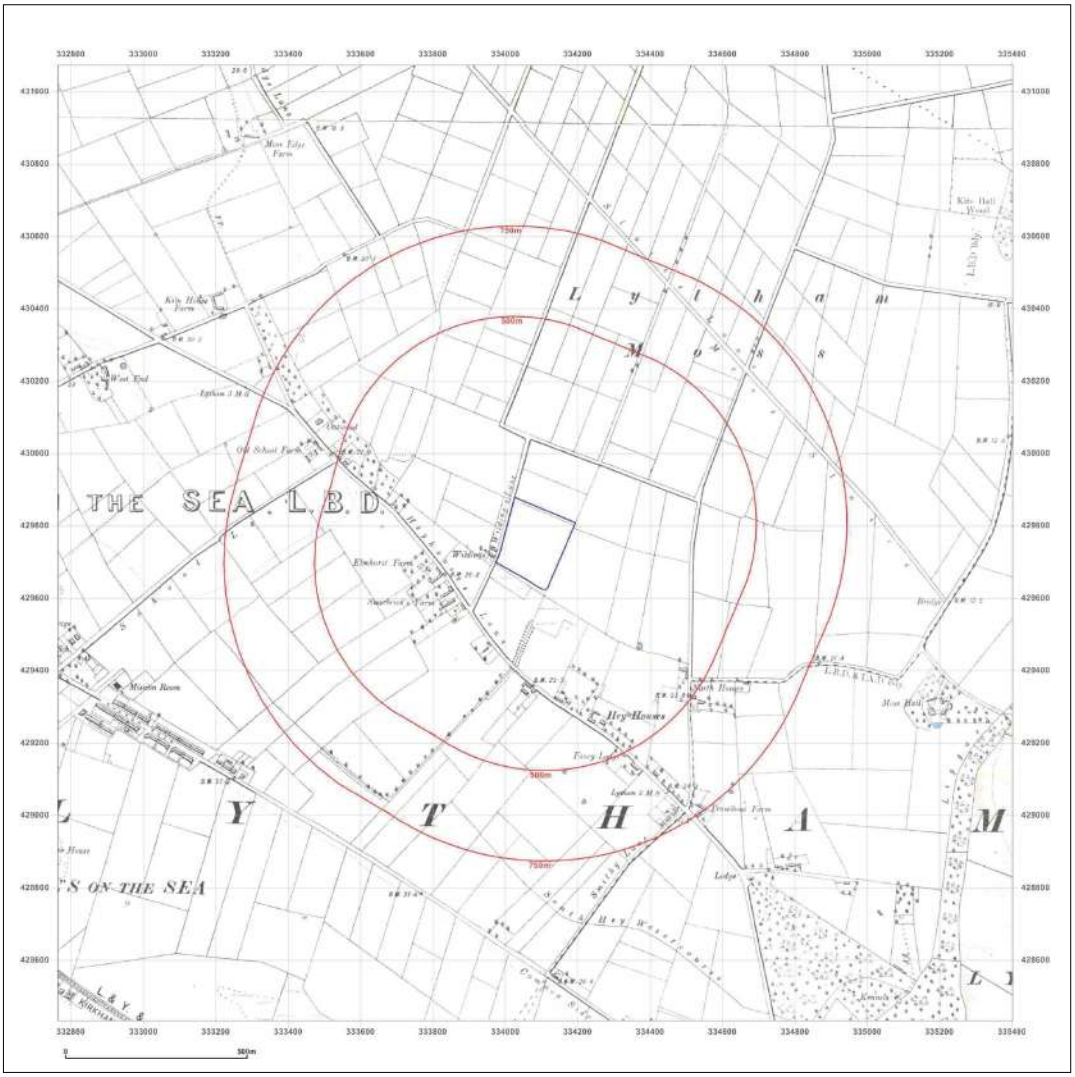

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: County Series
Map date: 1891
Scale: 1:10,560
Printed at: 1:10,560

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

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Revised 1891
Edition N/A
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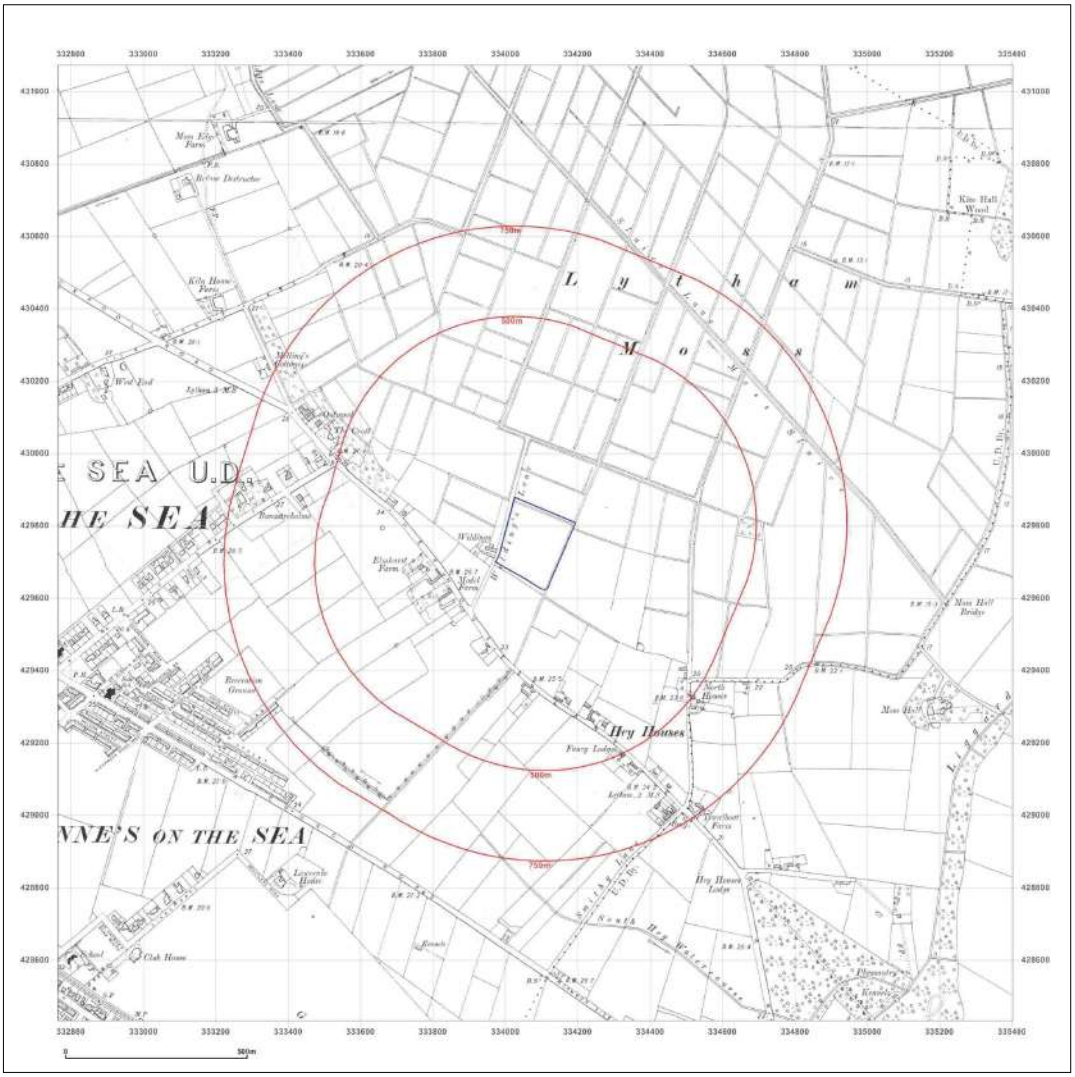

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: County Series
Map date: 1909
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1844
Revised 1909
Edition N/A
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Revised 1909
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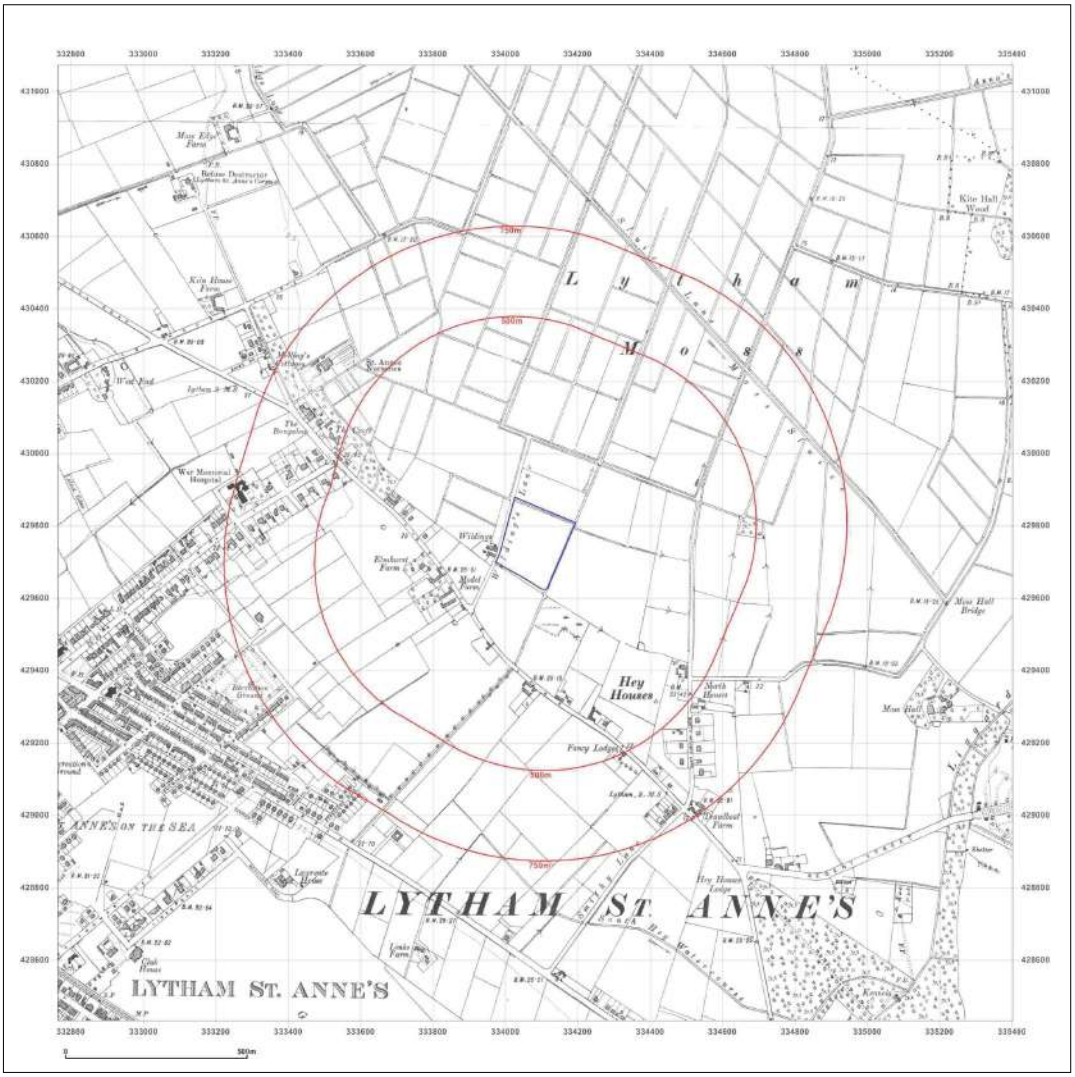

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

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

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Revised 1930
Edition N/A
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Levelled N/A

Surveyed 1844
Revised 1930
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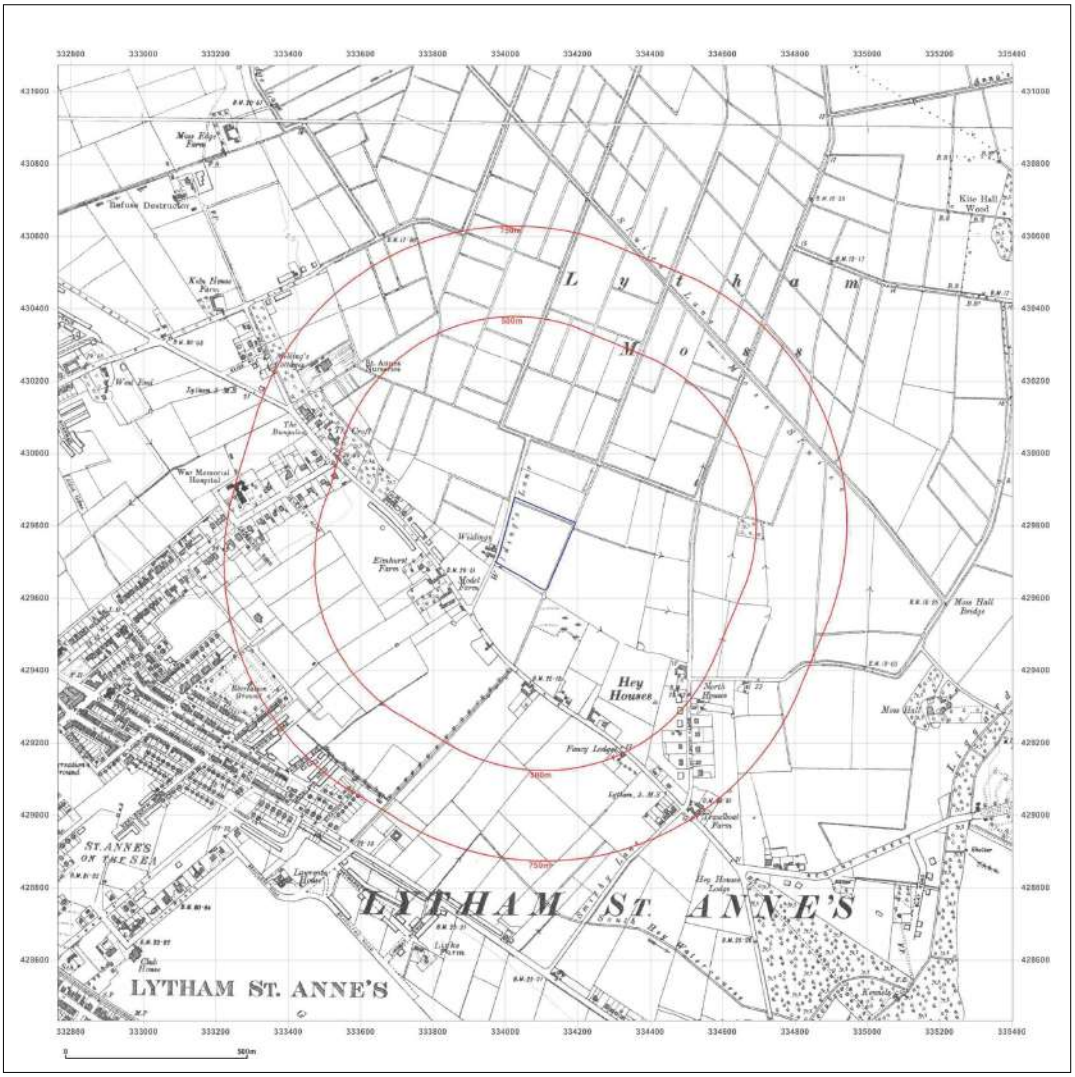

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: County Series
Map date: **1938**
Scale: 1:10,560
Printed at: 1:10,560

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Surveyed 1844
Revised 1938
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1844
Revised 1938
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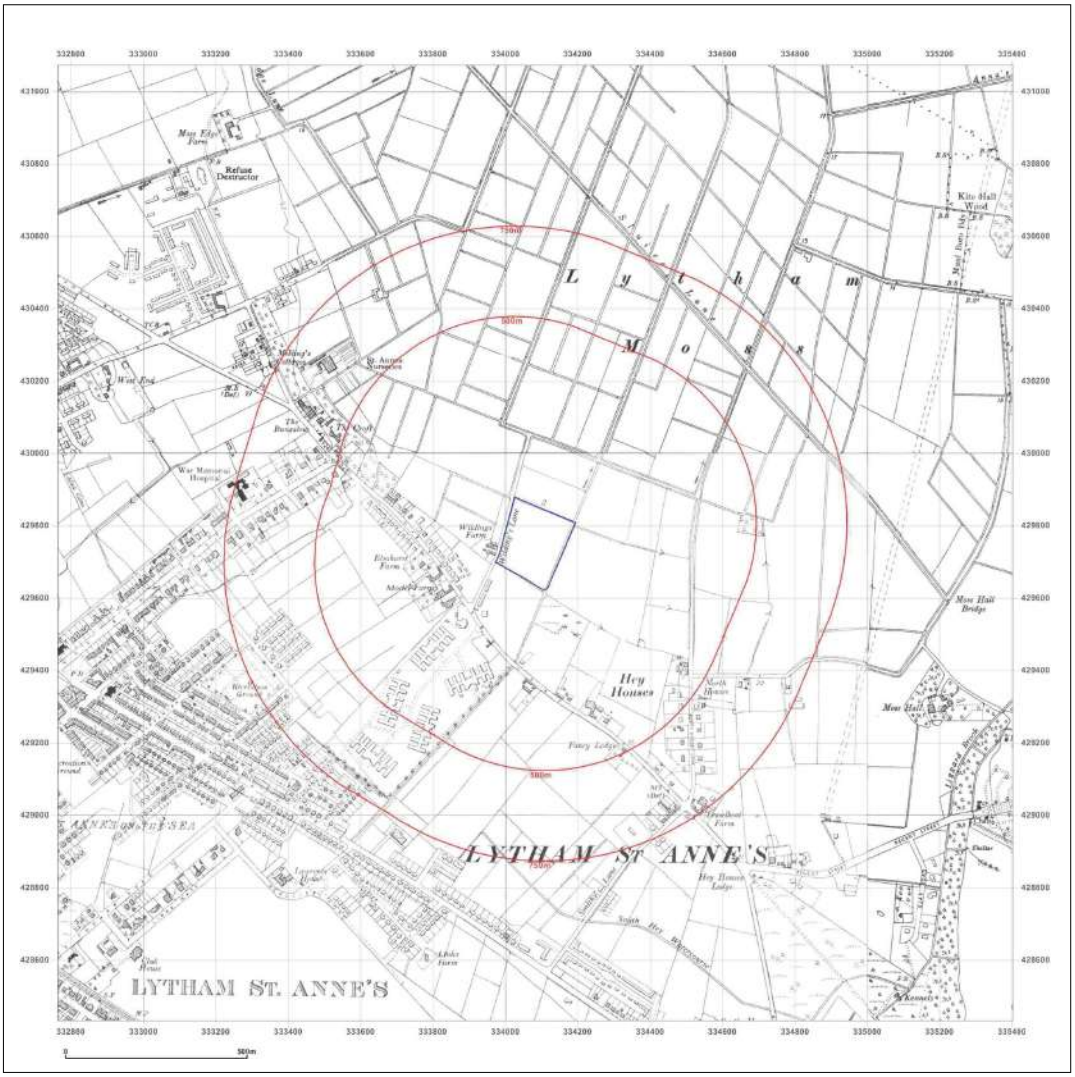

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

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

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

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

Surveyed 1951
Revised 1951
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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1969-1971**
Scale: 1:10,000
Printed at: 1:10,000

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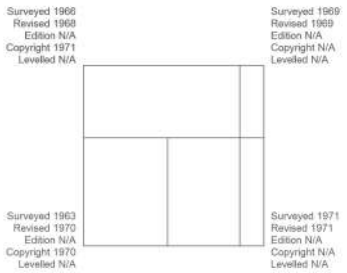

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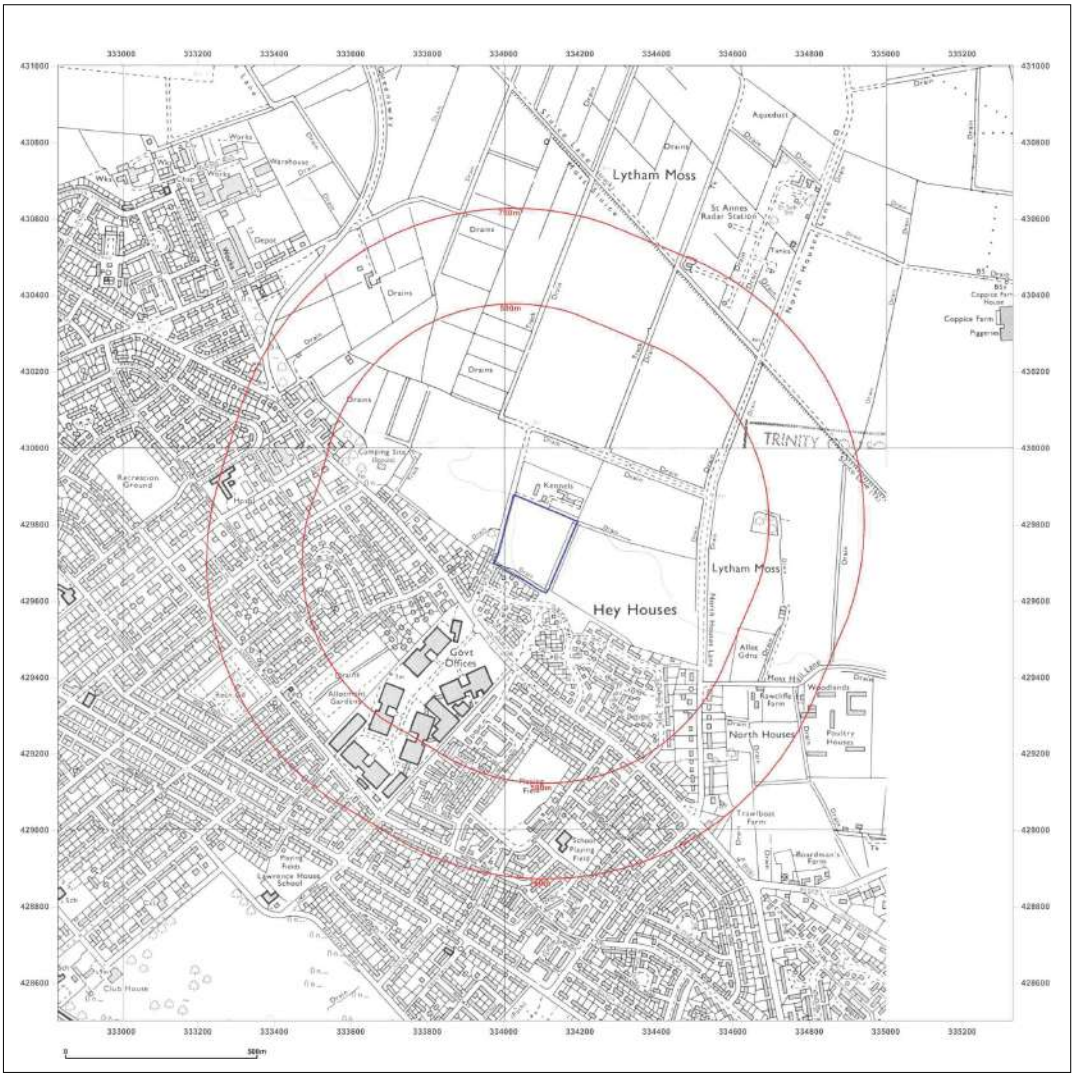

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1978-1982**
Scale: 1:10,000
Printed at: 1:10,000

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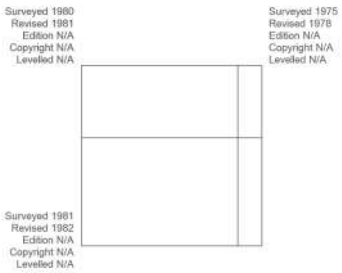

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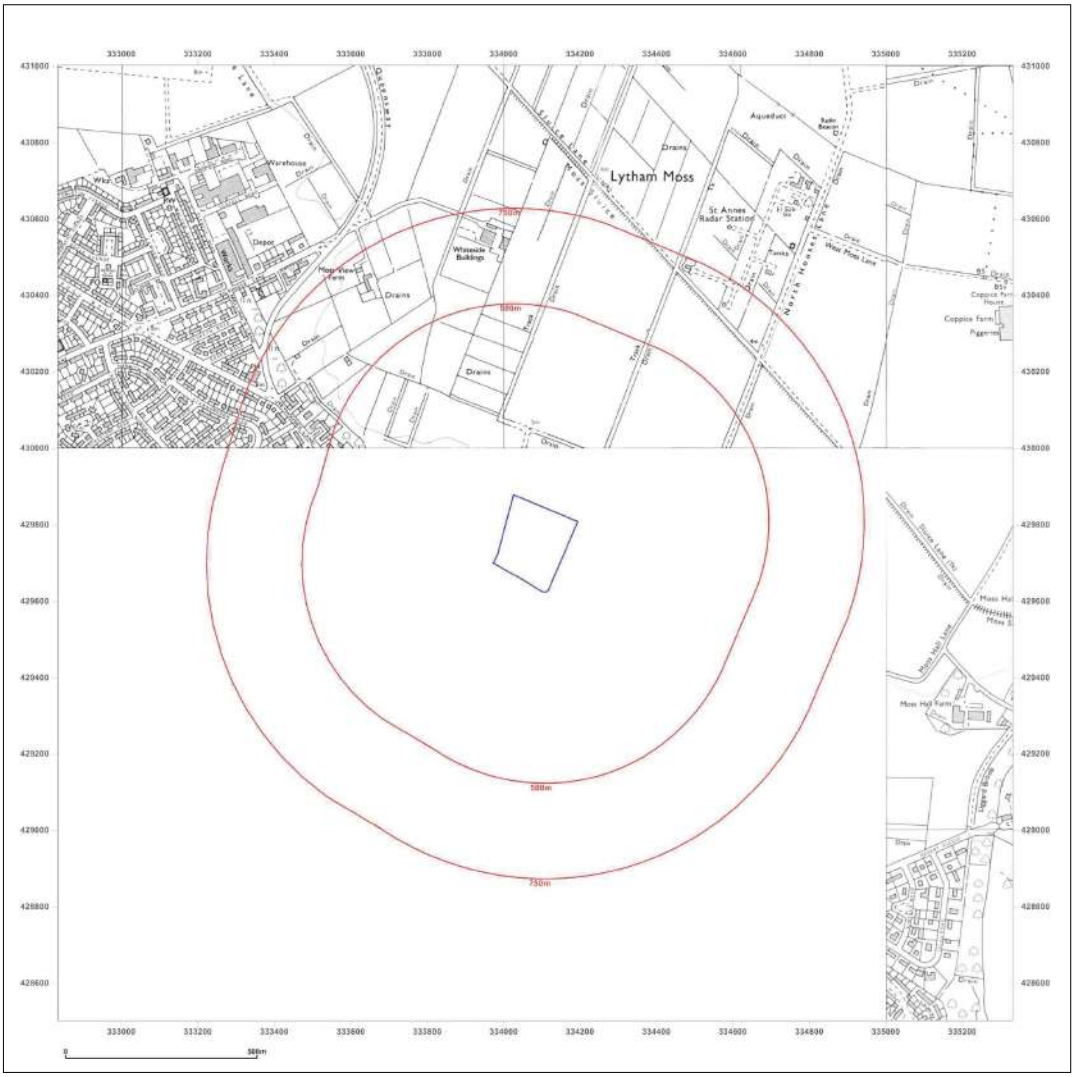

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: **1987-1992**
Scale: 1:10,000
Printed at: 1:10,000

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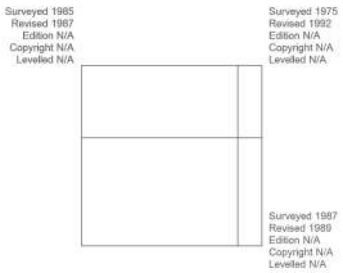

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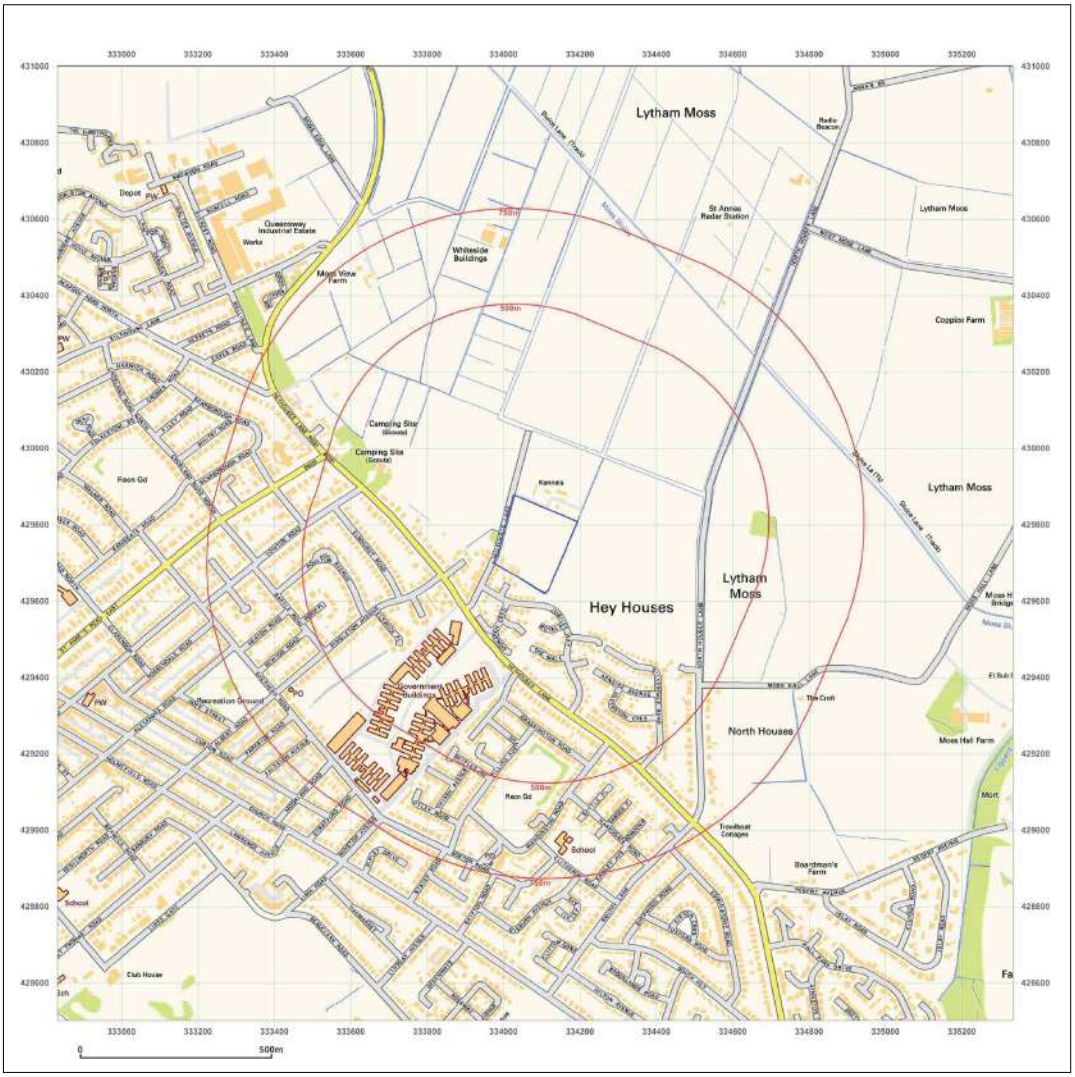

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

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

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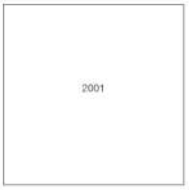

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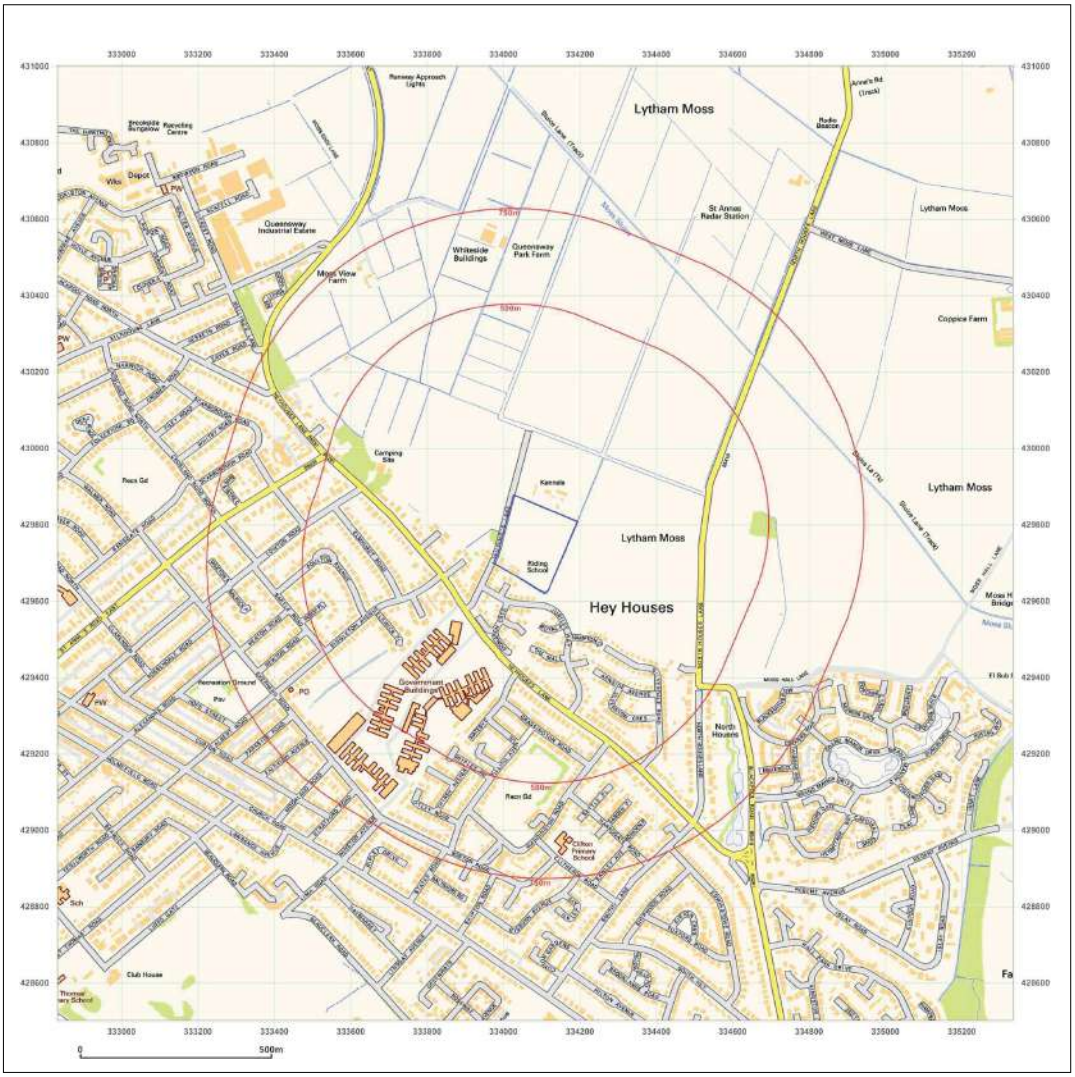

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

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

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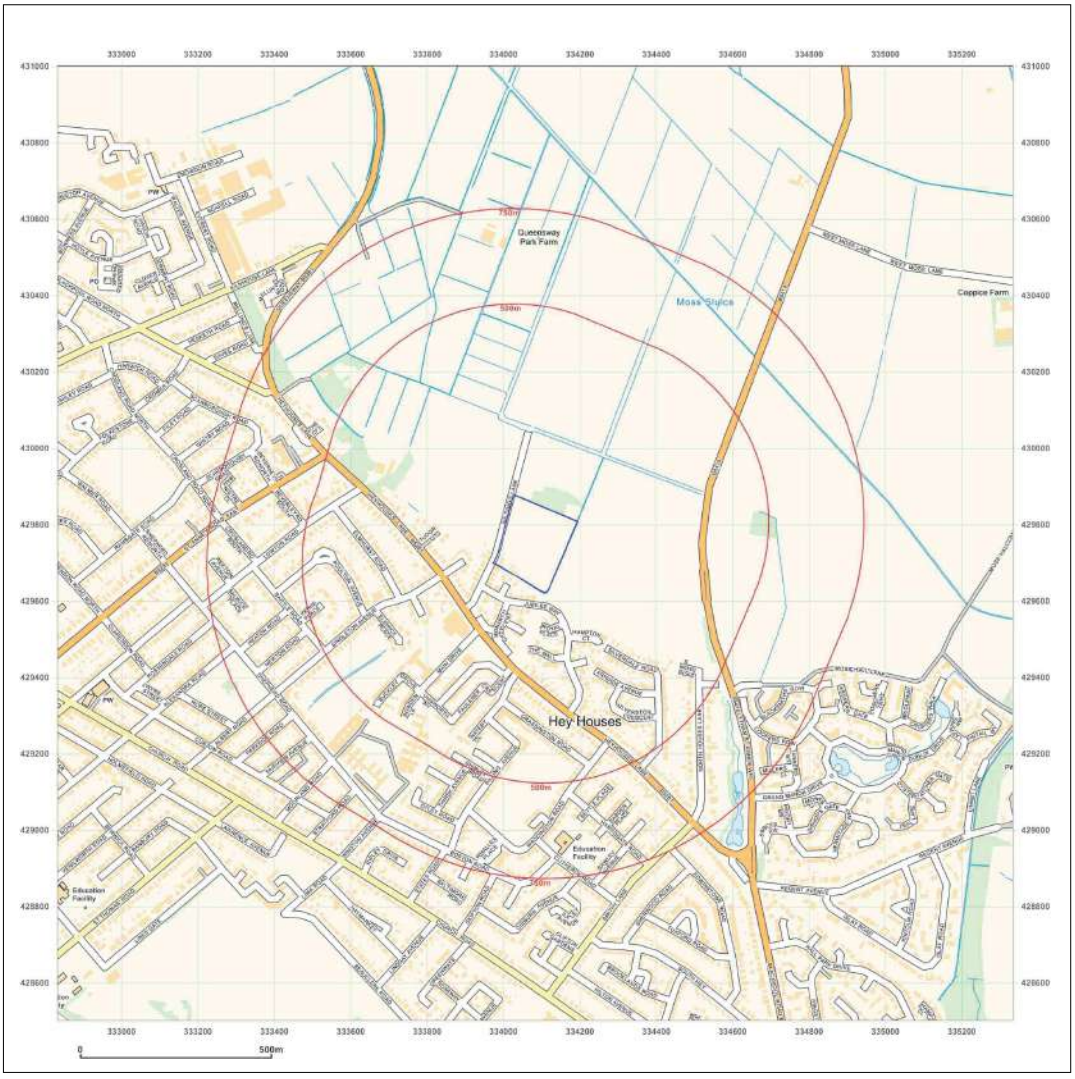

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Site Details:

WILDINGS LANE, LYTHAM ST ANNES

Client Ref: GM10908
Report Ref: GSWA1-6553688
Grid Ref: 334082, 429752

Map Name: National Grid
Map date: 2020
Scale: 1:10,000
Printed at: 1:10,000

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Appendix B

Photograph 1

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Photograph 6

Photograph 7

Photograph 8

Photograph 9

Photograph 10

Photograph 11

Photograph 12

Photograph 13

Photograph 14

Photograph 14

Photograph 15

Photograph 16

Photograph 17

Photograph 18

Photograph 19

Photograph 20

Photograph 21

Photograph 22

Photograph 23

Photograph 24

Appendix C

Appendix C – Digital copy provided as separate digital link

Appendix D

OSIRIS-CESCO LTD.

SITE INVESTIGATION DIVISION

BOREHOLE No. 1

REPORT No. D82082

LOCATION	WADDINGTON ESTATE, LYTHAM ST. ANNES	Ground/Bed Level	N/A
Client	FYLDE BOROUGH COUNCIL	Coordinates	N/A
Method/Diameter	Rotary Auger, 300mm. casing to 3.50m. depth Shell and Auger, 150mm. casing 3.50 to 15.00m. depth.	Boring Commenced	10/6/82
		Boring Completed	11/6/82

Ground Water observations are given at end of log

Remarks

Penetration force for piston sampler recorded in kN.
250mm. dia. piston sample attempted 2.00-2.75m, no recovery.

Description of Strata	Scale 1:50 Depth (m)	Reduced Level	Legend	Samples/Coring Record Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
TOPSOIL.	0.10							
Very loose, yellow, occasionally grey brown f.m. SAND.				1	S/D	0.80	1.25	4
	1.70							
Soft dark brown slightly clayey fibrous PEAT with abundant roots and stems.				2	P	2.00	2.75	R
				3	P	2.75	3.50	0kN.
	3.80							
Very soft blue grey slightly silty CLAY with roots and organic debris.	4.00			4	D	4.00		
Soft, brown SILT with rotted organic debris.				5	U	4.30	4.75	(22)
				6	D	4.80		
				7	D	6.00		
				8	D	7.00		
				9	D	8.00		
	8.40							
Medium dense brown shelly f. SAND.								

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T100

OSIRIS-CESCO LTD.

SITE INVESTIGATION DIVISION

BOREHOLE No. SD32NW 7/1

Continuation Sheet No. 1

REPORT No. D82082

LOCATION WADDINGTON ESTATE, LYTHAM ST. ANNES

Scale 1: 50

Description of Strata	Depth (m)	Reduced level	Legend	Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
(As above) Medium dense brown shelly f. SAND.				10	D	10.00		
	11.90			11	S/D	11.70	12.15	13
Medium dense brown SILT.								
	13.70			12	D	13.70		
Medium dense grey SILT.	14.20							
Stiff, red brown and grey mottled, fissured, slightly sandy in places CLAY with a little subrounded m. gravel. (GLACIAL TILL)				13 14	U D	14.10 14.60	14.55	(200)
	15.00							

GROUND WATER OBSERVATIONS

Inflow observed at (m)	Visual rate of inflow	Water sealed off by casing at (m)
0.80	Seepage	2.75
4.00	Seepage	-

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Level (m)
10/6/82	1900	3.75	3.75	3.75

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T101

British Geological Survey

OSIRIS-CESCO LTD.

SITE INVESTIGATION DIVISION

BOREHOLE No. 25D82NW 7/2

REPORT No. D82082

LOCATION	WADDINGTON ESTATE, LYTHAM ST. ANNES	Ground/Bed Level	N/A
Client	FYLDE BOROUGH COUNCIL	Coordinates	N/A

Method/Diameter: Rotary Auger, 300mm. casing to 3.80m. depth
Shell and Auger, 150mm. casing, 3.80-15.00m. depth

Boring Commenced: 12/6/82

Boring Completed: 12/6/82

Ground Water observations are given at end of log

Remarks

Penetration force for piston sample recorded in kN.
Piston sample 250mm. attempted 2.00-2.75m, no recovery.

Description of Strata	Scale 1:50 Depth (m)	Reduced Level	Legend	Samples/Coring Record Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
TOPSOIL.	0.10							
Very loose brown f.m. SAND.				1	S/D	0.80	1.25	4
	1.70							
Soft dark brown sandy amorphous PEAT.				2	P	2.00	2.75	R
				3	D	2.40		
				4	P	2.75	3.50	0kN.
	3.80							
Very soft grey silty CLAY.	4.20			5	U	4.00	4.45	(8)
Soft, grey brown SILT with traces of organic debris.				6	D	4.50		
				7	U	5.00	5.45	(9)
				8	D	5.50		
				9	D	6.50		
				10	D	8.50		

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T100

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SITE INVESTIGATION DIVISION

BOREHOLE No. 2

Continuation Sheet No. 1

LOCATION WADDINGTON ESTATE, LYTHAM ST. ANNES

REPORT No. D82082

Scale 1: 50

Description of Strata	Depth (m)	Reduced level	Legend	Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
(As above) Loose grey brown SILT with traces of organic debris, becoming grey brown f. SAND with depth.				11	D	9.50		
	10.50			12	D	10.50		
Very soft light brown slightly silty CLAY with traces of peat.				13	U	10.60	11.05	(10)
	11.40			14	D	11.10		
Very soft brown sandy CLAY with a little f.m. gravel.				15	U	12.00	12.45	(11)
	13.50							
Loose grey brown SILT with organic debris.	13.70							
Stiff red brown and grey mottled, fissured, slightly sandy CLAY with a little subrounded m. gravel. (GLACIAL TILL)				16	U	14.00	14.45	(160)
	15.00							

GROUND WATER OBSERVATIONS

Inflow observed at (m)	Visual rate of inflow	Water sealed off by casing at (m)
4.00	Seepage	-

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Level (m)

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T101

SITE INVESTIGATION DIVISION

55D32 NW 7/3

REPORT No. D82082

LOCATION	WADDINGTON ESTATE, LYTHAM ST. ANNES	Ground/Bed Level	N/A
Client	FYLDE BOROUGH COUNCIL	Coordinates	N/A

Method/Diameter: Rotary Auger, 300mm. casing to 4.30m. depth
Shell and Auger, 150mm. casing 4.30-16.00m. depth.

Boring Commenced 13/6/82

Boring Completed 13/6/82

Ground Water observations are given at end of log

Remarks
Penetration force for piston sampler recorded in kN.
250mm. dia. piston sample attempted 3.00-3.75m, no recovery.
Chasing boulder from 15.00-16.00m, U4 at 14.90m, no penetration.

Description of Strata	Scale 1:50 Depth (m)	Reduced Level	Legend	Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
TOPSOIL.	0.20							
Loose brown f.m. SAND.				1	S/D	0.80	1.25	5
	3.00							
Soft dark brown sandy amorphous PEAT.	3.70			2	P	3.00	3.75	R
Soft dark brown slightly clayey amorphous PEAT.	4.30			3	P	3.75	4.50	41kN.
Very soft grey slightly silty CLAY with laminae of black peat and rotted organic debris.				4	U	4.70	5.15	(8)
				5	D	5.20		
	6.00							
Loose grey brown slightly shelly f. SAND.				6	D	6.30		
				7	D	7.30		
				8	D	8.30		

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T100

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SITE INVESTIGATION DIVISION

BOREHOLE No. 3

Continuation Sheet No. 1

LOCATION WADDINGTON ESTATE, LYTHAM ST. ANNES

REPORT No. D82082

Description of Strata	Scale 1: 50 Depth (m)	Reduced level	Legend	Samples/Coring Record Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
(As above) Loose grey brown slightly shelly f. SAND.				9	D	9.30		
				10	D	11.30		
	12.00							
Soft light brown SILT with traces of black organic debris.				11	U	12.00	12.45	(20)
	14.50							
Soft grey silty CLAY with organic debris.	14.70			12	U	14.90		(120R)
Stiff red brown and grey fissured sandy CLAY with bands of sand and gravel. (GLACIAL TILL).				13	C	15.30		R
	16.00							

GROUND WATER OBSERVATIONS

Inflow observed at (m)	Visual rate of inflow	Water sealed off by casing at (m)
3.00	Seepage	3.30
6.00	Medium	-

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Level (m)

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T101

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SITE INVESTIGATION DIVISION

BOREHOLE No. 4 SD32NW 7/4

REPORT No. D82082

LOCATION WADDINGTON ESTATE, LYTHAM ST. ANNES

Client FYLDE BOROUGH COUNCIL

Ground/Bed Level N/A

Coordinates N/A

Method/Diameter--
Rotary Auger 300mm. dia. casing to 5.10m. depth
Shell and Auger 150mm. casing, 5.10-15.95m.

Boring Commenced 14/6/82

Boring Completed 15/6/82

Ground Water observations are given at end of log

Remarks
Penetration force for piston sampler recorded in kN.

Description of Strata	Scale 1:50 Depth (m)	Reduced Level	Legend	Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
TOPSOIL.	0.40							
Very loose orange f.m. SAND.				1	S/D	0.80	1.25	4
	2.50							
Soft black sandy amorphous PEAT.				2	P	2.80	3.55	41kN
	4.30							
Soft grey silty CLAY with occasional rotted organic materials, becoming more silty with depth.				3	U	4.60	5.05	(9)
				4	D	5.10		
				5	D	6.00		
				6	D	7.00		
	8.00							
Loose grey f. sandy SILT.				7	D	8.00		
				8	D	9.00		

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
(⁻) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T100

OSIRIS - CESCO LTD.

SITE INVESTIGATION DIVISION

BOREHOLE No. 4

Continuation Sheet No. 1

LOCATION WADDINGTON ESTATE, LYTHAM ST. ANNES

REPORT No. D82082

Scale 1: 50

Description of Strata	Depth (m)	Reduced level	Legend	Ref. No.	Type	Depth (m) From	Depth (m) To	N blows/0.3m
(As above) Loose grey f. sandy SILT.				9	D	10.00		
	10.50			10	D	10.50		
Firm brown silty CLAY, becoming very silty with depth.				11	D	11.50		
				12	D	12.50		
				13	S/D	13.50		0
	14.50			14	D	14.60		
Stiff brown c. sandy slightly silty CLAY with occasional subangular m. gravel.				15	U	15.50	15.95	(250)
	15.95							

GROUND WATER OBSERVATIONS

Inflow observed at (m)	Visual rate of inflow	Water sealed off by casing at (m)
1.20	Seepage	2.50

Date	Time	Hole Depth (m)	Casing Depth (m)	Water Level (m)
14/6/82	1930	5.10	5.10	5.10
15/6/82	0730	5.10	5.10	1.90

Key: **SAMPLES:** U=Undisturbed. B=Bulk Disturbed. D=Disturbed. P=Piston. W=Water.
STANDARD PENETRATION TEST: S=Hollow shoe. C=Cone point. R=Refer to text or explanatory data sheet.
( ) No. of blows to drive U sample.
f = fine. m = medium. c = coarse.

T101

Appendix E

UNEXPLODED BOMB RISK MAP

SITE LOCATION

Map Centre: 334083,429773

LEGEND

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

miltary	**industry**	**UXO find**
transport	**dock**	**Luftwaffe targets**
utilities	**Bombing decoy**	**other**

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

The map indicates the potential for Unexploded Bombs (UXB) to be present as a result of World War Two (WWII) bombing.

You can incorporate the map into your preliminary risk assessment* for potential Unexploded Ordnance (UXO) for a site. Using this map, you can make an informed decision as to whether more in-depth detailed risk assessment* is necessary.

What do I do if my site is in a moderate or high risk area?

Generally, we recommend that a detailed UXO desk study and risk assessment is undertaken for sites in a moderate or high UXB risk area.

Similarly, if your site is near to a designated Luftwaffe target or bombing decoy then additional detailed research is recommended.

More often than not, this further detailed research will conclude that the potential for a significant UXO hazard to be present on your site is actually low.

Never plan site work or undertake a risk assessment using these maps alone. More detail is required, particularly where there may be a source of UXO from other military operations which are not reflected on these maps.

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

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

A low risk really means that there is no greater probability of encountering UXO than anywhere else in the UK.

If you are unsure whether other sources of UXO may be present, you can ask for one of our **pre-desk study assessments (PDSA)**

If I have any questions, who do I contact?

tel: **+44 (0) 1993 886682**

email: **uxo@zetica.com**

web: **www.zeticauxo.com**

The information in this UXB risk map is derived from a number of sources and should be used in conjunction with the accompanying notes on our website: **(https://zeticauxo.com/downloads-and-resources/risk-maps/)**

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It is important to note that this map is not a UXO risk assessment and should not be reported as such when reproduced.

*Preliminary and detailed UXO risk assessments are advocated as good practice by industry guidance such as CIRIA C681 'Unexploded Ordnance (UXO), a guide for the construction industry'.

Appendix F

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Appendix G:

Table G.1 – Consequence of Risk Being Realised (based on CIRIA C552 2001)			
Classification	**Category**	**Definition**	**Examples (Not necessarily specific to this site)**
Severe short-term (acute) risks only	Humans	Short-term (acute) risk to human health likely to result in "significant harm" as defined by the Environment Protection Act 1990, Part 2A.	High concentrations of cyanide on the surface of an informal recreation area.
	Controlled Waters	Short-term risk of pollution (note: Water Resources Act contains no scope for considering significance of pollution) of sensitive water resource.	Major spillage of contaminants from site into controlled water.
	Property	Catastrophic damage to buildings/property.	Explosion causing building collapse (can also equate to a short-term human health risk if buildings are occupied.
	Ecological System	A short-term risk to a particular ecosystem, or organism forming part of such ecosystem.	
Medium chronic (long term) risks; "significant harm"	Humans	Chronic damage to Human Health ("significant harm" as defined in Defra 2006).	Concentrations of a contaminant from site exceed the generic, or site-specific assessment criteria
	Controlled Waters	Pollution of sensitive water resources (note: Water Resources Act contains no scope for considering significance of pollution).	Leaching of contaminants from a site into a major or minor aquifer.
	Ecological System	A significant change in a particular ecosystem	Death of a species within a designated nature reserve.
Mild chronic (long term) risks; less sensitive receptors	Controlled Waters	Pollution of non-sensitive water resources.	Pollution of non-classified groundwater
	Property	Significant damage to buildings, structures and services ("significant harm" as defined in Circular on Contaminated Land, Defra, 2006). Damage to sensitive buildings/structures/services	Damage to building rendering it unsafe to occupy (e.g., foundation damage resulting in instability)
	Ecological System	Significant damage to crops. Damage to the environment.	
Minor chronic (long term) risks; mild	Financial / project	Harm, although not necessarily significant harm, which may result in a financial loss, or expenditure to resolve.	
	Humans	Non-permanent health effects to human health (easily prevented by means such as personal protective clothing, etc).	The presence of contaminants at such concentrations that protective equipment is required during site works.
	Property	Easily repairable effects of damage to buildings, structures and services	The loss of plants in a landscaping scheme. Discolouration of concrete.

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ENERGY AND CLIMATE CHANGE
ENVIRONMENT AND SUSTAINABILITY
INFRASTRUCTURE AND UTILITIES
LAND AND PROPERTY
MINING AND MINERAL PROCESSING
MINERAL ESTATES
WASTE RESOURCE MANAGEMENT

TABLE G.2: Probability of Risk Being Realised (C552 CIRIA, 2001)	
Classification	**Definition**
High Likelihood	There is a pollution linkage and an event that either appears very likely in the short term and almost inevitable over the long term, or there is evidence at the receptor of harm or pollution.
Likely	There is a pollution linkage and all the elements are present and in the right place, which means that it is probable that an event will occur. Circumstances are such that an event is not inevitable, but possible in the short term and likely over the long term.
Low Likelihood	There is a pollution linkage and circumstances are possible under which an event could occur. However, it is by no means certain that even over a longer period such event would take place, and is less likely in the shorter term.
Unlikely	There is a pollution linkage but circumstances are such that it is improbable that an event would occur even in the very long term.

TABLE G.3: Risk Classification Definitions (C552 CIRIA, 2001)	
Very High	There is a high probability that severe harm could arise to a designated receptor from an identified hazard, OR, there is evidence that severe harm to a designated receptor is currently happening. This risk, if realised, is likely to result in a substantial liability. Urgent investigation (if not undertaken already) and remediation are likely to be required.
High	Harm is likely to arise to a designated receptor from an identified hazard. Realisation of the risk is likely to present a substantial liability. Urgent investigation (if not undertaken already) is required and remedial works may be necessary in the short term and are likely over the longer term.
Moderate	It is possible that harm could arise to a designated receptor from an identified hazard. However, it is either relatively unlikely that such harm would be severe, or if any harm were to occur it is more likely that the harm would be relatively mild. Investigation (if not already undertaken) is normally required to clarify the risk and to determine the potential liability. Some remedial works may be required in the longer term.
Moderate / Low	
Low	It is possible that harm could arise to a designated receptor from an identified hazard, but it is likely that this harm, if realised, would at worst normally be mild.
Very Low	There is a low possibility that harm could arise to a receptor. In the event of such harm being realised it is not likely to be severe.

TABLE G.4: Risk Classification Matrix (C552 CIRIA, 2001)					
		Consequence			
		Severe	Medium	Mild	Minor
Probability	High Likelihood	Very High	High	Moderate	Moderate/Low
	Likely	High	Moderate	Moderate/Low	Low
	Low Likelihood	Moderate	Moderate/Low	Low	Very Low
	Unlikely	Moderate/Low	Low	Very Low	Very Low