

EXBURY HOMES LIMITED

WOODCROFT LANE, WATERLOOVILLE, PO8 0QD

**PHASE 1 ENVIRONMENTAL ASSESSMENT:
AQUIFER/GROUNDWATER PROTECTION**

1. INTRODUCTION

Exbury Homes Limited proposes to redevelop a site at Woodcroft Lane, Waterlooville, Hampshire, for residential purposes. The site currently comprises a vacant grassed and wooded area within the grounds of Woodcroft Primary School. The proposed development comprises a mixture of detached, semi-detached and terraced houses with private gardens and an apartment block. The development will also comprise associated access roads, car parking areas and areas of managed landscaping.

Crossfield Consulting has been commissioned to undertake a Phase 1 Environmental Assessment of the site to identify possible constraints to the development relating to aquifer and groundwater protection. An assessment in relation to other potential receptors and geotechnical advice lie outside the scope of this report.

A Ground Investigation Report by White Young Green Environmental undertaken at the site has been made available for review. Relevant factual data from the White Young Green Environmental ground investigation is presented within this report and has been used in the Phase I Environmental Assessment.

The Phase I Environmental Assessment includes a review of historical maps of the site and surrounding area and an appraisal of the published geological data, information from regulatory authorities and the previous ground investigation information. The report presents the results of the study, together with an assessment of the likely ground conditions.

It is considered that the report complies with the National Planning Policy Framework and addresses the requirements of Planning Condition 5 (Ref. APP/15/01235) and Pre-submission Havant Borough Council Local Plan 2036 Policy E21.

2. THE SITE

2.1 Site Location

The site is located approximately 2.5 km to the north of the centre of Waterlooville, as shown on Figure 1. The National Grid Reference for the site is SU 6857 1204. The site is bounded to the north by buildings and grounds associated with Woodcroft Primary School. Woodcroft Lane is present to the northeast and Eagle Avenue is present to the south, as shown on Figure 2. Residential properties and gardens are present to the east and an area of mature trees is currently present along the western site boundary.

2.2 Site Description

This site description is based on the current Ordnance Survey map, a topographic survey, presented as Figure 2, and photographs that are accessible via internet-based mapping sites. No site reconnaissance has been undertaken by staff from Crossfield Consulting Limited.

The site is irregular in shape with an approximate area of 1.42 ha. The site slopes gently down to the southeast with an approximate fall across the site from the northwest to the southeast of 5 m. The site area predominantly comprises a grassed area with an area of mature trees in the central southern part of the site.

2.3 Site History

The site history has been researched with reference to old editions of the County Series and National Grid Ordnance Survey Plans obtained from Emapsite. Extracts from a selection of these plans are presented in Appendix I. The plans indicate that the following development has taken place on and around the site.

The site is identified to be undeveloped and located within large field on the map editions from 1868 to 1965-1969. The 1974 map edition indicates classroom buildings from an adjoining school encroaches within the western area of the site. Tennis Courts and playground/playing field areas also appear to encroach into the site.

Between 2010 and 2014, the school facilities within the site were removed and the site became disused. It is noted that the only development on site is associated with the school facility.

3. PUBLISHED GEOLOGY

Geological map data published by the British Geological Survey (BGS) online and in print, on 1:50,000 scale Sheet No. 316 (Fareham), indicate that superficial deposits are absent below the site although Head Deposits are recorded elsewhere in the area. The solid strata are recorded to be the Palaeogene Lambeth Group: Reading Formation, described as mottled clay, silt and locally sandy.

The Lambeth Group strata are indicated to be underlain (unconformably) by the Cretaceous Tarrant Chalk Member, described as white chalk with flints. The strata generally dip very gently down to the south.

4. DESK STUDY ENQUIRIES

4.1 Database Enquiries

Enquiries were made to the GroundSure Environmental Database, GroundSure Geological Database and the British Geological Survey regarding the site and surrounding area. Information obtained from these enquiries is presented in Appendix II and information relevant to the aquifer and groundwater protection assessment are summarised below.

Hydrogeological information indicates that the solid strata beneath the site are classified as a 'Secondary A' aquifer. There are no aquifer strata identified within superficial deposits. The site is located within a groundwater Source Protection Zone 1 (SPZ), inner catchment. There are no facilities with groundwater abstraction licences recorded within 1 km of the site.

Hydrological information indicates that there are no nearby surface water features.

With reference to the Groundsure GeoInsight report, there are no current or historical mine workings recorded on, or within close proximity to, the site although a number of 'old chalk pits' are listed over 100 m from the

site. Risks in relation to potential chalk mining activities at the site are recorded to be 'rare', the lowest risk category given by the BGS. There are a number of natural cavities recorded from approximately 100 m, and primarily to the north and west of the site.

The potential for ground dissolution of soluble rocks beneath the site is identified by the BGS with a hazard rating of 'Negligible'.

4.2. Previous Ground Investigation Information

A ground investigation was undertaken at the site in 2008 by White Young Green Environmental. The investigation included windowless sampling and relevant factual information from the investigation is presented in Appendix III. These records indicate a thin cover of topsoil is recorded underlain by clays and silts to a maximum depth of 4 m. No groundwater was observed. No Made Ground is recorded.

5. GROUND CONDITIONS

Based on the available information, the ground conditions below the site may include a limited volume of Made Ground, if present, within the area where the previous school building encroached within the western part of the site. Topsoil is anticipated at the surface elsewhere across the site. These strata are expected to be underlain by low permeability clays and silts of the Lambeth Group. At depths greater than 5 m, chalk strata are anticipated below the clays and silts. There is no evidence that shallow groundwater is present below the site.

6. CONTROLLED WATERS RISK ASSESSMENT

The solid strata beneath the site are classified as a 'Secondary' aquifer. The site also lies within a groundwater Source Protection Zone 1 – inner catchment area (which is likely to be associated with the underlying chalk strata). There are no recorded surface water or groundwater abstraction licences within 1 km of the site.

A Conceptual Site Model in relation to groundwater receptors is presented in Table 1 and the associated risk assessment is set out below.

Based on the available information, there is only a limited potential for a localised Made Ground source to be present at the site associated with the construction and residual materials of the former school building. Metal and polyaromatic hydrocarbons (PAHs) solubility, relating to Made Ground materials (if present), is generally low at typical soil temperatures and expected soil pH values such that a valid source of potential contaminants is not indicated to be present. Therefore, the potential for heavy metal and PAHs migration, via leaching, to impact on the wider environment is considered to be very low. The potential for vertical migration is indicated to be mitigated by the recorded low permeability clays and silts below the site, recorded to extend to at least 4 m below the site.

Elsewhere across the site, only natural strata are shown to be present such that there is no valid source of potential contaminants evident

Therefore, based on the above assessment, it is evident that there are no significant sources of potential contaminants present at the site. In addition, it is apparent that no valid migration pathway is present to chalk aquifer strata. On this basis, it is demonstrated that there is no valid pollution linkage in relation to the chalk aquifer strata and associated groundwater resources. Hence, there are effectively no risks to controlled waters at the site.

In view of the low permeability soils recorded on site, it is noted that the proposed development does not include soakaway drainage. Hence the proposed development will not include any adverse features in relation to the foregoing risk assessment.

7. SUMMARY

It is proposed to develop a vacant grassed and vegetated area within the grounds of Woodcroft Primary School for residential purposes.

Based on the available information, the ground conditions below the site may include a limited area of Made Ground materials associated with a former school building that encroached within the western part of the site. Elsewhere only natural soils are recorded across the site. The Made Ground, if present, is shown to be underlain by low permeability clays and silts of the Lambeth Group strata. Chalk strata is anticipated below the clays and silts. There is no evidence that shallow groundwater is present below the site.

Based on the available information, it is evident that there are no significant sources of potential contaminants at the site. In addition, migration of potential contaminants is effectively precluded by the recorded low permeability clays and silts. Hence, it is evident that there are no valid pollutant linkages in relation to groundwater resources/controlled waters. The proposed development will not introduce any valid pollutant linkages. Therefore, risks to controlled waters at the site are considered to be negligible.

It is considered that the information and assessment presented in this report addresses the requirements raised regarding Planning Condition 5 (Ref. APP/15/01235) and Pre-submission Havant Borough Council Local Plan 2036 Policy E21, such that the proposed development can be permitted.

REFERENCES

BSI (2017) *BS 10175:2011+A2:2017 Code of Practice for Investigation of Potentially Contaminated Sites* British Standards Institution

Environment Agency (2010) *Guiding Principles for Land Contamination – GPLC1 to 3 EA*

Ministry of Housing, Communities and Local Government (2018) *National Planning Policy Framework*

ATTACHMENTS

GENERAL NOTES

TABLE 1	–	Conceptual Site Model
FIGURE 1	–	Site Location Plan
FIGURE 2	–	Site Plan
FIGURE 3	–	Proposed Development Plan
APPENDIX I	–	Historical Maps
APPENDIX II	–	Desk Study Information
APPENDIX III	–	Ground Investigation by White Young Green Environmental (2008)

GENERAL NOTES

1. This report is provided as a preliminary site appraisal only, in the context of the stated development proposals and should not be used in a different context. Further geotechnical assessment, and possibly detailed investigations, will be required prior to finalisation of ground related designs.
2. Where any data supplied by the Client or by other external sources, including previous site investigation data, have been used it has been assumed that the information is correct unless otherwise stated. No responsibility can be accepted by Crossfield Consulting Limited for inaccuracies within the data supplied by others.
3. Any assessments made in this report are based on the ground conditions indicated by the trial pits and desk study. Variations in ground conditions may occur between exploratory hole locations and there may be special conditions appertaining to the site which have not been revealed by the investigation and which have not been taken into account in the report. The assessment may be subject to amendment in the light of additional information becoming available.
4. The report is provided for the sole use by the Client or its assignees and is confidential to the Client's professional advisers. No responsibility whatsoever for the contents of this report will be accepted to any person other than the Client or its assignees.
5. New information, improved practices and legislation may necessitate an alteration to the report in whole, or in part, after its submission. Therefore with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to Crossfield Consulting Limited for re-assessment and, if necessary, re-appraisal.

TABLES

TABLE 1

CONCEPTUAL SITE MODEL

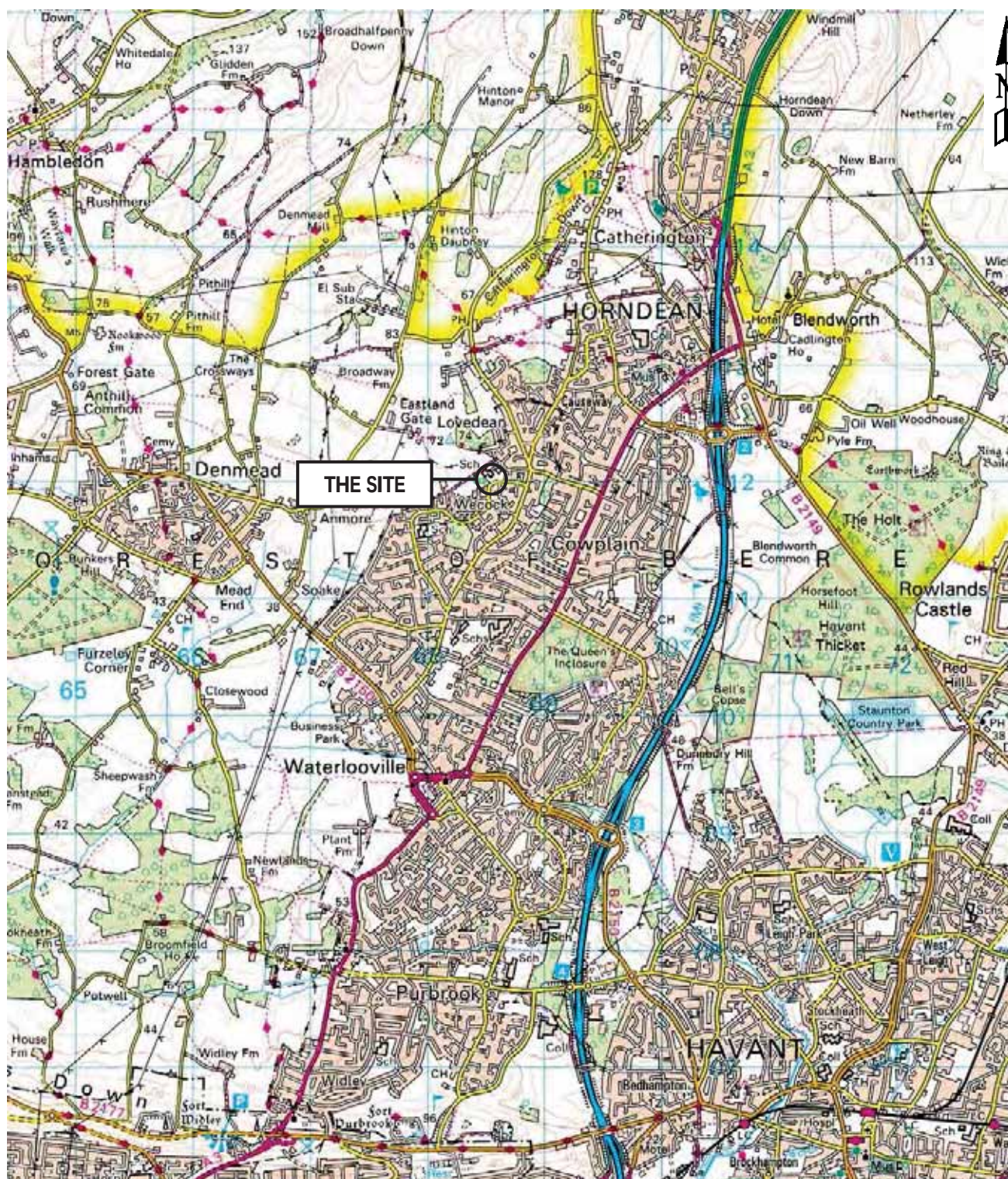
Potential Contaminant Source	Potential Pathway	Receptors and Assessed Pollutant Linkage
<i>Solids</i> No valid source identified <i>Off-site:</i> No valid source identified <i>Liquids</i> <i>Leached Source:</i> No valid source identified <i>Off-site:</i> No valid source identified	<i>Release into Liquid Phase</i> Not applicable: no valid source <i>Movement of Liquids</i> The underlying low permeability strata are likely to prevent migration to groundwater and migration of groundwater off site, hence no viable migration pathway.	<i>Controlled Waters</i> <i>Groundwater:</i> Source Protection Zone 1 – No pollutant linkage <i>Surface Water:</i> No nearby surface water features – No pollutant linkage

NOTES

1. The above conceptual model is based on CIRIA C552 (2001) and BS 10175:2011+A2:2017.

FIGURES

FIGURE 1



SITE LOCATION PLAN

Scale 1: 50,000

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FIGURE 2



SITE PLAN
Scale 1:1000

Reproduced from the Boyle and Summers Architecture and Masterplanning Drawing No. WLW-BSL-ZZ-XX-DR-A-1001-0F

FIGURE 3



PROPOSED DEVELOPMENT PLAN
Scale 1:1,000

Reproduced from the Boyle and Summers Architecture and Masterplanning Drawing No. WLW-BSL-ZZ-XX-DR-A-2001-DF-G

APPENDIX I

Site Details:

Woodcroft Land, Waterlooville

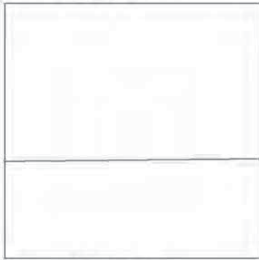
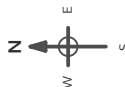
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Report Ref: EMS-559348 751735
Grid Ref: 468575, 112054

Map Name: County Series

Map date: 1868

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1868
Revised 1868
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1868
Revised 1868
Edition N/A
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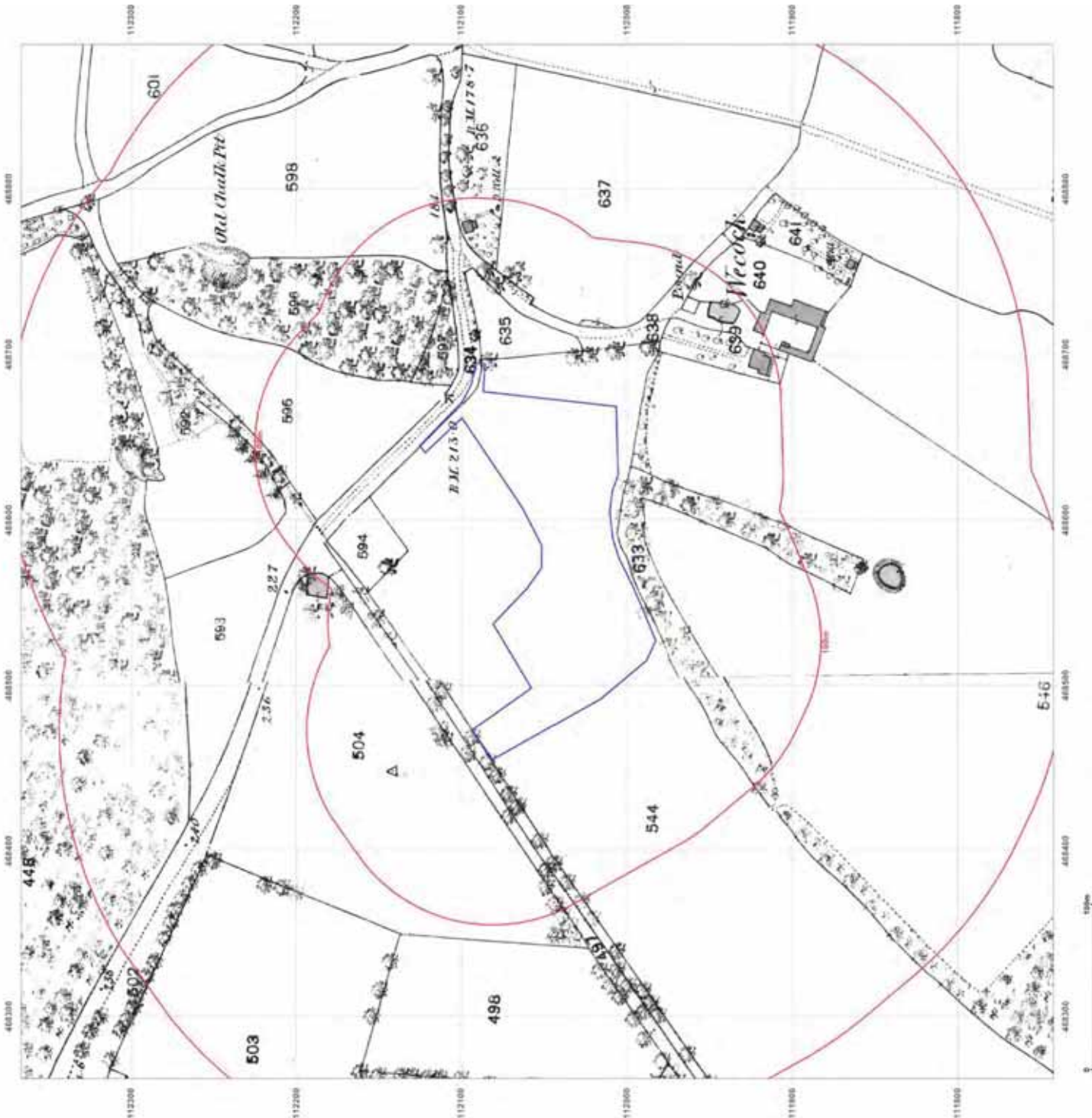


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Map legend available at:

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Site Details:

Woodcroft Land, Waterlooville

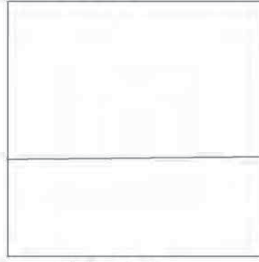
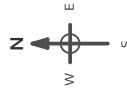
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Map Name: County Series

Map date: 1897

Scale: 1:2,500

Printed at: 1:2,500



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Revised 1897
Edition N/A
Copyright N/A
Levelled N/A

Surveyed 1897
Revised 1897
Edition N/A
Copyright N/A
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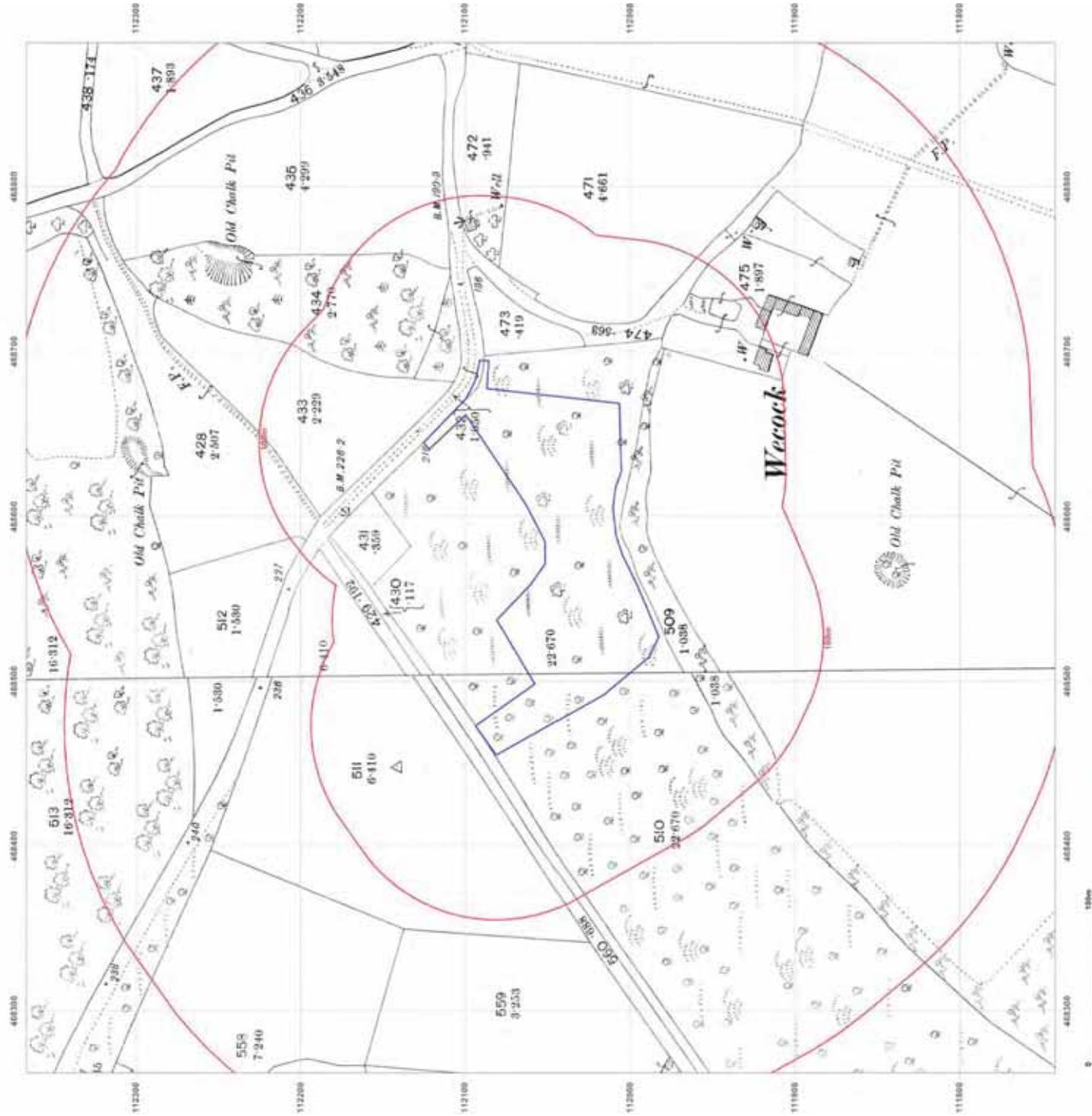


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Woodcroft Land, Waterlooville

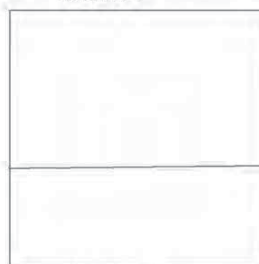
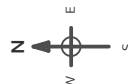
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Revised 1932
Edition N/A
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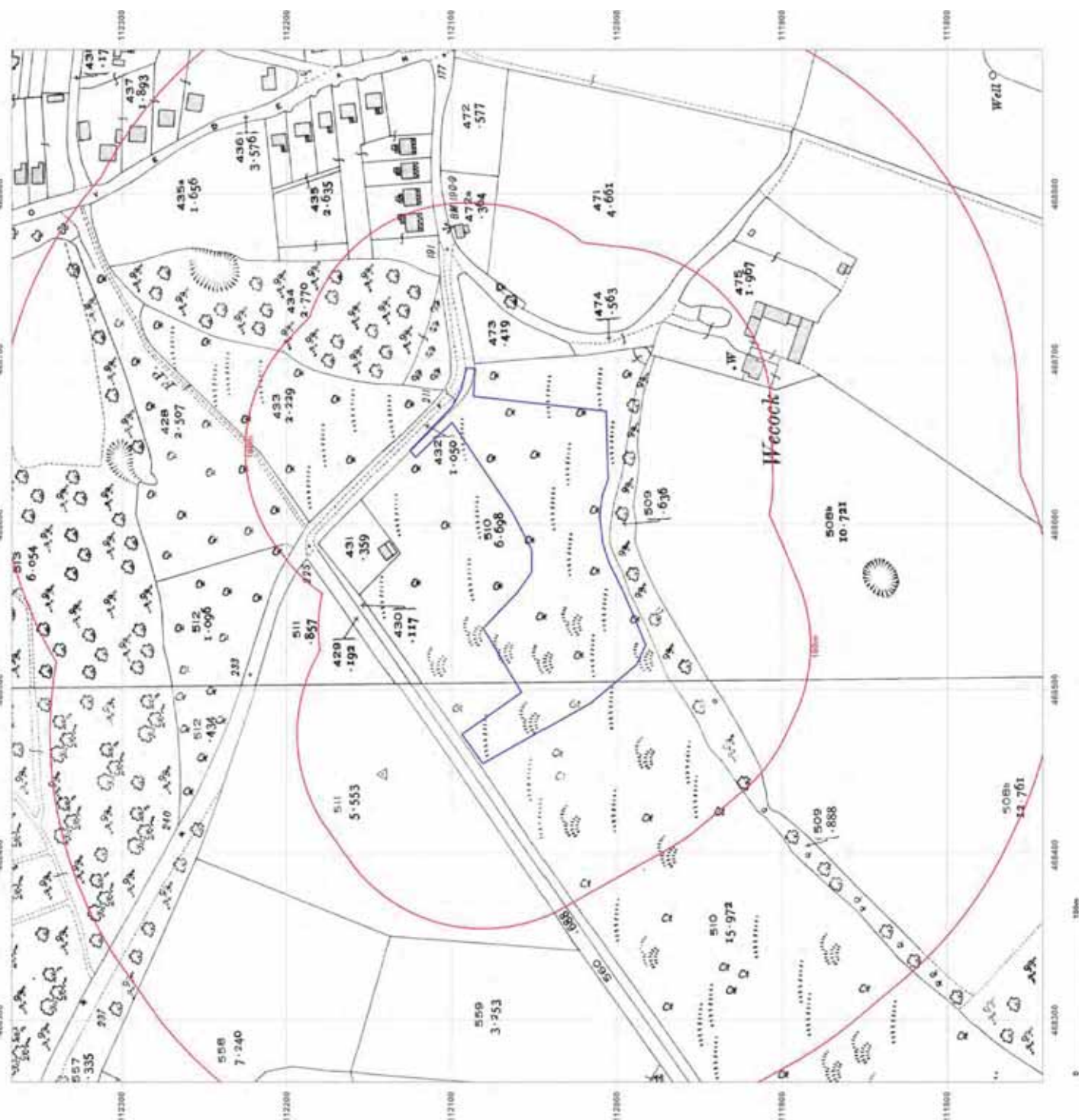


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Woodcroft Land, Waterlooville

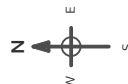
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Map Name: National Grid

Map date: 1958-1963

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1963
Revised 1963
Edition N/A
Copyright 1965
Levelled 1957

Surveyed 1958 Revised 1958 Edition N/A Copyright N/A Levelled 1938	
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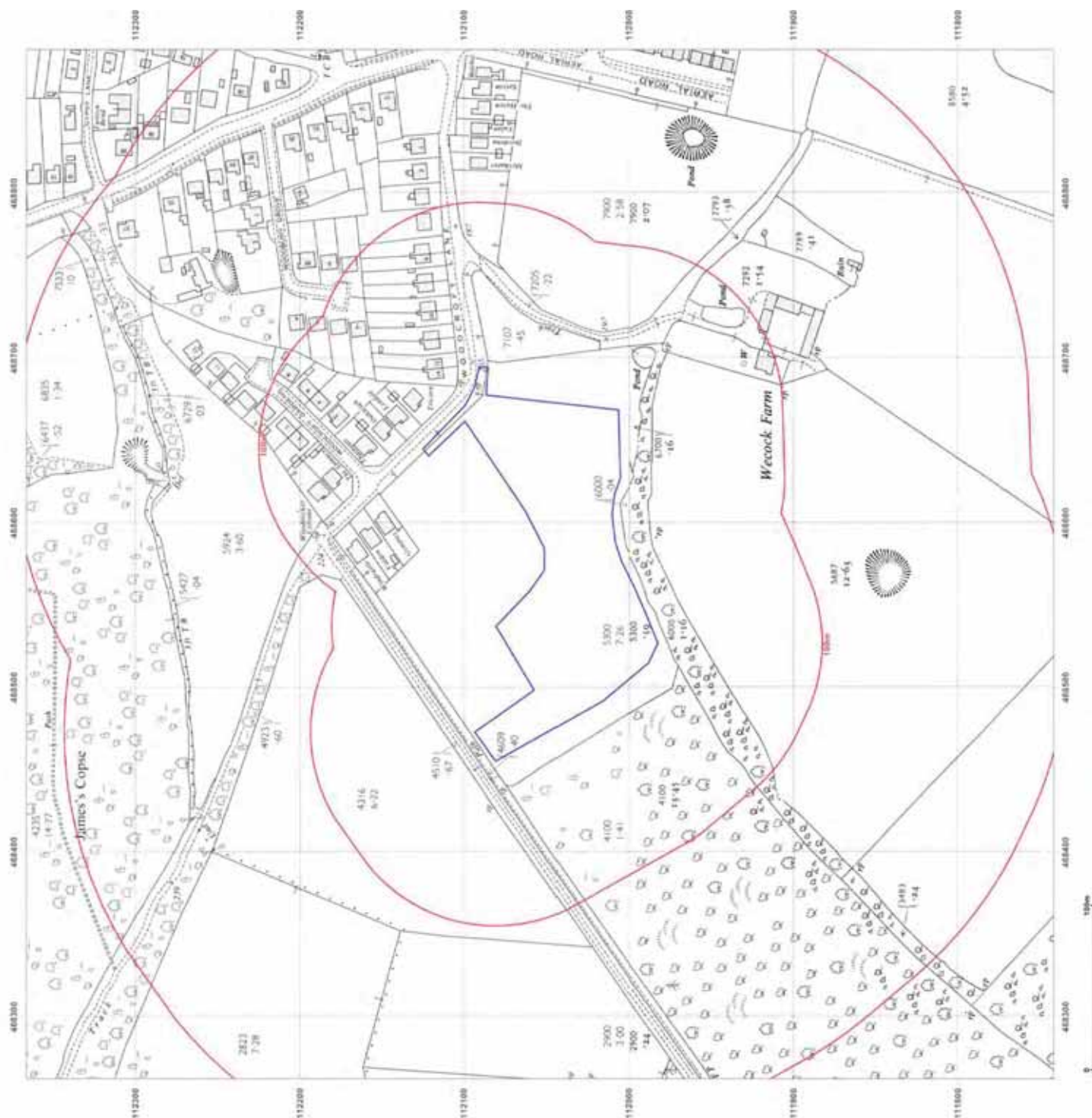


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Site Details:

Woodcroft Land, Waterlooville

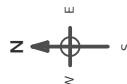
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Map Name: National Grid

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Scale: 1:2,500

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Surveyed N/A
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Edition N/A
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Surveyed 1952
Revised 1969
Edition N/A
Copyright 1970
Levelled 1958



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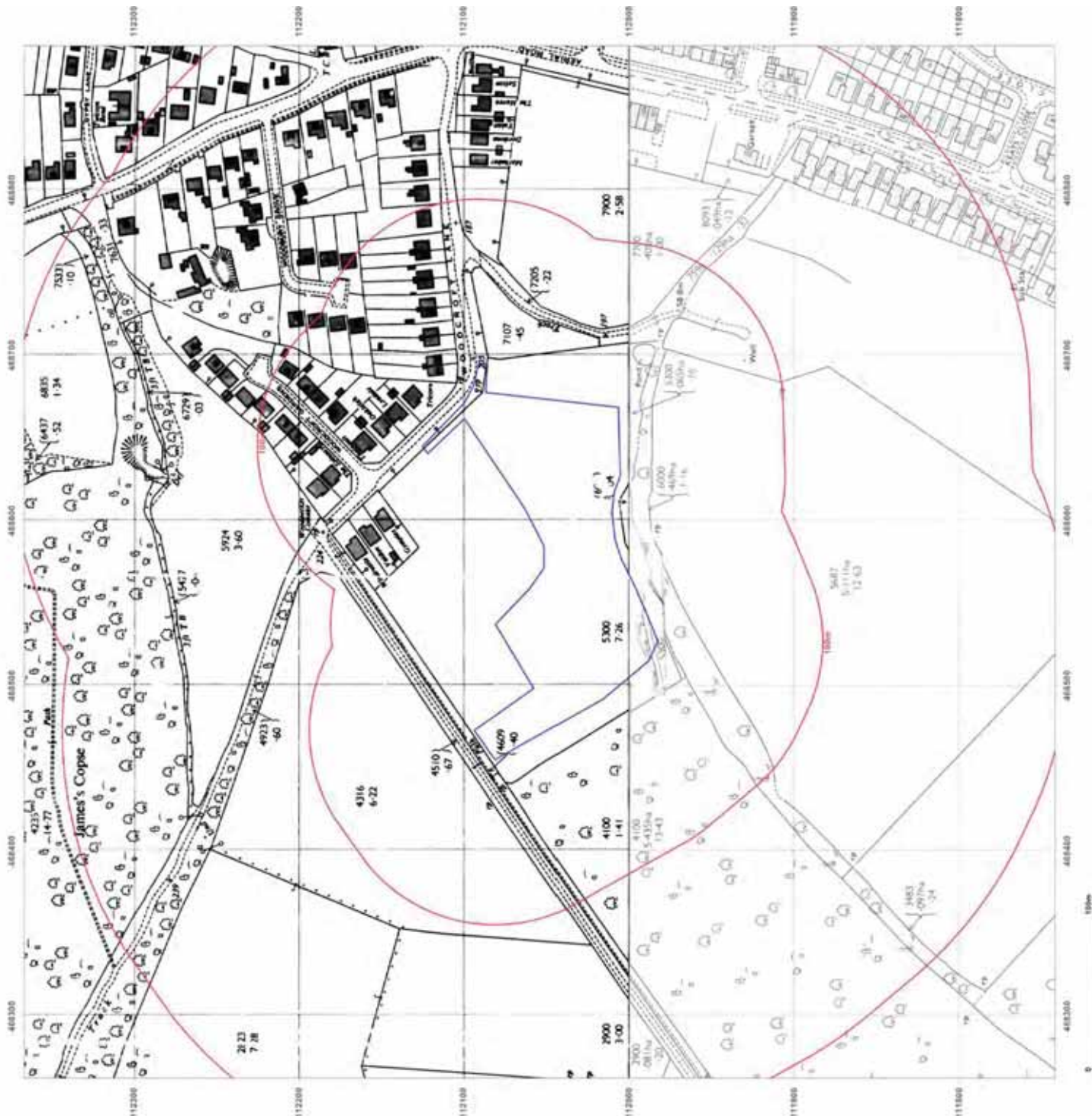


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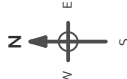
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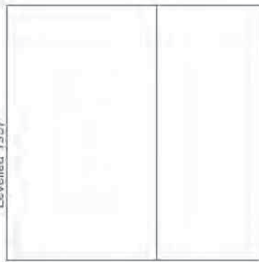
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Revised 1974
Edition N/A
Copyright 1975
Levelled 1957



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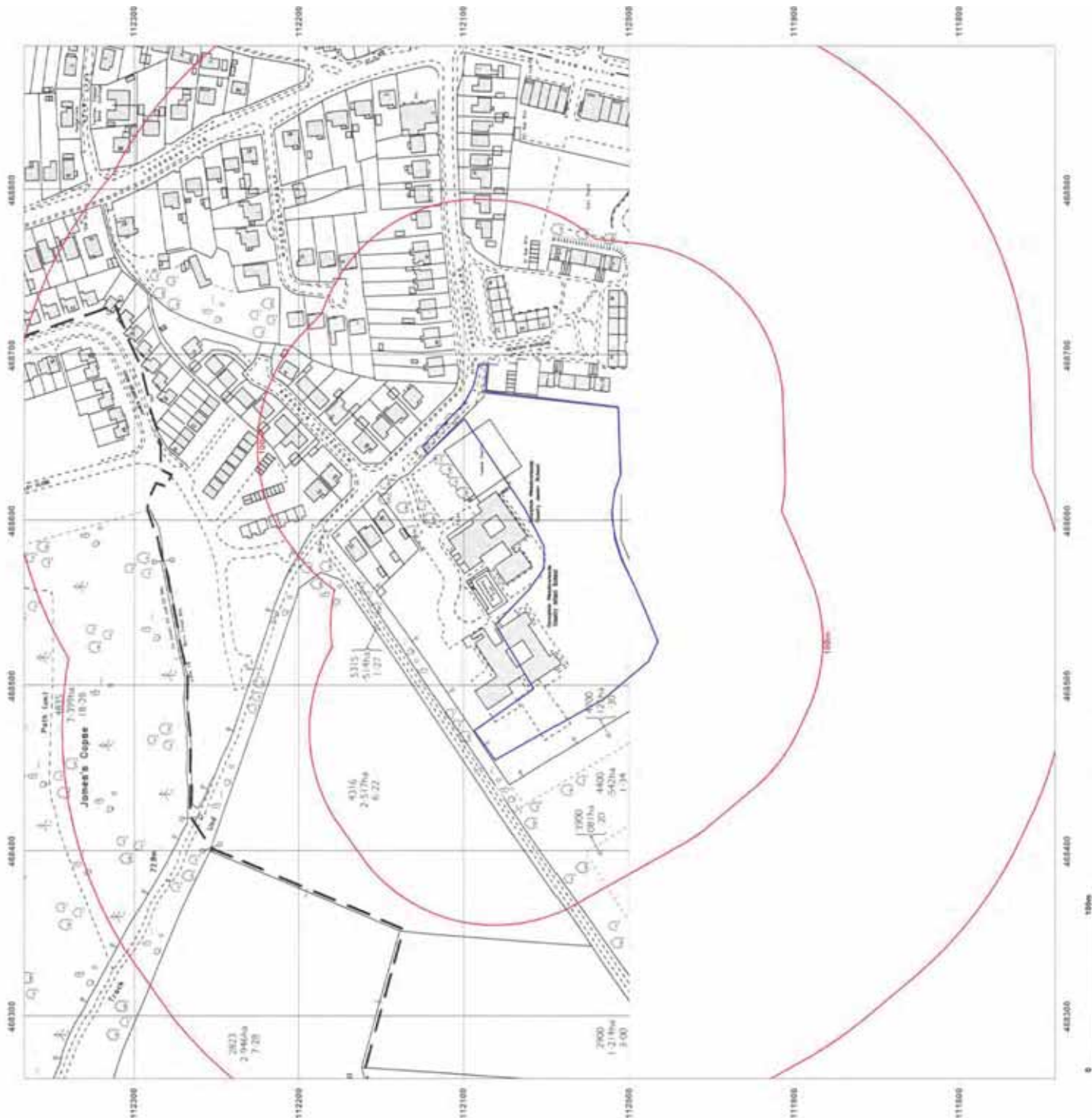


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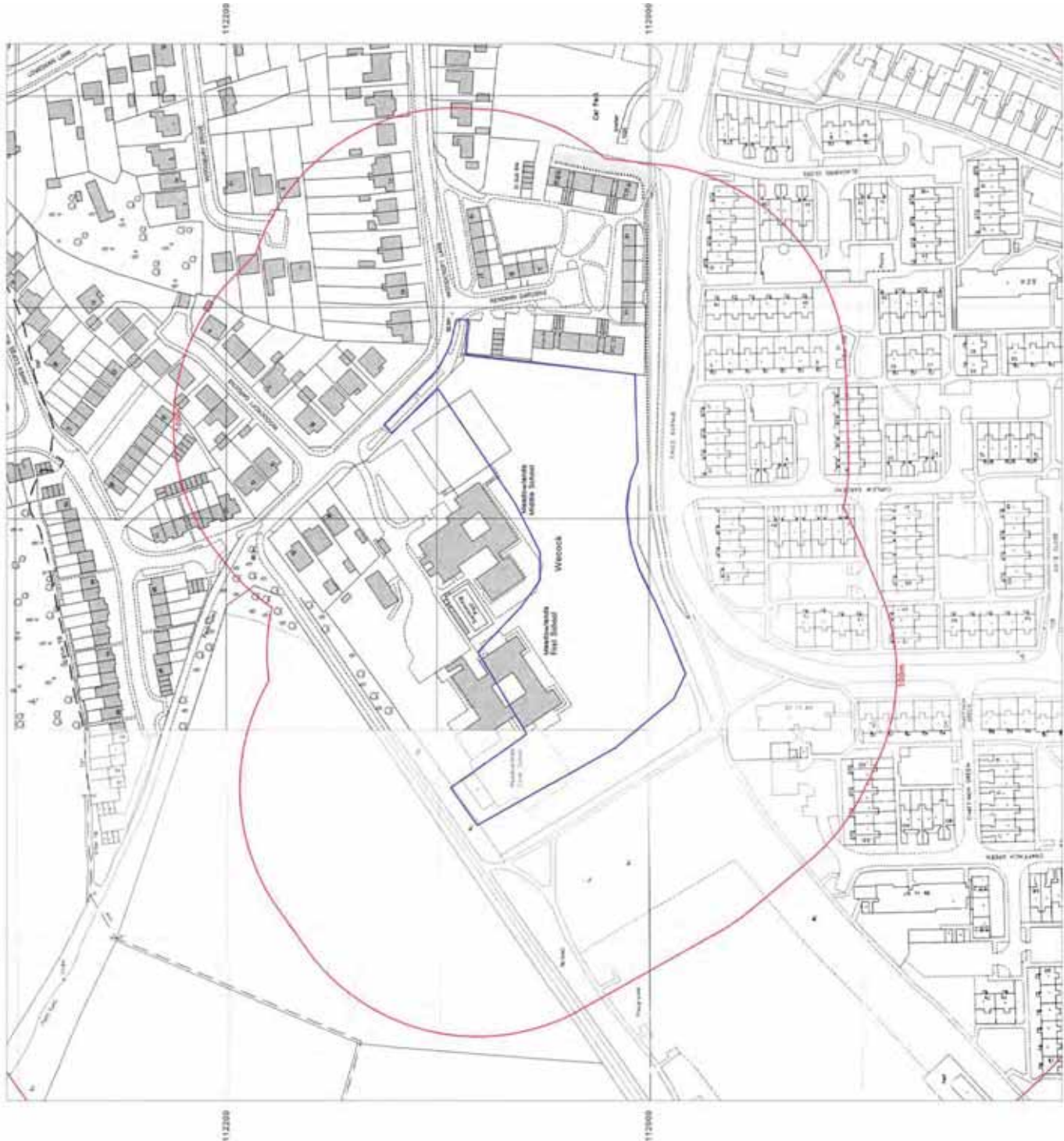


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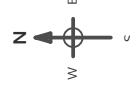
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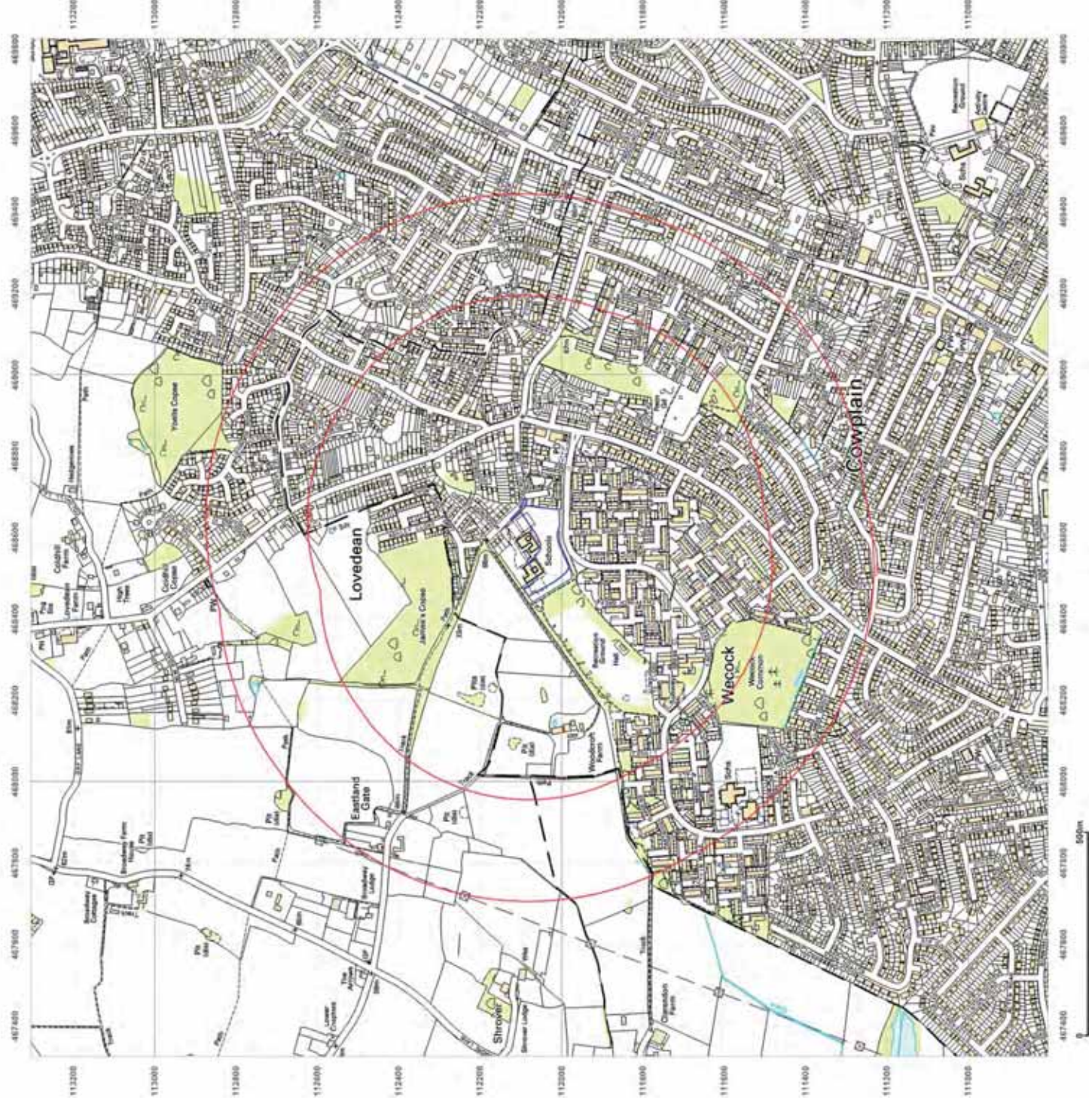


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Report Ref: EMS_559348 751735
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Map Name: National Grid

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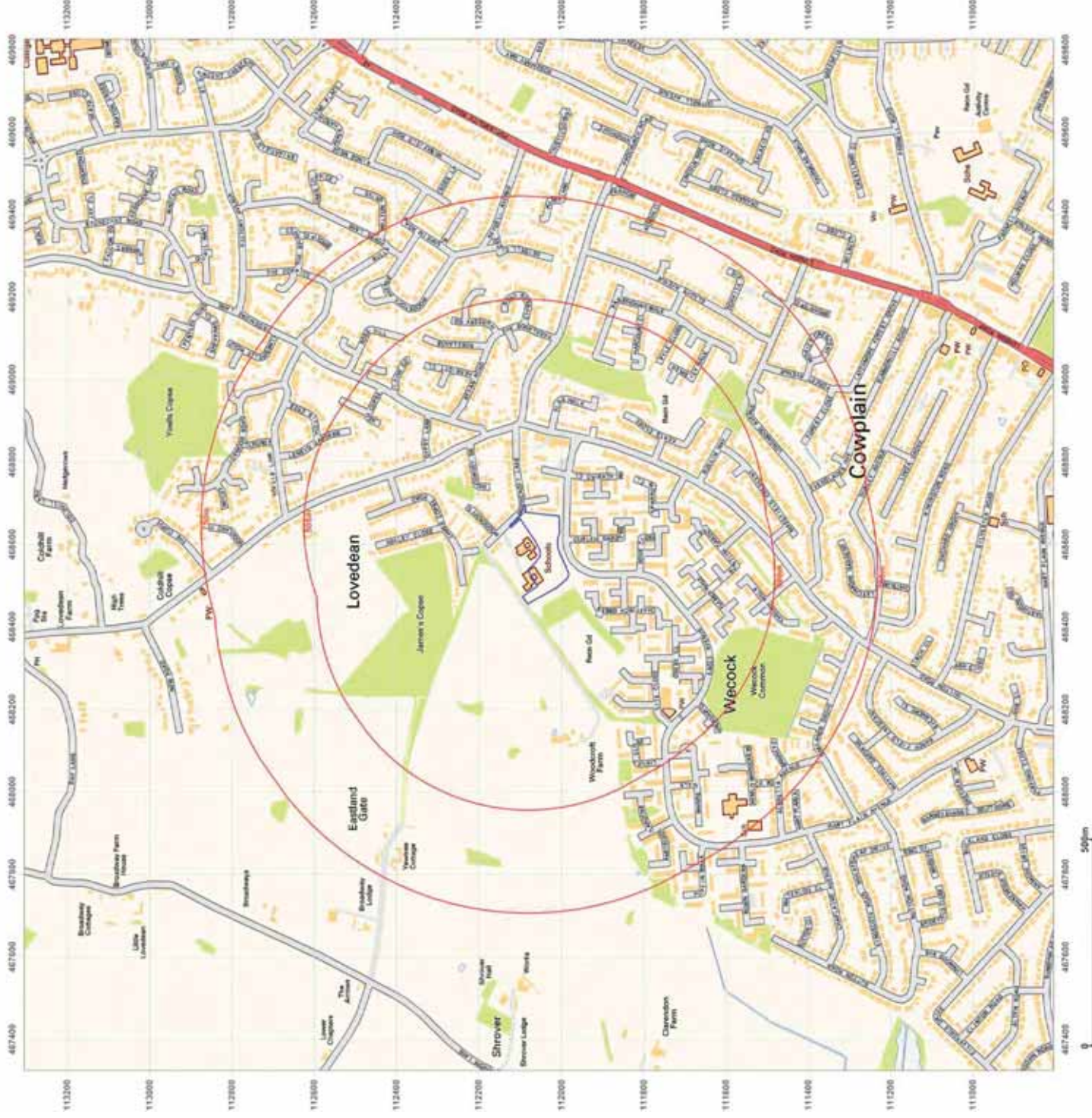


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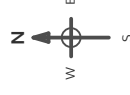
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Printed at: 1:10,000



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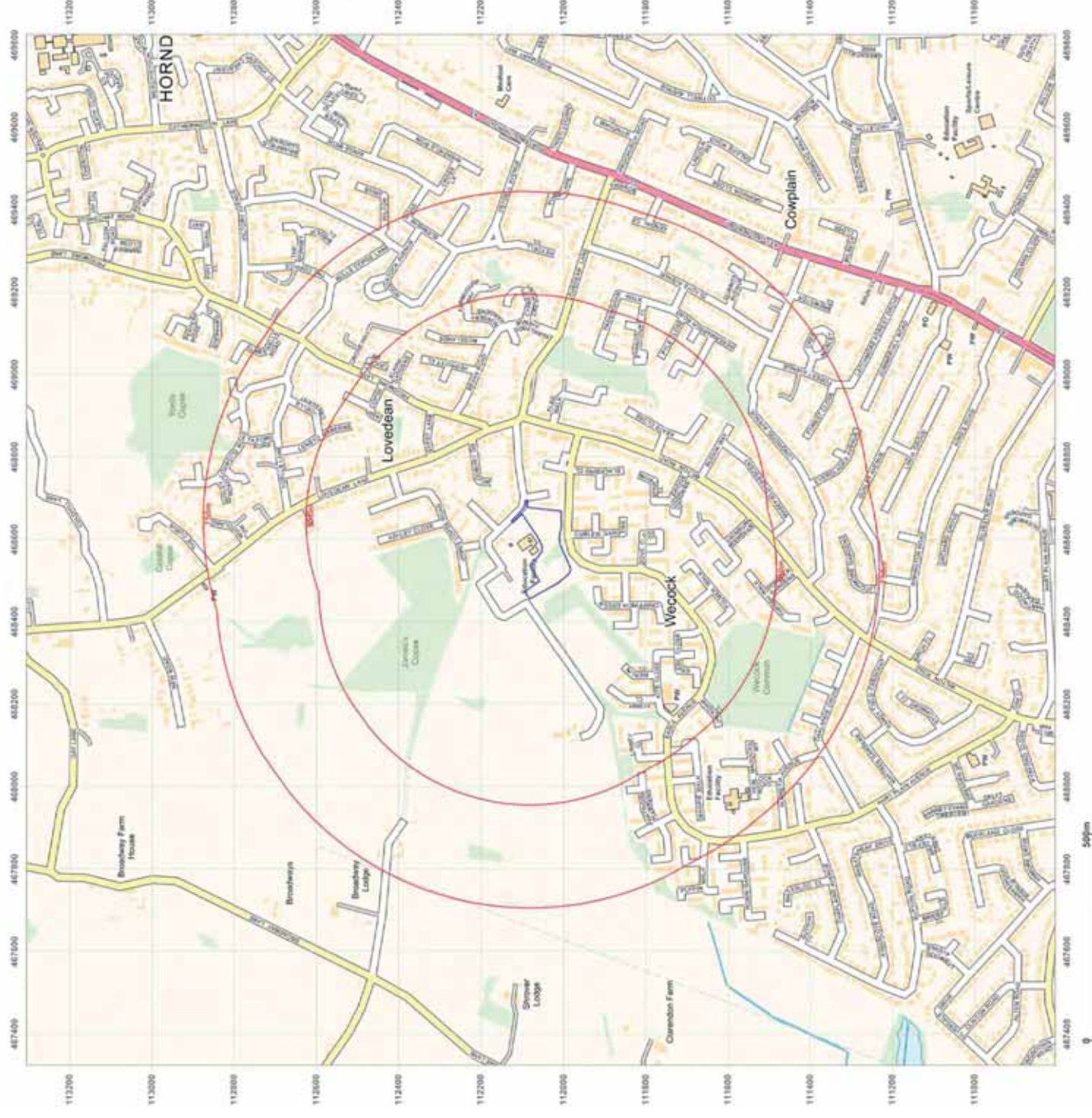


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APPENDIX II

APPENDIX II – DESK STUDY INFORMATION

GroundSure EnviroInsight Database

Enquiries were made to the GroundSure EnviroInsight Database regarding the site and surrounding area. This database includes collated and continuously updated information from a variety of sources and includes entries that cover Environment Agency permits, waste sites, hazardous substances, geological data, industrial landuse, groundwater vulnerability, source protection zones and floodplains.

A report is included in this Appendix for a search radius of 1 km around the site and this report includes a summary table of the search results. Detailed information contained in the report has been included only if it is relevant to the geotechnical and environmental assessment. All other pages have been omitted. A full copy of the GroundSure Report can be provided on request.

GroundSure GeoInsight Database

Enquiries were made to the GroundSure GeoInsight Database regarding the site and surrounding area. This database includes collated and continuously updated information from a variety of sources and includes entries that cover geological data, including information regarding mining/mineral extraction, natural cavities and landslips.

A report is included in this Appendix for a search radius of 1 km around the site and this report includes a summary table of the search results. Detailed information contained in the report has been included only if it is relevant to the geotechnical and environmental assessment. All other pages have been omitted. A full copy of the GroundSure Report can be provided on request.

British Geological Survey

Records of Wells and Exploratory Holes close to the site, held by the British Geological Survey National Geological Records Centre, are presented in this Appendix. The locations of these holes are identified within the GroundSure GeoInsight Report. The records are reproduced under the Open Government Licence, available for viewing at <http://www.nationalarchives.gov.uk/doc/open-government-licence>.

Address: Woodcroft Land, Waterloooville,

Date: 5 Aug 2019

Reference: EMS-559348_751737

Client: emapsite

NW

N

NE

W

E

SW

S

SE



Aerial Photograph Capture date: 21-Jun-2017

Grid Reference: 468577,112041

Site Size: 1.4248ha

Report Reference: EMS-559348_751737

Client Reference: EMS_559348_751737

Overview of Findings

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

Section 1: Historical Industrial Sites	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	0	0	31	51
1.2 Additional Information – Historical Tank Database	0	0	0	0
1.3 Additional Information – Historical Energy Features Database	0	0	24	37
1.4 Additional Information – Historical Petrol and Fuel Site Database	0	0	0	0
1.5 Additional Information – Historical Garage and Motor Vehicle Repair Database	0	0	3	0
1.6 Historical military sites	0	0	0	0
1.7 Potentially Infilled Land	0	1	35	62
Section 2: Environmental Permits, Incidents and Registers	On-site	0-50m	51-250	251-500
2.1 Industrial Sites Holding Environmental Permits and/or Authorisations				
2.1.1 Records of historic IPC Authorisations	0	0	0	0
2.1.2 Records of Part A(1) and IPPC Authorised Activities	0	0	0	0
2.1.3 Records of Red List Discharge Consents	0	0	0	0
2.1.4 Records of List 1 Dangerous Substances Inventory sites	0	0	0	0
2.1.5 Records of List 2 Dangerous Substances Inventory sites	0	0	0	0
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	1	0
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	0	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	0
2.1.9 Records of Water Industry Referrals	0	0	0	0
2.1.10 Records of Planning Hazardous Substance Consents and Enforcements within 500m of the study site	0	0	0	0
2.2 Records of COMAH and NIHHS sites	0	0	0	0
2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	4	0	1
2.3.2 National Incidents Recording System, List 1	0	0	0	0
2.4 Sites Determined as Contaminated Land under Part 2A EPA 1990	0	0	0	0

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

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	0	0	9	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	1	0
4.3 National Grid Underground Electricity Cables	0	0	0	0
4.4 National Grid Gas Transmission Pipelines	0	0	0	0

Section 5: Geology	
5.1 Records of Artificial Ground and Made Ground present beneath the study site	None identified
5.2 Records of Superficial Ground and Drift Geology present beneath the study site	None identified
5.3 For records of Bedrock and Solid Geology beneath the study site see the detailed findings section.	

Section 6: Hydrogeology and Hydrology	0-500m					
6.1 Records of Strata Classification in the Superficial Geology within 500m of the study site	Identified					
6.2 Records of Strata Classification in the Bedrock Geology within 500m of the study site	Identified					
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
6.3 Groundwater Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	4
6.4 Surface Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	0
6.5 Potable Water Abstraction Licences (within 2000m of the study site)	0	0	0	0	0	3
6.6 Source Protection Zones (within 500m of the study site)	1	0	0	1	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	1	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	2	1	0	3	Not searched	Not searched

Section 6: Hydrogeology and Hydrology

0-500m

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

Section 7: Flooding

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

Section 8: Designated Environmentally Sensitive Sites

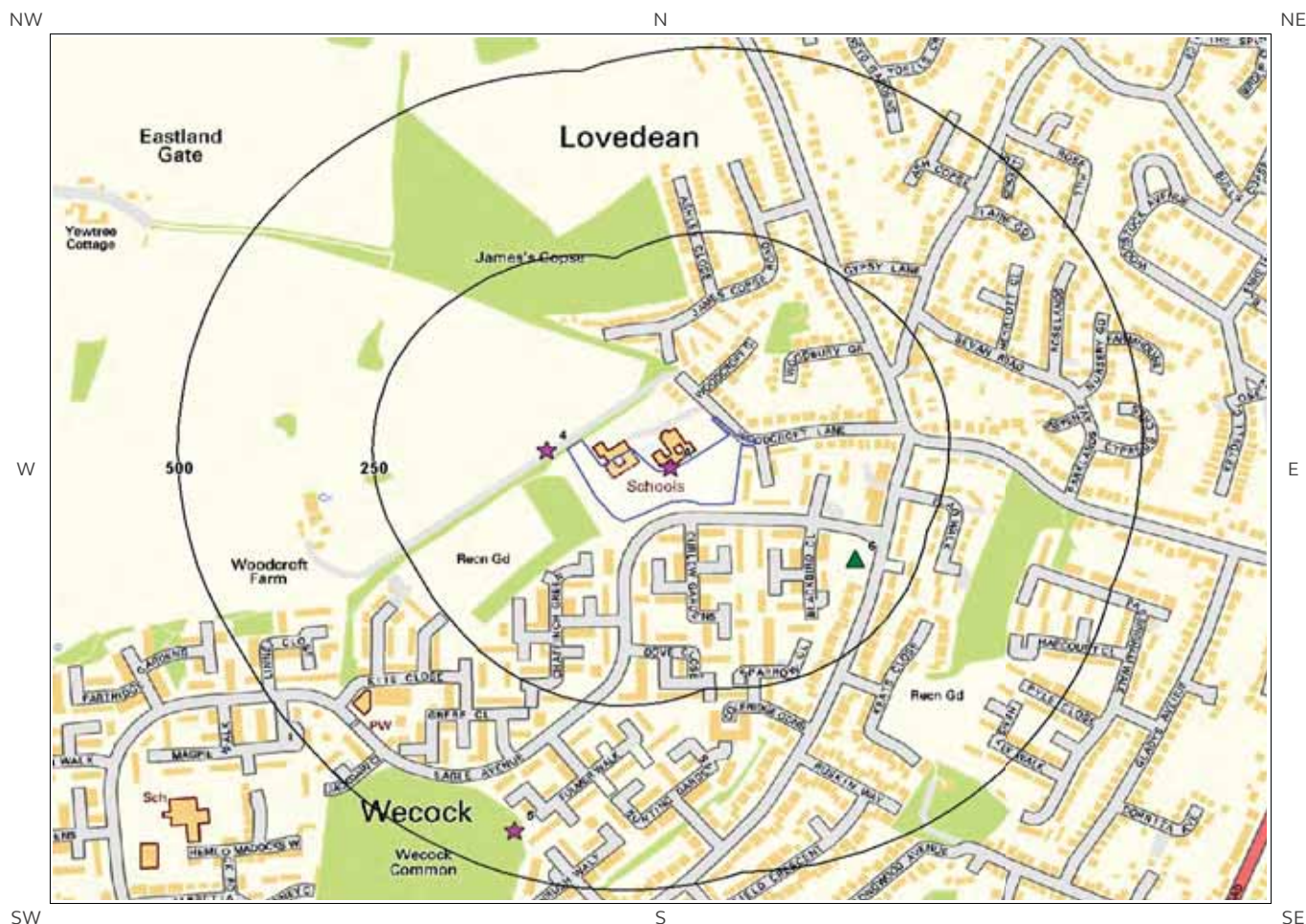
	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.1 Records of Sites of Special Scientific Interest (SSSI)	0	0	0	0	0	1
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	1	2	1	12
8.7 Records of Local Nature Reserves (LNR)	0	0	0	0	1	3
8.8 Records of World Heritage Sites	0	0	0	0	0	0
8.9 Records of Environmentally Sensitive Areas	0	0	0	0	0	0

Section 8: Designated Environmentally Sensitive Sites	On-site	0-50m	51-250	251-500	501-1000	1000-2000
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0
8.11 Records of National Parks	0	0	0	0	0	1
8.12 Records of Nitrate Sensitive Areas	0	0	0	0	0	0
8.13 Records of Nitrate Vulnerable Zones	2	0	0	0	0	3
8.14 Records of Green Belt land	0	0	0	0	0	0

Section 9: Natural Hazards	
9.1 Maximum risk of natural ground subsidence	Moderate
9.1.1 Maximum Shrink-Swell hazard rating identified on the study site	Moderate
9.1.2 Maximum Landslides hazard rating identified on the study site	Very Low
9.1.3 Maximum Soluble Rocks hazard rating identified on the study site	Low
9.1.4 Maximum Compressible Ground hazard rating identified on the study site	Negligible
9.1.5 Maximum Collapsible Rocks hazard rating identified on the study site	Very Low
9.1.6 Maximum Running Sand hazard rating identified on the study site	Very Low
9.2 Radon	
9.2.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?	The site is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.
9.2.2 Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment?	No radon protective measures are necessary.

Section 10: Mining	
10.1 Coal mining areas within 75m of the study site	None identified
10.2 Non-Coal Mining areas within 50m of the study site boundary	Identified
10.3 Brine affected areas within 75m of the study site	None identified

2. Environmental Permits, Incidents and Registers Map



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- | | | |
|--------------------|-------------------------------|--|
| Site Outline | Recorded Pollution Incident | RAS 3 & 4 Authorisations |
| Search Buffers (m) | Dangerous Substances (List 1) | Part A(1) Authorised Processes and Historic IPC Authorisations |
| | Dangerous Substances (List 2) | Part A(2) and Part B Authorised Processes |
| | Water Industry Referrals | COMAH / NIHHS Sites |
| | Licenced Discharge Consents | Sites Determined as Contaminated Land |
| | Red List Discharge Consents | Hazardous Substance Consents and Enforcements |

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

1

The following Part A(2) and Part B Activities are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Details
6	174	SE	468824 111929	Address: Anchor Service Station, 325 Milton Road, Cowplain, Waterloooville, PO8 8LH (Revoked 04/10/2004) Process: Petrol Vapour Recovery Status: Revoked Permit Type: Part B Enforcement: No Enforcement Notified Date of Enforcement: No Enforcement Notified Comment: No Enforcement Notified

2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

2.2 Dangerous or Hazardous Sites

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

0

Database searched and no data found.

2.3 Environment Agency/Natural Resources Wales Recorded Pollution Incidents

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

5

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

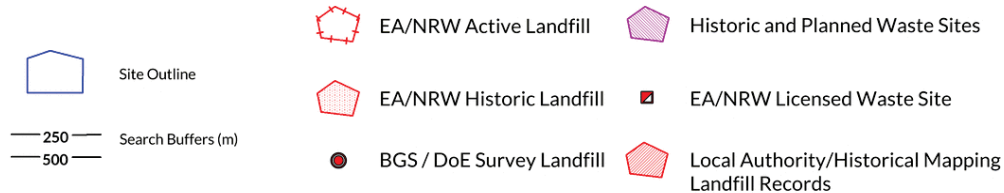
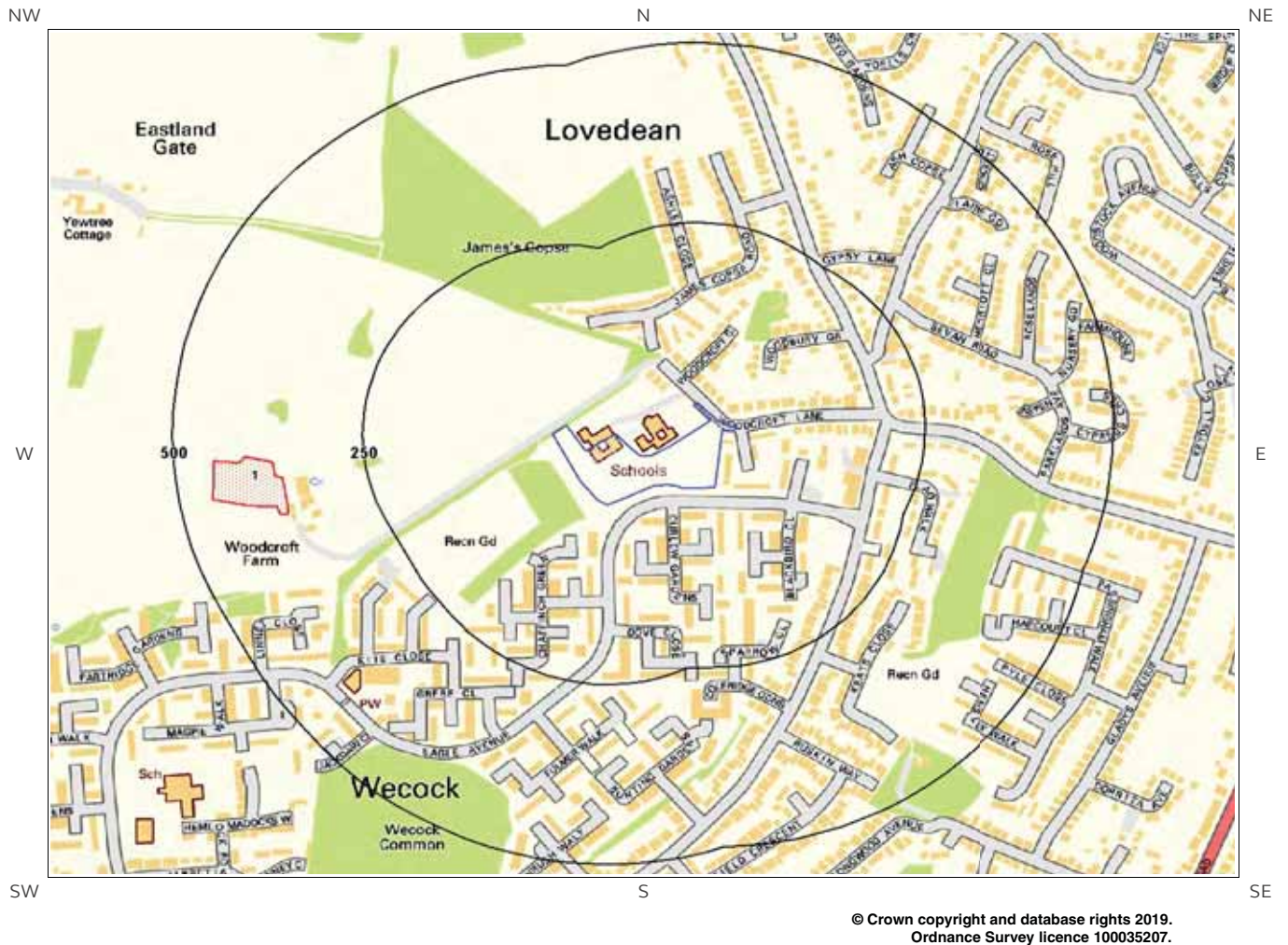
ID	Distance (m)	Direction	NGR	Details
1A	3	NW	468586.0 112056.0	Incident Date: 04-Jun-2002 Incident Identification: 82735.0 Pollutant: Atmospheric Pollutants and Effects: Contaminated Water Pollutant Description: Smoke: Firefighting Run-Off Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
2A	3	NW	468586.0 112056.0	Incident Date: 04-Jun-2002 Incident Identification: 82735.0 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Smoke Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
3A	3	NW	468586.0 112056.0	Incident Date: 04-Jun-2002 Incident Identification: 82735.0 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4	28	W	468427.0 112079.0	Incident Date: 09-Sep-2002 Incident Identification: 106392.0 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)
5	442	S	468385.0 111564.0	Incident Date: 15-Oct-2003 Incident Identification: 196331.0 Pollutant: Specific Waste Materials Pollutant Description: Household Waste Water Impact: Category 4 (No Impact) Land Impact: Category 3 (Minor) Air Impact: Category 4 (No Impact)

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

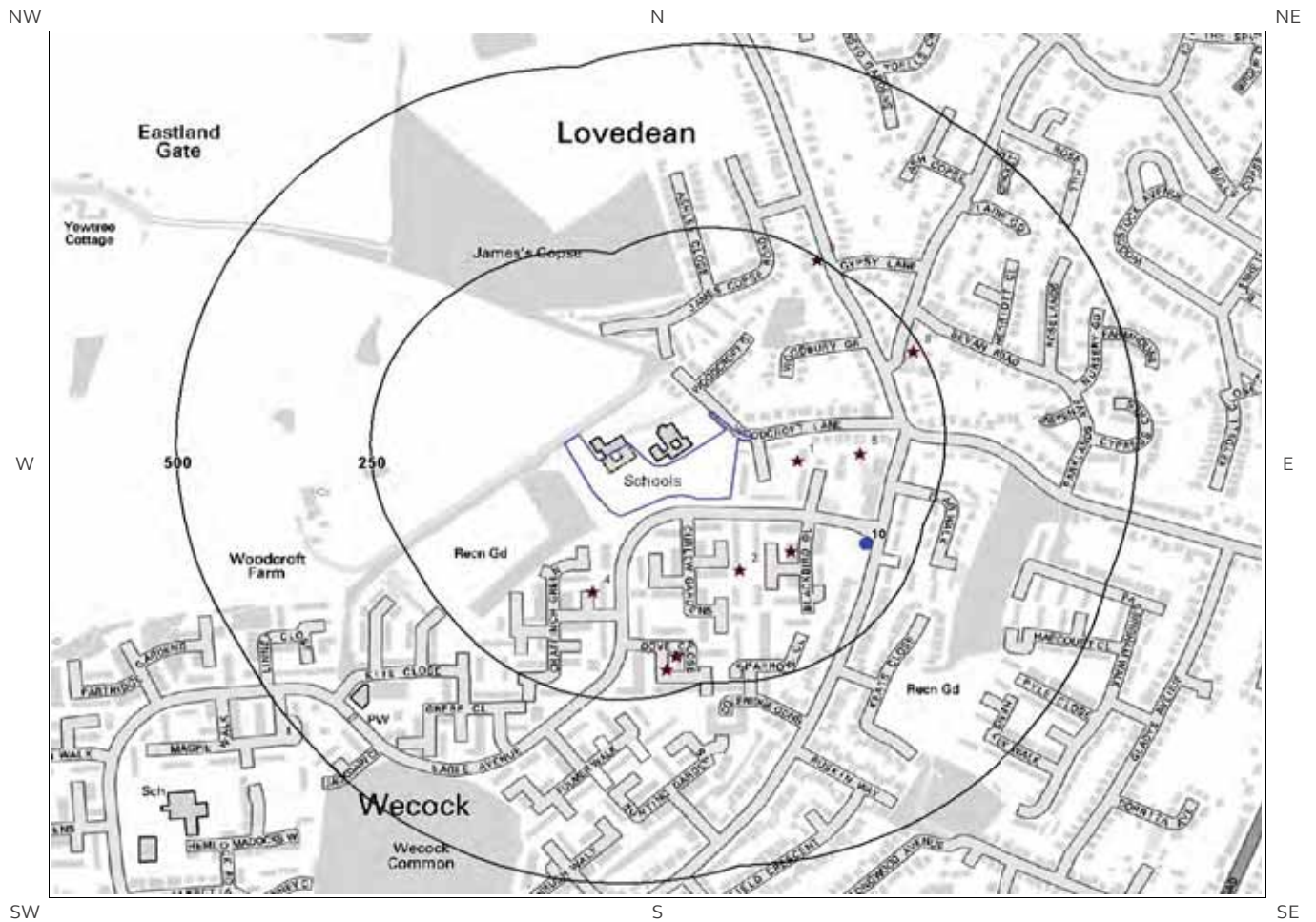
0

Database searched and no data found.

3. Landfill and Other Waste Sites Map



4. Current Land Use Map



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4. Current Land Uses

4.1 Current Industrial Data

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

9

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	66	SE	Electricity Sub Station	468754 112058	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
2	98	S	Electricity Sub Station	468680 111909	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
3	105	SE	Diamond Shine Valeting Services	468745 111935	36, Blackbird Close, Waterlooville, Hampshire, PO8 9UA	Vehicle Cleaning Services	Personal, Consumer and Other Services
4	109	S	Electricity Sub Station	468490 111880	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
5	141	E	Electricity Sub Station	468834 112068	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
6	204	S	Martin Prior	468597 111791	1, Dove Close, Waterlooville, Hampshire, PO8 9UF	Furniture	Consumer Products
7	217	S	Electricity Sub Station	468586 111774	Hampshire, PO8	Electrical Features	Infrastructure and Facilities
8	238	NE	Lovedean Hardware Ltd	468902 112206	6, Frogmore Lane, Waterlooville, Hampshire, PO8 9QQ	General Construction Supplies	Industrial Products
9	246	NE	Electricity Sub Station	468779 112331	Hampshire, PO8	Electrical Features	Infrastructure and Facilities

4.2 Petrol and Fuel Sites

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

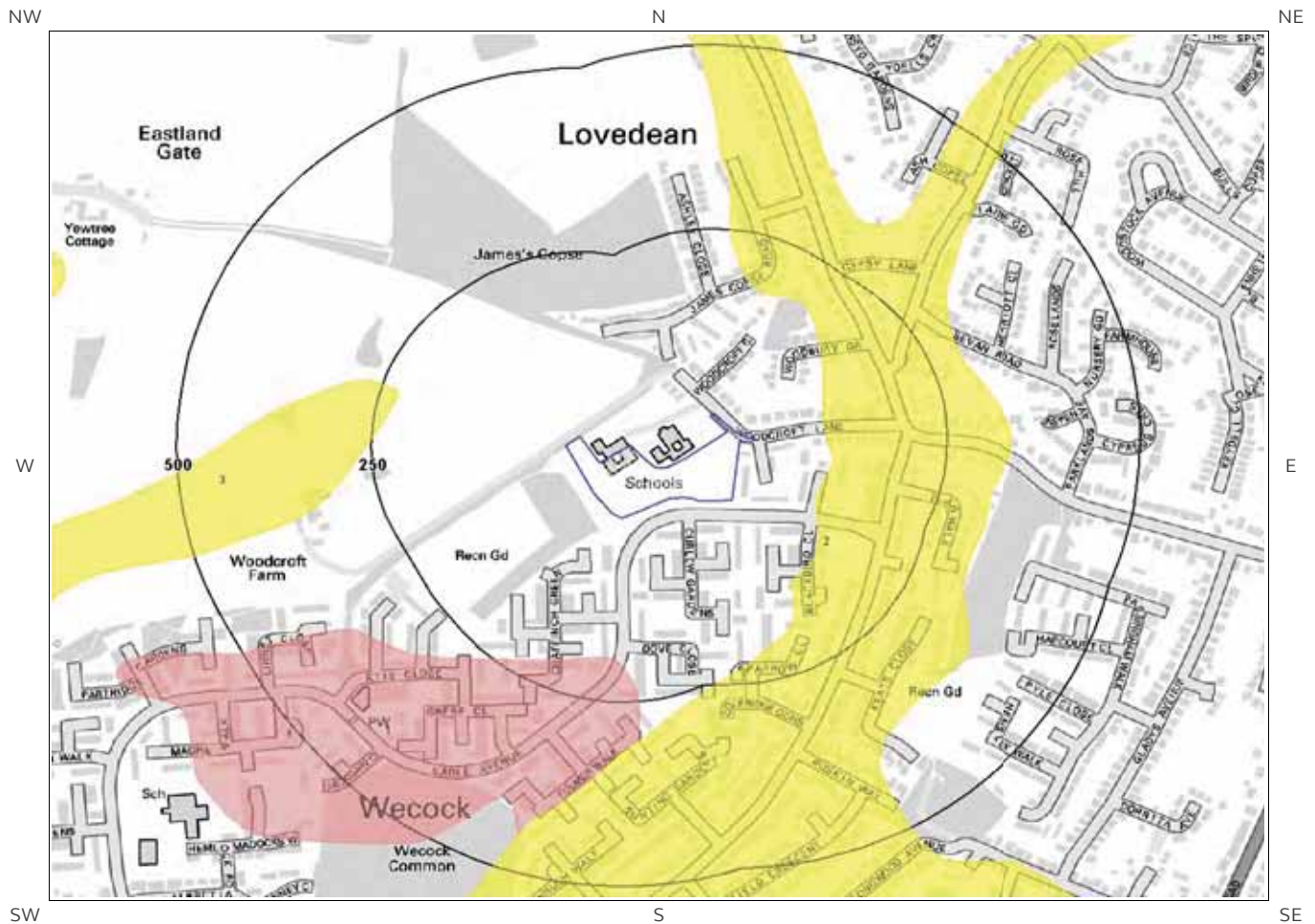
1

The following petrol or fuel site records provided by Catalist are represented as points on the Current Land Use map:

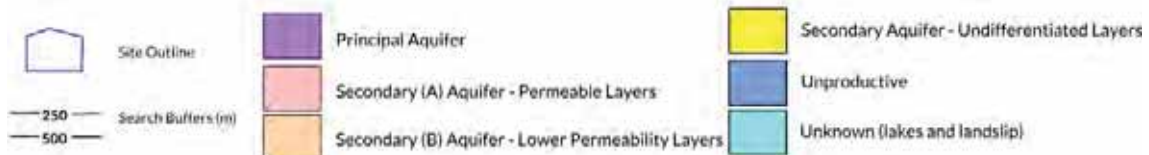
ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
10	184	E	468842 111945	BP	325 Milton Road, Cowplain, Waterlooville, Hampshire, PO8 8LH	Not Applicable	Obsolete

6 Hydrogeology and Hydrology

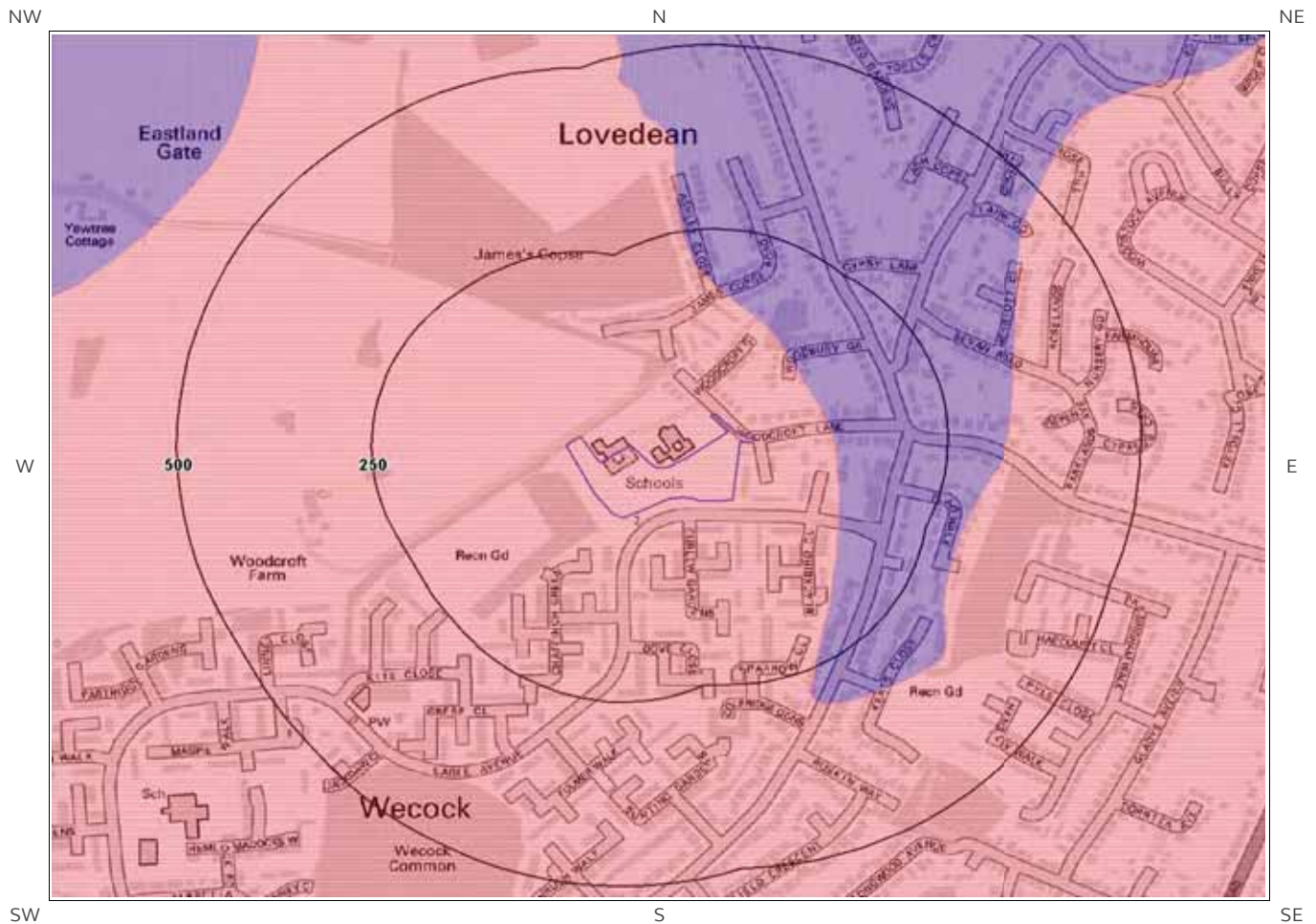
6a. Aquifer Within Superficial Geology



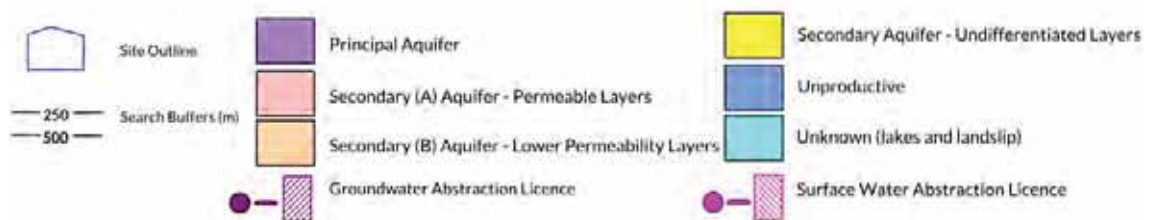
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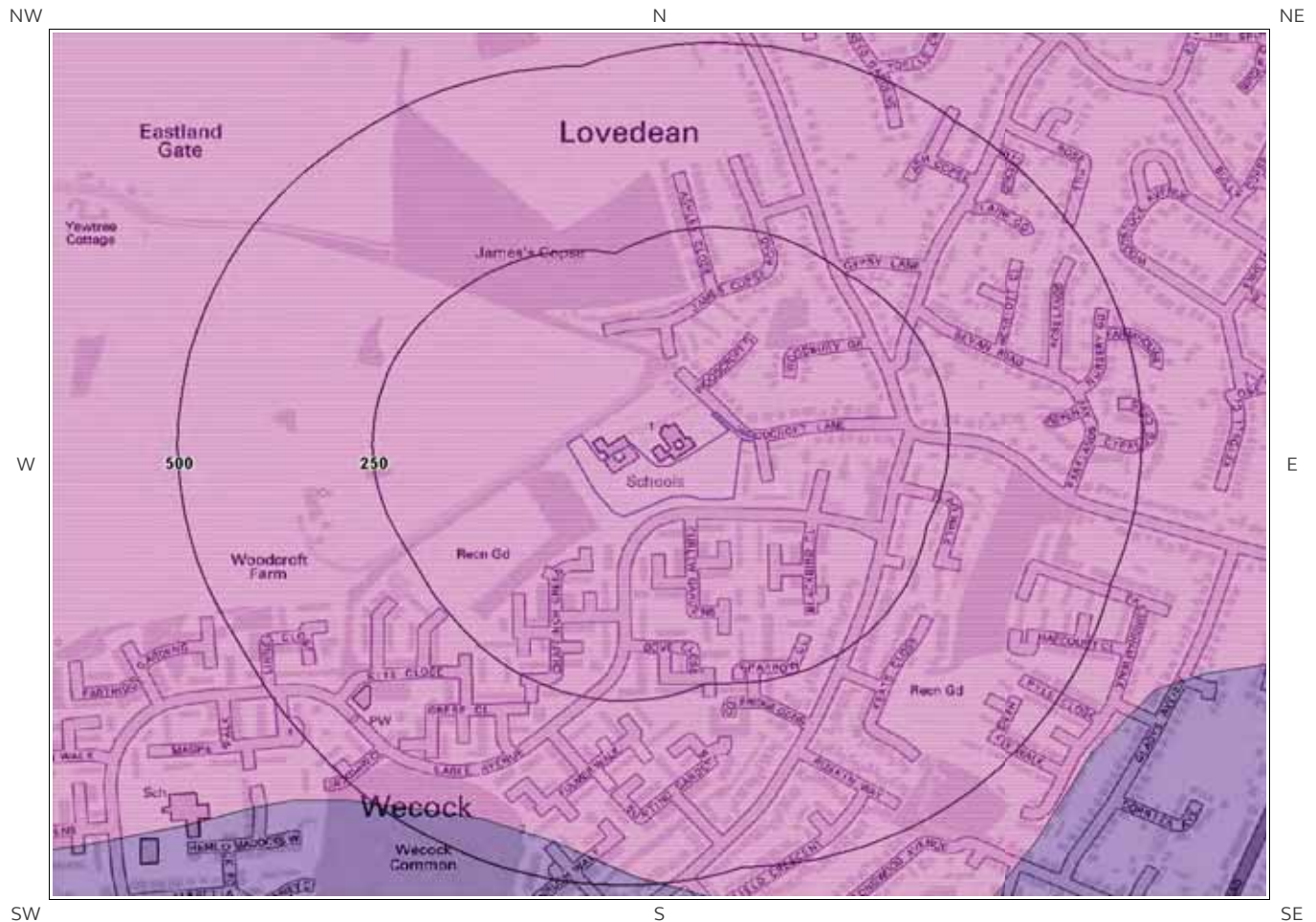
6b. Aquifer Within Bedrock Geology and Abstraction Licences



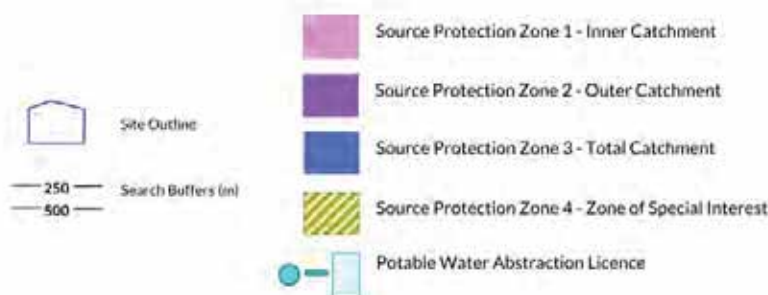
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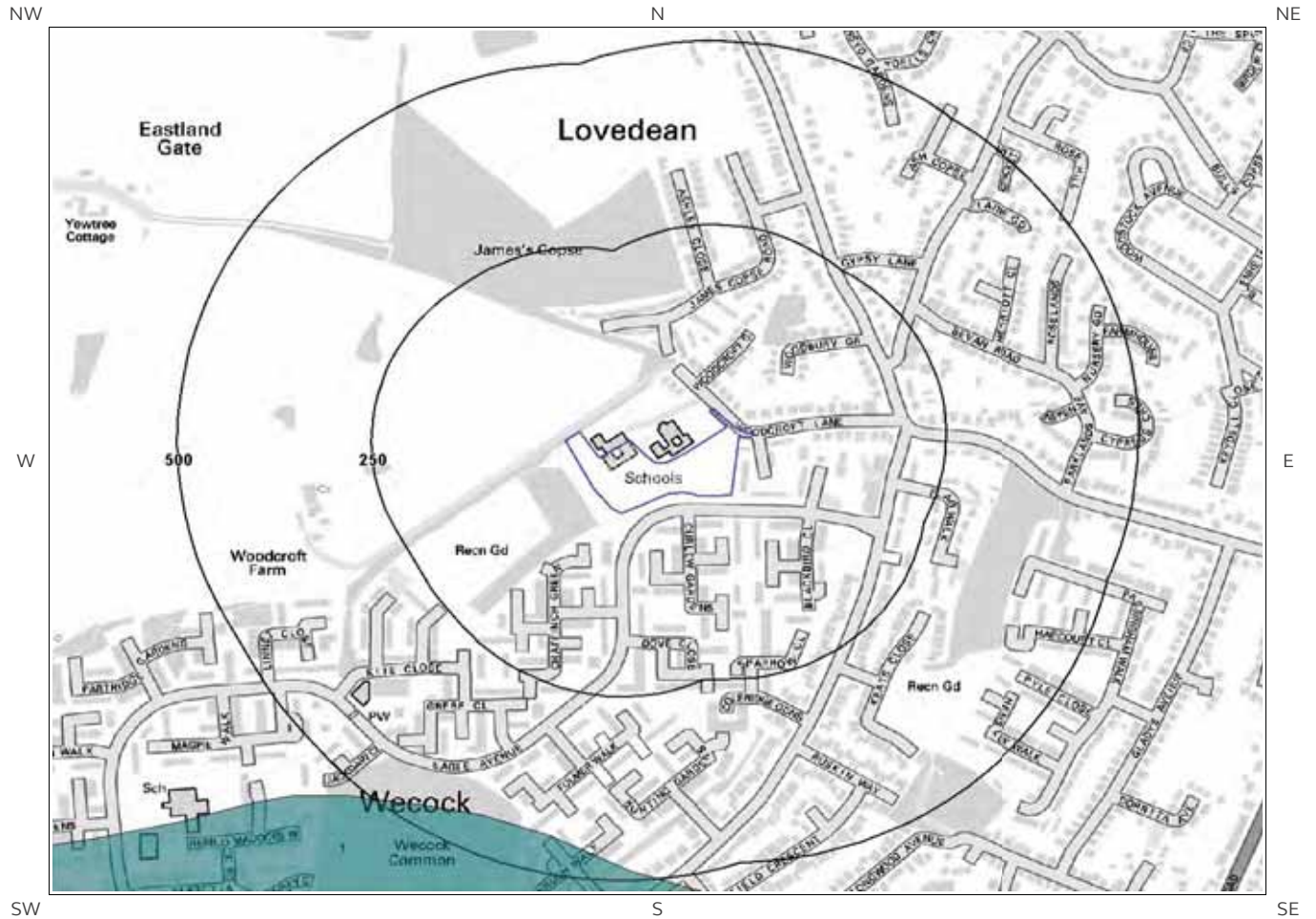
6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licences



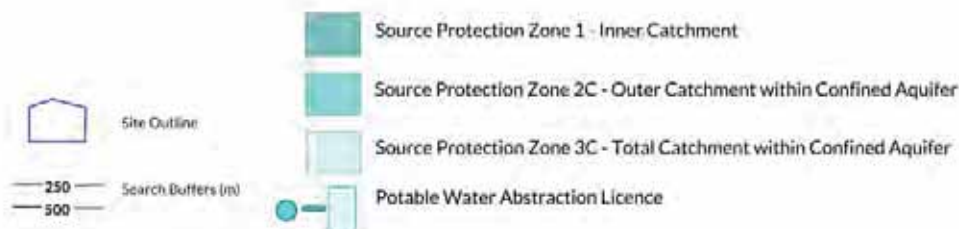
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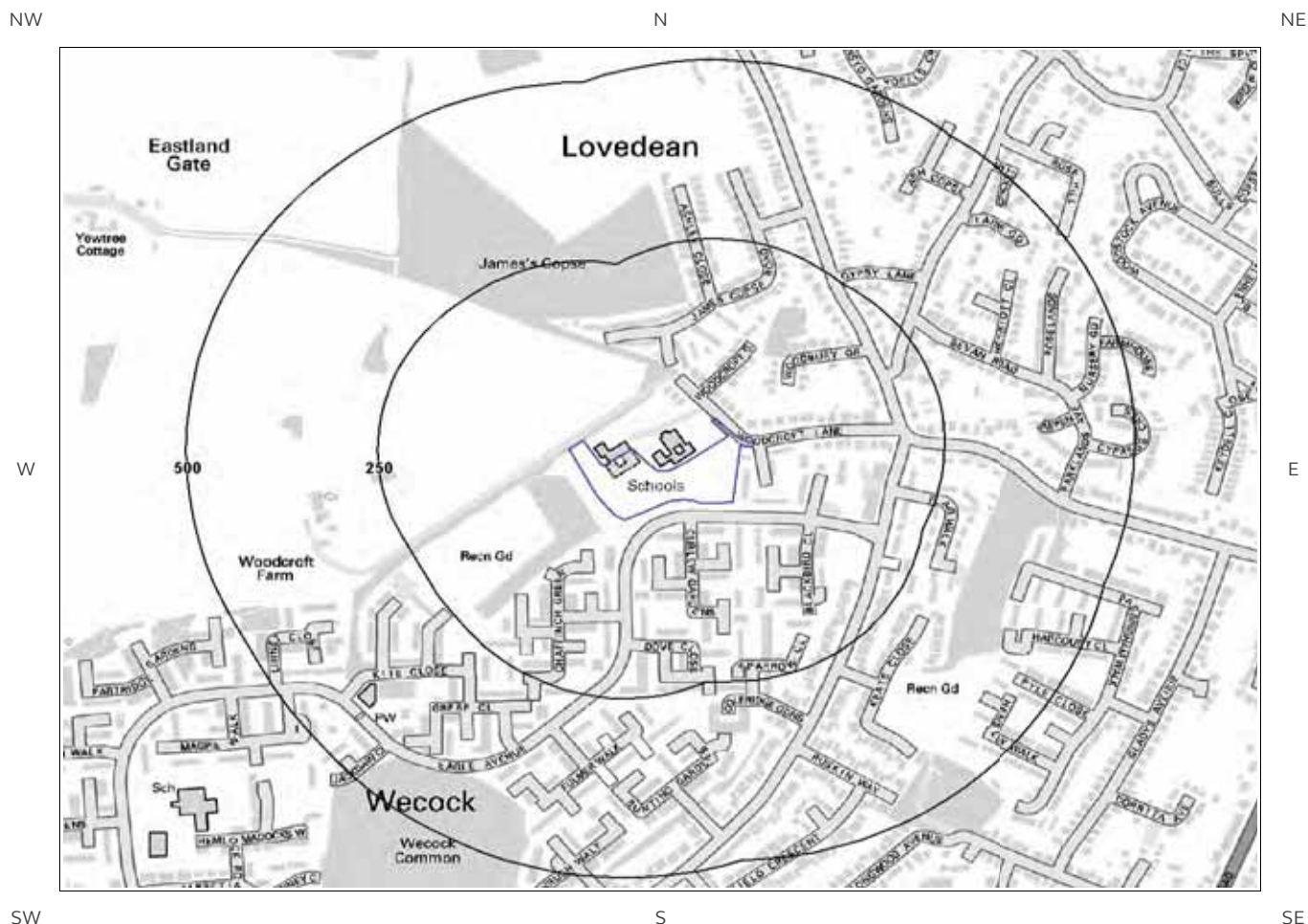
6d. Hydrogeology – Source Protection Zones within confined aquifer



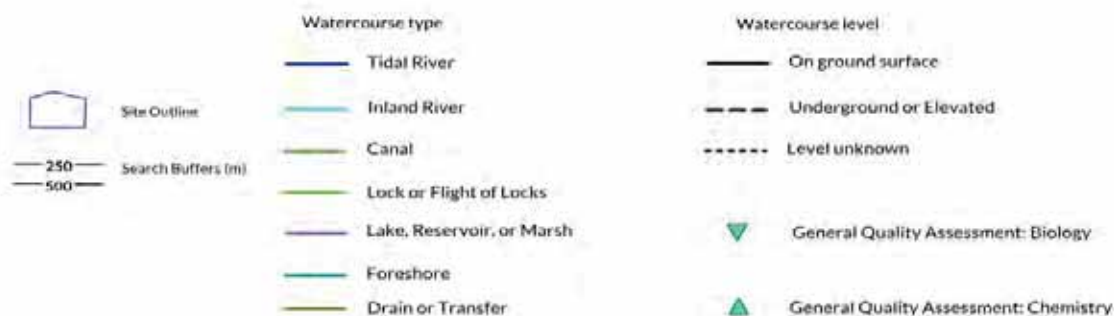
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6e. Hydrology – Watercourse Network and River Quality



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6. Hydrogeology and Hydrology

6.1 Aquifer within Superficial Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
2	93	E	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
1	191	S	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
3	228	W	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type

6.2 Aquifer within Bedrock Deposits

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

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

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

ID	Distance (m)	Direction	Designation	Description
2	0	On Site	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
1	95	NE	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers

6.3 Groundwater Abstraction Licences

Groundwater Abstraction Licences within 2000m of the study site

Identified

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

ID	Distance (m)	Direction	NGR	Details
Not shown	1221	N	468396 113321	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4.14831 Max Daily Volume (m³): 13638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: 29/07/2016 Version End Date:
Not shown	1223	N	468395 113323	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT B AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4.14831 Max Daily Volume (m³): 13638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: 29/07/2016 Version End Date:
Not shown	1229	N	468400 113330	Status: Historical Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4.14823 Max Daily Volume (m³): 13638 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 101 Version Start Date: 11/06/2009 Version End Date:
Not shown	1968	W	466600 112740	Status: Historical Licence No: 11/42/33.2/3 Details: General Farming & Domestic Direct Source: Southern Region Groundwater Point: DENMEAD FARM, DENMEAD Data Type: Point Name: Winchester College Annual Volume (m³): - Max Daily Volume (m³): - Original Application No: - Original Start Date: - Expiry Date: - Issue No: 100 Version Start Date: 23/12/1965 Version End Date:

6.4 Surface Water Abstraction Licences

Surface Water Abstraction Licences within 2000m of the study site

None identified

Database searched and no data found.

6.5 Potable Water Abstraction Licences

Potable Water Abstraction Licences within 2000m of the study site

Identified

The following Potable Water Abstraction Licences records are represented as points, lines and regions on the SPZ and Potable Water Abstraction Licences Map (6c):

ID	Distance (m)	Direction	NGR	Details
Not shown	1221	N	468396 113321	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4.14831 Max Daily Volume (m³): 13638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1223	N	468395 113323	Status: Active Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT B AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4.14831 Max Daily Volume (m³): 13638 Original Application No: - Original Start Date: 23/12/1965 Expiry Date: - Issue No: 102 Version Start Date: Version End Date:
Not shown	1229	N	468400 113330	Status: Historical Licence No: 11/42/33.1/1 Details: Potable Water Supply - Direct Direct Source: Southern Region Groundwater Point: POINT A AT LOVEDEAN PUMPING STATION. Data Type: Point Name: Portsmouth Water Ltd Annual Volume (m³): 4.14823 Max Daily Volume (m³): 13638 Original Application No: - Original Start Date: - Expiry Date: - Issue No: 101 Version Start Date: Version End Date:

6.6 Source Protection Zones

Source Protection Zones within 500m of the study site

Identified

The following Source Protection Zones records are represented on the SPZ and Potable Water Abstraction Map (6c):

ID	Distance (m)	Direction	Zone	Description
1	0	On Site	1	Inner catchment
2	446	S	2	Outer catchment

6.7 Source Protection Zones within Confined Aquifer

Source Protection Zones within the Confined Aquifer within 500m of the study site Identified

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

The following Source Protection Zones records are represented on the SPZ within Confined Aquifer and Potable Water Abstraction Map(6d):

ID	Distance	Direction	Type	Description
1	446	S	1c	Inner catchment within confined aquifer

6.8 Groundwater Vulnerability and Soil Leaching Potential

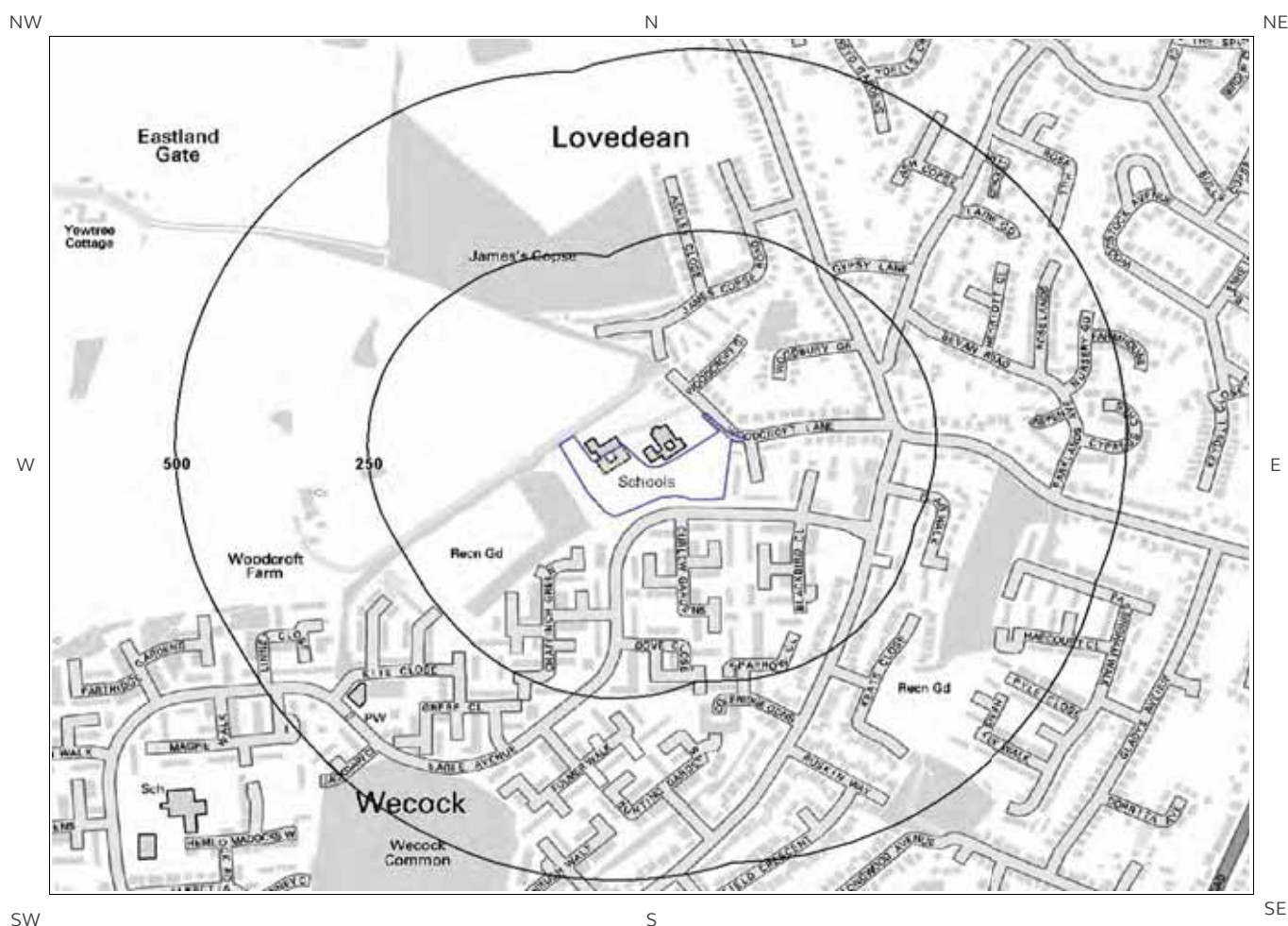
Environment Agency/Natural Resources Wales information on groundwater vulnerability and soil leaching potential within 500m of the study site Identified

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
0	On Site	Minor Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
0	On Site	Major Aquifer/High Leaching Potential	HU	Soil information for urban areas and restored mineral workings. These soils are therefore assumed to be highly permeable in the absence of site-specific information.
12	NW	Minor Aquifer/Low Leaching Potential	L	Soils in which pollutants are unlikely to penetrate the soil layer because either water movement is largely horizontal, or they have the ability to attenuate diffuse pollutants.
334	W	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.
458	N	Major Aquifer/High Leaching Potential	H1	Soils which readily transmit liquid discharges because they are shallow or susceptible to rapid flow directly to rock, gravel or groundwater.
488	N	Major Aquifer/Intermediate Leaching Potential	I1	Soils which can possibly transmit a wide range of pollutants.

6.9 River Quality

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

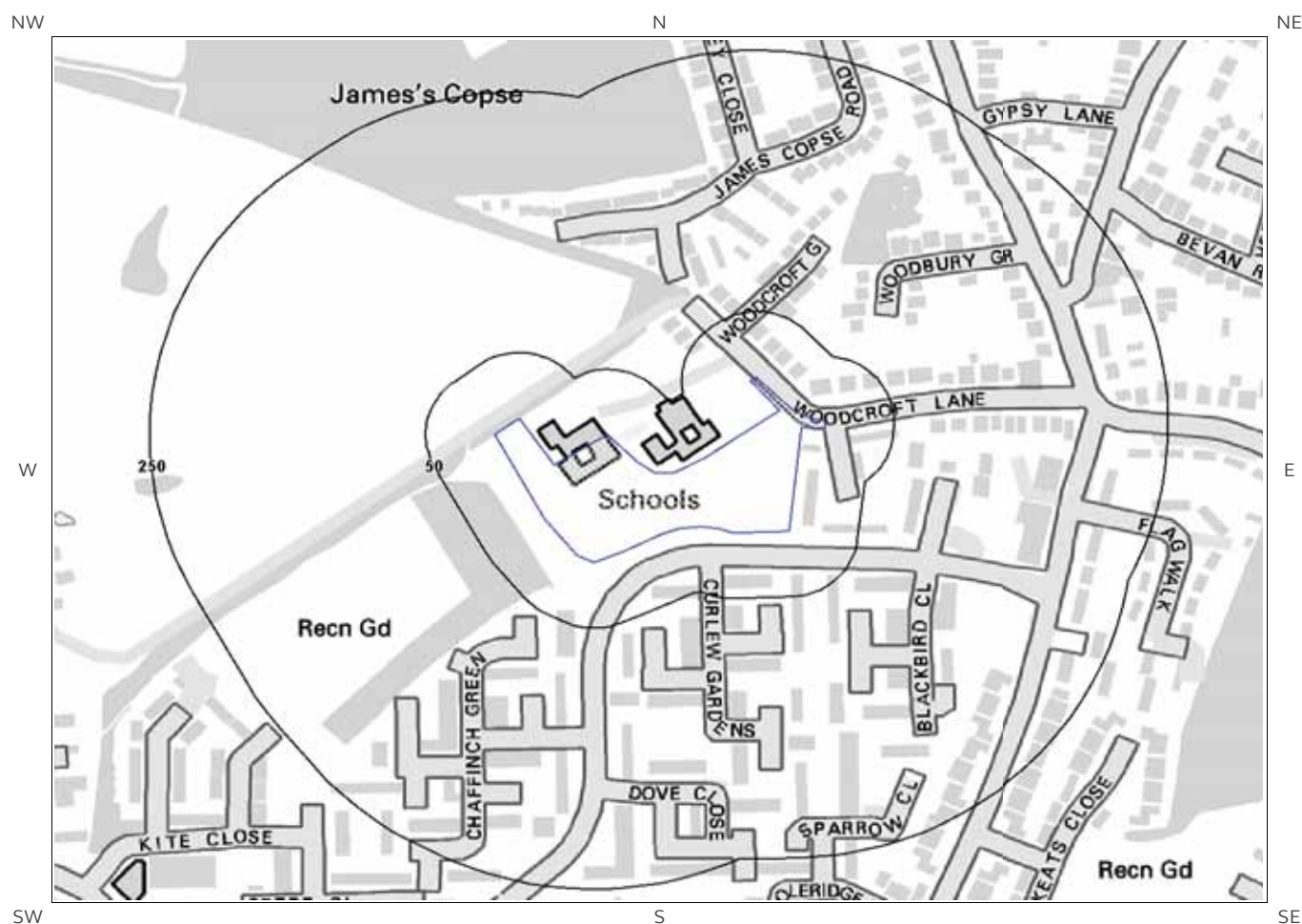
7a. Environment Agency/Natural Resources Wales Flood Map for Planning (from rivers and the sea)



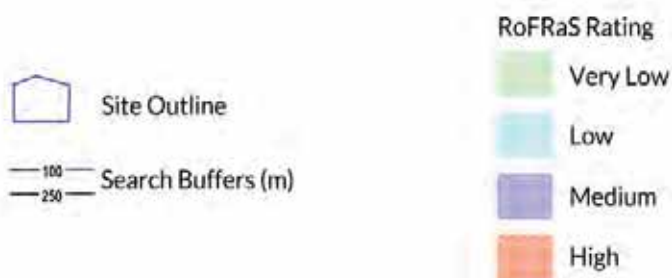
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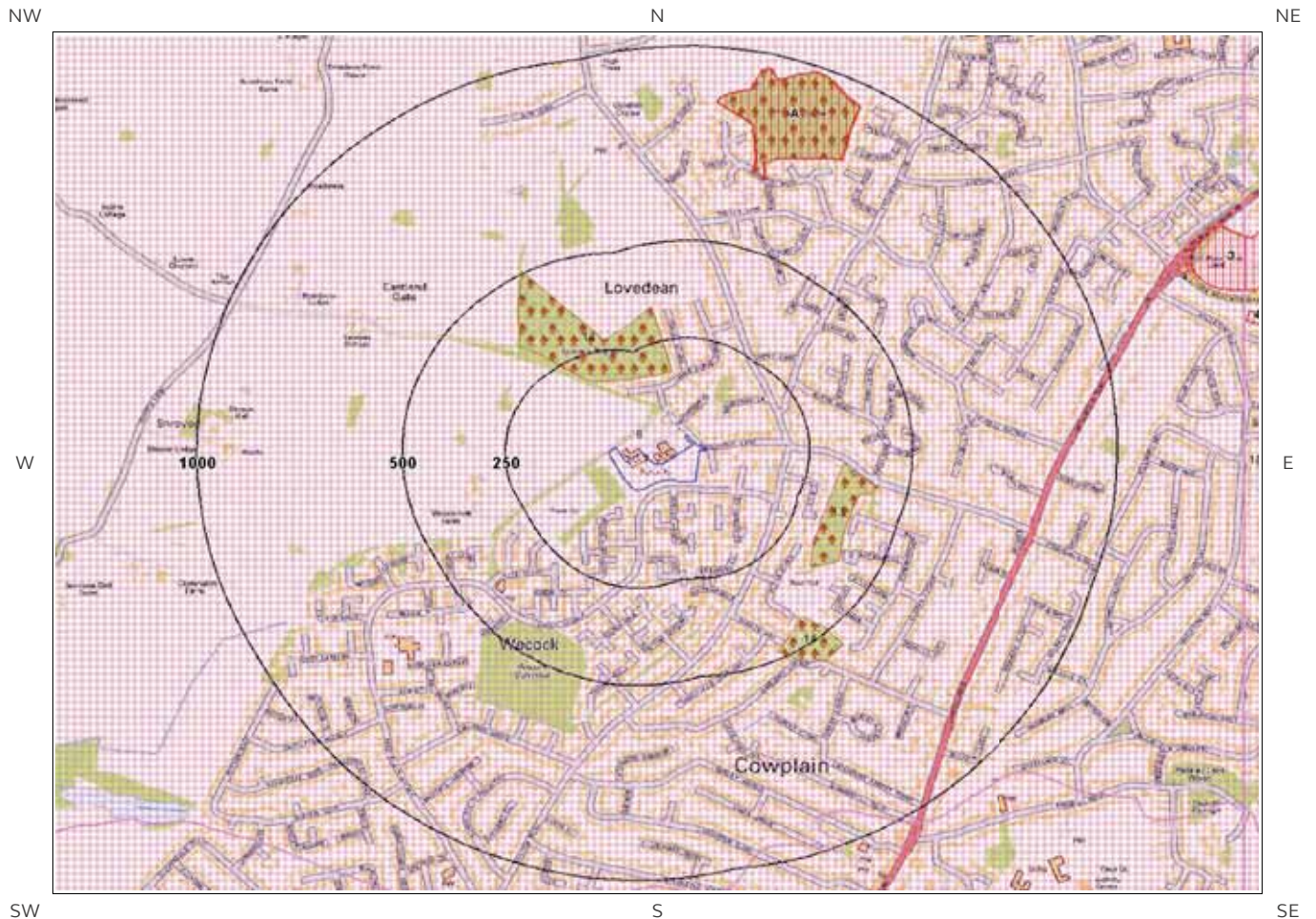
7b. Environment Agency/Natural Resources Wales Risk of Flooding from Rivers and the Sea (RoFRaS) Map



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8. Designated Environmentally Sensitive Sites Map



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

16

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

ID	Distance (m)	Direction	Ancient Woodland Name	Data Source
12	168	N	JAMES'S COPSE	Ancient Replanted Woodland
13	320	E	UNKNOWN	Ancient and Semi-Natural Woodland
14	432	SE	LONG WOOD	Ancient and Semi-Natural Woodland
15A	686	N	YOELLS COPSE	Ancient and Semi-Natural Woodland
Not shown	1218	S	THE QUEENS INCLOSURE	Ancient Replanted Woodland
Not shown	1497	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1543	S	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1564	NW	CRABDENS ROW	Ancient and Semi-Natural Woodland
Not shown	1576	NW	CRABDENS COPSE	Ancient and Semi-Natural Woodland
Not shown	1609	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1612	SE	THE QUEENS INCLOSURE	Ancient and Semi-Natural Woodland
Not shown	1648	N	RABBIT COPSE	Ancient and Semi-Natural Woodland
Not shown	1676	NW	STONEACRE COPSE	Ancient and Semi-Natural Woodland
Not shown	1705	NW	CRABDENS ROW	Ancient and Semi-Natural Woodland
Not shown	1719	N	UNKNOWN	Ancient and Semi-Natural Woodland
Not shown	1943	N	UNKNOWN	Ancient and Semi-Natural Woodland

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

4

The following Local Nature Reserve (LNR) records provided by Natural England/Natural Resources Wales are represented as polygons on the Designated Environmentally Sensitive Sites Map:

ID	Distance (m)	Direction	LNR Name	Data Source
2A	686	N	Yeoll's Copse	Natural England
3	1269	E	Dell Piece West	Natural England

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

5

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

ID	Distance (m)	Direction	NVZ Name	Data Source
7	0	On Site	Existing	DEFRA
8	0	On Site	Existing	DEFRA
9	1306	E	Existing	DEFRA
10	1306	E	Existing	DEFRA
Not shown	1983	S	Existing	DEFRA

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

0

Database searched and no data found.

Address: Woodcroft Land, Waterloooville,

Date: 5 Aug 2019

Reference: EMS-559348_751736

Client: emapsite



Aerial Photograph Capture date: 21-Jun-2017

Grid Reference: 468577,112041

Site Size: 1.4248ha

Overview of Findings

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

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

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

Section 1: Geology 1:10,000 Scale

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

Section 2: Geology 1:50,000 Scale

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

Section 2: Geology 1:50,000 Scale

2.3 Bedrock, Solid Geology and linear features

2.3.1 For records of Bedrock and Solid Geology beneath the study site* see the detailed findings section.

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

Yes

2.3.3 Are there any records of linear features within 500m of the study site boundary?

No

Section 3: Radon

3. Radon

3.1 Is the property in a Radon Affected Area as defined by the Health Protection Agency (HPA) and if so what percentage of homes are above the Action Level?

The property is not in a Radon Affected Area, as less than 1% of properties are above the Action Level.

3.2 Radon Protection

No radon protective measures are necessary.

Section 4: Ground Workings

	On-site	0-50m	51-250	251-500	501-1000
4.1 Historical Surface Ground Working Features from Small Scale Mapping	0	1	35	Not Searched	Not Searched
4.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
4.3 Current Ground Workings	0	0	2	7	14

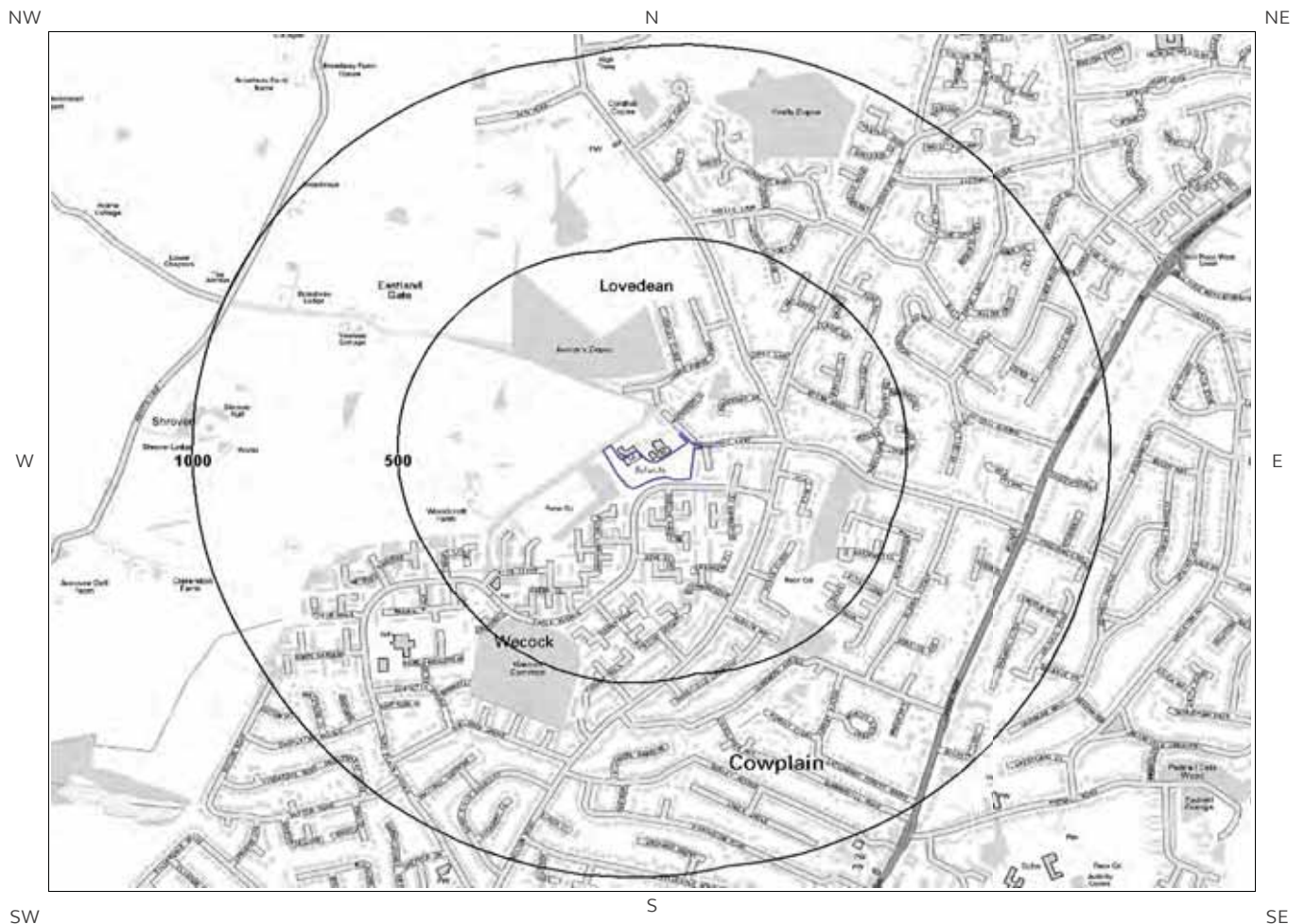
Section 5: Mining, Extraction & Natural Cavities

	On-site	0-50m	51-250	251-500	501-1000
5.1 Historical Mining	0	0	0	0	0
5.2 Coal Mining	0	0	0	0	0
5.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
5.4 Non-Coal Mining*	1	0	0	0	1
5.5 Non-Coal Mining Cavities	0	0	0	0	0
5.5 Natural Cavities	0	0	5	7	31

Section 5: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
5.6 Brine Extraction	0	0	0	0	0
5.7 Gypsum Extraction	0	0	0	0	0
5.8 Cornwall and Devon Metalliferous Mining	0	0	0	0	0
5.9 Clay Mining	0	0	0	0	0
Section 6: Natural Ground Subsidence	On-site				
6.1 Shrink-Swell Clay	Moderate				
6.2 Landslides	Very Low				
6.3 Ground Dissolution of Soluble Rocks	Low				
6.4 Compressible Deposits	Negligible				
6.5 Collapsible Deposits	Very Low				
6.5 Running Sand	Very Low				
Section 7: Borehole Records	On-site	0-50m	51-250		
7 BGS Recorded Boreholes	0	1	4		
Section 8: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
8 Records of Background Soil Chemistry	4	2	0		
Section 9: Railways and Tunnels	On-site	0-50m	51-250	250-500	
9.1 Tunnels	0	0	0	Not Searched	
9.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
9.3 Historical Railways	0	0	0	Not Searched	
9.4 Active Railways	0	0	0	Not Searched	
9.5 Railway Projects	0	0	0	0	

1 Geology (1:10,000 scale).

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



Artificial Ground Legend

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1. Geology 1:10,000 scale

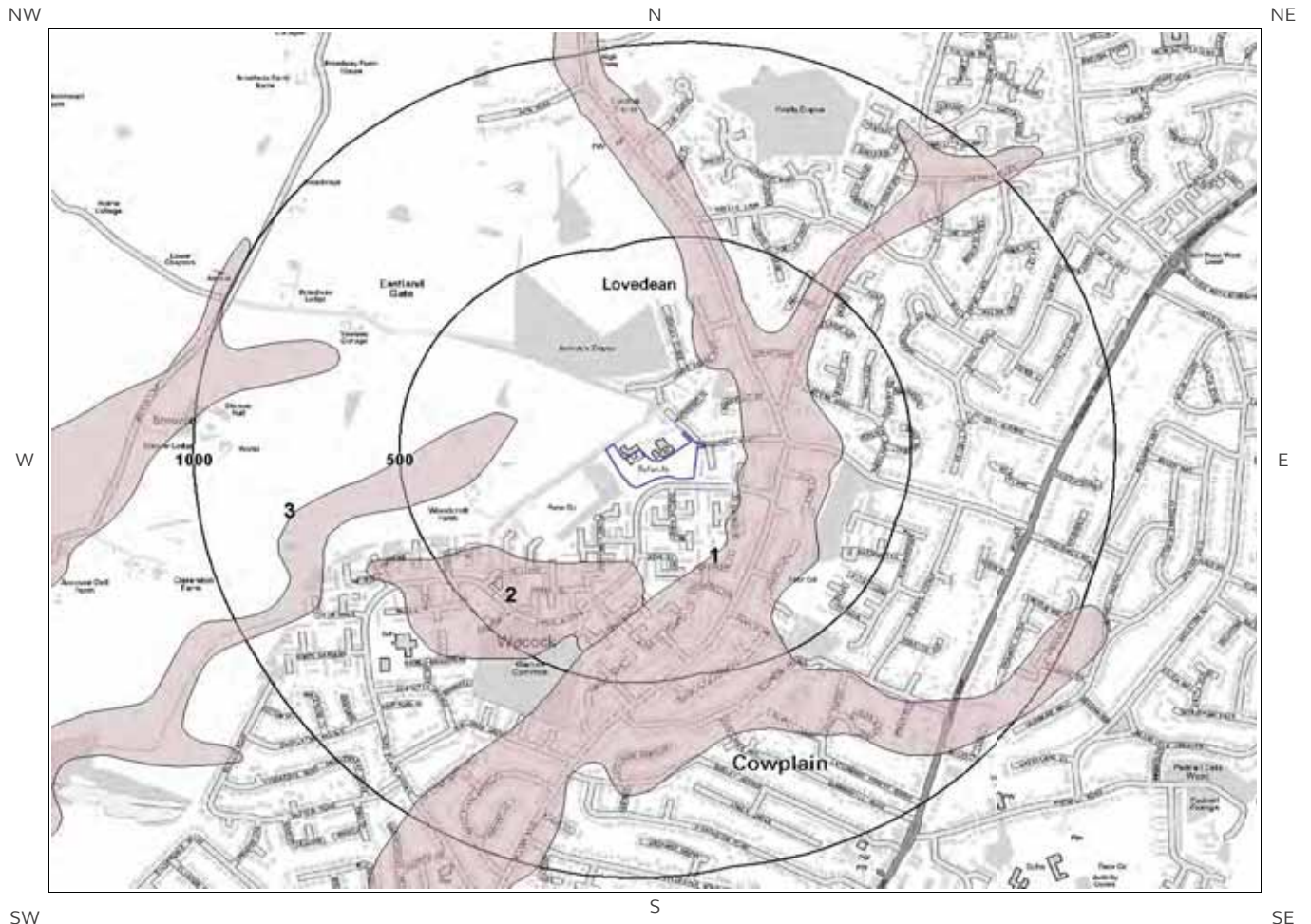
1.1 Artificial Ground

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

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

Database searched and no data found.

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



Artificial Ground Legend

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1.2 Superficial Deposits and Landslips

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

1.2.1 Superficial Deposits/ Drift Geology

Are there any records of Superficial Deposits/ Drift Geology within 500m of the study site boundary at 1:10,000 scale? Yes

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	91.0	E	HEAD-DMTN	Head - Diamicton	Diamicton
2	189.0	S	HEAD-VC	Head - Clayey Gravel	Gravel, Clayey
3	229.0	W	HEAD-DMTN	Head - Diamicton	Diamicton

1.2.2 Landslip

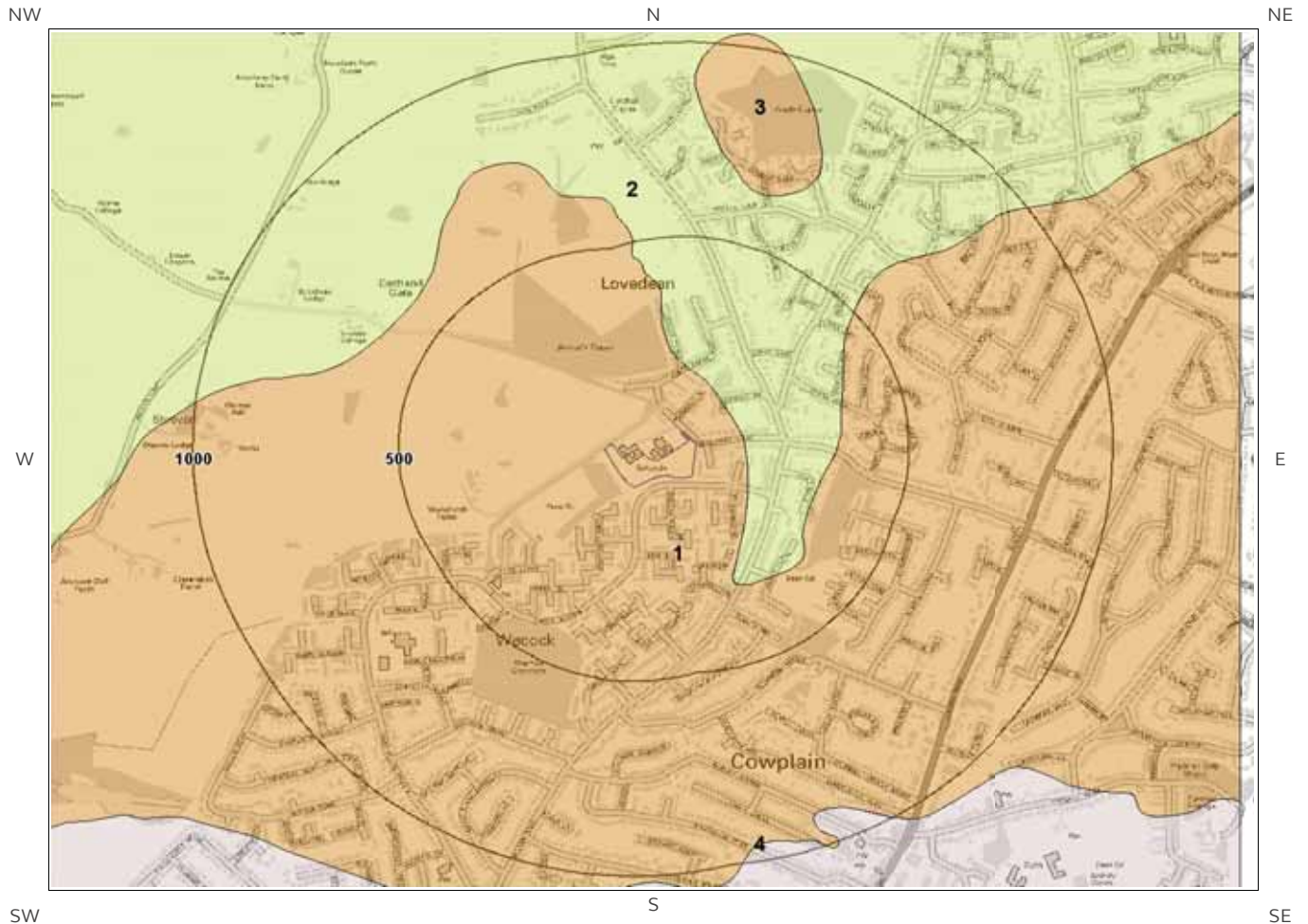
Are there any records of Landslip within 500m of the study site boundary at 1:10,000 scale? No

Database searched and no data found.

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

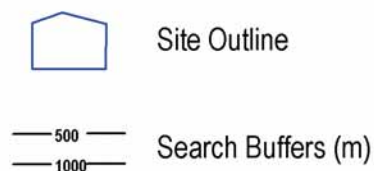
This Geology shows the main components as discrete layers, these are: Artificial / Made Ground, Superficial / Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

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



Bedrock and linear features Legend

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1.3 Bedrock and linear features

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

1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LMBE-CLSISA	Lambeth Group - Clay, Silt And Sand	Paleocene Epoch
2	95.0	NE	TACH-CHLK	Tarrant Chalk Member - Chalk	Campanian Age

1.3.2 Linear features

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

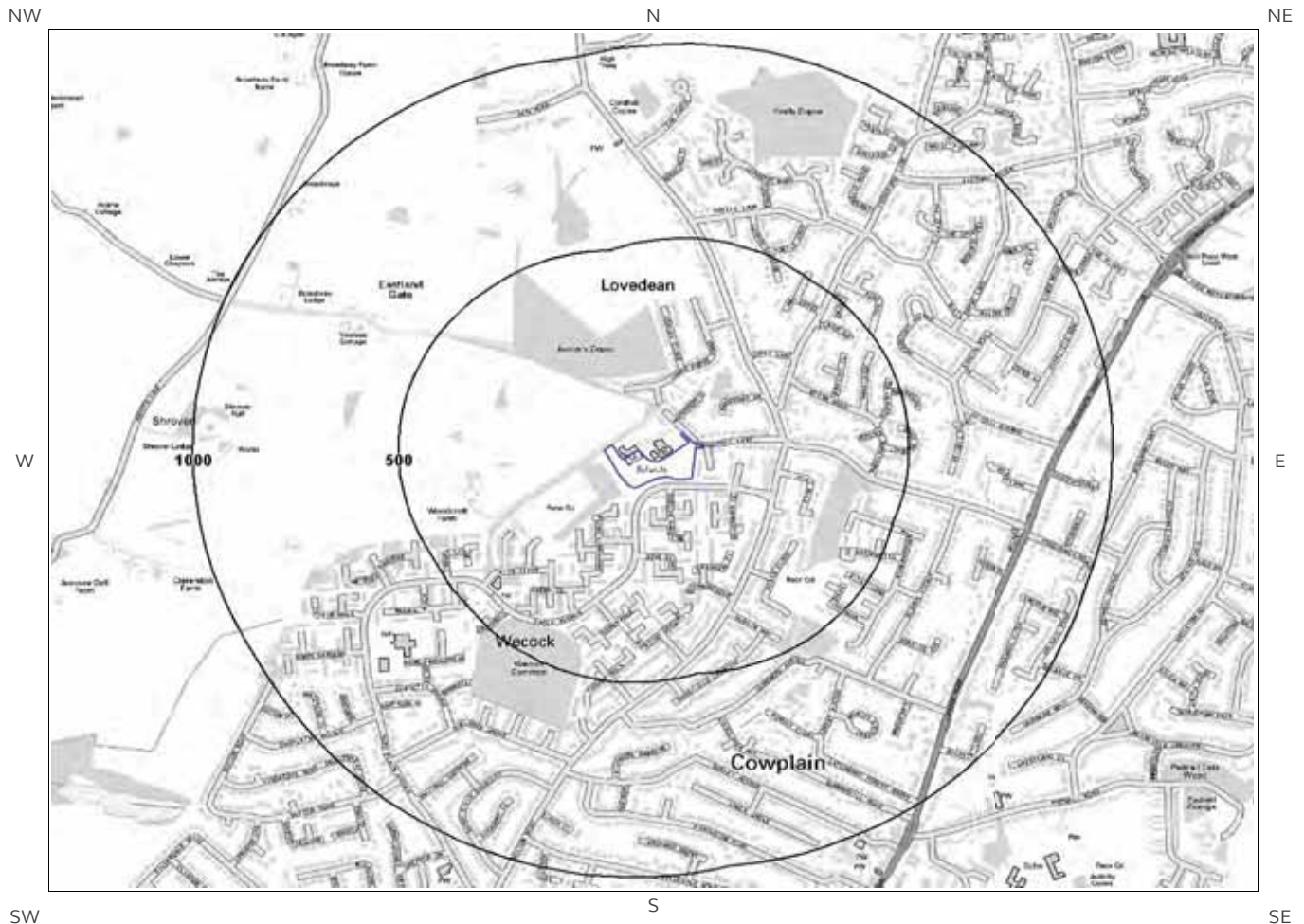
Database searched and no data found at this scale.

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

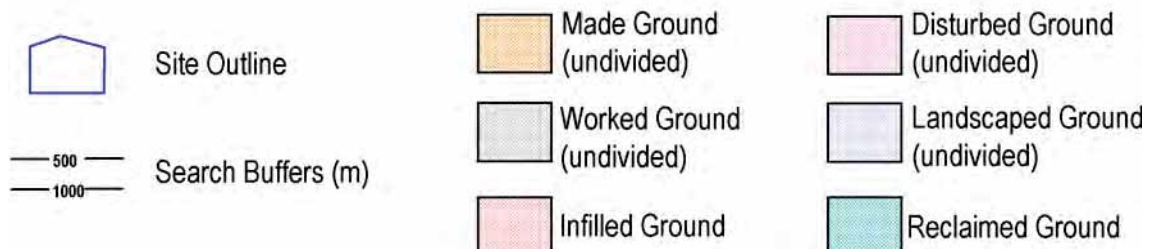
This Geology shows the main components as discrete layers, these are: Bedrock/ Solid Geology and linear features such as faults. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2 Geology 1:50,000 Scale

2.1 Artificial Ground map



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2. Geology 1:50,000 scale

2.1 Artificial Ground

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 316

2.1.1 Artificial/ Made Ground

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

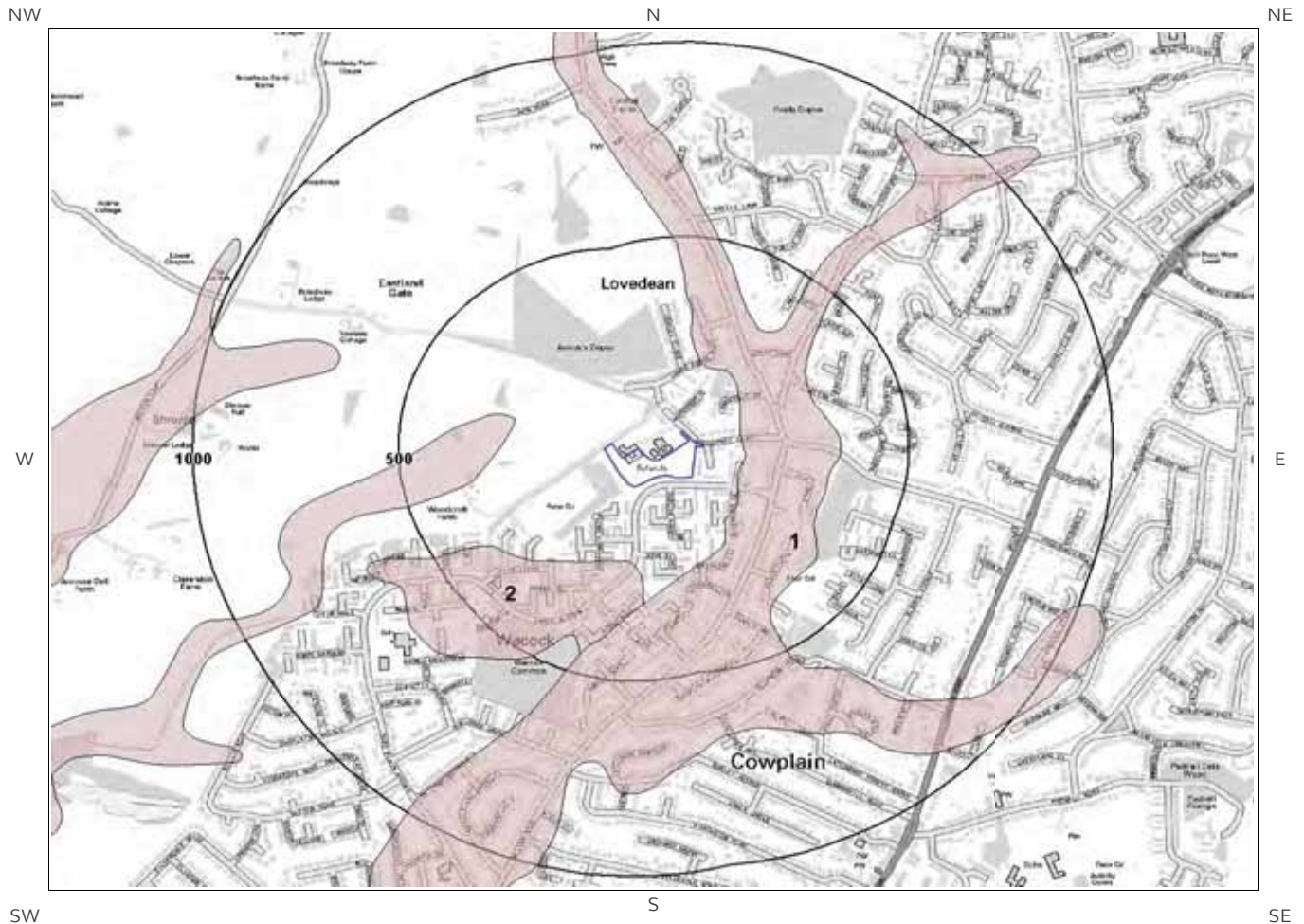
Database searched and no data found.

2.1.2 Permeability of Artificial Ground

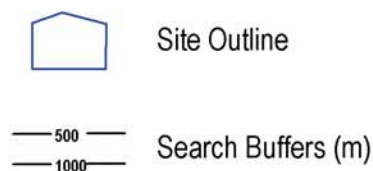
Are there any records relating to permeability of artificial ground within the study site boundary? No

Database searched and no data found.

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



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2.2 Superficial Deposits and Landslips

2.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance	Direction	LEX Code	Description	Rock Description
1	93.0	E	HEAD-XCZSV	HEAD	CLAY, SILT, SAND AND GRAVEL
2	191.0	S	HEAD-XCV	HEAD	CLAY AND GRAVEL

2.2.2 Permeability of Superficial Ground

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

Database searched and no data found.

2.2.3 Landslip

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

Database searched and no data found.

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

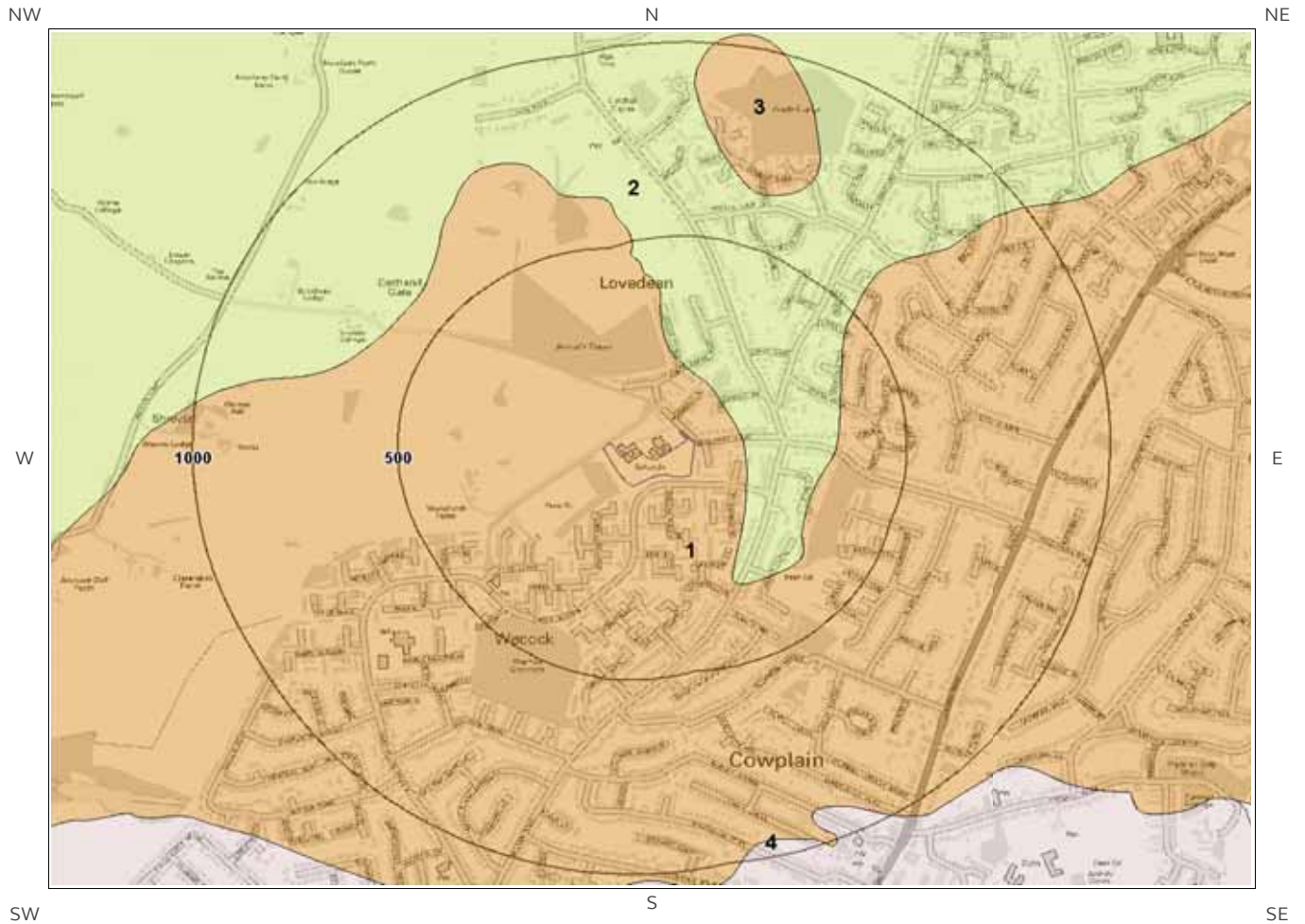
This Geology shows the main components as discrete layers, there are: Artificial/ Made Ground, Superficial/ Drift Geology and Landslips. These are all displayed with the BGS Lexicon code for the rock unit and BGS sheet number. Not all of the main geological components have nationwide coverage.

2.2.4 Landslip Permeability

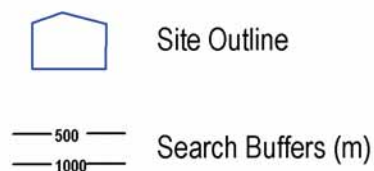
Are there any records relating to permeability of landslips within the study site boundary? No

Database searched and no data found.

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



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2.3 Bedrock, Solid Geology & linear features

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No: 316

2.3.1 Bedrock/Solid Geology

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

ID	Distance	Direction	LEX Code	Rock Description	Rock Age
1	0.0	On Site	LMBE-XCZS	LAMBETH GROUP - CLAY, SILT AND SAND	THANETIAN
2	95.0	NE	TACH-CHLK	TARRANT CHALK MEMBER - CHALK	CAMPANIAN

2.3.2 Permeability of Bedrock Ground

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

Distance	Direction	Flow Type	Maximum Permeability	Minimum Permeability
0.0	On Site	Mixed	Moderate	Very Low

2.3.3 Linear features

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

Database searched and no data found.

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

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

3 Radon Data

3.1 Radon Affected Areas

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

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

3.2 Radon Protection

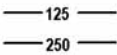
Is the property in an area where Radon Protection are required for new properties or extensions to existing ones as described in publication BR211 by the Building Research Establishment? No radon protective measures are necessary.

4 Ground Workings map



Ground Workings Legend

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- | | | | |
|---|--------------------|---|----------------------------------|
|  | Site Outline |  | Historic Surface Ground Workings |
|  | Search Buffers (m) |  | Historic Underground Workings |
| | |  | Current Ground Workings |

4 Ground Workings

4.1 Historical Surface Ground Working Features derived from Historical Mapping

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

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

ID	Distance (m)	Direction	NGR	Use	Date
1	37.0	SE	468704 111987	Pond	1942
2A	80.0	SE	468728 111942	Pond	1942
3A	80.0	SE	468728 111942	Pond	1907
4	92.0	S	468491 111835	Old Chalk Pit	1895
5	131.0	S	468561 111841	Unspecified Pit	1959
6B	136.0	S	468570 111841	Unspecified Pit	1933
7B	136.0	S	468570 111841	Unspecified Pit	1907
8B	136.0	S	468570 111841	Unspecified Pit	1942
9C	141.0	NE	468746 112245	Unspecified Pit	1959
10C	146.0	NE	468751 112247	Unspecified Pit	1867
11C	148.0	NE	468755 112246	Unspecified Pit	1933
12C	148.0	NE	468755 112246	Old Chalk Pit	1895
13C	148.0	NE	468755 112246	Old Chalk Pits	1907
14C	148.0	NE	468755 112246	Unspecified Pit	1942
15	152.0	E	468829 111962	Unspecified Pit	1959
16D	164.0	N	468632 112300	Unspecified Pit	1959
17D	165.0	N	468632 112300	Unspecified Pit	1867
18D	167.0	N	468640 112302	Old Chalk Pits	1907
19D	167.0	N	468640 112302	Unspecified Pit	1942
20D	167.0	N	468640 112302	Unspecified Pit	1895
21D	167.0	N	468640 112302	Unspecified Pit	1933

ID	Distance (m)	Direction	NGR	Use	Date
22E	226.0	NW	468215 112207	Unspecified Disused Pits	1977
23E	226.0	NW	468215 112207	Unspecified Disused Pits	1992
24G	229.0	W	468212 112045	Pond	1942
25F	229.0	W	468230 112165	Unspecified Pit	1933
26F	229.0	W	468230 112165	Unspecified Pit	1942
27F	229.0	W	468230 112165	Old Chalk Pits	1895
28F	229.0	W	468230 112165	Old Chalk Pits	1907
29G	232.0	W	468214 112045	Pond	1907
30F	236.0	W	468224 112165	Unspecified Pit	1867
31F	236.0	W	468222 112168	Unspecified Pit	1959
32H	243.0	N	468645 112384	Unspecified Pit	1933
33H	243.0	N	468645 112384	Unspecified Pit	1942
34H	243.0	N	468645 112384	Old Chalk Pits	1907
35H	243.0	N	468645 112384	Old Chalk Pits	1895
36H	244.0	N	468636 112385	Unspecified Pit	1959

4.2 Historical Underground Working Features derived from Historical Mapping

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

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

Database searched and no data found.

4.3 Current Ground Workings

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

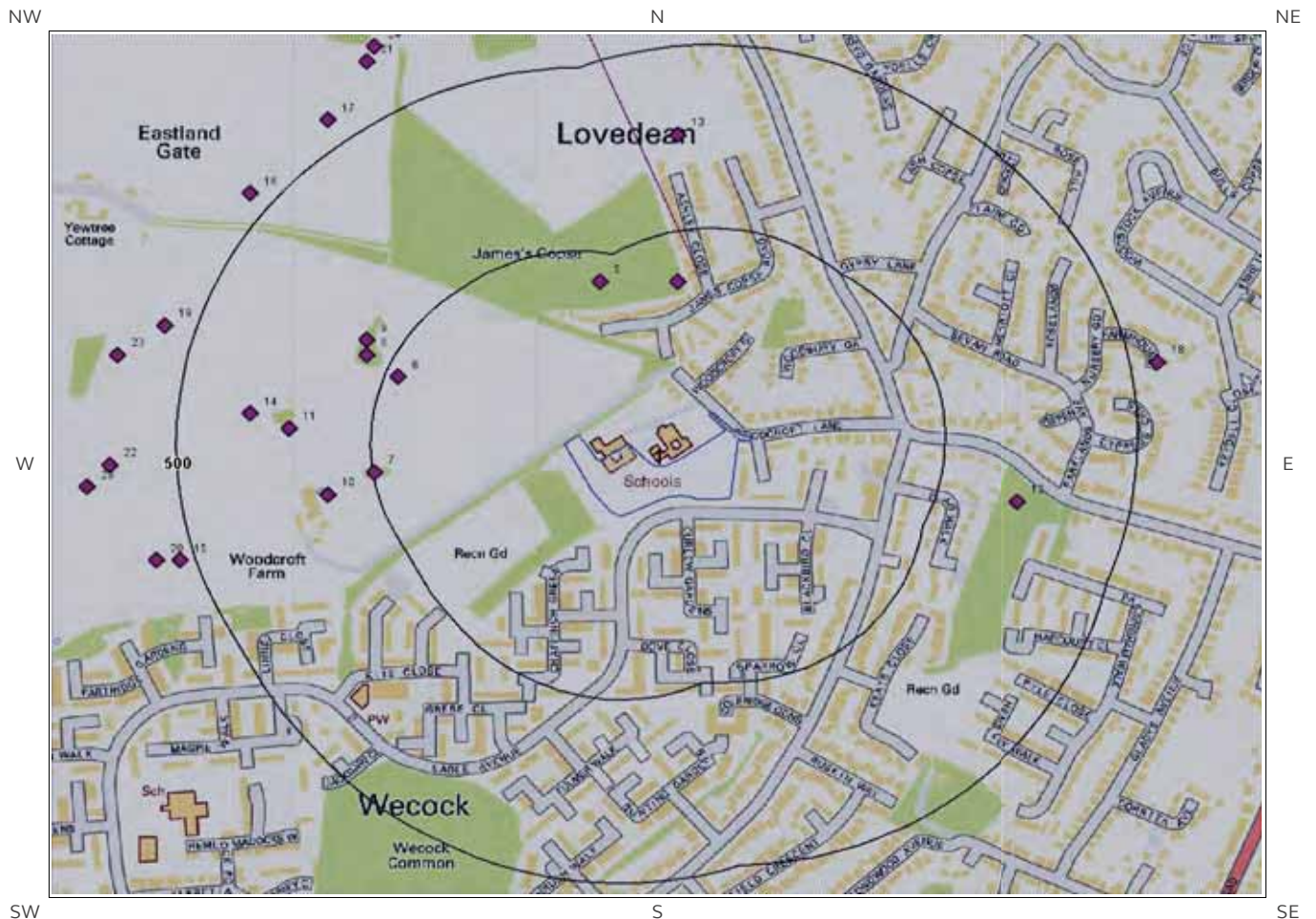
Are there any BGS Current Ground Workings within 1000m of the study site boundary? Yes

The following Current Ground Workings information is provided by British Geological Survey:

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
37	170.0	NE	468761 112249	Chalk	James's Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
38F	239.0	W	468230 112163	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	264.0	N	468647 112389	Chalk	James's Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
40	284.0	E	468959 112195	Sand	Keydell House Sand Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
41	297.0	NW	468195 112224	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	352.0	N	468611 112476	Chalk	James's Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	366.0	W	468091 112123	Chalk	Woodcroft Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	368.0	NE	468867 112419	Chalk	Lovedean Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	410.0	W	468052 112007	Chalk	Woodcroft Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	548.0	N	468786 112655	Chalk	Yoells Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	552.0	W	467927 112241	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	566.0	NE	469070 112515	Chalk	Frogmore Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	645.0	NW	467922 112445	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	785.0	NW	467744 112415	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	787.0	NW	467958 112691	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	791.0	NE	469241 112663	Chalk	Bulls Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

ID	Distance (m)	Direction	NGR	Commodity Produced	Pit Name	Type of working	Status
Not shown	795.0	N	468324 112875	Chalk	Lovedean Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	838.0	N	468607 112962	Chalk	Coldhill Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	871.0	NW	467872 112728	Chalk	Eastland Gate Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	940.0	S	468896 111095	Clay & Shale	Cow Plain Brick Field	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	974.0	NE	469243 112896	Chalk	Yoells Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	984.0	N	468696 113108	Chalk	Coldhill Copse Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	989.0	NW	468001 112963	Chalk	Broadway Farm Chalk Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

5 Mining, Extraction & Natural Cavities map



Mining, Extraction and
Natural Cavities Legend

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5 Mining, Extraction & Natural Cavities

5.1 Historical Mining

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

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

Database searched and no data found.

5.2 Coal Mining

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

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

Database searched and no data found.

5.3 Johnson Poole and Bloomer

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

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

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

5.4 Non-Coal Mining

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

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

The following non-coal mining information is provided by the BGS:

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
1	0.0	On Site	Not available	Chalk	Sporadic underground mining of restricted extent may have occurred. Potential for difficult ground conditions are unlikely and localised and are at a level where they need not be considered

ID	Distance (m)	Direction	Name	Commodity	Assessment of likelihood
Not shown	909.0	S	Not available	Chalk	Small scale underground mining may have occurred; mine adits, shafts and tunnels may be present. Potential for localised difficult ground conditions are at a level where they should be considered

5.5 Non-Coal Mining Cavities

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

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

Database searched and no data found.

5.6 Natural Cavities

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

Are there any Natural Cavities within 1000m of the study site boundary? Yes

The following Natural Cavities information provided by Peter Brett Associates:

ID	Distance (m)	Direction	NGR	Superficial Deposits	Bedrock Deposits	Cavity Type and Number
3	180.0	N	468600 112300	-	Chalk Group, Lambeth Group	Swallow Hole x 1
4	205.0	N	468535 112525	-	Chalk Group, Lambeth Group	Sinkhole x 6
5	208.0	N	468500 112300	-	Chalk Group, Lambeth Group	Swallow Hole x 1
6	233.0	W	468240 112170	-	Chalk Group, Lambeth Group	Sinkhole x 1
7	248.0	W	468210 112040	Head	Chalk Group, Lambeth Group	Sinkhole x 1
8	281.0	NW	468200 112200	Head	Chalk Group, Lambeth Group	Swallow Hole x 1
9	290.0	NW	468200 112220	Head	Chalk Group, Lambeth Group	Sinkhole x 1
10	313.0	W	468150 112010	Head	Chalk Group, Lambeth Group	Sinkhole x 1
11	355.0	W	468100 112100	Head	Chalk Group, Lambeth Group	Swallow Hole x 1
12	356.0	E	469040 112000	-	Chalk Group, Lambeth Group	Unknown x 1

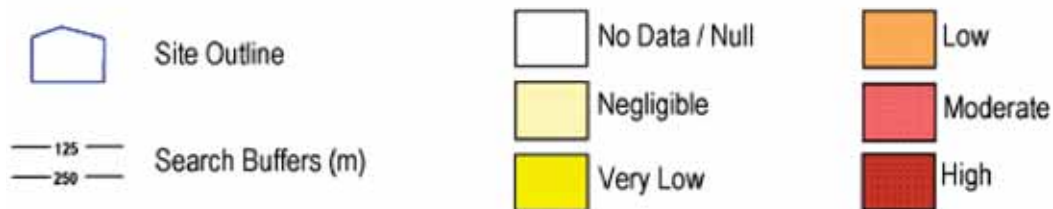
6 Natural Ground Subsidence

6.1 Shrink-Swell Clay map

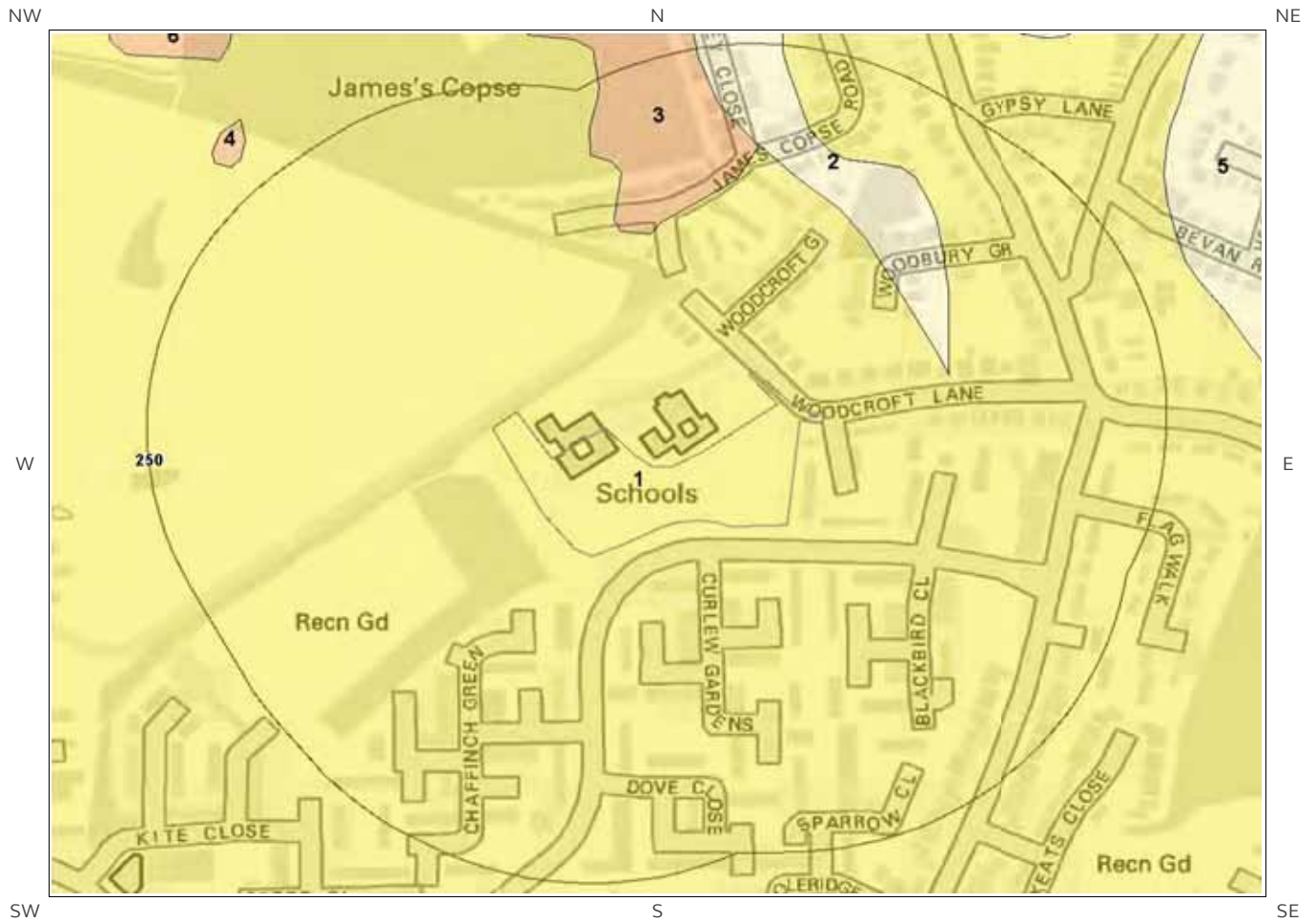


Shrink Swell Clay Legend

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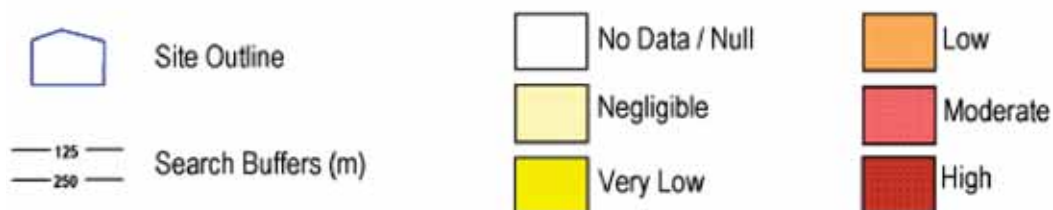


6.2 Landslides map

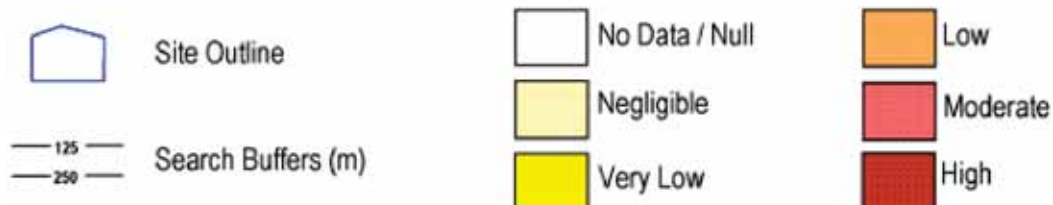
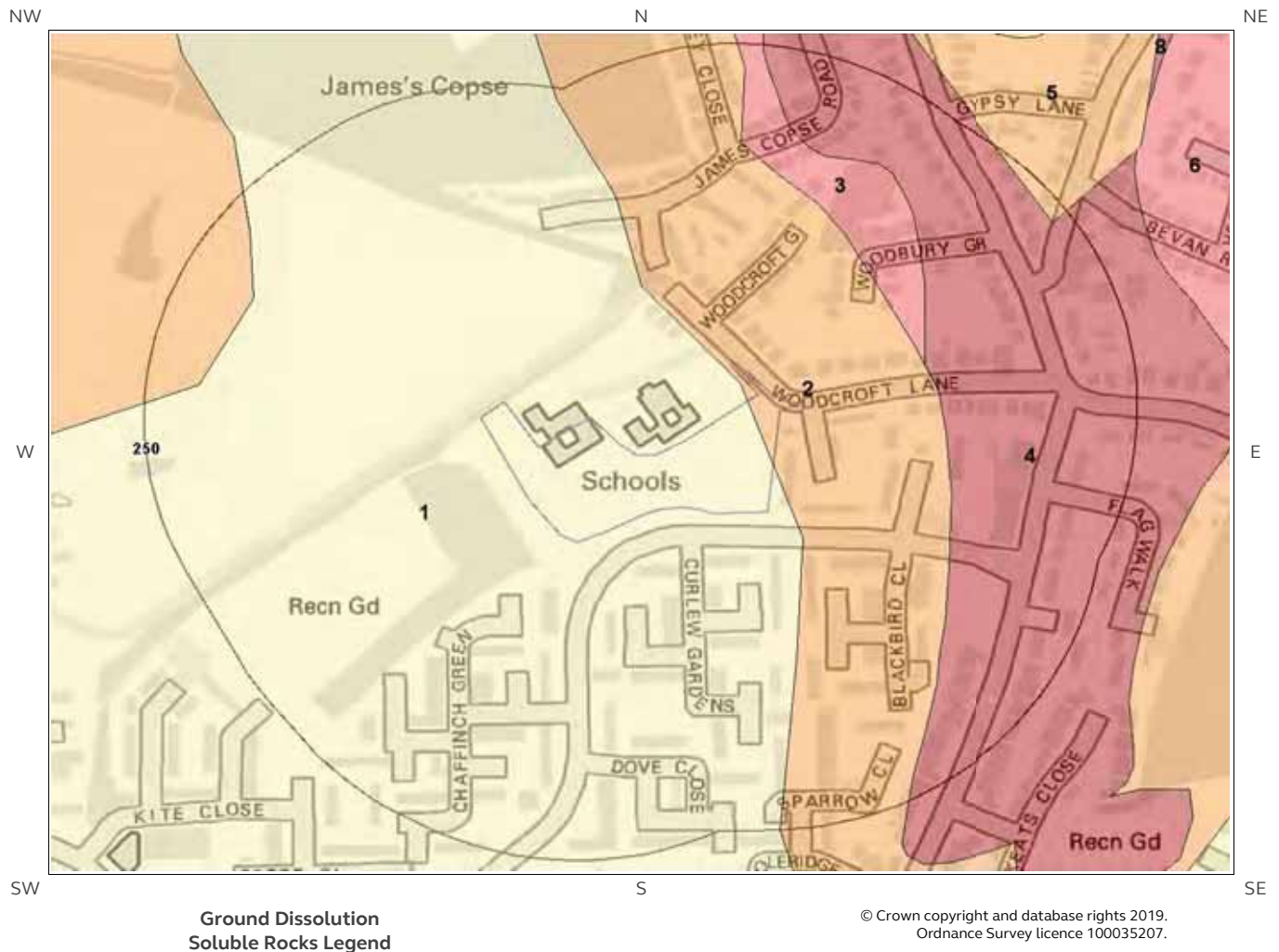


Landslides Legend

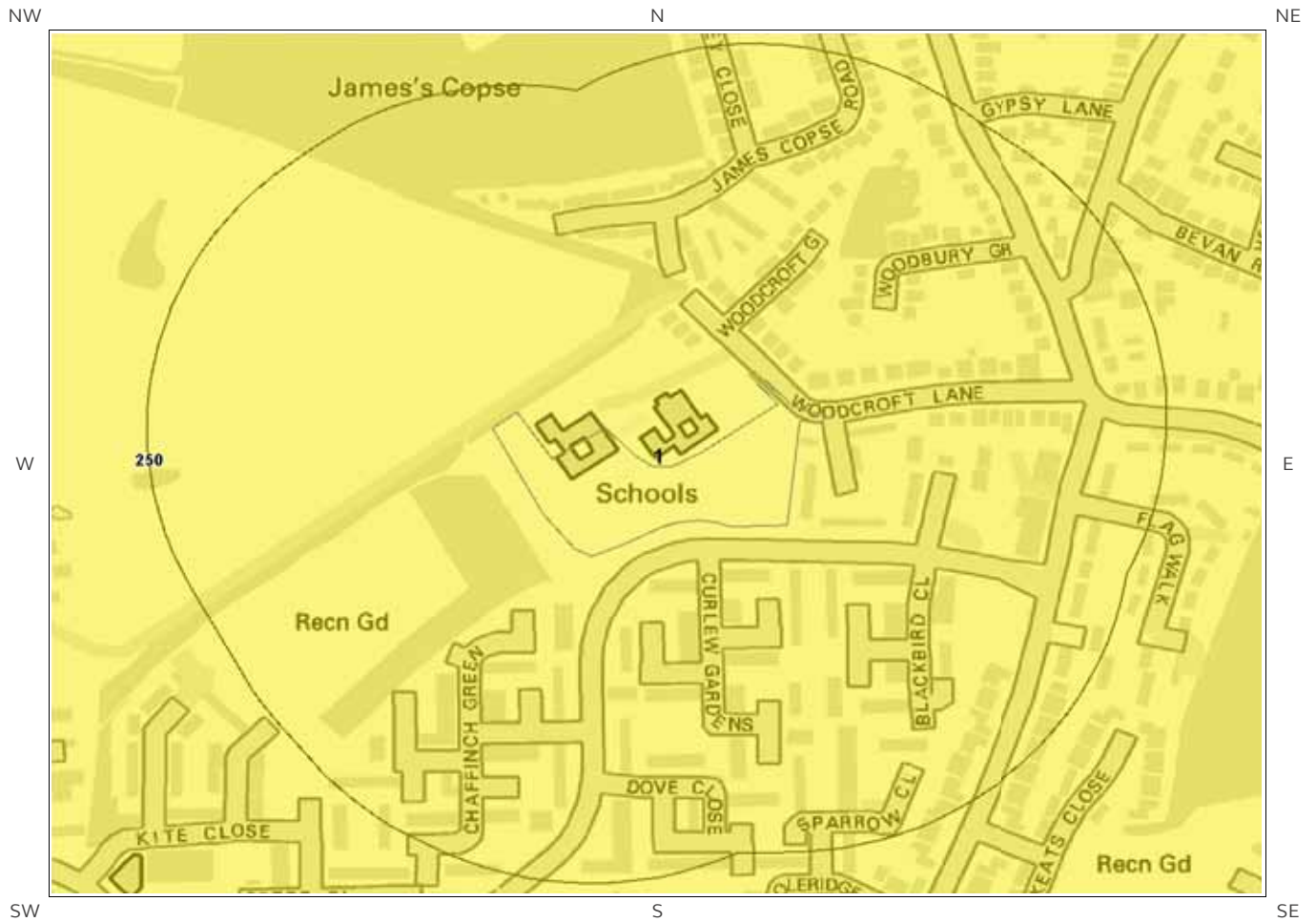
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6.3 Ground Dissolution of Soluble Rocks map

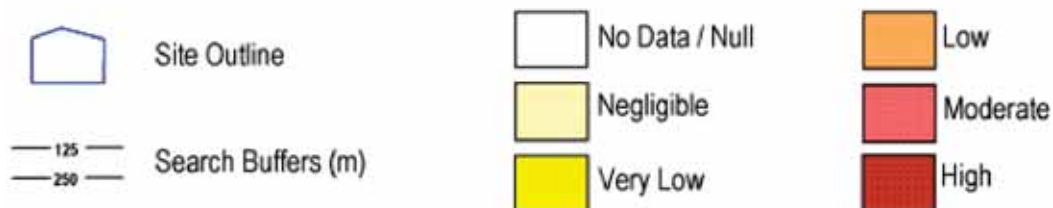


6.5 Collapsible Deposits map

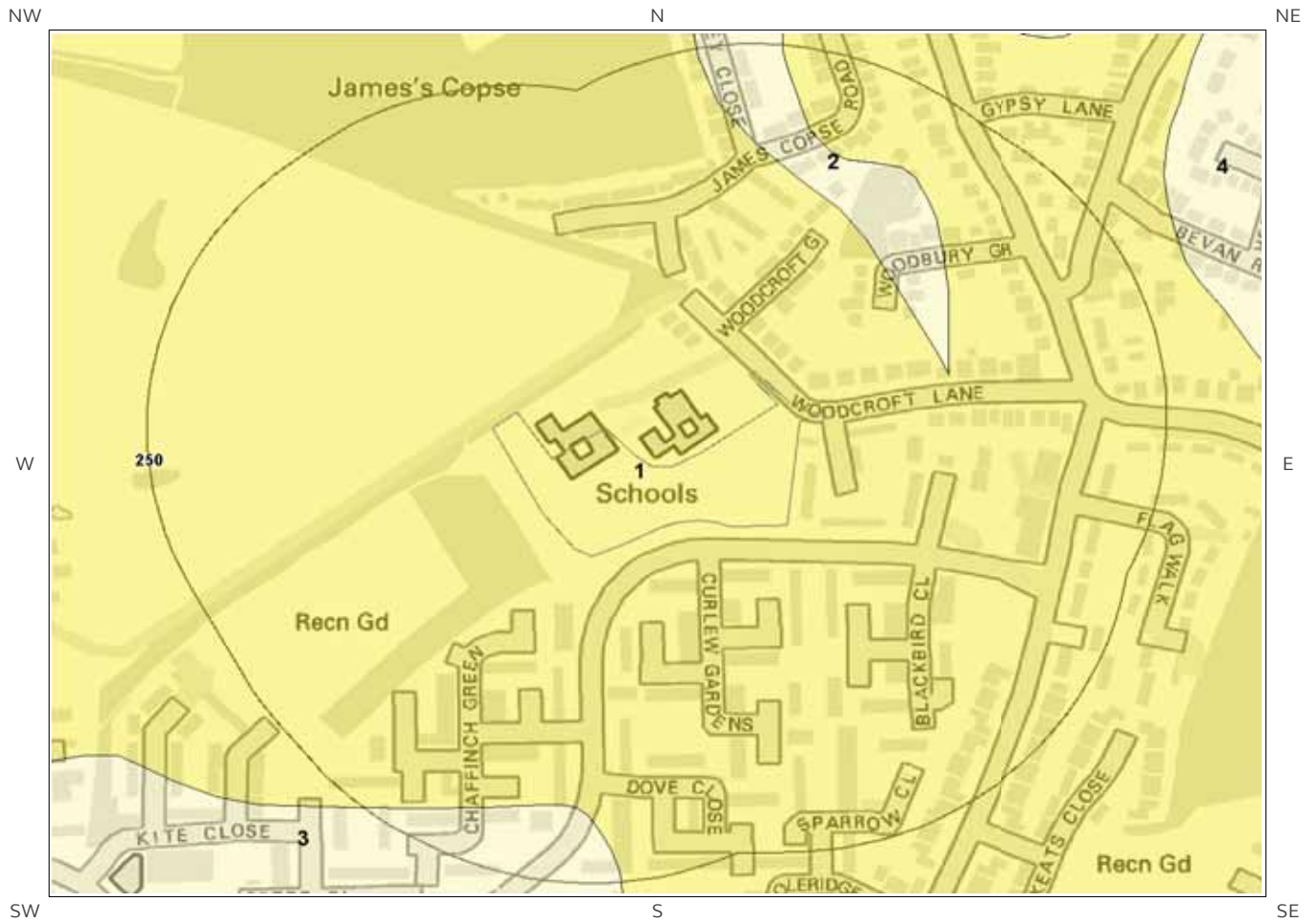


Collapsible Deposits Legend

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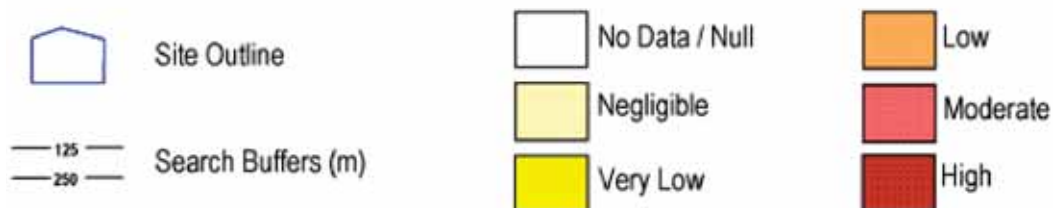


6.6 Running Sand map



Running Sand Legend

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7 Borehole Records map



Borehole Records Legend

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7 Borehole Records

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

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

5

ID	Distance (m)	Direction	NGR	BGS Reference	Drilled Length	Borehole Name
1	32.0	E	468700 112000	SU61SE12/A-G	11	LOVEDEAN BH1-7
2	89.0	S	468690 111920	SU61SE112	30.56	WECOCK FARM COWPLAIN
3A	138.0	NE	468745 112220	SU61SE137	2.14	3 WOODBURN GROVE LOVEDEAN TP1
4A	138.0	NE	468745 112220	SU61SE138	1	3 WOODBURN GROVE LOVEDEAN TP2
5	206.0	E	468900 112080	SU61SE32	3	LOVEDEAN LANE BH1

The borehole records are available using the hyperlinks below: Please note that if the donor of the borehole record has requested the information be held as commercial-in-confidence, the additional data will be held separately by the BGS and a formal request must be made for its release.

#1: scans.bgs.ac.uk/sobi_scans/boreholes/421366

#2: scans.bgs.ac.uk/sobi_scans/boreholes/421466

#3A: scans.bgs.ac.uk/sobi_scans/boreholes/17286816

#4A: scans.bgs.ac.uk/sobi_scans/boreholes/17286817

#5: scans.bgs.ac.uk/sobi_scans/boreholes/421386



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BGS ID: 421366 BGS Reference: SU61SE12/A-G
British National Grid (27700): 468700,112000

Department of the Environment ENGINEERING LABORATORY		Investigation No. FGE/185		Appendix A	
Cardington				Sheet No. 2	
37 MRQ's		LOVEDEAN (HMS Mercury)			
BOREHOLE LOG SU61SE12A N.G.R. 687.120 1":316					
Borehole No. 1		Note:-			
Ground Level: 61.5 m O.D.		Standpipe inserted to 6m. Borehole grouted with bentonite/cement mix to depth of 1.0m			
Date: 5th - 7th February 1975					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
Water levels in standpipe					
TOPSOIL: turf and organic CLAY with stones	T	I	0.0 - 01.5	61.5	8/2/75 dry 24/2/75 4.0m
CLAY: variegated in light brown and grey, with small stones (READING BEDS - Type C)	C	I	0.5 - 01.0	61.0	9/2/75 8.5m 25/2/75 4.0m
CLAY: variegated in red, brown and grey. Nearly vertical curved slickensided fissures present in U100 at 2.0 - 2.5m (READING BEDS - Type C)	C	I	0.8 - 00.7	60.7	10/2/75 8.4m 26/2/75 9.0m
			1.0 - 00.6 (approx)	60.6	11/2/75 8.1m 2/7/75 4.3m
			1.3 - 00.2	60.2	12/2/75 8.3m
			15/2/75 3.2m		
			14/2/75 3.2m		
CLAY/SILT: sandy, variegated in yellow-brown, red and grey. 3.0-3.5m sandy SILT with scattered clay patches. (READING BEDS - Type C)	C	I	2.0 - 59.5	59.5	15/2/75 3.1m
			2.5 - 59.0	59.0	16/2/75 3.2m
			17/2/75 1.3m		
			18/2/75 4.8m		
			19/2/75 4.7m		
CLAY: variably sandy, variegated in brown and grey, becoming dark grey in parts. Partings (usually thin) and patches of sand are present throughout. Ferruginous nodules occur between 6.0m and 6.5m (READING BEDS - Type C)	C	I	3.0 - 58.5	58.5	20/2/75 5.0m
			3.5 - 58.0	58.0	21/2/75 4.9m
			22/2/75 5.0m		
			23/2/75 5.0m		
			4.5 - 57.0	57.0	4.3m
CLAY: variably sandy, variegated in brown and grey, becoming dark grey in parts. Partings (usually thin) and patches of sand are present throughout. Ferruginous nodules occur between 6.0m and 6.5m (READING BEDS - Type C)	C	I	5.0 - 56.5	56.5	
			5.5 - 56.0	56.0	Water entry 5.5m
			7.0 - 54.5	54.5	
			7.5 - 54.0	54.0	
			8.5 - 53.0	53.0	
SAND: orange-brown, slightly clayey/silty, with small stones (READING BEDS - Type S)	S	I	8.7 - 52.8 (approx)	52.8	
			9.0 - 52.5	52.5	
			9.5 - 52.0	52.0	
CLAY: sandy and gravelly (fines) grey/brown, with chalky streaks. (READING BEDS - Type C)	C	I	9.7 - 51.8	51.8	
			10.0 - 51.5	51.5	control

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British National Grid (27700): 468700,112000

Department of the Environment		Investigation No.	Appendix
CIVIL ENGINEERING LABORATORY Cardington		FGE / 185	A
37 MRQ's		LOVEDEAN (HMS Mercury)	
BOREHOLE LOG		SU 61 SE 12 A N.G. R. 687.120 1":316	
Borehole No. 1 contd.		Note:-	
Ground Level.....			
Date.....			
Description of Strata	Legend	Sample	Depth (m) O.D. (m) Remarks
CLAY: gravelly (flints), gray-brown, with pockets of orange-brown sand (READING BEDS - Type CG)			10.0 51.5
CHALK: remoulded with sand pockets (resembles GRADE IV)			10.5 51.3
CHALK: rubbly. Also pipe containing clay and sand with flints. (resembles GRADE IV)			10.8 50.7
			11.0 50.5
			UPPER CHALK
			End of borehole



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British National Grid (27700): 468700,112000

Department of the Environment		Investigation No.	Appendix		
CIVIL ENGINEERING LABORATORY		FGE/185	A		
Cardington		Sheet No.	4		
37 MRQ's		LOVEDEAN (HMS Mercury)			
BOREHOLE LOG		SU61SE/12A b.c.r. 687.120 111316			
Borehole No. 2		Notes:-			
Ground Level 60.7m O.D.		Standpipe inserted to 6m. Borehole grouted with bentonite/cement mix to depth of 1.0m			
Date 8th - 10th February 1975					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
Water levels in standpipe					
TOPSOIL: turf and organic CLAY	T		0.0	60.7	11/2/75 5.0m 25/2/75 3.8m
			0.5	60.2	12/2/75 5.2m 26/2/75 3.9m
			0.8	59.9	13/2/75 5.3m 2/7/75 4.1m
CLAY: with stones, grey-green changing to brown and grey variegated at approx. 1.0m (READING BEDS - Type C)			1.2	59.4	14/2/75 5.4m
			1.5	59.2	15/2/75 5.1m
CLAY: sandy, mottled brown/yellow (READING BEDS - Type CB)			1.8	59.2	16/2/75 4.0m
			2.0	58.7	17/2/75 4.0m
			2.0	58.7	18/2/75 4.1m
			2.0	58.7	19/2/75 4.0m
			2.0	58.7	20/2/75 4.0m
			2.0	58.7	21/2/75 4.0m
CLAY: variegated in red, brown and grey, becoming dark purple/brown or dark grey/brown between 4.5m and 5.0m. Occasional silt layers and pockets of brown sand are present between 4.5m and 5.0m. Plant remains noted at 5.0m (READING BEDS - Type C)			3.0	57.7	22/2/75 3.9m
			3.5	57.2	23/2/75 4.0m
			3.5	57.2	24/2/75 3.3m
					Water Entry 4.1m
			4.5	56.2	
			5.0	55.7	Water Entry 5.0m
			5.6	55.2	
CLAY: dark grey, possibly slightly organic. Gypsum crystals present at 6.5m (READING BEDS - Type C)			6.0	54.7	
			6.5	54.2	
CLAY: sandy, orange-brown/grey (READING BEDS - Type CB)			6.9	53.8	
CLAY: sandy and gravelly (flints), Patches of gypsum crystals and traces of chalk are present (READING BEDS - Type CB)			7.5	53.2	
CHALK: hard and indurated, with brown clay.			8.2	52.5	chisel employed
CHALK: buff, resembling rubblely chalk in matrix of remoulded chalk. Flints present (up to 120mm seen) (resembles GRADE IV to GRADE V)			8.5	52.2	no flints in SPT sample
			8.7	52.0	
CHALK: buff, rubblely, with patches of brown clay - possibly a 'pipe' (resembles GRADE IV)			9.5	51.2	flints present in SPT sample
			9.7	51.0	
			10.0	50.7	End of borehole

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Department of the Environment		Investigation No.	Appendix		
CIVIL ENGINEERING LABORATORY		FGE/185	A		
37 M R Q's		Sheet No. 5			
BOREHOLE LOG		LOVEDEAN (HMS Mercury)			
SU61SE/12c 1"316 N.G. 468700.112000					
Borehole No. 3		Note:- Standpipes inserted to 6.0m. Borehole grouted with bentonite/cement mix to depth of 1.0m			
Ground Level 61.0m O.D.					
Date 11th - 13th February 1975					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
TOPSOIL: Turf and organic sandy CLAY with Flints.	T		0 - 0.4 (approx)	61.0	Water levels in Standpipes
CLAY: variegated in brown and grey, with a few small flints. Patches of organic clay with roots etc. between 1.5m and 2.0m. (MADE GROUND)	I		0.4 - 0.8	60.2	14/2/75 5.6m 2/7/75 4.6m
CLAY: variegated in yellow, orange-brown and grey. Thin sandy streaks/partings present at 4.0m. Large flint at 4.6 - 4.8m. Limit of made or disturbed ground marked by well-defined inclined surface in U100 sample at 2.1m. (READING BEDS - Type C)	I		0.8 - 1.5	59.7	15/2/75 5.1m
CLAY: sandy, brown/grey (READING BEDS - Type CS)	I		1.5 - 2.0	59.0	16/2/75 4.3m
CLAY: dark grey-brown, probably slightly organic. Stones and concentration of gypsum present at 5.5 - 6.0m. (READING BEDS - Type C)	I		2.0 - 2.1	58.9	17/2/75 4.2m
CLAY: sandy and slightly chalky, yellow-brown (READING BEDS - Type CS)	I		2.1 - 2.5	58.5	18/2/75 4.0m
CLAY: gravelly (flints), light brown/grey (READING BEDS - Type CQ)	I		2.5 - 3.5	57.6	19/2/75 3.9m
CHALK: rubble consisting of hard and indurated chalk with some brown clay matrix.	I		3.5 - 4.0	57.0	20/2/75 3.8m
CHALK: buff/brown, remoulded, clayey, with flints and fragments of hard chalk. (resembles GRADE IV)	I		4.0 - 4.8	56.2	21/2/75 3.9m
CHALK: rubbly, cream to buff. Joints 10mm wide. Patches of brown and grey clay between 9.0m and 9.5m. (resembles GRADE IV)	I		4.8 - 5.0	56.0	22/2/75 3.9m
CHALK: hard and rather brittle, blocky, cream, no flints present. (GRADE 2)	I		5.0 - 5.3	55.7 (approx)	23/2/75 3.8m
			5.3 - 5.5	55.5	24/2/75 3.8m
			5.5 - 6.2	54.8	25/2/75 3.9m
			6.2 - 6.5	54.5	26/2/75 3.9m
			6.5 - 7.2	53.8	
			7.2 - 8.0	53.0	
			8.0 - 8.5	52.5	
			8.5 - 9.0	52.0	
			9.0 - 9.5	51.5	
			9.5 - 9.7	51.3	
			9.7 - 10.0	51.0	



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Department of the Environment CIVIL ENGINEERING LABORATORY		Investigation No. FGE / 185		Appendix A Sheet No. G	
37 MRG's		LOVEDEAN (HMS Mercury)			
BOREHOLE LOG SUBISE 12 D 1" 316 N.G.R. 687.120					
Borehole No. 4		Note:- Standpipe inserted to depth of 3.0m. Bottom of borehole grouted up to 3.0m. Top of borehole grouted from surface to depth of 1.0m with bentonite/cement mix.			
Ground Level 57.3 m O.D.					
Date 18th - 20th February 1975					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
TOPSOIL: turf and organic CLAY with stones.	T		0.0 - 0.4	57.3 - 56.3	
CLAY: gray/brown (READING BEDS - Type C)		I	0.8 - 1.0	56.5 - 56.3 (approx)	
SAND: light gray, slightly silty/clayey (READING BEDS - Type B)			1.0 - 1.3	56.3 - 56.0	
CLAY: variegated in red, brown, and gray.			2.5 - 3.0	54.8 - 54.3	
(READING BEDS - Type C)			3.0 - 3.4	54.3 - 53.8	
CLAY: gravelly (flints), variegated. (READING BEDS - Type CG)			4.0 - 4.1	53.3 - 53.2	
CHALK: hard and indurated, with flints.			4.4 - 4.5	52.8 - 52.8	
CHALK: cream, rubbly. Joints quite closely spaced with brown staining (resembles GRADE IV)			5.0	52.3	
Inclusions of gray clay occur in the chalk at 5.0m.					
End of borehole					
Water levels in standpipe					
21/2/75		dry		26/2/75 dry	
22/2/75		dry		2/7/75 dry	
23/2/75		dry			
24/2/75		dry			
25/2/75		dry			



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Department of the Environment		Investigation No.	Appendix
CIVIL ENGINEERING LABORATORY		FGE/185	A
Cardington		Sheet No.	7
37 M R Q's		LOVEDEAN (HMS Mercury)	
BOREHOLE LOG SU 61 SE 12 E 1" : 316 N.G. R. 687.120			
Borehole No. 5		Note:- Standpipe inserted to 6m. Borehole grouted with bentonite/cement mix to depth of 1.0m.	
Ground Level 59.1 m O.D.			
Date 14th - 16th February 1975			
Description of Strata	Legend	Sample	Depth (m) O.D. (m) Remarks
CLAY: gravelly, variegated in brown and grey. (READING BEDS? - Type Cg)		I	0.1 59.1 0.5 58.6 1.0 58.1 1.1 58.0 Water levels in standpipe: 17/2/75 0.2m 18/2/75 0.2m 19/2/75 0.2m 20/2/75 0.2m 21/2/75 0.2m 22/2/75 0.2m 23/2/75 0.2m 24/2/75 0.2m 25/2/75 0.2m 26/2/75 0.2m 27/2/75 0.5m
CLAY: variegated in brown and grey. (READING BEDS - Type C)		4	
CLAY: sandy, variegated in grey, brown and red. Partings of brown/grey clayey sand are present. Flints present between 2.0m and 2.5m. (READING BEDS - Type Cg)		I	2.0 57.1 2.5 56.6 3.0 56.1
CLAY: variegated in red, brown and grey. (READING BEDS - Type C)		I	4.0 55.1 4.5 54.6
CLAY: gravelly (flints), brown/grey. Flints seen up to 100mm size. (READING BEDS - Type Cg)		I	5.5 53.6
CHALK: rubble consisting of hard chalk flints with clay.		I	6.3 52.8 6.5 52.6 6.7 52.4 chiselling not required flints present in SPT sample
CHALK: rubble, with flints and patches of brown clay. (resembles GRADE IX)		(147)	
CHALK: rubble to blocky, but with some joints open to 10mm and filled with remoulded chalk. Many flints are present including a large one at 8.8m. (resembles GRADE III)		I	8.0 51.1 (approx) 8.5 50.6 9.0 50.1 UPPER CHALK SPT attempted - no penetration (large flint in sample) End of borehole



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British National Grid (27700): 468700,112000

Department of the Environment CIVIL ENGINEERING LABORATORY		Investigation No. FGE/ 185		Appendix A Sheet No. 8	
37 MRQ's		LOVEDEAN (HMS Mercury)			
BOREHOLE LOG SU 61SE 12 P 11:316 N.G. 4687.120					
Borehole No. G		Note:- Standpipe inserted to depth of 8.5m. Bottom of borehole grouted up to 8.5m Top of borehole grouted from surface to depth of 1.0m with bentonite/cement mix.			
Ground Level 58.1 m O.D.					
Date 20th - 22nd February 1975					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
TOPSOIL: turf and organic CLAY			0.0 - 58.1		Water levels in standpipe
CLAY: brown/gray sandy with stones (MADE GROUND)			0.4 - 57.7		23/2/75 5.2m
SAND: yellow-brown, gravelly and clayey (MADE GROUND)			0.6 - 57.5		24/2/75 5.0m
CLAY: sandy, variegated in gray, brown and red. (READING BEDS - Type CB)			1.0 - 57.1		25/2/75 5.0m
			1.1 - 57.0		26/2/75 4.9m
			1.7 - 56.4 (approx)		2/7/75 Dry (to 7.7m)
CLAY: variegated in red, yellow and gray. Dark red concretions present. (READING BEDS - Type C)			2.0 - 56.1		
CLAY: sandy, brown/gray, with small stones. (READING BEDS - Type CB)			2.5 - 55.6		
CLAY: variegated in red, gray and brown. (READING BEDS - Type C)			3.5 - 54.0		
CLAY: gravelly (flints), brown/gray. (READING BEDS - Type CG)			4.0 - 54.1		
			4.2 - 53.9		
CHALK: hard and indurated, with some brown clay. Possibly rubble below 4.7m			4.5 - 53.6		* SPT attempted
			4.7 - 53.4		no penetration
			5.2 - 52.9		chiselling not required
CHALK: cream, rubble, with patches of buff/brown clay and remoulded chalk below 6.0m. Frequent flints present. (resembles GRADE IX)			5.5 - 52.6		
			6.0 - 52.1		
			7.0 - 51.1 (approx)		
CHALK: cream, rubble to blocky with flints. Joints about 60mm apart. (resembles GRADE III)			7.2 - 50.9		no flints present in SPT sample
			8.5 - 49.6		Water Entry 7.5m
			9.0 - 49.1		
			10.0 - 48.1		End of borehole



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British National Grid (27700): 468700,112000

Department of the Environment CIVIL ENGINEERING LABORATORY		Cardington		Investigation No. FGE / 185	Appendix A Sheet No. 9
37 MRQ6				LOVEDEAN (HMS Mercury)	
BOREHOLE LOG				SU61SE 12 F 1":316 N.G.R. 687.120	
Borehole No. G contd			Notes:-		
Ground Level.....					
Date.....					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
CHALK: cream, blocky with a few flints. (resembles GRADE III)		51	10.0 10.2 10.5	48.1 47.9 47.0	UPPER CHALK (contd) End of borehole



British Geological Survey

NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 421366 BGS Reference: SU61SE12/A-G

British National Grid (27700): 468700,112000

Department of the Environment CIVIL ENGINEERING LABORATORY		Cardington		Investigation No. FGE/185	Sheet No. 10
37 M R Q's		LOVEDEAN (HMS Mercury)			
BOREHOLE LOG		SU 61 SE 12 or 11: 31b N.G.R. 687.120			
Borehole No. 7		Notes:- Standpipes inserted to 6m. Borehole grouted with bentonite/ cement mix to depth of 1.5m.			
Ground Level 55.9 m O.D.					
Date 17th - 18th February 1975					
Description of Strata	Legend	Sample	Depth (m)	O.D. (m)	Remarks
TOPSOIL: buff and grey CLAY with stones	T		0	55.9	
CLAY: variegated in red, brown and yellow. (READING BEDS - Type C)			0.4	55.6	
			0.8	55.1	
			1.3	54.6	
			1.8	54.1	
CHALK: remoulded and mixed with brown clay. Frequent flints including large ones (resembles GRADE V)			2.2	53.7	Flints present in S.P.T. sample (approx)
			2.7	53.2	
CHALK: buff to cream, rubbly, with brown staining. Flints present. Appears softened between 3.5m and 4.5m (resembles GRADE IV)			3.0	52.9	
			3.5	52.4	
			4.5	51.4	
CHALK: cream, rubbly to blocky, with flints. Appears softened between 5.0m and 5.5m. (resembles GRADE III)			5.0	50.9	
			6.0	49.9	
CHALK: cream, blocky, but some brown staining is present. (resembles GRADE II)			6.2	49.7	no flints in S.P.T. sample
			6.5	49.4	End of borehole
Water levels in standpipes					
13/2/75 dry					
20/2/75 dry					
21/2/75 dry					
22/2/75 dry					
23/2/75 dry					
24/2/75 dry					
25/2/75 dry					
26/2/75 dry					
27/2/75 dry					

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Woodcroft Lane, Waterlooville

CCL03230.CJ58

August 2019

APPENDIX III

APPENDIX III – GROUND INVESTIGATION BY WHITE YOUNG GREEN ENVIRONMENTAL (2008)

This Appendix presents the relevant factual records from a ground investigation undertaken at the site by White Young Green Environmental in 2008 (Reported in December 2008).

The following information is included:

- Windowless sample Logs (WS1 to WS8)
- Exploratory Hole Location Plan

 Ground Engineering Services	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log						
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS1 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 06/10/2008 Finish Date: 06/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig						
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) Soft brown sandy slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular fine flint. Abundant roots and rootlets. Very soft light orange and grey slightly sandy CLAY/SILT with occasional gravels. Sand is fine gravel is subangular to angular fine flint. (HEAD)			0.15				0.00 0.05	ES D	
							0.80	D	
							1.00 1.00	S D	N=4 (1,1,1,1,1,1)
			2.00				2.00	S	N=11 (2,2,2,3,3,3)
							2.50	D	
			2.80				3.00	S	N=13 (1,2,2,3,3,5)
							3.70	D	
			4.00				4.00	S	N=30 (6,6,6,7,8,9)
Window Sample hole completed at 4.00 m									
Installation/ Backfill Details: Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling					
				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)	
Additional Observations:									
				Checked			Verified		

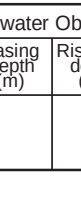
 Ground Engineering Services	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log						
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS2 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 06/10/2008 Finish Date: 06/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig						
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) Soft brown slightly gravelly CLAY/SILT. Gravel is subangular to angular fine to medium flint.			0.10				0.00 0.10	ES D	
Soft orange and light brown CLAY/SILT with rare subangular to angular gravel flint. (HEAD)			0.70						
Soft to firm light brown, grey and orange slightly gravelly CLAY/SILT. Gravel is subangular to angular fine to medium flint. (HEAD)			1.00				0.80 1.00	D S	N=4 (1,1,1,1,1,1)
Very stiff grey and orange CLAY/SILT. (READING FORMATION)			1.60						
Firm grey and orange mottled red CLAY/SILT. (READING FORMATION)							1.80 2.00	D S	N=11 (2,2,3,2,3,3)
...by 3.0mbgl, becomes stiff.							2.70 3.00	D S	N=17 (2,2,4,4,4,5)
Window Sample hole completed at 4.00 m			4.00				4.00	S	N=19 (2,3,4,4,5,6)
<u>Installation/ Backfill Details:</u> Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling					
				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)	
<u>Additional Observations:</u>									
				Checked			Verified		

 Ground Engineering Services	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log						
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS3 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 06/10/2008 Finish Date: 06/10/2008 Logged By: Z. Bella Drilled By: K.Lappage Method: Terrier Rig						
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) Soft brown sandy slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular fine flint. Abundant roots and rootlets. Soft light brown and grey mottled orange slightly gravelly CLAY/SILT. Gravel is subangular to angular fine to medium flint. (HEAD)			0.10				0.00 0.10	ES D	
Soft to firm light grey mottled orange and red slightly gravelly CLAY/SILT. Gravel is subangular to angular fine flint. (HEAD)			1.00				0.80 1.00	D S	N=5 (1,1,1,1,1,2)
Firm to stiff grey mottled orange and yellow and dark red CLAY/SILT with rare subangular to angular fine gravel flint. (HEAD/READING FORMATION?)			2.10				1.80 2.00	D S	N=8 (2,2,1,2,3,2)
Window Sample hole completed at 3.00 m			3.00				2.50 3.00	D	N=20 (4,4,4,5,5,6)
Installation/ Backfill Details: Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling					
Additional Observations:				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)	
				Checked				Verified	

	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log						
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS4 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 06/10/2008 Finish Date: 06/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig						
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) very soft light brown slightly sandy, slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular fine to medium flint.			0.20				0.00	ES	
Very soft light grey and orange slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular, fine to medium flint. (HEAD)			0.15				D		
Soft light grey mottled orange and red slightly gravelly CLAY/SILT. Gravel is subangular to angular fine to medium flint. (HEAD)			1.10				0.70	D	N=4 (1,1,1,1,1,1)
			1.00				S		
NO RECOVERY			2.00				1.20	D	
			2.00				S		
Window Sample hole completed at 3.00 m			3.00				2.00	S	N=18 (2,2,4,4,5,5)
			3.00				S	N=33 (7,6,6,9,9,9)	
Installation/ Backfill Details: Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling					
Additional Observations:				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)	
				Checked				Verified	

 Ground Engineering Services	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log						
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS5 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 06/10/2008 Finish Date: 06/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig						
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) Soft brown sandy slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular fine flint. Abundant roots and rootlets. Soft light brown and grey mottled orange slightly sandy, slightly gravelly CLAY/SILT. Sand is fine gravel is subangular to angular, fine to medium flint. (HEAD)			0.10				0.00	ES	N=7 (1,1,1,2,2,2)
							0.30	D	
							0.70	D	
							1.00	S	
							1.20	D	
Soft light brown and grey slightly gravelly CLAY/SILT. Gravel is subangular to angular, fine top medium flint. (HEAD)			1.00						
							1.80	D	
							2.00	S	N=14 (2,2,3,3,4,4)
Firm to stiff very light grey mottled orange CLAY/SILT. (READING FORMATION)			2.00						
NO RECOVERY			3.00						
Window Sample hole completed at 3.00 m									
Installation/ Backfill Details: Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling					
Additional Observations:				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)	
				Checked		Verified			

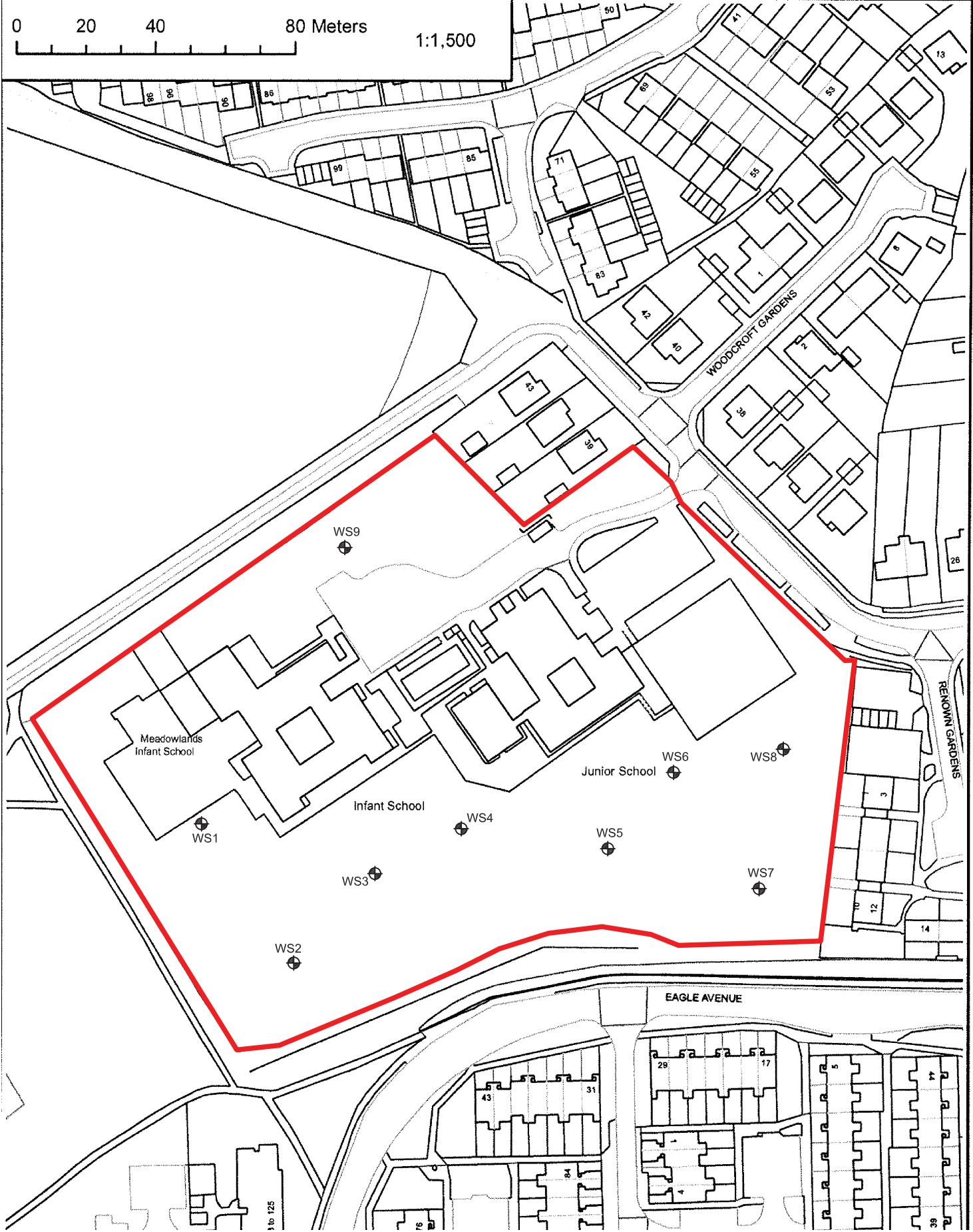
 Ground Engineering Services	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log							
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS6 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 07/10/2008 Finish Date: 07/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig							
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing			
							Depth (m)	Type	In Situ Test Results	
(TOPSOIL) Soft brown sandy slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular fine flint. Abundant roots and rootlets.			0.20				0.00	ES		
Soft grey and orange slightly gravelly CLAY/SILT. Gravel is subangular to angular, fine to medium flint. (HEAD)			0.15				D			
			1.00				1.00	S		N=5 (1,1,1,1,2,1)
			1.10				D			
Stiff grey mottled red and orange CLAY/SILT. (READING FORMATION)								2.00		
NO RECOVERY	2.00	S		N=16 (3,2,3,4,4,5)						
	3.00	3.00		S	N=19 (4,4,5,5,4,5)					
Window Sample hole completed at 3.00 m										
Installation/ Backfill Details: Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling						
Additional Observations:				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)		
				Checked		Verified				

 Ground Engineering Services	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log						
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Location Reference: WS7 Sheet 1 of 1 Co-ordinates: Ground Level: Start Date: 07/10/2008 Finish Date: 07/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig						
Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) Very soft light brown and orange slightly sandy, slightly gravelly CLAY/SILT. Sand is fine gravel is subangular to angular, fine to medium flint. Abundant roots and rootlets.			0.60				0.00	ES	
Soft to firm light brown gravelly CLAY/SILT. Gravel is subangular to angular fine to coarse flint. (HEAD)			0.20				D		
Stiff light orange to grey CLAY/SILT. (READING FORMATION)			1.20				0.80	D	N=6 (1,2,2,1,1,2)
Stiff grey and yellow mottled orange and dark red CLAY/SILT. (READING FORMATION)			1.00				S		
...becoming stiff by 3.0mbgl.			2.00				1.60	D	N=15 (4,4,3,3,4,5)
Window Sample hole completed at 4.00 m			2.00				S		
			4.00				2.70	D	N=17 (3,3,4,4,4,5)
			3.00				S		
							3.80	D	N=41 (9,10,10,10,10,11)
			4.00				S		
Installation/ Backfill Details: Backfilled with arisings. No groundwater encountered.				Groundwater Observations During Drilling					
Additional Observations:				Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)	
				Checked	Verified				

	WHITE YOUNG GREEN ENVIRONMENTAL		Window Sample Log				
			Location Reference		WS8 Sheet 1 of 1		
	Job Number: A050917 Project: Meadowlands Junior and Infant Schools Site Location: 35, Woodcroft Lane, Lovedean, Portsmouth Client: Hampshire County Council		Co-ordinates: Ground Level: Start Date: 07/10/2008 Finish Date: 07/10/2008 Logged By: Z. Bella Drilled By: K. Lappage Method: Terrier Rig				

Stratum Description	Legend	Reduced Level (mOD)	Depth (m)	Casing Diameter (mm) Depth(m)	Water Strike (m)	Installation and Backfill Details	Samples and In Situ Testing		
							Depth (m)	Type	In Situ Test Results
(TOPSOIL) Soft brown sandy slightly gravelly CLAY/SILT. Sand is fine, gravel is subangular to angular fine flint. Abundant roots and rootlets.			0.10				0.00	ES	
Soft orange and light brown CLAY/SILT with rare subangular to angular gravel flint. (HEAD)							0.30	D	
			1.10				1.00	S	N=7 (1,1,1,2,2,2)
Soft to firm light grey mottled orange and red slightly gravelly CLAY/SILT. Gravel is subangular to angular fine flint. (HEAD)							1.80	D	
			2.00				2.00		N=14 (3,3,4,3,4,3)
NO RECOVERY									
			3.00				3.00	S	N=26 (6,6,6,6,7,7)
Window Sample hole completed at 3.00 m									

<u>Installation/ Backfill Details:</u> Backfilled with arisings. No groundwater encountered. <u>Additional Observations:</u>		Groundwater Observations During Drilling				
		Strike encountered at depth (m)	Casing Depth (m)	Rising to depth (m)	Over monitoring period (mins)	Depth sealed by casing (m)
		Checked			Verified	



FILENAME: ENVIRONMENTAL PROJECTS - AWARDED PROJECTS\A050917.MXD, MEADOWLANDS SCHOOLS - GC0460 SITE INFO\DRAWINGS\FIGURE 2 - LAYOUT PLANNING
PROJECT START DATE: 12/11/2011, PROJECT END DATE: 14/11/2011

EMPRESS HOUSE
12 EMPRESS ROAD
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HAMPSHIRE COUNTY COUNCIL

Project:
**MEADOWLANDS INFANT AND
JUNIOR SCHOOL**

Drawing Title:
BOREHOLE LOCATION PLAN

REV		DESCRIPTION				BY	CHK	APP	DATE
LOCATION PLAN		Scale @ A4 NTS		Drawn AP	Date NOV 08	Checked RP	Date NOV 08	Approved RP	Date NOV 08
		Project No. A050917		Office 38	Type 04	Drawing No. FIGURE SK02		Revision 0	
		© wvg Group Ltd							