



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

TE1704-TE-00-XX-RP-GE-001-V01

VERSION 1.0

21 NOVEMBER 2022

FINAL

Prepared for:

Prepared by: Eve Rowland

C4 Projects

Tier Environmental Ltd

Warrington	London	Manchester	Bromsgrove	Bristol	Sheffield
HQ Telephone 01244 684900			Telephone 01925 818388		
Website: www.tieruk.com			Email: environmental@tieruk.com		
Tier Environmental is a trading name of Tier Environmental Ltd. Registered in England and Wales no 05441804					

DOCUMENT CONTROL

Report No. :	TE1704-TE-00-XX-RP-GE-001-V01
Report Status:	FINAL
Version No.:	1.0
Project Engineer:	Eve Rowland
Date of Issue:	21/11/2022

This report has been prepared by Tier with all reasonable skill, care and diligence, within the best practice and guidance current at the time of issue within the scope of works which have been agreed with the client. This report is confidential to the client and Tier accepts no responsibility whatsoever to third parties to whom this report, or any part thereof is made presented, unless this is formally agreed in writing by a Director of Tier Environmental Ltd before any reliance is made. Any such party relies upon the report at their own risk. Tier disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

Version No.	Description of Issue / Revision	Date of Issue	Author	Reviewed By	Approved By
1.0	FINAL	21/11/2022	Eve Rowland	Adrian Read	Adrian Read



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : i of iv
Engineer: Eve Rowland
Date: 21/11/2022

CONTENTS

1.	INTRODUCTION	1
1.1.	Proposed Development	1
1.2.	Previous Reports	1
1.3.	Objectives	1
1.4.	Assumptions.....	1
2.	SITE DETAILS AND DESCRIPTION	3
3.	SITE HISTORY	5
3.1.	Site History Review	5
3.2.	Preliminary Unexploded Ordnance Risk Assessment	12
4.	ENVIRONMENTAL SETTING	13
4.1.	Geology	13
4.2.	Mining and Quarrying	13
4.3.	Hydrogeology.....	14
4.4.	Hydrology.....	15
4.5.	Flood Risk Summary.....	15
4.6.	Environmental Designations	16
4.7.	Landfill and Waste Management Activity.....	16
4.8.	Local Industrial Land Uses.....	17
4.9.	Radon Risk.....	19
4.10.	Waste Classification and Materials Re-Use.....	19
5.	PREVIOUS INVESTIGATION FINDINGS	21
6.	PRELIMINARY CONCEPTUAL SITE MODEL.....	22
6.1.	Uncertainties.....	22
7.	PROPOSED FURTHER WORKS	26
7.1.	Further works.....	26
7.2.	Proposed Scope of Works	26
8.	REGULATORY APPROVALS	27
9.	REFERENCES	28
10.	GLOSSARY OF TERMS	31

TABLES

Table 2.1 Current Site Overview.	3
Table 3.1 Site History.	6



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : ii of iv
Engineer: Eve Rowland
Date: 21/11/2022

From the historical and anecdotal evidence, the site wasn't a target for bombing historically. Table 3.2 details UXO risk below.	12
Table 3.3 Preliminary UXO Risk Assessment.	12
Table 4.1 Geological Summary.	13
Table 4.2 Coal Mining Activities.	13
Table 4.3 Other Extractive Industries.	14
Table 4.4 Groundwater Occurrence and Abstraction.	14
Table 4.5 Surface Water Features.	15
Table 4.6 Flood Risk Summary	15
Table 4.7 Summary of Environmental Designations.	16
Table 4.8 Waste Management Activities.	16
Table 4.9 Other Potentially Contaminative Processes in the Locality.	18
Table 4.10 Radon Risk Status.	19
Table 6.1 Preliminary Assessment of Potential Pollutant Linkages.	23

FIGURES

Figure 2.1 Recent Aerial Photograph from Groundsure	4
---	---

APPENDICES

Appendix A- Drawings	
Appendix B - Groundsure Report	
Appendix C – Site Walkover Photographs	
Appendix D - Definitions of Terms Used in Qualitative and Quantitative Risk Assessments	
Appendix E - Controlled Waters Risk Assessment	
Appendix F - Complying With Control of Asbestos Regulations 2012	



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : iii of iv
Engineer: Eve Rowland
Date: 21/11/2022

EXECUTIVE SUMMARY

Introduction	Tier Environmental was commissioned by C4 Projects to undertake a desk study and Phase I Preliminary Risk Assessment of the proposed commercial / industrial development at Deacon Business Park, Knowsley. The purpose of this investigation was to establish land use history and review the available information to determine the geoenvironmental setting of the Site and develop a preliminary conceptual site model with due consideration of potential soil and groundwater contamination, hazardous ground gases and mining.
Proposed land use	It is proposed that the existing accommodation on site will be demolished, and the site will be developed as warehouse (use class B8) with ancillary offices, reconfigured points of access, new security gatehouses and associated works. Areas of proposed soft landscaping are located in the perimeter parts of the south, west and north of the Site.
Site location and surrounding land uses	The site is located at Deacon Business Park, Moorgate Road, Southdene, Kirkby, Knowsley, L33 7RX which is located within the existing Knowsley Industrial Estate. The surrounding Site uses comprise of commercial/industrial developments to the north, east and south with residential developments to the west.
Site history	The Site remained undeveloped from earliest available mapping (1890) as assumed agricultural land, with the 'Britain Plantation' shown in the north east quadrant of the Site. A factory appeared on Site on mapping from 1960 and the Site was redeveloped as an engineering works by 1968. The land surrounding the Site was predominantly undeveloped fields (assumed agricultural) associated with multiple farms, until the start of the development of the Kirkby Industrial Estate, later Knowsley Industrial Estate, in 1960 to the north, east and south of the Site. No map evidence is available for the Site area during World War II, however publicly available online photographs show that the Royal Ordnance Factory (ROF) Kirkby was situated approx. 245m north of Site during this time period. A residential area (Southdene) appeared on mapping from 1960 to the west of Site. Within the Knowsley Industrial Estate multiple businesses (works, vehicle repair depots, warehouses, engineering works, television repair depots, depots and body repair works) are shown between 80m and 165m south east.
Geology, Hydrogeology and Hydrology	The majority of the Site (with the exception of the far western boundary) is shown to be underlain by an artificial deposit of Made Ground. The majority of the Site is shown to be underlain by superficial deposits of the Shirdley Hill Sand Formation (a Secondary A Aquifer) and the far southern extent of the Site is shown to be underlain by Diamicton Devensian Till (a Secondary Unproductive Aquifer). The bedrock beneath the Site and surrounding area is the Chester Sandstone Formation (a Principal Aquifer). The Site is situated within a Source Protection Zone; Type 3 – Total Catchment. There are no recorded potable or non-potable abstractions within 250m of the Site. The nearest surfaced water feature is an unnamed inland river not influenced by normal tidal action located 247m south of Site. Groundwater flow is assumed to be in a south / south-westerly direction based upon the topography of the Site. On this basis the controlled waters sensitivity is regarded as being moderate.
Ground Gases	GroundSure mapping shows the site is situated within an area of artificial ground with the majority of the Site shown to be underlain by Made Ground. The Site is not shown to be located within 250m of any landfills. The northeastern part of the Site was historically underlain by a plantation and so there may be relic roots, tree stumps and organic rich materials beneath the Site that may present a potential source of ground gas. The Phase 1 Preliminary Risk Assessment has determined a moderate / low risk to high risk to human health with respect to hazardous ground gases.
Radon Requirements	The Site lies within an area where less than 1% of properties are situated above the radon action level and therefore basic radon protection measures are not currently required for the proposed development on this Site.
Ecological Sensitivity	The site is situated within a Nitrate Vulnerable Zone (surface waters).
Potential contaminative features	Anticipated widespread Made Ground. Although not recorded on mapping – it is possible, due to the fact the Site was detailed as an engineering works on 1966 mapping and a factory prior to this, that unrecorded features associated with these land uses such as tanks, boiler rooms and / or fuel storage area etc may be present, or may have been present, on site. In total, 2 No. circular buildings are shown in the southeast corner of site between 1966 and 2001 which, although not labelled as such, could be tanks or similar storage infrastructure. An electric substation in the northern part of the Site has been in existence since 1968 and may present a potential source of PCBs. The Phase 1 Preliminary Risk Assessment has determined a moderate to moderate/low risk to human health and a low to medium/low risk to controlled waters at the Site with respect to potential contamination and a moderate / low risk to high risk to human health with respect to hazardous ground gases.
Mining and quarrying	The Site is not located within a mining area or an area subject to historic quarrying.
Unexploded Ordnance	The Site lies within a Low Risk Zone based on publicly available online mapping; however it should be noted that the wider Liverpool Area (Liverpool, Bootle, Birkenhead and Wallasey) was the 2 nd most bombed area in the UK after London during the Blitz in WWII. The munitions site of Royal Ordnance Factory (ROF) Kirkby is displayed on online aerial photographs during World War II situated approx. 245m north of Site during this time period.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01

Page No : iv of iv

Engineer: Eve Rowland

Date: 21/11/2022

Waste Soils Classification	Based on the history of the Site and the anticipated potential contaminants of concern it is considered possible that hazardous waste soil materials may be present somewhere beneath the Site; however, this will be subject to confirmatory investigation, sampling, laboratory analysis and waste classification in accordance with the Guidance on the Classification and Assessment of Waste (WM3).
Materials re-use	Subject to volumetric fill requirements and a future assessment of suitability of re-use (both chemically and geotechnically), some materials may be considered for potential re-use in line with an appropriate end-of-waste protocol such as WRAP Quality Protocol for Aggregates from Inert Waste, U1 Exemption or a Materials Management Plan in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP). Please note that any previously landfilled or mining waste materials may not be appropriately subject to consideration under DoWCoP and may not be re-used under DoWCoP unless sufficient lines of evidence and agreement with the local Environment Agency Waste Team can be sought beforehand; however, given the Site history, it is not anticipated that such materials would be present beneath the Site. In addition, Section 4.10 of this report includes statements with respect to re-use of excavated and stockpiled clean naturally occurring soils within the site and re-use on other sites. These statements are designed to provide a clear intention to reuse any clean, naturally occurring soils derived from future excavations at this Site (which may also include temporary future stockpiling of these materials).
Further works	It is recommended that a ground investigation is undertaken in order to further assess the potential risks associated with the pollutant linkages identified in the Preliminary Conceptual Site Model (presented in Section 6). The objectives of the Phase II Ground Investigation will be: • To determine shallow soil and groundwater (if encountered) conditions, including whether significant contamination has resulted from past or current land uses; • To determine the risks posed by any ground contamination; • To determine the preliminary risks posed to the Site from hazardous ground gases; • To determine the existence, and if applicable, the extent of contamination within local groundwater beneath the Site; • To provide advice relating to geotechnical issues associated with the Site.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 1 of 32
Engineer: Eve Rowland
Date: 21/11/2022

1. INTRODUCTION

Tier Environmental was commissioned by C4 Projects to undertake a Land Contamination Risk Management (LCRM) Preliminary Risk Assessment for an area of land referred to as Deacon Business Park, Moorgate Road, Southdene, Kirkby, Knowsley, L33 7RX (the "Site").

The full title of this report, a '*Stage 1 - LCRM Tier 1 Preliminary Risk Assessment Report*', is in accordance with that described in the Land Contamination Risk Management guidance (available at <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm>) which has superseded CLR 11.

1.1. Proposed Development

Under current proposals, it is proposed that the existing accommodation on site will be demolished, and the site will be developed as warehouse (use class B8) with ancillary offices, reconfigured points of access, new security gatehouses and associated works as presented in Appendix A.

As such, in accordance with the '*Updated technical background to the CLEA model*' (Environment Agency, 2009) and '*Suitable 4 Use Levels*' (LQM / CIEH 2015) the proposed generic land use for this development is commercial / industrial. Areas of proposed soft landscaping are located in the perimeter parts of the south, west and north of the Site

1.2. Previous Reports

No previous pertinent reports pertaining to this Site have been made available.

1.3. Objectives

Taking into account the proposed development of the Site, the objectives of this appraisal were:

- To determine the historical and current land use.
- To establish the environmental setting of the Site.
- To evaluate whether past mining or other extractive industries could have an influence on the Site.
- To determine likely ground and groundwater conditions.
- To determine the potential risks to human health and the wider environment.
- To determine potential risks posed to the Site from hazardous ground gases and / or vapours.
- To derive a Preliminary Conceptual Site Model.

1.4. Assumptions

The following assumptions are made in this report:

- It is assumed that ground levels will not change significantly from those described in this report or as shown on proposed development drawings. If this is not the case, then amendments to the recommendations made in this report may be required.
- Any references to observations of suspected asbestos-containing materials are for information only and should be verified by a suitably qualified asbestos specialist and/or confirmed by laboratory analysis.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 2 of 32
Engineer: Eve Rowland
Date: 21/11/2022

- The use of the term 'Topsoil' within this report is based on a visual identification only and that these materials have not been classified in accordance with BS3882:2015.
- The use of the terms 'shallow' and 'deep' within this report (from a geotechnical perspective) assume *typically* between ground level to circa 3.00m below ground level (bgl) for 'shallow' and greater than 3.00m bgl regarded as 'deep';
- The comments and opinions presented in this report are based on the findings of the desk study performed by Tier Environmental. There may be other conditions prevailing on the Site which have not been revealed by this investigation and which have not been taken into account by this report at this stage.
- Responsibility cannot be accepted for any conditions not revealed by this investigation. Any diagram or opinion on the possible configuration of the findings is conjectural and given for guidance only. Confirmation of ground conditions should be undertaken if deemed necessary.

This report has been prepared for the sole use of C4 Projects. No other third party may rely upon or reproduce the contents of this report without the written approval of Tier Environmental. If any unauthorised third party comes into possession of this report, they rely on it entirely at their own risk and the authors do not owe them any Duty of Care or Skill.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 3 of 32
Engineer: Eve Rowland
Date: 21/11/2022

2. SITE DETAILS AND DESCRIPTION

Table 2.1 Current Site Overview.

Site name	Deacon Business Park, Knowsley.
Site address	Deacon Business Park, Moorgate Road, Southdene, Kirkby, Knowsley, L33 7RX. A site location plan is included as Drawing No. TE1704-TE-00-XX-DR-GE-001-V01 within Appendix A.
National Grid Reference (NGR)	342534 397564.
Approximate Site area	9.38 ha.
Site shape	The Site is broadly rectangular in shape.
Current land use on the Site	The Site is currently occupied by a commercial warehouse development, with associated offices, ancillary buildings and roadways/parking. Tier Environmental conducted a Site walkover on 9th November 2022 and highlighted the following: • 3 No diesel tanks in the southwest of Site to supply site buildings including a lab, cardboard manufacturer, call centre and offices. • LPG tank in northwest corner used for forklifts for B&M. • Hydraulically operated weighbridges at northwest site entrance. • Grease interceptor in the canteen of B&M which drains into foul sewer. • Water tank in north of the Site used to supply on site sprinklers. • Electrical substation along northern Site boundary, with additional ones inside main factory building. • On site waste storage area (rubbish and recycling). • Asbestos roofs on warehouse, with likely more unrecorded asbestos around Site. No obvious contamination was noted during the site walkover.
Surrounding land uses	The surrounding Site uses comprise of commercial/industrial developments to the north, east and south with residential developments to the west.
General topography and ground levels	OS Mapping shows the north east corner of the site situated approx. 35m AOD, sloping away to 30m AOD in the southwest corner. The surrounding area's topography also follows this pattern and generally slopes off towards the south / southwest.

An aerial photograph (from the Groundsure report) of the Site and site boundary is shown below. Relevant Site photographs are presented in Appendix C



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01

Page No : 4 of 32

Engineer: Eve Rowland

Date: 21/11/2022

Figure 2.1 Recent Aerial Photograph from Groundsure





PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01

Page No : 5 of 32

Engineer: Eve Rowland

Date: 21/11/2022

3. SITE HISTORY

3.1. Site History Review

Extracts of Ordnance Survey (OS) plans dated from 1890 to 2022 were reviewed. These were obtained as part of the Groundsure report for the Site, which is presented in Appendix B.

Table 3.1 below presents a summary of the main aspects of the Site relevant to the current and proposed future end uses. It is not the intention of this report to describe in detail all of the changes that have occurred on or adjacent to the Site, where these are not relevant to the land use.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 6 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Table 3.1 Site History.

Time Period	On-Site features	Off-Site features
Pre-1900	 1890-1892 – 1:10,560 • Britain Plantation is shown in the north eastern quadrant of the Site • The rest of the Site area is shown as undeveloped land – assumed agricultural fields.	• 1 No. assumed unnamed brook shown approx. 168m southwest. • Little Britain Farm is shown approx. 50m west. • Wood End farm shown approx. 165m east northeast. • Manor Arms Cottage shown approx. 60m southwest. • Old Ship Farm shown approx. 225m north. • Ainsworth House shown approx. 375m south.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 7 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Time Period	On-Site features	Off-Site features
1900 to 1939 (Pre-war period)	 1938 1:10560 - Assumed unnamed brook which was previously shown approx. 168m southwest is now shown on site within the southwest quadrant. - No other significant changes.	No significant changes.
1939 – 1945 (World War II period)	No maps available for 1939 to 1945, However publicly available online photographs from the website Britain From Above show that there was a munitions factory in the area during WWII. Royal Ordnance Factory Kirkby was situated (at its closest) approx. 245m north of Site. The aerial photograph included below shows the location of the munitions factory highlighted in yellow and the approximate location of the Site highlighted in red.	



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

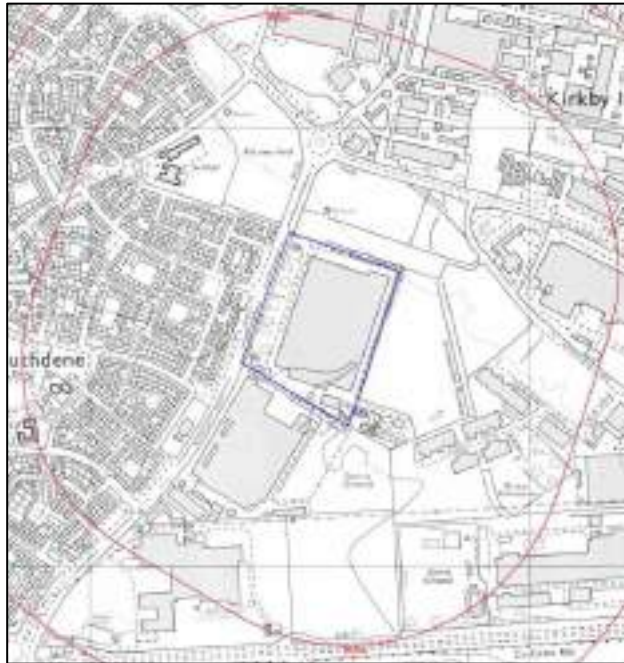
Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 8 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Time Period	On-Site features	Off-Site features
		



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

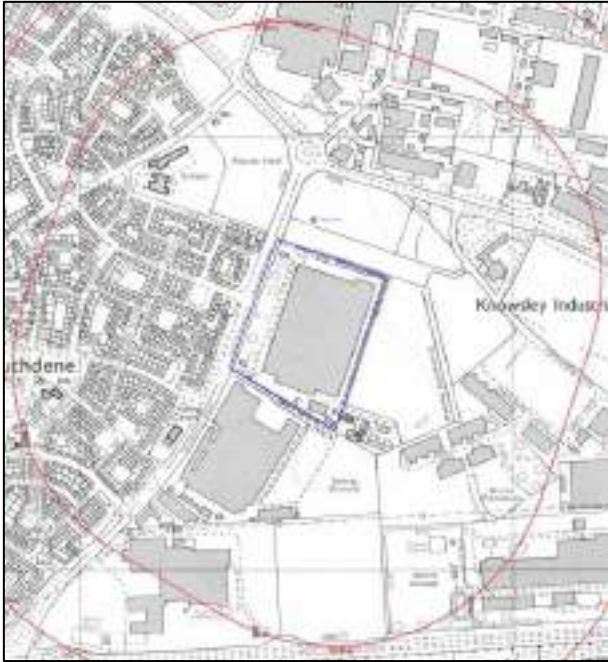
Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 9 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Time Period	On-Site features	Off-Site features
1945-1980 (Post war period)	 1966 – 1:10,000 - From 1960 a factory is shown on site which is then redeveloped by 1966 as an engineering works. - An electric substation is shown in the north of the Site (from 1968) that may represent a potential source of Poly Chlorinated Biphenyls. - From 1966 a drain is shown running north-south, doglegging to run east west. - Multiple other small buildings, likely associated with the factory and engineering works, shown on site in the south and northwest.	 1978 – 1:10,000 - Factories are shown approximately 30m southwest, 185m northeast, and 220m north. - Numerous circular structures (assumed to be tanks) and rectangular labelled tank located immediately southeast of the Site associated with the on-site factory and engineering works. - Multiple drains shown within 100m of the Site from 1960. - The drains are no longer shown on the 1978 map. - Kirkby Industrial Estate development shown north, east and south of the Site from 1978. - Southdene residential development in the east. - Dismantled Railway shown approx. 92m east from 1966.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 10 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Time Period	On-Site features	Off-Site features
	An above ground electric cable is shown along the northern boundary, orientated east to west, on mapping between 1956 to 1968.	- Pavilion shown approx. 75m north from 1978. - Briton Plantation reduced in size and shown approx. 370m east. - Multiple businesses (works, vehicle repair depots, warehouses, engineering works, television repair depots, depots and body repair works) shown between 80m and 165m south east on 1966 map, on Faraday Road and Abercrombie Road. 1978 map shows brook and farms are no longer labelled or noted on map.
1980 – 2000 (Late 20th century period)	 1988 – 1:10,000	
	No significant change.	- Kirkby Industrial Estate now shown as Knowsley Industrial Estate. - No other significant change.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 11 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Time Period	On-Site features	Off-Site features
2000 to 2022 (Modern day period)	 2022 – 1:10,000 • Development on Site has now changed shape – online satellite mapping shows that between 2010 and 2012 a section of the building in the east was removed to accommodate a new loading bay, hence the dog leg shape on the east of the building on maps.. No associated buildings with development shown anymore. • Electric substations are shown in the north of the Site (which appears to have been present since Circa 1968) and in the southwestern part of the Site which aerial photographs indicate was installed between 2000 and 2003. As PCBs were banned in 1986, it is considered that only the northernmost electric substation is a viable potential source of these contaminants.	• Pond shown approx. 120m east • Small watercourse (assumed brook) shown associated with Briton Plantation running northwest – southeast, approx. 440m southeast of Site. • 2 No. circular structures no longer shown. • No other significant change.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 12 of 32
Engineer: Eve Rowland
Date: 21/11/2022

3.2. Preliminary Unexploded Ordnance Risk Assessment

From the historical and anecdotal evidence, the site wasn't a target for bombing historically. Table 3.2 details UXO risk below.

Table 3.3 Preliminary UXO Risk Assessment.

	Yes/no	Comments
Is the Site indicated to have been directly bombed?	No	There are no records of a direct bomb drop on site.
Is the site within an area recorded to have been bombed?	Online public mapping (Zetica) shows the area to be in a low bomb risk zone	The Site lies within a Low Risk Zone; however it should be noted that the wider Liverpool Area (Liverpool, Bootle, Birkenhead and Wallasey) was the 2 nd most bombed area in the UK after London during the Blitz in WWII.
Could the site have been a high-risk target?	No	ROF Kirby to the north of Site was shown as a Luftwaffe Target
Any development cycles since 1945?	Yes	
Mitigating Factors	Bedrock Depth – local historic boreholes within the Site area show bedrock to be approx. 5m bgl	Potential for shallow bedrock which would reduce the depth of a UXO.
Preliminary assessment of UXO Risk	Low	
Further works?	NA	



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 13 of 32
Engineer: Eve Rowland
Date: 21/11/2022

4. ENVIRONMENTAL SETTING

4.1. Geology

Table 4.1 Geological Summary.

Maps and publications referenced	Groundsure, GeoIndex and BGS records.
Made ground / artificial ground	The Site is shown to be located within an area of artificial ground according to the Groundsure report and given the history of development on the Site, the presence of Made Ground is anticipated. The Groundsure report shows Made Ground present across the majority of the Site with only the very western edge of Site shown not to have any artificial Made Ground present. There boundary of the Site seen from the west is raised above street level which is likely to show the site has been artificially raised.
Superficial geology	The Shirdley Hill Sand Formation is shown to cover the majority of the Site; however the south east corner of the Site is shown to be superficial deposits of Diamicton Devensian Till.
Bedrock geology	The Site is shown to be underlain by the Chester Sandstone Formation. Tier Environmental have conducted ground investigation works previously within the immediate vicinity of the Site. Information from this, and publicly available BGS mapping tools shows the bedrock to be approx. 5.00m bgl. Previous Tier Environmental investigation to the north of the Site encountered bedrock at 0.50m bgl and 3.50m bgl. The previous Tier investigation to the immediate north demonstrated a dip in the bedrock beneath the Site resulting in a combined traditional pad (in the east) and vibro stone column solution (in the west).
Dip of solid strata	The bedrock is shown to dip to the south. Previous ground investigations to the north of the Site have shown the bedrock to dip downwards to the southwest from depths of between 2.00m in the north / northeast down to 3.50m in the east and 4.50m bgl in the west.
Faults	None recorded on or in the immediate vicinity of the Site.
Coal seams	None shown to outcrop or subcrop on or in the immediate vicinity of the Site.

4.2. Mining and Quarrying

Table 4.2 Coal Mining Activities.

	Yes/No	Comments
Is the Site in an area of potential shallow coal workings?	No	The bedrock is not a coal bearing stratum.
Is the Site in a high risk development area?	No	
Are there any known shafts, adits, tips, lagoons, or opencast workings likely to affect the Site?	No	
Is exploratory work required to investigate the potential risk from shallow mining or quarrying?	No	



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 14 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Table 4.3 Other Extractive Industries.

	Yes/No	Comments
Superficial drift deposits		
Evidence of extraction on or within 250 m of the Site?	Yes	An unspecified Heap – possibly associated with ground excavation and subsequent infilling is detailed approx. 165m southeast. This is a surface ground working therefore unlikely to influence the Site.
Action required?	No	
Solid Strata		
Any evidence of mineral extraction on or within 250 m of the Site?	No	
Action required?	No	

Other, undocumented mineral workings on or close to the Site cannot be completely dismissed.

4.3. Hydrogeology

Table 4.4 Groundwater Occurrence and Abstraction.

	Presence/location	Comments
Environment Agency aquifer designation – Superficial Deposits	Secondary A Aquifer – Shirdley Hill Sand Formation	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers.
	Secondary Undifferentiated Aquifer - Till	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and nonaquifer in different locations due to the variable characteristics of the rock type.
Environment Agency aquifer designation – Bedrock	Principal Aquifer - Chester Sandstone Formation	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale.
Groundwater vulnerability	High Vulnerability	Both superficial aquifers and the bedrock aquifer have been classified as high vulnerability - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
Anticipated groundwater depth(s)	Approx 4.00m bgl	Publicly available BGS logs within the local area have been used to estimate groundwater depth. Tier Environmental have undertaken previous ground investigation works in the area directly north of the Site – groundwater encountered occurred at depths between 1.50m bgl and 5.50m bgl.
Direction of flow	South / southwest	Direction of flow has been estimated based on the topography of the Site and recorded dip of bedrock strata.
Current licensed abstractions – potable	NR	There are no licensed potable abstractions recorded within 1000m of the Site.
Current licensed abstractions – non-potable	NR	There are no active licensed non-potable abstractions recorded within 500m of the Site.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 15 of 32
Engineer: Eve Rowland
Date: 21/11/2022

	Presence/location	Comments
Private wells	470m northeast	Gore's Farm recorded on mapping until 1966 was shown to have an associated pump.
Source Protection Zones	On Site	A 'Type 3 - Total Catchment' source protection zone is shown to be present on site
Springs	NR	None recorded within 500m of the Site.

NR - none recorded.

For definition of Source Protection Zones, see Appendix E.

4.4. Hydrology

Table 4.5 Surface Water Features.

	Presence/location	Comments
Nearest surface water feature	115m southeast	Unnamed pond.
Other surface water features	247m south	Inland river not influenced by normal tidal action – however this is shown on the map as a pond feature.
Canals, ponds, lakes, etc.	115m southeast	Unnamed pond.
Water Framework Directive (WFD) Surface Water Bodies	NR	NR within 500m
Licensed surface water abstractions	NR	NR within 250m of Site.
Surface run-off and Site drainage	Assumed south / southwest	The full nature and extent of underground drainage system is unknown at this stage, however based on Site topography the anticipated runoff direction is south / southwest.

NR - none recorded. Environment Agency GQA assessments: A = very good to E = poor

4.5. Flood Risk Summary

Table 4.6 below represents a summary of the flood risk data contained within the Groundsure report obtained for the Site.

Table 4.6 Flood Risk Summary

	Presence/location	Comments
Risk of Flooding from Rivers and Sea (RoFRaS)	NR	None recorded within 50m of Site.
Historical Flood Events	NR	None recorded within 50m of Site.
Flood Defences	NR	None recorded within 50m of Site.
Areas Benefiting from Flood Defences	NR	None recorded within 50m of Site.
Flood Storage Areas	NR	None recorded within 50m of Site.
Records of Flood Zone 2	NR	None recorded within 50m of Site.
Records of Flood Zone 3	NR	None recorded within 50m of Site.
Surface water flooding	On site	Highest risk on Site is 1 in 30 year, 0.30m to 1.00m
Groundwater flooding	On Site	Moderate to High risk.

NR - none recorded



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01

Page No : 16 of 32

Engineer: Eve Rowland

Date: 21/11/2022

4.6. Environmental Designations

Table 4.7 Summary of Environmental Designations.

	Presence/location	Comments
Sites of Special Scientific Interest (SSSI)	NR	None recorded within 250m of Site.
Conserved wetland sites (Ramsar sites)	NR	None recorded within 250m of Site.
Special Areas of Conservation (SAC)	NR	None recorded within 250m of Site.
Special Protection Areas (SPA)	NR	None recorded within 250m of Site.
National Nature Reserves (NNR)	NR	None recorded within 250m of Site.
Local Nature Reserves (LNR)	NR	None recorded within 250m of Site.
Designated Ancient Woodland	NR	None recorded within 250m of Site.
Biosphere Reserves	NR	None recorded within 250m of Site.
Forest Parks	NR	None recorded within 250m of Site.
Marine Conservation Zones	NR	None recorded within 250m of Site.
Green Belt	NR	None recorded within 250m of Site.
Proposed Ramsar sites	NR	None recorded within 250m of Site.
Possible Special Areas of Conservation (pSAC)	NR	None recorded within 250m of Site.
Potential Special Protection Areas (pSPA)	NR	None recorded within 250m of Site.
Nitrate Sensitive Areas	NR	None recorded within 250m of Site.
Nitrate Vulnerable Zones	On site	- Name: ALT NVZ. - Type: Surface Water. - NVZ ID: 642. - Status: Existing.
SSSI Units	NR	None recorded within 250m of Site.

NR - none recorded

4.7. Landfill and Waste Management Activity

Table 4.8 Waste Management Activities.

	Presence/location	Comments
Active or recent landfill	NR	None recorded within 250m of Site.
Historical landfill (BGS records)	NR	None recorded within 250m of Site.
Historical landfill (LA/mapping records)	NR	None recorded within 250m of Site.
Historical landfill (EA/NRW records)	NR	None recorded within 250m of Site.
Historical waste sites	214m north	Elixir Enterprise Park – Waste Recycling Facility
Licensed waste sites	NR	None recorded within 250m of Site.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01

Page No : 17 of 32

Engineer: Eve Rowland

Date: 21/11/2022

	Presence/location	Comments
Waste Exemptions	On Site	- Site: CGL – Knowsley Integrated Recovery Service. - Reference: WEX172604. - Category: Treating waste exemption. - Sub-Category: Not on a farm. - Description: Sorting and de-naturing of controlled drugs for disposal.
	150m east	- Site: Deacon Park. - Reference: EPR/NF0200FM/A001. - Category: Storing and treating waste exemption. - Sub-Category: Non-Agricultural Waste Only/ - Description: Storage of Waste in secure containers and preparatory treatments (baling, sorting, shredding etc.).
	169 east	- Site: Unnamed Site. - Reference: WEX225999. - Category: Using, treating and storing waste exemption. - Sub-Category: Not on a farm. - Description: Use of waste in construction. Preparatory treatments (baling, sorting, shredding etc.). Storage of waste in secure containers.
	171m east	- Site: 25 Faraday Road. - Reference: WEX148902. - Category: Using, treating and storing waste exemption. - Sub-Category: Not on a farm. - Description: Storage of waste in a secure place. Treatment of food waste. Storage of waste in secure containers.
Evidence of other landfilling, potential infilling or other possible ground gas sources on or within 250m of Site	On site	The Site is shown on BGS mapping to be underlain by artificial ground associated with Made Ground. The north-eastern part of the Site was historically underlain by a plantation and so there may be relict roots, tree stumps and organic rich materials beneath the Site that may present a potential source of ground gas.
Is a landfill/ground gas risk assessment required?	Yes	Ground gas risk assessment required based on the likely potential presence of Made Ground on site. Additionally, the north-eastern part of the Site was historically underlain by a plantation and so there may be relict roots, tree stumps and organic rich materials beneath the Site that may present a potential source of ground gas.

NR - none recorded

4.8. Local Industrial Land Uses

Other potentially contaminative activities are shown in Table 4.9 below with those features considered pertinent to the conceptual site model highlighted in **bold**. The entries relate to activities within *circa* 250 m of the Site, with the exception of COMAH facilities where the assessment is extended to a distance of *circa* 500m from the Site.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 18 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Table 4.9 Other Potentially Contaminative Processes in the Locality

	Location	Comments
Recent industrial land uses	On Site	Sugarich – Milling, refining, and food additives.
	On Site	Associates of Cape Cod incorporated – Medical equipment, supplies and pharmaceuticals.
	On Site	Electrical substation.
	On Site	West Coast Corrugated – packaging.
	71m south	Telecommunications mast.
	76m north	Tank.
	144m west	J M Mobile Car Valeting – Vehicle cleaning services.
	149m east	Movianto UK – Distribution and Haulage.
	156m west	Electrical substation.
	162m east	Factory – Unspecified.
	173m east	Electrical substation.
	194m east	M T Truck & Trailer Repairs – Vehicle repairs, testing and servicing.
	199m west	Electrical substation.
	209m northeast	P A S Sound Engineering – Recording studios and record companies
	214m southwest	JJ Smith & Company Woodworking Machinery Ltd – Tools including machine shops.
	219m east	Electrical substation.
	220m east	Factory – Unspecified.
	220m east	Euroliters – Garden goods.
	225m northeast	Cater Bake – Food and beverage industry machinery.
	237m north	Tank
Current or recent petrol stations	NR	NR within 250m of Site.
Electricity cables	NR	NR within 250m of Site.
Gas pipelines	NR	NR within 250m of Site.
Sites determined as Contaminated Land	NR	NR within 250m of Site.
Control of Major Accident Hazards (COMAH)	439m north	W H Bowker Limited – Current COMAH Site (upper tier operator).
Regulated explosive sites	NR	NR within 250m of Site.
Hazardous substance storage/usage	NR	NR within 250m of Site.
Historical licensed industrial activities (IPC)	NR	NR within 250m of Site.
Licensed industrial activities (Part A(1))	170m east	Factory Services UK Ltd – Animal Vegetable and Food.
Licensed pollutant release (Part A(2)/B)	195m southwest	Otis, Moorgate Road – Coating Processes (historical permit).
Radioactive Substance Authorisations	NR	NR within 250m of Site.
Licensed Discharges to controlled waters	NR	NR within 250m of Site.
Pollutant release to surface waters (Red List)	NR	NR within 250m of Site.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 19 of 32
Engineer: Eve Rowland
Date: 21/11/2022

	Location	Comments
Pollutant release to public sewer	NR	NR within 250m of Site.
List 1 Dangerous Substances	NR	NR within 250m of Site.
List 2 Dangerous Substances	NR	NR within 250m of Site.
Pollution Incidents (EA/NRW)	228m southeast	- Incident Date: 06/05/2005. - Incident Identification: 310446. - Pollutant: Inert Materials and Wastes. - Pollutant Description: Other Inert Material or Waste. - Water Impact: Category 4 (No Impact). - Land Impact: Category 2 (Significant). - Air Impact: Category 4 (No Impact).
Pollution inventory substances	NR	NR within 250m of Site.
Pollution inventory waste transfers	171m east	- ID: A, Location: 171m E, Permit: LP3837FX. - Operator: Factory Services UK Ltd. - Activity: Animal vegetable and food treating etc vegetable. - Address: Knowsley Feed Mill Deacon Park Moorgate Road Knowsley Industrial Park Merseyside L33 7RX. - Sector: Food & Drink. - Sub-sector: Food & Drink.
Pollution inventory radioactive waste	NR	NR within 250m of Site.

NR - none recorded

COMAH – Control of Major Accident Hazards (regulations); NIHS – Notification of Installations Handling Hazardous Substances (regulations)

4.9. Radon Risk

Table 4.10 Radon Risk Status.

	Comments
Estimated properties affected	Less than 1% of properties above the Action Level
Radon Protection Measures required?	No protection measures required.

4.10. Waste Classification and Materials Re-Use

If the Site is to be redeveloped and materials are disposed off Site, the material exported from the Site to Landfill should be hauled by a register waste character in accordance with Duty of Care Regulations 1991 and the Hazardous Waste Regulations 2005.

Based on the history of the Site and the anticipated potential contaminants of concern, it is considered possible that hazardous waste soil materials may be present beneath the Site (associated with potential Made Ground); however, this will be subject to confirmatory investigation, sampling, laboratory analysis and waste classification in accordance with the Guidance on the Classification and Assessment of Waste (WM3).



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 20 of 32
Engineer: Eve Rowland
Date: 21/11/2022

It will be necessary to register the Site in advance of the intended reclamation works with the Environment Agency before disposal to landfill can take place. There will be requirement for the waste producer to provide appropriate Waste Acceptance Criteria (WAC) testing of the Soils for disposal to ensure that the soils are appropriately classified and that the landfill is licensed to receive such soils. A consignment note shall be completed, signed and retained by all parties involved. The consignment note shall state the volume of waste, a physical description of the material and statement of its chemical composition. The waste consignment notes shall be kept by the contractor for a period of at least two years.

Subject to volumetric fill requirements and a future assessment of suitability of re-use (both chemically and geotechnically), some materials may be considered for potential re-use in line with an appropriate end-of-waste protocol such as WRAP Quality Protocol for Aggregates from Inert Waste, U1 Exemption or a Materials Management Plan in accordance with the CL:AIRE Definition of Waste Code of Practice (DoWCoP). Please note that any previously landfilled or mining waste materials may not be appropriately subject to consideration under DoWCoP and may not be re-used under DoWCoP unless sufficient lines of evidence and agreement with the local Environment Agency Waste Team can be sought beforehand; however, it is not considered that such materials will be present beneath this Site.

Re-Use of Excavated and Stockpiled Clean Naturally Occurring Soils on Other Sites

In addition, Tier Environmental are aware that CL:AIRE is classing stockpiled clean, naturally occurring soils as waste, unless their final destination is identified in a Materials Management Plan, before they are excavated. However, Tier Environmental consider that any clean naturally occurring soils arising from enabling works, earthworks or construction activities would be regarded as an asset and the default assumption for this Site (prior to excavation and stockpiling) is not the intention to discard these materials where they may be reasonably re-used on this, or another, development site. Stockpiling is a recognised, recommended means of safely storing soils. Whilst there may be advantages to leaving soils in-situ, stripping topsoil and subsoil prior to earthworks is a routine construction activity. Tier Environmental consider that it is not unreasonable to state that in the event that the developer owns another site where the construction phase is ongoing, soils can be transferred between their sites as an owned product and never become waste.

The above paragraph above is therefore considered a clear intention to reuse any clean, naturally occurring soils derived from excavations at this Site (which may also include temporary stockpiling these materials). It is considered; however, that in addition to this the following must be adhered to:

- Reuse does need to occur within a 'reasonable' timeframe (12 No. months); and,
- If soils are transferred to a third party (another developer), there needs to be some contractual agreement in place, as in this situation it is important to have something in place confirming that surplus soils are required by the third party.

Re-Use of Excavated and Stockpiled Clean Naturally Occurring Soils Within The Site They Are Excavated From

Further to the above, where soils are naturally occurring, uncontaminated and re-used on the site they are excavated from, they fall outside of the Waste Framework Directive (WFD) i.e. they will not be classified as a waste. Currently the CL:AIRE Definition of Waste Code of Practice states the following which appears to support this position: *"If the material is waste an Environmental Permit will be required to lawfully deposit or re-use it unless the material is 'uncontaminated soil and other naturally occurring material excavated in the course of construction activities where it is certain that the material will be used for the purposes of construction in its natural state on the site from which it was excavated', which is excluded from waste regulation by the Waste Framework Directive (2008)."*



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 21 of 32
Engineer: Eve Rowland
Date: 21/11/2022

5. PREVIOUS INVESTIGATION FINDINGS

No previous desk study or site investigation reports pertaining to this Site have been made available.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 22 of 32
Engineer: Eve Rowland
Date: 21/11/2022

6. PRELIMINARY CONCEPTUAL SITE MODEL

Based on the information provided in the previous sections of this report a combined preliminary conceptual site model and conceptual exposure model has been developed for the proposed future land use. This summarises the understanding of surface and sub-surface features, the potential contaminant sources, transport pathways and receptors. In assessing the likely contaminants of concern present at the Site, reference has also been made to Defra and Environment Agency supporting documentation. A preliminary qualitative risk assessment has also been made of the likelihood of the linkage operating and its potential significance in accordance with CIRIA C552.

The preliminary conceptual model is presented in schematic form in Appendix A Drawing No. TE1704-TE-00-XX-DR-GE-002-V01. The potential pollutant linkages identified and the qualitative risk assessment for these are presented in Table 6.1 below. The terms used in the preliminary qualitative risk assessment are defined in Appendix D.

6.1. Uncertainties

The following uncertainties exist in the preliminary conceptual model:

- The presence of any features unrecorded by the historic maps.
- Any unrecorded geological features.
- Any unrecorded pollution events during the Site's history.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 23 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Table 6.1 Preliminary Assessment of Potential Pollutant Linkages.

Justification / Comments
- The Site is currently occupied by a commercial warehouse development, with associated offices, ancillary buildings and roadways and parking. The surrounding Site uses comprise of commercial/industrial developments to the north, east and south with residential developments to the west. - Site walkover detailed: 3 No diesel tanks in the southwest of Site to supply site buildings including a lab, cardboard manufacturer, call centre and offices, LPG tank in northwest corner used for forklifts for B&M, hydraulically operated weighbridges at northwest site entrance, grease interceptor in the canteen of B&M which drains into foul sewer, water tank in north of the Site used to supply on site sprinklers, electrical substation along northern Site boundary, with additional ones inside main factory building, on site waste storage area (rubbish and recycling) and asbestos roofs on warehouse, with likely more unrecorded asbestos around Site. - The Site remained undeveloped from earliest available mapping (1890) as assumed agricultural land, with the 'Britain Plantation' shown in the north east quadrant of the Site. A Factory appeared on Site on mapping from 1960 (labelled as an engineering works on the 1966 maps) The land surrounding the Site was predominantly undeveloped fields (assumed agricultural) associated with multiple farms, until the development of the Kirkby, later Knowsley, Industrial Estate started being developed in 1960 to the north, east and south of the Site. A residential area (Southdene) appeared on mapping from 1960 to the west of Site. within the Knowsley Industrial estate multiple businesses (works, vehicle repair depots, warehouses, engineering works, television repair depots and body repair works) are shown between 80m and 165m south east on 1966 map, on Faraday Road and Abercrombie Road. An electric substation is shown in the north of the Site (from 1968) that may represent a potential source of Poly Chlorinated Biphenyls. - The Site is shown to be located within an area of artificial ground, and given the history of development on Site, Made Ground is anticipated. GroundSure mapping shows Made Ground present across the majority of the Site, with only the very western edge shown not to have any artificial ground The Site walkover highlighted that the site has been raised up, which can be seen along the western edge of Site by a raised grass verge up to Site. - Superficial deposits of Devensian (Diamicton) Till are shown to cover the majority of the Site. The southeast of the Site is shown to have superficial deposits of the Shirdley Hill Sand Formation. - The Site is shown as underlain by Bedrock of the Chester Sandstone Formation. 3 No. aquifers are present on Site. The Superficial Shirdley Hill Sand Formation and Till deposits are classed as a Secondary A Aquifer and a Secondary Undifferentiated Aquifer respectively. The bedrock is classed as a Principal Aquifer. The superficial and the bedrock aquifers are all classed as high vulnerability. It is assumed based on topography, that groundwater flow is south / southwest. - There are no potable water abstractions within 1km, or non-potable abstractions recorded within 500m of the Site. A pump was shown associated with Gore's Farm (470m northeast of Site) on mapping until 1966, after which it no longer appears. The Site is situated within a 'Type 3 – Total Catchment' Source Protection Zone. - The nearest surface water feature is shown 115m southeast of the Site as an unnamed pond. The nearest running water feature is shown 247m south as an unnamed inland river not influenced by normal tidal action. - There are no active or recent landfills recorded within 250m of Site. There is 1 No. historical waste site located 214m north. There is 1 No. waste exemption on site for CGL – Knowsley Integrated Recovery Service for treating waste. A further 8 No. waste exemptions are in place between 150m to 171m east of the Site for storing, treating and using waste. - Less than 1% of the properties in the Site area are above the radon action level. - It is anticipated that Made Ground and relict roots, tree stumps and organic rich materials beneath the Site in the northeast associated with the former plantation may present potential sources of ground gas. - The Site is situated within a Nitrate Vulnerable Zone. - The Site is not located within an ecologically sensitive area.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 24 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
Anticipated widespread Made Ground associated with the Site's former use as an unspecified factory, engineering works, Site levels being raised as shown along the western site boundary and current land uses.	Metals PAHs pH Hexavalent chromium	Direct contact, dust inhalation and ingestion	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
		Migration via water pipes	Future site users (commercial)	Severe	Likely	High Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Shirdley Hill Sand Formation	Medium	Low Likelihood	Moderate / Low Risk
			Aquifer 2 - Secondary (Undifferentiated) Aquifer associated with Till.	Mild	Low Likelihood	Low Risk
			Aquifer 3 - Principal Aquifer associated with Chester Sandstone Formation	Medium	Low Likelihood	Moderate / Low Risk
			Pond 115m southeast and Inland River not influenced by tidal action located approximately 247m south	Medium	Unlikely	Low Risk
	Naphthalene (a semi-volatile PAH) TPH / BTEX / MTBE VOCs / SVOCs Phenols PolyChlorinated Biphenyls (PCBs)	Vapour inhalation, direct contact, dust inhalation and ingestion	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
		Migration via water pipes	Future site users (commercial)	Severe	Likely	High Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Shirdley Hill Sand Formation	Medium	Low Likelihood	Moderate / Low Risk
			Aquifer 2 - Secondary (Undifferentiated) Aquifer associated with Till.	Mild	Low Likelihood	Low Risk
			Aquifer 3 - Principal Aquifer associated with Chester Sandstone Formation	Medium	Low Likelihood	Moderate / Low Risk
			Inland River not influenced by tidal action located approximately 247m south	Medium	Low Likelihood	Moderate / Low Risk
	Asbestos	(Dust migration and) dust inhalation	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate / Low Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
Electric substation in the north of the Site (present since Circa 1968, 3 No. diesel tanks, LPG tank) and potential unrecorded tanks / boiler rooms / fuel storage areas etc based on the sites historic use as an engineering works – 4 No. circular buildings were shown in the southeast corner of Site on maps between 1966 and 2001	PAHs pH	Direct contact, dust inhalation and ingestion	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
		Migration via water pipes	Future site users (commercial)	Severe	Likely	High Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Shirdley Hill Sand Formation	Medium	Low Likelihood	Moderate / Low Risk
			Aquifer 2 - Secondary (Undifferentiated) Aquifer associated with Till.	Mild	Low Likelihood	Low Risk
			Aquifer 3 - Principal Aquifer associated with Chester Sandstone Formation	Medium	Low Likelihood	Moderate / Low Risk



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 25 of 32
Engineer: Eve Rowland
Date: 21/11/2022

Source	Potential Contaminants of Concern	Pathway	Receptor	Consequence	Probability	Qualitative Risk Assessment
	Naphthalene (a semi-volatile PAH) TPH / BTEX / MTBE VOCs / SVOCs Phenols PolyChlorinated Biphenyls (PCBs)	Vapour inhalation, direct contact, dust inhalation and ingestion	Inland River not influenced by tidal action located approximately 247m south	Medium	Low Likelihood	Moderate / Low Risk
			Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
		Migration of mobile contaminants from Made Ground soils to adjacent sites along services and conduits	Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate Risk
		Migration via water pipes	Future site users (commercial)	Severe	Likely	High Risk
		Lateral and/or vertical migration of mobile contaminants.	Aquifer 1 - Secondary A Aquifer associated with Shirdley Hill Sand Formation	Medium	Low Likelihood	Moderate / Low Risk
			Aquifer 2 - Secondary (Undifferentiated) Aquifer associated with Till.	Mild	Low Likelihood	Low Risk
			Aquifer 3 - Principal Aquifer associated with Chester Sandstone Formation	Medium	Low Likelihood	Moderate / Low Risk
			Inland River not influenced by tidal action located approximately 247m south	Medium	Low Likelihood	Moderate / Low Risk
	Asbestos (from any potential lagging etc surrounding any tank or similar infrastructure)	(Dust migration and) dust inhalation	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate / Low Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
Anticipated Made Ground located beneath the Site and relict roots, tree stumps and organic rich materials beneath the Site in the northeast associated with the former plantation.	Hazardous ground gasses (methane, carbon dioxide, hydrogen sulphide, carbon monoxide and depleted oxygen)	Inhalation (indoor and outdoor)	Future site users (commercial)	Severe	Likely	High Risk
			Adjacent site users (commercial)	Severe	Low Likelihood	Moderate / Low Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate / Low Risk
			Construction, site investigation, demolition and future maintenance workers	Severe	Likely	High Risk
		Migration of hazardous ground gases from beneath the Site to adjacent sites along services or other preferential conduits	Adjacent site users (commercial)	Severe	Low Likelihood	Moderate / Low Risk
			Adjacent site users (residential)	Severe	Low Likelihood	Moderate / Low Risk
		Migration of ground gas / explosion	Buildings and services	Severe	Low Likelihood	Moderate / Low Risk

For definition of the terms used in the qualitative risk assessment, please see Appendix D



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 26 of 32
Engineer: Eve Rowland
Date: 21/11/2022

7. PROPOSED FURTHER WORKS

7.1. Further works

The Phase 1 Preliminary Risk Assessment has determined a moderate to high to moderate risk to human health, a moderate/low to low risk to controlled waters at the Site with respect to potential contamination and a high to moderate / low risk to high risk to human health with respect to hazardous ground gases.

It is recommended that a ground investigation is undertaken in order to further assess the potential risks associated with the pollutant linkages identified in the Preliminary Conceptual Site Model (presented in Section 6).

The objectives of the Phase II Ground Investigation will be:

- To determine shallow soil and groundwater (if encountered) conditions, including whether significant contamination has resulted from past or current land uses;
- To determine the risks posed by any ground contamination and provide recommendations on remedial measures to manage such risks;
- To determine the risks posed to the Site from hazardous ground gases;
- To determine the existence, and if applicable, the extent of contamination within local groundwater beneath the Site;
- To provide advice relating to geotechnical issues associated with the Site.

7.2. Proposed Scope of Works

The following scope of works are initially proposed

- 1 No. day window sample drilling (approximately 8 No. locations) and installation of 8 No. monitoring wells for gas and groundwater (if encountered) monitoring purposes and to facilitate soil sampling for environmental and geotechnical testing.
- In situ geotechnical testing to assist with preliminary foundation recommendations;
- Geoenvironmental chemical testing on selected soil samples for metals, pH, speciated PAH, speciated TPH, phenol, PCBs, SVOC/SVOC, sulphate, TOC, WAC and asbestos screens in order to assess potential risks to human health based on historical land uses on and within close proximity to the Site and to assist with basic waste characterisation and waste acceptance criteria.
- Preliminary ground gas monitoring to assess initial potential for hazardous ground gases to be present beneath the Site.

The Control of Asbestos Regulations 2012 should be adhered to in the event that asbestos is identified during the works. A summary of complying with CAR: risk assessments, licensing and training is provided in Appendix F.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01

Page No : 27 of 32

Engineer: Eve Rowland

Date: 21/11/2022

8. REGULATORY APPROVALS

The conclusions and recommendations presented above are considered reasonable based on the findings of the site investigation. However, these cannot be guaranteed to gain regulatory approval and, therefore, the report should be passed to the appropriate regulatory authorities and/or other organisations for their comment and approval prior to undertaking any works on site.

It is recommended that conditions placed on any planning permission are discharged prior to commencement of site works.



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 28 of 32
Engineer: Eve Rowland
Date: 21/11/2022

9. REFERENCES

- BRE BR211 (2015). Radon: Guidance on Protective Measures for New Dwellings. IHS BRE Press, Bracknell.
- BRE SD1 (2005). Concrete in Aggressive Ground. Special Digest 1 (revised edition). IHS BRE Press, Bracknell.
- BRE 414 (2001) Protective measures for housing on gas-contaminated land. BRE.
- BS 10175:2011+A2:2017 Investigation of Potentially Contaminated Sites - Code of Practice. British Standards Institution, London.
- BS EN 1997-1:2004 Eurocode 7. Geotechnical Design. General Rules. British Standards Institution, London.
- BS EN 1997-2:2007 Eurocode 7. Geotechnical Design. Ground Investigation and Testing. British Standards Institution, London.
- BS5930:2015+A12020 Code of practice for ground investigations BSI
- BS EN ISO 17892-1-12:2018 Geotechnical investigation and testing BSI
- BS EN ISO 14688-1:2018 Geotechnical Investigation and Testing. Identification and Classification of Soil. Identification and Description. British Standards Institution, London.
- BS EN ISO 14688-2:2018 Geotechnical Investigation and Testing. Identification and Classification of Soil. Principles for a Classification. British Standards Institution, London.
- BS EN ISO 14689-1:2018 Geotechnical Investigation and Testing. Identification and Classification of Rock. Identification and Description. British Standards Institution, London.
- BS8485 2015 Code of Practice for the design of protective measures for methane and carbon dioxide ground gases in new buildings. British Standards
- BS85762013 Guidance on investigations for ground gas – permanent gases and volatile organic compounds (VOCs). BSI,
- CIRIA Rep R 97 (2001) Trenching Practice. Report 097, 2nd edition, CIRIA, London.
- CIRIA Rep R 149 (1995a) Protecting Development from Methane. Report 149, CIRIA, London.
- CIRIA Rep R 150 (1995b) Methane Investigation Strategies. Report 150, CIRIA, London.
- CIRIA Rep R 151 (1995c) Interpreting Measurement of Gas in the Ground Report 151, CIRIA, London.
- CIRIA Rep R 152 (1995d) Risk Assessment for Methane and Other Gases from the Ground. Report 152, CIRIA, London.
- CIRIA Rep R 132 (1996) A Guide for Safe Working on Contaminated Sites. Report 132, CIRIA, London.
- CIRIA C552 (2001) Contaminated land risk assessment. A guide to good practice (report no. C552).
- CIRIA C665 (2007) Assessing the risks posed by hazardous gases to buildings CIRIA, London



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 29 of 32
Engineer: Eve Rowland
Date: 21/11/2022

- CIRIA C748 (2014) Guidance on the use of plastic membranes as VOC barriers, CIRIA, London
- CIRIA C735 (2014) Good practice on the testing and verification of protection systems for buildings against hazardous ground gases. CIRIA.
- CIRIA C681 (2009) Unexploded ordnance (UXO) A guide for the construction industry (C681)
- CIRIA C785 (2019) Unexploded ordnance (UXO) risk management guide for land-based projects (C785)
- CIRIA C758D (2019) Abandoned mine workings manual (C758D)
- Contaminated Land: Applications in Real Environments (CL:AIRE) (2011) Definition of Waste Code of Practice (version 2).
- Department of Environment Food and Rural Affairs (DEFRA) (2012) Environmental Protection Act 1990:Part 2A Contaminated Land Statutory Guidance (report no. PB13735).
- Environment Agency (2000) Technical Aspects of Site Investigation. Report P5-065/TR, Environment Agency, Bristol.
- Environment Agency (2002) Guidance on Monitoring Landfill Leachate, Groundwater and Surface Water. Report LFTGN02, Environment Agency, Bristol.
- Environment Agency (2007) Evaluation of Models for Predicting Plant Uptake of Chemicals from Soil. Report SC050021/SR, Environment Agency, Bristol.
- Environment Agency (2006) Remedial Targets Methodology - Hydrogeological Risk Assessment for Land Contamination (report no.ea/br/e/std/vr10thanni).
- Environment Agency (2008) Science Report SC050021/SR7 Compilation of Data for Priority Organic Pollutants for Derivation of Soil Guideline Values.
- Environment agency, 2007. Inter-laboratory comparison of in vitro bioaccessibility measurements for arsenic lead and nickel in soil, Science Report SC040060/SR2.
- Environment Agency, 2009 Human health toxicological assessment of contaminants in soil (Science Report Final SC050021/SR2)
- Environment Agency (2015) Guidance on the Classification and Assessment of Waste Technical Guidance WM3 (1st edition).European Union (1998) Drinking Water Directive (Council Directive 98/83/EC).
- Gibbons, R. (1994) Statistical Methods for Groundwater Monitoring. Wiley, New York.
- Groundsure Report 2021 GSIP-2021-10752-4061
- Highways Agency (2006) Design of Pavement Foundations. Document HD 25/IAN 73/06.
- HSE (1991) Protection of Workers and the General Public During the Development of Contaminated Land. HMSO, London.
- HSE (2005) Occupational Exposure Limits. HSE report EH40/2005, HMSO, London.



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 30 of 32
Engineer: Eve Rowland
Date: 21/11/2022

ICRCL (1986) Notes on the Fire Hazards of Contaminated Land. Guidance Note 61/84, 2nd Edition, Interdepartmental Committee on the Redevelopment of Contaminated Land, London.

Jeffries, J.(2009). A review of body weight and height data used within the Contaminated Land Exposure Assessment model (CLEA). Project SC050021/ Technical Review 1. Bristol: Environment Agency

Land Contamination Risk Management (LCRM) Environment Agency October 2020 <https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm> .

LQM/CIEH Ltd (2015) S4ULs for Human Health Risk Assessment. Land Quality Press, Nottingham.

NHBC (2007) Guidance on Evaluation of Development Proposals on Sites where Methane and Carbon Dioxide are Present (report no .04).

NRA (1994) Protocol for a Leaching Test to Assess the Leaching Potential for Soils from Contaminated Sites. R&D Note 181.

SoBRA (2017) Development of Generic Assessment Criteria for Assessing Vapour Risks to Human Health from Volatile Contaminants in Groundwater – Version 1.0.

The Water Framework Directive, (Standards and Classification) Directions (England and Wales).

UK Water Industry Research (2010) Guidance for the Selection of Water Supply Pipes to be used in Brownfield Sites (report no. 10/WM/03/21)

WHO (2000) Air Quality Guidelines for Europe. 2nd edition, WHO Regional Office for Europe, Copenhagen.

World Health Organisation (2017) Guidelines for Drinking Water Quality (4th edition).

Britain From Above - <https://britainfromabove.org.uk/en/image/WPW060399>

<http://www.warstateandsociety.com/Bombing-Britain>

<https://www.epa.gov/pfas/basic-information-pfas>

UK Maps of Radon, <http://www.ukradon.org/information/ukmaps>

Health and Safety Executive (2015) Construction (Design and Management) Regulations.

Coal Authority Interactive Map Viewer, <http://mapapps2.bgs.ac.uk/coalauthority/home.html>

BGS Geology of Britain Viewer <http://mapapps.bgs.ac.uk/geologyofbritain/home.html>



PRELIMINARY RISK ASSESSMENT REPORT FOR DEACON BUSINESS PARK, KNOWSLEY

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 31 of 32
Engineer: Eve Rowland
Date: 21/11/2022

10.GLOSSARY OF TERMS

ACEC	Aggressive Chemical Environment for Concrete (classification)
aOD	Above Ordnance Datum
bgl	Below ground level
BGS	British Geological Survey
BRE	Building Research Establishment
CBR	California Bearing Ratio (test)
COMAH	Control of Major Accident Hazards (regulations)
Designated location	Site (and the ecosystem on that site) protected under national or international legislation. A potential ecological receptor to be considered as part of the assessment of land contamination. Example designated locations include SSSIs (q.v.), SACs (q.v.), national nature reserves, Ramsar sites and bird special protection areas.
DQA	Data Quality Assessment
DQO	Data Quality Objective
DQRA	Detailed Quantitative Risk Assessment
DWS	Drinking Water Standard
EQS	Environmental Quality Standard
GAC	Generic Assessment Criterion
GQA	General Quality Assessment (Environment Agency)
GSV	Gas Screening Value
HCV	Health Criteria Value
IPPC	Integrated Pollution Prevention and Control (regulations)
K _{ow}	Octanol-water partition coefficient
LEL	Lower Explosive Limit
LL	Liquid Limit
LoD	Limit of Detection (analytical)
LoQ	Limit of Quantification (analytical)
Mean Value Test	Statistical test (described in the CIEH Guidance) to estimate the mean value of a normally distributed population of data at a given level of confidence. Normally for contaminated land assessment, the 95th percentile (referred to as the 95%UCL or US95) is applied as a reasonable but conservative estimate of the mean concentration for comparison with the relevant assessment criteria.
Maximum Value Test	Statistical test (described in the CIEH Guidance) to identify whether an elevated concentration within a normally distributed data set forms part of the underlying population from which it has been sampled or whether it is an outlier (such as a localised area of contamination) that merits further consideration.
MC	Moisture Content
NGR	National Grid Reference
NIHHS	Notification of Installations Handling Hazardous Substances (regulations)
OS	Ordnance Survey
PI	Plasticity Index
PID	Photoionisation Detector
PL	Plastic Limit
ppm	Parts per million
ppmv	Parts per million by volume
QA	Quality Assurance
QC	Quality Control
SAC	Special Area of Conservation
SOM	Soil Organic Matter



**PRELIMINARY RISK ASSESSMENT REPORT FOR
DEACON BUSINESS PARK, KNOWSLEY**

Report No : TE1704-TE-00-XX-RP-GE-001-V01
Page No : 32 of 32
Engineer: Eve Rowland
Date: 21/11/2022

SPT	Standard Penetration Test
SPZ	Source Protection Zone (see Appendix E)
SSAC	Site-Specific Assessment Criterion
SSSI	Site of Special Scientific Interest
SVOC	Semi-Volatile Organic Compound
TEF	Toxicity Equivalent Factor
TPH	Total Petroleum Hydrocarbons
TWA	Time Weighted Average
US95	95 th percentile estimate of the true mean value of a data population (also known as 95%UCL).
VOC	Volatile Organic Compound

APPENDIX A - DRAWINGS



Deacon Business Park Site Location Plan



The Site

Job Number: TE1704

Job Name: Deacon Business Park

Client: C4 Projects

Drawing Name: Site Location Plan

Drawing Number: TE1704-TE-00-XX-DR-GE-001-V01

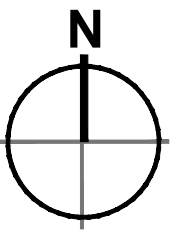
Drawn By: ER

Checked By: AR

Scale: NTS



- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipient's responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.



KEY

- Site Boundary:**
21.88 Acres (8.85 Hectares)
- Existing Site Access**
- Estimated Spot Heights**
+ 47m
- Existing Trees**
- Existing Buildings**
- Residential Area**

Parking Standards Knowsley Council Draft Ensuring a Choice of Travel Supplementary Planning Document		(February 2010)
B2- General Industrial (max) 1 space per 48 m² GFA		
B8- Storage and Distribution (max) 1 space per 100 m² GFA		

A	Initial Issue	##	##	###	###
rev	amendments	by	ckd	date	

Deacon Business Park, Knowsley

Site Constraints Plan

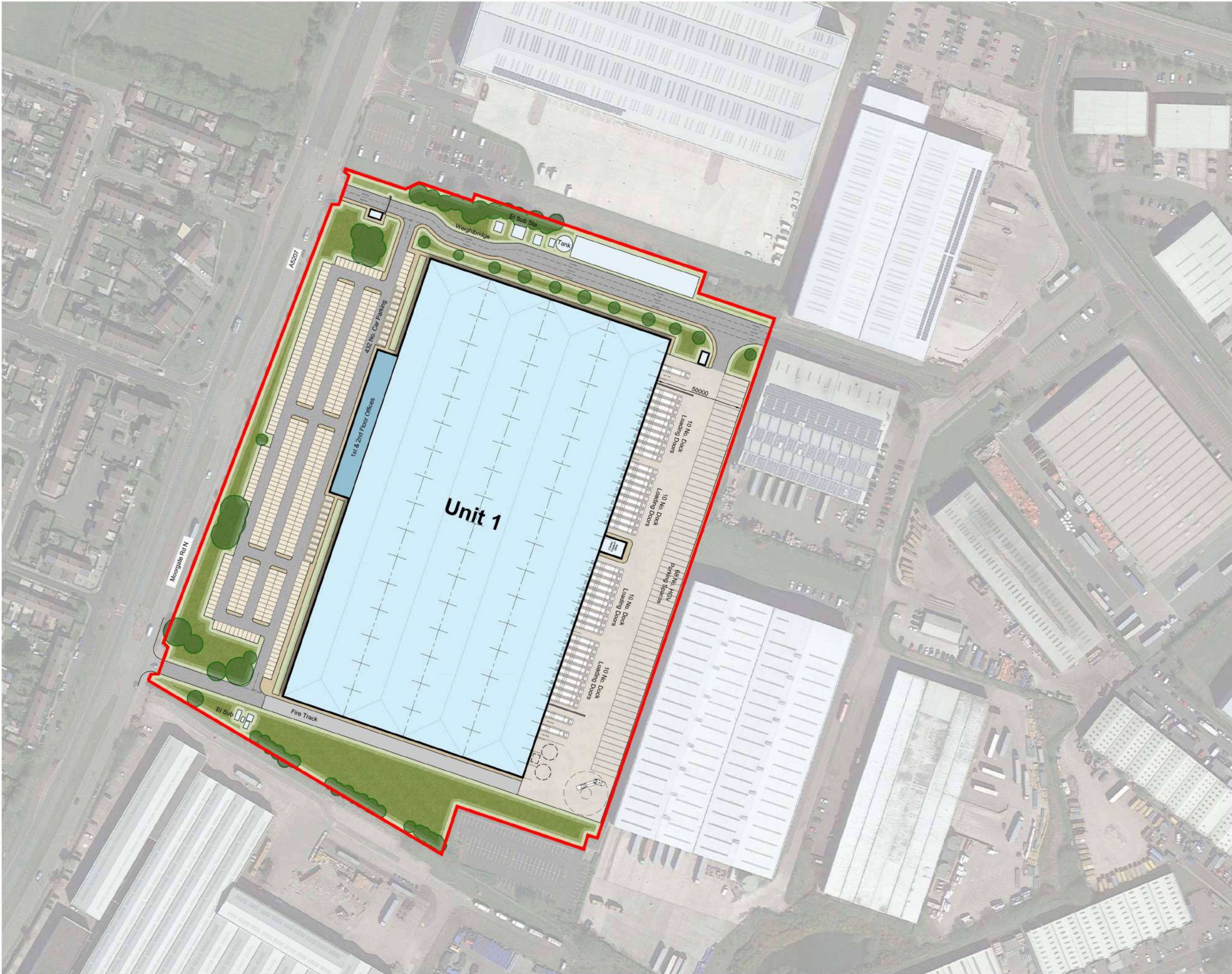




umc
architects

Newark Beacon, Cafferata Way, Newark, Nottinghamshire NG24 2TN
t: +44 (0)1636 653027 e: info@umcarchitects.com

RIBA PoW Stage:	1 - Preparation & Brief
Document Suitability:	S1
Drawn / Checked:	AF / JB
Date:	22/11/2021
Scale:	1:1000 A1
UMC Project Number:	21631
Document Reference:	Drawing no: Revision:
21631 - UMC - XXXX - SI - DR - A	0001 A



- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipient's responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.



SCHEDULE OF ACCOMMODATION
(Gross Internal Area)

Unit 1	
Warehouse Area	- 417,769 sq ft (38,812m²)
Office (2 storey)	- 21,987 sq ft (2,043m²)
Transport Office	- 2,500 sq ft (232m²)
Gatehouse	- 300 sq ft (28m²)
Total Area	- 442,556 sq ft (41,114m²)
Loading Docks	- 40
Level Access	- 3
HGV Parking	- 68
Car Parking	- 432
Plot Area	- 21.88 Acres (8.85 Hectares)
Site Density	- 46.44%

Parking Standards Knowsley Council	
Draft Ensuring a Choice of Travel	
Supplementary Planning Document (February 2018)	
B2- General Industrial (max)	1 space per 48 m² GFA
B8- Storage and Distribution (max)	1 space per 100 m² GFA

A	Initial Issue	##	##	##	##
rev	amendments	by	ckd	date	

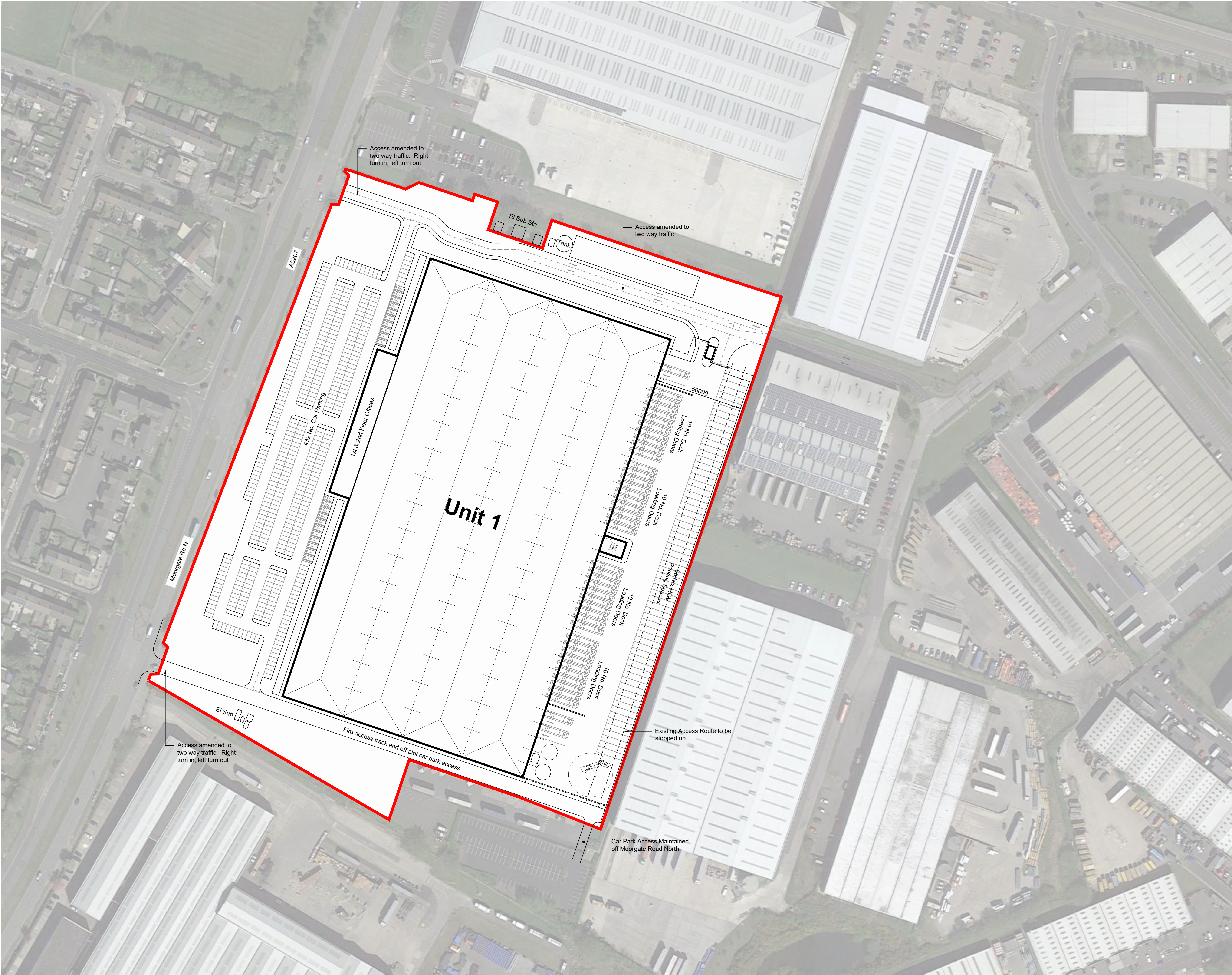
Deacon Business Park, Knowsley

Site Layout

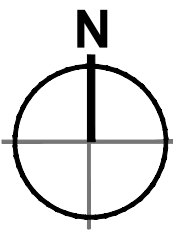


RIBA PoW Stage:	2 - Concept Design
Document Suitability:	S1
Drawn / Checked:	AF / JB
Date:	23/11/2021
Scale:	1:1000 A1
UMC Project Number:	21631
Document Reference:	Drawing no. Revision:
21631 - UMC - ZZZZ - SI - DR - A	0002 A

10m SCALE 1:1000



- Dimensions are in millimeters, unless stated otherwise.
- Scaling of this drawing is not recommended.
- It is the recipient's responsibility to print this document to the correct scale.
- All relevant drawings and specifications should be read in conjunction with this drawing.



SCHEDULE OF ACCOMMODATION (Gross Internal Area)		
Unit 1		
Warehouse Area	-	417,769 sq ft (38,812m²)
Office (2-storey)	-	21,987 sq ft (2,043m²)
Transport Office	-	2,500 sq ft (232m²)
Gatehouse	-	300 sq ft (28m²)
Total Area	-	442,556 sq ft (41,114m²)
Loading Docks	-	40
Level Access	-	3
HGV Parking	-	68
Car Parking	-	432
Plot Area	-	21.20 Acres (8.58 Hectares)
Site Density	-	47.92%

Parking Standards Knowsley Council		
Draft Ensuring a Choice of Travel Supplementary Planning Document (February 2010)		
B2- General Industrial (max)	1 space per 48 m² GFA	
B8- Storage and Distribution (max)	1 space per 100 m² GFA	

OPTION 1

A	Initial Issue	##	##	###	###
rev	amendments	by	ckd	date	

Deacon Business Park, Knowsley

Site Layout



RIBA PoW Stage:	2 - Concept Design
Document Suitability:	S1
Drawn / Checked:	AF / JB
Date:	23/11/2021
Scale:	1:1000 A1
UMC Project Number:	21631
Document Reference:	Drawing no: Revision:
21631 - UMC - ZZZZ - SI - DR - A	0003 A

APPENDIX B - GROUNDSURE REPORT

WEST COAST CORRUGATED LTD, DEACON PARK, MOORGATE ROAD, SOUTHdene, KIRKBY, L33 7RX

Order Details

Date: 03/11/2022
Your ref: TE1704_2296
Our Ref: GS-9174273

Site Details

Location: 342534 397564
Area: 9.38 ha
Authority: [Knowsley Metropolitan Borough Council](#)



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

Summary of findings	p. 2	Aerial image	p. 8
OS MasterMap site plan	p.12	groundsure.com/insightuserguide	

Summary of findings

Page	Section	Past land use	On site	0-50m	50-250m	250-500m	500-2000m
13	1.1	Historical industrial land uses	5	9	7	30	-
15	1.2	Historical tanks	2	3	2	11	-
16	1.3	Historical energy features	2	0	4	24	-
18	1.4	Historical petrol stations	0	0	0	0	-
18	1.5	Historical garages	0	0	1	4	-
19	1.6	Historical military land	0	0	1	0	-
Page	Section	Past land use - un-grouped	On site	0-50m	50-250m	250-500m	500-2000m
20	2.1	Historical industrial land uses	6	11	9	36	-
23	2.2	Historical tanks	10	15	6	16	-
25	2.3	Historical energy features	5	0	4	48	-
27	2.4	Historical petrol stations	0	0	0	0	-
27	2.5	Historical garages	0	0	2	5	-
Page	Section	Waste and landfill	On site	0-50m	50-250m	250-500m	500-2000m
29	3.1	Active or recent landfill	0	0	0	0	-
29	3.2	Historical landfill (BGS records)	0	0	0	0	-
30	3.3	Historical landfill (LA/mapping records)	0	0	0	0	-
30	3.4	Historical landfill (EA/NRW records)	0	0	0	0	-
30	3.5	Historical waste sites	0	0	1	0	-
31	3.6	Licensed waste sites	0	0	0	2	-
31	3.7	Waste exemptions	1	0	9	5	-
Page	Section	Current industrial land use	On site	0-50m	50-250m	250-500m	500-2000m
34	4.1	Recent industrial land uses	5	0	16	-	-
36	4.2	Current or recent petrol stations	0	0	0	1	-
36	4.3	Electricity cables	0	0	0	0	-
36	4.4	Gas pipelines	0	0	0	0	-
37	4.5	Sites determined as Contaminated Land	0	0	0	0	-



37	4.6	<u>Control of Major Accident Hazards (COMAH)</u>	0	0	0	1	-
37	4.7	Regulated explosive sites	0	0	0	0	-
37	4.8	Hazardous substance storage/usage	0	0	0	0	-
38	4.9	Historical licensed industrial activities (IPC)	0	0	0	0	-
38	4.10	<u>Licensed industrial activities (Part A(1))</u>	0	0	3	0	-
39	4.11	<u>Licensed pollutant release (Part A(2)/B)</u>	0	0	1	3	-
39	4.12	Radioactive Substance Authorisations	0	0	0	0	-
39	4.13	Licensed Discharges to controlled waters	0	0	0	0	-
40	4.14	Pollutant release to surface waters (Red List)	0	0	0	0	-
40	4.15	Pollutant release to public sewer	0	0	0	0	-
40	4.16	List 1 Dangerous Substances	0	0	0	0	-
40	4.17	List 2 Dangerous Substances	0	0	0	0	-
40	4.18	<u>Pollution Incidents (EA/NRW)</u>	0	0	1	2	-
41	4.19	Pollution inventory substances	0	0	0	0	-
41	4.20	<u>Pollution inventory waste transfers</u>	0	0	1	0	-
42	4.21	Pollution inventory radioactive waste	0	0	0	0	-
Page	Section	Hydrogeology	On site	0-50m	50-250m	250-500m	500-2000m
43	5.1	<u>Superficial aquifer</u>	Identified (within 500m)				
45	5.2	<u>Bedrock aquifer</u>	Identified (within 500m)				
46	5.3	<u>Groundwater vulnerability</u>	Identified (within 50m)				
47	5.4	Groundwater vulnerability- soluble rock risk	None (within 0m)				
47	5.5	Groundwater vulnerability- local information	None (within 0m)				
48	5.6	<u>Groundwater abstractions</u>	0	0	0	4	37
58	5.7	Surface water abstractions	0	0	0	0	0
58	5.8	<u>Potable abstractions</u>	0	0	0	0	8
60	5.9	<u>Source Protection Zones</u>	2	0	0	0	-
61	5.10	Source Protection Zones (confined aquifer)	0	0	0	0	-
Page	Section	Hydrology	On site	0-50m	50-250m	250-500m	500-2000m
62	6.1	<u>Water Network (OS MasterMap)</u>	0	0	1	-	-

63	6.2	<u>Surface water features</u>	0	0	1	-	-
63	6.3	<u>WFD Surface water body catchments</u>	2	-	-	-	-
63	6.4	<u>WFD Surface water bodies</u>	0	0	0	-	-
64	6.5	<u>WFD Groundwater bodies</u>	1	-	-	-	-
Page	Section	River and coastal flooding	On site	0-50m	50-250m	250-500m	500-2000m
65	7.1	Risk of flooding from rivers and the sea	None (within 50m)				
65	7.2	Historical Flood Events	0	0	0	-	-
65	7.3	Flood Defences	0	0	0	-	-
66	7.4	Areas Benefiting from Flood Defences	0	0	0	-	-
66	7.5	Flood Storage Areas	0	0	0	-	-
67	7.6	Flood Zone 2	None (within 50m)				
67	7.7	Flood Zone 3	None (within 50m)				
Page	Section	Surface water flooding					
68	8.1	<u>Surface water flooding</u>	1 in 30 year, 0.3m - 1.0m (within 50m)				
Page	Section	Groundwater flooding					
70	9.1	<u>Groundwater flooding</u>	Moderate-High (within 50m)				
Page	Section	Environmental designations	On site	0-50m	50-250m	250-500m	500-2000m
71	10.1	Sites of Special Scientific Interest (SSSI)	0	0	0	0	0
72	10.2	Conserved wetland sites (Ramsar sites)	0	0	0	0	0
72	10.3	Special Areas of Conservation (SAC)	0	0	0	0	0
72	10.4	Special Protection Areas (SPA)	0	0	0	0	0
72	10.5	National Nature Reserves (NNR)	0	0	0	0	0
73	10.6	<u>Local Nature Reserves (LNR)</u>	0	0	0	0	2
73	10.7	Designated Ancient Woodland	0	0	0	0	0
73	10.8	Biosphere Reserves	0	0	0	0	0
73	10.9	Forest Parks	0	0	0	0	0
74	10.10	Marine Conservation Zones	0	0	0	0	0
74	10.11	<u>Green Belt</u>	0	0	0	0	3
74	10.12	Proposed Ramsar sites	0	0	0	0	0



74	10.13	Possible Special Areas of Conservation (pSAC)	0	0	0	0	0
75	10.14	Potential Special Protection Areas (pSPA)	0	0	0	0	0
75	10.15	Nitrate Sensitive Areas	0	0	0	0	0
75	10.16	<u>Nitrate Vulnerable Zones</u>	1	0	0	0	2
76	10.17	SSSI Impact Risk Zones	0	-	-	-	-
76	10.18	SSSI Units	0	0	0	0	0
Page	Section	Visual and cultural designations	On site	0-50m	50-250m	250-500m	500-2000m
77	11.1	World Heritage Sites	0	0	0	-	-
77	11.2	Area of Outstanding Natural Beauty	0	0	0	-	-
77	11.3	National Parks	0	0	0	-	-
77	11.4	Listed Buildings	0	0	0	-	-
78	11.5	Conservation Areas	0	0	0	-	-
78	11.6	Scheduled Ancient Monuments	0	0	0	-	-
78	11.7	Registered Parks and Gardens	0	0	0	-	-
Page	Section	Agricultural designations	On site	0-50m	50-250m	250-500m	500-2000m
79	12.1	<u>Agricultural Land Classification</u>	Urban (within 250m)				
80	12.2	Open Access Land	0	0	0	-	-
80	12.3	Tree Felling Licences	0	0	0	-	-
80	12.4	Environmental Stewardship Schemes	0	0	0	-	-
80	12.5	Countryside Stewardship Schemes	0	0	0	-	-
Page	Section	Habitat designations	On site	0-50m	50-250m	250-500m	500-2000m
81	13.1	<u>Priority Habitat Inventory</u>	0	1	3	-	-
82	13.2	Habitat Networks	0	0	0	-	-
82	13.3	<u>Open Mosaic Habitat</u>	0	0	1	-	-
82	13.4	Limestone Pavement Orders	0	0	0	-	-
Page	Section	Geology 1:10,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
83	14.1	<u>10k Availability</u>	Identified (within 500m)				
84	14.2	Artificial and made ground (10k)	0	0	0	0	-
85	14.3	Superficial geology (10k)	0	0	0	0	-

85	14.4	Landslip (10k)	0	0	0	0	-
86	14.5	Bedrock geology (10k)	0	0	0	0	-
86	14.6	Bedrock faults and other linear features (10k)	0	0	0	0	-
Page	Section	Geology 1:50,000 scale	On site	0-50m	50-250m	250-500m	500-2000m
87	15.1	<u>50k Availability</u>	Identified (within 500m)				
88	15.2	<u>Artificial and made ground (50k)</u>	1	0	1	0	-
89	15.3	<u>Artificial ground permeability (50k)</u>	1	0	-	-	-
90	15.4	<u>Superficial geology (50k)</u>	2	0	0	1	-
91	15.5	<u>Superficial permeability (50k)</u>	Identified (within 50m)				
91	15.6	Landslip (50k)	0	0	0	0	-
91	15.7	Landslip permeability (50k)	None (within 50m)				
92	15.8	<u>Bedrock geology (50k)</u>	1	0	0	0	-
93	15.9	<u>Bedrock permeability (50k)</u>	Identified (within 50m)				
93	15.10	Bedrock faults and other linear features (50k)	0	0	0	0	-
Page	Section	Boreholes	On site	0-50m	50-250m	250-500m	500-2000m
94	16.1	<u>BGS Boreholes</u>	0	1	8	-	-
Page	Section	Natural ground subsidence					
96	17.1	<u>Shrink swell clays</u>	Very low (within 50m)				
97	17.2	<u>Running sands</u>	Low (within 50m)				
99	17.3	<u>Compressible deposits</u>	Very low (within 50m)				
101	17.4	<u>Collapsible deposits</u>	Very low (within 50m)				
102	17.5	<u>Landslides</u>	Very low (within 50m)				
103	17.6	<u>Ground dissolution of soluble rocks</u>	Negligible (within 50m)				
Page	Section	Mining, ground workings and natural cavities	On site	0-50m	50-250m	250-500m	500-2000m
105	18.1	Natural cavities	0	0	0	0	-
106	18.2	<u>BritPits</u>	0	0	0	1	-
106	18.3	<u>Surface ground workings</u>	0	0	3	-	-
106	18.4	Underground workings	0	0	0	0	0
107	18.5	Historical Mineral Planning Areas	0	0	0	0	-



107	18.6	Non-coal mining	0	0	0	0	0
107	18.7	Mining cavities	0	0	0	0	0
107	18.8	JPB mining areas	None (within 0m)				
107	18.9	Coal mining	None (within 0m)				
108	18.10	Brine areas	None (within 0m)				
108	18.11	Gypsum areas	None (within 0m)				
108	18.12	Tin mining	None (within 0m)				
108	18.13	Clay mining	None (within 0m)				
Page	Section	Radon					
109	19.1	Radon	Less than 1% (within 0m)				
Page	Section	Soil chemistry	On site	0-50m	50-250m	250-500m	500-2000m
110	20.1	BGS Estimated Background Soil Chemistry	9	0	-	-	-
111	20.2	BGS Estimated Urban Soil Chemistry	0	0	-	-	-
111	20.3	BGS Measured Urban Soil Chemistry	0	0	-	-	-
Page	Section	Railway infrastructure and projects	On site	0-50m	50-250m	250-500m	500-2000m
112	21.1	Underground railways (London)	0	0	0	-	-
112	21.2	Underground railways (Non-London)	0	0	0	-	-
113	21.3	Railway tunnels	0	0	0	-	-
113	21.4	Historical railway and tunnel features	0	0	2	-	-
113	21.5	Royal Mail tunnels	0	0	0	-	-
113	21.6	Historical railways	0	0	0	-	-
114	21.7	Railways	0	0	0	-	-
114	21.8	Crossrail 1	0	0	0	0	-
114	21.9	Crossrail 2	0	0	0	0	-
114	21.10	HS2	0	0	0	0	-

Recent aerial photograph



Aerial photography supplied by Getmapping PLC. © Copyright Getmapping PLC 2022. All Rights Reserved.

Capture Date: 22/04/2019

Site Area: 9.38ha



Recent site history - 2015 aerial photograph



Capture Date: 11/06/2015

Site Area: 9.38ha



Recent site history - 2001 aerial photograph



Capture Date: 01/05/2001

Site Area: 9.38ha



Recent site history - 2000 aerial photograph



Capture Date: 21/07/2000

Site Area: 9.38ha



OS MasterMap site plan



Site Area: 9.38ha



1 Past land use



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

© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

1.1 Historical industrial land uses

Records within 500m

51

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 1:10,560 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Commercial/Industrial	1988	882698



ID	Location	Land use	Dates present	Group ID
A	On site	Unspecified Factory	1966	920677
A	On site	Unspecified Commercial/Industrial	1976	962662
B	On site	Unspecified Tank	1988	950658
B	On site	Unspecified Tank	1966 - 1976	968188
B	1m S	Unspecified Tank	1988	877304
B	1m S	Unspecified Tank	1976	965001
1	1m SW	Unspecified Factory	1966	970619
D	10m SW	Unspecified Commercial/Industrial	1976	857010
D	10m SW	Unspecified Commercial/Industrial	1988	929760
B	16m SE	Unspecified Tank	1988	975596
B	16m SE	Unspecified Tank	1966 - 1976	987430
B	44m SE	Unspecified Tanks	1966 - 1976	864660
B	44m SE	Unspecified Tanks	1988	925558
3	73m NE	Railway Sidings	1955 - 1976	2367747
E	165m SE	Unspecified Heap	1966 - 1976	875665
E	165m SE	Unspecified Heap	1988	972264
F	186m NE	Tramway Sidings	1955	821558
G	196m S	Unspecified Factory	1966	972653
J	215m NE	Unspecified Commercial/Industrial	1988	962740
J	216m NE	Unspecified Commercial/Industrial	1966 - 1976	945875
K	250m E	Refuse Heap	1938	848112
K	251m E	Refuse Heap	1925	946589
7	271m E	Unspecified Commercial/Industrial	1976	796637
L	297m N	Unspecified Commercial/Industrial	1988	938585
L	297m N	Unspecified Commercial/Industrial	1966 - 1976	982693
N	306m N	Unspecified Pit	1925	839749
N	306m N	Unspecified Quarry	1938	816615
N	306m N	Unspecified Disused Quarry	1907	836999



ID	Location	Land use	Dates present	Group ID
9	335m SE	Unspecified Heap	1966	803308
O	352m NW	Unspecified Quarry	1925	816614
O	352m NW	Unspecified Disused Quarry	1907	836997
P	361m SW	Telephone Exchange	1988	861787
P	361m SW	Telephone Exchange	1966 - 1976	945616
12	369m N	Unspecified Heap	1966	803312
S	396m N	Unspecified Commercial/Industrial	1955	951966
T	399m NE	Unspecified Commercial/Industrial	1988	875583
U	400m SE	Unspecified Works	1966	830264
U	400m SE	Unspecified Commercial/Industrial	1988	894106
U	400m SE	Unspecified Commercial/Industrial	1976	946675
S	434m N	Industrial Estate	1988	942563
S	436m N	Industrial Estate	1966	884931
S	440m N	Industrial Estate	1976	979291
Y	479m SE	Unspecified Heap	1988	872565
Y	479m SE	Unspecified Heap	1976	909027
Z	480m S	Unspecified Heap	1988	845240
Z	480m S	Unspecified Heap	1966 - 1976	925576
AA	487m S	Unspecified Tanks	1976	853071
AA	487m S	Unspecified Tanks	1988	927296
18	489m NW	Windmill	1892	794331
Y	490m SE	Unspecified Heap	1966	877140

This data is sourced from Ordnance Survey / Groundsure.

1.2 Historical tanks

Records within 500m

18

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or



succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
B	On site	Unspecified Tank	1968 - 1993	132693
B	On site	Unspecified Tank	1959 - 1993	149392
B	16m SE	Unspecified Tank	1959 - 1993	128615
B	36m SE	Unspecified Tank	1976 - 1993	141933
B	46m SE	Tanks	1959 - 1993	141421
2	72m NE	Tanks	1996 - 1999	145177
F	236m N	Unspecified Tank	1996 - 1999	147544
13	374m NE	Tanks	1996 - 1999	133028
G	391m S	Tanks	1996	105718
T	435m NE	Unspecified Tank	1977 - 1997	140692
W	459m E	Unspecified Tank	1975	113144
W	459m E	Unspecified Tank	1977	113141
W	464m E	Tanks	1975	105771
17	487m E	Unspecified Tank	1997	113143
AA	489m S	Unspecified Tank	1974 - 1993	137954
AA	491m S	Tanks	1974	146982
AA	491m S	Tanks	1984	139738
AA	493m S	Tanks	1993	135478

This data is sourced from Ordnance Survey / Groundsure.

1.3 Historical energy features

Records within 500m

30

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.



Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
C	On site	Electricity Substation	1968	70297
C	On site	Electricity Substation	1996 - 1999	72788
5	154m W	Electricity Substation	1996	61358
H	198m W	Electricity Substation	1994	61361
H	200m W	Electricity Substation	1972	61362
6	223m SW	Electricity Substation	1984	61363
M	301m W	Electricity Substation	1996	72660
M	306m W	Electricity Substation	1967 - 1968	81992
8	327m NE	Electricity Substation	1996 - 1999	65728
10	336m N	Electricity Substation	1985 - 1994	68610
Q	361m NW	Electricity Substation	1972	61360
Q	362m NW	Electricity Substation	1994	61359
11	368m NW	Electricity Substation	1994 - 1999	69003
R	376m N	Electricity Substation	1994	69117
R	376m N	Electricity Substation	1985 - 1987	83770
R	387m N	Electricity Substation	1968	85152
R	393m NE	Electricity Substation	1985 - 1994	65795
14	418m E	Electricity Substation	1977	61357
V	452m NE	Electricity Substation	1985 - 1987	76292
V	452m NE	Electricity Substation	1994	64301
V	453m NE	Electricity Substation	1968 - 1994	74443
V	459m NE	Electricity Substation	1994	71143
V	460m NE	Electricity Substation	1985 - 1987	82523
I	461m NE	Electricity Substation	1968 - 1987	82860
15	469m SE	Electricity Substation	1975 - 1997	85424
I	470m NE	Electricity Substation	1994	82597
I	474m NE	Electricity Substation	1968	72227

ID	Location	Land use	Dates present	Group ID
T	477m NE	Electricity Substation	1977 - 1997	72173
16	477m W	Electricity Substation	1974 - 1999	65112
19	496m SW	Electricity Substation	1989	74989

This data is sourced from Ordnance Survey / Groundsure.

1.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

1.5 Historical garages

Records within 500m

5

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale, intelligently grouped into contiguous features. To prevent misrepresentation of the size of historical features at any given time, features are only grouped if they have similar geometries within immediately preceding or succeeding map editions. See section 2 for a breakdown of grouping if required. Grouped and the original ungrouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use map on **page 13**

ID	Location	Land use	Dates present	Group ID
4	152m SE	Vehicle Repair Depot	1976	25257
K	250m E	Body Repair Works	1976	24918
X	461m NE	Transport Repair Depot	1968	22849
X	462m NE	Transport Repair Depot	1965	22686
X	462m NE	Transport Repair Depot	1977	21314

This data is sourced from Ordnance Survey / Groundsure.



1.6 Historical military land

Records within 500m

1

Areas of military land digitised from multiple sources including the National Archives, local records, MOD records and verified other sources, intelligently grouped into contiguous features.

Features are displayed on the Past land use map on **page 13**

ID	Location	Site Name	Date of Operation	Activities
I	204m NE	ROF Kirkby	September 1940 - March 1946	Produced approximately 10% of WW2 ammunition; Approximately 23,000 employees; Filling Factory No.7

This data is sourced from Ordnance Survey / Groundsure / other sources.



2 Past land use - un-grouped



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

2.1 Historical industrial land uses

Records within 500m

62

Potentially contaminative land use features digitised from historical Ordnance Survey mapping at 1:10,000 and 10,560 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Tank	1966	968188
A	On site	Unspecified Tank	1976	968188
A	On site	Unspecified Tank	1988	950658

ID	Location	Land Use	Date	Group ID
B	On site	Unspecified Commercial/Industrial	1976	962662
B	On site	Unspecified Commercial/Industrial	1988	882698
B	On site	Unspecified Factory	1966	920677
A	1m S	Unspecified Tank	1976	965001
A	1m S	Unspecified Tank	1988	877304
D	1m SW	Unspecified Factory	1966	970619
D	10m SW	Unspecified Commercial/Industrial	1976	857010
D	10m SW	Unspecified Commercial/Industrial	1988	929760
A	16m SE	Unspecified Tank	1966	987430
A	16m SE	Unspecified Tank	1976	987430
A	16m SE	Unspecified Tank	1988	975596
A	44m SE	Unspecified Tanks	1966	864660
A	44m SE	Unspecified Tanks	1976	864660
A	44m SE	Unspecified Tanks	1988	925558
1	73m NE	Railway Sidings	1966	2367747
G	165m SE	Unspecified Heap	1966	875665
G	165m SE	Unspecified Heap	1976	875665
G	165m SE	Unspecified Heap	1988	972264
H	186m NE	Tramway Sidings	1955	821558
I	196m S	Unspecified Factory	1966	972653
K	215m NE	Unspecified Commercial/Industrial	1988	962740
K	216m NE	Unspecified Commercial/Industrial	1966	945875
K	216m NE	Unspecified Commercial/Industrial	1976	945875
L	250m S	Unspecified Commercial/Industrial	1976	857010
L	250m S	Unspecified Commercial/Industrial	1988	929760
M	250m E	Refuse Heap	1938	848112
M	250m E	Refuse Heap	1938	848112
M	251m E	Refuse Heap	1925	946589



ID	Location	Land Use	Date	Group ID
4	271m E	Unspecified Commercial/Industrial	1976	796637
N	297m N	Unspecified Commercial/Industrial	1966	982693
N	297m N	Unspecified Commercial/Industrial	1976	982693
N	297m N	Unspecified Commercial/Industrial	1988	938585
P	306m N	Unspecified Pit	1925	839749
P	306m N	Unspecified Quarry	1938	816615
P	306m N	Unspecified Disused Quarry	1907	836999
5	335m SE	Unspecified Heap	1966	803308
S	352m NW	Unspecified Quarry	1925	816614
S	352m NW	Unspecified Disused Quarry	1907	836997
T	361m SW	Telephone Exchange	1966	945616
T	361m SW	Telephone Exchange	1976	945616
T	361m SW	Telephone Exchange	1988	861787
6	369m N	Unspecified Heap	1966	803312
Y	396m N	Unspecified Commercial/Industrial	1955	951966
Z	399m NE	Unspecified Commercial/Industrial	1988	875583
AA	400m SE	Unspecified Works	1966	830264
AA	400m SE	Unspecified Commercial/Industrial	1976	946675
AA	400m SE	Unspecified Commercial/Industrial	1988	894106
Y	434m N	Industrial Estate	1988	942563
Y	436m N	Industrial Estate	1966	884931
Y	440m N	Industrial Estate	1976	979291
AH	479m SE	Unspecified Heap	1976	909027
AH	479m SE	Unspecified Heap	1988	872565
AI	480m S	Unspecified Heap	1966	925576
AI	480m S	Unspecified Heap	1976	925576
AI	480m S	Unspecified Heap	1988	845240
AJ	487m S	Unspecified Tanks	1976	853071

ID	Location	Land Use	Date	Group ID
AJ	487m S	Unspecified Tanks	1988	927296
9	489m NW	Windmill	1892	794331
AH	490m SE	Unspecified Heap	1966	877140

This data is sourced from Ordnance Survey / Groundsure.

2.2 Historical tanks

Records within 500m

47

Tank features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
A	On site	Unspecified Tank	1959	149392
A	On site	Unspecified Tank	1960	149392
A	On site	Unspecified Tank	1976	132693
A	On site	Unspecified Tank	1976	149392
A	On site	Unspecified Tank	1976	132693
A	On site	Unspecified Tank	1976	149392
A	On site	Unspecified Tank	1968	149392
A	On site	Unspecified Tank	1968	132693
A	On site	Unspecified Tank	1993	149392
A	On site	Unspecified Tank	1993	132693
A	16m SE	Unspecified Tank	1960	128615
A	16m SE	Unspecified Tank	1976	128615
A	16m SE	Unspecified Tank	1976	128615
A	16m SE	Unspecified Tank	1959	128615
A	16m SE	Unspecified Tank	1968	128615
A	16m SE	Unspecified Tank	1993	128615
A	36m SE	Unspecified Tank	1976	141933



ID	Location	Land Use	Date	Group ID
A	36m SE	Unspecified Tank	1976	141933
A	36m SE	Unspecified Tank	1993	141933
A	46m SE	Tanks	1959	141421
A	46m SE	Tanks	1968	141421
A	46m SE	Tanks	1960	141421
A	46m SE	Tanks	1976	141421
A	46m SE	Tanks	1976	141421
A	46m SE	Tanks	1993	141421
E	72m NE	Tanks	1997	145177
E	72m NE	Tanks	1996	145177
E	72m NE	Tanks	1999	145177
H	236m N	Unspecified Tank	1997	147544
H	236m N	Unspecified Tank	1996	147544
H	236m N	Unspecified Tank	1999	147544
W	374m NE	Tanks	1997	133028
W	374m NE	Tanks	1996	133028
W	374m NE	Tanks	1999	133028
I	391m S	Tanks	1996	105718
Z	435m NE	Unspecified Tank	1997	140692
Z	436m NE	Unspecified Tank	1977	140692
AC	459m E	Unspecified Tank	1975	113144
AC	459m E	Unspecified Tank	1977	113141
AC	464m E	Tanks	1975	105771
8	487m E	Unspecified Tank	1997	113143
AJ	489m S	Unspecified Tank	1974	137954
AJ	489m S	Unspecified Tank	1984	137954
AJ	490m S	Unspecified Tank	1993	137954
AJ	491m S	Tanks	1974	146982

ID	Location	Land Use	Date	Group ID
AJ	491m S	Tanks	1984	139738
AJ	493m S	Tanks	1993	135478

This data is sourced from Ordnance Survey / Groundsure.

2.3 Historical energy features

Records within 500m

57

Energy features digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
C	On site	Electricity Substation	1997	72788
C	On site	Electricity Substation	1968	70297
C	On site	Electricity Substation	1968	70297
C	On site	Electricity Substation	1996	72788
C	On site	Electricity Substation	1999	72788
2	154m W	Electricity Substation	1996	61358
J	198m W	Electricity Substation	1994	61361
J	200m W	Electricity Substation	1972	61362
3	223m SW	Electricity Substation	1984	61363
O	301m W	Electricity Substation	1996	72660
O	306m W	Electricity Substation	1967	81992
O	306m W	Electricity Substation	1968	81992
Q	327m NE	Electricity Substation	1997	65728
Q	327m NE	Electricity Substation	1996	65728
Q	327m NE	Electricity Substation	1999	65728
R	336m N	Electricity Substation	1994	68610
R	336m N	Electricity Substation	1985	68610
R	336m N	Electricity Substation	1987	68610



ID	Location	Land Use	Date	Group ID
U	361m NW	Electricity Substation	1972	61360
U	362m NW	Electricity Substation	1994	61359
V	368m NW	Electricity Substation	1996	69003
V	368m NW	Electricity Substation	1997	69003
V	368m NW	Electricity Substation	1999	69003
V	368m NW	Electricity Substation	1994	69003
X	376m N	Electricity Substation	1994	69117
X	376m N	Electricity Substation	1985	83770
X	376m N	Electricity Substation	1987	83770
X	387m N	Electricity Substation	1968	85152
X	391m N	Electricity Substation	1968	85152
X	393m NE	Electricity Substation	1985	65795
X	393m NE	Electricity Substation	1987	65795
X	393m NE	Electricity Substation	1994	65795
7	418m E	Electricity Substation	1977	61357
AB	452m NE	Electricity Substation	1985	76292
AB	452m NE	Electricity Substation	1987	76292
AB	452m NE	Electricity Substation	1994	64301
AB	453m NE	Electricity Substation	1968	74443
AB	454m NE	Electricity Substation	1994	74443
AB	454m NE	Electricity Substation	1985	74443
AB	454m NE	Electricity Substation	1987	74443
AB	455m NE	Electricity Substation	1968	74443
AB	459m NE	Electricity Substation	1994	71143
AB	460m NE	Electricity Substation	1985	82523
AB	460m NE	Electricity Substation	1987	82523
AE	461m NE	Electricity Substation	1985	82860
AE	461m NE	Electricity Substation	1987	82860



ID	Location	Land Use	Date	Group ID
AE	462m NE	Electricity Substation	1968	82860
AF	469m SE	Electricity Substation	1975	85424
AF	469m SE	Electricity Substation	1997	85424
AE	470m NE	Electricity Substation	1994	82597
AE	474m NE	Electricity Substation	1968	72227
Z	477m NE	Electricity Substation	1997	72173
Z	477m NE	Electricity Substation	1977	72173
AG	477m W	Electricity Substation	1974	65112
AG	478m W	Electricity Substation	1997	65112
AG	478m W	Electricity Substation	1999	65112
10	496m SW	Electricity Substation	1989	74989

This data is sourced from Ordnance Survey / Groundsure.

2.4 Historical petrol stations

Records within 500m

0

Petrol stations digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

This data is sourced from Ordnance Survey / Groundsure.

2.5 Historical garages

Records within 500m

7

Garages digitised from historical Ordnance Survey mapping at high-detail 1:1,250 and 1:2,500 scale. Any records shown are available intelligently grouped in section 1. Grouped and the original un-grouped features can be cross-referenced across sections 1 and 2 using the 'Group ID'.

Features are displayed on the Past land use - un-grouped map on **page 20**

ID	Location	Land Use	Date	Group ID
F	152m SE	Vehicle Repair Depot	1976	25257
F	152m SE	Vehicle Repair Depot	1976	25257



ID	Location	Land Use	Date	Group ID
M	250m E	Body Repair Works	1976	24918
M	250m E	Body Repair Works	1976	24918
AD	461m NE	Transport Repair Depot	1968	22849
AD	462m NE	Transport Repair Depot	1965	22686
AD	462m NE	Transport Repair Depot	1977	21314

This data is sourced from Ordnance Survey / Groundsure.



3 Waste and landfill



- Site Outline
- Search buffers in metres (m)
- Historical waste sites
- Licensed waste sites
- Waste exemptions

3.1 Active or recent landfill

Records within 500m

0

Active or recently closed landfill sites under Environment Agency/Natural Resources Wales regulation.

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

3.2 Historical landfill (BGS records)

Records within 500m

0

Landfill sites identified on a survey carried out on behalf of the DoE in 1973. These sites may have been closed or operational at this time.

This data is sourced from the British Geological Survey.

3.3 Historical landfill (LA/mapping records)

Records within 500m

0

Landfill sites identified from Local Authority records and high detail historical mapping.

This data is sourced from the Ordnance Survey/Groundsure and Local Authority records.

3.4 Historical landfill (EA/NRW records)

Records within 500m

0

Known historical (closed) landfill sites (e.g. sites where there is no PPC permit or waste management licence currently in force). This includes sites that existed before the waste licensing regime and sites that have been licensed in the past but where a licence has been revoked, ceased to exist or surrendered and a certificate of completion has been issued.

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

3.5 Historical waste sites

Records within 500m

1

Waste site records derived from Local Authority planning records and high detail historical mapping.

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Address	Further Details	Date
2	214m N	Site Address: Elixir Enterprise Park, Dixon Road, Knowsley Industrial Park, LIVERPOOL, Merseyside, L33 7XF	Type of Site: Waste Recycling Facility Planning application reference: 11/00501/COU Description: Scheme comprises change of use from office furniture manufacturers (use class B1) to pvcu, cardboard & polythene waste recycling facility (use class B2). An application (ref: 11/00501/COU) for detailed planning permission was submitted to Knowsley B.C. A detailed planning application has been submitted. Data source: Historic Planning Application Data Type: Point	21/06/2012

This data is sourced from Ordnance Survey/Groundsure and Local Authority records.



3.6 Licensed waste sites

Records within 500m

2

Active or recently closed waste sites under Environment Agency/Natural Resources Wales regulation.

Features are displayed on the Waste and landfill map on **page 29**

ID	Location	Details		
C	269m NE	Site Name: Dixon Road Waste Transfer Station Site Address: Elixir Enterprise Park, Dixon Road, Kirkby, Liverpool, Merseyside, L33 7XP Correspondence Address: -	Type of Site: 75kte HCl Waste TS + treatment Size: >= 25000 tonnes 75000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ELI010 EPR reference: EA/EPR/UP3098VQ/A001 Operator: Elixir Foundations C I C Waste Management licence No: 102471 Annual Tonnage: 74999	Issue Date: 09/03/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked
C	269m NE	Site Name: Dixon Road Waste Transfer Station Site Address: Elixir Enterprise Park, Dixon Road, Kirkby, Liverpool, Merseyside, L33 7XP Correspondence Address: -	Type of Site: 75kte HCl Waste TS + treatment Size: 25000 tonnes Environmental Permitting Regulations (Waste) Licence Number: ELI010 EPR reference: EA/EPR/UP3098VQ/A001 Operator: Elixir Foundations C I C Waste Management licence No: 102471 Annual Tonnage: 74999	Issue Date: 09/03/2012 Effective Date: - Modified: - Surrendered Date: - Expiry Date: - Cancelled Date: - Status: Revoked

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

3.7 Waste exemptions

Records within 500m

15

Activities involving the storage, treatment, use or disposal of waste that are exempt from needing a permit. Exemptions have specific limits and conditions that must be adhered to.

Features are displayed on the Waste and landfill map on **page 29**



ID	Location	Site	Reference	Category	Sub-Category	Description
1	On site	CGL- Knowsley Integrated Recovery Service, Unit 7, Deacon Park, Moorgate Road, Kirkby, L33 7RX	WEX172604	Treating waste exemption	Not on a farm	Sorting and de-naturing of controlled drugs for disposal
A	150m E	DEACON PARK MOORGATE ROAD MERSEYSIDE L33 7RX	EPR/NF0200F M/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in secure containers
A	150m E	DEACON PARK MOORGATE ROAD MERSEYSIDE L33 7RX	EPR/NF0200F M/A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place
A	150m E	DEACON PARK MOORGATE ROAD MERSEYSIDE L33 7RX	EPR/NF0200F M/A001	Treating waste exemption	Non-Agricultural Waste Only	Preparatory treatments (baling, sorting, shredding etc)
A	169m E	-	WEX225999	Using waste exemption	Not on a farm	Use of waste in construction
A	169m E	-	WEX225999	Treating waste exemption	Not on a farm	Preparatory treatments (baling, sorting, shredding etc)
A	169m E	-	WEX225999	Storing waste exemption	Not on a farm	Storage of waste in secure containers
B	171m SE	25, FARADAY ROAD, KNOWSLEY INDUSTRIAL PARK, LIVERPOOL, L33 7UT	WEX148902	Storing waste exemption	Not on a farm	Storage of waste in a secure place
B	171m SE	25, FARADAY ROAD, KNOWSLEY INDUSTRIAL PARK, LIVERPOOL, L33 7UT	WEX148902	Treating waste exemption	Not on a farm	Treatment of waste food
B	171m SE	25, FARADAY ROAD, KNOWSLEY INDUSTRIAL PARK, LIVERPOOL, L33 7UT	WEX148902	Storing waste exemption	Not on a farm	Storage of waste in secure containers
D	351m S	Land Development (Caddick Construction /DGS Ltd), Alchemy Way, Knowsley Industrial Estate, Knowsley, L33 7XN	WEX138809	Treating waste exemption	Not on a farm	Screening and blending of waste
D	351m S	Land Development (Caddick Construction /DGS Ltd), Alchemy Way, Knowsley Industrial Estate, Knowsley, L33 7XN	WEX138809	Using waste exemption	Not on a farm	Use of waste in construction
3	365m NE	CARLTON HOUSE GORES ROAD LIVERPOOL L33 7XS	EPR/JF0300BJ/ A001	Storing waste exemption	Non-Agricultural Waste Only	Storage of waste in a secure place

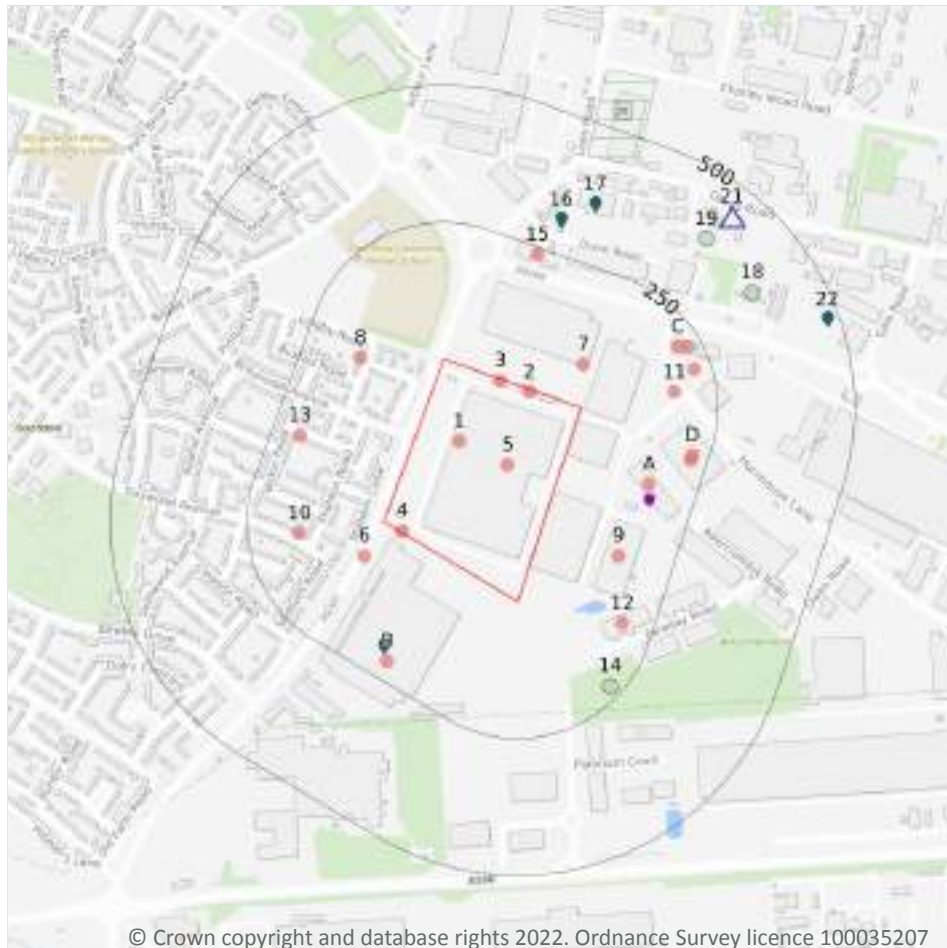


ID	Location	Site	Reference	Category	Sub-Category	Description
4	436m SE	Unit 6, Platinum Court, Alchemy Way, Knowsley, L33 7XN	EA/EPR/VP398 3AH/A001	Treating waste exemption	Not on a farm	Repair or refurbishment of WEEE
5	456m N	Unit 1, Target point Lees Road, Kirkby industrial estate, Kirkby liverpool, L33 7SA	WEX228691	Treating waste exemption	Not on a farm	Recovery of scrap metal

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



4 Current industrial land use



- Site Outline
- Search buffers in metres (m)
- Recent industrial land uses
- △ Current or recent petrol stations
- Control of Major Accident Hazards
- ⬇ Part A(1) industrial activities
- Licensed pollutant release (Part A(2)/B)
- Pollution Incidents (EA/NRW)
- Pollution inventory waste transfers

4.1 Recent industrial land uses

Records within 250m

21

Current potentially contaminative industrial sites.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Activity	Category
1	On site	Sugarich	Deacon Park, Moorgate Road, Southdene, Kirkby, Merseyside, L33 7RX	Milling, Refining and Food Additives	Foodstuffs
2	On site	Associates of Cape Cod Incorporated	Unit 4 Deacon Park, Moorgate Road, Knowsley Industrial Park, Liverpool, Merseyside, L33 7RX	Medical Equipment, Supplies and Pharmaceuticals	Industrial Products

ID	Location	Company	Address	Activity	Category
3	On site	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities
4	On site	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities
5	On site	West Coast Corrugated	Hornhouse Lane, Deacon Park, Knowsley Industrial Park, Liverpool, Merseyside, L33 7YQ	Packaging	Industrial Products
6	71m SW	Mast	Merseyside, L33	Telecommunications Features	Infrastructure and Facilities
7	76m N	Tank	Merseyside, L33	Tanks (Generic)	Industrial Features
8	144m W	J M Mobile Car Valeting	19, Lindby Road, Southdene, Kirkby, Merseyside, L32 6SJ	Vehicle Cleaning Services	Personal, Consumer and Other Services
9	149m E	Movianto UK	Unit H3deacon Park Moorgate Road, Knowsley Industrial Park, Liverpool, Merseyside, L33 7RX	Distribution and Haulage	Transport, Storage and Delivery
10	156m W	Electricity Sub Station	Merseyside, L32	Electrical Features	Infrastructure and Facilities
A	162m E	Factory	Merseyside, L33	Unspecified Works Or Factories	Industrial Features
11	173m E	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities
12	194m E	M T Truck & Trailer Repairs Ltd	Frw Northwest Ltd 23, Faraday Road, Knowsley Industrial Park, Kirkby, Merseyside, L33 7UT	Vehicle Repair, Testing and Servicing	Repair and Servicing
13	199m W	Electricity Sub Station	Merseyside, L32	Electrical Features	Infrastructure and Facilities
C	209m NE	P A S Sound Engineering	Senator Point, Hornhouse Lane, Knowsley Industrial Park, Kirkby, Merseyside, L33 7RR	Recording Studios and Record Companies	IT, Advertising, Marketing and Media Services
B	214m SW	J J Smith & Company Woodworking Machinery Ltd	Moorgate Point, Moorgate Road, Southdene, Kirkby, Merseyside, L33 7XW	Tools Including Machine Shops	Industrial Products
C	219m E	Electricity Sub Station	Merseyside, L33	Electrical Features	Infrastructure and Facilities
D	220m E	Factory	Merseyside, L33	Unspecified Works Or Factories	Industrial Features



ID	Location	Company	Address	Activity	Category
D	220m E	Euroliters	Hornhouse Lane, Knowsley Industrial Park, Kirkby, Merseyside, L33 7YQ	Garden Goods	Consumer Products
C	225m NE	Cater Bake	Cater-Bake Unit A1 Senator Point, South Boundary Road, Knowsley Industrial Park, Kirkby, Merseyside, L33 7RR	Food and Beverage Industry Machinery	Industrial Products
15	237m N	Tank	Merseyside, L33	Tanks (Generic)	Industrial Features

This data is sourced from Ordnance Survey.

4.2 Current or recent petrol stations

Records within 500m

1

Open, closed, under development and obsolete petrol stations.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	LPG	Status
21	445m NE	CERTAS ENERGY	Gores Road, Knowsley Industrial Park North, Liverpool, Merseyside, L33 7XS	No	Non-Retail

This data is sourced from Experian.

4.3 Electricity cables

Records within 500m

0

High voltage underground electricity transmission cables.

This data is sourced from National Grid.

4.4 Gas pipelines

Records within 500m

0

High pressure underground gas transmission pipelines.

This data is sourced from National Grid.



4.5 Sites determined as Contaminated Land

Records within 500m**0**

Contaminated Land Register of sites designated under Part 2a of the Environmental Protection Act 1990.

This data is sourced from Local Authority records.

4.6 Control of Major Accident Hazards (COMAH)

Records within 500m**1**

Control of Major Accident Hazards (COMAH) sites. This data includes upper and lower tier sites, and includes a historical archive of COMAH sites and Notification of Installations Handling Hazardous Substances (NIHHS) records.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Company	Address	Operational status	Tier
20	439m N	W H Bowker Limited	W H Bowker Limited, Knowsley Industrial Park, Charleywood Road, Knowsley, Liverpool, Merseyside, L33 7SG	Current COMAH Site	COMAH Upper Tier Operator

This data is sourced from the Health and Safety Executive.

4.7 Regulated explosive sites

Records within 500m**0**

Sites registered and licensed by the Health and Safety Executive under the Manufacture and Storage of Explosives Regulations 2005 (MSER). The last update to this data was in April 2011.

This data is sourced from the Health and Safety Executive.

4.8 Hazardous substance storage/usage

Records within 500m**0**

Consents granted for a site to hold certain quantities of hazardous substances at or above defined limits in accordance with the Planning (Hazardous Substances) Regulations 2015.

This data is sourced from Local Authority records.



4.9 Historical licensed industrial activities (IPC)

Records within 500m

0

Integrated Pollution Control (IPC) records of substance releases to air, land and water. This data represents a historical archive as the IPC regime has been superseded.

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

4.10 Licensed industrial activities (Part A(1))

Records within 500m

3

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

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
A	170m E	Operator: FACTORY SERVICES UK LTD Installation Name: KNOWSLEY FEED MILL - EPR/LP3837FX Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: JP3008MA Original Permit Number: LP3837FX	EPR Reference: - Issue Date: - Effective Date: - Last date noted as effective: 13/06/2022 Status: DETERMINATION
A	170m E	Operator: FACTORY SERVICES UK LTD Installation Name: KNOWSLEY FEED MILL Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: MP3809PA Original Permit Number: LP3837FX	EPR Reference: - Issue Date: 06/11/2019 Effective Date: 06/11/2019 Last date noted as effective: 13/06/2022 Status: EFFECTIVE
A	170m E	Operator: FACTORY SERVICES UK LTD Installation Name: KNOWSLEY FEED MILL - EPR/LP3837FX Process: ANIMAL VEGETABLE AND FOOD; TREATING ETC VEGETABLE RAW MATERIALS FOR FOOD >300T/D Permit Number: LP3837FX Original Permit Number: LP3837FX	EPR Reference: - Issue Date: 04/05/2012 Effective Date: 04/05/2012 Last date noted as effective: 13/06/2022 Status: SUPERCEDED

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

4.11 Licensed pollutant release (Part A(2)/B)

Records within 500m

4

Records of Part A(2) and Part B installations regulated under the Environmental Permitting (England and Wales) Regulations 2016 for the release of substances to the environment.

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Address	Details	
B	195m SW	Otis, Moorgate Rd, Knowsley Industrial Park, Liverpool, L33 7XW	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
16	310m N	Product Release, Cusson Road, Knowsley Industrial Park, Kirkby, L33 7UD	Process: Coating Processes Status: Current Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified
17	358m N	Product Release, Cusson Road, Knowsley Industrial Park, Kirkby, L33 7UD	Process: Coating Processes Status: Historical Permit Permit Type: Part B	Enforcement: Enforcement Notified Date of enforcement: 18/12/1995, 18/03/2003 Comment: Section 13 enforcement.
22	477m E	Littlewoods Gale Rd, Knowsley Industrial Park, North Kirkby, L33 7YB	Process: Respraying of Road Vehicles Status: Historical Permit Permit Type: Part B	Enforcement: No Enforcements Notified Date of enforcement: No Enforcements Notified Comment: No Enforcements Notified

This data is sourced from Local Authority records.

4.12 Radioactive Substance Authorisations

Records within 500m

0

Records of the storage, use, accumulation and disposal of radioactive substances regulated under the Radioactive Substances Act 1993.

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

4.13 Licensed Discharges to controlled waters

Records within 500m

0

Discharges of treated or untreated effluent to controlled waters under the Water Resources Act 1991.

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



4.14 Pollutant release to surface waters (Red List)

Records within 500m**0**

Discharges of specified substances under the Environmental Protection (Prescribed Processes and Substances) Regulations 1991.

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

4.15 Pollutant release to public sewer

Records within 500m**0**

Discharges of Special Category Effluents to the public sewer.

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

4.16 List 1 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List I of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.17 List 2 Dangerous Substances

Records within 500m**0**

Discharges of substances identified on List II of European Directive E 2006/11/EC, and regulated under the Environmental Damage (Prevention and Remediation) Regulations 2015.

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

4.18 Pollution Incidents (EA/NRW)

Records within 500m**3**

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

Features are displayed on the Current industrial land use map on **page 34**

ID	Location	Details	
14	228m SE	Incident Date: 06/05/2005 Incident Identification: 310446 Pollutant: Inert Materials and Wastes Pollutant Description: Other Inert Material or Waste	Water Impact: Category 4 (No Impact) Land Impact: Category 2 (Significant) Air Impact: Category 4 (No Impact)
18	377m NE	Incident Date: 03/03/2003 Incident Identification: 140595 Pollutant: Inert Materials and Wastes Pollutant Description: Construction and Demolition Materials and Wastes	Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)
19	384m NE	Incident Date: 14/04/2003 Incident Identification: 151074 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

4.19 Pollution inventory substances

Records within 500m	0
----------------------------	----------

The pollution inventory (substances) includes reporting on annual emissions of certain regulated substances to air, controlled waters and land. A reporting threshold for each substance is also included. Where emissions fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

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

4.20 Pollution inventory waste transfers

Records within 500m	1
----------------------------	----------

The pollution inventory (waste transfers) includes reporting on annual transfers and recovery/disposal of controlled wastes from a site. A reporting threshold for each waste type is also included. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

Features are displayed on the Current industrial land use map on **page 34**

ID: A, Location: 171m E, Permit: LP3837FX
 Operator: Factory Services UK Ltd
 Activity: Animal vegetable and food treating etc vegetable
 Address: Knowsley Feed Mill Deacon Park Moorgate Road Knowsley Industrial Park Merseyside L33 7RX
 Sector: Food & Drink, Sub-sector: Food & Drink
 Releases:

Route	Route description	Quantity (tonnes)	Release level	EWC code	EWC description	Hazardous waste
R1	Use principally as a fuel or other means to generate energy	1406	Absolute Value	20 03 01	mixed municipal waste	0
R12	Exchange of wastes obtained from any of the operations numberd R1 to R11	296	Absolute Value	15 01 01	paper and cardboard packaging	0

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

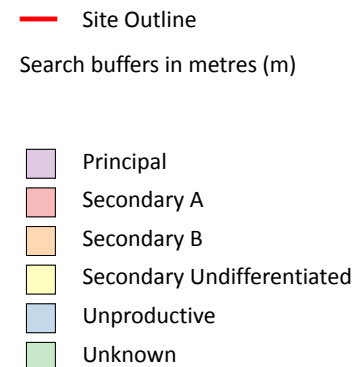
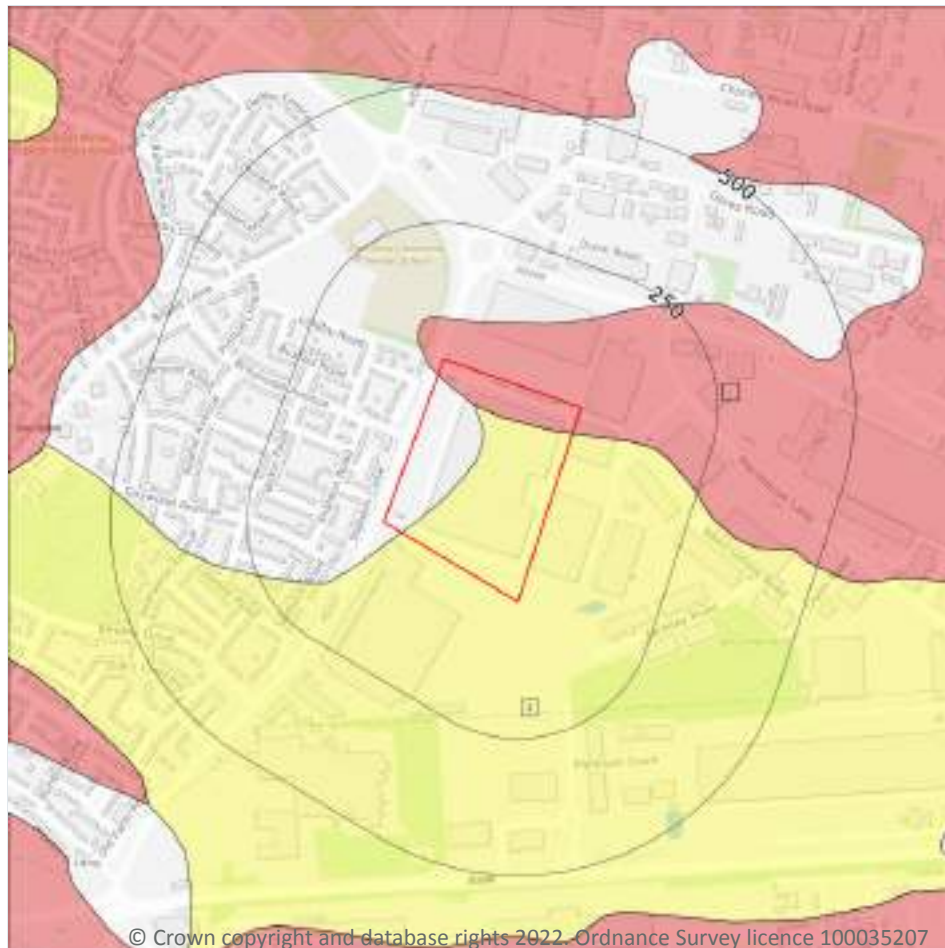
4.21 Pollution inventory radioactive waste

Records within 500m	0
----------------------------	----------

The pollution inventory (radioactive wastes) includes reporting on annual releases of radioactive substances from a site, including the means of release. Where releases fall below the reporting threshold, no value will be given. The data is given for the most recent complete year available.

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

5 Hydrogeology - Superficial aquifer



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

5.1 Superficial aquifer

Records within 500m

2

Aquifer status of groundwater held within superficial geology.

Features are displayed on the Hydrogeology map on **page 43**

ID	Location	Designation	Description
1	On site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
2	On site	Secondary Undifferentiated	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.



Bedrock aquifer



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

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

5.2 Bedrock aquifer

Records within 500m

1

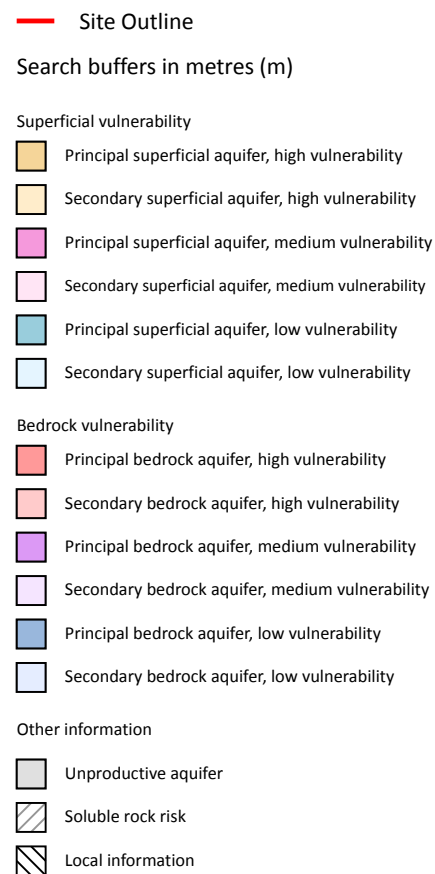
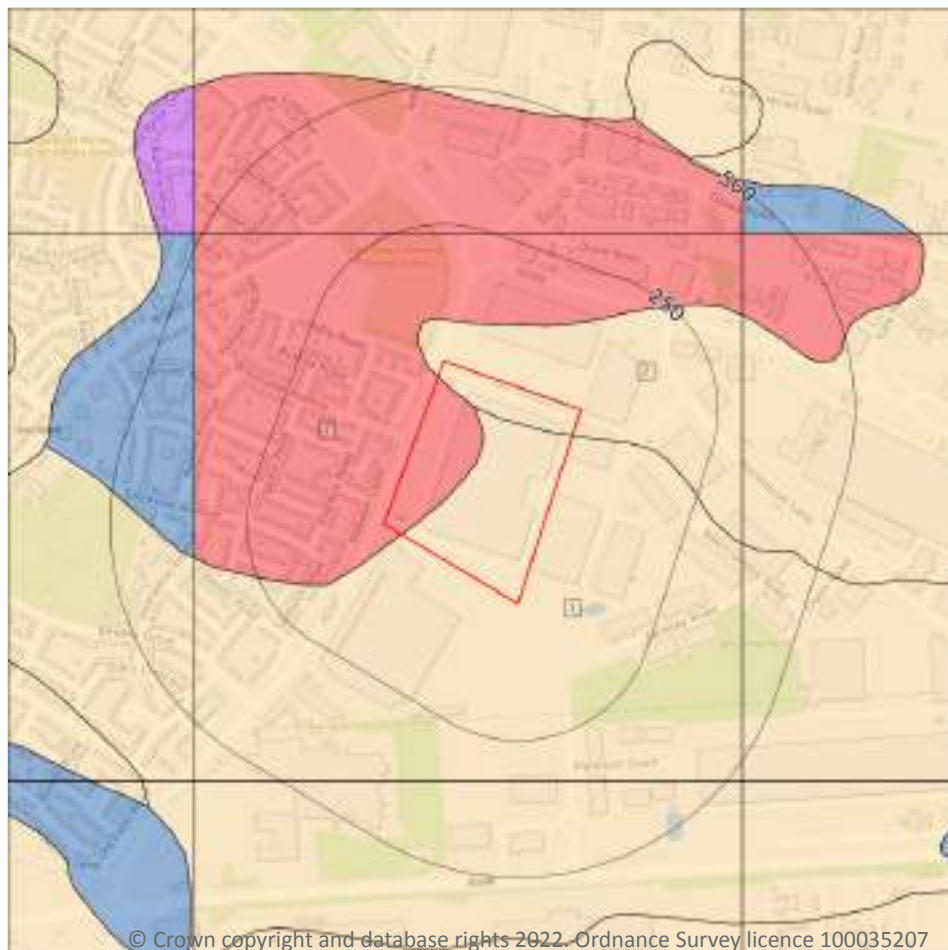
Aquifer status of groundwater held within bedrock geology.

Features are displayed on the Bedrock aquifer map on **page 45**

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

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

Groundwater vulnerability



5.3 Groundwater vulnerability

Records within 50m

3

An assessment of the vulnerability of groundwater to a pollutant discharged at ground level based on the hydrological, geological, hydrogeological and soil properties within a one kilometre square grid. Groundwater vulnerability is described as High, Medium or Low as follows:

- High - Areas able to easily transmit pollution to groundwater. They are likely to be characterised by high leaching soils and the absence of low permeability superficial deposits.
- Medium - Intermediate between high and low vulnerability.
- Low - Areas that provide the greatest protection from pollution. They are likely to be characterised by low leaching soils and/or the presence of superficial deposits characterised by a low permeability.

Features are displayed on the Groundwater vulnerability map on **page 46**

ID	Location	Summary	Soil / surface	Superficial geology	Bedrock geology
1	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300- 550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: Low	Vulnerability: High Aquifer type: Principal Flow mechanism: Mixed
2	On site	Summary Classification: Secondary superficial aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, Productive Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300- 550mm/year	Vulnerability: High Aquifer type: Secondary Thickness: <3m Patchiness value: <90% Recharge potential: Low	Vulnerability: High Aquifer type: Principal Flow mechanism: Mixed
3	On site	Summary Classification: Principal bedrock aquifer - High Vulnerability Combined classification: Productive Bedrock Aquifer, No Superficial Aquifer	Leaching class: High Infiltration value: >70% Dilution value: 300- 550mm/year	Vulnerability: - Aquifer type: - Thickness: <3m Patchiness value: <90% Recharge potential: Low	Vulnerability: High Aquifer type: Principal Flow mechanism: Mixed

This data is sourced from the British Geological Survey, the Environment Agency and Natural Resources Wales.

5.4 Groundwater vulnerability- soluble rock risk

Records on site

0

This dataset identifies areas where solution features that enable rapid movement of a pollutant may be present within a 1km grid square.

This data is sourced from the British Geological Survey and the Environment Agency.

5.5 Groundwater vulnerability- local information

Records on site

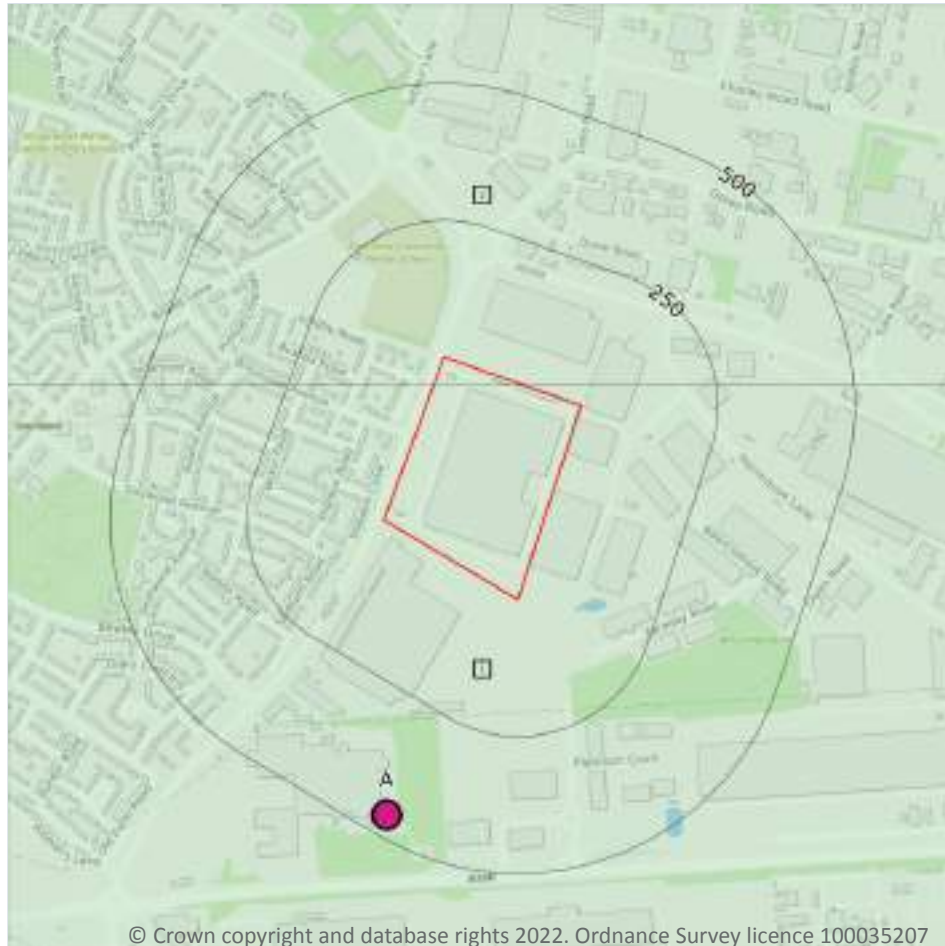
0

This dataset identifies areas where additional local information affecting vulnerability is held by the Environment Agency. Further information can be obtained by contacting the Environment Agency local Area groundwater team through the Environment Agency National Customer Call Centre on 03798 506 506 or by email on enquiries@environment-agency.gov.uk.

This data is sourced from the British Geological Survey and the Environment Agency.



Abstractions and Source Protection Zones



- Site Outline
- Search buffers in metres (m)
- 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
- Source Protection Zone 1c
Inner catchment - confined aquifer
- Source Protection Zone 2c
Outer catchment - confined aquifer
- Source Protection Zone 3c
Total catchment - confined aquifer
- Drinking water abstraction licences
Point features
- Drinking water abstraction licences
Polygon features
- Drinking water abstraction licences
Linear features
- Groundwater abstraction licence (point)
- Groundwater abstraction licence (area)
- Groundwater abstraction licence (linear)
- Surface Water Abstractions (point)
- Surface Water Abstractions (area)
- Surface Water Abstractions (linear)

5.6 Groundwater abstractions

Records within 2000m

41

Licensed groundwater abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, between two points (line data) or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 48**

ID	Location	Details	
A	461m S	Status: Historical Licence No: 2569031142 Details: Evaporative Cooling Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 11/08/2004 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 11/08/2004 Version End Date: -
A	461m S	Status: Historical Licence No: 2569031142 Details: Process Water Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 11/08/2004 Expiry Date: 31/03/2015 Issue No: 1 Version Start Date: 11/08/2004 Version End Date: -
A	461m S	Status: Historical Licence No: 2569031142R01 Details: Evaporative Cooling Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 2 Version Start Date: 13/06/2019 Version End Date: -
A	461m S	Status: Historical Licence No: 2569031142R01 Details: Process Water Direct Source: Ground Water - North West Region Point: LAND @ DAIRY CREST, KIRKBY Data Type: Point Name: DAIRY CREST LTD Easting: 342350 Northing: 396930	Annual Volume (m ³): 219000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 01/04/2015 Expiry Date: 31/03/2028 Issue No: 2 Version Start Date: 13/06/2019 Version End Date: -
-	803m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE ""B"" AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -

ID	Location	Details	
-	803m N	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE ""B""AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	803m N	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE "B"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	803m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE "B"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	803m N	Status: Historical Licence No: 2569031131 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE B AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	803m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE B AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342460 Northing: 398570	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -



ID	Location	Details	
-	813m N	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE ""A""AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	813m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: "BOREHOLE ""A""AT KIRKBY" Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	813m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE "A"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	813m N	Status: Historical Licence No: 2569031131 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE "A"AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	813m N	Status: Historical Licence No: 2569031131 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE A AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -



ID	Location	Details	
-	813m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE A AT KIRKBY Data Type: Point Name: LIVERPOOL FOOTBALL CLUB SOCCER ACADEMY Easting: 342450 Northing: 398580	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 600 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 1 Version Start Date: 28/09/1999 Version End Date: -
-	843m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150000 Max Daily Volume (m ³): 432 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 2 Version Start Date: 23/10/2014 Version End Date: -
-	843m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	843m N	Status: Historical Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: - Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -

ID	Location	Details	
-	843m N	Status: Active Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: NPS/WR/027992 Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	843m N	Status: Active Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342445 Northing: 398610	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: NPS/WR/027992 Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	1235m NE	Status: Active Licence No: 2569031090 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -
-	1235m NE	Status: Active Licence No: 2569031090 Details: Boiler Feed Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -

ID	Location	Details	
-	1235m NE	Status: Active Licence No: 2569031090 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -
-	1409m E	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1409m E	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1409m E	Status: Active Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL BOREHOLE AND WELLS AND BOREHOLES X 2 AT KNOWSLEY Data Type: Point Name: United Utilities Water Ltd Easting: 344000 Northing: 397100	Annual Volume (m ³): 2,074,000 Max Daily Volume (m ³): 7,500 Original Application No: NPS/WR/026423 Original Start Date: 16/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 26/11/2018 Version End Date: -



ID	Location	Details	
-	1428m N	Status: Active Licence No: 2569031131 Details: Spray Irrigation - Direct Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY 2 Data Type: Point Name: Liverpool Football Club & Athletic Grounds Limited Easting: 342734 Northing: 399168	Annual Volume (m ³): 150,000 Max Daily Volume (m ³): 792 Original Application No: NPS/WR/027992 Original Start Date: 28/09/1999 Expiry Date: - Issue No: 3 Version Start Date: 19/11/2019 Version End Date: -
-	1567m NE	Status: Historical Licence No: 2569031089 Details: General Use Relating To Secondary Category (Medium Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: AMES GOLDSMITH UK LTD Easting: 343800 Northing: 398800	Annual Volume (m ³): 90920 Max Daily Volume (m ³): 340.95 Original Application No: - Original Start Date: 01/07/1988 Expiry Date: - Issue No: 101 Version Start Date: 10/11/2006 Version End Date: -
-	1567m NE	Status: Active Licence No: 2569031089 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY Data Type: Point Name: AMES GOLDSMITH UK LTD Easting: 343800 Northing: 398800	Annual Volume (m ³): 90,920 Max Daily Volume (m ³): 340.95 Original Application No: NPS/WR/023235 Original Start Date: 01/07/1988 Expiry Date: - Issue No: 102 Version Start Date: 26/07/2016 Version End Date: -
-	1631m N	Status: Historical Licence No: 2569031146 Details: Non-Evaporative Cooling Direct Source: Ground Water - North West Region Point: SONAE BOREHOLE, KNOWSLEY, MERSEYSIDE Data Type: Point Name: Sonae (UK) Limited Easting: 342984 Northing: 399310	Annual Volume (m ³): 129600 Max Daily Volume (m ³): 356.53 Original Application No: - Original Start Date: 17/10/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 17/10/2008 Version End Date: -
-	1631m N	Status: Historical Licence No: 2569031146 Details: Process Water Direct Source: Ground Water - North West Region Point: SONAE BOREHOLE, KNOWSLEY, MERSEYSIDE Data Type: Point Name: Sonae (UK) Limited Easting: 342984 Northing: 399310	Annual Volume (m ³): 129600 Max Daily Volume (m ³): 356.53 Original Application No: - Original Start Date: 17/10/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 17/10/2008 Version End Date: -



ID	Location	Details	
-	1631m N	Status: Historical Licence No: 2569031146 Details: Dust Suppression Direct Source: Ground Water - North West Region Point: SONAE BOREHOLE, KNOWSLEY, MERSEYSIDE Data Type: Point Name: Sonae (UK) Limited Easting: 342984 Northing: 399310	Annual Volume (m ³): 129600 Max Daily Volume (m ³): 356.53 Original Application No: - Original Start Date: 17/10/2008 Expiry Date: 31/03/2016 Issue No: 1 Version Start Date: 17/10/2008 Version End Date: -
-	1686m SW	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS, ADITS & HEADINGS@KNOWSLEY RANGLES BRIDGE 215 Data Type: Point Name: NORTH WEST WATER LTD Easting: 340900 Northing: 396600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -
-	1686m SW	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "B/HOLES, WELLS, ADITS & HEADINGS@KNOWSLEY RANGLES BRIDGE \$215" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 340900 Northing: 396600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -
-	1686m SW	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS, ADITS & HEADINGS@KNOWSLEY RANGLES BRIDGE \$215 Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 340900 Northing: 396600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -

ID	Location	Details	
-	1686m SW	Status: Active Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS, ADITS & HEADINGS AT KNOWSLEY RANGLES BRIDGE Data Type: Point Name: United Utilities Water Ltd Easting: 340900 Northing: 396600	Annual Volume (m ³): 2,905,000 Max Daily Volume (m ³): 9,092.18 Original Application No: NPS/WR/026426 Original Start Date: 02/11/1966 Expiry Date: - Issue No: 102 Version Start Date: 26/11/2018 Version End Date: -
-	1781m NE	Status: Historical Licence No: 2569031011 Details: Process water Direct Source: Ground Water - North West Region Point: "BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE" Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -
-	1781m NE	Status: Historical Licence No: 2569031011 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: "BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE" Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -
-	1781m NE	Status: Historical Licence No: 2569031011 Details: General Cooling (Existing Licences Only) (Low Loss) Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): 1,591,135 Max Daily Volume (m ³): 5237.11 Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -

ID	Location	Details	
-	1781m NE	Status: Historical Licence No: 2569031011 Details: Process Water Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE KIRKBY, MERSEYSIDE Data Type: Point Name: PILKINGTON BROTHERS LTD Easting: 343900 Northing: 399000	Annual Volume (m ³): 1,591,135 Max Daily Volume (m ³): 5237.11 Original Application No: - Original Start Date: 28/01/1966 Expiry Date: - Issue No: 100 Version Start Date: 28/01/1966 Version End Date: -

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

5.7 Surface water abstractions

Records within 2000m	0
-----------------------------	----------

Licensed surface water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

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

5.8 Potable abstractions

Records within 2000m	8
-----------------------------	----------

Licensed potable water abstractions for sites extracting more than 20 cubic metres of water a day and includes active and historical records. The data may be for a single abstraction point, a stretch of watercourse or a larger area.

Features are displayed on the Abstractions and Source Protection Zones map on **page 48**

ID	Location	Details	
-	1235m NE	Status: Active Licence No: 2569031090 Details: Drinking, Cooking, Sanitary, Washing, (Small Garden) - Commercial/Industrial/Public Services Direct Source: Ground Water - North West Region Point: BOREHOLE AT KIRKBY INDUSTRIAL ESTATE Data Type: Point Name: Baker Hughes Limited Easting: 343400 Northing: 398700	Annual Volume (m ³): 250,030 Max Daily Volume (m ³): 818.28 Original Application No: NPS/WR/006045 Original Start Date: 20/01/1989 Expiry Date: - Issue No: 101 Version Start Date: 18/03/2011 Version End Date: -

ID	Location	Details	
-	1409m E	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1409m E	Status: Historical Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL, BOREHOLE AND WELLS AND BOREHOLES (2) AT KNOWSLEY Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 344000 Northing: 397100	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 16/03/1966 Expiry Date: - Issue No: 100 Version Start Date: 16/03/1966 Version End Date: -
-	1409m E	Status: Active Licence No: 2569031016 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: WELL BOREHOLE AND WELLS AND BOREHOLES X 2 AT KNOWSLEY Data Type: Point Name: United Utilities Water Ltd Easting: 344000 Northing: 397100	Annual Volume (m ³): 2,074,000 Max Daily Volume (m ³): 7,500 Original Application No: NPS/WR/026423 Original Start Date: 16/03/1966 Expiry Date: - Issue No: 102 Version Start Date: 26/11/2018 Version End Date: -
-	1686m SW	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS,ADITS & HEADINGS@KNOWSLEY RANGLES BRIDGE215 Data Type: Point Name: NORTH WEST WATER LTD Easting: 340900 Northing: 396600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -

ID	Location	Details	
-	1686m SW	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: "B/HOLES, WELLS,ADITS & HEADINGS@KNOWSLEY RANGLES BRIDGE \$215" Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 340900 Northing: 396600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -
-	1686m SW	Status: Historical Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS,ADITS & HEADINGS@KNOWSLEY RANGLES BRIDGE \$215 Data Type: Point Name: UNITED UTILITIES WATER PLC Easting: 340900 Northing: 396600	Annual Volume (m ³): - Max Daily Volume (m ³): - Original Application No: - Original Start Date: 02/11/1966 Expiry Date: - Issue No: 100 Version Start Date: 10/02/1995 Version End Date: -
-	1686m SW	Status: Active Licence No: 2569031024 Details: Potable Water Supply - Direct Direct Source: Ground Water - North West Region Point: B/HOLES, WELLS,ADITS & HEADINGS AT KNOWSLEY RANGLES BRIDGE Data Type: Point Name: United Utilities Water Ltd Easting: 340900 Northing: 396600	Annual Volume (m ³): 2,905,000 Max Daily Volume (m ³): 9,092.18 Original Application No: NPS/WR/026426 Original Start Date: 02/11/1966 Expiry Date: - Issue No: 102 Version Start Date: 26/11/2018 Version End Date: -

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

5.9 Source Protection Zones

Records within 500m	2
----------------------------	----------

Source Protection Zones define the sensitivity of an area around a potable abstraction site to contamination. Features are displayed on the Abstractions and Source Protection Zones map on **page 48**

ID	Location	Type	Description
1	On site	3	Total catchment
2	On site	3	Total catchment

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



5.10 Source Protection Zones (confined aquifer)

Records within 500m

0

Source Protection Zones in the confined aquifer define the sensitivity around a deep groundwater abstraction to contamination. A confined aquifer would normally be protected from contamination by overlying geology and is only considered a sensitive resource if deep excavation/drilling is taking place.

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



6 Hydrology



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

6.1 Water Network (OS MasterMap)

Records within 250m

1

Detailed water network of Great Britain showing the flow and precise central course of every river, stream, lake and canal.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type of water feature	Ground level	Permanence	Name
5	247m S	Inland river not influenced by normal tidal action.	On ground surface	Watercourse contains water year round (in normal circumstances)	-

This data is sourced from the Ordnance Survey.



6.2 Surface water features

Records within 250m

1

Covering rivers, streams and lakes (some overlap with OS MasterMap Water Network data in previous section) but additionally covers smaller features such as ponds. Rivers and streams narrower than 5m are represented as a single line. Lakes, ponds and rivers or streams wider than 5m are represented as polygons.

Features are displayed on the Hydrology map on **page 62**

This data is sourced from the Ordnance Survey.

6.3 WFD Surface water body catchments

Records on site

2

The Water Framework Directive is an EU-led framework for the protection of inland surface waters, estuaries, coastal waters and groundwater through river basin-level management planning. In terms of surface water, these basins are broken down into smaller units known as management, operational and water body catchments.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type	Water body catchment	Water body ID	Operational catchment	Management catchment
1	On site	River	Croxteth/Knowsley Brook	GB112069060610	Alt	Alt and Crossens
2	On site	River	Simonswood Brook	GB112069060630	Alt	Alt and Crossens

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

6.4 WFD Surface water bodies

Records identified

2

Surface water bodies under the Directive may be rivers, lakes, estuary or coastal. To achieve the purpose of the Directive, environmental objectives have been set and are reported on for each water body. The progress towards delivery of the objectives is then reported on by the relevant competent authorities at the end of each six-year cycle. The river water body directly associated with the catchment listed in the previous section is detailed below, along with any lake, canal, coastal or artificial water body within 250m of the site. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each water body listed.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Type	Name	Water body ID	Overall rating	Chemical rating	Ecological rating	Year
-	606m SE	River	Croxteth/Knowsley Brook	GB112069060610	Moderate	Fail	Moderate	2019
-	1698m W	River	Simonswood Brook	GB112069060630	Moderate	Fail	Moderate	2019

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

6.5 WFD Groundwater bodies

Records on site

1

Groundwater bodies are also covered by the Directive and the same regime of objectives and reporting detailed in the previous section is in place. Click on the water body ID in the table to visit the EA Catchment Explorer to find out more about each groundwater body listed.

Features are displayed on the Hydrology map on **page 62**

ID	Location	Name	Water body ID	Overall rating	Chemical rating	Quantitative	Year
3	On site	Lower Mersey Basin and North Merseyside Permo-Triassic Sandstone Aquifers	GB41201G101700	Poor	Poor	Poor	2019

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



7 River and coastal flooding

7.1 Risk of flooding from rivers and the sea

Records within 50m

0

The chance of flooding from rivers and/or the sea in any given year, based on cells of 50m within the Risk of Flooding from Rivers and Sea (RoFRaS)/Flood Risk Assessment Wales (FRAW) models. Each cell is allocated one of four flood risk categories, taking into account flood defences and their condition. The risk categories for RoFRaS for rivers and the sea and FRAW for rivers are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 100 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 100 chance) or High (greater than or equal to 1 in 30 chance). The risk categories for FRAW for the sea are; Very low (less than 1 in 1000 chance in any given year), Low (less than 1 in 200 but greater than or equal to 1 in 1000 chance), Medium (less than 1 in 30 but greater than or equal to 1 in 200 chance) or High (greater than or equal to 1 in 30 chance).

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

7.2 Historical Flood Events

Records within 250m

0

Records of historic flooding from rivers, the sea, groundwater and surface water. Records began in 1946 when predecessor bodies started collecting detailed information about flooding incidents, although limited details may be included on flooding incidents prior to this date. Takes into account the presence of defences, structures, and other infrastructure where they existed at the time of flooding, and includes flood extents that may have been affected by overtopping, breaches or blockages.

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

7.3 Flood Defences

Records within 250m

0

Records of flood defences owned, managed or inspected by the Environment Agency and Natural Resources Wales. Flood defences can be structures, buildings or parts of buildings. Typically these are earth banks, stone and concrete walls, or sheet-piling that is used to prevent or control the extent of flooding.

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

7.4 Areas Benefiting from Flood Defences

Records within 250m

0

Areas that would benefit from the presence of flood defences in a 1 in 100 (1%) chance of flooding each year from rivers or 1 in 200 (0.5%) chance of flooding each year from the sea.

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

7.5 Flood Storage Areas

Records within 250m

0

Areas that act as a balancing reservoir, storage basin or balancing pond to attenuate an incoming flood peak to a flow level that can be accepted by the downstream channel or to delay the timing of a flood peak so that its volume is discharged over a longer period.

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



River and coastal flooding - Flood Zones

7.6 Flood Zone 2

Records within 50m	0
--------------------	---

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land between Flood Zone 3 (see next section) and the extent of the flooding from rivers or the sea with a 1 in 1000 (0.1%) chance of flooding each year.

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

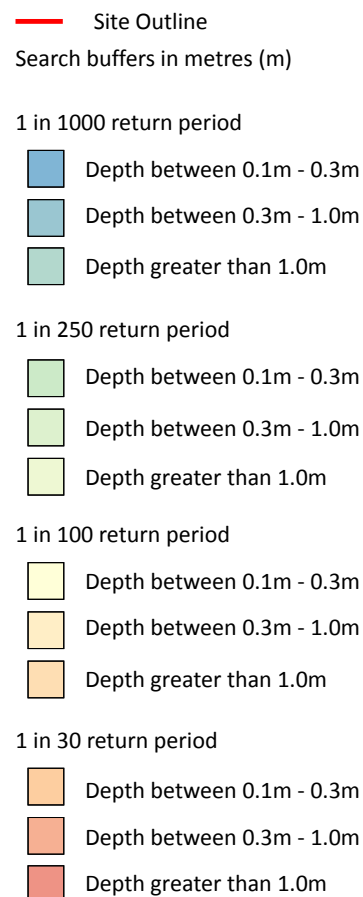
7.7 Flood Zone 3

Records within 50m	0
--------------------	---

Areas of land at risk of flooding, when the presence of flood defences are ignored. Covering land with a 1 in 100 (1%) or greater chance of flooding each year from rivers or a 1 in 200 (0.5%) or greater chance of flooding each year from the sea.

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

8 Surface water flooding



8.1 Surface water flooding

Highest risk on site

1 in 30 year, 0.3m - 1.0m

Highest risk within 50m

1 in 30 year, 0.3m - 1.0m

Ambiental Risk Analytics surface water (pluvial) FloodMap identifies areas likely to flood as a result of extreme rainfall events, i.e. land naturally vulnerable to surface water ponding or flooding. This data set was produced by simulating 1 in 30 year, 1 in 100 year, 1 in 250 year and 1 in 1,000 year rainfall events. Modern urban drainage systems are typically built to cope with rainfall events between 1 in 20 and 1 in 30 years, though some older ones may flood in a 1 in 5 year rainfall event.

Features are displayed on the Surface water flooding map on **page 68**

The data shown on the map and in the table above shows the highest likelihood of flood events happening at the site. Lower likelihood events may have greater flood depths and hence a greater potential impact on a site.

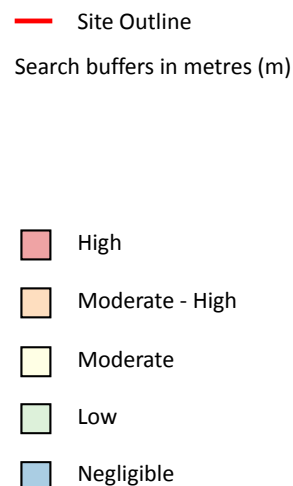
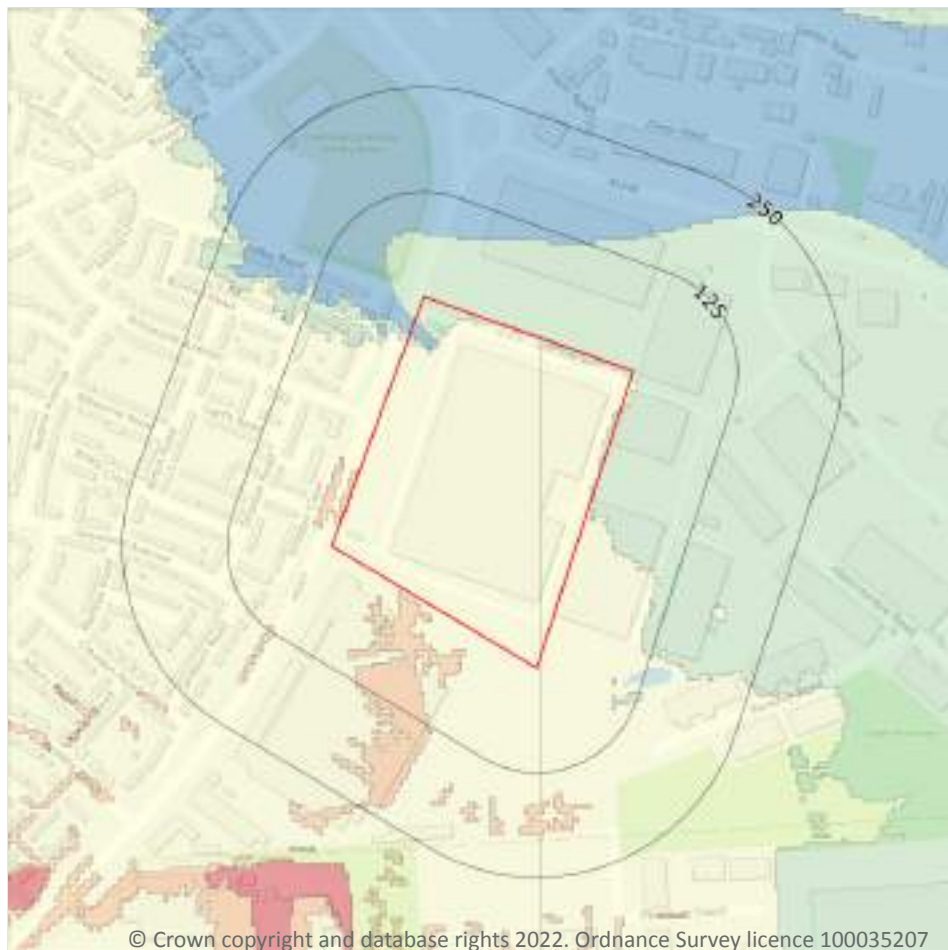
The table below shows the maximum flood depths for a range of return periods for the site.

Return period	Maximum modelled depth
1 in 1000 year	Between 0.3m and 1.0m
1 in 250 year	Between 0.3m and 1.0m
1 in 100 year	Between 0.3m and 1.0m
1 in 30 year	Between 0.3m and 1.0m

This data is sourced from Ambiental Risk Analytics.



9 Groundwater flooding



9.1 Groundwater flooding

Highest risk on site

Moderate-High

Highest risk within 50m

Moderate-High

Groundwater flooding is caused by unusually high groundwater levels. It occurs when the water table rises above the ground surface or within underground structures such as basements or cellars. Groundwater flooding tends to exhibit a longer duration than surface water flooding, possibly lasting for weeks or months, and as a result it can cause significant damage to property. This risk assessment is based on a 1 in 100 year return period and a 5m Digital Terrain Model (DTM).

Features are displayed on the Groundwater flooding map on **page 70**

This data is sourced from Ambiantal Risk Analytics.

10 Environmental designations



- Site Outline
- Search buffers in metres (m)
- + Local Nature Reserves (LNR)
- ▨ Green Belt

10.1 Sites of Special Scientific Interest (SSSI)

Records within 2000m

0

Sites providing statutory protection for the best examples of UK flora, fauna, or geological or physiographical features. Originally notified under the National Parks and Access to the Countryside Act 1949, SSSIs were re-notified under the Wildlife and Countryside Act 1981. Improved provisions for the protection and management of SSSIs were introduced by the Countryside and Rights of Way Act 2000 (in England and Wales) and (in Scotland) by the Nature Conservation (Scotland) Act 2004 and the Wildlife and Natural Environment (Scotland) Act 2010.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.2 Conserved wetland sites (Ramsar sites)

Records within 2000m**0**

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. They cover all aspects of wetland conservation and wise use, recognizing wetlands as ecosystems that are extremely important for biodiversity conservation in general and for the well-being of human communities. These sites cover a broad definition of wetland; marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, and even some marine areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.3 Special Areas of Conservation (SAC)

Records within 2000m**0**

Areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.4 Special Protection Areas (SPA)

Records within 2000m**0**

Sites classified by the UK Government under the EC Birds Directive, SPAs are areas of the most important habitat for rare (listed on Annex I to the Directive) and migratory birds within the European Union.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.5 National Nature Reserves (NNR)

Records within 2000m**0**

Sites containing examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats, provide special opportunities for scientific study or to provide public recreation compatible with natural heritage interests.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.6 Local Nature Reserves (LNR)

Records within 2000m**2**

Sites managed for nature conservation, and to provide opportunities for research and education, or simply enjoying and having contact with nature. They are declared by local authorities under the National Parks and Access to the Countryside Act 1949 after consultation with the relevant statutory nature conservation agency.

Features are displayed on the Environmental designations map on **page 71**

ID	Location	Name	Data source
1	739m E	Acornfield Plantation	Natural England
-	1682m SW	Croxteth	Natural England

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.7 Designated Ancient Woodland

Records within 2000m**0**

Ancient woodlands are classified as areas which have been wooded continuously since at least 1600 AD. This includes semi-natural woodland and plantations on ancient woodland sites. 'Wooded continuously' does not mean there is or has previously been continuous tree cover across the whole site, and not all trees within the woodland have to be old.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.8 Biosphere Reserves

Records within 2000m**0**

Biosphere Reserves are internationally recognised by UNESCO as sites of excellence to balance conservation and socioeconomic development between nature and people. They are recognised under the Man and the Biosphere (MAB) Programme with the aim of promoting sustainable development founded on the work of the local community.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.9 Forest Parks

Records within 2000m**0**

These are areas managed by the Forestry Commission designated on the basis of recreational, conservation or scenic interest.

This data is sourced from the Forestry Commission.



10.10 Marine Conservation Zones

Records within 2000m

0

A type of marine nature reserve in UK waters established under the Marine and Coastal Access Act (2009). They are designated with the aim to protect nationally important, rare or threatened habitats and species.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

10.11 Green Belt

Records within 2000m

3

Areas designated to prevent urban sprawl by keeping land permanently open.

Features are displayed on the Environmental designations map on **page 71**

ID	Location	Name	Local Authority name
2	820m SW	Merseyside and Greater Manchester	Knowsley
3	1635m SW	Merseyside and Greater Manchester	Liverpool
-	1848m NE	Merseyside and Greater Manchester	West Lancashire

This data is sourced from the Ministry of Housing, Communities and Local Government.

10.12 Proposed Ramsar sites

Records within 2000m

0

Ramsar sites are areas listed as a Wetland of International Importance under the Convention on Wetlands of International Importance especially as Waterfowl Habitat (the Ramsar Convention) 1971. The sites here supplied have a status of 'Proposed' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.13 Possible Special Areas of Conservation (pSAC)

Records within 2000m

0

Special Areas of Conservation are areas which have been identified as best representing the range and variety within the European Union of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the EC Habitats Directive. Those sites supplied here are those with a status of 'Possible' having been identified for potential adoption under the framework.

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



10.14 Potential Special Protection Areas (pSPA)

Records within 2000m**0**

Special Protection Areas (SPAs) are areas designated (or 'classified') under the European Union Wild Birds Directive for the protection of nationally and internationally important populations of wild birds. Those sites supplied here are those with a status of 'Potential' having been identified for potential adoption under the framework.

This data is sourced from Natural England.

10.15 Nitrate Sensitive Areas

Records within 2000m**0**

Areas where nitrate concentrations in drinking water sources exceeded or was at risk of exceeding the limit of 50 mg/l set by the 1980 EC Drinking Water Directive. Voluntary agricultural measures as a means of reducing the levels of nitrate were introduced by DEFRA as MAFF, with payments being made to farmers who complied. The scheme was started as a pilot in 1990 in ten areas, later implemented within 32 areas. The scheme was closed to further new entrants in 1998, although existing agreements continued for their full term. All Nitrate Sensitive Areas fell within the areas designated as Nitrate Vulnerable Zones (NVZs) in 1996 under the EC Nitrate Directive (91/676/EEC).

This data is sourced from Natural England.

10.16 Nitrate Vulnerable Zones

Records within 2000m**3**

Areas at risk from agricultural nitrate pollution designated under the EC Nitrate Directive (91/676/EEC). These are areas of land that drain into waters polluted by nitrates. Farmers operating within these areas have to follow mandatory rules to tackle nitrate loss from agriculture.

Location	Name	Type	NVZ ID	Status
On site	ALT NVZ	Surface Water	642	Existing
1342m S	ALT NVZ	Surface Water	642	Existing
1387m E	ALT NVZ	Surface Water	642	Existing

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



SSSI Impact Zones and Units

10.17 SSSI Impact Risk Zones

Records on site	0
-----------------	---

Developed to allow rapid initial assessment of the potential risks to SSSIs posed by development proposals. They define zones around each SSSI which reflect the particular sensitivities of the features for which it is notified and indicate the types of development proposal which could potentially have adverse impacts.

This data is sourced from Natural England.

10.18 SSSI Units

Records within 2000m	0
----------------------	---

Divisions of SSSIs used to record management and condition details. Units are the smallest areas for which Natural England gives a condition assessment, however, the size of units varies greatly depending on the types of management and the conservation interest.

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

11 Visual and cultural designations

11.1 World Heritage Sites

Records within 250m

0

Sites designated for their globally important cultural or natural interest requiring appropriate management and protection measures. World Heritage Sites are designated to meet the UK's commitments under the World Heritage Convention.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.2 Area of Outstanding Natural Beauty

Records within 250m

0

Areas of Outstanding Natural Beauty (AONB) are conservation areas, chosen because they represent 18% of the finest countryside. Each AONB has been designated for special attention because of the quality of their flora, fauna, historical and cultural associations, and/or scenic views. The National Parks and Access to the Countryside Act of 1949 created AONBs and the Countryside and Rights of Way Act, 2000 added further regulation and protection. There are likely to be restrictions to some developments within these areas.

This data is sourced from Natural England, Natural Resources Wales and Scottish Natural Heritage.

11.3 National Parks

Records within 250m

0

In England and Wales, the purpose of National Parks is to conserve and enhance landscapes within the countryside whilst promoting public enjoyment of them and having regard for the social and economic well-being of those living within them. In Scotland National Parks have the additional purpose of promoting the sustainable use of the natural resources of the area and the sustainable social and economic development of its communities. The National Parks and Access to the Countryside Act 1949 established the National Park designation in England and Wales, and The National Parks (Scotland) Act 2000 in Scotland.

This data is sourced from Natural England, Natural Resources Wales and the Scottish Government.

11.4 Listed Buildings

Records within 250m

0

Buildings listed for their special architectural or historical interest. Building control in the form of 'listed building consent' is required in order to make any changes to that building which might affect its special interest. Listed buildings are graded to indicate their relative importance, however building controls apply to all buildings equally, irrespective of their grade, and apply to the interior and exterior of the building in its entirety, together with any curtilage structures.



This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.5 Conservation Areas

Records within 250m

0

Local planning authorities are obliged to designate as conservation areas any parts of their own area that are of special architectural or historic interest, the character and appearance of which it is desirable to preserve or enhance. Designation of a conservation area gives broader protection than the listing of individual buildings. All the features within the area, listed or otherwise, are recognised as part of its character. Conservation area designation is the means of recognising the importance of all factors and of ensuring that planning decisions address the quality of the landscape in its broadest sense.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.6 Scheduled Ancient Monuments

Records within 250m

0

A scheduled monument is an historic building or site that is included in the Schedule of Monuments kept by the Secretary of State for Digital, Culture, Media and Sport. The regime is set out in the Ancient Monuments and Archaeological Areas Act 1979. The Schedule of Monuments has c.20,000 entries and includes sites such as Roman remains, burial mounds, castles, bridges, earthworks, the remains of deserted villages and industrial sites. Monuments are not graded, but all are, by definition, considered to be of national importance.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.

11.7 Registered Parks and Gardens

Records within 250m

0

Parks and gardens assessed to be of particular interest and of special historic interest. The emphasis being on 'designed' landscapes, rather than on planting or botanical importance. Registration is a 'material consideration' in the planning process, meaning that planning authorities must consider the impact of any proposed development on the special character of the landscape.

This data is sourced from Historic England, Cadw and Historic Environment Scotland.



12 Agricultural designations



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

- Site Outline
- Search buffers in metres (m)
- Grade 1 - excellent quality
- Grade 2 - very good quality
- Grade 3 - good to moderate quality
- Grade 3a - good quality
- Grade 3b - moderate quality
- Grade 4 - poor quality
- Grade 5 - very poor quality
- Non-agricultural land
- Urban land
- Exclusion land
- Tree felling licences
- Open Access land

12.1 Agricultural Land Classification

Records within 250m

1

Classification of the quality of agricultural land taking into consideration multiple factors including climate, physical geography and soil properties. It should be noted that the categories for the grading of agricultural land are not consistent across England, Wales and Scotland.

Features are displayed on the Agricultural designations map on **page 79**

ID	Location	Classification	Description
1	On site	Urban	-

This data is sourced from Natural England.



12.2 Open Access Land

Records within 250m

0

The Countryside and Rights of Way Act 2000 (CROW Act) gives a public right of access to land without having to use paths. Access land includes mountains, moors, heaths and downs that are privately owned. It also includes common land registered with the local council and some land around the England Coast Path. Generally permitted activities on access land are walking, running, watching wildlife and climbing.

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

12.3 Tree Felling Licences

Records within 250m

0

Felling Licence Application (FLA) areas approved by Forestry Commission England. Anyone wishing to fell trees must ensure that a licence or permission under a grant scheme has been issued by the Forestry Commission before any felling is carried out or that one of the exceptions apply.

This data is sourced from the Forestry Commission.

12.4 Environmental Stewardship Schemes

Records within 250m

0

Environmental Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. The schemes identified may be historical schemes that have now expired, or may still be active.

This data is sourced from Natural England.

12.5 Countryside Stewardship Schemes

Records within 250m

0

Countryside Stewardship covers a range of schemes that provide financial incentives to farmers, foresters and land managers to look after and improve the environment. Main objectives are to improve the farmed environment for wildlife and to reduce diffuse water pollution.

This data is sourced from Natural England.

13 Habitat designations



- Site Outline
- Search buffers in metres (m)
- Priority Habitat Inventory
- Open Mosaic Habitat
- Limestone Pavement Orders
- Habitat Networks
- Primary Habitat
- Restorable Habitat
- Associated Habitats
- Habitat Restoration-Creation
- Network Enhancement Zone 1
- Network Enhancement Zone 2

© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

13.1 Priority Habitat Inventory

Records within 250m

4

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

Features are displayed on the Habitat designations map on **page 81**

ID	Location	Main Habitat	Other habitats
1	6m S	Good quality semi-improved grassland	Main habitat: GQSIG (INV > 50%)
2	73m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
3	75m NE	Deciduous woodland	Main habitat: DWOOD (INV > 50%)
4	168m SE	Good quality semi-improved grassland	Main habitat: GQSIG (INV > 50%)

This data is sourced from Natural England.

13.2 Habitat Networks

Records within 250m

0

Habitat networks for 18 priority habitat networks (based primarily, but not exclusively, on the priority habitat inventory) and areas suitable for the expansion of networks through restoration and habitat creation.

This data is sourced from Natural England.

13.3 Open Mosaic Habitat

Records within 250m

1

Sites verified as Open Mosaic Habitat. Mosaic habitats are brownfield sites that are identified under the UK Biodiversity Action Plan as a priority habitat due to the habitat variation within a single site, supporting an array of invertebrates.

Features are displayed on the Habitat designations map on **page 81**

ID	Location	Site reference	Identification confidence	Primary source	Secondary source	Tertiary source
5	168m SE	NLUD Ref: 430500230	Low	National Land Use Database - Previously Developed Land	UK Perspectives Aerial Photography	-

This data is sourced from Natural England.

13.4 Limestone Pavement Orders

Records within 250m

0

Limestone pavements are outcrops of limestone where the surface has been worn away by natural means over millennia. These rocks have the appearance of paving blocks, hence their name. Not only do they have geological interest, they also provide valuable habitats for wildlife. These habitats are threatened due to their removal for use in gardens and water features. Many limestone pavements have been designated as SSSIs which affords them some protection. In addition, Section 34 of the Wildlife and Countryside Act 1981 gave them additional protection via the creation of Limestone Pavement Orders, which made it a criminal offence to remove any part of the outcrop. The associated Limestone Pavement Priority Habitat is part of the UK Biodiversity Action Plan priority habitat in England.

This data is sourced from Natural England.



14 Geology 1:10,000 scale - Availability



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

14.1 10k Availability

Records within 500m

1

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

Features are displayed on the Geology 1:10,000 scale - Availability map on **page 83**

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

This data is sourced from the British Geological Survey.

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

14.2 Artificial and made ground (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Superficial

14.3 Superficial geology (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

14.4 Landslip (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



Geology 1:10,000 scale - Bedrock

14.5 Bedrock geology (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

14.6 Bedrock faults and other linear features (10k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



15 Geology 1:50,000 scale - Availability



— Site Outline

Search buffers in metres (m)

□ Geological map tile

15.1 50k Availability

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Availability map on **page 87**

ID	Location	Artificial	Superficial	Bedrock	Mass movement	Sheet No.
1	On site	No coverage	Full	Full	No coverage	EW084_wigan_v4

This data is sourced from the British Geological Survey.

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



- Site Outline
- Search buffers in metres (m)
- Made ground
 - Worked ground
 - Infilled ground
 - Disturbed ground
 - Landscaped ground

15.2 Artificial and made ground (50k)

Records within 500m

2

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

Features are displayed on the Geology 1:50,000 scale - Artificial and made ground map on **page 88**

ID	Location	LEX Code	Description	Rock description
1	On site	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT
2	207m N	MGR-ARTDP	MADE GROUND (UNDIVIDED)	ARTIFICIAL DEPOSIT

This data is sourced from the British Geological Survey.

15.3 Artificial ground permeability (50k)

Records within 50m**1**

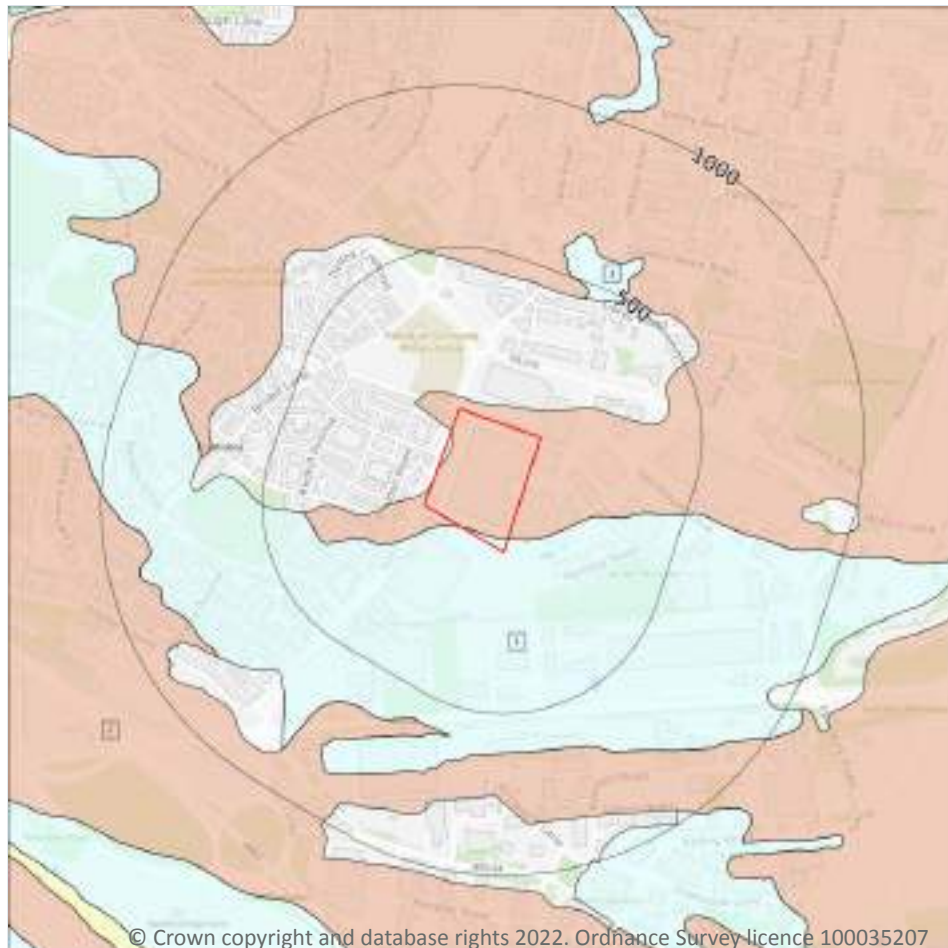
A qualitative classification of estimated rates of vertical movement of water from the ground surface through the unsaturated zone of any artificial deposits (the zone between the land surface and the water table).

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	Very High	Low

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Superficial



— Site Outline

Search buffers in metres (m)

Landslip (50k)

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

15.4 Superficial geology (50k)

Records within 500m

3

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

Features are displayed on the Geology 1:50,000 scale - Superficial map on **page 90**

ID	Location	LEX Code	Description	Rock description
1	On site	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON
2	On site	SSA-S	SHIRDLEY HILL SAND FORMATION	SAND
3	450m NE	TILLD-DMTN	TILL, DEVENSIAN	DIAMICTON

This data is sourced from the British Geological Survey.

15.5 Superficial permeability (50k)

Records within 50m

2

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Intergranular	High	High
On site	Mixed	High	Low

This data is sourced from the British Geological Survey.

15.6 Landslip (50k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.

15.7 Landslip permeability (50k)

Records within 50m

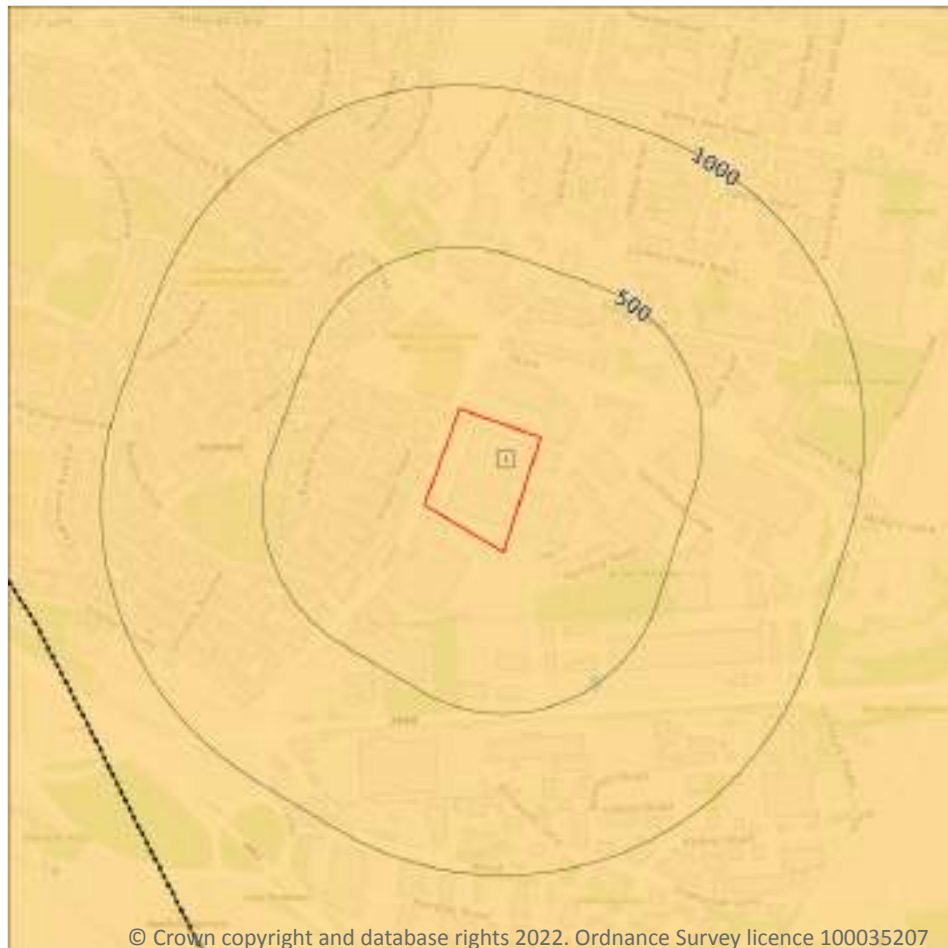
0

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

This data is sourced from the British Geological Survey.



Geology 1:50,000 scale - Bedrock



— Site Outline

Search buffers in metres (m)

.... Bedrock faults and other linear features (50k)

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

15.8 Bedrock geology (50k)

Records within 500m

1

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

Features are displayed on the Geology 1:50,000 scale - Bedrock map on **page 92**

ID	Location	LEX Code	Description	Rock age
1	On site	CHES-SDST	CHESTER FORMATION - SANDSTONE	OLENEKIAN

This data is sourced from the British Geological Survey.

15.9 Bedrock permeability (50k)

Records within 50m

1

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

Location	Flow type	Maximum permeability	Minimum permeability
On site	Mixed	High	Moderate

This data is sourced from the British Geological Survey.

15.10 Bedrock faults and other linear features (50k)

Records within 500m

0

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

This data is sourced from the British Geological Survey.



16 Boreholes



— Site Outline
Search buffers in metres (m)

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

16.1 BGS Boreholes

Records within 250m

9

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

Features are displayed on the Boreholes map on **page 94**

ID	Location	Grid reference	Name	Length	Confidential	Web link
1	43m SW	342305 397455	MERSEYTRAM LINE 1 1341	-	Y	N/A
2	67m N	342452 397834	MERSEYTRAM LINE 1 1342	-	Y	N/A
3	132m SW	342266 397364	MERSEYTRAM LINE 1 1340	-	Y	N/A

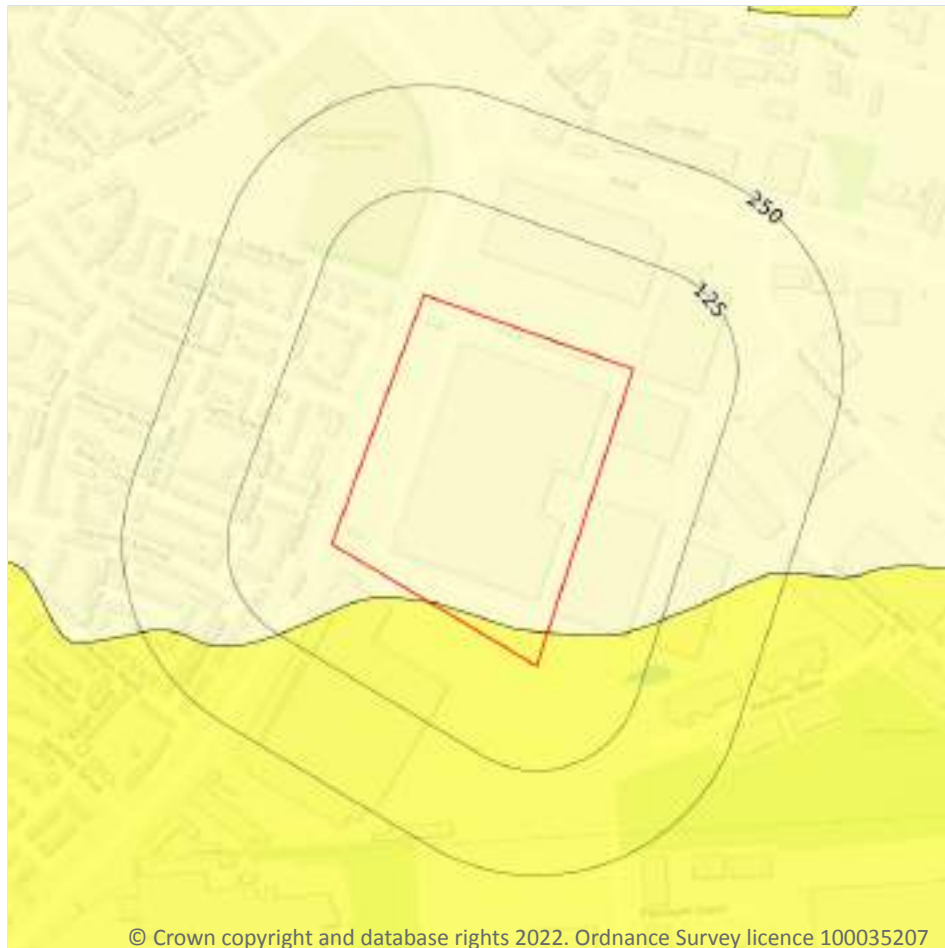


ID	Location	Grid reference	Name	Length	Confidential	Web link
4	168m N	342471 397934	MERSEYTRAM LINE 1 1343	-	Y	N/A
5	199m NE	342900 397720	FORMER KME SITE SOUTH BOUNDARY ROAD 4	-	Y	N/A
6	207m NE	342880 397790	FORMER KME SITE SOUTH BOUNDARY ROAD 1	-	Y	N/A
7	211m N	342456 397978	MERSEYTRAM LINE 1 1344	-	Y	N/A
8	225m E	342930 397680	FORMER KME SITE SOUTH BOUNDARY ROAD 6	-	Y	N/A
9	233m NE	342930 397740	FORMER KME SITE SOUTH BOUNDARY ROAD 3	-	Y	N/A

This data is sourced from the British Geological Survey.



17 Natural ground subsidence - Shrink swell clays



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.1 Shrink swell clays

Records within 50m

2

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

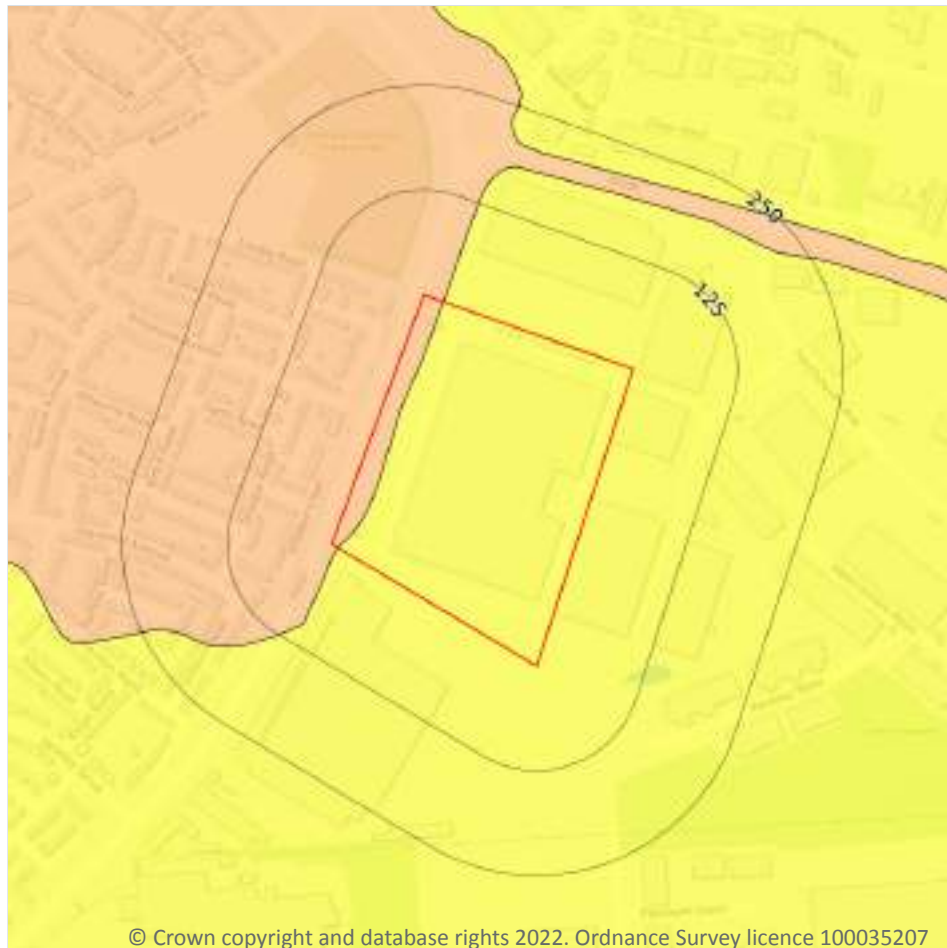
Features are displayed on the Natural ground subsidence - Shrink swell clays map on **page 96**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Running sands



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.2 Running sands

Records within 50m

2

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

Features are displayed on the Natural ground subsidence - Running sands map on **page 97**

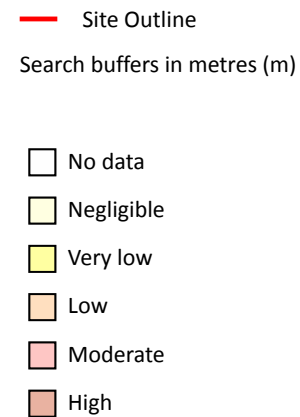
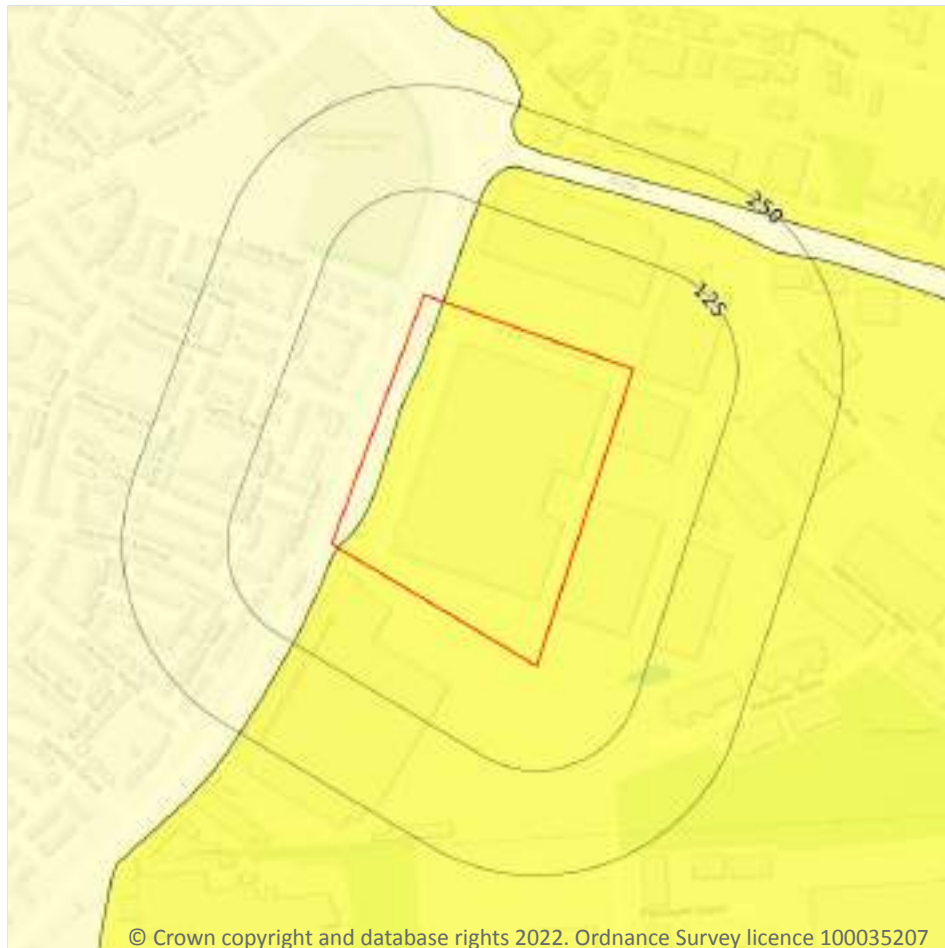
Location	Hazard rating	Details
On site	Very low	Running sand conditions are unlikely. No identified constraints on land use due to running conditions unless water table rises rapidly.

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Compressible deposits



17.3 Compressible deposits

Records within 50m

2

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

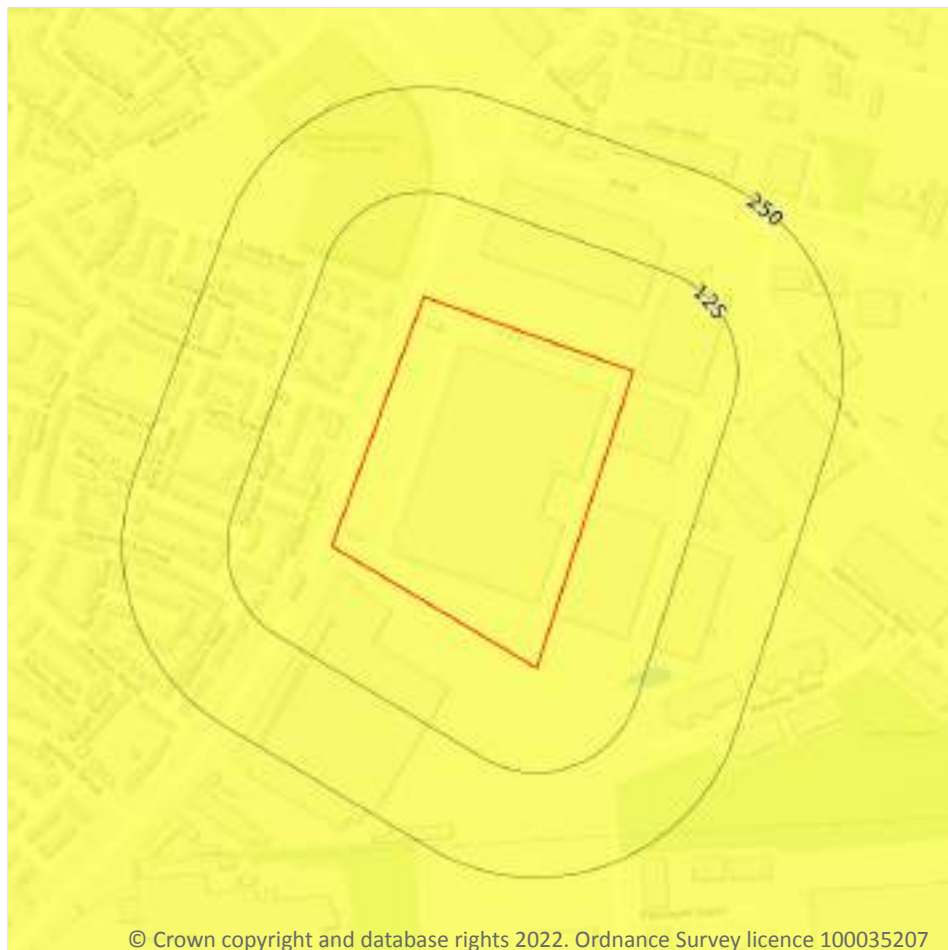
Features are displayed on the Natural ground subsidence - Compressible deposits map on **page 99**

Location	Hazard rating	Details
On site	Negligible	Compressible strata are not thought to occur.
On site	Very low	Compressibility and uneven settlement problems are not likely to be significant on the site for most land uses.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Collapsible deposits



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.4 Collapsible deposits

Records within 50m

1

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

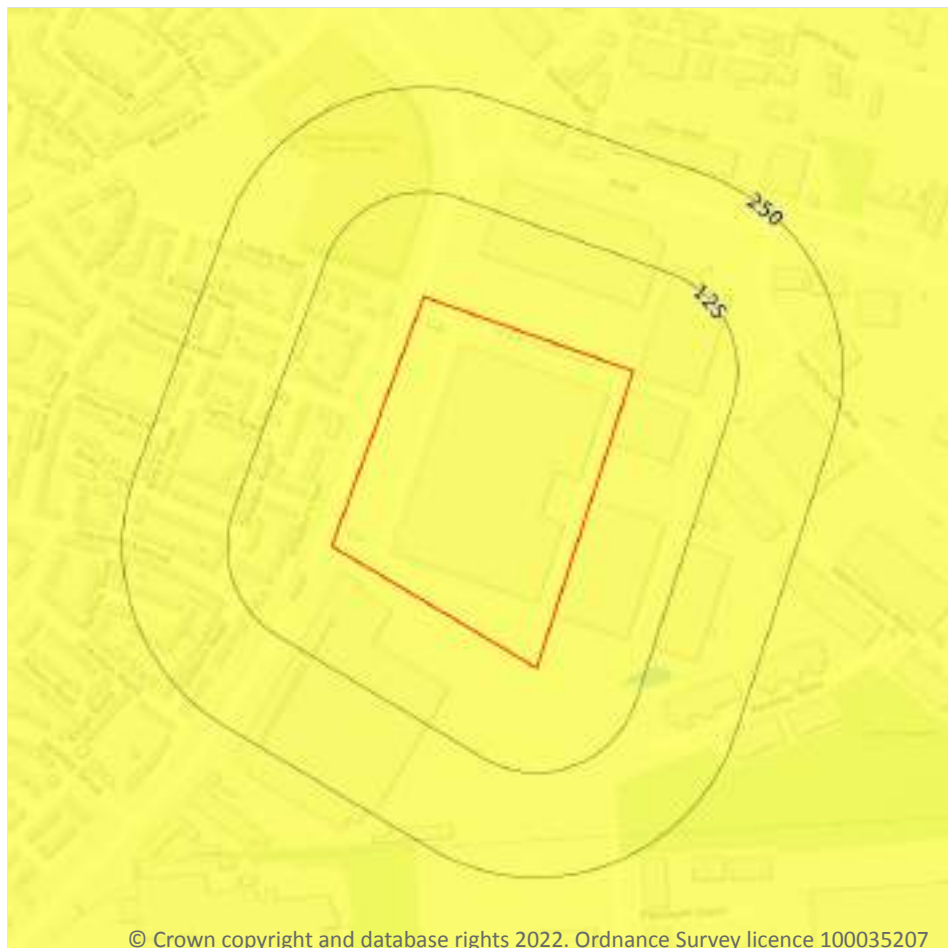
Features are displayed on the Natural ground subsidence - Collapsible deposits map on **page 101**

Location	Hazard rating	Details
On site	Very low	Deposits with potential to collapse when loaded and saturated are unlikely to be present.

This data is sourced from the British Geological Survey.



Natural ground subsidence - Landslides



© Crown copyright and database rights 2022. Ordnance Survey licence 100035207

- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☒ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.5 Landslides

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Landslides map on **page 102**

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

This data is sourced from the British Geological Survey.



Natural ground subsidence - Ground dissolution of soluble rocks



- Site Outline
- Search buffers in metres (m)
- ☐ No data
 - ☐ Negligible
 - ☐ Very low
 - ☐ Low
 - ☐ Moderate
 - ☐ High

17.6 Ground dissolution of soluble rocks

Records within 50m

1

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

Features are displayed on the Natural ground subsidence - Ground dissolution of soluble rocks map on **page 103**

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

This data is sourced from the British Geological Survey.



18 Mining, ground workings and natural cavities



- Site Outline
- Search buffers in metres (m)
- Natural cavities (Area)
- Natural cavities (Point)
- BritPits
- Surface ground workings
- Underground workings
- Historical Mineral Planning Areas
- Mining Cavities
- Non Coal Mining
- Sporadic underground mining of restricted extent possible
- Localised small scale underground mining possible
- Small scale mining possible
- Underground mining known or likely within or in close proximity
- Underground mining known within or in very close proximity

18.1 Natural cavities

Records within 500m

0

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

This data is sourced from Stantec UK Ltd.

18.2 BritPits

Records within 500m

1

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 105**

ID	Location	Details	Description
D	425m NW	Name: Delf Lane House Address: Southdene, KIRKBY, Lancashire Commodity: Sandstone Status: Ceased	Type: A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site Status description: Site which, at date of entry, has ceased to extract minerals. May be considered as Closed by operator. May be considered to have Active, Dormant or Expired planning permissions by Mineral Planning Authority

This data is sourced from the British Geological Survey.

18.3 Surface ground workings

Records within 250m

3

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

Features are displayed on the Mining, ground workings and natural cavities map on **page 105**

ID	Location	Land Use	Year of mapping	Mapping scale
A	165m SE	Unspecified Heap	1966	1:10560
A	165m SE	Unspecified Heap	1976	1:10000
A	165m SE	Unspecified Heap	1988	1:10000

This is data is sourced from Ordnance Survey/Groundsure.

18.4 Underground workings

Records within 1000m

0

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

This is data is sourced from Ordnance Survey/Groundsure.



18.5 Historical Mineral Planning Areas

Records within 500m

0

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

This data is sourced from the British Geological Survey.

18.6 Non-coal mining

Records within 1000m

0

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

This data is sourced from the British Geological Survey.

18.7 Mining cavities

Records within 1000m

0

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

This data is sourced from Stantec UK Ltd.

18.8 JPB mining areas

Records on site

0

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

This data is sourced from Johnson Poole and Bloomer.

18.9 Coal mining

Records on site

0

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

This data is sourced from the Coal Authority.



18.10 Brine areas

Records on site	0
-----------------	---

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

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

18.11 Gypsum areas

Records on site	0
-----------------	---

Generalised areas that may be affected by gypsum extraction.

This data is sourced from British Gypsum.

18.12 Tin mining

Records on site	0
-----------------	---

Generalised areas that may be affected by historical tin mining.

This data is sourced from Groundsure.

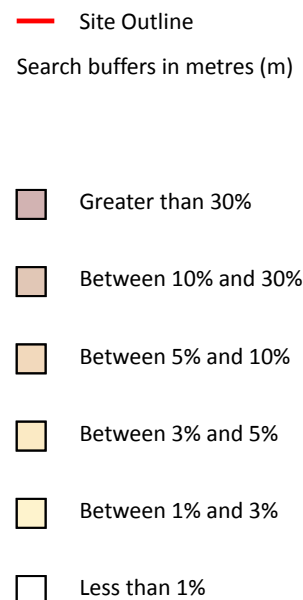
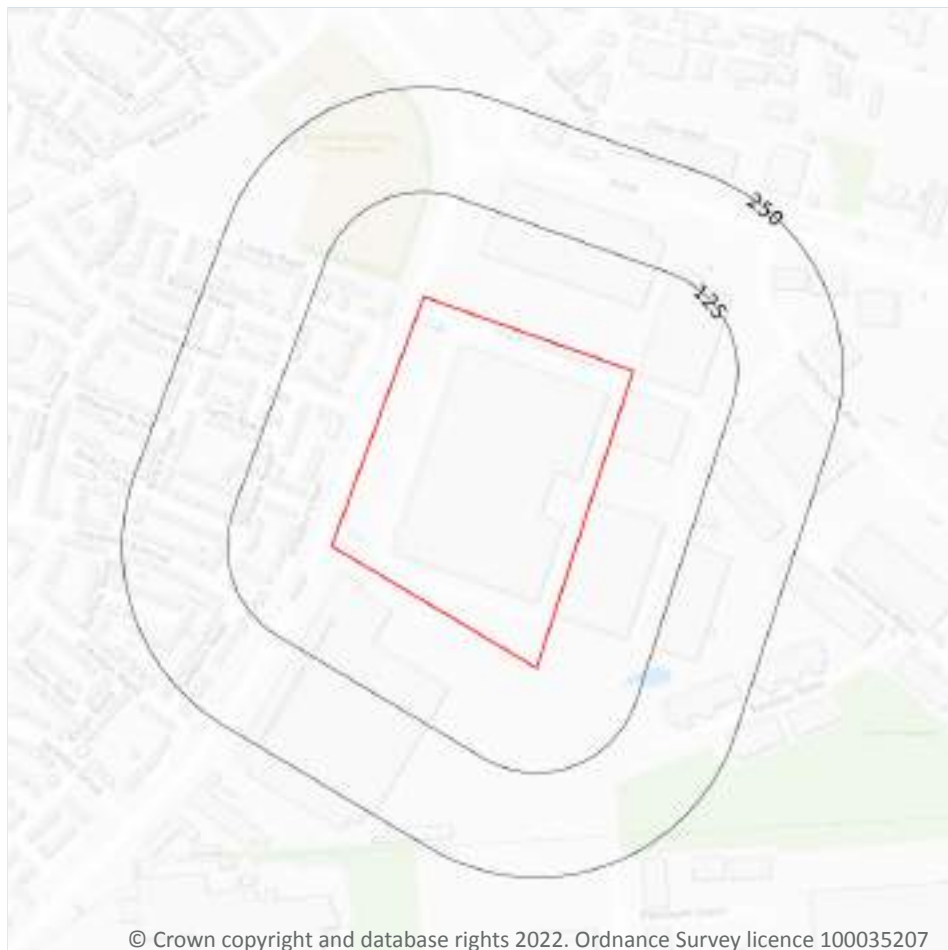
18.13 Clay mining

Records on site	0
-----------------	---

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

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

19 Radon



19.1 Radon

Records on site

1

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

Features are displayed on the Radon map on **page 109**

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

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



20 Soil chemistry

20.1 BGS Estimated Background Soil Chemistry

Records within 50m

9

The estimated values provide the likely background concentration of the potentially harmful elements Arsenic, Cadmium, Chromium, Lead and Nickel in topsoil. The values are estimated primarily from rural topsoil data collected at a sample density of approximately 1 per 2 km². In areas where rural soil samples are not available, estimation is based on stream sediment data collected from small streams at a sampling density of 1 per 2.5 km²; this is the case for most of Scotland, Wales and southern England. The stream sediment data are converted to soil-equivalent concentrations prior to the estimation.

Location	Arsenic	Bioaccessible Arsenic	Lead	Bioaccessible Lead	Cadmium	Chromium	Nickel
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	120 - 180 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 - 25 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	90 - 120 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 - 200 mg/kg	60 - 120 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg
On site	15 mg/kg	No data	100 mg/kg	60 mg/kg	1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg

This data is sourced from the British Geological Survey.



20.2 BGS Estimated Urban Soil Chemistry

Records within 50m**0**

Estimated topsoil chemistry of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc and bioaccessible Arsenic and Lead in 23 urban centres across Great Britain. These estimates are derived from interpolation of the measured urban topsoil data referred to above and provide information across each city between the measured sample locations (4 per km²).

This data is sourced from the British Geological Survey.

20.3 BGS Measured Urban Soil Chemistry

Records within 50m**0**

The locations and measured total concentrations (mg/kg) of Arsenic, Cadmium, Chromium, Copper, Nickel, Lead, Tin and Zinc in urban topsoil samples from 23 urban centres across Great Britain. These are collected at a sample density of 4 per km².

This data is sourced from the British Geological Survey.

21 Railway infrastructure and projects



- Site Outline
- Search buffers in metres (m)
- C1 Crossrail 1 Stations
- Crossrail 1 Route
- C2 Crossrail 2 Stations
- Crossrail 2 Route
- Crossrail 2 Worksites
- Crossrail 2 Safeguarding
- Crossrail 2 Headhouses
- Railway stations
- Active railways
- Active tunnels
- Abandoned railways
- Historic railways
- Historic tunnels
- Underground stations
- Underground Lines
- Royal Mail tunnels
- HS2 optimised route
- HS2 Stations
- HS2 Depots
- HS2 Surface Safeguarding
- HS2 Subsurface Safeguarding

21.1 Underground railways (London)

Records within 250m

0

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

This data is sourced from publicly available information by Groundsure.

21.2 Underground railways (Non-London)

Records within 250m

0

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



This data is sourced from publicly available information by Groundsure.

21.3 Railway tunnels

Records within 250m

0

Railway tunnels taken from contemporary Ordnance Survey mapping.

This data is sourced from the Ordnance Survey.

21.4 Historical railway and tunnel features

Records within 250m

2

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

Features are displayed on the Railway infrastructure and projects map on **page 112**

Location	Land Use	Year of mapping	Mapping scale
73m E	Railway Sidings	1966	10560
186m N	Tramway Sidings	1955	10560

This data is sourced from Ordnance Survey/Groundsure.

21.5 Royal Mail tunnels

Records within 250m

0

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

This data is sourced from Groundsure/the Postal Museum.

21.6 Historical railways

Records within 250m

0

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

This data is sourced from OpenStreetMap.



21.7 Railways

Records within 250m**0**

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

This data is sourced from Ordnance Survey and OpenStreetMap.

21.8 Crossrail 1

Records within 500m**0**

The Crossrail railway project links 41 stations over 100 kilometres from Reading and Heathrow in the west, through underground sections in central London, to Shenfield and Abbey Wood in the east.

This data is sourced from publicly available information by Groundsure.

21.9 Crossrail 2

Records within 500m**0**

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

This data is sourced from publicly available information by Groundsure.

21.10 HS2

Records within 500m**0**

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

This data is sourced from HS2 Ltd.

Data providers

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

Terms and conditions

Groundsure's Terms and Conditions can be accessed at this link: <https://www.groundsure.com/terms-and-conditions-jan-2020/>.



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_1
Grid Ref: 342275, 397295

Map Name: National Grid

Map date: 1960

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1956

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1956

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1946

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1946



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_1
Grid Ref: 342275, 397295

Map Name: National Grid

Map date: 1967-1972

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
Revised 1971
Edition N/A
Copyright 1972
Levelled 1960

Surveyed 1959
Revised 1968
Edition N/A
Copyright 1968
Levelled 1956

Surveyed 1959
Revised 1966
Edition N/A
Copyright 1967
Levelled 1960



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_1
Grid Ref: 342275, 397295

Map Name: National Grid

Map date: 1984

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1984
Levelled 1960



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_1
Grid Ref: 342275, 397295

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1993
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_2
Grid Ref: 342275, 397795

Map Name: National Grid

Map date: 1960-1961

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1957

Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1957

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1956

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1956



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_2
Grid Ref: 342275, 397795

Map Name: National Grid

Map date: 1968-1972

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1968
Edition N/A
Copyright 1968
Levelled 1960

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1968
Levelled 1957

Surveyed 1959
Revised 1971
Edition N/A
Copyright 1972
Levelled 1960

Surveyed 1959
Revised 1968
Edition N/A
Copyright 1968
Levelled 1956



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_2
Grid Ref: 342275, 397795

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

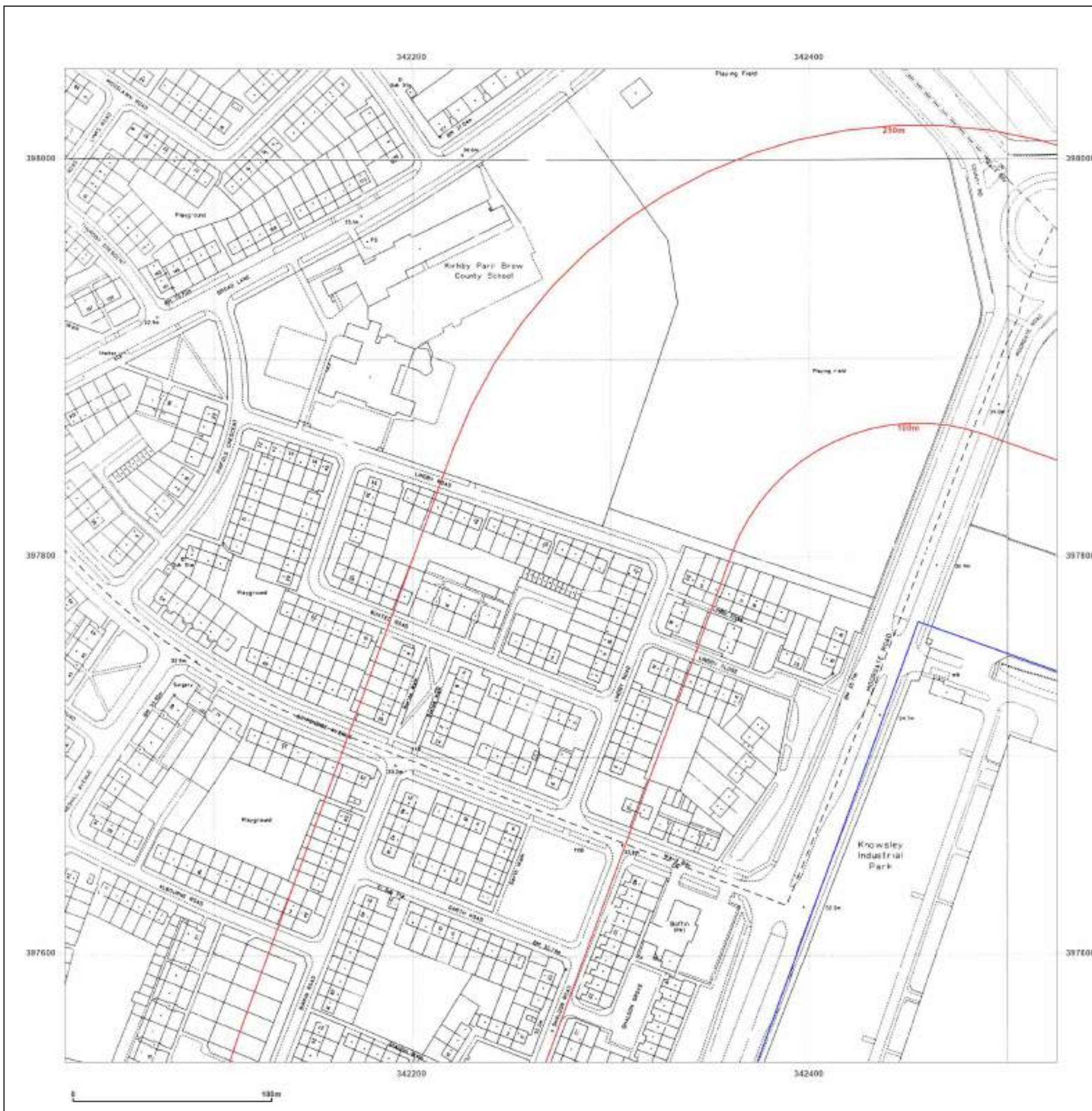


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_2
Grid Ref: 342275, 397795

Map Name: National Grid

Map date: 1994

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1994
Levelled N/A



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_1_2
Grid Ref: 342275, 397795

Map Name: National Grid

Map date: 1994-1995

Scale: 1:1,250

Printed at: 1:2,000



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

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_1
Grid Ref: 342775, 397295

Map Name: National Grid

Map date: 1959-1960

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1956

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1959
Levelled 1957

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1946

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1959
Levelled 1956

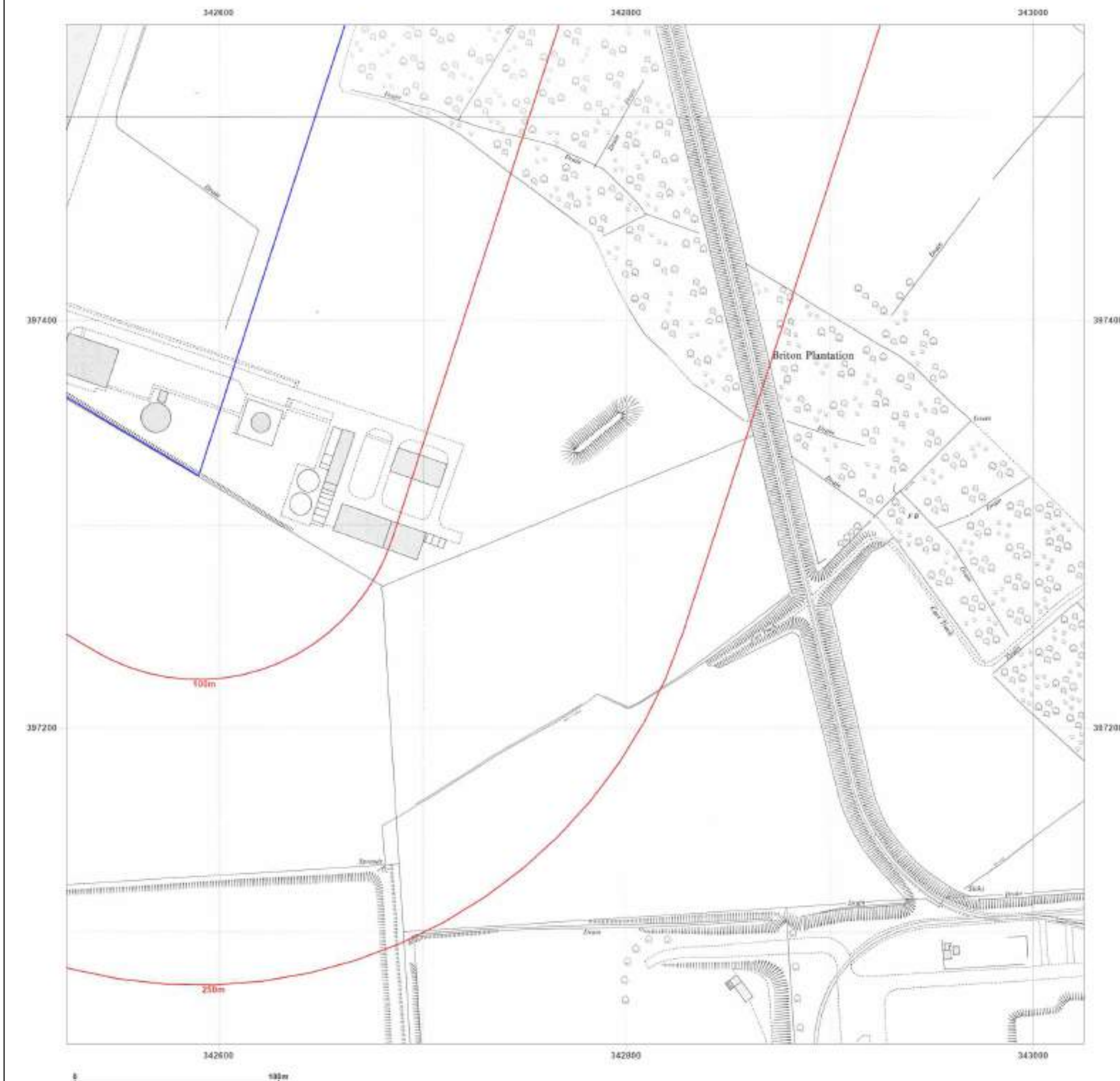


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_1
Grid Ref: 342775, 397295

Map Name: National Grid

Map date: 1976

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1959
Revised 1975
Edition N/A
Copyright 1976
Levelled 1960

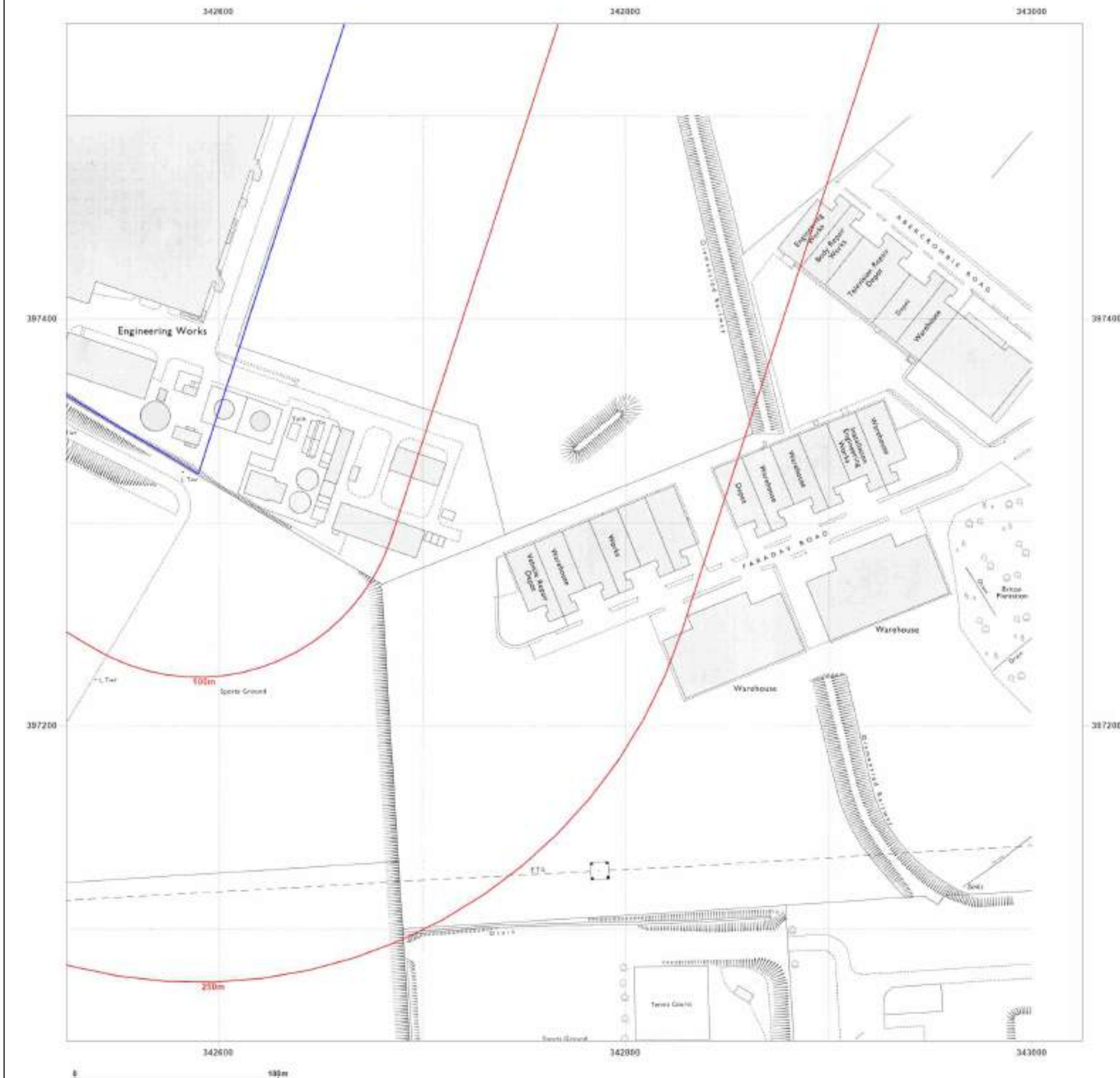


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_1
Grid Ref: 342775, 397295

Map Name: National Grid

Map date: 1975-1978

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1978
Levelled N/A

Surveyed 1959
Revised 1976
Edition N/A
Copyright 1977
Levelled 1957

Surveyed 1959
Revised 1975
Edition N/A
Copyright 1976
Levelled 1960

Surveyed 1959
Revised 1975
Edition N/A
Copyright 1975
Levelled 1956

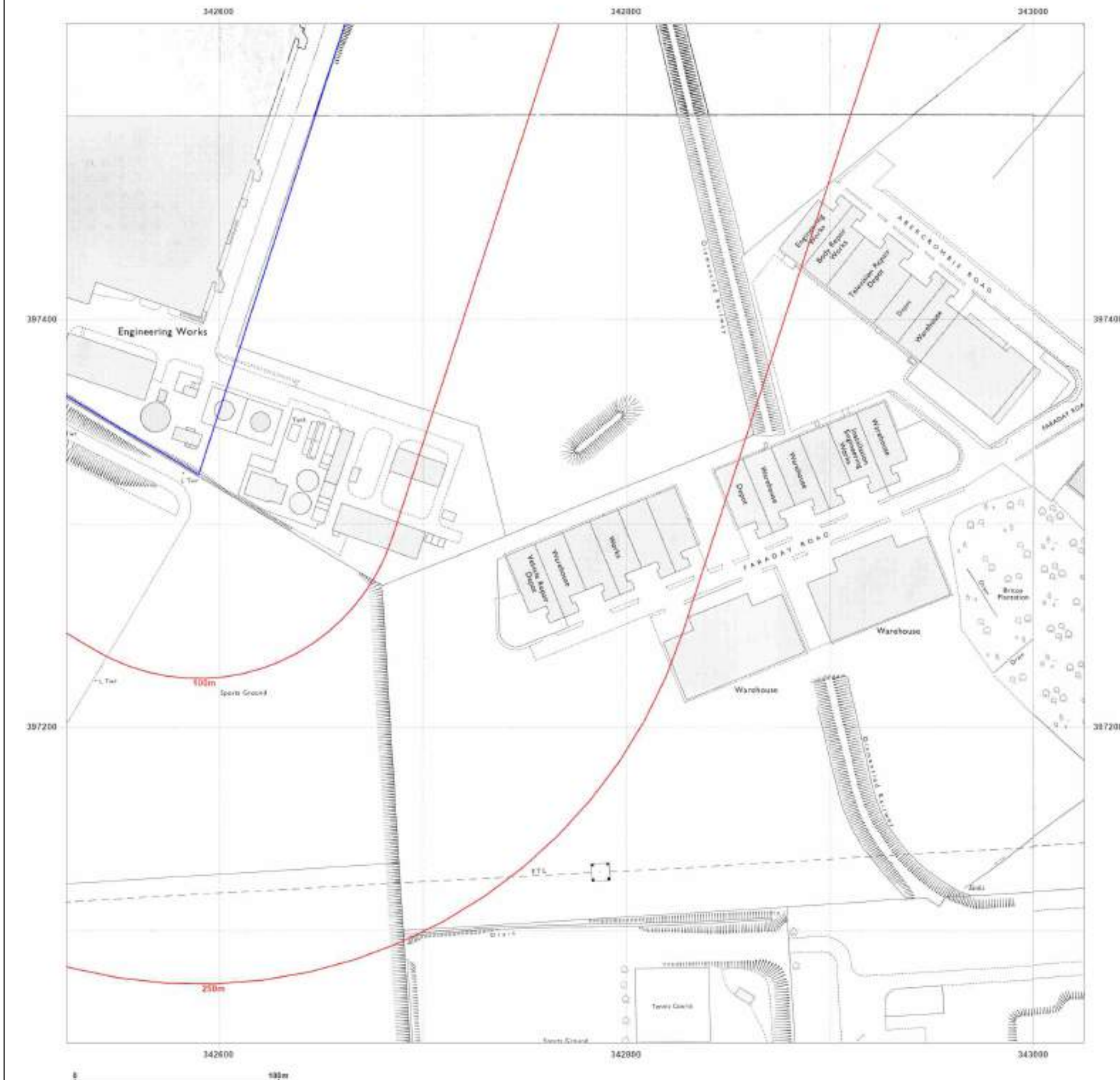


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_1
Grid Ref: 342775, 397295

Map Name: National Grid

Map date: 1993

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1993
Revised 1993
Edition N/A
Copyright N/A
Levelled N/A

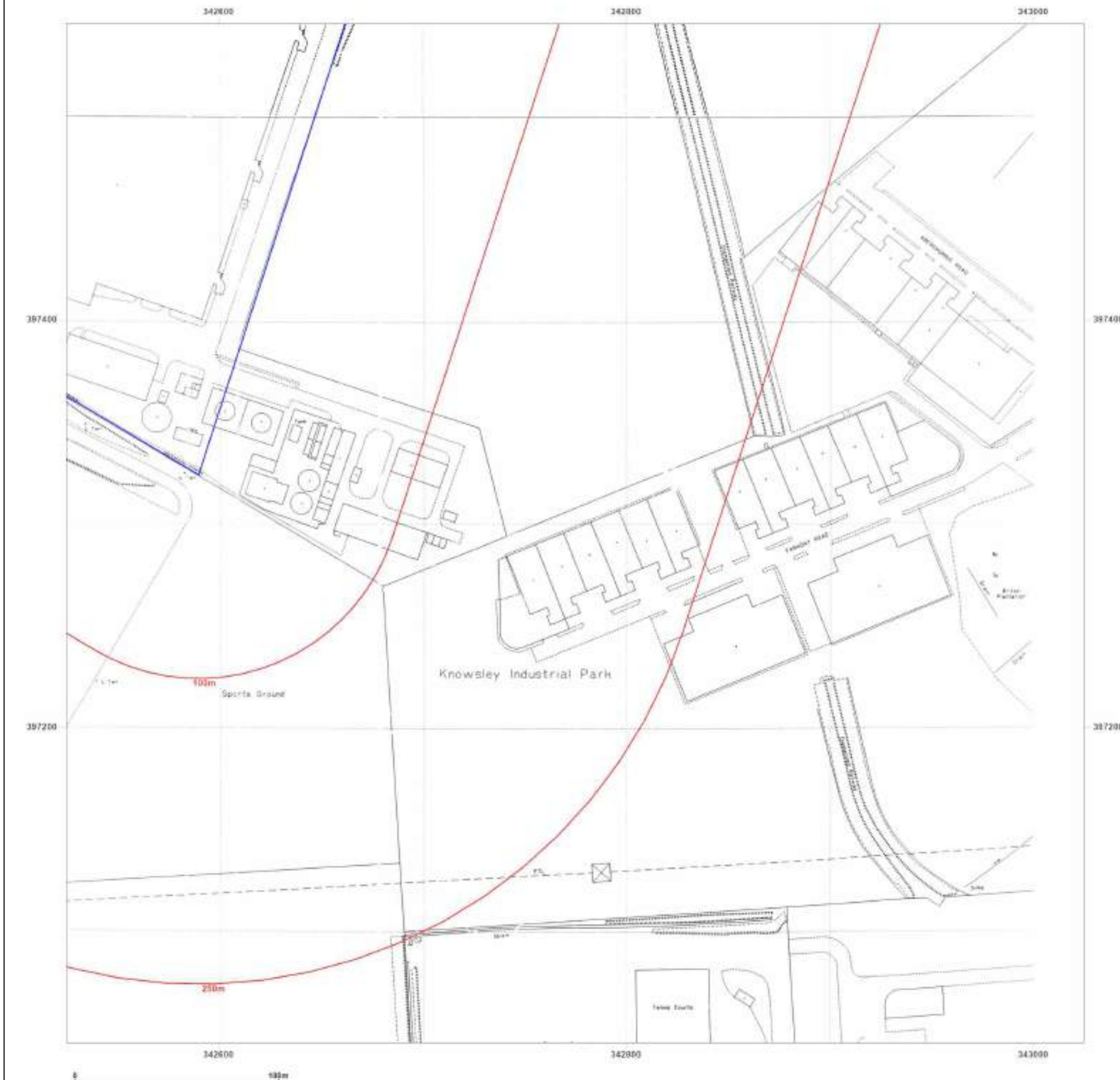


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_2
Grid Ref: 342775, 397795

Map Name: National Grid

Map date: 1959-1961

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1960
Revised 1960
Edition N/A
Copyright 1961
Levelled 1957

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1957

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1960
Levelled 1956

Surveyed 1959
Revised 1959
Edition N/A
Copyright 1959
Levelled 1957

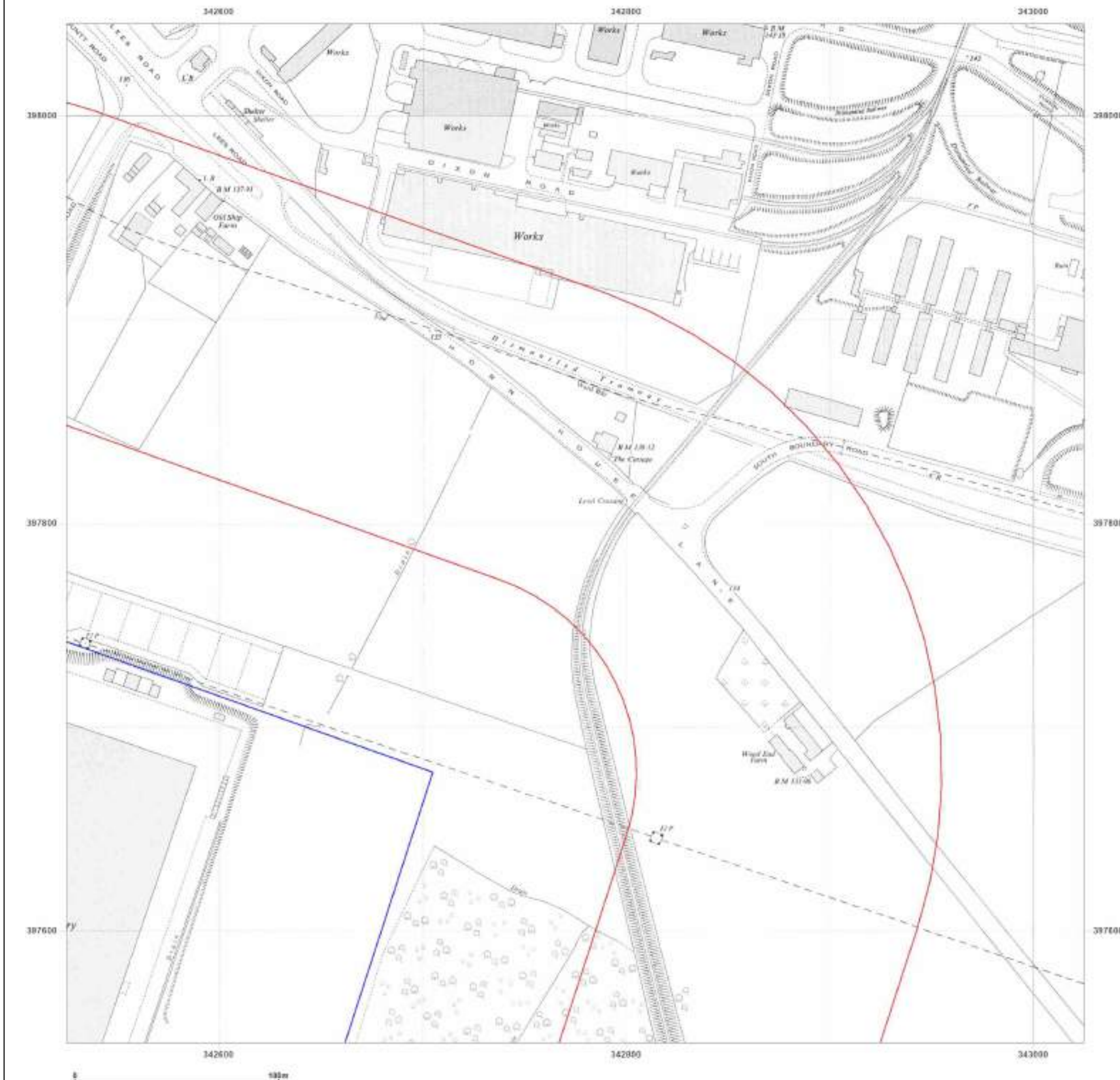


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHdene, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_2
Grid Ref: 342775, 397795

Map Name: National Grid

Map date: 1965-1968

Scale: 1:1,250

Printed at: 1:2,000



Surveyed 1968
Revised 1968
Edition N/A
Copyright 1968
Levelled 1957

Surveyed 1959
Revised 1967
Edition N/A
Copyright 1967
Levelled 1957

Surveyed 1959
Revised 1968
Edition N/A
Copyright 1968
Levelled 1956

Surveyed 1959
Revised 1964
Edition N/A
Copyright 1965
Levelled 1957

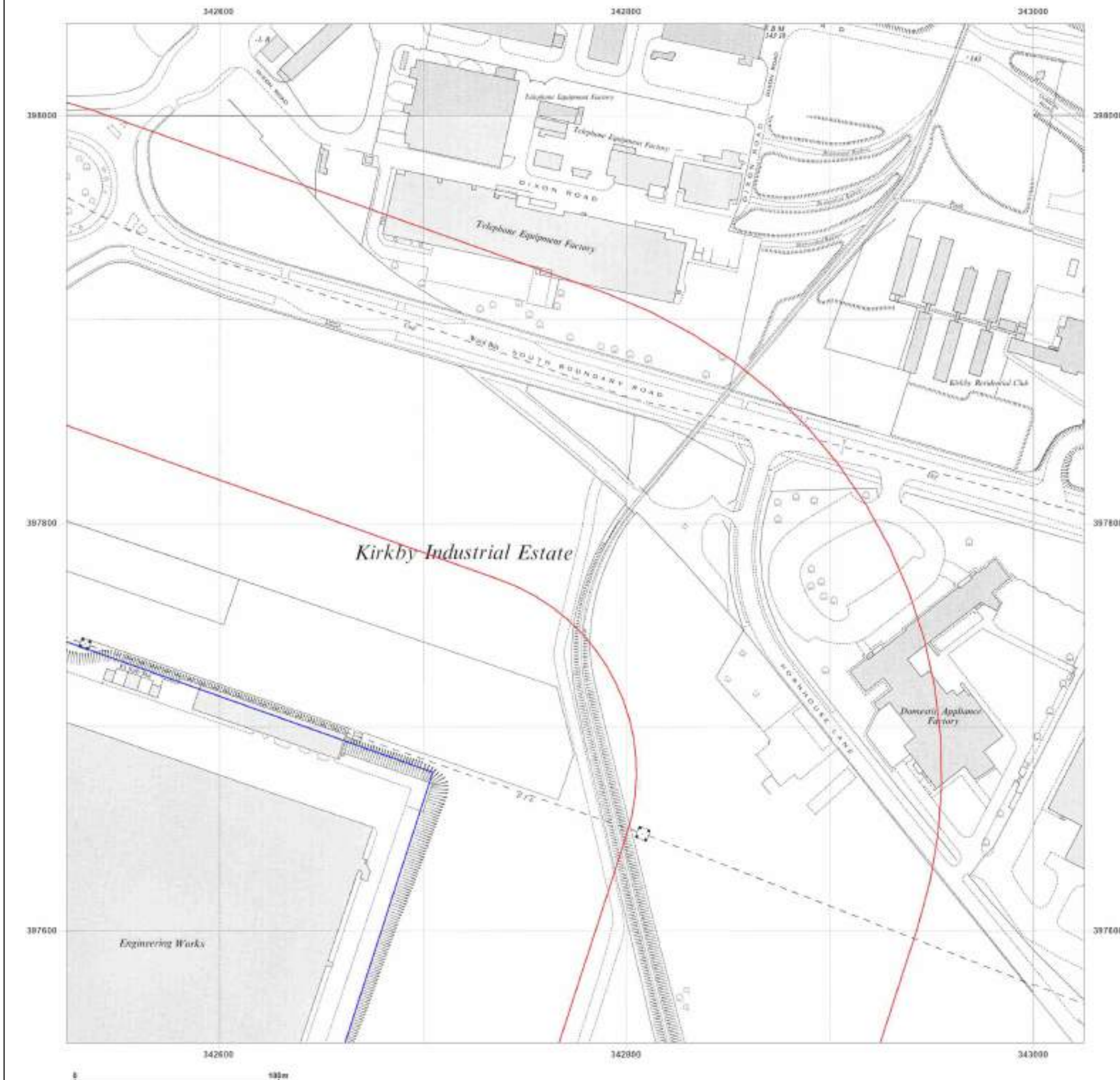


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_2
Grid Ref: 342775, 397795

Map Name: National Grid

Map date: 1977-1978

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A Revised N/A Edition N/A Copyright 1978 Levelled N/A	Surveyed 1959 Revised 1976 Edition N/A Copyright 1977 Levelled 1957
---	--

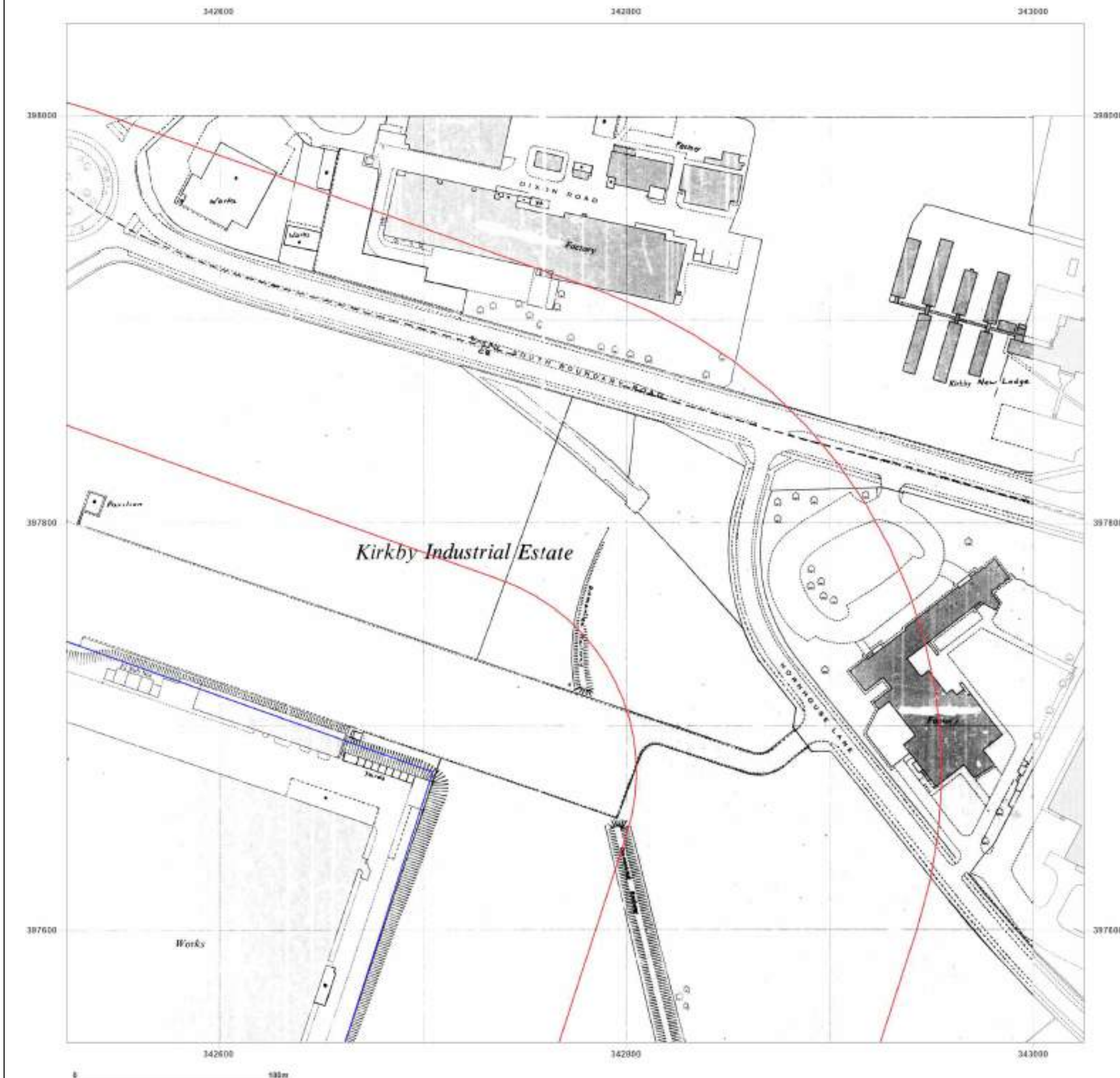


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_1250_2_2
Grid Ref: 342775, 397795

Map Name: National Grid

Map date: 1993-1994

Scale: 1:1,250

Printed at: 1:2,000



Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

Surveyed 1994
Revised 1994
Edition N/A
Copyright 1994
Levelled N/A

Surveyed N/A
Revised N/A
Edition N/A
Copyright 1993
Levelled N/A

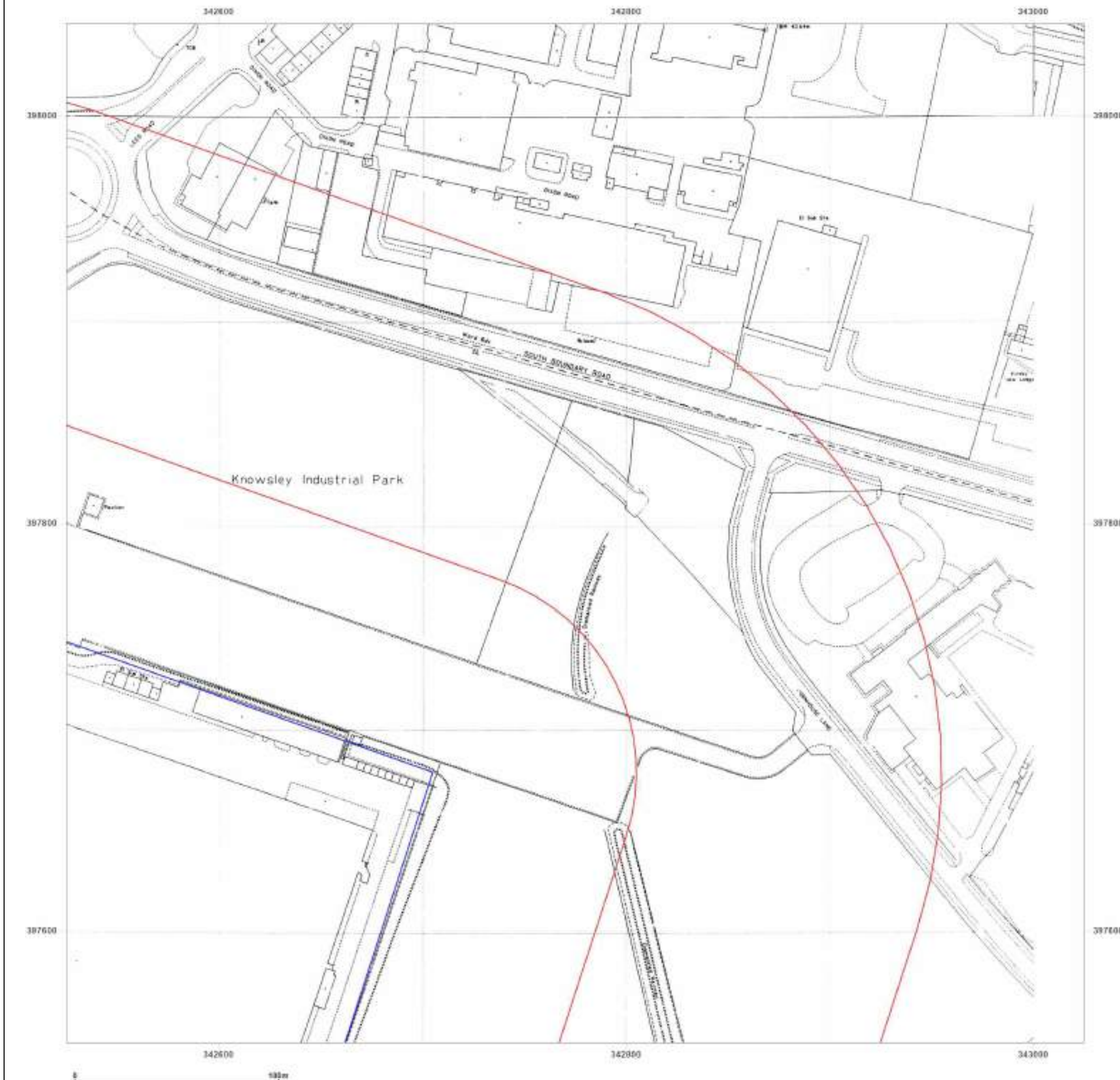


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_1
Grid Ref: 342524, 397232

Map Name: County Series

Map date: 1867

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

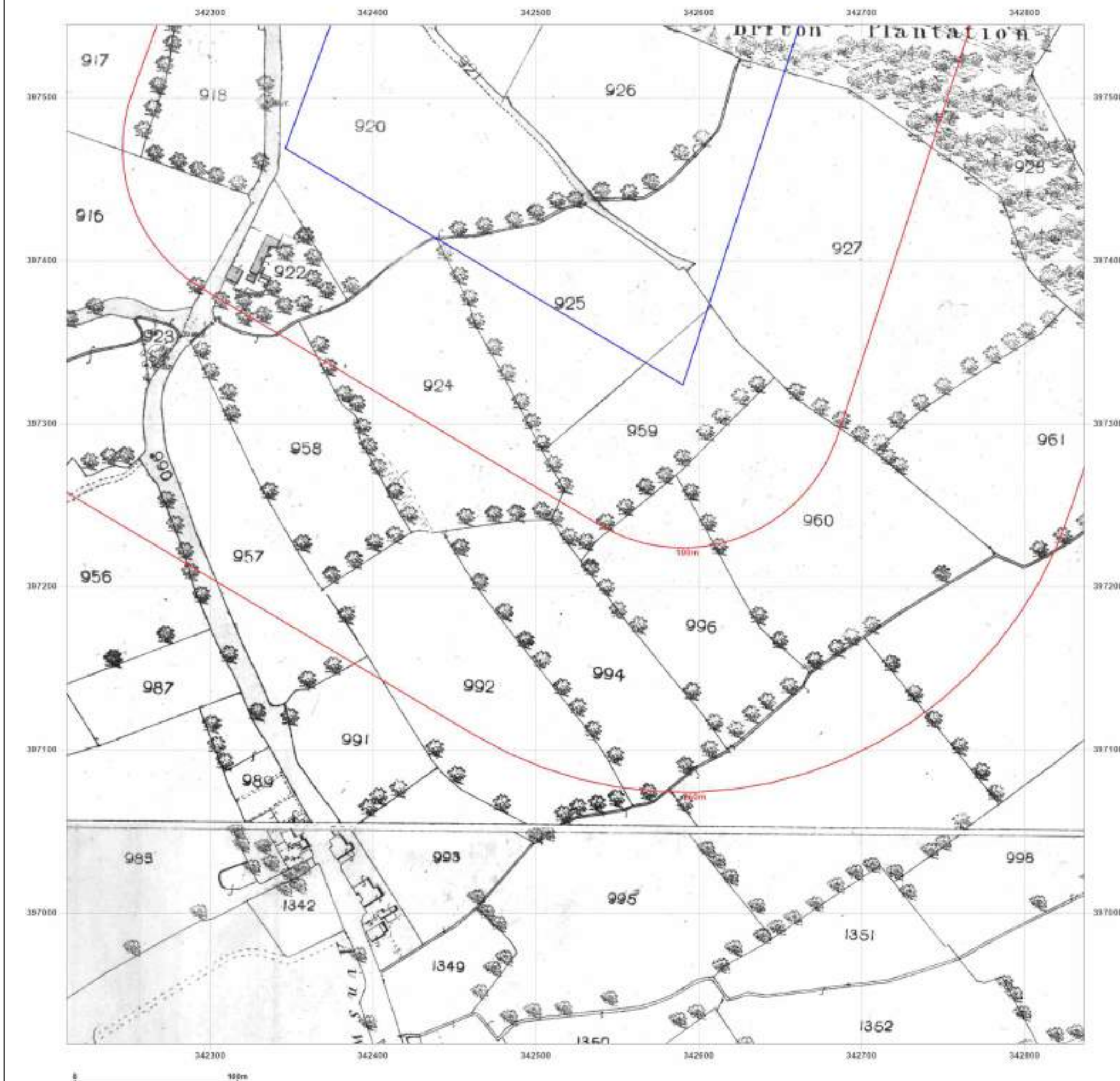


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_1
Grid Ref: 342524, 397232

Map Name: County Series

Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



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

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

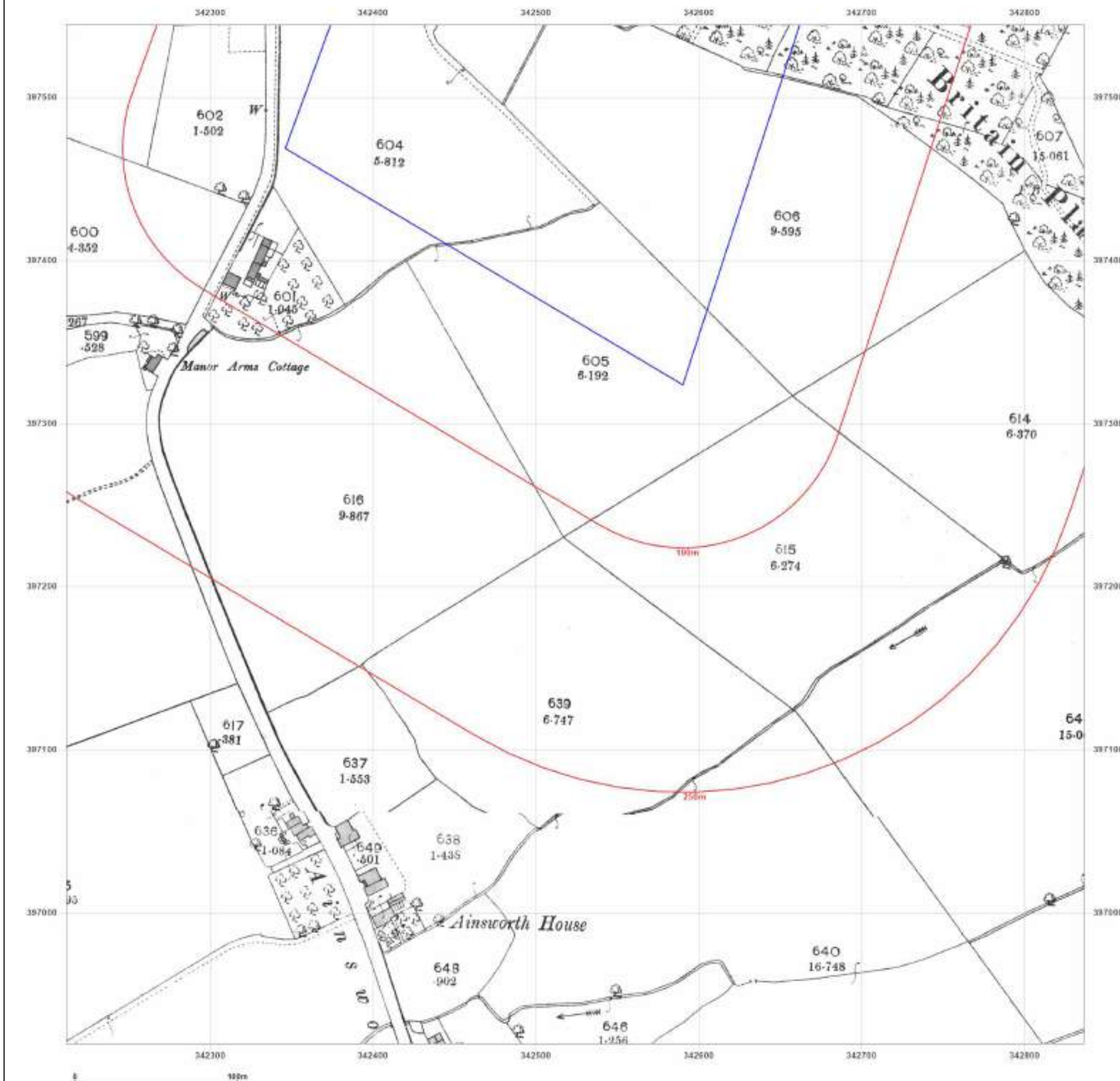


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_1
Grid Ref: 342524, 397232

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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

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

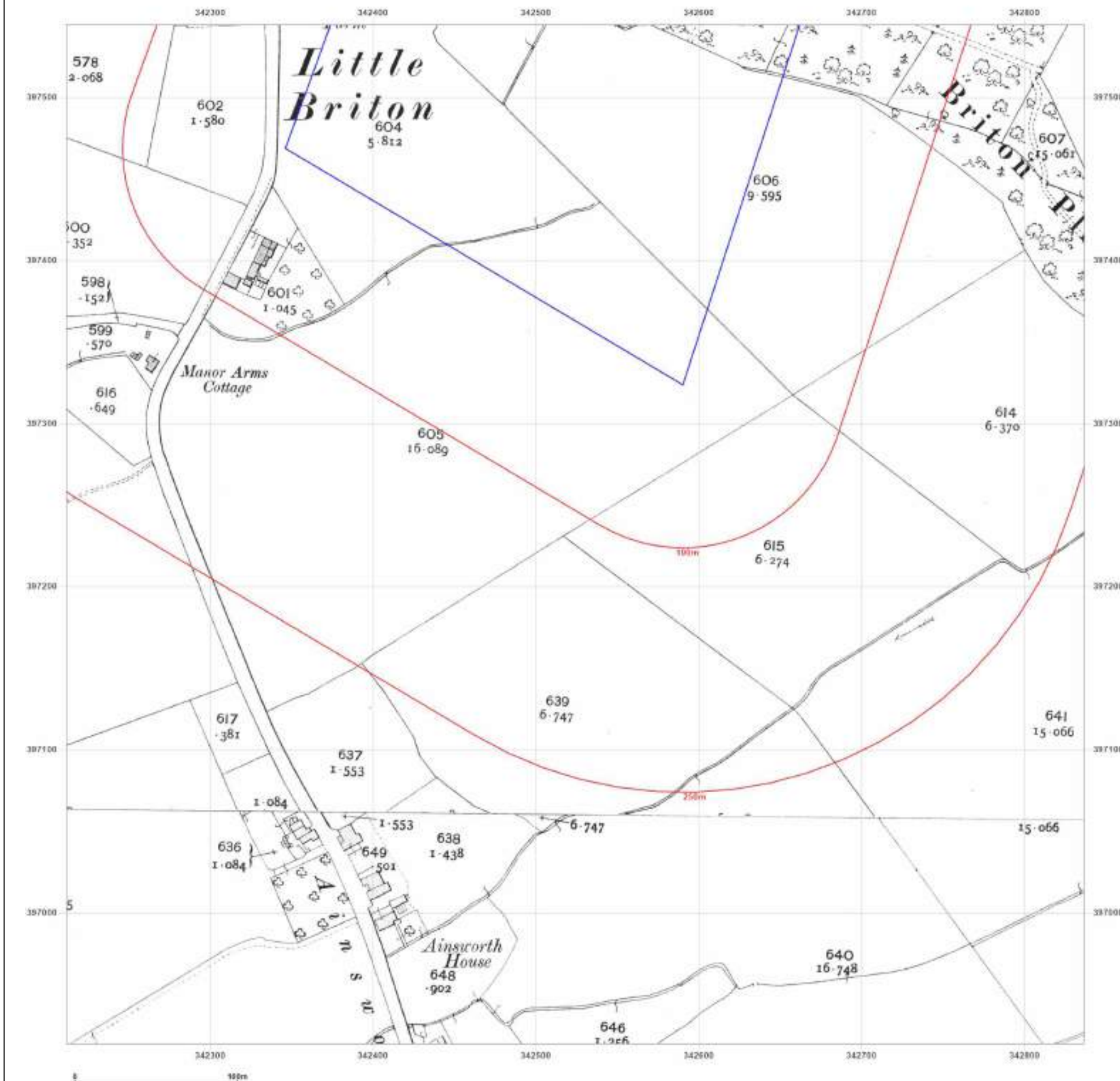


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_1
Grid Ref: 342524, 397232

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A



Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

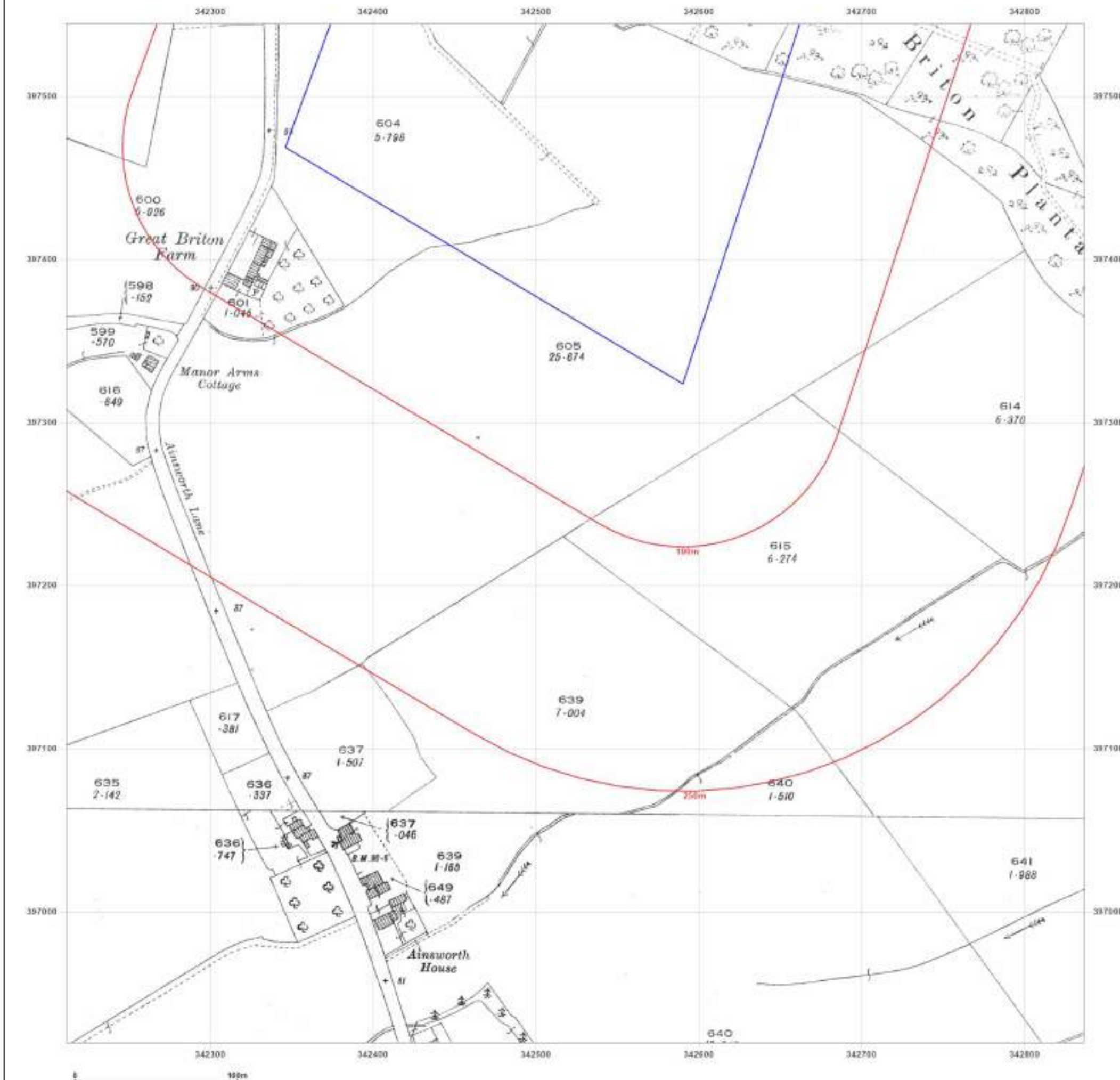


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHdene, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_1
Grid Ref: 342524, 397232

Map Name: National Grid

Map date: 1970

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1968
Revised 1968
Edition N/A
Copyright 1970
Levelled 1960



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_2
Grid Ref: 342524, 397857

Map Name: County Series

Map date: 1867

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1867
Revised 1867
Edition N/A
Copyright N/A
Levelled N/A

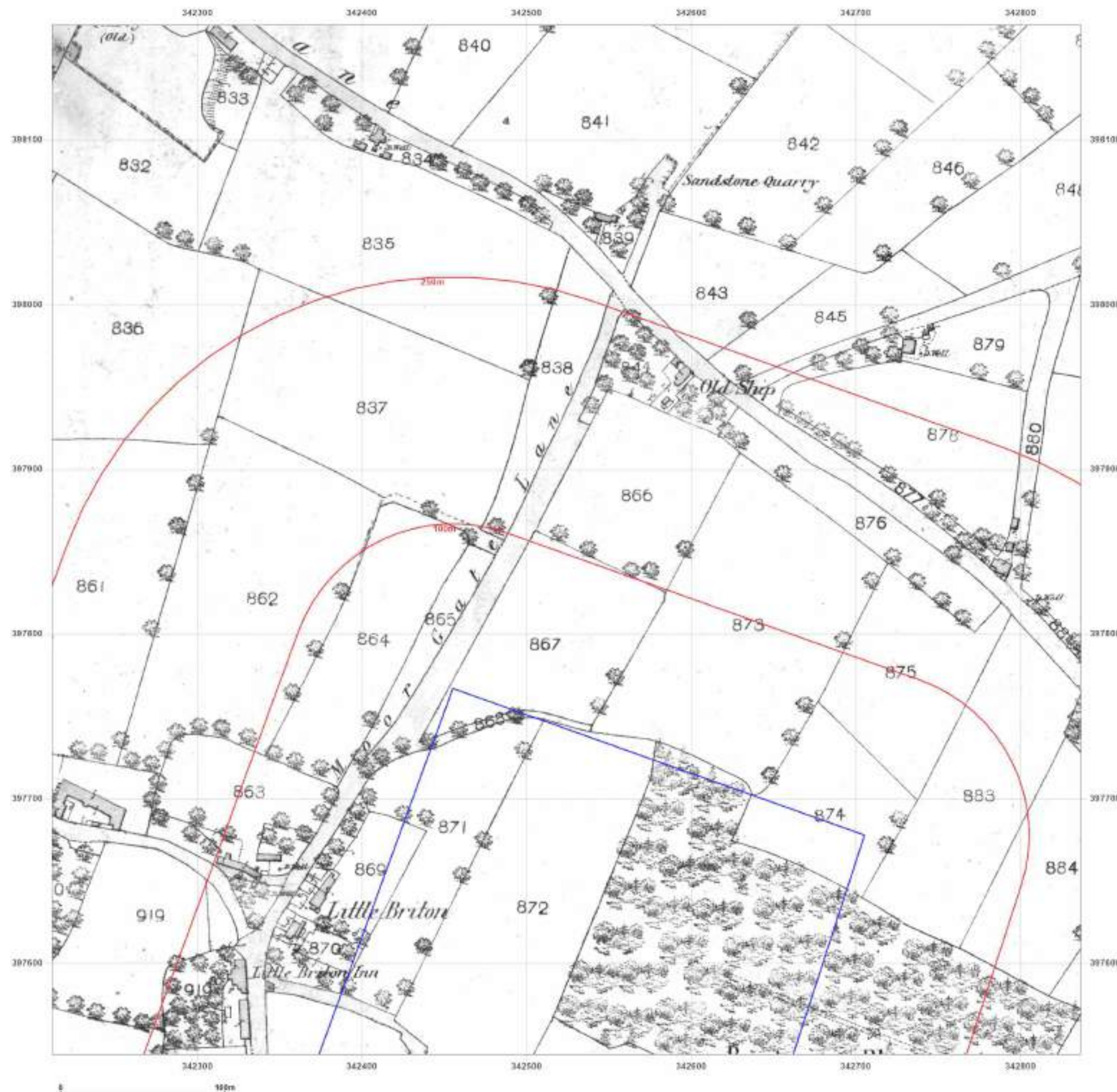


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHdene, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_2
Grid Ref: 342524, 397857

Map Name: County Series

Map date: 1893

Scale: 1:2,500

Printed at: 1:2,500



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

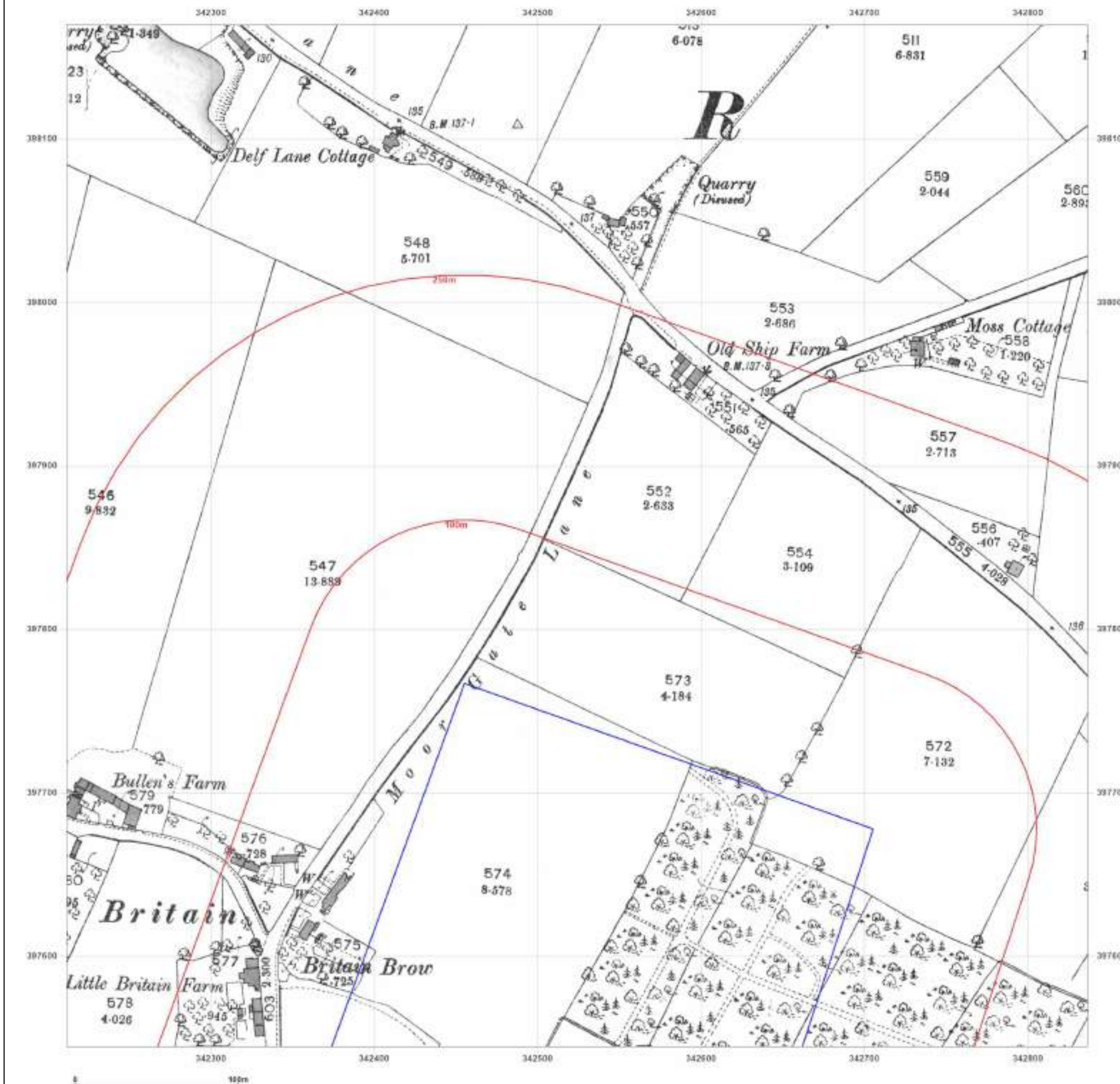


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_2
Grid Ref: 342524, 397857

Map Name: County Series

Map date: 1908

Scale: 1:2,500

Printed at: 1:2,500



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

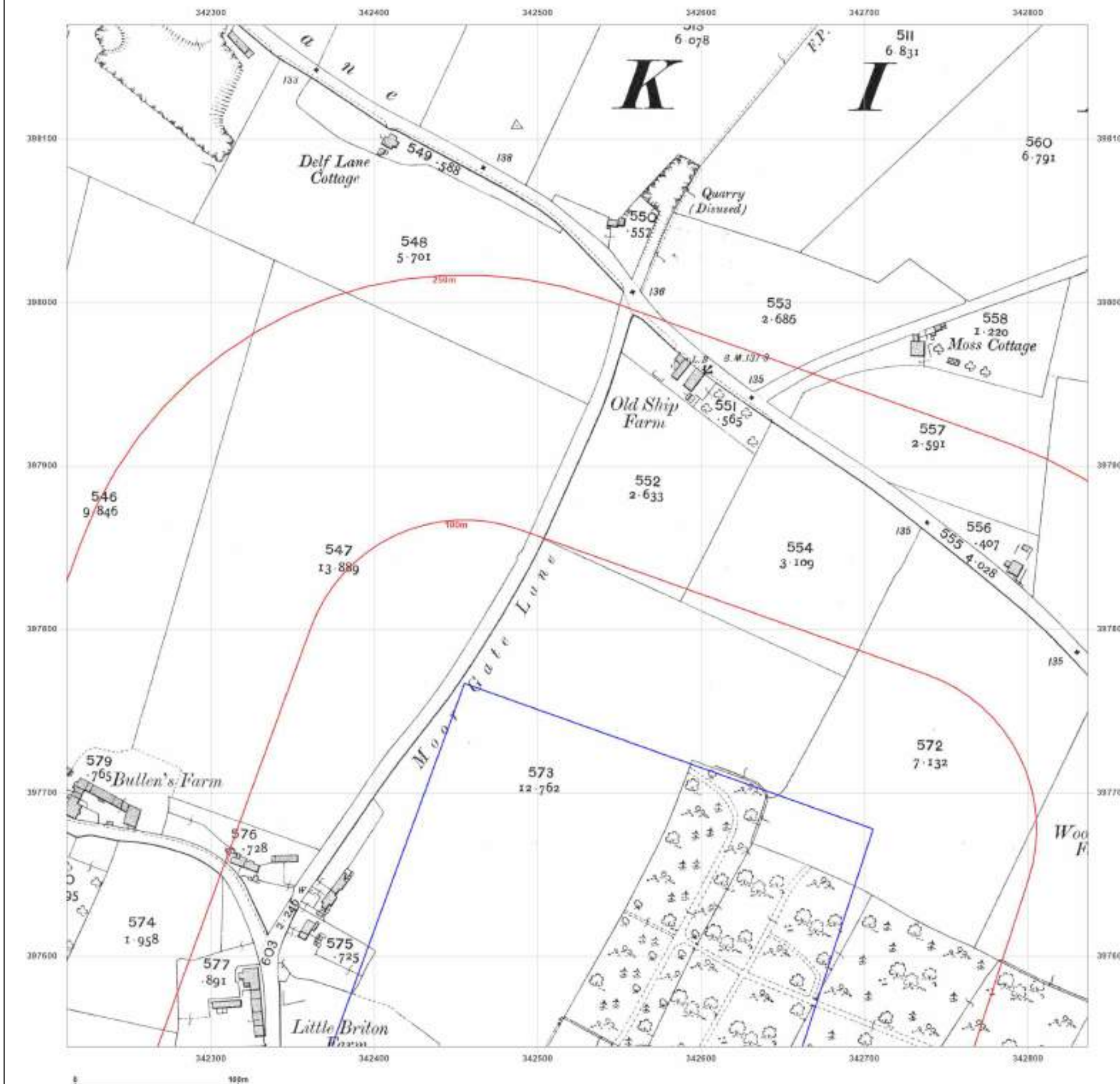


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_2
Grid Ref: 342524, 397857

Map Name: County Series

Map date: 1927

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1927
Revised 1927
Edition N/A
Copyright N/A
Levelled N/A

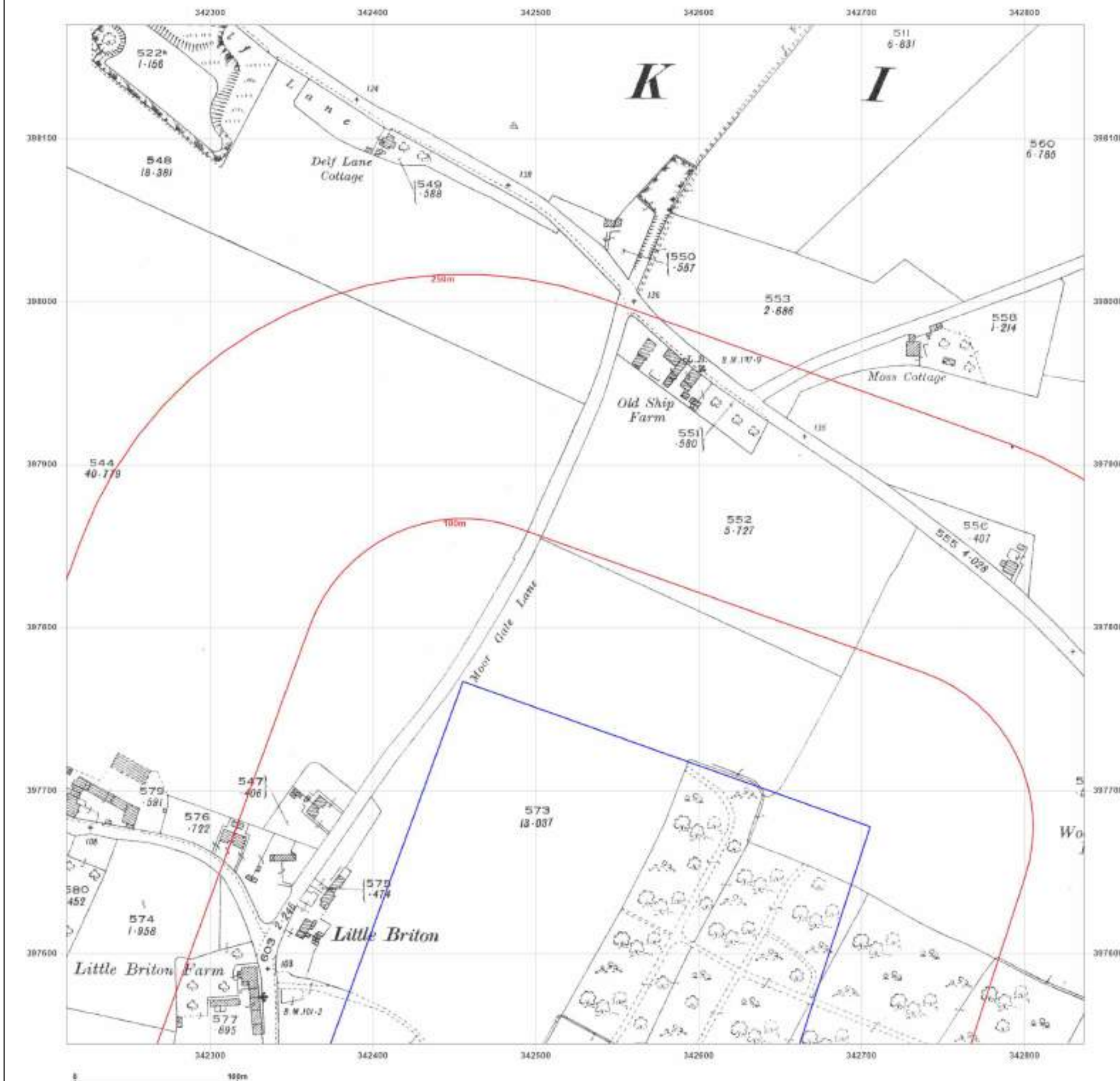


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_2
Grid Ref: 342524, 397857

Map Name: National Grid

Map date: 1970-1971

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1968
Revised 1968
Edition N/A
Copyright 1971
Levelled 1980

Surveyed 1968
Revised 1968
Edition N/A
Copyright 1970
Levelled 1980

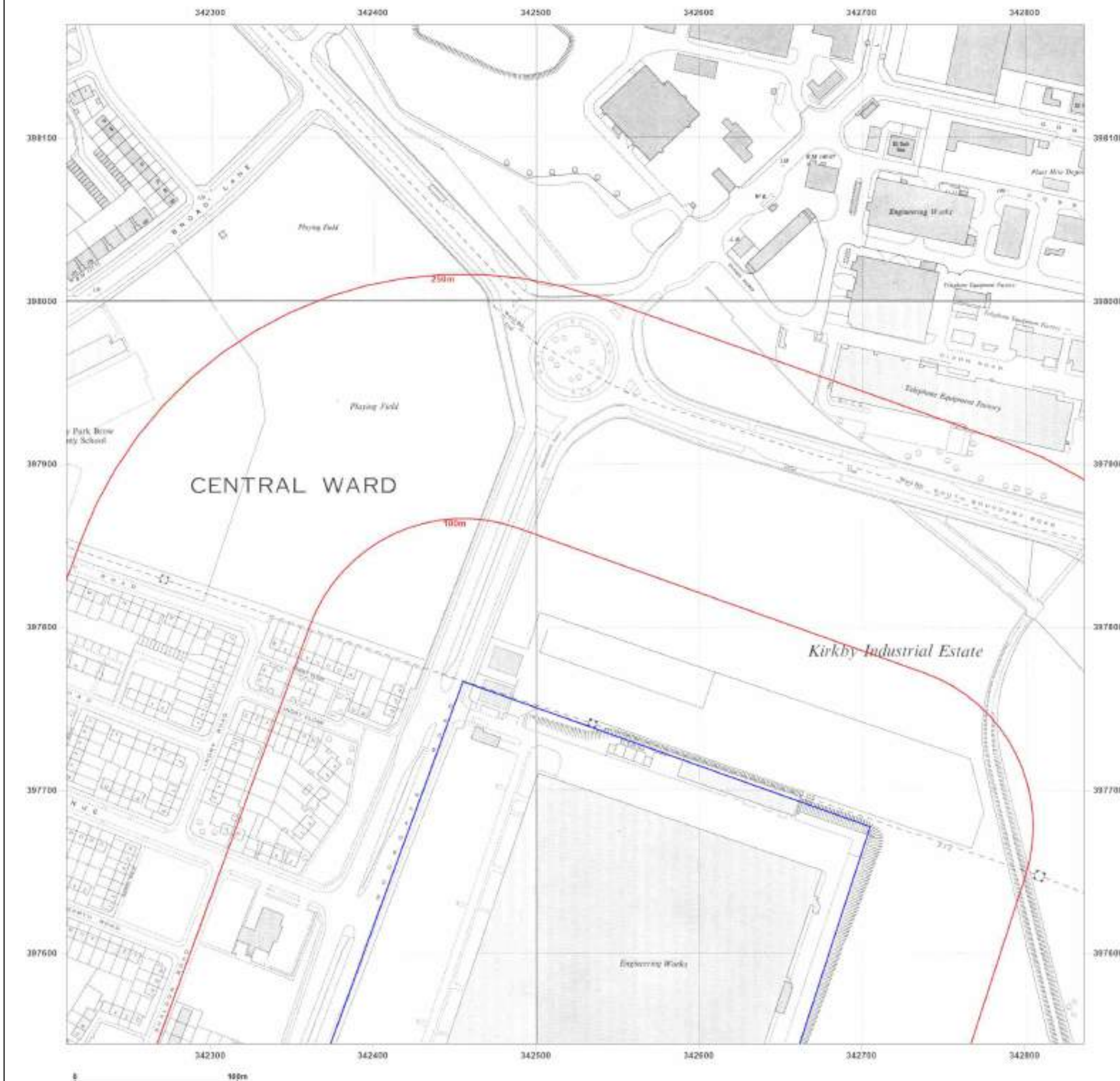


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_LS_1_2
Grid Ref: 342524, 397857

Map Name: National Grid

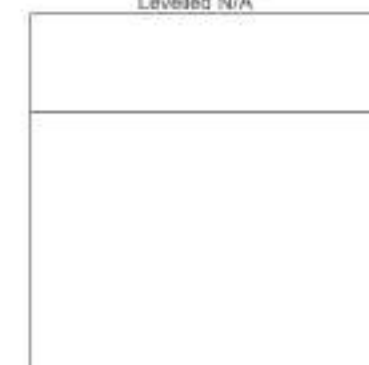
Map date: 1971

Scale: 1:2,500

Printed at: 1:2,500



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



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_Landline_1_1
Grid Ref: 342375, 397395

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_Landline_1_2
Grid Ref: 342375, 397695

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_Landline_2_1
Grid Ref: 342675, 397395

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250

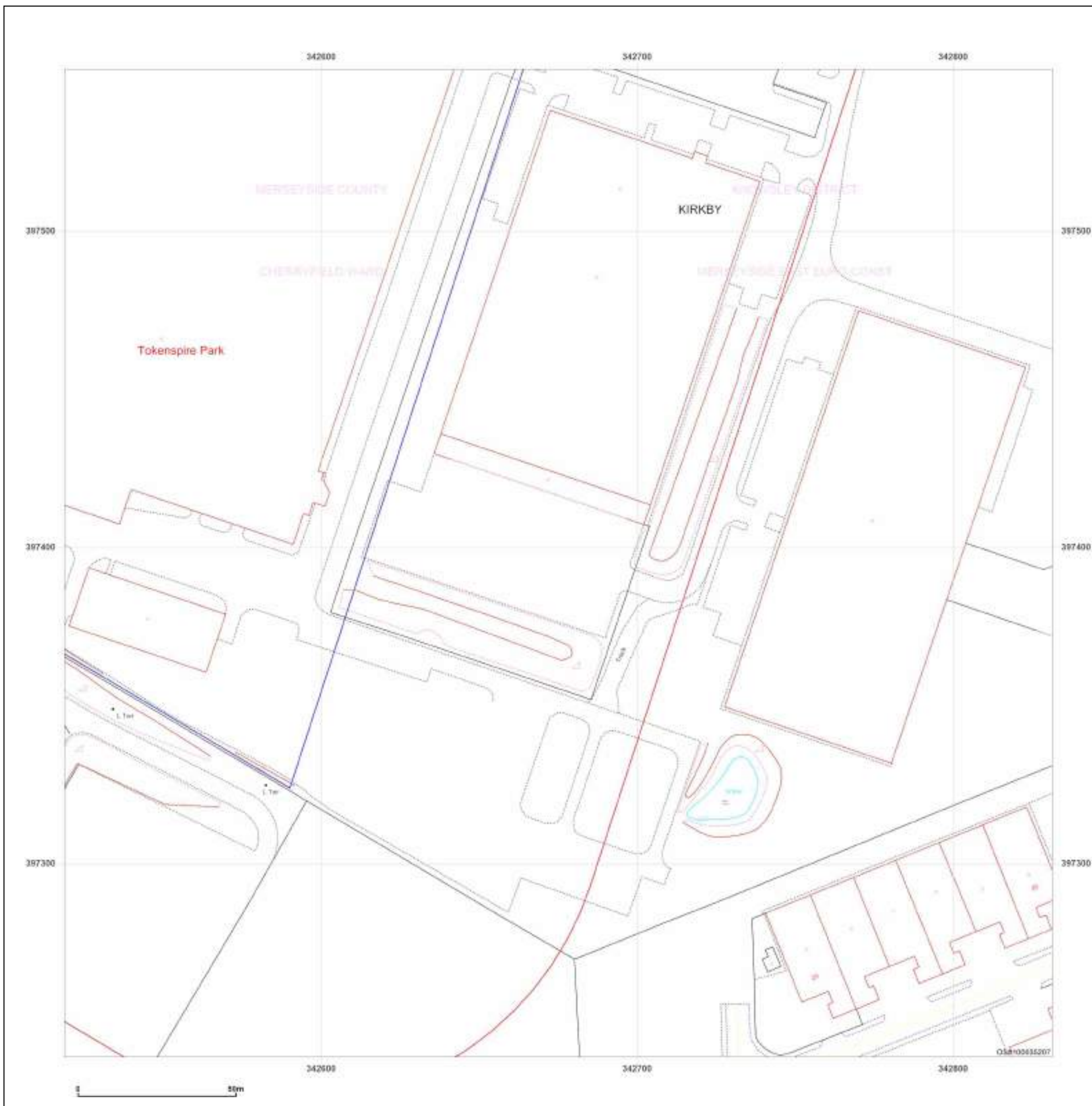


Produced by
Groundsure Insights
T: 08444 159000
E: info@groundsure.com
W: www.groundsure.com

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



Site Details:

WEST COAST CORRUGATED
LTD, DEACON PARK,
MOORGATE ROAD,
SOUTHDENE, KIRKBY, L33 7RX

Client Ref: TE1704_2296
Report Ref: GS-9174272_Landline_2_2
Grid Ref: 342675, 397695

Map Name: LandLine

Map date: 2003

Scale: 1:1,250

Printed at: 1:1,250



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

© Crown copyright and database rights 2018 Ordnance Survey 100035207

Production date: 03 November 2022

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



APPENDIX C – SITE WALKOVER PHOTOGRAPHS



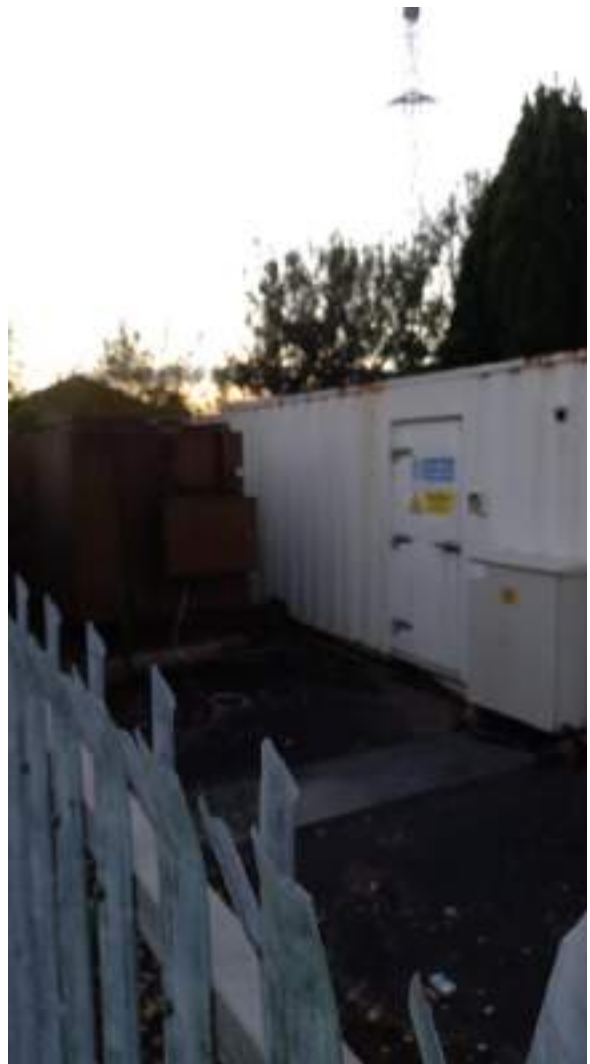


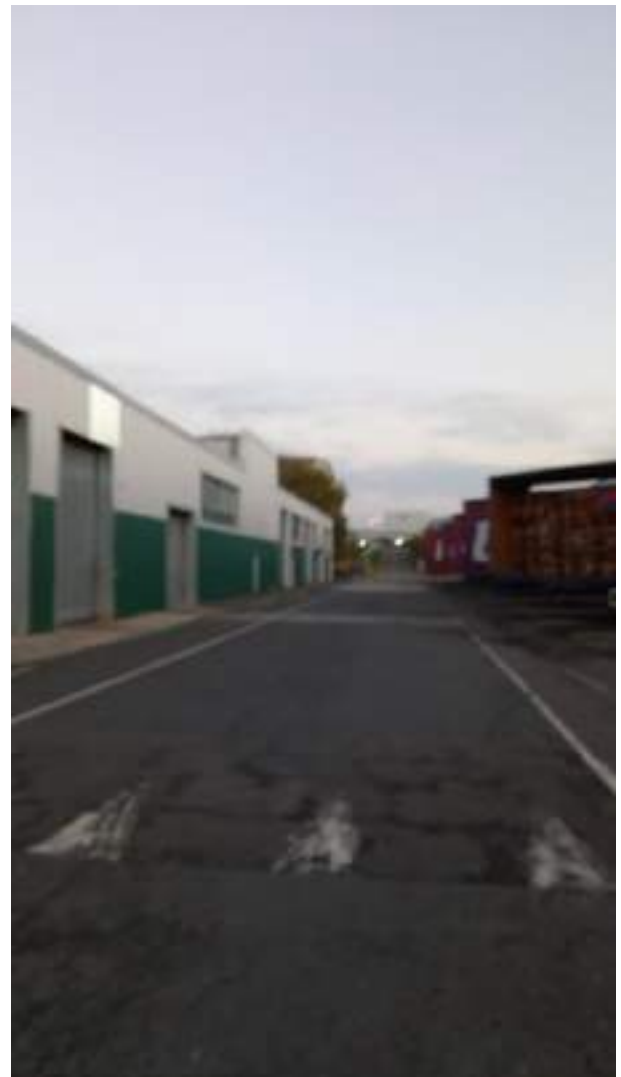


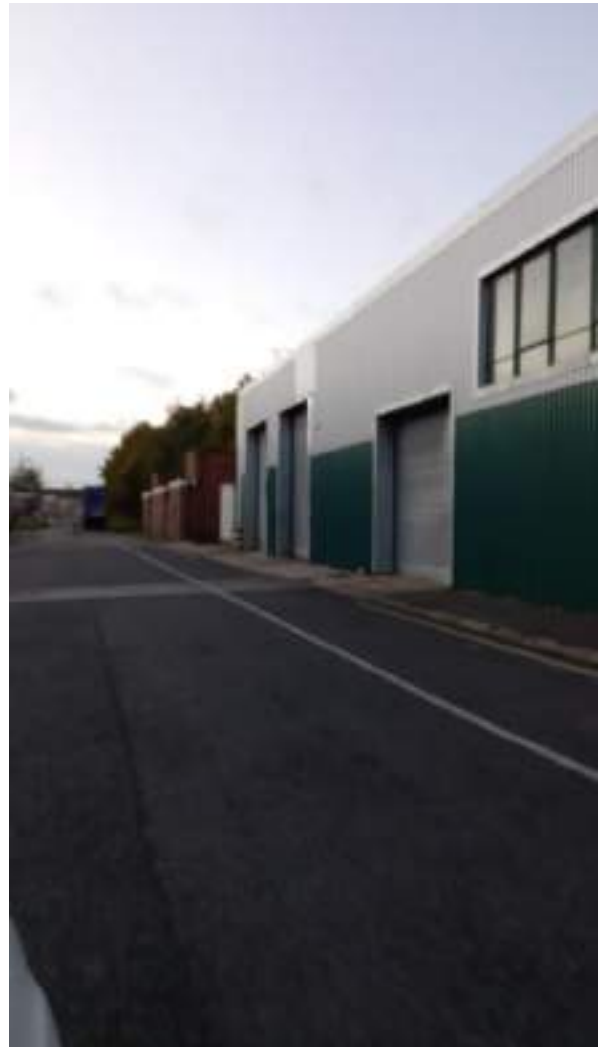
























APPENDIX D - DEFINITIONS OF TERMS USED IN QUALITATIVE AND QUANTITATIVE RISK ASSESSMENTS

CIRIA C552 Terminology

For the qualitative and quantitative assessment of risks posed by potential pollutant linkages have been undertaken using the risk matrix adapted from CIRIA C552 and outlined in the table below.

	Category	Definition
Potential severity	Severe	Acute (short term) risk to human health, Major pollution of sensitive controlled waters, ecosystems or habitat. Catastrophic damage to buildings or property or crops.
	Medium	Chronic (Medium / long term) risk to human health Pollution of sensitive controlled waters, ecosystems or species, Significant damage to crops, buildings or structures
	Mild	Easily preventable permanent health effects on humans. Pollution of non-sensitive controlled waters. Minor damage to buildings or structures.
	Minor	Easily preventable non-permanent health effects on humans, or no effects. Minor, low level and localised contamination of on-site soil. Easily repairable damage to buildings or structures.
Probability of risk	High Likelihood	Pollutant linkage may be present, and the risk is almost certain to occur , or there is evidence of harm already occurring.
	Likely	Pollutant linkage may be present, and it is probable that the risk will occur over the long term.
	Low Likelihood	Pollutant linkages may be present and there is a possibility of the risk occurring, although there is no certainty that it will do so.
	Unlikely	Pollutant linkage may be present but the circumstances under which harm would occur are improbable.

		Potential Severity			
		Severe	Medium	Mild	Minor
Probability of risk	High Likelihood	Very high risk	High risk	Moderate risk	Moderate / low risk
	Likely	High risk	Moderate risk	Moderate / low risk	Low risk
	Low Likelihood	Moderate risk	Moderate / low risk	Low risk	Very low risk
	Unlikely	Moderate / low risk	Low risk	very low risk	Very low risk

APPENDIX E - CONTROLLED WATERS RISK ASSESSMENT

CURRENT GUIDANCE FOR CONTROLLED WATERS RISK ASSESSMENT

Regulatory Context

Government policy is based upon a “suitable for use approach,” which is relevant to both the current use of land and also to any proposed future use. When considering the current use of land, Part IIA of the Environment Protection Act 1990 (EPA 1990) provides the regulatory regime, which was introduced by Section 57 of the Environment Act 1995, which came into force in England on 1 April 2000. The main objective of introducing the Part IIA regime is to provide an improved system for the identification and remediation of land where contamination is causing unacceptable risks to human health, controlled waters or the wider environment given the current use and circumstances of the land. Part IIA provides a statutory definition of contaminated land under Section 78A(2) as:

“any land which appears to the Local Authority in whose area it is situated to be in such a condition, by reason of substances in, on, or under the land, that:

(a) Significant harm is being caused or there is a significant possibility of such harm being caused; or

(b) Pollution of controlled waters is being, or is likely to be, caused.”

Part IIA provides a statutory definition of the pollution of controlled waters under Section 78A(9) as:

“the entry into controlled waters of any poisonous, noxious or polluting matter or any solid waste matter”

Controlled Waters are defined Section 104 of the Water Resources Act 1991. In summary, they comprise relevant territorial waters which extend seaward for three miles from the low-tide limit from which the territorial sea adjacent to England and Wales is measured.

The Environment Agency has powers under Part 7 of The Water Resources Act (1991) to take action to prevent or remedy the pollution of controlled waters, including circumstances where the pollution arises from contamination in the land. This is reinforced in The Contaminated Land (England) (Amendment) Regulations 2012 and Contaminated Land Statutory Guidance (DEFRA, 2012) which came into force in early April 2012.

Part IIA introduces the concept of a contaminant linkage; where for potential harm to exist there must be a connection between the source of the hazard and the receptor via a pathway. Risk assessment in contaminated land is therefore directed towards identifying the contaminants, pathways and receptors that can provide contaminant linkages. This is known as the contaminant-pathway-receptor link (CPR or contaminant linkage).

Part IIA places contaminated land responsibility as a part of the planning and redevelopment process, rather than Local Authority or Environment Agency directly, except in cases of very high pollution risk or where harm is occurring. In the planning process, guidance is provided by National Planning Policy Framework (NPPF) of March 2012. The NPPF requires that a site which has been developed shall not be capable of being determined “contaminated land” under Part IIA. Therefore, appropriate risk-based investigation is required to identify the contaminant linkages that can then be assessed, and then mitigated using methods that can be agreed with the planners.

Source Protection Zones

Source Protection Zones (SPZs) are defined by the Environment Agency (for England and Wales), SEPA (Scotland) and the Environment and Heritage Service (Northern Ireland) for groundwater sources such as wells, boreholes and springs that are used for public drinking water supply. The zones show the risk of contamination from activities that might cause groundwater pollution in the area. The size and shape of a zone depends upon subsurface conditions, how the groundwater is removed, and other environmental factors.

SPZs are classified into four categories:

- **Zone 1 (Inner protection zone).** Any pollution that can travel to the abstraction point within 50 days from any point within the zone is classified as being inside Zone 1. This applies at and below the groundwater table. This zone also has a minimum 50 m protection radius around the abstraction point. These criteria are designed to protect against the transmission of toxic chemicals and water-borne disease.
- **Zone 2 (Outer protection zone).** The outer zone covers pollution that takes up to 400 days to travel to the abstraction point, or 25% of the total catchment area, whichever area is the largest. This travel time is the minimum period over which the Environment Agency considers that pollutants need to be diluted, reduced in strength or delayed by the time they reach the abstraction point.
- **Zone 3 (Total catchment).** This is the total area needed to support removal of water from the abstraction point, and to support any discharge from this.
- **Zone of special interest.** This may occasionally be defined as a special case. This is usually where local conditions mean that industrial sites and other potential sources of contamination could affect the groundwater source, even though they are outside the normal catchment area.

Groundwater Vulnerability Assessments

From 1 April 2010 The Environment Agency Groundwater Protection Policy began to use aquifer designations which are consistent with the Water Framework Directive. These designations reflect the importance of aquifers in terms of groundwater as a resource (drinking water supply) but also their role in supporting surface water flows and wetland ecosystems.

The aquifer designation data is based on geological mapping provided by the British Geological Survey. It is updated regularly to reflect their ongoing programme of improvements to these maps. The maps are split into two different types of aquifer designation:

- Superficial (Drift) - permeable unconsolidated (loose) deposits. For example, sands and gravels.
- Bedrock - solid permeable formations e.g. sandstone, chalk and limestone.

The maps display the following aquifer designations:

Table 1. Aquifer Classification (“Geological Classification”).

Classification	Definition
Principal Aquifers (Highly Permeable)	These are layers of rock or drift deposits that have high intergranular and/or fracture permeability - meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.
Secondary A Aquifers	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.
Secondary B Aquifers	Predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons and weathering. These are generally the water-bearing parts of the former non-aquifers.
Secondary Undifferentiated Aquifers	This has been assigned in cases where it has not been possible to attribute either category A or B to a rock type. In most cases, this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type.
Unproductive Strata	These are rock layers or drift deposits with low permeability that have negligible significance for water supply or river base flow.

Environment Agency Guidance

The Environment Agency's stance on groundwater resources is:

“to protect and manage groundwater resources for present and future generations in ways that are appropriate for the risks we identify”
(Groundwater Protection: Policy and Practice GP3, 2012).

At present, the legislation and guidance pertaining to the protection of controlled waters in the UK is complex; however, the core objectives seek to enforce the position given above.

In 1992, the National Rivers Authority published their Policy and Practice for the Protection of Groundwater (PPPG), this document introduced areas of focus for developments such as Source Protection Zones (SPZs) and Groundwater Vulnerability Maps. The Policy was revised in 1998, since which there have been substantial changes in legislation, driven by key European Directives relating to groundwater include the Groundwater Directive (80/68/EEC) and the Water Framework Directive (2000/60/EC). Aspects of these directives are controlled by primary UK legislation such as the Water Resources Act 1991 as amended by the Water Act 2003. Gaps in the 1998 PPPG that emerged as the result of further legislative changes were addressed in the Environment Agency Policy document Groundwater Protection: Policy and Practice (GP3), Version 1 of November 2012. The three main parts of GP3 were:

- Groundwater principals;
- Position statements and legislation; and
- Technical information.

The Environment Agency has a tiered risk based approach to drinking water protection as summarised below:



APPENDIX F - COMPLYING WITH CONTROL OF ASBESTOS REGULATIONS 2012

Complying with Control of Asbestos Regulations (CAR): Risk Assessments, Licensing and Training

This appendix outlines CAR risk assessments and where they should be applied in relation to assessing and remediating brownfield sites. The information below details the different classifications of work with asbestos under CAR, summarises the legal requirements for asbestos awareness training for all involved in the investigation and management of asbestos containing soil (ACS), and details the potential requirements for suitable proficiency training relating specifically to ACS.

CAR RISK ASSESSMENTS

A CAR Risk Assessment is required for any work which may expose employees to asbestos. It is recommended that a precautionary approach is adopted if there is any doubt about risks associated with asbestos.

There are three main activities for potential asbestos exposure during work on brownfield sites:

- Site reconnaissance visits;
- Site investigation works; and
- Site remediation.

CAR risk assessments are needed at each stage but may be incorporated during the site investigation stage into the overarching health and safety risk assessments.

The CAR risk assessment must:

- Identify the type of asbestos to which employees are liable to be exposed, where possible, or assume it is present in different forms;
- Determine the type and extent of exposures to asbestos that may occur during the work
- Identify the steps to be taken to prevent exposure or reduce it to the lowest level reasonably practicable; and,
- Consider the effects of control measures that have been or will be taken.

The CAR risk assessment should include any information used to inform the risk assessment such as asbestos reports or desk study information. In the event that this information is not available, the assessor should be assumed that all forms of asbestos may be present on Site.

For all investigation and remediation of ACSs, a detailed written work plan should be produced and followed as detailed on the HSE website and in the CAR.

The CAR risk assessments for specific investigations or remediation projects, will determine whether or not work is 'licensable work' (LW), notifiable non-licensable work' (NNLW) or 'non-licensed work' (NLW). In addition, training requirements are also defined by the CAR risk assessment.

Some examples of control measures that apply during site reconnaissance, site investigation works, and site remediation are given below and should be applied depending on the asbestos risks identified for the Site at each stage of investigation:

- Avoiding stirring up dust;
- Cleaning footwear after site works;
- Removing and bagging any overalls for disposal/laundry;
- Respirators and hygiene facilities for high risk sites;
- Segregated welfare units;
- Wetting ground
- Minimising soil disturbances;
- Implementation or retention of capping/break layers;
- Implementation of awareness training;
- Air monitoring;
- Managing stockpiles;
- Area segregation;
- Wheel washing
- Road washing/cleaning

It is important to note that during Site reconnaissance visits, Site investigation works and Site remediation that asbestos should not be considered in isolation and control measures are likely to form part of a wider health and safety precautions.

Respiratory protective equipment (RPE)

RPE is the last line of defence and its requirement would be defined by the CAR risk assessment. HSE (2013b) advises that RPE should have an assigned protection factor of 20 or more for all work with asbestos. In certain instances, full face-piece, positive pressure respirators with a protection factor of 40 are necessary (to EN 12942:1998, TM3).

Suitable types of RPE for most **short** duration non-licensed asbestos work:

- Disposable respirator to standards EN149 (type FFP3) or EN1827 (type FMP3)
- Half mask respirator (to standard EN140) with P3 filter
- Semi-disposable respirator (to EN405) with P3 filter

These filters are not suitable for people with beards/stubble or for long or continuous use.

LICENSING

CAR defined certain types of activities involving asbestos as 'licensable work' (LW) or as 'notifiable non-licensable work' (NNLW). All other work would be 'non-licensable work' (NLW).

LW is defined as:

- work where exposure is not 'sporadic and low intensity'
- work where the risk assessment cannot demonstrate that the control limits (four hour and 10 minute limits) will not be exceeded
- work on asbestos coating
- work on AIB or insulation where risk assessment is either of first two points above or not of short duration (where short duration is defined for any work liable to disturb asbestos as taking less than two hours per week (including ancillary work) and no one person carries out that work for more than one hour').

NNLW includes work with:

- AIB or asbestos insulation of short duration that is not licensable
- fire-damaged asbestos cement or asbestos cement damaged so as to create significant dust and debris
- asbestos ropes, yarns, woven cloths in poor condition or handling cutting or breaking up the materials
- asbestos papers, felts and cardboard in poor condition, unencapsulated or not bound into another material.

Work with weathered asbestos cement, air monitoring and collecting samples of ACM in buildings would not normally be notifiable.

It is impossible to specify definitively what activities will and will not be licensable. This decision should be made as part of the CAR risk assessment. CAR is not primarily aimed at work with ACSs and there is little published information on airborne asbestos concentrations during work with ACSs. Nevertheless, CAR will require some remediation projects, and occasionally site investigations, to be LW. Investigations on other sites may involve NNLW. The decision as to whether work is LW or NNLW should be made during the CAR risk assessment by those in charge of the brownfield site investigations and remediation projects.

TRAINING REQUIREMENTS

Asbestos health and safety courses are offered by a number of providers in the UK. Training courses that include the problem of identifying ACMs in soil should be undertaken at regular intervals by those involved in the investigation, assessment and management of sites where ACs are known or suspected. It is the role of the employer to identify the level of training required for an employee based on their role, experience and duties. Reference to Regulation 10 of CAR should be referred to for more information on training requirements.

Recognising asbestos within soils is challenging due to the heterogeneity of such soils and the discolouration of asbestos by smeared soil. Specific training for ground workers should include understanding fibre release potential, potential control measures in the field, how to take representative ACSs safely, sample labelling and what analytical tests are available and when they should be implemented.

Health and safety training required under CAR includes asbestos awareness, non-licensable work (including notifiable non-licensable work) and licensable work with asbestos.

In addition to health and safety training, some staff involved in the technical identification on site of ACMs, sampling and analysis may require technical proficiency training (competency training).

Training vs. Competence

HSE (2005) identifies that 'training alone does not make people competent. Training must be consolidated by practical experience so that the person becomes confident, skilful and knowledgeable in practice on the job'. It is critical that ACS surveyors demonstrate competency with details of relevant field experience alongside training and examples of previous works/references.