

**CHURCHILL RETIREMENT LIVING LIMITED**

**PLACE COURT CARE HOME, CAMPS ROAD, HAVERHILL, CB9 8HF**

**DESK STUDY APPRAISAL**

The Granary  
White Hall Farm  
Long Itchington  
Warwickshire  
CV47 9PU

November 2015  
Report No. CCL02775.BZ62

Tel: 01926 815678  
Fax: 01926 815222  
mail@crossfield-consulting.co.uk

## CONTENTS

1. INTRODUCTION
2. THE SITE
3. PUBLISHED GEOLOGY
4. DESK STUDY ENQUIRIES
5. ASSESSMENT OF GROUND CONDITIONS
6. RECOMMENDATIONS FOR GROUND INVESTIGATIONS
7. SUMMARY

### REFERENCES

### GENERAL NOTES

TABLE 1	-	Conceptual Site Model
FIGURE 1	-	Site Location Plan
FIGURE 2	-	Site Plan
FIGURE 3	-	Proposed Development Plan
APPENDIX I	-	Extracts of Historical Maps
APPENDIX II	-	Desk Study Information

## **1. INTRODUCTION**

Churchill Retirement Living Limited proposes to redevelop a site at Place Court, Camps Road, Haverhill for residential purposes. The site has been divided into two sections; development proposals have been prepared for the western half of the site (Phase 1) and a future residential development may be located in the eastern section (Phase 2). Place Court Care Home is currently situated on the western section while Council buildings including an ambulance station, magistrate's court and day care centre extend across the eastern section of the proposed site. Historically, the site included farm buildings associated with Place Farm. The proposed development is to include a block of apartments together with associated car parking and landscaped amenity areas. The development will be for people of retirement age.

Crossfield Consulting Limited has been commissioned to undertake a Desk Study Appraisal of the site to identify possible constraints to the development relating to ground conditions.

The desk study includes a review of historical maps of the site and surrounding area and an appraisal of the published geological data and information from regulatory authorities. The report presents the results of the study, together with an assessment of the likely ground conditions, including potential contamination issues, and foundation solutions.

It is considered that the report complies with the National Planning Policy Framework and is in general accordance with guidance published by the Environment Agency, NHBC and West Suffolk Councils.

## **2. THE SITE**

### **2.1 Location**

The site is located to the North of Camps Road, approximately 0.5 km to the west of Haverhill town centre, as shown on Figure 1. The National Grid Reference for the site is TL 6676 4549. The site boundaries are defined by Crowland Road to the west, a school to the north, and Haverhill Methodist Church to the east, as shown on Figure 2. The southern boundary is marked by Camps Road, with a recreational ground opposite. The area around the site is noted to be predominantly residential in nature.

### **2.2 Site Description**

This site description is based on the current Ordnance Survey Plan and photographs that are available via the internet. It should be noted that no site reconnaissance has been undertaken by staff from Crossfield Consulting Limited.

The site is an approximately L shaped plot of land with an area of about 0.25 ha.

The eastern part of the site is occupied by two buildings of one to two storeys that house council offices, a magistrate's court, an ambulance station and day care centre. A number of these buildings appear to be disused. It is noted that the ambulance station extends beyond the north eastern site boundary. Place Court Care Home comprises a large two storey building with garden/ grounds and associated parking and is situated on the western part of the site. An electricity substation can be found at the most western point of the property. External areas and access roads appear to be predominantly tarmac hardstanding and block paving. Crossing the central section of this site is an access road to the school.

Some semi-mature to mature trees are noted to be present within the plot and in the adjacent school immediately outside the northern site boundary.

## **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 the following development has taken place on and around the site.

The County Series Plan of 1884/1887 indicates that the site was a farm at this time. Farm buildings were present in the central and eastern parts of the site with a large area of orchard and pond feature in the western part of the site. A Methodist Chapel adjacent to the site was present to the east and large fields to the north and south. Roads, in the position of the present Crowland and Camps Road are shown immediately to the west and south of the site respectively. The site is shown to remain unchanged on the subsequent map editions dated 1902, 1926, 1938 and 1949.

By 1968, the farmland and buildings have been replaced by Place Court in the west and a police station, ambulance station and health clinic in the east. The pond feature has been removed and the land in the western part of the site appears to have been re-graded with a reduction in level in the area of the former pond. The land surrounding the site west and north east has had extensive residential development with a school constructed directly adjacent to the site to the north. An electrical substation is also noted on the western edge of the site.

The 1988/1999 map edition indicates a change in use for the buildings to the east of the site. The police station, situated adjacent to camps road, became council offices and a magistrate's court. The health clinic placed behind the station became a Day Care Centre. Subsequent map editions confirm that there has been no significant change to the site or surrounding area.

## **3. PUBLISHED GEOLOGY**

Geological map data published by the British Geological Survey (BGS) online and in print, on 1:50,000 scale Sheet No. 205 (Saffron Walden), indicates superficial deposits immediately to the east of the site of River Terrace deposits (of silt sand and gravel) apparently underlain by the Glacial Till of the Lowestoft Formation (Diamicton). Within the site itself, the River Terrace Deposits are absent, and only the Glacial Till is recorded.

The solid geology below the site is shown to comprise Upper Chalk (Seaford Chalk/ Lewes Nodular Chalk Formation) strata of the Cretaceous System.

## **4. DESK STUDY ENQUIRIES**

Enquiries were made to the GroundSure Environmental Database, GroundSure Geological Database and Suffolk County Council Petroleum Licensing Authority regarding the site and surrounding area. Information obtained from these enquiries is presented in Appendix II and summarised below.

There is one record of a radioactive substances authorisation approximately 55 m to the north of the site; this was revoked in 1994. There are no other properties associated with environmental permits nearby. There are no recorded pollution incidents relating to the site. Neither the site nor land in close proximity has been determined as contaminated under Part IIA of the Environmental Protection Act (1990).

There are no recorded historical or active landfills within 250 m of the site. There are no other waste handling facilities within the same search radius.

Records relating to current “industrial” landuses note the electrical substation and ambulance and medical transportation services.

Hydrogeological information indicates that the superficial deposits beneath the site are classified as a Secondary (A) Aquifer of undifferentiated layers, whilst the underlying solid strata are noted to be a Principal Aquifer. The site is not located within a Groundwater Source Protection Zone. The closest licensed groundwater abstraction is located 156 m to the east but is not identified with a source protection zone. This abstraction relates to a laundry that operated in the 1960s but appears no longer to be present.

Hydrological information indicates that there are no surface watercourses within close proximity to the site. The site is indicated not to be at risk from river flooding, based on Environment Agency data. A culvert appears to run east to west across the north edge of the site.

The site is indicated to be located within a designated Nitrate sensitive land area. No other environmentally sensitive land classifications are located within or at close proximity to the site.

The GroundSure Geological Database and Borehole information confirms the published geology already referenced from BGS sources. There are no historical or current ground works, either at the surface or underground, listed at the site or in the surrounding area. The likelihood of mining (associated with chalk) in the site area has been categorised as ‘rare’, the lowest risk rating. The hazard rating regarding possible dissolution/solution features is listed as ‘very low’ to ‘low’. There are no known natural cavities recorded beneath the site or near the site.

Borehole data from the British Geological Society indicates ground conditions nearby include 5m to 9m thickness of ‘stiff’ Glacial till clays resting on weathered chalk.

Information is awaited from the Petroleum Officer at Suffolk County Council Trading Standards and will be provided on receipt.

The BRE Document *BR211 – Radon: Guidance on Protective Measures for New Buildings* (2007) indicates that the site is not within an area where radon precautions are required in new dwellings.

## **5. ASSESSMENT OF GROUND CONDITIONS**

### **5.1 Ground Conditions**

Ground conditions at the site are likely to include a limited thickness of Made Ground associated with demolition of past structures and construction of the existing buildings. Shallower Made Ground should be expected where the western part of the site has been re-graded.

The natural strata beneath the site are expected to comprise of river terrace deposits underlain by the till of the Lowestoft Formation (Diamicton), which are likely to be mainly sands with some silt, chalk and clay. Upper Chalk strata are expected at depth. Groundwater is unlikely to be at shallow depth.

### **5.2 Environmental Assessment**

Historically, the site was associated with farm buildings and a farm yard. There should not have been a significant potential contaminant source associated with this former site usage. However, if Made Ground materials were imported to site following demolition activities in the 1960s and before construction of the

care home and council buildings, it is possible that ashy materials and metals could have been included in such Made Ground.

At the eastern edge of the site an ambulance station has existed from the mid-1960s until present and a police station (with car parking) occupied an adjoining area of the site. Although unlikely, it remains possible that these facilities included a (small) fuel storage tank. Should this prove to be the case, underground fuel tanks, fuel lines, fuel pumps and interceptor drains raise the possibility that fuels, including petrol and diesel could have entered the ground as a result of leaks/spillages. The local authority Petroleum Officer has been contacted regarding whether such a tank is or has been present in or adjacent to the site and any response will be provided on receipt.

An electricity substation on the western edge of the site could be associated with a very minor source of oils/PCBs, leakage has occurred.

The available desk study information has not identified a potential source of off-site contamination that could migrate on to, or beneath, the site.

At this stage, the possible presence of asbestos-containing materials (ACM) within the buildings present on site cannot be discounted. A survey of potential ACM should be undertaken and, if identified, demolition works should be carried out, in accordance with statutory requirements. This would minimise the potential for asbestos materials to enter the ground and become a future potential source of contamination. It is possible that historical farm buildings at the site could have been associated with asbestos and, therefore, past demolition activities could have permitted some asbestos to have entered the shallow soils.

There are no recorded landfills within 250 m of the site. Available information does not indicate significant putrescible materials may be expected beneath the site. Hence, the proposed development should not be constrained by issues of possible landfill gases.

In view of the small scale of petroleum fuel storage (if any), a significant source of petroleum vapour is very unlikely, although cannot be entirely discounted at this stage from the eastern section of the site. Within the western half of the site, the proposed development should not be constrained by issues of petroleum vapours.

The site is not within an area where radon precautions are required.

The available information has been used to produce a preliminary Conceptual Site Model for this site, in accordance with CIRIA C552 (2001) and BS 10175 (2011), and this is presented in Table 1.

Based on the Conceptual Site Model, there are certain potential pollutant linkages that have been identified with respect to the proposed development. With regards to human health, the proposed buildings and hardstanding will provide an effective barrier between end users and the existing ground such that there would be no realistic dermal or oral (ingestion) exposure pathways following development. The proposed development will include decorative soft landscaping areas. The majority of exposure risk will, therefore, be associated with soft landscaping areas. If shallow soils at the site are impacted with potential contaminants, there could be a risk of dust exposure (largely oral – ingestion and inhalation). However, the potential contaminant sources are likely to be minor and therefore only the controlled placement of a “standard thickness” of topsoil/capping soil (likely to be up to 450 mm) is likely to be necessary to mitigate risks to site users. It is noted that residents at the proposed development will be aged 55 and over and that residents are precluded from any gardening activities/disturbance of soils in the areas of managed soft landscaping.

Within the eastern (Phase 2) section of the site (only), there is a (low) possibility that underground fuel tanks may have been present (or remain) and associated petroleum spillages could be identified in the ground. Hence, within the eastern section of the site, a risk to end users from vapour exposure cannot be entirely discounted at this stage. However, in view of the small scale of fuel storage (if any), a significant potential source of such vapours is not indicated.

Notwithstanding this, within the eastern (Phase 2) section of the site, it is recommended that inspections are undertaken at an early stage to confirm tanks are not present. If, during groundworks, evidence of unrecorded tanks are identified, excavation works should proceed with care to minimise the potential of causing damage to tanks. Tanks should be emptied, decommissioned and cleaned before being excavated for removal from site. It is recommended that allowance be made to remove fuel tanks from site prior to starting construction works. Such works should be undertaken in accordance with recommendations provided by the Environment Agency.

Regarding the eastern section of the site, an allowance should be included for the possible presence of soils around any such tanks that may be impacted with petroleum hydrocarbons such that detailed risk assessment and/or remediation of such soils could be required. In this context, it may be necessary to remove some materials off site that could include "hazardous" waste.

Groundworkers may be exposed to impacted soils during construction works. Whilst this is a relatively short-term exposure, it is recommended that appropriate personal protective equipment be provided. The majority of groundworks should be undertaken under well ventilated conditions (that is, the works will be outdoors). Therefore, groundworkers are unlikely to encounter conditions where they would be exposed to unacceptable levels of vapours. Soils should be kept damp during groundworks to negate aerial migration on to neighbouring properties.

Within the eastern section of the site, there is a potential for past spillage/leakage of fuel if the site included the bulk storage of petroleum fuel/refuelling facilities. Prior to development in the eastern section of the site, it will be necessary to investigate the ground conditions in the unsaturated zone together with groundwater quality. Until such investigations (and associated risk assessment) are completed, it is not possible to accurately assess issues of potential contamination/pollution regarding groundwater for development in the eastern section of the site. However, given the small scale of fuel storage (if any), it appears unlikely that the site would be associated with a significant source of potential contamination, and that any potential migration is likely to be constrained by low permeability Glacial Till.

The western half of the site is remote from any likely petroleum fuel tanks, as evident from the present information. Hence, it is evident that the western half of the site (and Phase 1 development area as shown in Figure 3) is not associated with a valid source of potential contamination in relation to Controlled Waters. However, it would be prudent that inspections be undertaken during the ground investigation phase and site development in case an unrecorded feature/potential source of mobile substances is revealed.

The remedial work indicated above will, if demonstrated to be required, need to be undertaken in accordance with an appropriate Remediation Implementation Plan. Due to possible point sources of localised potential contamination associated with the site, such an Implementation Plan should also include a "discovery strategy" in relation to unrecorded tanks and potentially impacted soils or groundwater that may be encountered during construction works. In line with the requirements of regulatory authorities, a verification report will also be required to confirm satisfactory completion of tank removal and any remediation works such as the installation of barriers (topsoil/subsoil capping layers and/or vapour membranes) within the development construction.

### **5.3 Assessment of Ground Stability**

The site is not within an area of recorded underground mining or other such mineral extraction. There are also no quarries recorded at or in the vicinity of the site. Therefore, the proposed development should not be constrained by ground stability issues associated with mining or quarrying activities.

The ground conditions expected at the site may be associated with solution features. Granular soils within chalk solution features can be of loose density and, therefore, susceptible to adverse settlements if loads are applied to materials or significant volumes of water enter the deposits. However, there is no record of solution features at, or in close proximity to, the site and the available data indicates risks to be very low to negligible. Notwithstanding this, it would be prudent for any ground investigation at the site to pay close attention to potential anomalous ground conditions that may require additional investigation. In addition, if anomalous ground conditions are identified during construction, the services of an appropriately qualified Geotechnical Engineer should be obtained to assess the ground conditions and potential implications for the development.

### **5.4 Assessment of Foundations and Ground Floor Construction**

Within the western half of the site, a proposed development comprises of a two to three storey structure of load-bearing brick construction.

The Glacial Till strata are likely to provide a suitable founding material. Therefore, it is considered that conventional strip or trench fill footings may be possible for the proposed new building. Footings will need to extend through Made Ground and into competent strata. Allowance should be made for the removal of buried foundations/structures associated with the current and past development.

Due to the expected presence of Made Ground at the site and the likely ground disturbance that will occur during demolition, it is recommended that allowance be made for suspended ground floor slabs. Within influencing distance of trees, deepened footings and a suitable void below the ground floor slab are likely to be required.

### **5.5 Soakaway Drainage**

Soakaways will need to be located to discharge water below Made Ground and away from contaminant-impacted strata that may be present at the site. Soakaways may be precluded by the low permeability clays of the Glacial Till of the Lowestoft Formation strata. Due to the small size of the site and potential constraints relating to ground conditions and contaminant-impacted ground, soakaways appear not to be feasible and it would be prudent to identify alternative drainage solutions prior to site purchase.

## **6. RECOMMENDATIONS FOR GROUND INVESTIGATIONS**

It is recommended that a pre-purchase ground investigation be undertaken at the site to obtain appropriate data to provide an initial assessment of identified potential pollutant linkages and environmental liabilities and to provide a preliminary foundation options appraisal. The use of windowless sampling method is likely to be suitable for an initial phase of investigation

So that an adequate assessment can be made of groundwater quality, it is recommended that boreholes be undertaken prior to purchasing the extended section of the site. A multi-function rig provides greatest versatility for the expected ground conditions and would permit the use of windowless sampling to obtain



suitable samples for laboratory testing and rotary techniques to ensure that the holes reach suitable depths for standpipe installation.

Following site purchase, it may necessary to undertake a supplementary investigation. This is likely to include trial pits.

## **7. SUMMARY**

Churchill Retirement Living Limited proposes to redevelop a site at Place Court Care Home, Camps Road, Haverhill for residential purposes. The site has been divided into two sections; an initial phase of development in the western half of the site (Phase 1) and a possible future development to the east (Phase 2). Place Court Care Home is currently situated on the western section while Council buildings including an ambulance station, magistrate's court and day care centre are situated on the eastern section of the proposed site. Historically, the site included farm buildings associated with Place Farm. The proposed development is to include a block of apartments together with associated car parking and landscaped amenity areas. The development will be for people of retirement age.

Ground conditions at the site are likely to include a limited thickness of Made Ground associated with demolition of past structures and construction of the existing buildings.

The natural strata beneath the site are expected to comprise of River Terrace deposits of silt sand and gravel underlain by the Glacial Till of the Lowestoft Formation (Diamicton) which are likely to be mainly chalky, sandy, stony clay. Upper Chalk strata are expected at depth. Groundwater is unlikely to be at shallow depth.

The western (Phase 1) half of the site is associated with a former farm (farm yard, house and other buildings). This area may include some Made Ground and the possible presence of a limited thickness of Made Ground/disturbed soils that may contain ashes (with metals/polyaromatic hydrocarbons) and traces of asbestos (from demolition materials cannot be discounted at this stage. Hence, allowance should be made for the placement of capping soils in this area.

The eastern (Phase 2) half of the site also includes a former police station and part of an ambulance station. At this stage, the possible presence of former petroleum fuel tanks cannot be discounted. If such fuel tanks were present, and associated with fuel leakage/spillage then, it may be necessary to remove such tanks together with associated fuel-impacted soils. It is also recommended that the ground investigation in this section of the site includes an assessment of the unsaturated soils and groundwater quality to support a risk assessment in relation to Controlled Waters. In addition, allowance should also be made for the placement of capping soils, as for the Phase 1 area.

Conventional strip/trench fill foundations may be appropriate for the proposed development and foundation precautions may be required near to trees.

Soakaway drainage appears not to be feasible. Therefore, an alternative drainage solution should be identified prior to site purchase.

It is recommended that a suitable pre-purchase ground investigation be undertaken. This should include window sampling and/or boreholes that will permit the recovery of shallow soil samples for laboratory testing and allow the installation of standpipes in groundwater to assess water quality below the eastern section of the site. The ground investigation is necessary to confirm the environmental and geotechnical assessments presented in this report, which are preliminary.

## REFERENCES

BRE (2007) *BR211 – Radon: Guidance on protective measures for new buildings* BRE Press

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

CIRIA (2001) *CIRIA C552 – Contaminated Land Risk Assessment: A Guide to Good Practice* Construction Industry Research Association

Department for Communities and Local Government (2012) *National Planning Policy Framework*

DoE (1990) *The Environmental Protection Act* Department of The Environment HMSO

## 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
<p><b>Solids</b>  <i>Toxic heavy metals:</i> Potential minor source associated with Made Ground from former developments  <i>Phytotoxic metals:</i> Potential minor source associated with Made Ground from former developments  <i>Petroleum hydrocarbons:</i> Potential source associated with possible fuel storage related to current and previous site usage  <i>Asbestos:</i> Potential minor source associated with demolition of historical buildings on site.  <i>Oils/PCBs:</i> Potential minor source associated with electricity substation</p> <p><i>Off-Site Sources:</i> No credible source identified by desk study</p> <p><b>Liquids</b>  <i>Fuels and oils:</i> Potential for losses of fuels from tanks and spillages to enter ground so free-phase product possible. Dissolved phase may also be present if preferential pathway through unsaturated zone is present.</p> <p><i>Off Site Sources:</i> No credible source identified by desk study</p> <p><b>Ground Gases</b>  <i>Landfill gases:</i> No significant source  <i>Radon:</i> No significant source</p>	<p><b>Movement of Solids</b>  Dermal and oral exposure pathways (including air-borne migration) are present during construction phase but will generally not be present following development due to building and hardstanding effective barriers. Limited landscaping areas after development represent possible dust exposure pathways.  Certain organic compound can readily penetrate plastic construction materials.</p> <p><b>Release into Liquid Phase</b>  Metals and PAHs have generally low solubility. Potential for plant uptake of metals. Short-chain petroleum hydrocarbons and VOCs can be readily mobilised.</p> <p><b>Release into Vapour Phase</b>  Certain petroleum hydrocarbon fractions and VOCs readily volatilise and inhalation exposure pathways may exist if vapours migrate into the proposed building. Potential for traces of vapours, although significant vapour migration very unlikely.</p> <p><b>Movement of Liquids</b>  Groundwater expected to be in chalk strata and dissolved phase would readily migrate laterally in groundwater via permeable chalk strata.  Variable nature of the superficial deposits, either Diamicton Lowestoft Formation or sand and gravel river terrace deposits, means that preferential pathway through the unsaturated zone may be present. Surface run-off from hard surfacing currently on site.</p> <p><b>Movement of Ground Gases</b>  Not applicable (No Source)</p>	<p><b>Human Health</b>  <i>Site users:</i> Possible pollutant linkage  <i>Groundworkers:</i> Possible pollutant linkage  <i>Neighbouring properties:</i> Possible pollutant linkage</p> <p><b>Buried Structures &amp; Services</b>  Possible pollutant linkage (relating to petroleum fuels- eastern section of site only)</p> <p><b>Landscape Areas</b>  Possible pollutant linkage</p> <p><b>Controlled Waters</b>  <i>Groundwater:</i> Possible pollutant linkage: Eastern section of site only  <i>Surface Water:</i> No pollutant linkage</p> <p><b>Human Health (Ground Gases)</b>  <i>End Users:</i> Possible pollutant linkage (petroleum vapours- eastern section of site only)</p>

## NOTES

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

## FIGURES

FIGURE 1

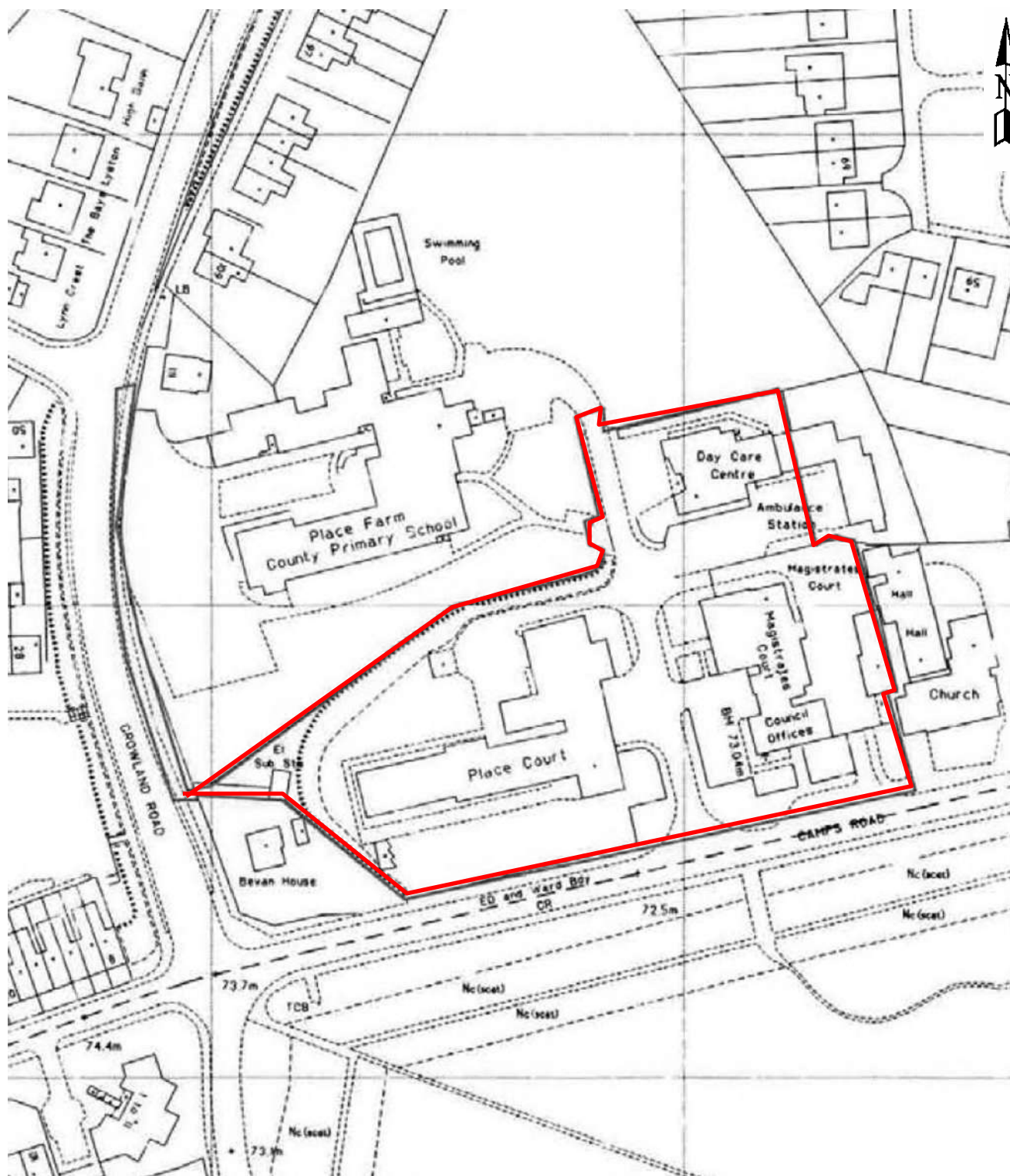


**SITE LOCATION PLAN**

Scale 1: 50,000

Reproduced from the 2014 1:50,000 Ordnance Survey map with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown copyright. Licence No.100014660

FIGURE 2



**SITE PLAN**  
Scale 1:1250

Reproduced from the 1994 1:1250 Ordnance Survey map with the permission of Ordnance Survey on behalf of The Controller of Her Majesty's Stationery Office, © Crown copyright. Licence No.100014660



FIGURE 3



**PROPOSED DEVELOPMENT PLAN**

Scale 1:1250

Reproduced from Planning Issues, 1:500 at A3, July 2015, drawing no. 15/ER036/FP02.

## **APPENDIX I**

**Site Details:**

CCL02775-Haverhill,Camps  
Road,Haverhill,CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** County Series

**Map date:** 1884-1887

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1884  
Revised 1884  
Edition N/A  
Copyright N/A  
Levelled N/A

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



Produced by  
Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

**Site Details:**

CCL02775-Haverhill,Camps  
Road,Haverhill,CB9 8HF

Client Ref: EMS\_332257\_447511  
Report Ref: EMS-332257\_447511  
Grid Ref: 566764, 245493

Map Name: County Series

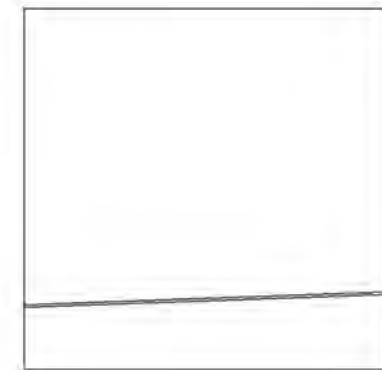
Map date: 1902

Scale: 1:2,500

Printed at: 1:2,500



Surveyed 1902  
Revised 1902  
Edition N/A  
Copyright N/A  
Levelled N/A



Surveyed 1902  
Revised 1902  
Edition N/A  
Copyright N/A  
Levelled N/A



Produced by  
Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)

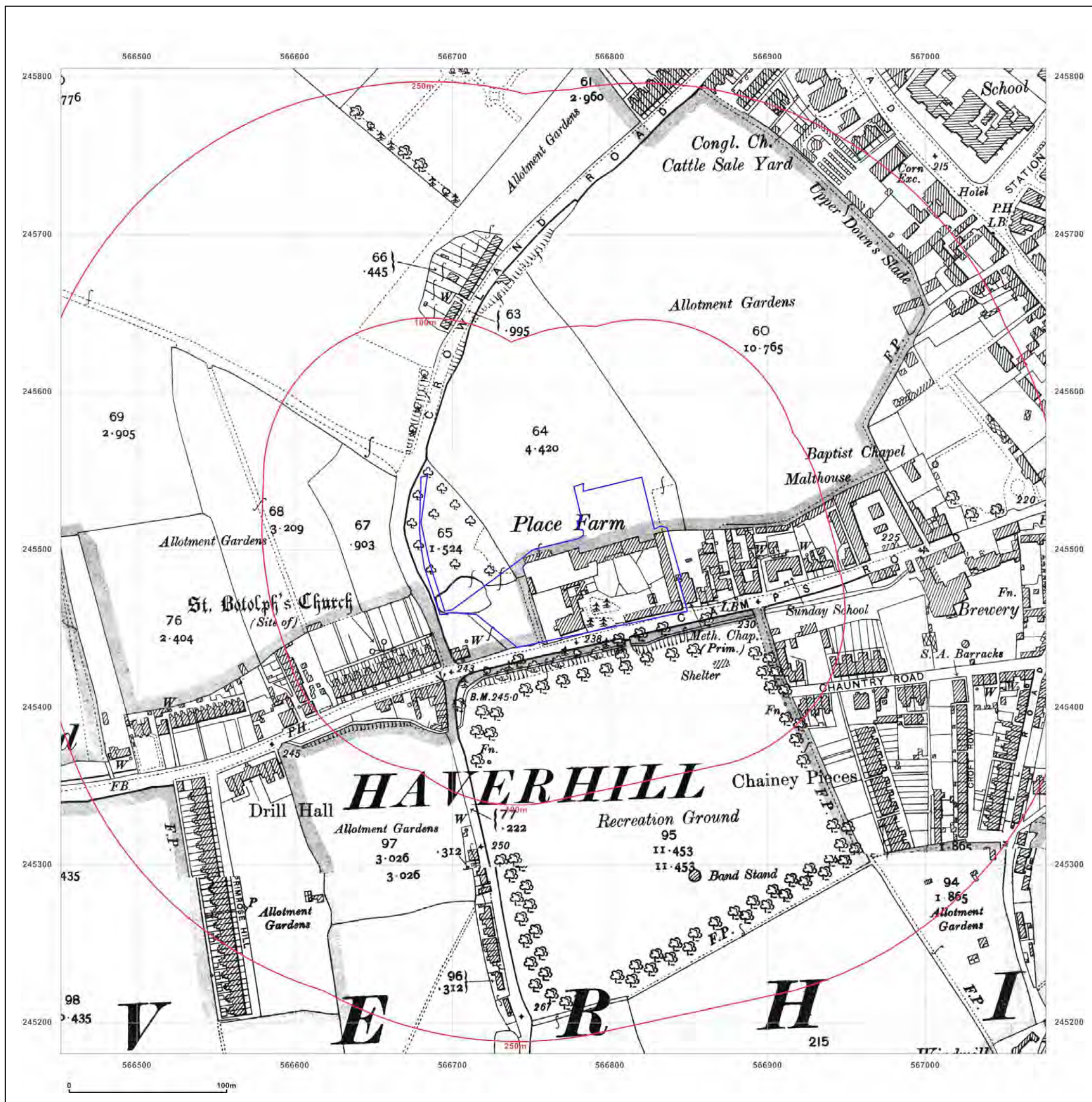


Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 02 November 2015

To view map legend click here [Legend](#)



**Site Details:**

CCL02775-Haverhill, Camps Road, Haverhill, CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** County Series

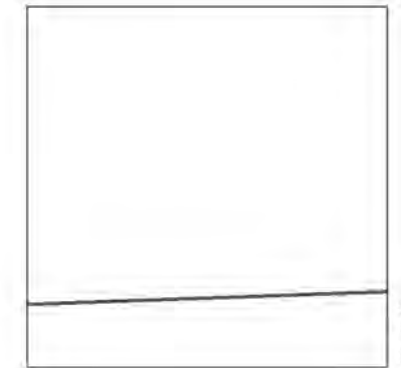
**Map date:** 1926

**Scale:** 1:2,500

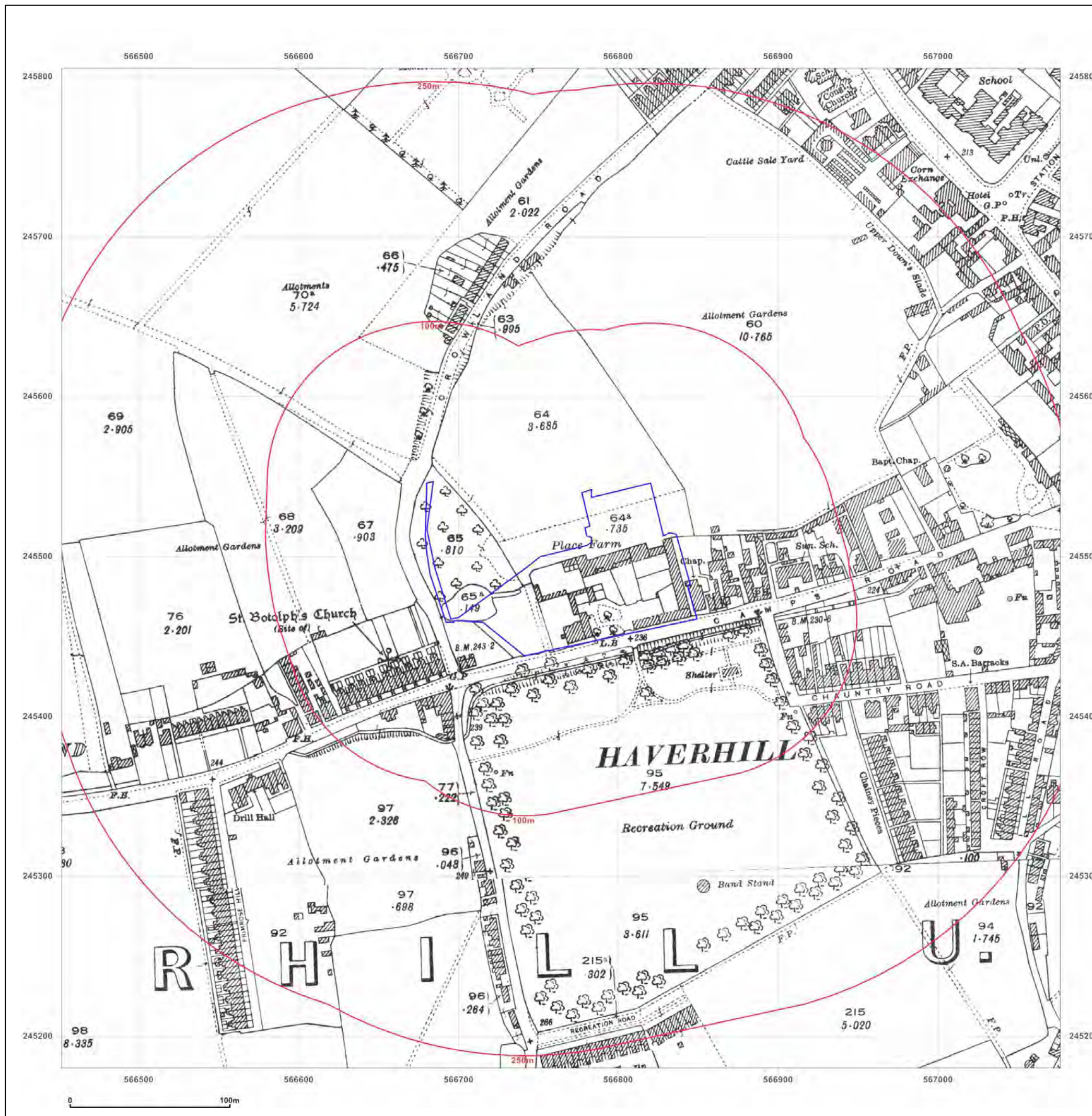
**Printed at:** 1:2,500



Surveyed 1926  
 Revised 1926  
 Edition N/A  
 Copyright N/A  
 Levelled N/A



Surveyed 1926  
 Revised 1926  
 Edition N/A  
 Copyright N/A  
 Levelled N/A



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

**Site Details:**

CCL02775-Haverhill, Camps Road, Haverhill, CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 1960

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1960  
 Revised 1960  
 Edition N/A  
 Copyright 1961  
 Levelled 1956



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)

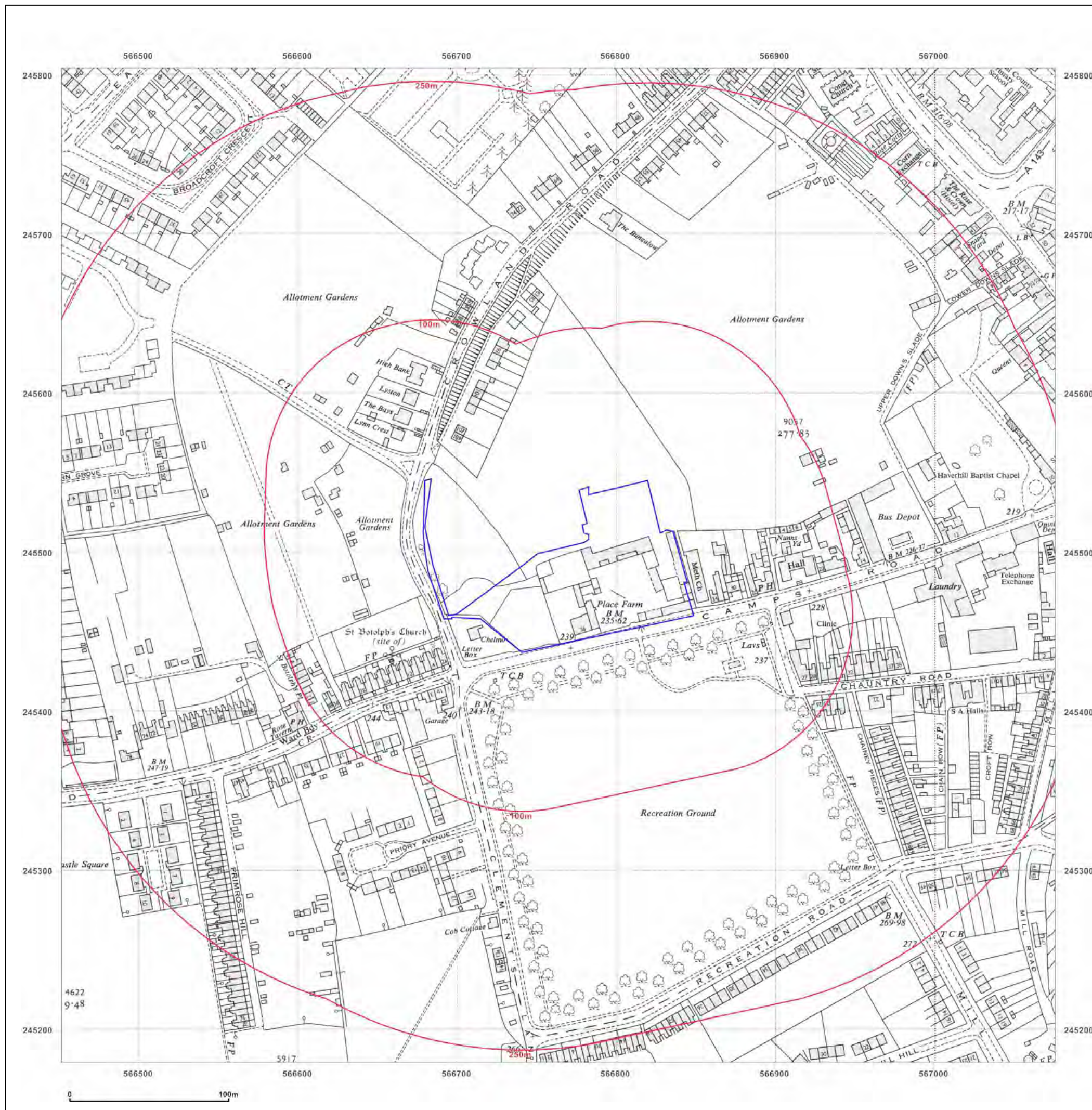


Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 02 November 2015

To view map legend click here [Legend](#)



**Site Details:**

CCL02775-Haverhill, Camps Road, Haverhill, CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 1968

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1968  
 Revised 1968  
 Edition N/A  
 Copyright 1969  
 Levelled 1956



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)

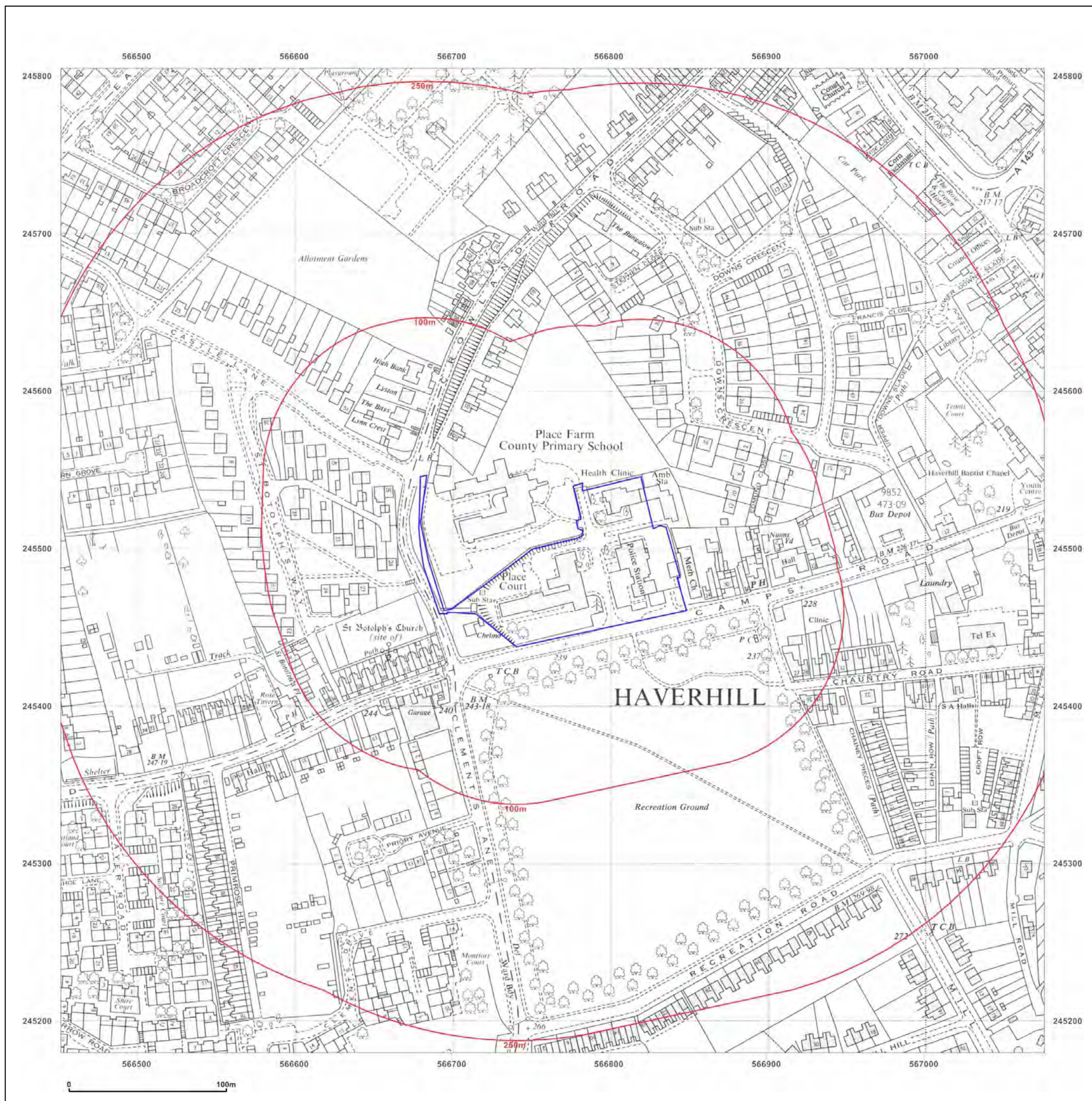


Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 02 November 2015

To view map legend click here [Legend](#)



**Site Details:**

CCL02775-Haverhill, Camps Road, Haverhill, CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 1973

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1973  
 Revised 1973  
 Edition N/A  
 Copyright 1974  
 Levelled 1972



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)

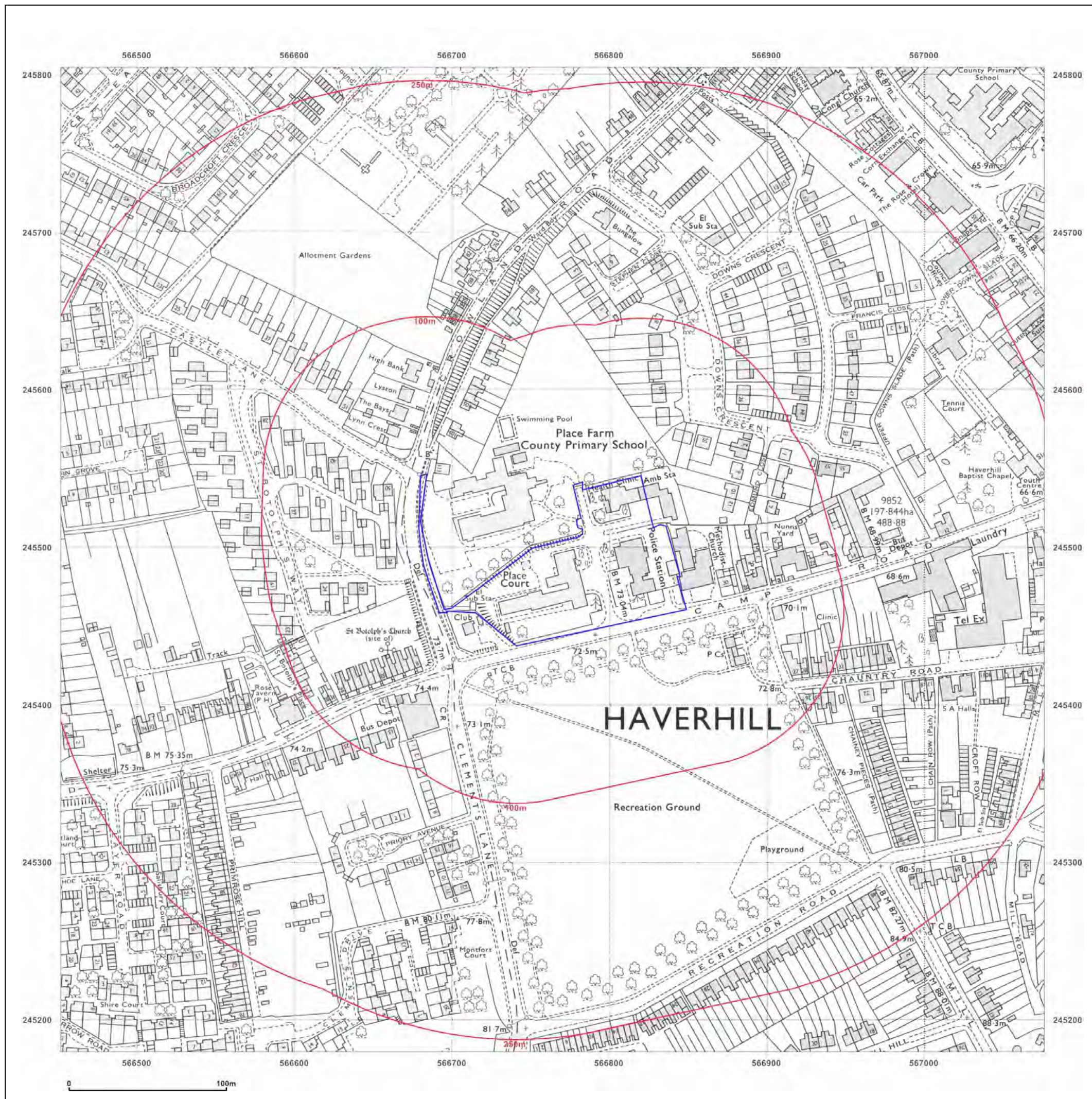


Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 02 November 2015

To view map legend click here [Legend](#)





**Site Details:**

CCL02775-Haverhill, Camps Road, Haverhill, CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 1978-1983

**Scale:** 1:2,500

**Printed at:** 1:2,500



Surveyed 1972  
 Revised 1983  
 Edition N/A  
 Copyright 1983  
 Levelled 1972

Surveyed N/A  
 Revised N/A  
 Edition N/A  
 Copyright 1978  
 Levelled 1972



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)

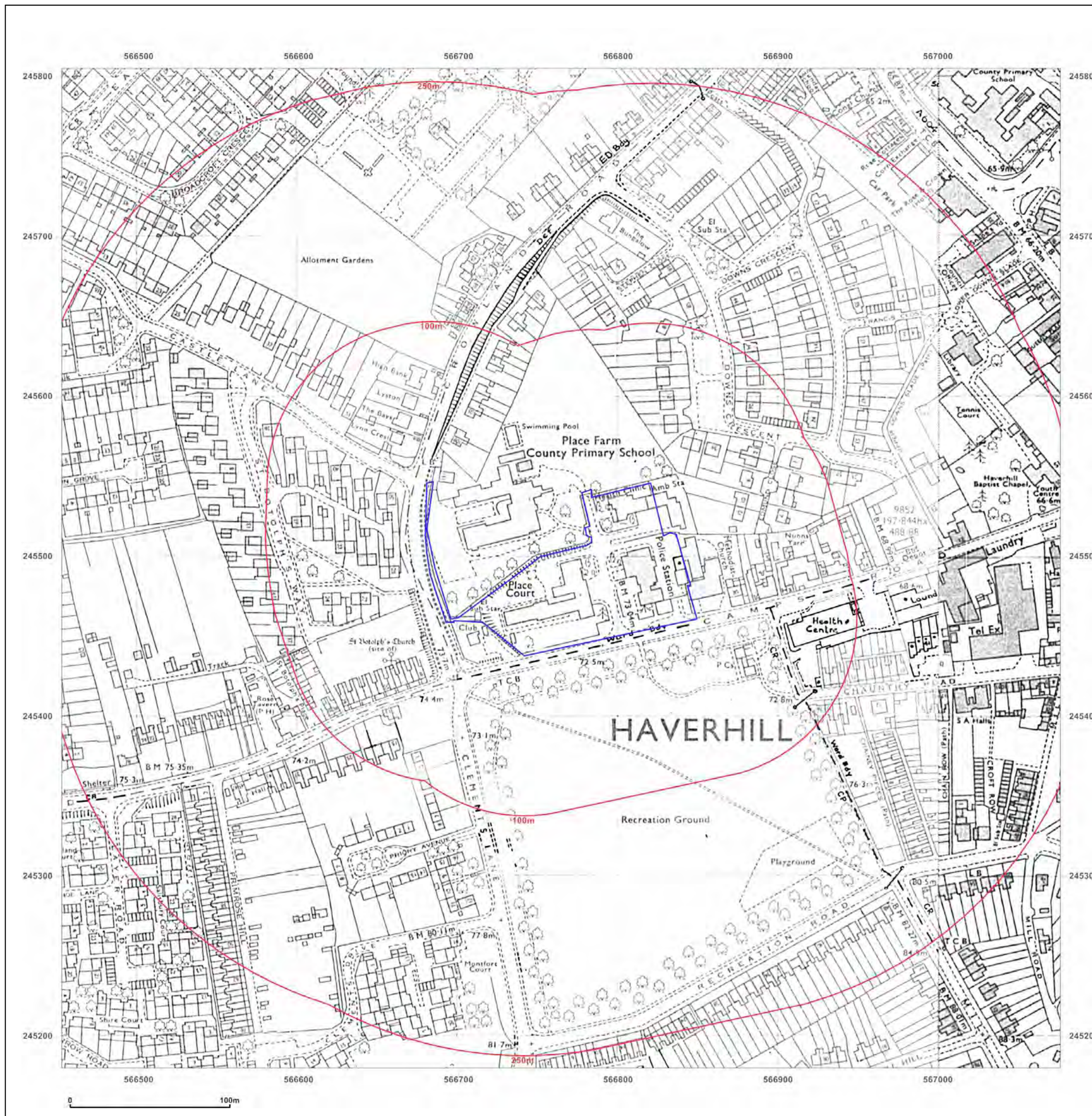


Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 02 November 2015

To view map legend click here [Legend](#)



**Site Details:**

CCL02775-Haverhill,Camps Road,Haverhill,CB9 8HF

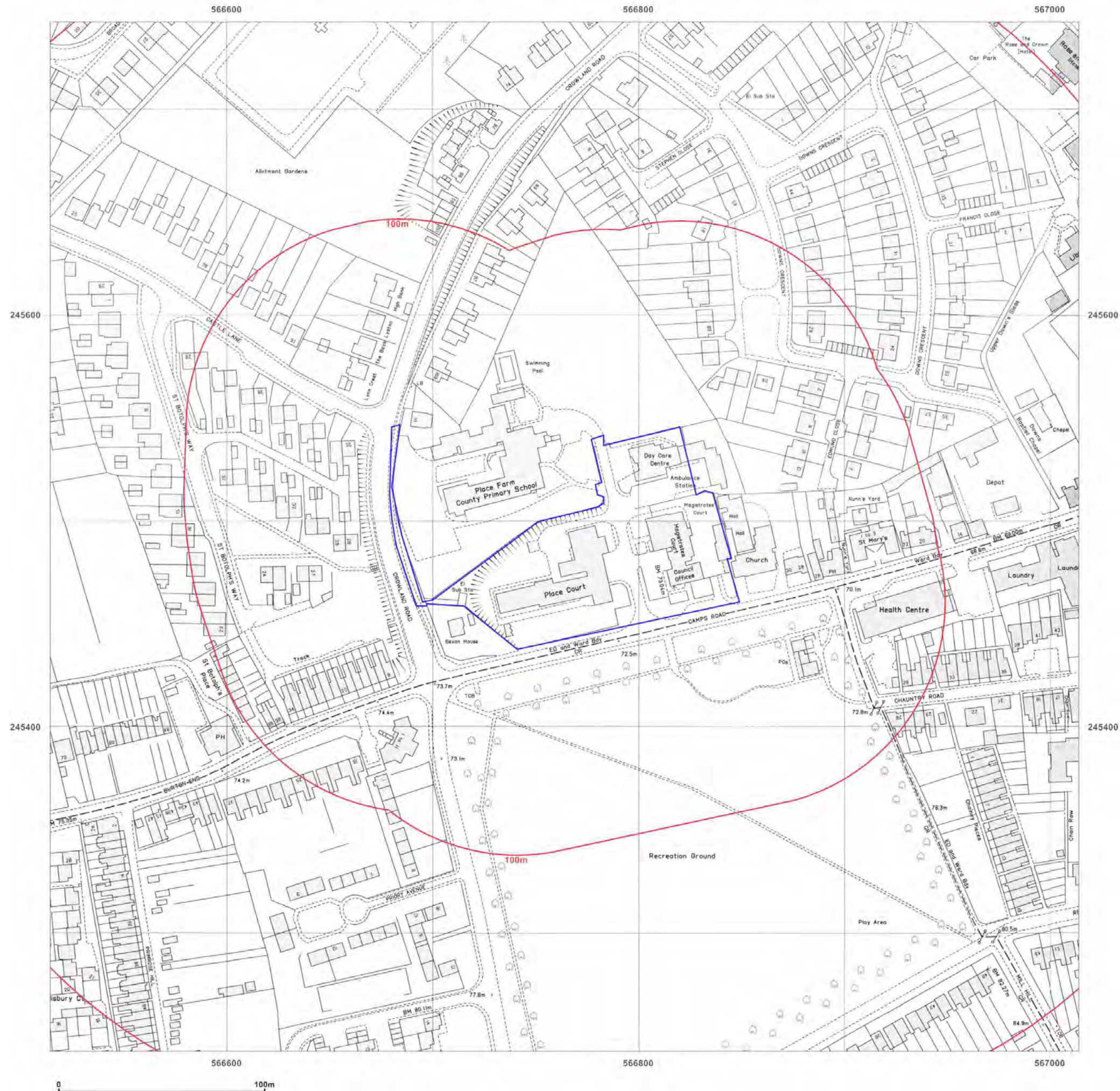
**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 1988-1989

**Scale:** 1:1,250

**Printed at:** 1:2,000



Surveyed 1987  
 Revised 1987  
 Edition N/A  
 Copyright 1988  
 Levelled 1986

Surveyed 1987  
 Revised 1987  
 Edition N/A  
 Copyright 1989  
 Levelled N/A

Surveyed 1987  
 Revised 1987  
 Edition N/A  
 Copyright 1988  
 Levelled 1986

Surveyed 1987  
 Revised 1987  
 Edition N/A  
 Copyright 1988  
 Levelled 1984



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

**Site Details:**

CCL02775-Haverhill,Camps Road,Haverhill,CB9 8HF

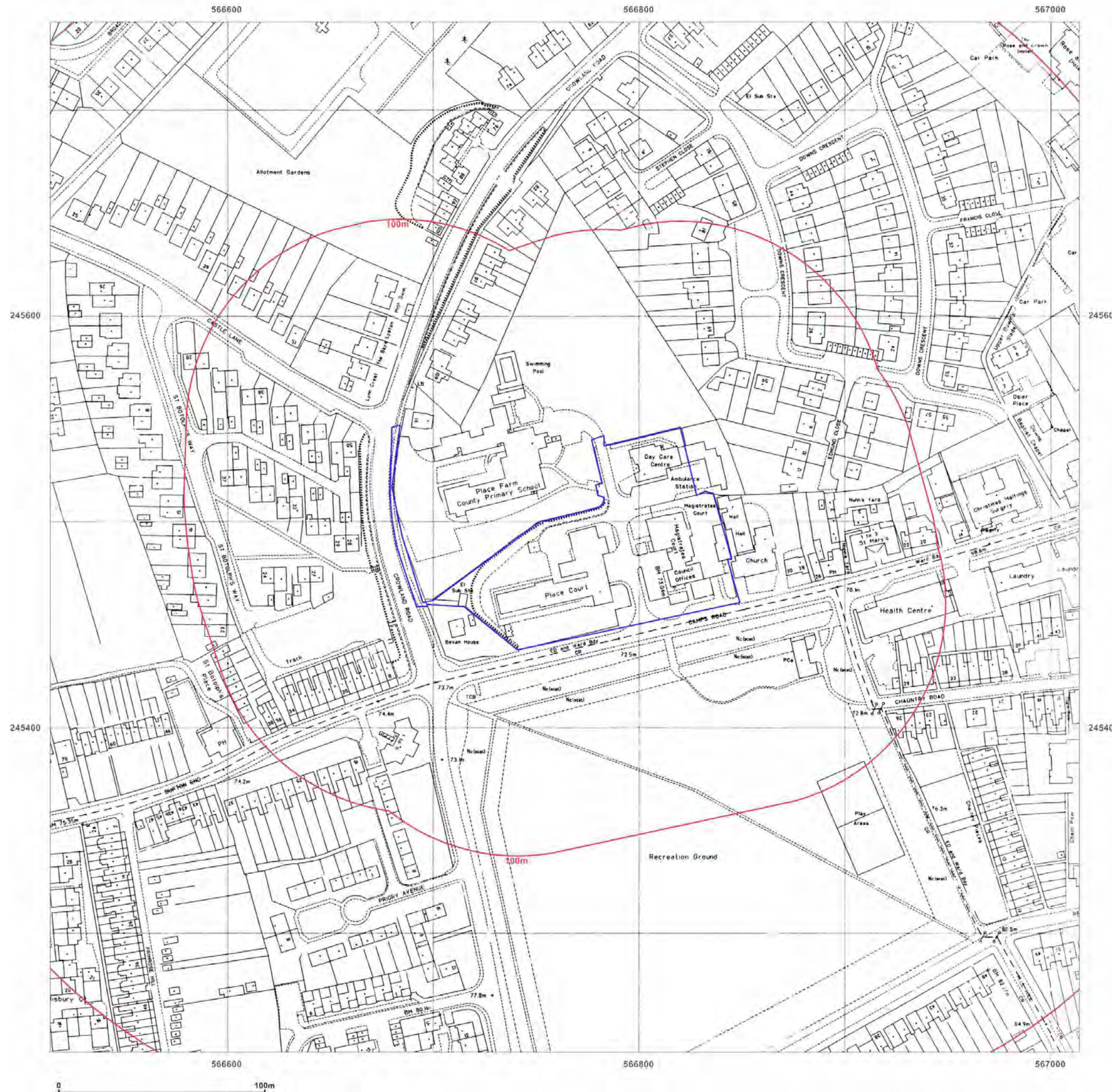
**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

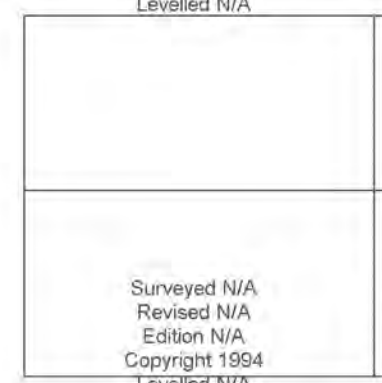
**Map date:** 1994

**Scale:** 1:1,250

**Printed at:** 1:2,000



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



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



Produced by  
 Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

### Site Details:

CCL02775-Haverhill,Camps Road,Haverhill,CB9 8HF

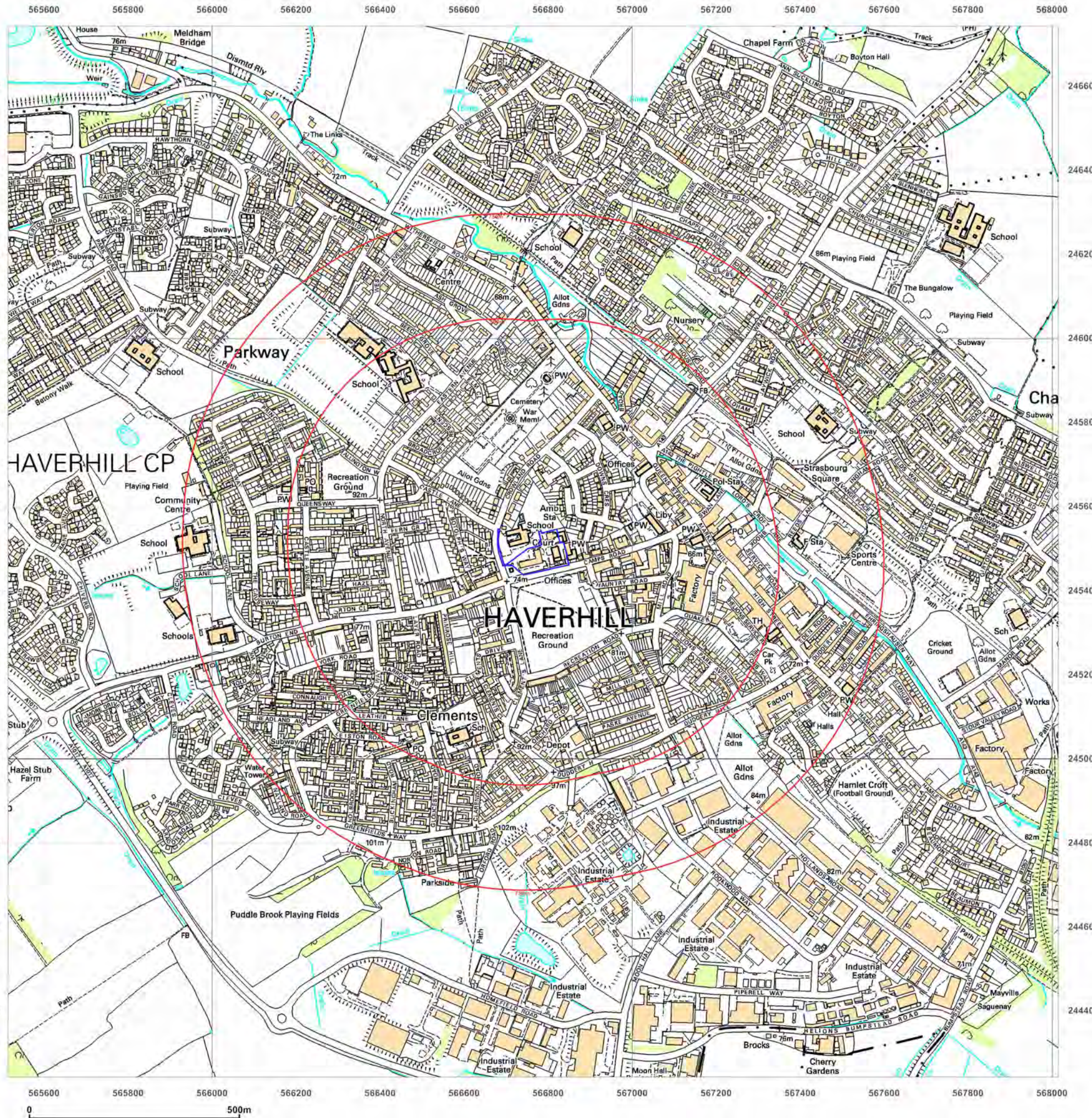
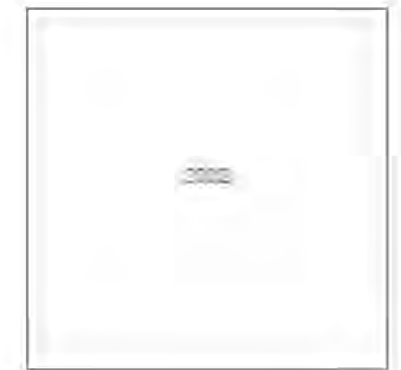
Client Ref: EMS\_332257\_447511  
Report Ref: EMS-332257\_447511  
Grid Ref: 566764, 245493

Map Name: 1:10,000 Raster

Map date: 2002

Scale: 1:10,000

Printed at: 1:10,000



Produced by  
Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
[sales@emapsite.com](mailto:sales@emapsite.com)

**Site Details:**

CCL02775-Haverhill,Camps Road,Haverhill,CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 2010

**Scale:** 1:10,000

**Printed at:** 1:10,000



Produced by  
Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
sales@emapsite.com

**Site Details:**

CCL02775-Haverhill,Camps Road,Haverhill,CB9 8HF

**Client Ref:** EMS\_332257\_447511  
**Report Ref:** EMS-332257\_447511  
**Grid Ref:** 566764, 245493

**Map Name:** National Grid

**Map date:** 2014

**Scale:** 1:10,000

**Printed at:** 1:10,000



Produced by  
Groundsure Insights  
[www.groundsure.com](http://www.groundsure.com)



Supplied by:  
[www.emapsite.com](http://www.emapsite.com)  
sales@emapsite.com

© Crown copyright and database rights 2015 Ordnance Survey 100035207

Production date: 02 November 2015

To view map legend click here [Legend](#)



## **APPENDIX II**

## APPENDIX II – DESK STUDY INFORMATION

### ***GroundSure Environmental Database***

Enquiries were made to the GroundSure Environmental 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 licences, 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 GeolInsight Database***

Enquiries were made to the GroundSure GeolInsight 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 results of the BGS Geoscience Data Index Report. The records are reproduced under the Open Government Licence, available for viewing at <http://www.nationalarchives.gov.uk/doc/open-government-licence>.



# Groundsure Enviroinsight

**Address:** CCL02775-Haverhill,Camps Road,Haverhill,CB9 8HF,  
**Date:** 2 Nov 2015  
**Reference:** EMS-332257\_447512  
**Client:** EmapSite

NW

N

NE

W

E



SW

S

SE

**Aerial Photograph Capture date:** 24-May-2009  
**Grid Reference:** 566782,245484  
**Site Size:** 0.87ha

**Report Reference:** EMS-332257\_447512  
**Client Reference:** EMS\_332257\_447512

# 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.

<b>Section 1: Historical Industrial Sites</b>	On-site	0-50	51-250	251-500
1.1 Potentially Contaminative Uses identified from 1:10,000 scale mapping	2	1	29	132
1.2 Additional Information – Historical Tank Database	0	0	8	34
1.3 Additional Information – Historical Energy Features Database	4	0	9	70
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	2	19
1.6 Potentially Infilled Land	1	0	10	13

<b>Section 2: Environmental Permits, Incidents and Registers</b>	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	8
2.1.6 Records of Part A(2) and Part B Activities and Enforcements	0	0	0	1
2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations	0	0	1	0
2.1.8 Records of Licensed Discharge Consents	0	0	0	4
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	1
2.3 Environment Agency Recorded Pollution Incidents				
2.3.1 National Incidents Recording System, List 2	0	0	3	7
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
<b>3.1 Landfill Sites</b>						
3.1.1 Environment Agency Registered Landfill Sites	0	0	0	0	0	Not searched
3.1.2 Environment Agency Historic Landfill Sites	0	0	0	0	1	5
3.1.3 BGS/DoE Landfill Site Survey	0	0	0	0	1	2
3.1.4 Records of Landfills in Local Authority and Historical Mapping Records	0	0	0	0	1	0
<b>3.2 Landfill and Other Waste Sites Findings</b>						
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 Licensed Waste Sites	0	0	0	0	3	4

Section 4: Current Land Use	On-site	0-50m	51-250	251-500
4.1 Current Industrial Sites Data	1	1	4	Not searched
4.2 Records of Petrol and Fuel Sites	0	0	0	1
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 Are there any records of Artificial Ground and Made Ground present beneath the study site?	No
5.2 Are there any records of Superficial Ground and Drift Geology present beneath the study site?	Yes
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 Are there any records of Strata Classification in the Superficial Geology within 500m of the study site?	Yes					
6.2 Are there any records of Strata Classification in the Bedrock Geology within 500m of the study site?	Yes					
	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	1	0	22	6
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	0
6.6 Source Protection Zones (within 500m of the study site)	0	0	0	5	Not searched	Not searched
6.7 Source Protection Zones within Confined Aquifer	0	0	0	0	Not searched	Not searched
6.8 Groundwater Vulnerability and Soil Leaching Potential (within 500m of the study site)	1	0	0	0	Not searched	Not searched
	On-site	0-50m	51-250	251-500	501-1000	1000-1500

## Section 6: Hydrogeology and Hydrology

0-500m

6.9 Is there any Environment Agency information on river quality within 1500m of the study site?	No	No	No	No	No	Yes
6.10 Detailed River Network entries within 500m of the site	1	0	0	5	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 Are there any Environment Agency Zone 2 floodplains within 250m of the study site?	No
7.2 Are there any Environment Agency Zone 3 floodplains within 250m of the study site	No
7.3 What is the Risk of flooding from Rivers and the Sea (RoFRaS) rating for the study site?	Very Low
7.4 Are there any Flood Defences within 250m of the study site?	No
7.5 Are there any areas benefiting from Flood Defences within 250m of the study site?	No
7.6 Are there any areas used for Flood Storage within 250m of the study site?	No
7.7 What is the maximum BGS Groundwater Flooding susceptibility within 50m of the study site?	Limited potential
7.8 What is the BGS confidence rating for the Groundwater Flooding susceptibility areas?	High

## 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	0
8.2 Records of National Nature Reserves (NNR)	0	0	0	0	0	0
8.3 Records of Special Areas of Conservation (SAC)	0	0	0	0	0	0
8.4 Records of Special Protection Areas (SPA)	0	0	0	0	0	0
8.5 Records of Ramsar sites	0	0	0	0	0	0
8.6 Records of Ancient Woodlands	0	0	0	0	0	3
8.7 Records of Local Nature Reserves (LNR)	0	0	0	2	2	4
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
8.10 Records of Areas of Outstanding Natural Beauty (AONB)	0	0	0	0	0	0

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

Section 9: Natural Hazards	
9.1 What is the maximum risk of natural ground subsidence?	Low
9.1.1 What is the maximum Shrink-Swell hazard rating identified on the study site?	Low
9.1.2 What is the maximum Landslides hazard rating identified on the study site?	Very Low
9.1.3 What is the maximum Soluble Rocks hazard rating identified on the study site?	Low
9.1.4 What is the maximum Compressible Ground hazard rating identified on the study site?	Negligible
9.1.5 What is the maximum Collapsible Rocks hazard rating identified on the study site?	Very Low
9.1.6 What is the 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 property 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 Are there any coal mining areas within 75m of the study site?	No
10.2 Are there any Non-Coal Mining areas within 50m of the study site boundary?	Yes
10.3 Are there any brine affected areas within 75m of the study site?	No



# 2. Environmental Permits, Incidents and Registers Map



© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.

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

# 2. Environmental Permits, Incidents and Registers

## 2.1 Industrial Sites Holding Licences and/or Authorisations

Searches of information provided by the Environment Agency and Local Authorities reveal the following information:

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

---

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

0

Database searched and no data found.

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

0

Database searched and no data found.

---

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

8

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

ID	Distance (m)	Direction	NGR	Details
11	278	E	567100 245600	Name: The Launderette Status: Not Active Receiving Water: Na Authorised Substances: pH
12	452	S	566950 245020	Name: Burtons Coaches Status: Not Active Receiving Water: Na Authorised Substances: pH
13C	485	S	567000 245000	Name: Glassfusion Ltd Status: Not Active Receiving Water: Na Authorised Substances: pH
14C	485	S	567000 245000	Name: Biodoc Ltd Status: Active Receiving Water: Na Authorised Substances: pH
15C	485	S	567000 245000	Name: Anglia Paints Ltd Status: Not Active Receiving Water: Na Authorised Substances: pH
16C	485	S	567000 245000	Name: Project Office Furniture Plc Status: Active Receiving Water: Na Authorised Substances: pH
17C	485	S	567000 245000	Name: Anglia Paints Ltd Status: Not Active Receiving Water: Na Authorised Substances: pH
18C	485	S	567000 245000	Name: Becker Acroma Ltd Status: Not Active Receiving Water: Na Authorised Substances: pH

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
23	455	S	566870 245000	Address: Duddery Hill Service Station/A. & A. Chapman, Duddery Hill, Haverhill, CB9 8DR Process: Vapour Recovery Status: Current Permit Permit Type: Part B Enforcement: No Enforcements Notified Date of Enforcement: No Enforcements Notified Comment: No Enforcements Notified



2.1.7 Records of Category 3 or 4 Radioactive Substances Authorisations:

1

The following RAS Licence (3 or 4) records are represented as points on the Environmental Permits, Incidents and Registers Map:

ID	Distance (m)	Direction	NGR	Address	Operator	Type	Permission Number	Dates	Status
26E	55	N	566700 245600	English Welsh And Scottish Railway Ltd, Leiston Railhead, Leiston, Suffolk,	English Welsh And Scottish Railway Ltd	Disposal Of Radioactive Waste (was Rsa60 Section 6).	AN7716	Date of Approval:7/11/1994 Effective from:7/12/1994 Last date of update:2015-01-01	Revoked/cancelled

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

4

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

ID	Distance (m)	Direction	NGR	Details	
19D	320	NE	567100 245700	Address: QUEEN STREET, HAVERHILL, SUFFOLK Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE01563 Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 21/02/1963 Effective Date: 21-Feb-1963 Revocation Date: 08/03/1993
20	363	N	566900 245900	Address: WITHERSFIELD ROAD, HAVERHILL, SUFFOLK Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE02962 Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 25/04/1962 Effective Date: 25-Apr-1962 Revocation Date: 08/03/1993
21	453	E	567300 245500	Address: SHOP DEVLPT AT 27-29 HIGH STREET, HAVERHILL, SUFFOLK Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE19065 Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 18/11/1965 Effective Date: 18-Nov-1965 Revocation Date: 21/04/1992
22C	485	S	567000 245000	Address: CAR PARK EXTENSION AT RELIEF ROAD, HAVERHILL, SUFFOLK Effluent Type: MISCELLANEOUS DISCHARGES - SURFACE WATER Permit Number: PR2NFE36566 Permit Version: 1	Receiving Water: Status: PRE NRA LEGISLATION WHERE ISSUE DATE < 01-SEP-89 (HISTORIC ONLY) Issue date: 13/12/1966 Effective Date: 13-Dec-1966 Revocation Date: 25/03/1992

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:

1

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

ID	Distance (m)	Direction	Company	Address	Operational Status	Tier
25	493	S	International Flavours & Fragrances	International Flavours & Fragrances, Haverhill, Duddery Hill, Haverhill, Suffolk, Cb9 8lj	Current COMAH Site	COMAH Top Tier Operator

## 2.3 Environment Agency Recorded Pollution Incidents

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

10

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

ID	Distance (m)	Direction	NGR	Details
1	140	W	566540 245500	Incident Date: 31-Jul-2001 Incident Identification: 20705 Pollutant: Contaminated Water Pollutant Description: Firefighting Run-Off Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
2A	179	W	566500 245500	Incident Date: 21-Jun-2001 Incident Identification: 10676 Pollutant: Atmospheric Pollutants and Effects Pollutant Description: Chemical Odour Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

ID	Distance (m)	Direction	NGR	Details	
3A	179	W	566500 245500	Incident Date: 27-Jun-2001 Incident Identification: 11809 Pollutant: Organic Chemicals/Products Pollutant Description: Hydrocarbons	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)
4D	330	NE	567112 245700	Incident Date: 05-Sep-2001 Incident Identification: 29115 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
5	376	S	566860 245079	Incident Date: 06-Aug-2002 Incident Identification: 97931 Pollutant: Oils and Fuel Pollutant Description: Mixed/Waste Oils	Water Impact: Category 3 (Minor) Land Impact: Category 3 (Minor) Air Impact: Category 3 (Minor)
6	404	E	567222 245634	Incident Date: 05-Apr-2002 Incident Identification: 69225 Pollutant: Organic Chemicals/Products Pollutant Description: Surfactants and Detergents	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
7	443	E	567276 245586	Incident Date: 06-Mar-2002 Incident Identification: 62355 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
8B	455	E	567294 245554	Incident Date: 09-Apr-2002 Incident Identification: 70141 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
9B	455	E	567294 245554	Incident Date: 09-Apr-2002 Incident Identification: 70141 Pollutant: Sewage Materials Pollutant Description: Crude Sewage	Water Impact: Category 3 (Minor) Land Impact: Category 4 (No Impact) Air Impact: Category 4 (No Impact)
10C	485	S	567000 245000	Incident Date: 21-Jun-2001 Incident Identification: 10494 Pollutant: Organic Chemicals/Products Pollutant Description: Hydrocarbons	Water Impact: Category 4 (No Impact) Land Impact: Category 4 (No Impact) Air Impact: Category 3 (Minor)

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

0

Database searched and no data found.

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

How many records of sites determined as contaminated land under Section 78R of the Environmental Protection Act 1990 are there within 500m of the study site?

0

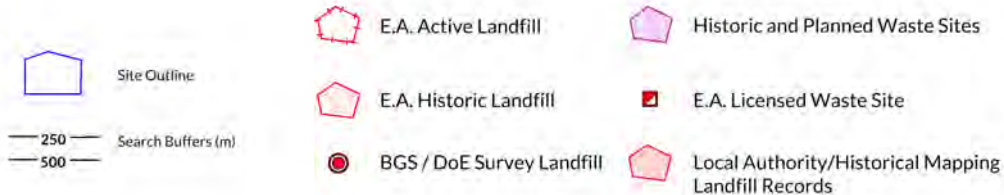
Database searched and no data found.



# 3. Landfill and Other Waste Sites Map

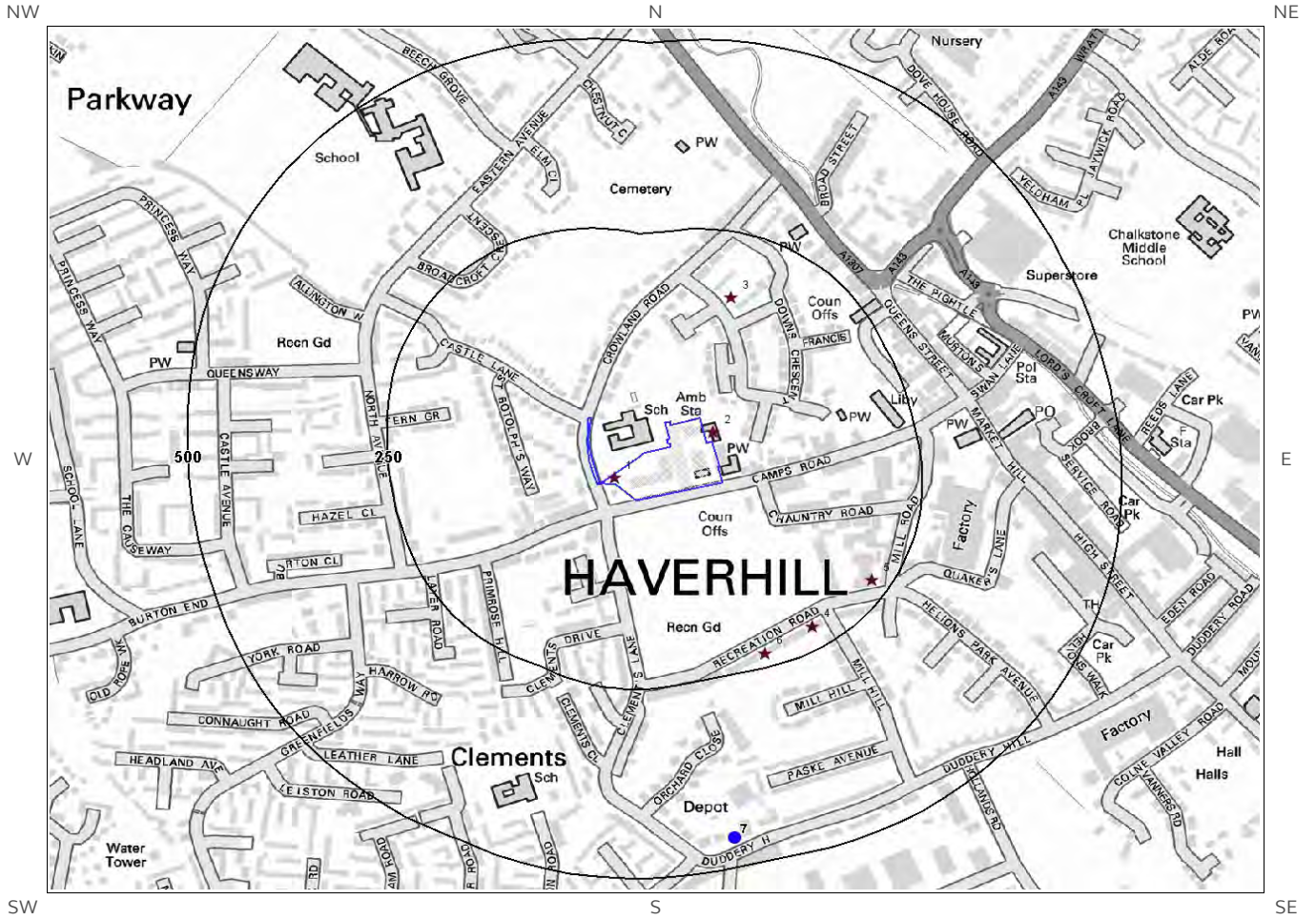


© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.





# 4. Current Land Use Map



© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.

- Site Outline
- Current Industrial Sites
- Electricity Transmission Cables
- Search Buffers (m)
- Petrol & Fuel Sites
- Gas Transmission Pipelines

# 4. Current Land Uses

## 4.1 Current Industrial Data

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

6

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

ID	Distance (m)	Direction	Company	NGR	Address	Activity	Category
1	0	On Site	Electricity Sub Station	566713 245468	CB9	Electrical Features	Infrastructure and Facilities
2	12	E	Haverhill Ambulance Station	566836 245528	Camps Road, Haverhill, CB9 8HF	Ambulance and Medical Transportation Services	Health Support Services
3	165	N	Electricity Sub Station	566859 245706	CB9	Electrical Features	Infrastructure and Facilities
4	219	SE	P C 2 Mend	566960 245272	46, Recreation Road, Haverhill, CB9 8BY	Electrical Equipment Repair and Servicing	Repair and Servicing
5	226	SE	Electricity Sub Station	567035 245333	CB9	Electrical Features	Infrastructure and Facilities
6	231	S	A K	566901 245236	35, Recreation Road, Haverhill, CB9 8BY	Construction and Tool Hire	Hire Services

## 4.2 Petrol and Fuel Sites

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

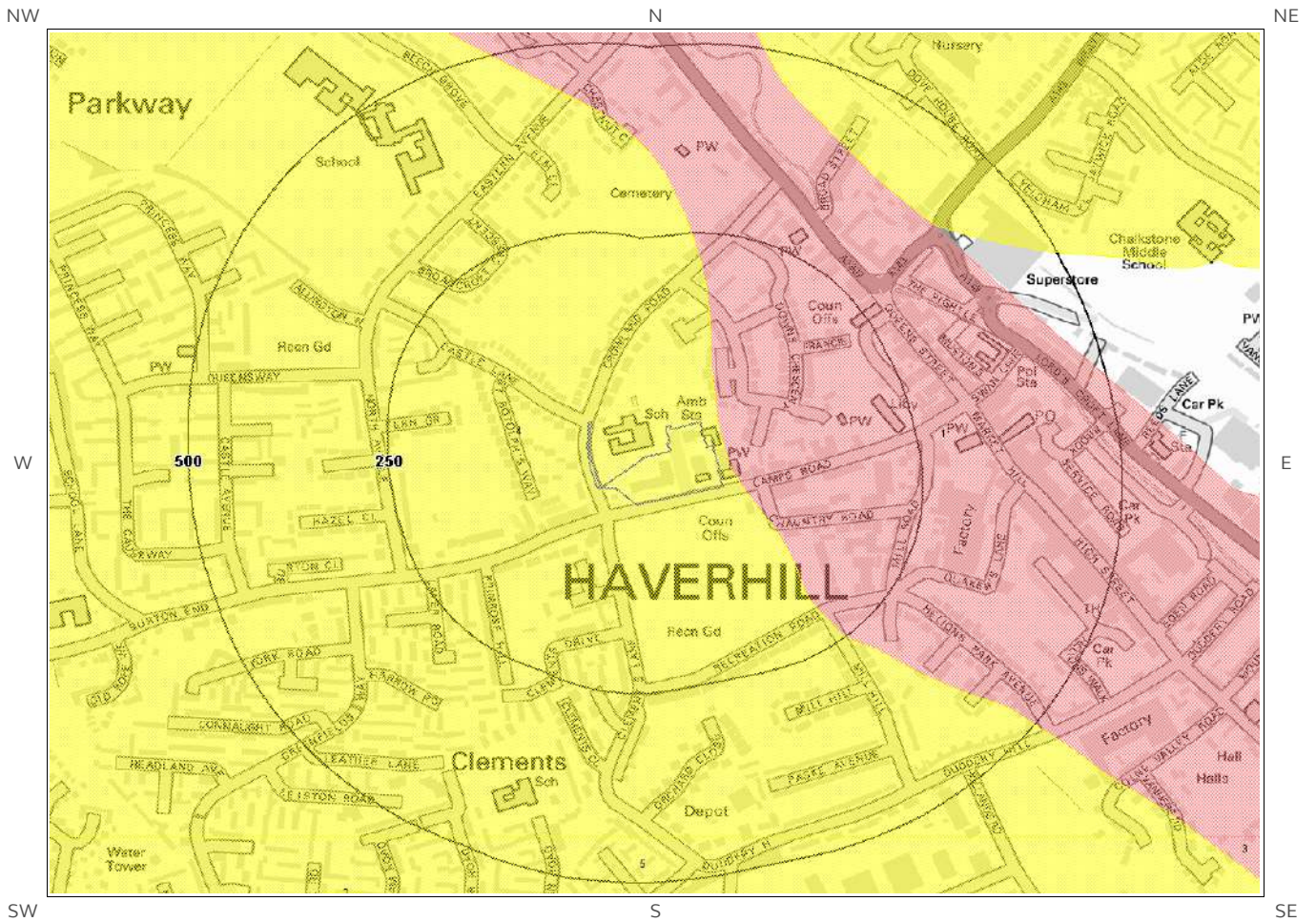
1

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

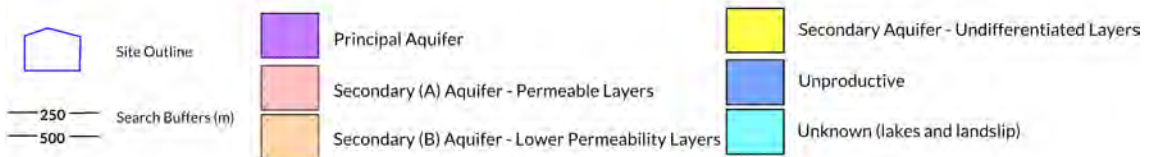
ID	Distance (m)	Direction	NGR	Company	Address	LPG	Status
7	462	S	566864 244992	BP	Duddery Hill Service Station, Duddery Hill, Duddery Hill, Haverhill, Suffolk, CB9 8DR	No	Open

# 6 Hydrogeology and Hydrology

## 6a. Aquifer Within Superficial Geology

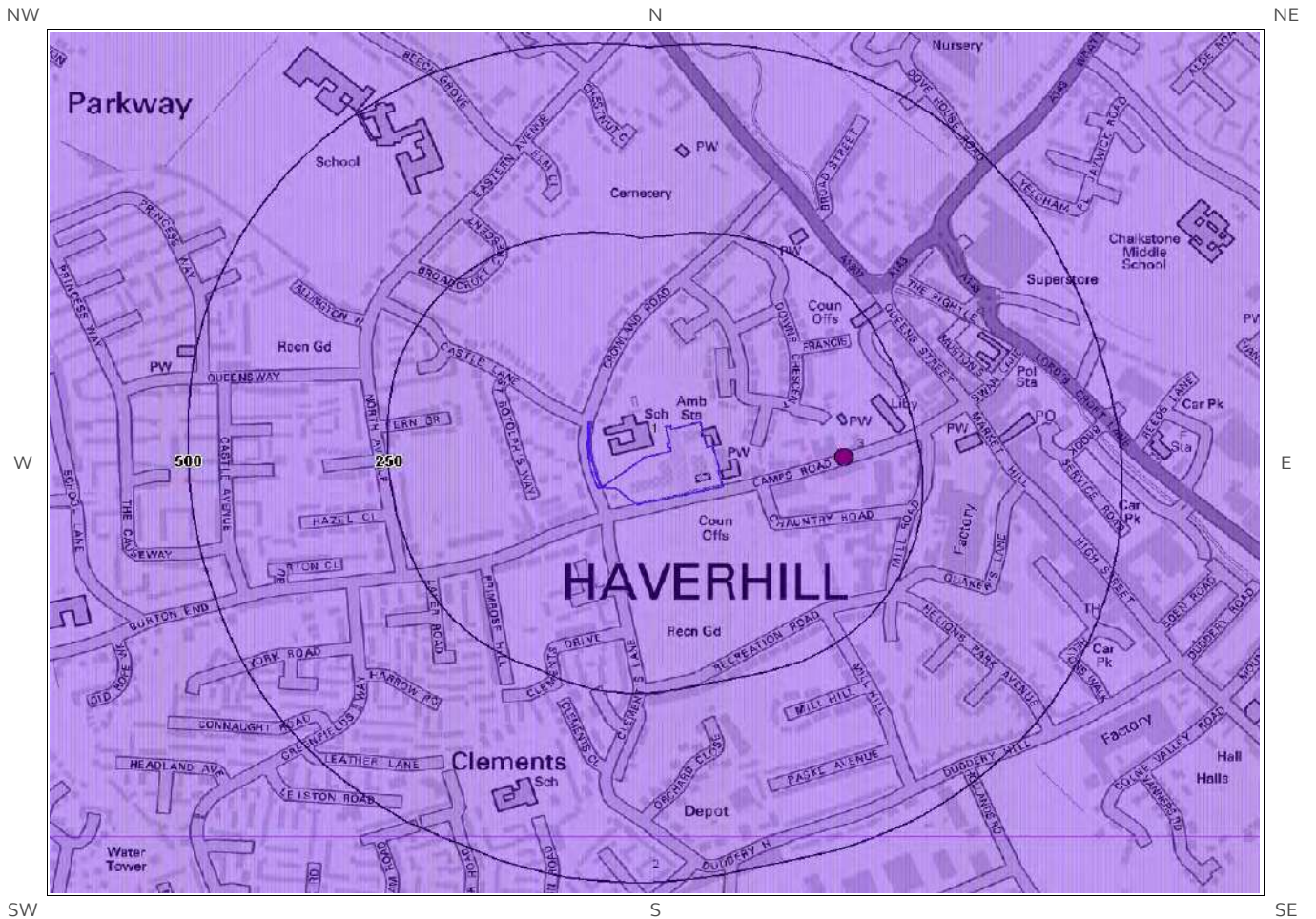


© Crown copyright and database rights 2015  
Ordnance Survey license 100035207.





# 6b. Aquifer Within Bedrock Geology and Abstraction Licenses



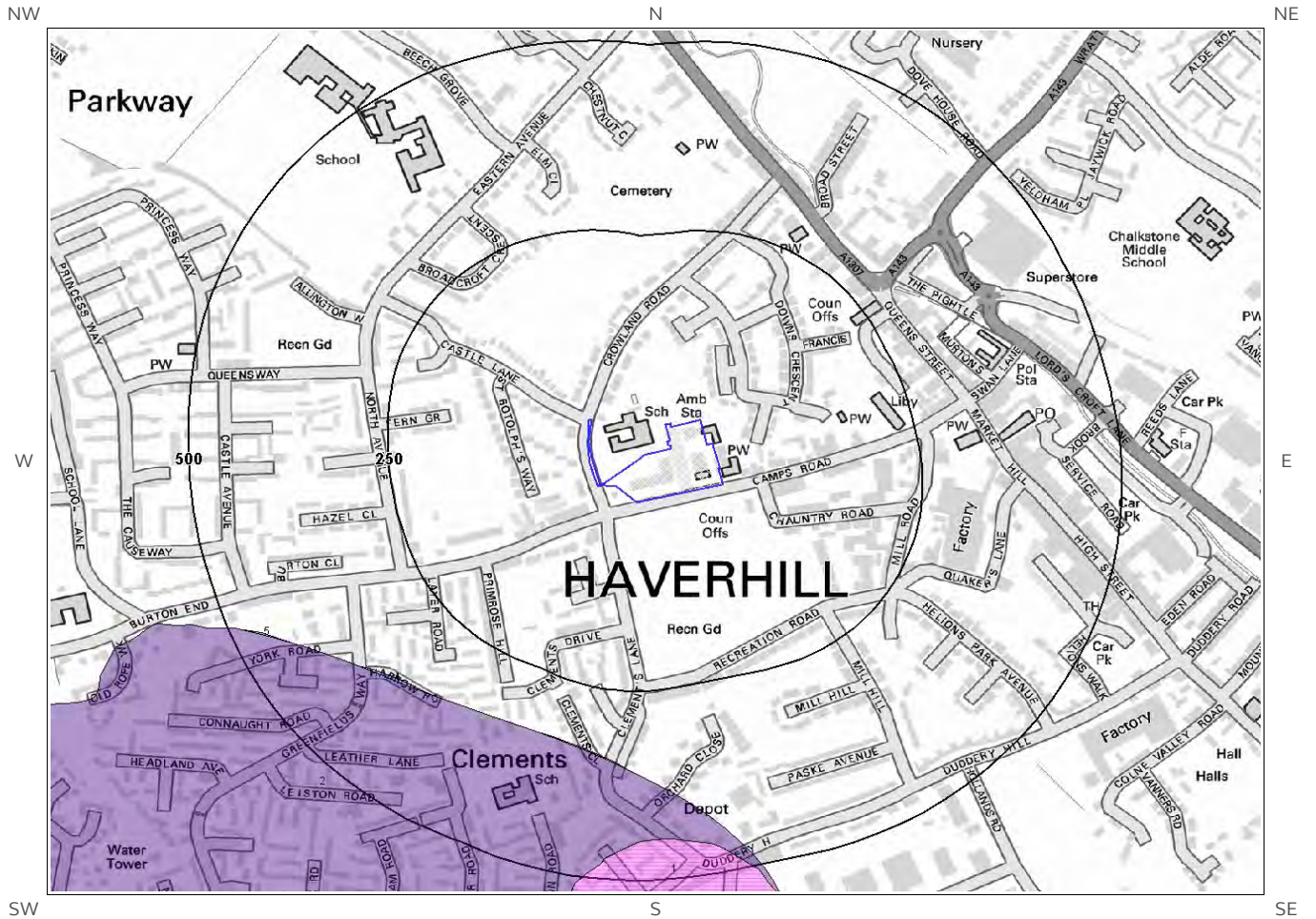
© Crown copyright and database rights 2015  
Ordnance Survey license 100035207.



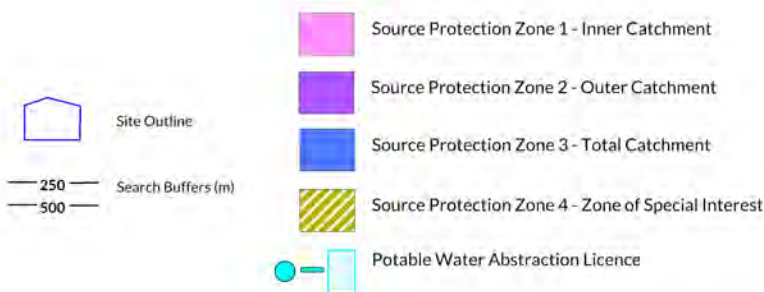




# 6c. Hydrogeology – Source Protection Zones and Potable Water Abstraction Licenses

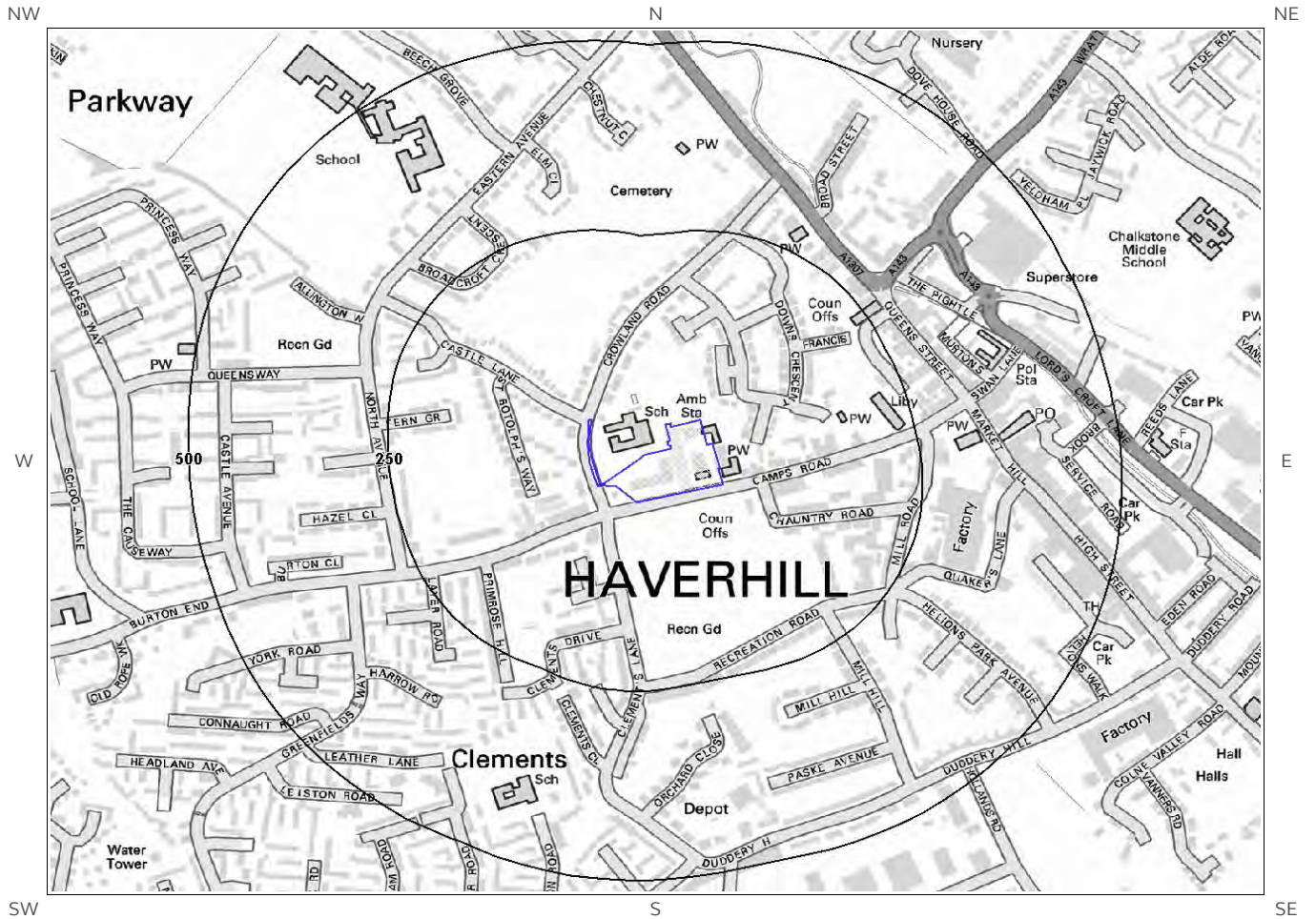


© Crown copyright and database rights 2015  
Ordnance Survey license 100035207.

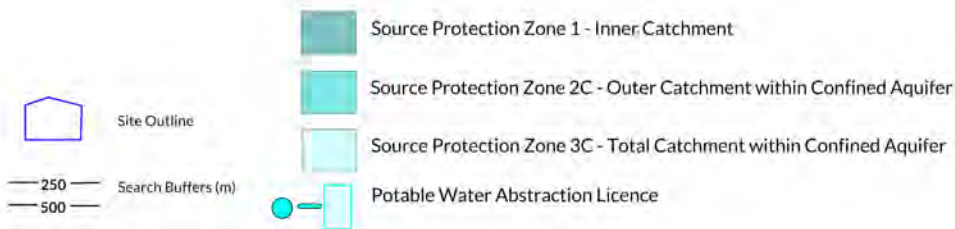




# 6d. Hydrogeology – Source Protection Zones within confined aquifer

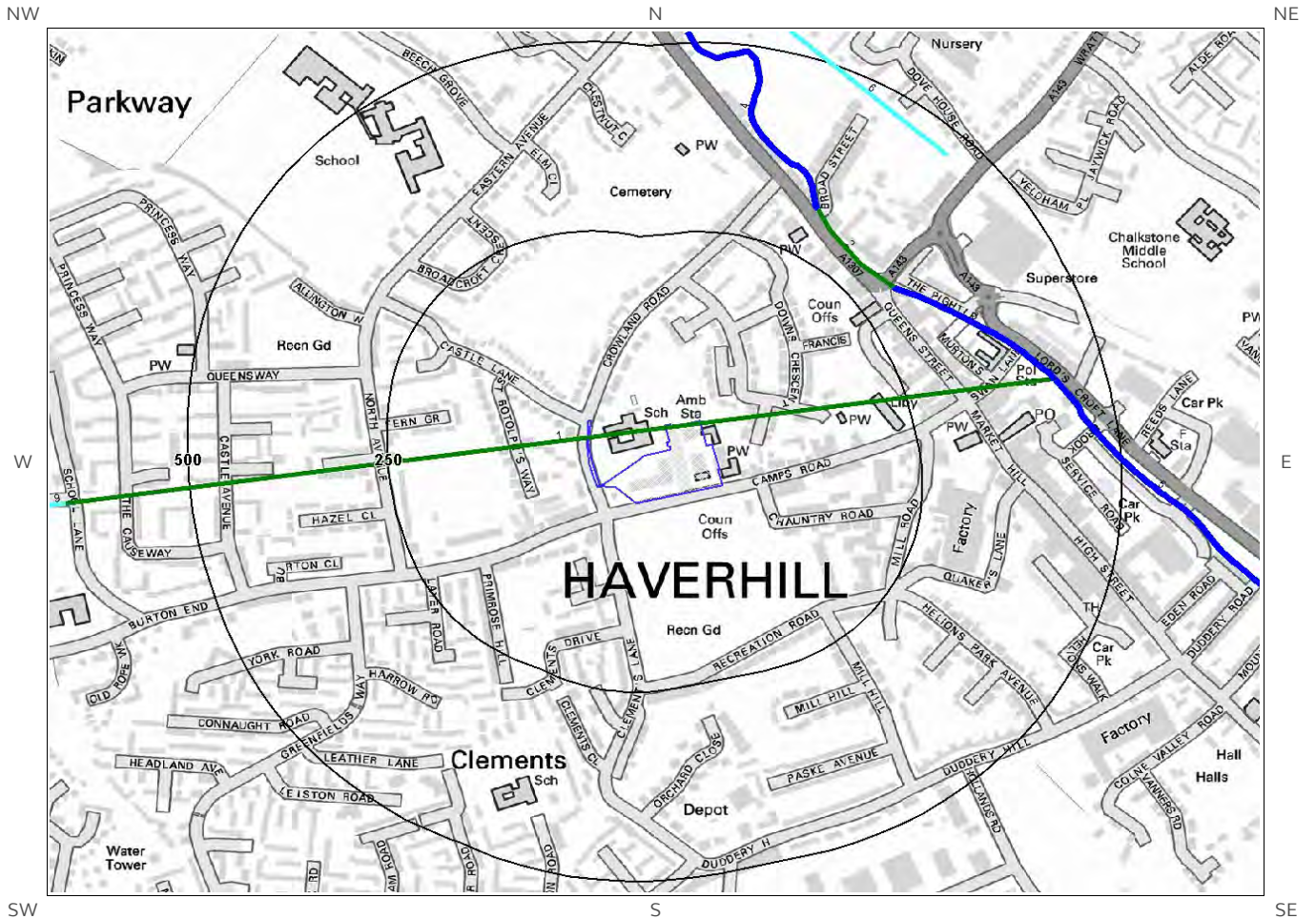


© Crown copyright and database rights 2015  
Ordnance Survey license 100035207.





# 6e. Hydrology – Detailed River Network and River Quality



© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 6. Hydrogeology and Hydrology

## 6.1 Aquifer within Superficial Deposits

Are there records of strata classification within the superficial geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency'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 Enviroinsight User Guide.

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

ID	Distance (m)	Direction	Designation	Description
4	0	On Site	Secondary (undifferentiated)	Assigned where it is not possible to attribute either category A or B to a rock type. In general these layers have previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the rock type
1	13	E	Secondary A	Permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers
5	438	S	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

Are there records of strata classification within the bedrock geology at or in proximity to the property? Yes

From 1 April 2010, the Environment Agency'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 Enviroinsight User Guide.

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

ID	Distance (m)	Direction	Designation	Description
1	0	On Site	Principal	Geology of high intergranular and/or fracture permeability, usually providing a high level of water storage and may support water supply/river base flow on a strategic scale. Generally principal aquifers were previously major aquifers
2	438	S	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

Are there any Groundwater Abstraction Licences within 2000m of the study site?

Yes

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
3	156	E	567000 245500	Status: Historical Licence No: 8/36/11/*G/0002 Details: General use relating to Secondary Category (Medium Loss) Direct Source: Ground Water Source Of Supply Point: Borehole At Haverhill Data Type: Point Name: INNISFAIL LAUNDRY LTD Annual Volume (m <sup>3</sup> ): - Max Daily Volume (m <sup>3</sup> ): - Original Application No: - Original Start Date: 1/6/1966 Expiry Date: - Issue No: 100 Version Start Date: 1/1/1997 Version End Date:
Not shown	618	S	566850 244830	Status: Active Licence No: 8/36/11/*G/0001 Details: Non-Evaporative Cooling Direct Source: Ground Water Source Of Supply Point: Borehole 1 Duddery Hill Haverhill Data Type: Point Name: IFF (GREAT BRITAIN) LTD Annual Volume (m <sup>3</sup> ): 180000 Max Daily Volume (m <sup>3</sup> ): 720 Original Application No: EV2472 Original Start Date: 20/4/1966 Expiry Date: - Issue No: 102 Version Start Date: 17/12/2008 Version End Date:
Not shown	618	S	566850 244830	Status: Active Licence No: 8/36/11/*G/0001 Details: Evaporative Cooling Direct Source: Ground Water Source Of Supply Point: Borehole 1 Duddery Hill Haverhill Data Type: Point Name: IFF (GREAT BRITAIN) LTD Annual Volume (m <sup>3</sup> ): 180000 Max Daily Volume (m <sup>3</sup> ): 720 Original Application No: EV2472 Original Start Date: 20/4/1966 Expiry Date: - Issue No: 102 Version Start Date: 17/12/2008 Version End Date:
Not shown	618	S	566850 244830	Status: Historical Licence No: 8/36/11/*G/0001 Details: Non-Evaporative Cooling Direct Source: Ground Water Source Of Supply Point: Borehole 1 Duddery Hill Haverhill Data Type: Point Name: IFF (GREAT BRITAIN) LTD Annual Volume (m <sup>3</sup> ): 180000 Max Daily Volume (m <sup>3</sup> ): 720 Original Application No: EV1968 Original Start Date: 20/4/1966 Expiry Date: - Issue No: 101 Version Start Date: 1/1/2005 Version End Date:
Not shown	618	S	566850 244830	Status: Historical Licence No: 8/36/11/*G/0001 Details: Boiler Feed Direct Source: Ground Water Source Of Supply Point: Borehole 1 Duddery Hill Haverhill Data Type: Point Name: IFF (GREAT BRITAIN) LTD Annual Volume (m <sup>3</sup> ): 180000 Max Daily Volume (m <sup>3</sup> ): 720 Original Application No: EV1968 Original Start Date: 20/4/1966 Expiry Date: - Issue No: 101 Version Start Date: 1/1/2005 Version End Date:
Not shown	618	S	566850 244830	Status: Historical Licence No: 8/36/11/*G/0001 Details: Evaporative Cooling Direct Source: Ground Water Source Of Supply Point: Borehole 1 Duddery Hill Haverhill Data Type: Point Name: IFF (GREAT BRITAIN) LTD Annual Volume (m <sup>3</sup> ): 180000 Max Daily Volume (m <sup>3</sup> ): 720 Original Application No: EV1968 Original Start Date: 20/4/1966 Expiry Date: - Issue No: 101 Version Start Date: 1/1/2005 Version End Date:

## 6.4 Surface Water Abstraction Licences

Are there any Surface Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

## 6.5 Potable Water Abstraction Licences

Are there any Potable Water Abstraction Licences within 2000m of the study site? No

Database searched and no data found.

## 6.6 Source Protection Zones

Are there any Source Protection Zones within 500m of the study site? Yes

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

ID	Distance (m)	Direction	Zone	Description
3	327	S	3	Total catchment
2	328	S	2	Outer catchment
4	346	SW	3	Total catchment
5	432	SW	3	Total catchment
1	445	S	1	Inner catchment

## 6.7 Source Protection Zones within Confined Aquifer

Are there any Source Protection Zones within the Confined Aquifer within 500m of the study site? No

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

Database searched and no data found.

## 6.8 Groundwater Vulnerability and Soil Leaching Potential

Is there any Environment Agency information on groundwater vulnerability and soil leaching potential within 500m of the study site? Yes

Distance (m)	Direction	Classification	Soil Vulnerability Category	Description
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.

## 6.9 River Quality

Is there any Environment Agency information on river quality within 1500m of the study site? Yes

### 6.9.1 Biological Quality:

Biological Quality data describes water quality in terms of 83 groups of macroinvertebrates, some of which are pollution sensitive. The results are graded from A ('Very Good') to F ('Bad').

The following Biological Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Biological Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1327	SE	568000 244800	River Name: Stour Brook Reach: Haverhill Stw...stour End/Start of Stretch: Start of Stretch NGR	C	B	B	B	C
Not shown	1327	SE	568000 244800	River Name: Stour Brook Reach: Withersfield...haverhill Stw End/Start of Stretch: End of Stretch NGR	C	B	B	B	C

### 6.9.2 Chemical Quality:

Chemical quality data is based on the General Quality Assessment Headline Indicators scheme (GQAH). In England, each chemical sample is measured for ammonia and dissolved oxygen. In Wales, the samples are measured for biological oxygen demand (BOD), ammonia and dissolved oxygen. The results are graded from A ('Very Good') to F ('Bad').

The following Chemical Quality records are shown on the Hydrology Map (6e):

ID	Distance (m)	Direction	NGR	River Quality Grade	Chemical Quality Grade				
					2005	2006	2007	2008	2009
Not shown	1327	SE	568000 244800	River Name: Stour Brk Reach: Haverhill Stw Stour End/Start of Stretch: Start of Stretch NGR	D	D	C	C	C

## 6.10 Detailed River Network

Are there any Detailed River Network entries within 500m of the study site?

Yes

The following Detailed River Network records are represented on the Hydrology Map (6e):

ID	Distance (m)	Direction	Details	
1	0	On Site	River Name: - Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
2	289	NE	River Name: Stour Brook Welsh River Name: - Alternative Name: -	River Type: Culvert Main River Status: Currently Undefined
3	301	NE	River Name: Stour Brook Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
4	317	NE	River Name: Stour Brook Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
5	436	E	River Name: Stour Brook Welsh River Name: - Alternative Name: -	River Type: Primary River Main River Status: Currently Undefined
6	468	NE	River Name: Drain Welsh River Name: - Alternative Name: -	River Type: Tertiary River Main River Status: Currently Undefined

## 6.11 Surface Water Features

Are there any surface water features within 250m of the study site?

No

Database searched and no data found.





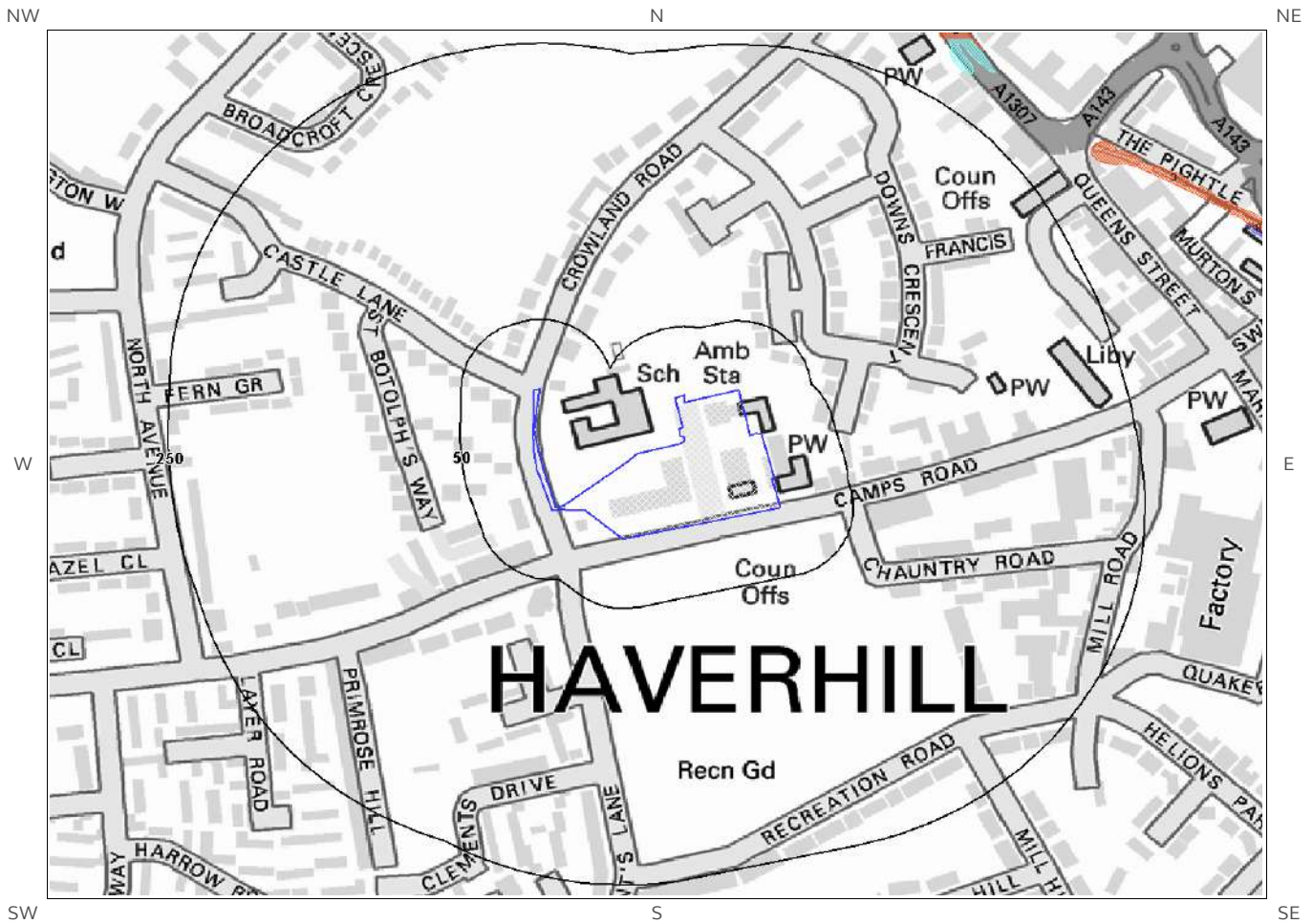
# 7a. Environment Agency Flood Map for Planning (from rivers and the sea)



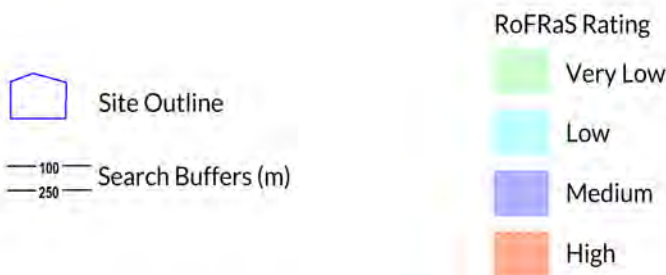
© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 7b. Environment Agency Risk of Flooding from Rivers and the Sea (RoFRaS) Map



© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 7 Flooding

## 7.1 River and Coastal Zone 2 Flooding

Is the site within 250m of an Environment Agency Zone 2 floodplain? No

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

Database searched and no data found.

---

## 7.2 River and Coastal Zone 3 Flooding

Is the site within 250m of an Environment Agency Zone 3 floodplain? No

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

Database searched and no data found.

---

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

What is the highest risk of flooding onsite? Very Low

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

RoFRaS data for the study site indicates the property is in an area with a Very Low (less than 1 in 1000) chance of flooding in any given year.

---

## 7.4 Flood Defences

Are there any Flood Defences within 250m of the study site? No  
Database searched and no data found.

---

## 7.5 Areas benefiting from Flood Defences

Are there any areas benefiting from Flood Defences within 250m of the study site? No

---

## 7.6 Areas benefiting from Flood Storage

Are there any areas used for Flood Storage within 250m of the study site?

No

---

## 7.7 Groundwater Flooding Susceptibility Areas

7.7.1 Are there any British Geological Survey groundwater flooding susceptibility areas within 50m of the boundary of the study site? Yes

Does this relate to Clearwater Flooding or Superficial Deposits Flooding?

Clearwater Flooding

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

---

7.7.2 What is the highest susceptibility to groundwater flooding in the search area based on the underlying geological conditions?

Limited potential

Where limited potential for groundwater flooding to occur is indicated, this means that although given the geological conditions there may be a groundwater flooding hazard, unless other relevant information, e.g. records of previous flooding, suggests groundwater flooding has occurred before in this area, you need take no further action in relation to groundwater flooding hazard.

---

## 7.8 Groundwater Flooding Confidence Areas

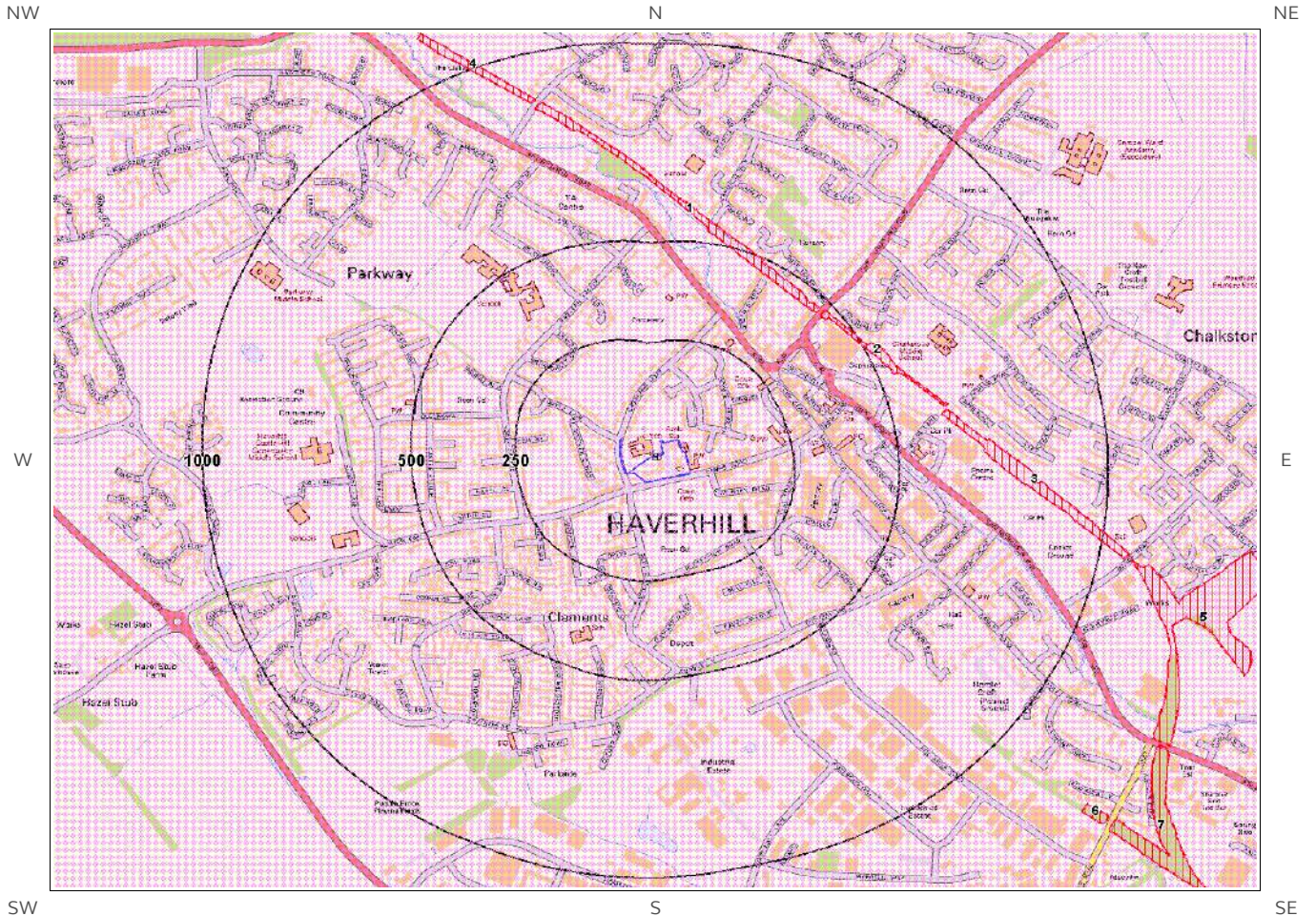
What is the British Geological Survey confidence rating in this result?

High

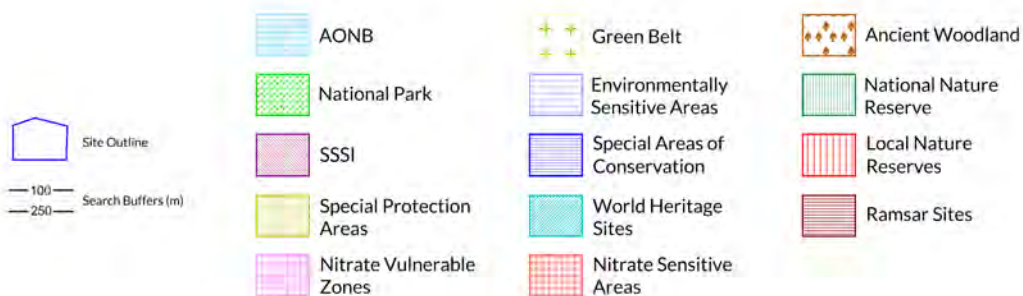
Notes: Groundwater flooding is defined as the emergence of groundwater at the ground surface or the rising of groundwater into man-made ground under conditions where the normal range of groundwater levels is exceeded.

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

# 8. Designated Environmentally Sensitive Sites Map



© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

0

Database searched and no data found.

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

2

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
9	0	On Site	Existing	DEFRA
10	0	On Site	Existing	DEFRA

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

0

Database searched and no data found.



# Groundsure Geoinsight

**Address:** CCL02775-Haverhill, Camps Road, Haverhill, CB9 8HF  
**Date:** 2 Nov 2015  
**Reference:** EMS-332303\_447569  
**Client:** EmapSite

NW N NE

W E



SW S SE

Aerial Photograph Capture date: 24-May-2009  
Grid Reference: 566782,245485  
Site Size: 0.85ha

# Overview of Findings

The Groundsure Geosight 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 Digital Geological Map of Great Britain, BGS Geosure data; BRITPITS database; Shallow 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

1.1 Artificial Ground	1.1.1 Is there any Artificial Ground/ Made Ground present beneath the study site?	No
	1.1.2 Are there any records relating to permeability of artificial ground within the study site* boundary?	No
1.2 Superficial Geology and Landslips	1.2.1 Is there any Superficial Ground/Drift Geology present beneath the study site?	Yes
	1.2.2 Are there any records relating to permeability of superficial geology within the study site boundary?	Yes
	1.2.3 Are there any records of landslip within 500m of the study site boundary?	No
	1.2.4 Are there any records relating to permeability of landslips within the study site boundary?	No
1.3 Bedrock, Solid Geology & Faults	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 relating to permeability of bedrock within the study site boundary?	Yes
	1.3.3 Are there any records of faults within 500m of the study site boundary?	No
1.4 Radon data	1.4.1 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
	1.4.2 Is the property in an area where Radon Protection Measures 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 2:Ground Workings	On-site	0-50m	51-250	251-500	501-1000
2.1 Historical Surface Ground Working Features from Small Scale Mapping	1	0	9	Not Searched	Not Searched
2.2 Historical Underground Workings from Small Scale Mapping	0	0	0	0	0
2.3 Current Ground Workings	0	0	0	0	4



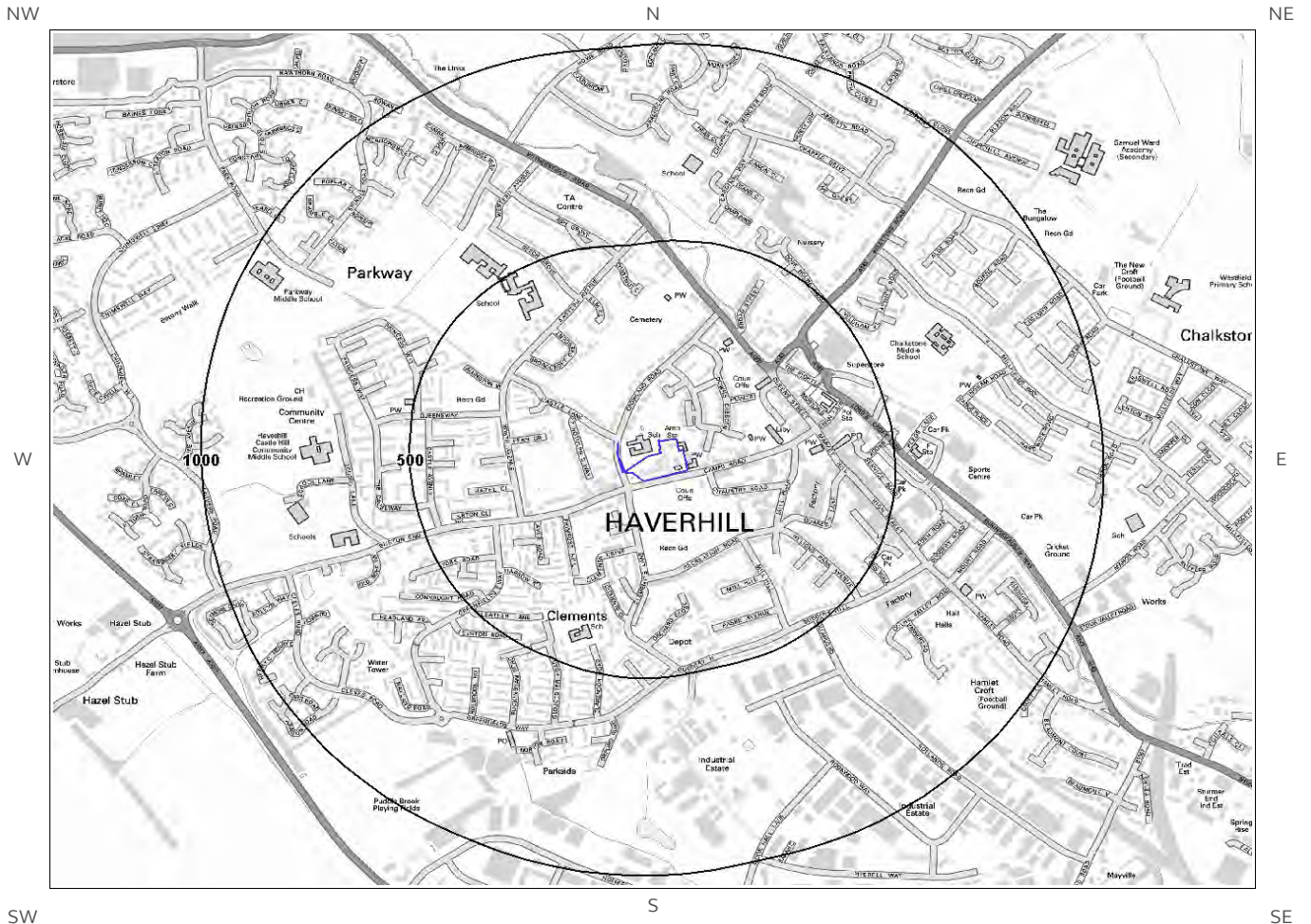
Section 3: Mining, Extraction & Natural Cavities	On-site	0-50m	51-250	251-500	501-1000
3.1 Historical Mining	0	0	0	0	0
3.2 Coal Mining	0	0	0	0	0
3.3 Johnson Poole and Bloomer Mining Area	0	0	0	0	0
3.4 Non-Coal Mining	1	0	0	1	0
3.5 Non-Coal Mining Cavities	0	0	0	0	0
3.6 Natural Cavities	0	0	0	0	0
3.7 Brine Extraction	0	0	0	0	0
3.8 Gypsum Extraction	0	0	0	0	0
3.9 Tin Mining	0	0	0	0	0
3.10 Clay Mining	0	0	0	0	0
Section 4: Natural Ground Subsidence	On-site				
4.1 Shrink Swell Clay	Low				
4.2 Landslides	Very Low				
4.3 Ground Dissolution of Soluble Rocks	Low				
4.4 Compressible Deposits	Negligible				
4.5 Collapsible Deposits	Very Low				
4.6 Running Sand	Very Low				
Section 5: Borehole Records	On-site	0-50m	51-250		
5 BGS Recorded Boreholes	0	7	1		
Section 6: Estimated Background Soil Chemistry	On-site	0-50m	51-250		
6 Records of Background Soil Chemistry	2	2	4		
Section 7: Railways and Tunnels	On-site	0-50m	51-250	251-500	
7.1 Tunnels	0	0	0	Not Searched	
7.2 Historical Railway and Tunnel Features	0	0	0	Not Searched	
7.3 Historical Railways	0	0	0	Not Searched	
7.4 Active Railways	0	0	0	Not Searched	

Section 7:Railways and Tunnels	On-site	0-50m	51-250	251-500
7.5 Railway Projects	0	0	0	0

---

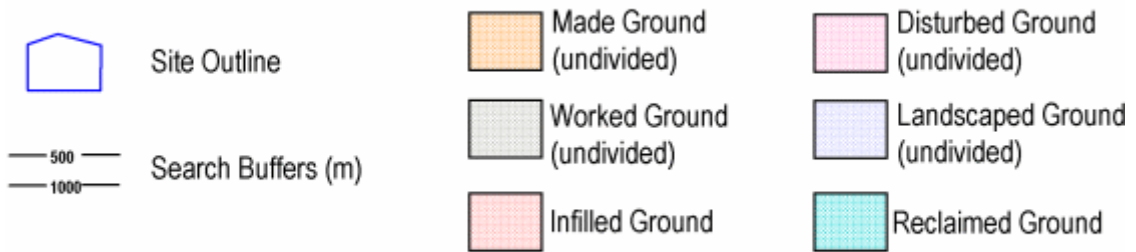
# 1 Geology

## 1.1 Artificial Ground Map

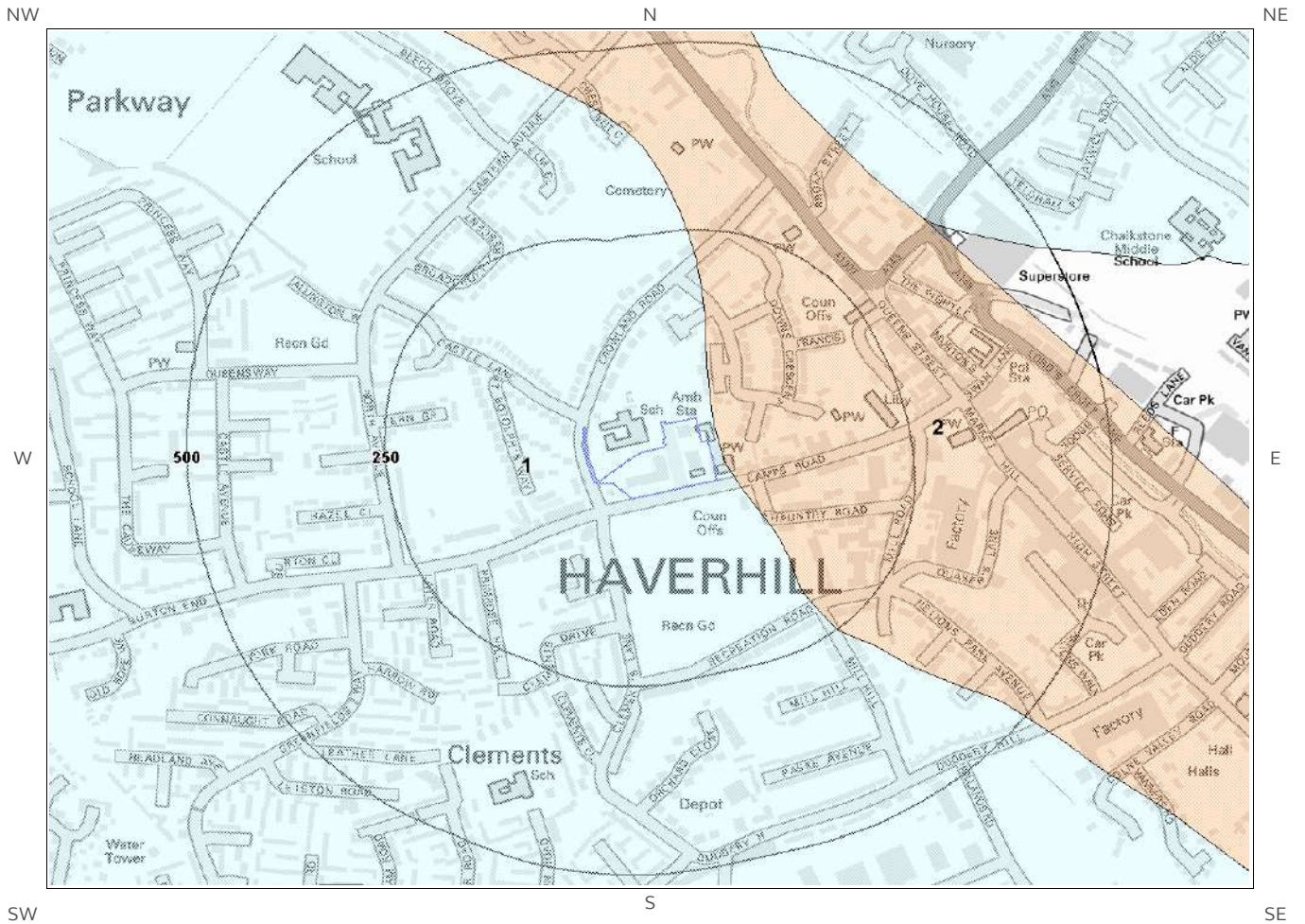


Artificial Ground Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 1.2 Superficial Deposits and Landslips Map

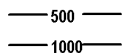


**Superficial Deposits and Landslips Legend**

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



Site Outline



Search Buffers (m)

# 1.2 Superficial Deposits and Landslips

## 1.2.1 Superficial Deposits/ Drift Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Description
1	0.0	On Site	LOFT	LOWESTOFT FORMATION	DIAMICTON
2	13.0	E	RTDU	RIVER TERRACE DEPOSITS (UNDIFFERENTIATED)	SAND AND GRAVEL [UNLITHIFIED DEPOSITS CODING SCHEME]

## 1.2.2 Permeability of Superficial Ground

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

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

## 1.2.3 Landslip

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

Database searched and no data found.

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.

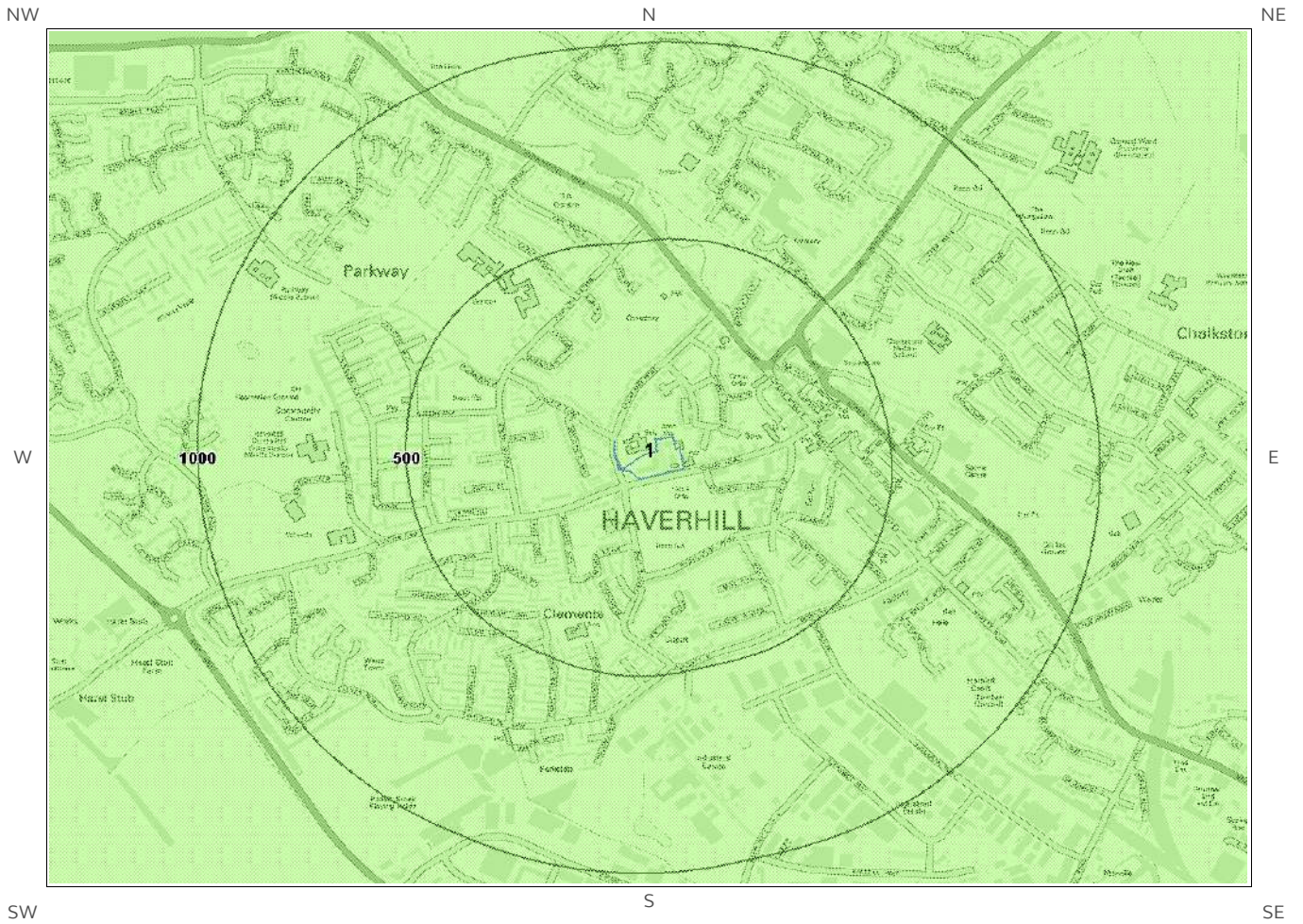
## 1.2.4 Landslip Permeability

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

Database searched and no data found.


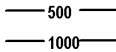

\* This includes an automatically generated 50m buffer zone around the site

# 1.3 Bedrock and Faults Map



**Bedrock and Faults Legend**

© Crown copyright and database rights 2015.  
 Ordnance Survey license 100035207.

-  Site Outline
-  500
-  1000 Search Buffers (m)

# 1.3 Bedrock, Solid Geology & Faults

The following geological information represented on the mapping is derived from 1:50,000 scale BGS Geological mapping, Sheet No:205

## 1.3.1 Bedrock/ Solid Geology

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

ID	Distance (m)	Direction	LEX Code	Description	Rock Age
1	0.0	On Site	LESE-CHLK	Lewes Nodular Chalk Formation And Seaford Chalk Formation (undifferentiated) - Chalk	Santonian / Turonian

## 1.3.2 Permeability of Bedrock Ground

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

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

## 1.3.3 Faults

Are there any records of Faults 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 nationwide coverage.

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

# 1.4 Radon Data

## 1.4.1 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

---

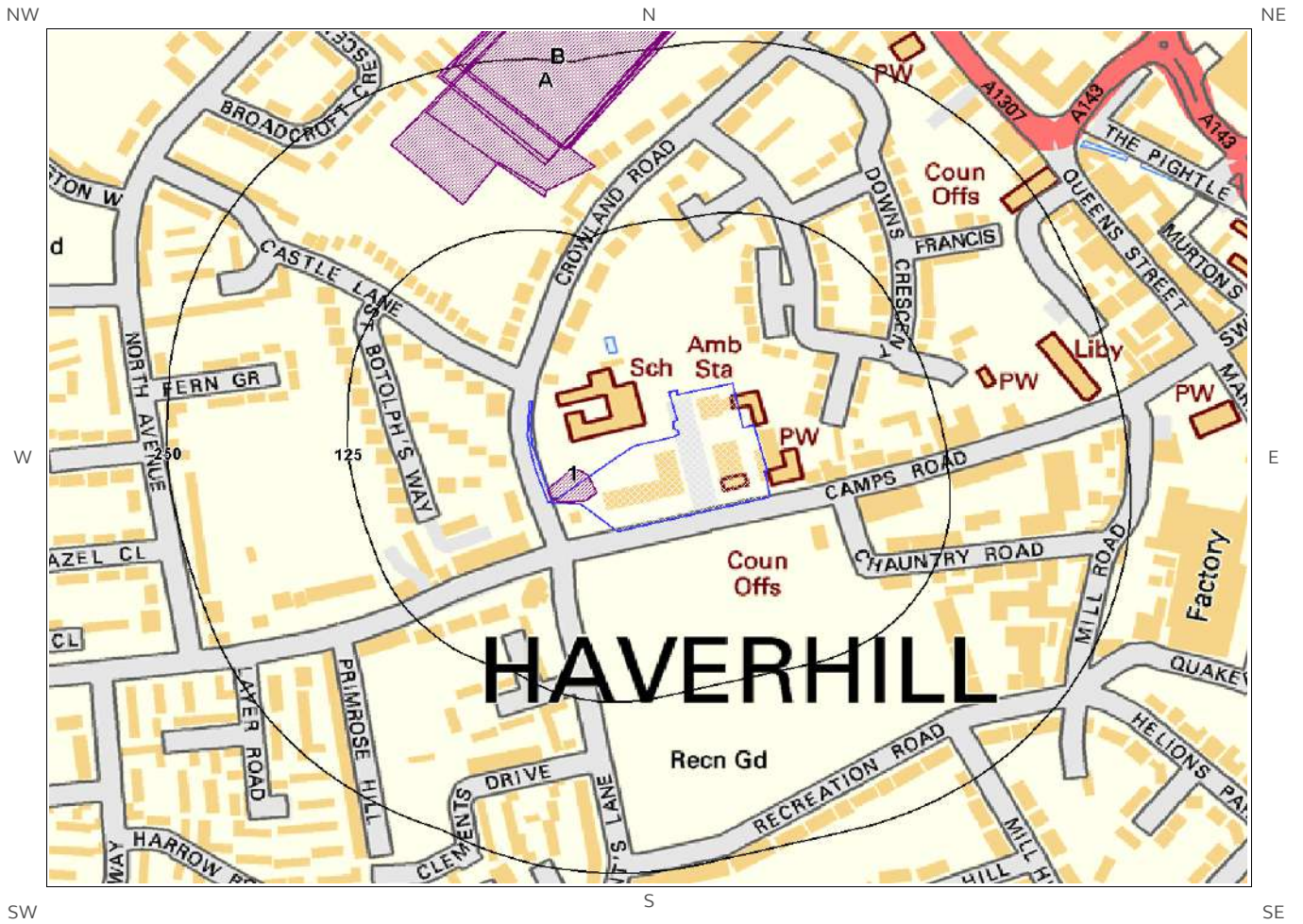
## 1.4.2 Radon Protection

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

---





# 2 Ground Workings Map



Ground Workings Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.

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

## 2 Ground Workings

### 2.1 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

The following Historical Surface Ground Working Features are provided by Groundsure:

ID	Distance (m)	Direction	NGR	Use	Date
1	0.0	On Site	566710 245471	Pond	1905
2A	150.0	N	566735 245829	Cemetery	1979
3A	150.0	N	566735 245829	Cemetery	1971
4A	151.0	N	566735 245829	Cemetery	1991
5A	173.0	N	566732 245837	Cemetery	1952
6A	173.0	N	566732 245837	Cemetery	1967
7A	176.0	N	566735 245838	Cemetery	1924
8A	176.0	N	566735 245838	Cemetery	1876
9B	185.0	N	566744 245848	Cemetery	1905
10B	186.0	N	566746 245849	Cemetery	1938

### 2.2 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.

## 2.3 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
Not shown	634.0	SW	566406 244894	Sand & Gravel	Puddle Brook Gravel Pit	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	657.0	E	567504 245449	Clay & Shale	Haverhill Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	766.0	N	566415 246252	Clay & Shale	Mount Pleasant Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased
Not shown	771.0	E	567582 245229	Clay & Shale	Haverhill Brick Works	A surface mineral working. It may be termed Quarry, Sand Pit, Clay Pit or Opencast Coal Site	Ceased

# 3 Mining, Extraction & Natural Cavities Map



Mining, Extraction and Natural Cavities Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 3 Mining, Extraction & Natural Cavities

## 3.1 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.

---

## 3.2 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.

---

## 3.3 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.

---

## 3.4 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	Occasional minor mining may have occurred but of restricted extent.
2	438.0	S	Not available	Chalk	Occasional minor mining may have occurred but of restricted extent.

---

### 3.5 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.

---

### 3.6 Natural Cavities

This dataset provides information based on Peter Brett Associates natural cavities database.

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

Database searched and no data found.

---

### 3.7 Brine Extraction

This data provides information from the Coal Authority issued on behalf of the Cheshire Brine Subsidence Compensation Board.

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

Database searched and no data found.

---

### 3.8 Gypsum Extraction

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

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

Database searched and no data found.

---

### 3.9 Tin Mining

This dataset provides information on tin mining areas and is derived from tin mining records. This search is based upon postcode information to a sector level.

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

Database searched and no data found.

---

### 3.10 Clay Mining

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

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

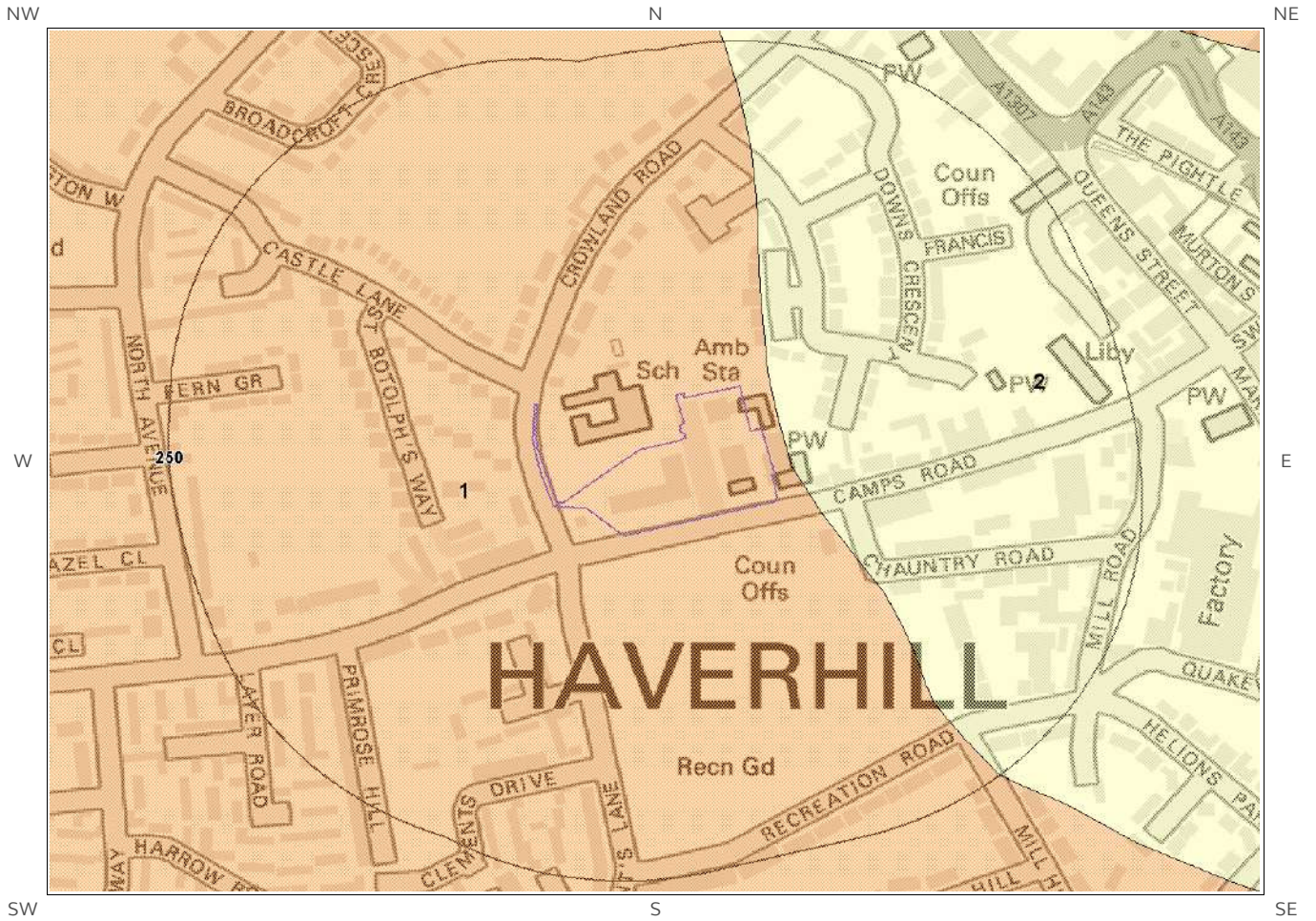
No

Database searched and no data found.

---

# 4 Natural Ground Subsidence

## 4.1 Shrink-Swell Clay Map



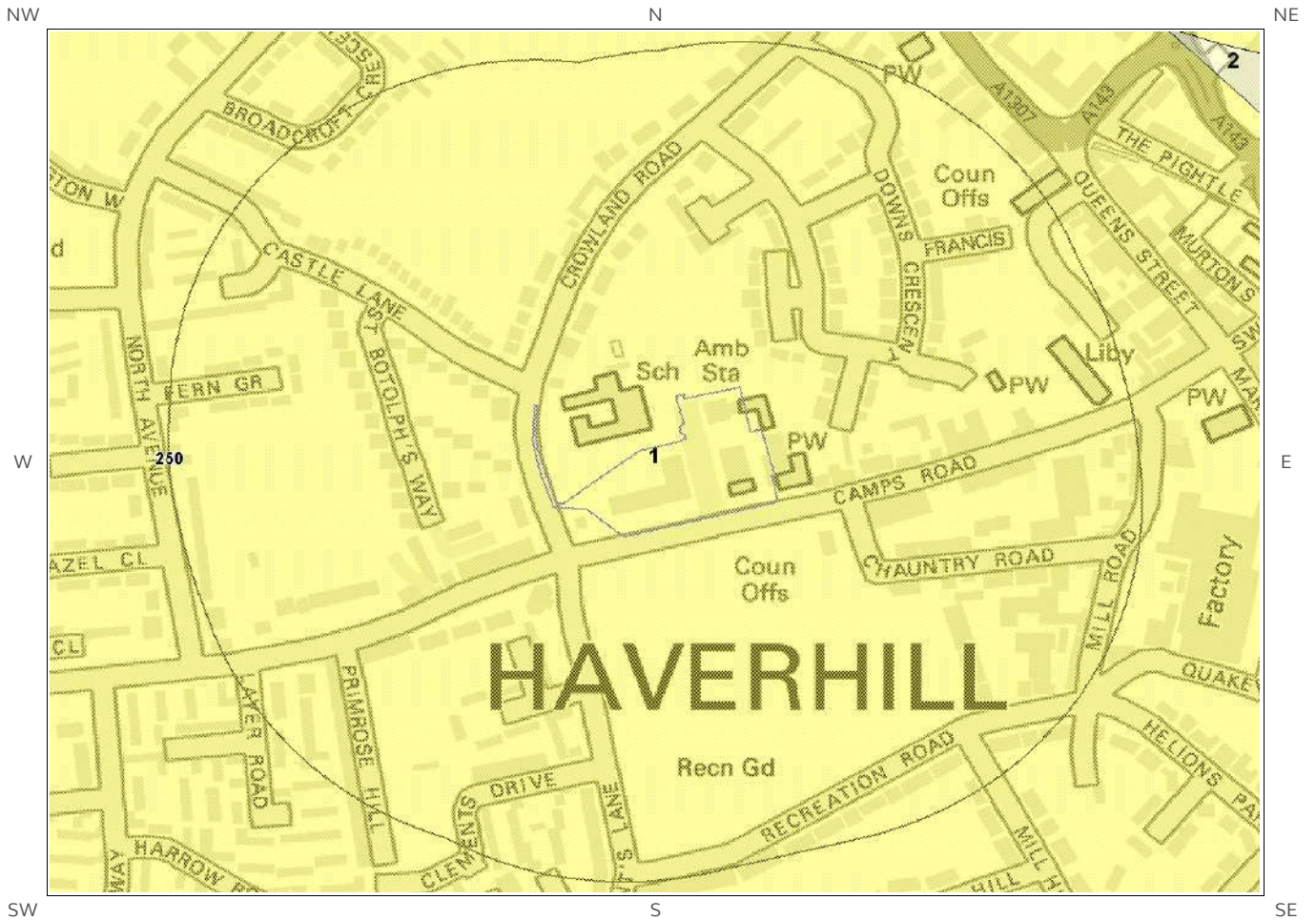
Shrink Swell Clay Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



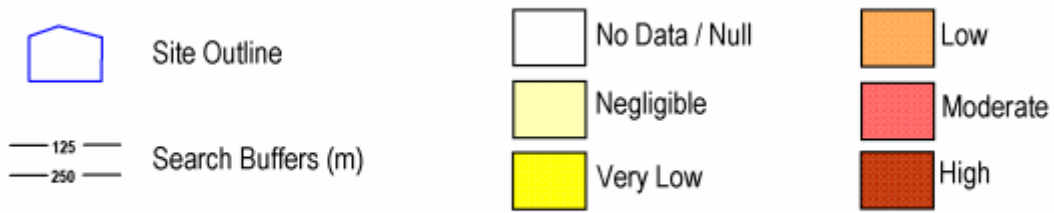


# 4.2 Landslides Map

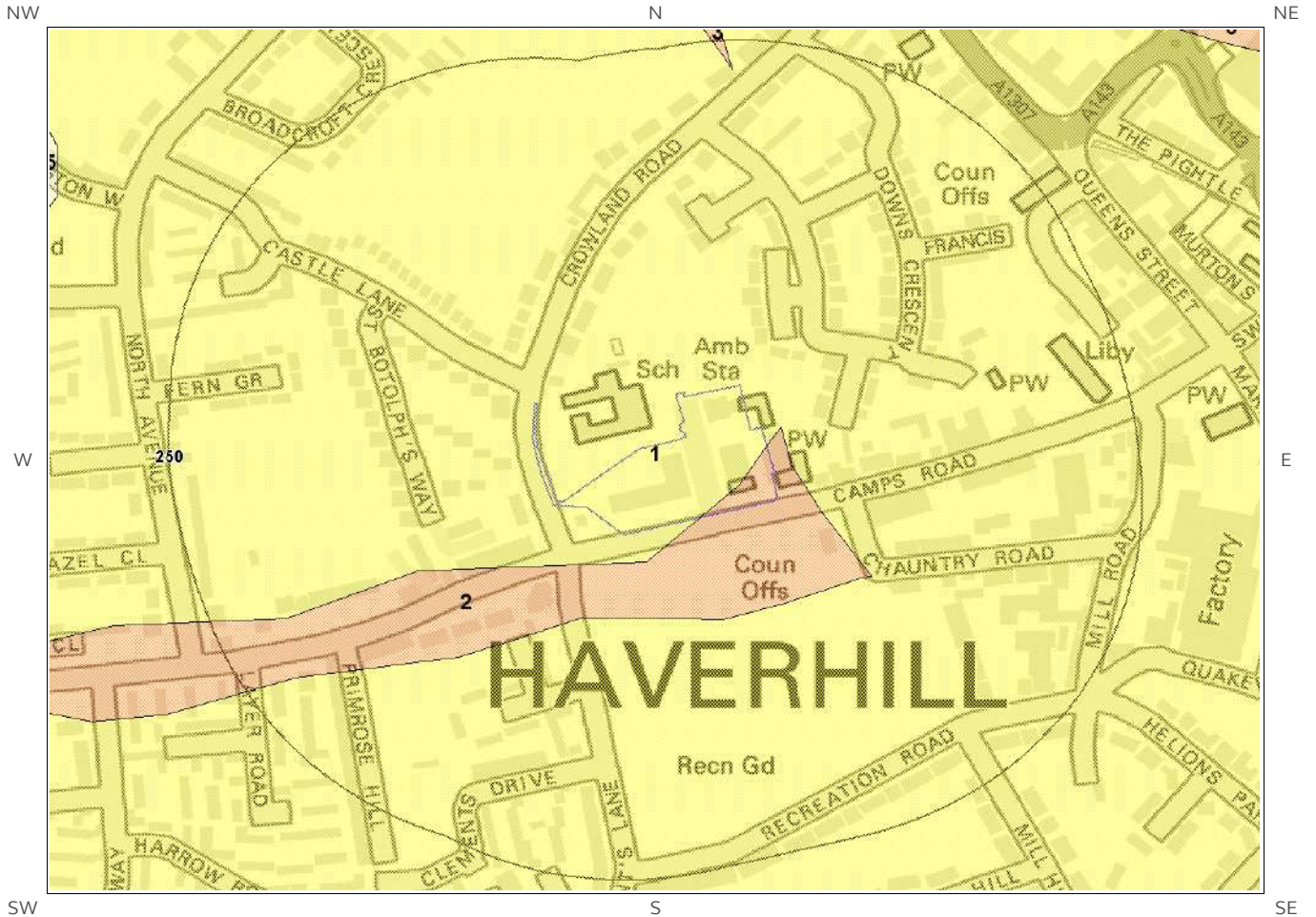


Landslides Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 4.3 Ground Dissolution Soluble Rocks Map

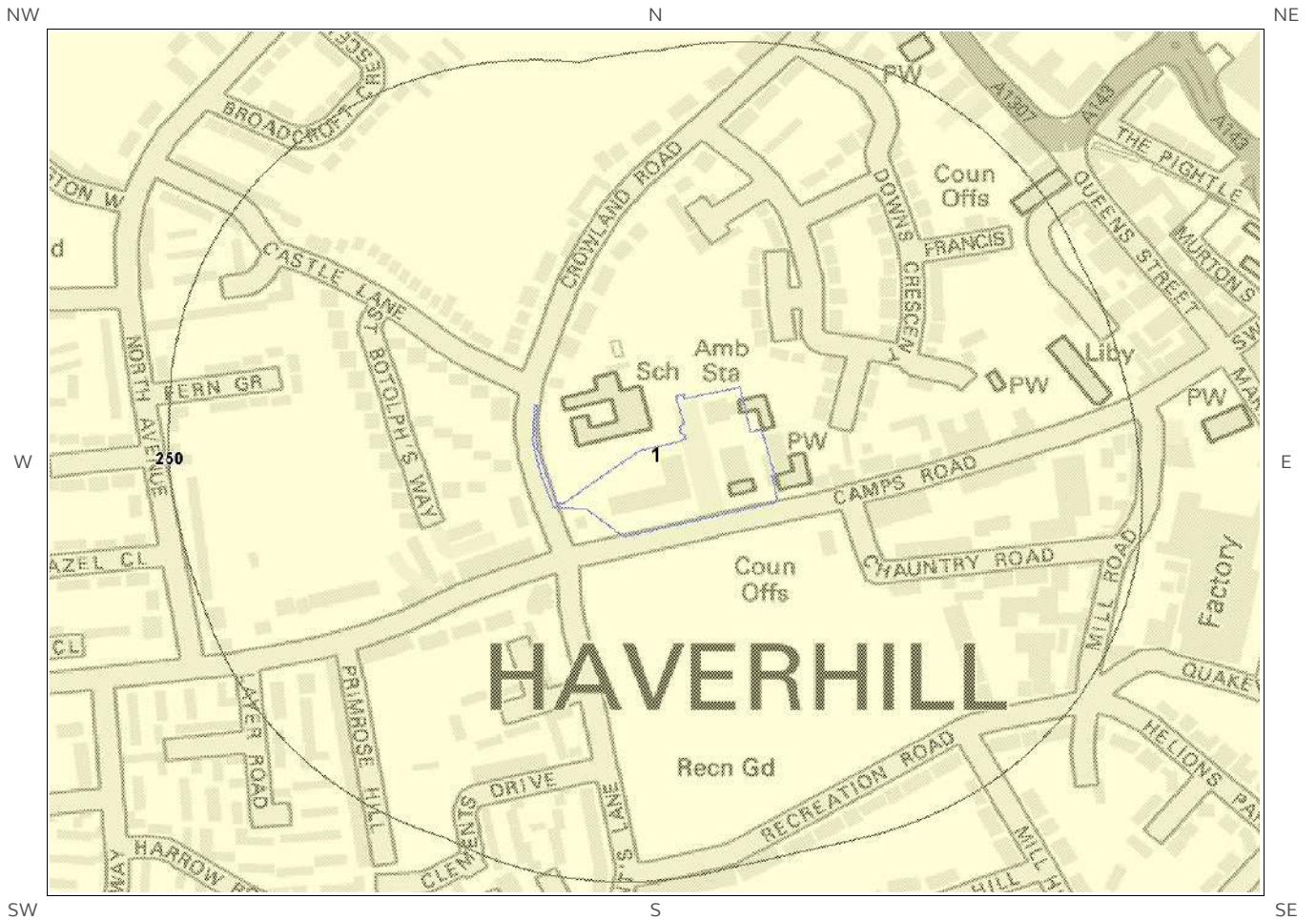


Ground Dissolution Soluble Rocks Legend

© Crown copyright and database rights 2015. Ordnance Survey license 100035207.



# 4.4 Compressible Deposits Map

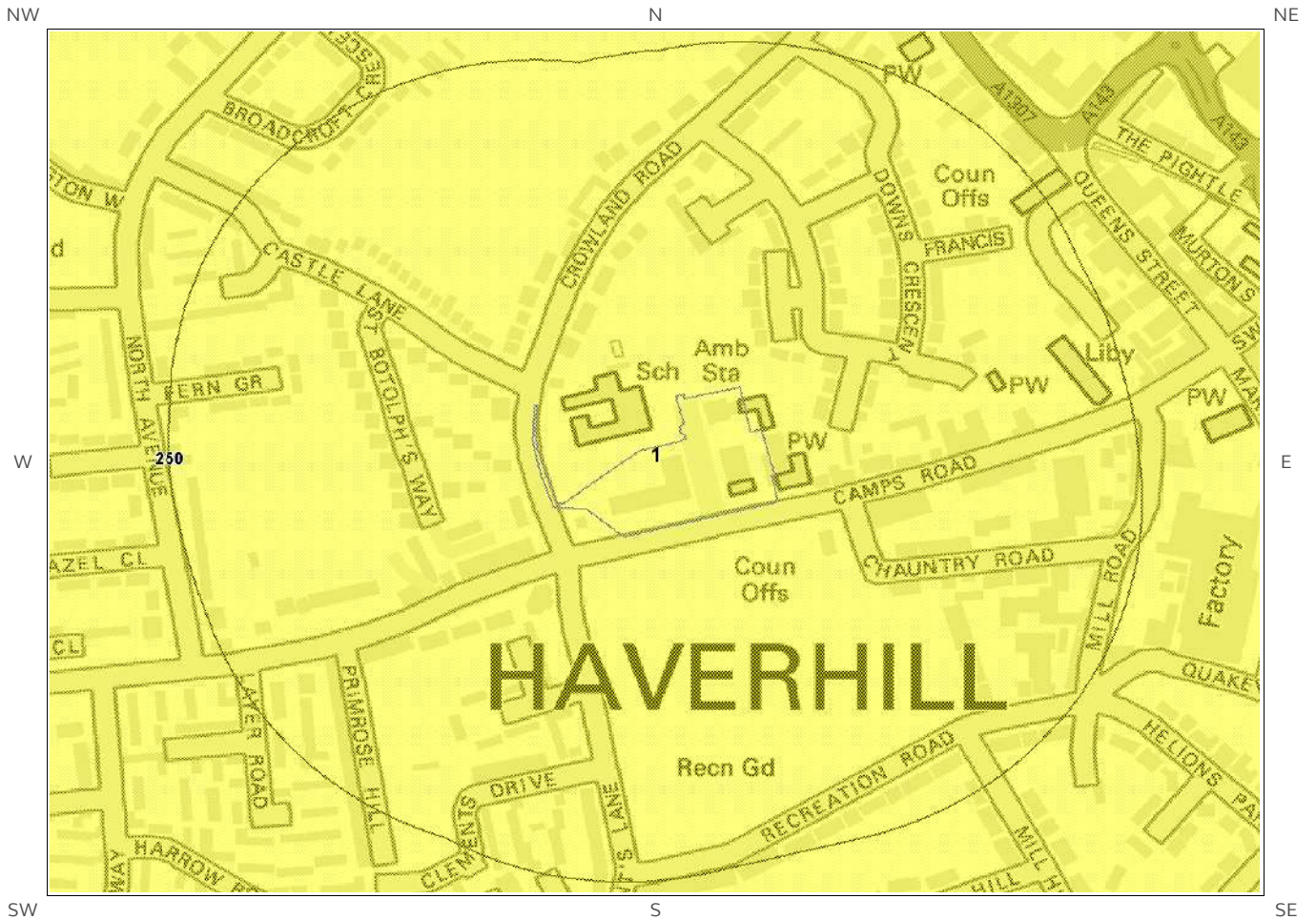


Compressible Deposits Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 4.5 Collapsible Deposits Map

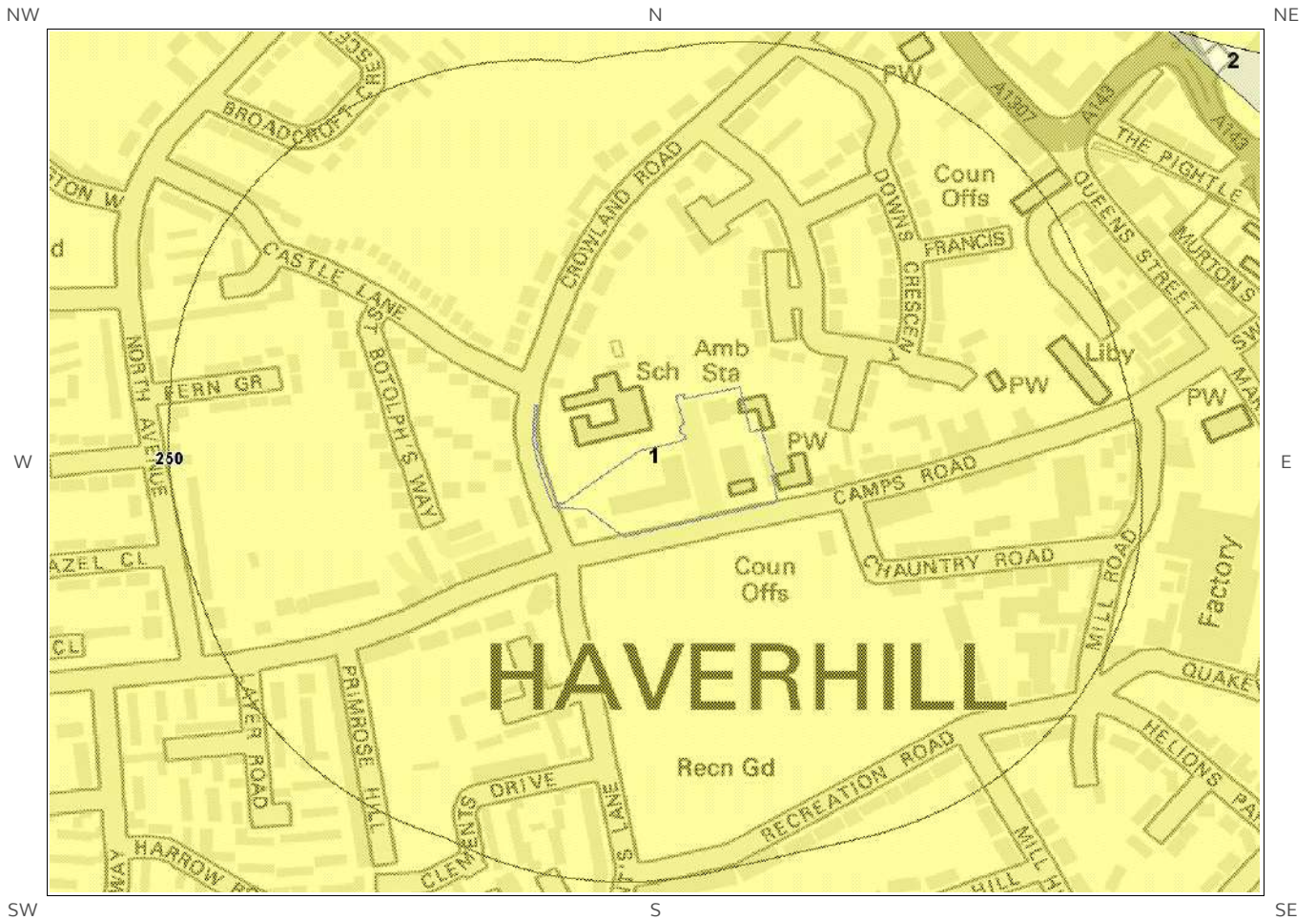


Collapsible Deposits Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.

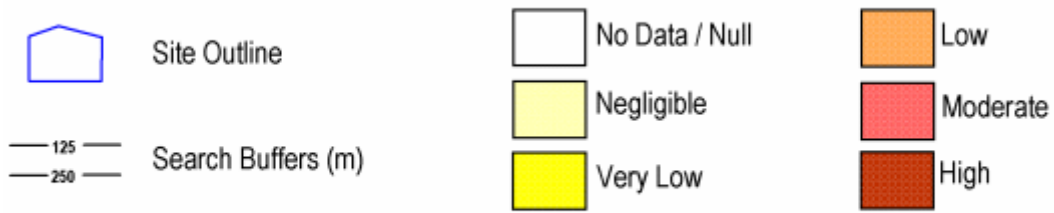


# 4.6 Running Sand Map



Running Sand Legend

© Crown copyright and database rights 2015.  
Ordnance Survey license 100035207.



# 4 Natural Ground Subsidence

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

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

What is the maximum hazard rating of natural subsidence within the study site\*\* boundary? Low

## 4.1 Shrink-Swell Clays

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Low	Ground conditions predominantly medium plasticity. Do not plant trees with high soil moisture demands near to buildings. For new build, consideration should be given to advice published by the National House Building Council (NHBC) and the Building Research Establishment (BRE). There is a possible increase in construction cost to reduce potential shrink swell problems. For existing property, there is a possible increase in insurance risk, especially during droughts or where vegetation with high moisture demands is present.
2	13.0	E	Negligible	Ground conditions predominantly non-plastic. No special actions required to avoid problems due to shrink-swell clays. No special ground investigation required, and increased construction costs or increased financial risks are unlikely due to potential problems with shrink-swell clays.

## 4.2 Landslides

The following Landslides information provided by the British Geological Survey:

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

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

### 4.3 Ground Dissolution of Soluble Rocks

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Significant soluble rocks are present. Problems unlikely except with considerable surface or subsurface water flow. No special actions required to avoid problems due to soluble rocks. No special ground investigation required, or increased construction costs are likely. An increase in financial risk due to potential problems with soluble rocks is unlikely.
2	0.0	On Site	Low	Significant soluble rocks are present. Low possibility of subsidence occurring naturally, but may be possible in adverse conditions such as high surface or subsurface water flow. Consider implications for stability when changes to drainage or new construction are planned. For new build, site investigation should consider potential for dissolution problems on the site and its surroundings. Care should be taken with local drainage into the bedrock. Some possibility groundwater pollution. For existing property, possible increase in insurance risk due to soluble rocks.

### 4.4 Compressible Deposits

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

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

### 4.5 Collapsible Deposits

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

ID	Distance (m)	Direction	Hazard Rating	Details
1	0.0	On Site	Very Low	Deposits with potential to collapse when loaded and saturated are unlikely to be present. No special ground investigation required or increased construction costs or increased financial risk due to potential problems with collapsible deposits.

### 4.6 Running Sands

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

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

# 6 Estimated Background Soil Chemistry

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

8

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

Distance (m)	Direction	Sample Type	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Nickel (Ni)	Lead (Pb)
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
0.0	On Site	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
13.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<100 mg/kg
13.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	40 - 60 mg/kg	15 - 30 mg/kg	<100 mg/kg
153.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
156.0	E	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	15 - 30 mg/kg	<100 mg/kg
179.0	W	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg
179.0	W	RuralSoil	15 - 25 mg/kg	<1.8 mg/kg	60 - 90 mg/kg	30 - 45 mg/kg	<100 mg/kg

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





Contains British Geological Survey Materials, © NERC 2015

Camps Road, Haverhill  
 CCL02775.BZ62  
 November 2015

BGS ID: 18775486 : BGS Reference: TL64NE43  
British National Grid (27700) : 566690,245530

<b>Project</b> PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey				<b>Client</b> [REDACTED] British Geological Survey				<b>Boring Methods</b> LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 6.00 m UNCASED 6.00 TO 10.00 m British Geological Survey				<b>Hole No.</b> BH1 <b>Sheet</b> 1 of 1 <b>Job No</b> 12082GI																					
<b>Ground Level</b>				<b>Coordinates</b> m.E. m.N.																													
WATER				STRATA				SAMPLING/IN SITU TEST				LAB TESTING				OTHER TESTS AND NOTES																	
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level	Depth m	Type & No.	Blows/Strength	% < 25	W %	W <sub>p</sub> %	W <sub>L</sub> %	D <sub>50</sub> Mg/m <sup>3</sup>	C <sub>u</sub> kN/m <sup>2</sup>																		
14/12/09	6.00	DRY C	British Geological Survey	Made Ground (flexible surfacing over gravel) (Driller's description)			0.10									Hand excavated from ground level to 1.20m (120mins)																	
				STIFF very high strength light grey brown silty CLAY with some subrounded-rounded gravel size chalk and frequent partings of brown silt (Glacial Till)			0.60	D1	(100)	85	18	17	33	2.11	213	pH and water soluble sulphate																	
				British Geological Survey			1.20-1.70	U1	(80)							British Geological Survey																	
							1.70	D2																									
							1.90	D3																									
							2.20-2.70	U2																									
							2.70	D4																									
							2.90	D5																									
							3.20-3.70	U3	(80)	83	19	19	35	2.07	191	pH and water soluble sulphate																	
							3.70	D6																									
							3.90	D7																									
							4.20-4.70	U4	(70)																								
							4.70	D8																									
							5.00-5.50	U5	(75)																								
							4.90	D9																									
							5.50	D10																									
							5.80	D11																									
							6.50-6.95	S1	N=8																								
							6.95	D12																									
							8.00-8.50	U6	(60)																								
							8.50	D13																									
							9.00	D14																									
							9.50-9.95	S2	N=5																								
							10.00	D15																									
<b>Water Level observations during boring, depths below GL.</b> <table border="1"> <thead> <tr> <th>Strike</th> <th>Depth Obs.</th> <th>5 min</th> <th>10 min</th> <th>15 min</th> <th>20 min</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>				Strike	Depth Obs.	5 min	10 min	15 min	20 min							<b>WATER</b> 1 First Strike 2 Subsequent Strike N - Overnight Depth C - Completion Depth S - Seepage not rising				<b>SAMPLE KEY</b> D Small disturbed sample B Bulk disturbed sample W Water sample U Undisturbed sample P Piston sample				<b>TEST KEY</b> S Standard penetration test C Cone penetration test K Permeability test V In situ vane test				<b>BLOWS / STRENGTH</b> N = N value 26/150 blows, for 150mm, drive after seating 26* - blows for part or whole of seating drive only (26) U sample blow count V = Vane Strength - kN/m <sup>2</sup>				<b>Fieldwork</b> By Me Dates 14/12/09 Log BPW	
Strike	Depth Obs.	5 min	10 min	15 min	20 min																												

RSA GEOTECHNICS LTD (01449) 723723



**British Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

BGS ID: 18775498 : BGS Reference: TL64NE44  
 British National Grid (27700) : 566700,245540

Project		Client		Trial Pit Excavation Methods		Hole No.	
PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey		[REDACTED] British Geological Survey		HAND EXCAVATED		HP2	
Ground Level		Coordinates		m.N.		Sheet	
WATER		m.E.		Length - 0.50 m Width - 0.40 m		1 of 2	
Date/Time at Depth		Description		SAMPLING/IN SITU TEST		LAB TESTING	
14/12/09		Made Ground (Grass over dark brown slightly silty fine-medium sand with occasional fine-medium flint and chalk gravel, rare fine-coarse gravel size concrete and glass fragments and roots and rootlets up to 45mm in diameter) Possibly Made Ground (Stiff grey slightly silty CLAY with much subangular-subrounded fine-coarse chalk gravel, occasional subangular-subrounded fine-coarse flint gravel and roots and rootlets up to 5mm in diameter) - less roots and rootlets with depth - no roots below 0.120m Survey		Depth m Type & No. Test Result		% <425 Wp % Wl %	
DRY C		Legend		81 22 20 37		OTHER TESTS AND NOTES	
		Level		British Geological Survey		CLEA screen with speciated polyaromatic hydrocarbons British Geological Survey CLEA screen with speciated polyaromatic hydrocarbons British Geological Survey No groundwater recorded Hand pit complete at 1.20m  Pit Stability, Shoring, etc. No collapse of sides of trial pit British Geological Survey	
		Depth m		British Geological Survey			
		British Geological Survey		British Geological Survey		British Geological Survey	
Water Level observations during digging, depths below GL.		WATER		SAMPLE AND TEST KEY		TEST RESULT	
Strike	Depth Obs.	Depth after		D Small disturbed sample	PP Perth Penetrometer Test	Np = Np Value	
		5min	10 min	B Bulk disturbed sample	HV Hand shear vane test	V = Average Hand Shear Vane Strength - kN/m <sup>2</sup>	
		15 min	20 min	W Water sample	SRD Sand replacement density test	BD = In-Situ Bulk Density - Mg/m <sup>3</sup>	
				C Completion Depth	CBR In situ CBR test	CBR = California Bearing Ratio - %	
				U Undisturbed sample	PB Plate Bearing Test		
				S Seepage not rising			
Fieldwork By		HP2		Sheet 1 of 2		Log	
Dates		14/12/09					

RSA GEOTECHNICS LTD

(01449) 723723

BGS ID: 18775512 : BGS Reference: TL64NE45  
British National Grid (27700) : 566700,245540

Project		Client		Boring Methods		Hole No.		
PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey		[REDACTED] British Geological Survey		PERCUSSIVE WINDOW SAMPLER British Geological Survey		WS3		
Ground Level		Coordinates		SAMPLING/IN SITU TEST		LAB TESTING		
m.E. m.N.		m.E. m.N.						
WATER		STRATA		SAMPLING/IN SITU TEST		LAB TESTING		OTHER TESTS AND NOTES
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Depth m	Type & No.	Blows/Strength	% <425	
				0.15	D1			CLEA screen with spectiated polyaromatic hydrocarbons
				0.60	D2			CLEA screen with spectiated polyaromatic hydrocarbons
				1.00	D3	(140+)		CLEA screen with spectiated polyaromatic hydrocarbons
				1.50	D4			
				2.00	D5	(140+)		
				2.50	D6			
				3.00	D7	(140+)		
				3.50	D8			
				4.00	D9	(140+)		
				4.70	D10			
				5.00	D10	(140+)		No groundwater recorded
14/12/09		DRY C						Window sample complete at 5.00m

Water Level observations during boring, depths below GL					WATER		SAMPLE KEY		TEST KEY		BLOWS / STRENGTH		Fieldwork	
Strike	Depth Obs.	Depth after				✓ 1 First Strike	D Small disturbed sample	S Standard penetration test	N = N value	26/150 blows, for 150mm, drive after seating		By	AD	
		5min	10 min	15 min	20 min	✗ 2 Subsequent Strike <th>W Water sample</th> <th>C Cone penetration test</th> <th>26° blows for part or whole of seating drive only</th> <td></td> <td>Dates</td> <td colspan="2">14/12/09</td>	W Water sample	C Cone penetration test	26° blows for part or whole of seating drive only		Dates	14/12/09		
						N Overnight Depth	U Undisturbed sample	K Permeability test		(26) U sample blow count <td>Log</td> <td colspan="2">AD</td>	Log	AD		
						S Seepage not rising	P Piston sample	V In situ vane test		V = Vane Strength - kNm <sup>2</sup>	Sheet 1 of 1			

RSA GEOTECHNICS LTD (01449) 723723

BGS ID: 18775513 : BGS Reference: TL64NE46  
British National Grid (27700) : 566740,245550

Project		Client		Boring Methods		Hole No.								
PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey		[REDACTED] British Geological Survey		PERCUSSIVE WINDOW SAMPLER British Geological Survey		WS4								
Ground Level		Coordinates		m.E.		m.N.								
Date/Time at Depth		Inst.		STRATA		SAMPLING/IN SITU TEST		LAB TESTING		OTHER TESTS AND NOTES				
Depth of Casing m	Depth to Water m	Description		Depth m	Depth m	Type & No.	Blows/Strength	% < 425	W %		Wp %	W <sub>L</sub> %	ρ <sub>s</sub> Mg/m <sup>3</sup>	C <sub>u</sub> kN/m <sup>2</sup>
			Made Ground (Grass over soft dark brown silty clay with occasional fine-medium chalk gravel and rare fine-medium gravel size flint and brick fragments and roots)		0.15	D1								CLEA screen with speciated polyaromatic hydrocarbons
			Made Ground (Firm dark brown silty clay with occasional fine-medium gravel size flint, chalk, brick and ash fragments and rare roots)		0.40	D2								CLEA screen with speciated polyaromatic hydrocarbons
			STIFF Tight brown silty CLAY with some angular-subangular fine-medium chalk gravel and rare angular-subangular fine-medium flint gravel (Glacial Till)		0.90	HV1	(140+)							British Geological Survey
			containing rare fine-medium gravel size dark orange brown siltstone fragments from 1.20m		1.00	D3		88	18	19	35			
					1.50	D4								
					2.00	D5								
					2.00	HV2	(140+)		18					
					2.50	D6								
					3.00	D7								
			becoming softer and containing less chalk gravel from 3.20m		3.00	HV3	(140+)		92	18	16	28		
					3.50	D8								
					4.00	D9								
					4.00	HV4	(116)			19				
					4.70	D10								
					5.00	HV5	(100)							No groundwater recorded
14/12/09		DRY												Window sample complete at 5.00m

Water Level observations during boring, depths below GL					<b>WATER</b>		<b>SAMPLE KEY</b>		<b>TEST KEY</b>		<b>BLOWS / STRENGTH</b>		<b>Fieldwork</b>	
Strike	Depth Obs.	Depth after				✓ 1 First Strike	D Small disturbed sample	S Standard penetration test	N = N value		By AD		Sheet 1 of 1	
		5min	10 min	15 min	20 min	✗ 2 Subsequent Strike	B Bulk disturbed sample	C Cone penetration test	26/150 blows, for 150mm, drive after seating		Dates 14/12/09			
						N - Overnight Depth	W Water sample	K Permeability test	26*, blows for part or whole of seating drive only		Log AD			
						C - Completion Depth	U Undisturbed sample	V In situ vane test	(26) U sample blow count					
						S - Seepage not rising	P Piston sample	V = Vane Strength - kN/m <sup>2</sup>						

RSA GEOTECHNICS LTD

1034491 723723

BGS ID: 18775514 : BGS Reference: TL64NE47  
British National Grid (27700) : 566740,245540

Project		Client		Boring Methods		Hole No.											
PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey		[REDACTED]		PERCUSSIVE WINDOW SAMPLER British Geological Survey		<b>WS5</b>											
Ground Level		Coordinates		m.E.		m.N.											
WATER		STRATA		SAMPLING/IN SITU TEST		LAB TESTING											
Date/Time at Depth	Depth of Casing in	Depth to Water in	Inst.	Description	Legend	Level	Depth in	Depth in	Type & No.	Blows/ Strength	% W < 425	Wp %	W <sub>L</sub> %	D <sub>50</sub> Mg/m <sup>3</sup>	C <sub>u</sub> kN/m <sup>2</sup>	OTHER TESTS AND NOTES	
14/12/09	DRY C			Made Ground (Concrete over layer of sand)	[Pattern]		0.20	0.30	D1							CLEA screen with speciated polyaromatic hydrocarbons	
				Made Ground (Soft light brown silty clay with occasional fine-coarse chalk gravel and pockets of orange brown sand)	[Pattern]		0.50	0.60	D2							Total petroleum hydrocarbons - aliphatic/aromatic split	
				Made Ground (light brown fine-coarse sand with much fine-medium flint gravel)	[Pattern]		0.70	1.00	D3								CLEA screen with speciated polyaromatic hydrocarbons
				Stiff light brown silty CLAY with some angular-rounded fine-medium chalk gravel and rare dark orange brown fine gravel size siltstone fragments (Glacial till)	[Pattern]		1.00	1.00	HV1	(140+)							British Geological Survey
					[Pattern]		1.50	2.00	D4								Total petroleum hydrocarbons - aliphatic/aromatic split
					[Pattern]		2.00	2.00	D5						No groundwater recorded		
					[Pattern]		2.00	2.00	HV2	(140+)					Window sample complete at 2.00m too dense to continue		
					[Pattern]										No collapse of sides of window sample recorded following completion of drilling		

Water Level observations during boring, depths below GL:		<b>WATER</b>		<b>SAMPLE KEY</b>		<b>TEST KEY</b>		<b>BLOWS / STRENGTH</b>		<b>Fieldwork</b>	
Strike	Depth	Depth after	▼ 1 First Strike	D Small disturbed sample	S Standard penetration test	N = N value	By	AD	AD	AD	AD
	Obs.	5min	▼ 2 Subsequent Strike	B Bulk disturbed sample	S Cone penetration test	26/150 blows, for 150mm, drive after seating	Dates	14/12/09	AD	AD	AD
		10 min	N - Overnight Depth	W Water sample	K Permeability test	26* - blows for part or whole of seating drive only	Log	AD	AD	AD	AD
		15 min	C - Completion Depth	U Undisturbed sample	V In situ vane test	(26) U sample blow count					
		20 min	S Seepage not rising	P Piston sample		V = Vane Strength - kN/m <sup>2</sup>					

RSA GEOTECHNICALS LTD (01449) 723723



BGS ID: 18775515 : BGS Reference: TL64NE48  
British National Grid (27700) : 566750,245540

Project		Client		Boring Methods		Hole No.									
PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey		[REDACTED] British Geological Survey		PERCUSSIVE WINDOW SAMPLER		WS6									
Ground Level		Coordinates		m.E.		m.N.									
WATER		STRATA		SAMPLING/IN SITU TEST		LAB TESTING									
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Level	Depth m	Type & No.	Blows/Strength	% <425	W %	W <sub>p</sub> %	W <sub>L</sub> %	ρ <sub>s</sub> Mg/m <sup>3</sup>	C <sub>u</sub> kN/m <sup>2</sup>	OTHER TESTS AND NOTES	
				Made Ground (Flexible surfacing)	0.14	D1								CLEA screen with speciated polyaromatic hydrocarbons	
				Made Ground (Soft light brown silty clay with occasional fine-coarse gravel size brick fragments, fine-medium gravel size chalk fragments and rare fine gravel size ash fragments)	0.36										
				STIFF light brown silty CLAY with some angular-subrounded fine-coarse chalk gravel and rare dark orange brown fine-medium gravel size siltstone fragments (Glacial Till)	0.80	D2								CLEA screen with speciated polyaromatic hydrocarbons	
					0.80	HV1	(140+)								
					1.10	HV2	(140+)								
					1.40	D3								British Geological Survey	
					1.90	D4								Total petroleum hydrocarbons - aliphatic/aromatic split	
					2.00	HV3	(140+)								
					2.40	D5								Total petroleum hydrocarbons - aliphatic/aromatic split	
				- containing rare fine-medium gravel size pockets of grey fine-medium sand from 2.50m	2.90	D6								No groundwater recorded	
14/12/09			DRY C		3.00	D6	HV4	(140+)						Window sample complete at 3.00m	
					3.00									No collapse of sides of window sample recorded following completion of drilling	

Water Level observations during boring, depths below GL					<b>WATER</b>		<b>SAMPLE KEY</b>		<b>TEST KEY</b>		<b>BLOWS / STRENGTH</b>		<b>Fieldwork</b>	
Strike	Depth	Depth after			1 First Strike	D Small disturbed sample	S Standard penetration test	N = N value	By		AD		AD	
	Obs.	5 min	10 min	15 min	2 Subsequent Strike	B Bulk disturbed sample	C Cone penetration test	26/150 blows, for 150mm, drive after seating	Dates		14/12/09		14/12/09	
					N - Overright Depth	W Water sample	K Permeability test	26* blows for part or whole of seating drive only	Log		AD		AD	
					C - Completion Depth	U Undisturbed sample	V In situ vane test	(26) U sample blow count						
					S - Seepage not rising	P Piston sample		V = Vane Strength - kN/m <sup>2</sup>						

RSA GEOTECHNICALS LTD (01449) 723723



BGS ID: 18775516 : BGS Reference: TL64NE49  
British National Grid (27700) : 566750,245560

Project				Client		Boring Methods				Hole No.								
PLACE FARM COMMUNITY PRIMARY SCHOOL CAMPS ROAD, HAVERHILL, SUFFOLK British Geological Survey				[REDACTED]		LIGHT CABLE PERCUSSION 150 mm DIAMETER CASED 150 mm DIAMETER G.L. TO 15.00 m				BH7								
Ground Level				Coordinates						Sheet 1 of 2								
				m.E.		m.N.				Job No 12082GI								
WATER				STRATA				SAMPLING/IN SITU TEST				LAB TESTING				OTHER TESTS AND NOTES		
Date/Time at Depth	Depth of Casing m	Depth to Water m	Inst.	Description	Legend	Level	Depth m	Depth m	Type & No.	Blows/Strength	% Wp	Wp %	Wl %	Wl %	$\rho$ Mg/m <sup>3</sup>	Cu kN/m <sup>2</sup>		
				Made Ground (Flexible surfacing)			0.10	0.40	U1	(80)	81	19	18	34	2.08	171	Hand excavated from ground level to 1.20m (120mins)	
				Stiff very high strength grey brown silty CLAY with rounded-subrounded fine-medium gravel size chalk fragments and a little rounded fine-medium flint gravel (glacial till)				1.20-1.70	U1	(80)	19	19	33				Undrained triaxial compression attempted on (2) sample failed during extrusion	
				British Geological Survey				1.70	U2	(100)	74	19	19	33			pH and water soluble sulphate	
				- some partings of orange silt with depth				2.20-2.70	U2	(100)	74	19	19	33				
				British Geological Survey				2.70	U4	(80)	19							
								2.90	U5	(80)	19							
								3.20-3.70	U3	(80)								
								3.70	U6									
								3.90	U7									
				- high strength at 5.10m approximately				4.20-4.65	S1	N=26								
				British Geological Survey				4.65	U8		19							
								4.90	U9									
								5.10-5.60	U4	(80)	90	21	20	39	2.08	128		
				British Geological Survey				5.60	D10									
								5.90	D11									
								6.50-6.95	S2	N=4								
								6.95	D12									
								7.50	D13								pH and water soluble sulphate	
								8.10-8.55	S3	N=6								
								8.55	D14									
				CHALK recovered as light brown and white, structureless, slightly gravelly sandy SILT. Gravel is subangular fine-medium very weak and SILT and brown sandy CLAY [Grade Dm]				8.70	U5	(50)							British Geological Survey	
				British Geological Survey				9.60-10.00	U5	(50)								
								10.00										

RSA GEO TECHNIQUES LTD (01449) 723723